Decision-Making by Women in Mortgage Repayment: Bargaining versus Tokenism

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Abstract

We study intra-household financial decision-making using a mortgage scheme specifically designed for women by India's largest lender, the State Bank of India. The scheme offered a 5 bps discount for loans to women and increased the share of female borrowers by 25% within one year. We test whether this rise reflects bargaining or tokenism. Female loans under the scheme show lower default risk and more optimal repayment behavior during the COVID moratorium, consistent with enhanced financial bargaining power. Our findings suggest that small financial incentives can strengthen women's bargaining power and improve household financial decisions.

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1. Introduction

The positive effects of women's empowerment on their own well-being and on family welfare has been well documented (Duflo (2012)). Property rights in the form of home or land ownership are an important dimension of such empowerment. However, in most parts of the world, women's rates of homeownership still lag behind men—often due to disadvantages they face in mortgage and credit markets (Alesina et al. (2013), Bartscher (2023), Brock and De Haas (2023)). Other economic disadvantages such as job market discrimination are likely to accentuate the credit market effects (Egan et al. (2022)). The gender gap in homeownership is higher in emerging markets such as India. A World Bank survey in India found only 10.6% of women owned a house individually and 15.3% of women co-owned a house.[1]. Further, Badarinza et al. (2019) find housing constitutes nearly 70% of a typical Indian household's total assets. They also document that housing forms the single largest asset for developed markets and several large emerging markets. Thus, because housing is a major component of household wealth, increasing women's homeownership can significantly enhance their empowerment in household financial decision-making.

Recognizing this potential, policymakers around the world have introduced various schemes to increase women's home and land ownership as a strategic avenue for empowerment. Australia, Germany, and France have enacted gender-equal property frameworks that reinforce women's autonomy through fair inheritance laws and gender-equal marital regimes; Rwanda mandated the co-registration of land titles in marriages. In the US, programs such as the Neighborhood Assistance Corporation of America (NACA) and HUD's Section 8 Homeownership Program provide subsidized mortgage access for low-income women.

Do such initiatives to increase female homeownership have the desired effect of increasing female bargaining power in intra-household financial decisions? Kanter (1977) suggests initiatives to increase female representation may result in tokenism and not real empowerment.

[1] Source:World Bank Group: Data Bank: Gender Statistics. These statistics apply to women ages 15–49 and are derived from the Demographic and Health Survey in 2016, which is the closest to the time period of our data sample.

In the context of land titles, Cherchi et al. (2022) suggest an increase in property rights of women depends on whether the information is presented jointly to couples.[2] Thus, understanding if a given initiative to increase female homeownership actually increases female bargaining power or merely results in tokenistic increases in female ownership is crucial. If increased homeownership results in increased intra-household bargaining power, it could also lead to more welfare and empowerment of women, resulting in a long-term social multiplier effect.

In this paper, we provide novel evidence on this issue, using a women-centric housing loan scheme in India as a setting to test for bargaining versus tokenism effects. In December 2013, India's largest lender, the State Bank of India (SBI), announced a housing loan scheme, "Her Ghar" (i.e., "Her Home"). This scheme provided a 5 bps discount in the interest rate for home loans for which a woman was the first applicant for the loan, as well as the first owner of the property.[3] The economic value of the discount is small; for the median loan size in our sample, which is Rs. 11.5 lakhs (i.e., 18,729 USD), this discount would result in savings of Rs. 35 (i.e., 0.57 USD) per month. Notwithstanding the small economic value of the scheme (i.e., a nudge), it increased the share of female home loans at SBI from 19% to 24% within one year of its introduction.

To test whether the increase in lending due to the Her Ghar scheme was driven primarily by tokenism or by bargaining, we utilize two unique datasets covering the universe of all residential mortgages from SBI. Our first dataset consists of all home loans made by SBI in the years 2013 and 2014. The second dataset we use contains the performance of these home loans from 2015 to 2023. Critically, the second dataset contains all repayments and all defaults by these borrowers, which allows us to examine financial decision-making in detail.

Our first test uses default rates to examine the evidence for female involvement in household financial decision-making. Past literature has shown loans involving women in financial decision-making will have a lower default rate, even after controlling for other observable

[2] Rixom et al. (2023) and Gormley et al. (2023) examine tokenism in female representation of boards.
[3] We refer to all loans where a woman is the first applicant as female loans.

measures of credit risk.[4] Our sample reveals similar patterns: in 2013—prior to the introduction of the scheme—female loans were 32.1% less likely to default than male loans. If the increase in female loans was primarily driven by tokenism, female loans made under the Her Ghar scheme should have a default risk similar to male loans. Thus, the male–female gap in default risk should decrease for loans made in 2014 relative to loans made in 2013. On the other hand, if female loans under the Her Ghar scheme continue to be loans for which females had bargaining power, the male–female gap in default risk for loans in 2013 and 2014 should be similar. We find no evidence for the male–female gap in default risk changing in 2014 relative to 2013.

Even several years after the loan origination, in a time period that includes the COVID crisis (2018–2023), the male–female gap in default risk persists. In fact, the odds of default are 36.3% less for female than for male borrowers which is larger in magnitude than the prior time period. To the best of our knowledge, we are the first to document that intra-household decision-making by women can have strong positive effects during an unanticipated economic crisis. Thus, the results of the default analysis are consistent with increased bargaining power for female borrowers being the dominant effect of the Her Ghar scheme.

The previous tests are indirect in that financial decision-making is inferred from defaults. As an alternative and more direct test of household financial management, we examine the repayment behavior of loans during the COVID-19 pandemic. This setting is interesting because a moratorium announced by the Reserve Bank of India (RBI) in this period was structured such that only borrowers with genuine financial difficulties would use it, whereas borrowers with an ability to pay would not.[5] Fiorin et al. (2023) also analyze borrower responses to this policy in the context of consumer loans and show it did not increase moral hazard.[6] Our baseline results indicate that during the moratorium, female borrowers were

[4] See Goodman et al. (2016),Agarwal et al. (2018), Chen et al. (2020) & Delis et al. (2022).

[5] We explain the structure of the moratorium in detail in section 2.3. Briefly, the moratorium did not allow any waiver of principal or interest but did allow borrowers to suspend payment during the initial period of the pandemic.

[6] In the context of policy interventions aimed at helping households cope with liquidity constraints during the COVID-19 pandemic, Collinson et al. (2024) study the impact of rental assistance programs. In a broader

approximately 6%–8% less likely to stop repayments than male borrowers. This finding is consistent with better financial decision-making by female borrowers, which further supports the results on default rates. One concern is that the lower reduction in repayments may mechanically arise from female borrowers' lower credit risk, which we documented earlier. However, this assumption does not apply, because the estimation reflects an increase in the repayment gap of male and female borrowers relative to the non-COVID period. Thus, differences in the credit quality of male and female borrowers cannot explain the repayment gap. A second concern may be that income uncertainty is lower for female than for male borrowers. To understand whether income uncertainty is a significant determinant in the above result, we focus on the gender gap in repayment for home loans taken by borrowers with government jobs. In India, government jobs are coveted for their job security. Even within this subsample, the gap in repayment behavior between female and male borrowers remains similar to that of the full sample. Thus, unobserved income uncertainty cannot drive the male–female gap in repayment during COVID.

Thus far, our results are consistent with female borrowers having better financial skills and with the Her Ghar scheme resulting in higher bargaining power for women. Given these results, understanding if variation in intra-household bargaining power of female borrowers is linked to the magnitude of male–female gaps that we documented earlier is of interest. To test this possibility, we stratify our sample based on whether the female applicant was a housewife. Because housewives have little independent income, they tend to have lower bargaining power within the household. If we use the subsample of female loans taken by housewives and compare them with male loans, the male–female gap in default and repayment during the moratorium are both insignificant, consistent with tokenism being the main driver of these loan applications. To construct additional (indirect) proxies for intra-household bargaining power, we match the location of the borrowers with Prowessdx survey data at the district and state levels.[7] Using these survey data, we construct two proxies for

examination of the implications for capital markets, Duchin and Harford (2021) provide a comprehensive literature review.

[7] Prowessdx is a specialized delivery of the Prowess database, developed by the Centre for Monitoring Indian

female bargaining power—the income and education of women relative to their spouses. Both proxies have been widely used and validated in papers studying intra-household bargaining (Anderson and Eswaran (2009), Goldin and Olivetti (2013), Almås et al. (2018)). Lower relative income and education have a negative effect on the average repayment gap, both at the district and state levels, which is consistent with females with lower bargaining power having a lower impact on household financial decision-making.

We conduct a variety of robustness tests on the above. For example, the scheme could have attracted high-quality female borrowers from other banks. We find this possibility is unlikely to be a driver of our results. Another possible explanation is that female borrowers did not suspend repayment during the moratorium, despite financial difficulties due to higher risk aversion. In this case, we would expect a higher default rate and a reversal of the higher repayment rates after the moratorium ended; we find no evidence for either in the data. Third, if this were driven by a male-selection mechanism, we would expect to see a change in the quality of male borrowers after the introduction of the Her Ghar scheme; however, we find no such evidence.

For the broader impact of female-targeted mortgage policies, we examine whether women's participation as mortgage borrowers leads to empowerment in other financial dimensions, such as savings behavior. We exploit branch-level data from RBI's BSR data and find women's term-deposit balances significantly increased in districts with greater exposure to the SBI mortgage concession scheme. This effect is absent in the pre-treatment period, male accounts, and non-SBI banks. These findings highlight how property ownership and access to mortgages can generate spillover effects on women's economic empowerment and financial resilience.

Our work makes several contributions to the literature. First, literature on intra-household bargaining has examined various outcomes such as mortality for women and children (Qian (2008)), education and family ties (Luke and Munshi (2011)), schooling and property rights

Economy (CMIE), tailored for academic research.

(Deininger et al. (2013)), long-term effects of childhood biases on adult decisions (Duchin et al. (2021)) and labor force participation (Goldin and Olivetti (2013),Hazan et al. (2019)). In the financial setting, research has focused on portfolio choice (Addoum (2017), Olafson and Thörnqvist (2018), Ke (2021), Gu et al. (2024)). We are the first to study the effect of intra-household bargaining effects on default and repayment patterns. Consistent with Guiso and Zaccaria (2023), we find significant benefits for the household from the increased female participation.

Prior work on improvement of female economic outcomes focuses on legislative changes.[8] By contrast, our work points to the importance of considering nudges as policy instruments. Support for the effectiveness of nudges has been found in various financial contexts—Karlan et al. (2016) for under-saving, Medina (2021) for credit card fees, and Carlin et al. (2023) for overdraft fees. We extend the above by showing nudges can also be effective for female intra-household financial bargaining power. In fact, this finding suggests such strategies may also be applicable to other groups such as racial minorities (Kermani and Wong (2021)) and immigrants (Cookson et al.) who also suffer from credit market discrimination.

Lastly, our results also have implications for financial regulation (Campbell et al. (2015)). Our finding that female housing loans have lower default rates implies benefits both for households—through reduced person bankruptcy costs—and for the banking sector through lower loan losses and increased available funds for lending. The Central Bank of Mexico, for instance, used the lower default rate on loans to females as a justification for requiring lower loss provisions for such loans (Becerra-Ornelas et al. (2023)). Our finding of a lower default rate for female borrowers in India suggests a similar policy would be appropriate for the Indian banking sector.

Our paper is organized as follows. Section 2 presents the institutional background of mortgage markets and women's rights in India, along with a discussion of the debt morato-

[8] Bartscher (2023) and Hazan et al. (2019) study these changes in the US. The effect of the Hindu Succession Act in India has also been extensively examined (see Deininger et al. (2013), Mookerjee (2019),Heath and Tan (2020),Roy (2015) & Bhalotra et al. (2020)).

rium during the COVID-19 pandemic. Section 3 develops the hypothesis in the context of related literature. In section 4, we discuss the data and sample used for our tests. Section 5 analyzes the response to Her Ghar scheme. In section 6, we test the tokenism versus bargaining power hypothesis by examining evidence from loan-default and repayment decisions during the moratorium period. In section 7, we show how being mortgage borrowers increases female saving deposit. Finally, section 8 concludes with a discussion of the policy implications of our findings.

2. Institutional Background

In this section, we discuss the background of economic rights of women in India, which provides the context for the introduction of the Her Ghar scheme. We then highlight important features of mortgage lending in India. Lastly, because an important part of our study involves comparing male and female loan payments during the COVID debt moratorium, we summarize important regulatory actions announced by the RBI at that time.

2.1. Women's Economic Rights in India and the Her Ghar Scheme

India ranked 108 out of 145 countries in the Global Gender Gap Report 2015.[9] Female labor force participation was also low and declined from 34.1% in 1999–2000 to 27.2% in 2011–2012, which is puzzling because India had strong economic growth, falling fertility, and increasing educational attainment for women after 1990. Typically, the above factors are associated with higher labor force participation.[10] Thus, Indian policymakers were concerned with the reduction in the effective economic status of women despite positive economic development for the country as a whole.

Against this backdrop, the Indian government passed the Companies Act in 2013, which was one of the first globally to mandate that a certain fraction of the board of directors in listed companies be women. In October 2013, Arundhati Bhattacharya was appointed as

[9] The situation has changed little in recent years—India has a rank of 129 out of 146 in the Global Gender Gap Report 2024.

[10] See Chowdhary and Verick (2014).

the first female chairman of the SBI. After she took office in December of the same year, SBI introduced a new mortgage scheme known as Her Ghar. This scheme offered female mortgage borrowers a concession of 5 bps on the interest rate of their loan. The eligibility criteria were as follows: (1) The applicant must be an Indian female resident aged 18–70; (2) she must be an independent mortgage applicant, or the first co-applicant (primary borrower) for loans with multiple applicants; and (3) the property must be solely in the name of the female applicant, or she must be the first owner for properties jointly owned. Under Indian regulation, the order of the applicants does not matter in terms of liability for the loan—both the primary applicant and all co-applicants are individually liable for all repayments required on the loan. At the same time, the primary borrower needs to sign various documents. The loan-repayment deduction is usually made through the primary borrower's banking account. SMS messages are sent to the phone number of the primary borrower. The Her Ghar scheme has not had any substantive changes to the present date.

SBI was the first bank to introduce loan discount policies specifically for women.[11] Notably, India's second-largest mortgage lender, HDFC, publicly announced it would not follow SBI's lead and would only consider credit risk in the pricing decisions for mortgage loan applications. However, by 2015, both HDFC and ICICI bank—India's largest private sector banks— announced they would match the 5 bps concession offered by SBI.[12]

2.2. Mortgage Loans in India

Commercial banks serve as the primary mortgage providers in the country. According to a 2013 RBI report, commercial banks held 61% of all outstanding residential mortgages. Furthermore, the 2015–16 annual report of the SBI highlighted SBI was the largest home loan provider, commanding a 25.5% market share. SBI is India's largest bank and financial service organization, with over 22,542 domestic branches. It currently serves over 500

[11] Bharatiya Mahila Bank (BMB) was an Indian financial services banking company predominantly for women, which commenced operations on November 2013. The establishment of this bank did not meet significant demand, and in 2017, it was merged into SBI.

[12] See Times of India, April 15, 2015 and India TV News April 23, 2015. Nonetheless, these schemes do not appear to have been continued as there is no information on such schemes in either of these bank web sites today.

million customers. Therefore, our data sourced from SBI offer substantial coverage and representativeness.

About 95% of home loans in India are based on a floating interest rate linked to a base rate. The payment schedule for most loans follows an equal annuity schedule typically known as Equated Monthly Installments (EMI). When the base interest rate changes, if the consumer does not ask the bank to adjust the EMI, the EMI will remain the same, but the loan tenure will be extended accordingly. Prepayment incurs no penalties. [13] In general, the rules for prepayment of home loans with SBI offer a high degree of flexibility, without imposing restrictions on the number of times or the maximum amount that can be prepaid.

2.3. Moratorium Policy in 2020

In early 2020, the global coronavirus pandemic had a significant impact on India's economy. The first national lockdown in India was announced on the evening of March 24, 2020, and was implemented for 21 days as a preventive measure against the COVID-19 pandemic. To mitigate the burden of debt servicing brought about by disruptions due to COVID-19, RBI announced new regulatory measures on March 27, 2020, with a retrospective effect (see "COVID-19 – Regulatory Package" RBI Circular, 27 March, 2020). All lending institutions were to allow deferment of all mortgage payments due from March 1 to May 31, 2020. Post-moratorium, the repayment schedule and remaining loan duration was extended by three months. Interest would accumulate on the term loans' outstanding balance during this period. This policy did not involve any waiver of interest or principal payments. During the moratorium period, no penalties could be imposed for non-payment of the EMI. Credit rating agencies and banks received explicit instructions not to alter the credit score of any consumers who availed themselves of the moratorium. All bank boards were required to approve the moratorium with immediate effect and to communicate the scheme to all their staff. Banks also received full capital relief on loans with a non-payment status in this period; that is, the loans were to be treated as standard loans for capital purposes.

[13] Prepayment penalties on home loans were abolished for housing loans based on floating interest rates since 2012. See Home Loans-Levy of fore-closure charges/pre-payment penalty, RBI Circular, June 5, 2012

Following changes in RBI's policy, SBI notified all consumers via text message that it would provide all non-defaulted consumer loan holders the option to postpone their repayments. For loans with automatic repayment setup, consumers wishing to defer payments needed to inform the bank; otherwise, EMI deductions would proceed as usual. Conversely, consumers who made their payments manually did not need to contact the bank if they chose to suspend repayments. During the moratorium period, the required repayment amount for the mortgage loans was set to zero. For a consumer who chose this option to reduce or make no payments, the EMI would increase at the end of the moratorium period, due to accrued interest. On May 23, 2020, the impact and persistence of COVID-19 led to an extension of the moratorium period for another three months (until August 31, 2020). The press reported this decision a few days earlier.[14] On August 7, 2020, RBI announced the moratorium would not be extended further.

3. Hypothesis Development

Jayachandran (2015) provides strong evidence of religious and cultural preferences for males in South and East Asian countries. She argues economic development and rights do not necessarily increase women's rights and highlights India and China as notable examples of large countries consistent with such preferences. She provides evidence that when the US was at a comparable stage of development as India and China are today, the bias against women was significantly lower. Thus, the Her Ghar scheme, notwithstanding the large increase in female loans, may have resulted in tokenism, leading to women becoming co-owners of property without any increase in property rights. A news article in a leading newspaper also hinted at this possibility. *The Hindu*.[15] On the other hand, several studies cited earlier in the introduction do find a positive impact of property rights on female bargaining power after the passage of the Hindu Succession Act.[16] This finding implies increases in homeownership due

[14] See RBI may extend moratorium on loans by 3 more months, Times of India, May 19, 2020.
[15] "Better for women to apply for loan instead of men," The Hindu, Oct 2, 2015. It reported that several men who heard about the scheme withdrew their loan applications to reapply in their wife's name.
[16] See Heath and Tan (2020), Deininger et al. (2013) and Mookerjee (2019).

to the Her Ghar scheme should enhance the bargaining power of women in intra-household financial decision-making.

Thus, the large increase in the volume of loans in 2014 may be driven by two factors: (1) households in which the Her Ghar scheme resulted in an increase in female involvement in household decision-making (bargaining applicants) and (2) households in which the man wields all the financial decision-making power (tokenist applicants) and views the scheme as an extra freebie without any loss of household bargaining power. By contrast, women who applied as the first applicant in 2013 are more likely to have been those who had bargaining power.[17]

If the Her Ghar scheme primarily attracted tokenist female applicants, a large fraction of the loans in the post-2014 period would be loans for which men are the true decision-makers. This finding implies Her Ghar loans should be more similar to male loans and different from pre-2014 female loans. On the other hand, if the scheme resulted in female applicants having greater bargaining power, Her Ghar loans should be significantly different from male loans in the post-2014 period and should not significantly differ from female loans in the pre-2014 period. Figure 1 provides a graphical illustration of the two scenarios.

We test the above two arguments (tokenism vs. bargaining) along two dimensions: default on loans and repayment behavior during COVID. We interpret differential default rates on loans as evidence of greater involvement of women in household decision-making. This is based on a large amount of literature in other credit markets showing women have lower default rates. For example, using data from over 70 countries, D'espallier et al. (2011) find lower defaults and losses to microfinance institutions that lend more to women. Delis et al. (2022) find female entrepreneurs in a set of European countries are less likely to default. Chen et al. (2020) find similar effects in peer-to-peer lending in China. Agarwal et al. (2018)

[17] For tax-reduction purposes, women may be listed as the primary owners of properties purchased using their husband's or father's money. Thus, tokenist female applicants may have existed prior to the Her Ghar scheme. Santosh Anagol (2023) provide evidence on misreporting prices in real estate transactions in India for tax avoidance.

document lower personal bankruptcy risk for women in Singapore.[18] In fact, the Government of Mexico, whose Central Bank lowered the loan loss provisions for personal loans to women by 4% due to the lower risk, documented the lower default rate of lending to women across a variety of countries (Becerra-Ornelas et al. (2023)).

Repayment behavior during COVID serves as a second test of financial decision-making. As explained in section 2.3, the normal penalties associated with default were removed during this period. A borrower could suspend payments completely without any impact on the credit score or bank late fees. However, a key component of this moratorium is it did not include forgiveness of interest or principal. Thus, a borrower would incur additional interest for the remaining life of the loan if he or she chose to utilize it.

For a borrower with genuine financial difficulties, this scheme offered liquidity in a time of crisis. However, for borrowers who were able to repay, any suspension or reduction in repayment would be suboptimal. An important additional advantage of using repayment during COVID is that default is driven by financial planning as well as unanticipated changes in household financial circumstances. By contrast, the repayment decision during the moratorium period is a short-term decision and likely made jointly by husbands and wives as both would have been at home due to movement restrictions. As such, this approach is a novel way to test for female participation in household financial decisions.

To the extent that increased bargaining occurs, existing literature has documented substantial heterogeneity in the bargaining power. For instance, Gu et al. (2024) employ a structural model of intra-household bargaining using data from Australia, the US, and Germany. Their analysis reveals approximately half of household investment decisions can be attributed to differences in education, income, and risk attitudes. However, because education and income are shaped by gendered norms, the study suggests the true influence of gender on bargaining power is likely larger. We also conduct cross-sectional tests using state-

[18] The reason for lower default rates of female borrowers has been the subject of much research. Higher risk aversion for women is a prominent explanation (Falk et al. (2018)). Ke (2021) finds strong evidence for this explanation using stock market participation. Trustworthiness, emotions, and biological differences have also been proposed as explanations (Croson and Gneezy (2009)).

and district-level gender-gap measures in education and income.

4. Data and Sample

Our main empirical analysis is performed with two datasets. First, we use loan-origination data, which provide detailed information on loan terms and borrower characteristics. Second, we use loan-performance data, which has information on repayments, prepayments, delinquency, and default; both of these datasets are sourced from the SBI. We outline the steps for cleaning the original data—removal of observations with missing variables and elimination of erroneous entries—in Appendix A.0.1.

After applying the above filters, there are 2,187,342 observations for all mortgage loans sanctioned between 2010 and 2019.[19] Our primary tests focus on loans originated within a year of the introduction of the Her Ghar program, that is, loans sanctioned in 2013 and 2014. Relative to the full sample until 2019, 14.2% were sanctioned between 2013 and 2014. The advantage of this approach is that any positive spillover effects of this scheme and its feedback effects are likely to be limited. To the extent that such effects exist, the measured effects are an underestimate of the true economic impact of the Her Ghar scheme. Additionally, other women's welfare schemes at later dates may confound the effects of a longer time period. We verify that all results are robust to the inclusion of the full sample of loans until 2019. These results are available on request.

In addition to the above two primary datasets, we conduct tests of bargaining and tokenism by using geographical variation of female empowerment measures. To conduct these tests, we incorporate district-level demographic data from the CMIE, a widely used survey dataset that provides a comprehensive range of demographic and economic indicators across India. This dataset includes information on population demographics, labor force participation, income levels, employment trends, household consumption, and various socioeconomic variables. Lastly, to examine spillover effects in terms of savings behavior, we use the Basic Statistical Returns database compiled by the RBI. This dataset has anonymized information

[19] Few loans were sanctioned in 2020, due to COVID-19 restrictions.

on customer bank deposits at the branch level for all commercial banks in India. Crucially, the gender of the depositor is an available data field. Variable definitions for all datasets are provided in Appendix A.0.2.

4.1. Loan Origination Data

The loan data sample for 2013 and 2014 consists of 310,600 loans. We observe the primary borrower's sex, age, interest rate, loan tenure, loan amount, collateral value (underlying home's value), EMI, and the loan-to-value (LTV) ratio. Summary statistics are reported in Table 1 Panel A. Seventy-eight percent of the borrowers are male. The average age of borrowers is 42 years, with an average initial interest rate of 7.5%. The median loan tenure is 20 years, and the average LTV ratio is 57%. The average EMI is 12,000 INR (195.4 USD).

It is important to note that we only have information pertaining to the primary borrower. Thus, we cannot observe whether any co-borrower existed, and we have no information on the characteristics of the co-borrower if present. However, to the extent that female loans disproportionately have a second co-borrower (male) and thus lower credit risk, this finding implies the interest rates of these loans should be significantly lower. As we later show, before the introduction of the Her Ghar scheme, female loans had a 1 bps higher interest rate than male loans, which goes against the notion that female loans had a larger fraction of co-borrowers than male loans. In fact, using US data from FHA, Park (2022) finds female-only loans and female–male loans have similar default risks, and both groups have a lower default risk than male-only loans.

4.2. Mortgage-Loan-Repayment Data

The loan-performance data consist of repayment and default data on a monthly basis from May 2015 to March 2023. In Table 1 Panel B, we report the summary statistics of the loan-performance records from April 2015 to March 2023 for all loans sanctioned between 2013 and 2014. The average monthly delinquency rate is 18%. The average monthly default rate is 0.2%. The delinquency and default indicators are defined according to the bank's

criteria.[20] The prepayment indicator shows whether the borrower has repaid more than the scheduled amount by a given month. The average prepayment amount is 109,000 INR (1775 USD), which is about 7% of the initial loan outstanding.

5. Response to Her Ghar Scheme

In this section, we begin by analyzing how female applicants responded to the Her Ghar scheme. Second, we examine how ex-ante loan characteristics associated with credit risk differ by gender.

5.1. Response of Women to the Her Ghar Scheme

Figure 2 shows the monthly percentage of female loans throughout the sample period. Before the introduction of the Her Ghar scheme, the average percentage of female loans was approximately 19% and remained relatively stable. Following the introduction of the concession rate, a noticeable sharp increase occurred; the average percentage of female loans rose to about 24% after the first quarter of 2014. Subsequently, the proportion of female loans gradually increased further every year, reaching approximately 28% in 2019.

Figure 3 shows the increase in the percentage of female loans by districts in India. The proportion in the figure represents the increase in female loans divided by the pre-period proportion of female loans in the same district. The figure suggests substantial growth in the proportion of female loans across a wide range of regions. Thus, the increase was not limited to any particular geographical area within India. In particular, southern states, which have been historically better at addressing women's rights, do not show widely divergent growth patterns relative to other regions.

Although the growth rate of female loans and the geographical area affected are substantial, the financial incentive is quite small. The summary statistics show the typical loan rate in our sample is 7.5%, with a median loan size of Rs. 11.5 lakhs (18,728 USD). For a 20-year

[20] Note the delinquent and default amounts displayed in summary statistics are conditional on the loan being in delinquency or default status.

loan of median loan size at an interest rate of 7.5%, the EMI is Rs. 9,264 (150.3 USD). With the 5 bps concession, the EMI becomes Rs. 9,229 (150.8 USD), resulting in a monthly savings of only Rs. 35 (0.57 USD).[21] Based on the median annual income of borrowers in 2013–2014 (Rs. 200,000), this monthly savings equals 0.02% of annual income. Therefore, the Her Ghar represents a marginal financial incentive for the borrower, and framing this scheme as a nudge is reasonable.

Next, we present summary statistics by gender and the year of loan origination to understand the differences in female and male loans, as well as the differences in female loans before and after the introduction of the Her Ghar scheme. Table 2, Panel A, shows the summary statistics for female and male loans originated in 2013. Panel B shows the summary statistics for female and male loans originated in 2014. For each year, we also compare the loans over gender and report the t-stats in the last two columns. In both 2013 and 2014, female borrowers are younger, with mortgages that have larger loan amounts, higher collateral values, and larger EMI. In 2013, the average interest rate on female loans was 1 bp higher than the average interest rate on male loans. By contrast, Alesina et al. (2013) show female borrowers pay 9–11 basis points more than males. This finding suggests gender discrimination in terms of higher interest rates may be less prevalent at the SBI. By contrast, female loans in 2014 had 6 bps lower interest rates than male loans. This observation provides preliminary evidence that SBI did provide a discount to female borrowers after the introduction of the Her Ghar scheme. Female loans in 2014 had larger loan amounts, larger collateral value, longer tenure, a higher EMI, and slightly higher LTV ratios than female loans in 2013. These results continue to hold in the DID setting (Panel C, Table 2), which controls for trends in these variables for male loans. Thus, the change in the interest rate differential of male and female loans in 2014 relative to 2013 (-6 bps vs. 1 bp) should not be driven by differences in loan contract terms and applicant profiles.

One concern regarding the above reduction in interest rates is that the actual loan rate

[21] In January 2014, 1 USD was equivalent to Rs. 61.4.

that a given borrower is eligible for depends on a number of factors, including his or her credit score, past loan history with the bank, total outstanding loans, and so on. Because the borrower does not have access to the bank's internal mechanisms for determining the loan rate, a loan officer could increase the interest rate presented to a female borrower by 5 bps and then reduce it so to give the appearance of a discount. This possibility does not appear to be the case. In the results reported in Appendix (A.3), after matching female and male loans on loan characteristics and controlling for time and location fixed effects, we find the average discount for a female loan was 4.59 bps, which is close to the 5 bps concession rate promised to female borrowers.

5.1.1. Non-Price Differences of Female and Male Loans—Income

Does the Her Ghar scheme lead to more applications, due to other non-price benefits of the loan contracts given to female borrowers? To answer this question, we plot the average income and the EMI-to-income ratio for male and female loans sanctioned each quarter, as shown in Figure 4. Panel (a) plots the average income. The red solid line represents female loans, and the blue dotted line represents male loans, with the vertical line indicating the start date of the Her Ghar scheme. Overall, we see a consistent gender gap in income, because female loans are associated with lower income levels. This gap does not change significantly after 2014. Panel (b) plots the average EMI-to-income ratio. Although female loans consistently have a higher EMI-to-income ratio, we find no significant change in this gender gap before and after the policy change.

5.1.2. Non-Price Differences of Female and Male Loans—LTV

Another non-price dimension of loans is the LTV ratio (Han et al. (2021)). A higher LTV ratio would allow female borrowers to make a smaller down payment. We plot the average LTV by gender for loans sanctioned over time in Figure 5, Panel A. Prior to 2014, the average LTV for male and female loans was similar, with both moving in parallel. After the policy change, the average LTV ratio for female loans shifted upward. This gap is noticeable,

though it shows a narrowing trend after 2018 and becomes less evident by 2019. To quantify the change in LTV and test whether the change in the gap is statistically significant, we estimate the following regression equation:

$$LTV_{i,t} = \gamma_0 + \sum_{t=-3}^{t=6} \gamma_t \times SancYear_t \times Female_i + \mu \times Female_i + Controls_{i,t} + \epsilon_{it}, \qquad (1)$$

where the dependent variable is the LTV for the loan i sanctioned in year t. We winsorize the LTV at the 1st percentile. The γ_t represents the coefficient for the interaction term between the loan-sanction-year dummy and the female-loan dummy. We omit loans in 2010, because they form the base year for comparison. The control variables include the borrower's age, interest rate, loan amount, loan tenure, collateral value, and EMI. Fixed effects include the fixed effect of the loan sanction quarter and the fixed effect of the district. Standard errors are clustered at the district level.

We present the estimated γ_t and its 95% confidence interval in Figure 5, Panel B. The vertical dotted line separates the years before and after 2013. The estimated coefficients are statistically indistinguishable from zero in the pre-period, indicating the LTV gap by gender remained unchanged during this time. Following the policy change, female loans exhibit an average LTV that is 0.5% higher, with this difference persisting until 2018 before becoming insignificant in 2019.

In summary, from an income perspective, we do not observe a significant change in the female loan pool relative to the male loan pool following the policy. However, the LTV ratio for the female loan pool increased, which suggests a relaxation of quantity constraints also.

6. Assessing Competing Hypotheses: Tokenism and Bargaining Power

In this section, we first test the tokenism versus bargaining power hypotheses by analyzing loan performance through default outcomes. Second, we examine gender differences in repayment behavior during the COVID-19 moratorium period. Finally, we leverage these

repayment decisions to further assess whether female loans reflect mere tokenism or signify enhanced intra-household bargaining power and greater female involvement in financial decision-making.

6.1. Evidence from Loan Performance—Defaults

Our first set of tests on tokenism versus bargaining are based on ex-post default rates. Because the loan-performance data extend until March 2023, we can observe the performance of loans from origination up to approximately 10 years after origination. We present the summary statistics on the loan default rate in Table 3.[22] In every year, loans to female borrowers consistently show a lower default rate, with the difference being above 0.2% for most years.[23] Next, we examine whether the probability of default for loans originated under the Her Ghar scheme (i.e., 2014 loans) differs from that of female loans in 2013. To do so, we estimate the following regression equation:

$$Logit(Default_{i,t}) = \gamma_0 + \gamma_{pf} \times Post_t \times Female_i + \mu \times Female_i + Controls_{i,t} + \epsilon_{it}, \quad (2)$$

where $Default_{i,t}$ is the dependent variable, taking the value of 1 if the mortgage loan i originated in year t has ever been in default for more than three or six consecutive months up to March 2023, and 0 otherwise. $Post_t$ is a binary variable that takes the value of 1 if the mortgage loan originated in 2014, and 0 otherwise. $Female_i$ is a binary variable that takes the value of 1 if the primary borrower is a woman, and 0 otherwise. The control variables include the borrower's age, natural log of the loan amount, natural log of collateral value, loan tenure, LTV ratio, EMI-to-income ratio, and interest rate. We also impose the loan-sanction-quarter fixed effects and the district fixed effects. Standard errors are clustered

[22] The default indicator is an internal record from the bank. Our results are robust to alternative definitions of default, for example, defining default as 3 consecutive months of delinquency. In India, a three-month delinquency does not necessarily result in a loan being marked as defaulted. Additionally, after several months under a default classification, a loan may still return to an active status. Note that in our context, we use the term "default" to indicate a more severe state of repayment delinquency, rather than implying the loan is entering foreclosure proceedings.

[23] Most loans default less in the initial years after origination, which explains the low default rate in 2016.

at the district level. Although we do not have the bank's internal credit score for a given borrower, we believe that the loan interest rate should control for the bank's information set, which should include the borrower's credit score, his or her relationship with the bank through loan or deposit account products, and any information relevant for credit risk.

We expect $Female_i$ to be negative and significant, in line with prior studies as well as the earlier univariate statistics. If the Her Ghar scheme resulted in a larger proportion of tokenism for female borrowers relative to 2013, we expect the estimated coefficient γ_{pf} to be positive. If the Her Ghar resulted in a larger fraction of female borrowers with more bargaining power, we expect a negative coefficient for the interaction coefficient. If the scheme did not affect the composition of the cohort of applicants in terms of bargaining power, then we expect the interaction to be insignificant.

The results are reported in Table 4. The estimated coefficient for the interaction term between loans in 2014 and the female dummy is not statistically significant and economically small. These results indicate that there was no substantial change in credit risk for female loans in 2014. This is consistent with the new applicants under the Her Ghar scheme having a bargaining power similar to 2013 applicants. Nonetheless, the increase in female loan volume does point to a strong benefit because a larger number of females have a greater say in household financial decision-making due to the Her Ghar scheme.

The estimated coefficient on the female dummy variable suggests loans taken by female borrowers are significantly less likely to default than those taken by male borrowers. Specifically, the odds of default for female loans are approximately 32.1% lower than for male loans [24] The interest rate, which should capture the entire information set used by the bank to evaluate the credit risk of the loan, is highly significant as expected. The EMI-to-income ratio, which is negatively related to repayment capacity, has a strong positive effect on de-

[24] The table reports log-odds ratios; therefore, the odds of default for female borrowers are: $1 - \exp(-0.387) = 32.1\%$. In an unreported OLS specification, the coefficient on the female indicator is -1%, statistically significant at the 1% level. Among loans originated in 2013, the average default rate for male borrowers is 3.2%, implying female borrowers are approximately 31.25% less likely to default than their male counterparts. The results from the conditional logit model align closely with linear model and summary statistics.

faults. Larger loan amounts are associated with a lower default likelihood, consistent with the bank granting larger loans to more credit-worthy borrowers.

One empirical limitation of the results in the above section is that we only have the primary borrower's characteristics. All female loans may also have a co-applicant, in which case, the lower default risk is due to a higher family income. In this case, female loans should have significantly lower interest rates than male loans, because the bank would price in the reduced likelihood of default. However, the results on interest rates show no such difference. The rate of female loans in 2013 was 1 bp higher, and in 2014, it was 5 bps lower.

6.1.1. Credit Risk during COVID

As a further stringent test of female financial decision-making, we estimate the above default model using only the period around the COVID crisis. Because COVID was not predicted globally, examining whether the previous findings—showing that female loans have lower default risk—continue to hold during and after the COVID period is of interest. The time range for this test is January 2018 to March 2023:

$$Logit(Default_{i,t}) = \gamma_0 + \gamma_t \times PostCOVID_t \times Female_i + \gamma_f \times Female_i + Controls_{i,t} + \epsilon_{i,t}, \quad (3)$$

where the dependent variable $Default_{i,t}$ takes the value of 1 if loan i defaults in a given month t, and 0 otherwise. $PostCOVID_t$ takes the value of 1 if it is from the beginning of 2021 to March 2023, and 0 otherwise. We estimate the model both with and without the inclusion of the year 2020 to account for the fact that the COVID year might be unusual in terms of defaults. $Female_i$ takes the value of 1 for female loan i, and 0 otherwise. The control variables are the same as in equation 2. We also impose the year-month fixed effects, district fixed effects, and loan-sanction-quarter fixed effects. Standard errors are clustered at the district level.

The results are reported in Table 5. The estimated coefficient for the interaction term is not statistically different from zero, either with or without the inclusion of the year 2020.

Relative to the entire sample, the gap in default rates for female and male loans is larger during the period around the COVID crisis—female loans have 36.3% lower odds of default during this time period, relative to the baseline model in Table 4, where the odds were 25.9%–32.1%. Furthermore, the post-COVID period shows no reversal of this result, suggesting households with higher bargaining power for females were better at financial decisions—both during normal economic conditions and during an unanticipated global health and economic crisis caused by COVID.

6.2. Evidence from Repayment Decision during COVID Moratorium Period

Loan default results from a series of financial decisions influenced by both household choices and external factors. To better test whether female loans indicate greater bargaining power and reflect women's role in financial decision-making, we exploit a unique event during the COVID period as an experiment. The detailed institutional background of the moratorium policy during COVID was provided earlier in section 2.3.

First, we compare female and male loans to examine whether, conditional on having similar observable characteristics, they differ in their decision to avail themselves of the moratorium policy to defer repayment. To do so, we create a matched sample using the propensity score with replacement, matching based on age, interest rate, loan amount, loan tenure, collateral value, and LTV ratio, applying a caliper of 0.05 for mortgages sanctioned in the same quarter. The matching results are reported in Appendix Figure A.1.[25] The kernel-density distributions of female loans and matched male loans by the borrower's age, collateral value, interest rate, loan amount, LTV ratio, and loan tenure show the female and male samples are very similar. The graphs also display the average values and the results of pairwise t-tests, which indicate no significant differences between the two samples of mortgage loans across all observable characteristics.

Using the matched sample, we present the average monthly percentage of loans with missed repayments from January 2019 to March 2023. Panel (a) of Figure 6 shows female

[25] We also conducted tests using an unmatched sample, and the results remained robust. However, due to space constraints, we do not report these findings.

loans consistently had a lower proportion of missed repayments than those held by male borrowers, with this gap widening notably during the moratorium period. As expected, the overall proportion of missed repayments increased during the moratorium period. However, female borrowers were less likely to defer repayments during the moratorium. In the two and a half years following the moratorium's conclusion, the gap in missed repayments between male and female borrowers returned to pre-moratorium levels. To formally test whether female borrowers responded differently to the loan-repayment deferment opportunity than male borrowers, we estimate the following conditional logit model:

$$Logit(MissingRepay_{i,t}) = \gamma_0 + \sum_{t=-3}^{t=12} \gamma_t \times Quarter_t \times Female_i + \gamma_f \times Female_i + Controls_{i,t} + \epsilon_{i,t}. \tag{4}$$

The dependent variable $MissingRepay_{i,t}$ takes the value of 1 if loan i's repayment in quarter t is missing, and 0 otherwise. The variable of interest is the interaction term between the quarter dummy and a female-loan dummy. The control variables include the borrower's age, interest rate, loan tenure, loan collateral value, and LTV ratio. We include the year-month fixed effect with matched pairs. $Quarter_1$ takes the value of 1 for April and May 2020, and 0 otherwise. This phase is the first one of the moratorium period. [26] $Quarter_2$ takes the value of 1 for June to August 2020, and 0 otherwise. This phase is the second one of the moratorium period. $Quarter_3$ takes the value of 1 for September to December 2020, and 0 otherwise. $Quarter_4$ to $Quarter_{12}$ are the dummy variables representing the quarters from the first quarter of 2021 up to the first quarter of 2023. The second quarter of 2019 is omitted and serves as the comparison base. $Quarter_{-3}$ to $Quarter_{-1}$ are the dummy variables for the two quarters in 2019 and January to February in 2020 in the pre-treatment period.

The estimated coefficients γ_{-3} to γ_{12} (odd ratio) and their 95% confidence intervals are reported in Figure 6, panel (b). Compared with otherwise similar male borrowers, female borrowers were about 6% less likely—based on odds—to miss repayments during the initial

[26] March 2020 is missing from the data provided by the bank. One possible reason is that the moratorium policy was announced on March 27, but its effective date was retroactively applicable from March 1. This difference may have caused some procedural difficulties in the classification of data for this month.

phase of the moratorium.[27] In the second phase of the moratorium, female loans were 8% less likely to miss repayments than their similar male counterparts. In other periods both before and after the moratorium, we find no significant difference between male and female loans in the likelihood of missing repayments. This fact further strengthens support for the notion that the increase in lending to women led to an increase in the bargaining power of women, as reflected in household financial decision-making. In the next subsections, we examine whether this result could be driven by other confounding factors.

6.3. Alternative Explanations

In this section, we examine alternative explanations for our main results and consider how they may influence the interpretation of our findings.

6.3.1. Different Prepayment Patterns before and after the Moratorium Period

Do female borrowers have different prepayment patterns before than after the moratorium period? This possibility could explain their different repayment behavior during the moratorium. In Figure 7, panel (a), we plot the average prepayment as a percentage of the initial loan outstanding for male and female loans. In the pre-moratorium period, the prepayment patterns virtually overlap, so lower prepayments by female borrowers prior to the moratorium cannot explain their higher repayments during the moratorium. During the moratorium, prepayments for both male and female loans increased significantly because the required repayment amount was zero; thus, any repayment made (e.g., the regular EMI) would count as a prepayment. By the end of the moratorium period, we see a noticeable gap between female and male loans, which is expected, due to the earlier documented results of higher prepayments by female borrowers during the moratorium (Figure 6). The key additional finding is that the higher prepayment for female borrowers during the moratorium persisted for another two and a half years, that is, until the end of the sample period. To

[27] In the unreported OLS estimations, female loans are 1.47% and 1.78% less likely to miss repayments during the moratorium period, with both estimates being statistically significant at the 1% level. Prior to the moratorium, the unconditional average rate of missed repayments among female loans was 7%, suggesting the observed reductions during the moratorium period are economically meaningful.

test this finding formally, we estimate the following regression equation for prepayments:

$$(\frac{prepayment}{loan\_amt})_{i,t} = \gamma_0 + \sum_{t=-3}^{t=12} \gamma_t \times Quarter_t \times Female_i + \gamma_f \times Female_i + Controls_{i,t} + \epsilon_{i,t}. \quad (5)$$

The dependent variable is the ratio of the prepayment amount to the original loan outstanding for loan i. The other explanatory variables are the same as in equation 4. The estimated coefficients of γ_t and their 95% confidence intervals are displayed in Figure 7, Panel (b). Before the moratorium period, the coefficients are not statistically different from zero. During the moratorium, female loans have significantly higher prepayments. This difference has an average value of 0.4% of the initial loan outstanding and remains at the same level in the following two and a half years, without declining. This result shows female borrowers did not reduce their average prepayment levels even after continuing their repayments during the moratorium. Thus, differences in prepayment behavior prior to or after the moratorium cannot explain the differential repayment during COVID.

6.3.2. Income Uncertainty

Could differences in repayment by women and men during the moratorium period stem from the differences in income stability during COVID? To understand the potential effect, we narrow the sample to include only borrowers with government jobs, that is, those with a job in state government services, services in public sector undertakings, central government services, or defense establishments. In India, government jobs are known for offering a high degree of income stability. Thus, the likelihood of layoffs for people with government jobs is minimal. Figure 8 shows the results for the sample that includes only those with government jobs.

The absolute level of missed repayments is much lower for this subsample: in the pre-moratorium period, the unconditional likelihood of missing a repayment is around 5% for this sample, whereas it is about 8% for the full sample (Figure 6). However, difference-in-differences (DID) estimation indicates the gap in the repayment of female and male loans

remains large (between 5% and 11%) and statistically significant. As with the full sample, we finds no difference in the likelihood of repayment of female and male loans in the DID setting for most quarters outside the moratorium period.

6.3.3. Male Borrower Selection

Another potential concern may be due to selection by males. If men who opt to continue repayments during the moratorium period are also more likely to designate their wives as the primary borrower, the observed differences between male and female loans may stem more from men's selection behavior and not women's direct involvement in decision-making. In this case, the composition of male loans in 2014 should include fewer individuals inclined to repay during the moratorium period, because many may have switched to what we classify as female loans. This finding would imply an increased share of men choosing deferred payment options. Accordingly, we would expect to see a higher proportion of deferred repayments among male loans in the post-period under the moratorium policy.

We test this hypothesis by comparing male loans originated in 2013 with those originated in 2014. The results are reported in Figure 9. Panel (a) illustrates that the average missed-repayment patterns between the two groups of male loans remain largely consistent across the entire sample period, including the moratorium period. We find no evidence indicating the composition of male loans in 2014 includes a higher proportion of loans using the repayment-deferment option. Panel(b) shows the comparison of default rates for the male loans sanctioned in 2013 versus those sanctioned in 2014. The default rates of these two groups of loans are also similar, indicating their average repayment ability is comparable. Thus, we find no evidence to suggest male borrowers with a higher ability or greater willingness to continue repaying during the moratorium self-selected out of the male-loan sample, which could have biased the results. Therefore, the hypothesis that male selection drives the results is unlikely to hold.

6.3.4. Consumers Shifting from Other Lenders

Is the increase in the percentage of female loans driven by consumers switching from other banks? A small financial incentive such as 5 bps is unlikely to be a sufficient reason for a consumer to switch lenders. SBI primarily lends to well-profiled middle-class borrowers and typically requires thorough documentation and can offer competitive rates. Wealthier segments of the population are served by smaller private banks. Non-banking institutions provide loans to the subprime market, which includes borrowers with relatively poorer credit and documentation. However, if this marketing campaign were successful, it might attract consumers to switch from other banks. So, could our results be driven by loans for which women were already the primary borrowers switching from other banks?

If the switching behavior is substantial, it is more likely to occur in areas where SBI's market share is smaller. In regions where SBI has a large market share and is the dominant bank, borrowers switching from other lenders is less likely. We use the data of all bank branches provided by the RBI to measure SBI's market share in each district. Then, we compare the change in the proportion of female loans in regions above the median (high SBI market share) with those below the median (low SBI market share). The results are reported in Figure 10. Our results show the increase in the proportion of loans with women as primary borrowers is roughly the same across regions with different SBI market shares. Market share does not explain the difference in the growth of female loans. The volume of new loans has remained relatively stable over time across regions with varying SBI market shares. This evidence does not support the hypothesis that a significant number of female borrowers switched from other banks in response to the 5 bps concession.

6.3.5. Women's Income or Wealth as Additional Collateral

Another possible explanation is that women, by becoming the primary borrower, may be more willing to contribute their own wealth (e.g., dowry) or income toward repayment. This increased repayment during the moratorium period could stem from women's actual financial contribution rather than their participation in decision-making. We argue such

an explanation is related to financial decision-making and is not exclusive. Becoming the primary borrower and thus being more willing to contribute their own wealth or income to maintain repayment, women can view their financial decision-making as being altered by their role as a mortgage borrower.

6.3.6. Marital Status

We do not have the marital status of any applicant in the dataset. If all the female non-housewife borrowers in the data are single women, one interpretation of the results is that the lower default risk and more optimal prepayment behavior is a woman-versus-man effect. However, data from Prowess indicate only 2.44% of women aged 30 to 50—the 10th to 90th percentile range of our applicant pool—are single. Moreover, no major social shifts occurred between 2013 and 2014 that would have led to a significant change in the proportion of single women. Therefore, the composition of female borrowers in 2014 (relative to 2013) is unlikely to have included a substantially larger share of single women. This finding suggests the vast majority of female mortgage borrowers in our sample are married.

6.3.7. Credit Risk Difference

Does the difference in repayment decisions between men and women during the moratorium policy merely reflect their differences in credit risk? First, our empirical test controls for the interest rate, which serves as a sufficient statistic for credit risk in mortgage loan pricing. [28] Second, the observed difference in repayment decisions between men and women during the moratorium period is estimated using a DID approach. Prior to the moratorium, any repayment differences driven by credit risk were absorbed. The DID estimation captures the additional difference in repayment behavior during the moratorium period relative to the pre-period. This additional difference cannot be explained by variations in credit risk.

Third, if credit risk differences had a differential impact on repayment behavior during the COVID period, such that pre-moratorium repayment differences could not fully absorb

[28] The following hyperlink – credit scores and interest rates for mortgage loans provide SBI's method for pricing of credit risk.

the influence of credit risk differences, we would expect the observed gender difference in repayment to persist or even increase after the moratorium period ended. The reason is that the moratorium period ended as a policy decision in August 2020, while the economic disruptions from COVID continued globally and in India. However, various results show that after the moratorium period ended (in August 2020), gender differences in repayment decisions immediately returned to pre-moratorium levels. Therefore, the repayment-decision differences observed during the moratorium period are unlikely to be explained by credit risk disparities. Instead, our findings indicate these differences are more likely a reflection of variations in financial decision-making.

6.3.8. Mortgage-Loan-Repayment Methods

The bank required the consumers to notify them if they chose to defer repayment during the moratorium period, provided they had opted for auto-debit as their repayment method. If consumers took no action, the default option was for the bank to automatically continue deducting loan repayments from their accounts. This leads to an alternative explanation for our findings. If female borrowers are more likely to use auto-debit for mortgage repayments, they may, due to inertia, be less inclined to notify the bank to defer the repayment. As a result, we observe a higher likelihood of continued repayments from female borrowers. This pattern is not necessarily driven by financial considerations but rather by inertia in repayment behavior.

To test this hypothesis, we construct two measures to capture the consumer's choice of repayment method. If a consumer opts for auto-debit, their repayment amounts should be more stable over time. By contrast, if a consumer chooses to repay manually, their repayment amounts are expected to vary more over time. The first measure is the percentage of repayment instances that differ from the mode of repayment amount. The second measure is the standard deviation of repayment amounts divided by the average repayment amount. [29]

[29] Repayment observations span from 2016 to March 2023, excluding the moratorium period. We also remove zero repayment instances. Because male borrowers consistently have higher rates of missed repayments than female borrowers, these missing payments do not reflect consumers' choice of repayment method.

We compare these two measures for male and female loans sanctioned in 2013 and 2014 and report results in Appendix A.0.6. For the first measure, male loans show higher variation in repayment amounts than female loans, but the magnitude is small—around 1% (with an average of 25% for male loans). For the second measure, male loans show slightly lower repayment variation, though the difference is either small or statistically insignificant. Overall, these results do not support the hypothesis that female borrowers are much more likely to use auto-debit repayment methods than male borrowers.

To further rule out the possibility that differences in repayment methods drive the result, we first use pre-moratorium repayment to construct measure I (i.e., the percentage of repayment instances that differ from the mode of repayment amount). We then restrict the sample to loans for which this measure is below 20% for both male and female borrowers. Under this restriction, the difference in measure I between male and female loans is no longer statistically significant. In this subsample, all loans are likely to follow the auto-debit repayment method. Borrowers would need to notify the bank to defer repayment, requiring them to take actions for a financial decision. Using this subsample of loans, we report the percentage of loans with missing repayments by gender in Figure A.2. The graph shows our main results hold. In summary, differences in repayment methods between men and women do not explain the differences in choices during the moratorium period.

6.4. Cross-sectional Tests of Bargaining versus Tokenism

The dataset we have contains limited information to infer intra-household bargaining power. The only potentially available variable is an indicator for a female applicant being a "housewife," which in the Indian context, typically implies a lack of outside income. We examine whether the results for loans taken by housewives differ from other female loans, because these loans are more likely to be driven by tokenism. As a second (indirect) test, we construct proxies for female empowerment at the district and state levels based on the location of the borrower.

6.4.1. Housewife Loans and Bargaining Power

We start by investigating whether the Her Ghar scheme led to an increase in the proportion of primary borrowers who list their profession as housewife.[30] In Figure 11, panel (a), we present a plot showing the percentage of loans for which the primary borrower listed "housewife" as their occupation, tracked over the loan-sanction date. The results indicate a noticeable increase in the proportion of housewives as primary borrowers, rising from around 2.7% in the pre-policy period to 3.7% in 2014.

Next, we compare the repayment behavior of housewife borrowers with that of their matched male counterparts during the moratorium period. If the gender gap in repayment deferment is influenced by female participation in financial decision-making, we would expect much lower gaps when the primary borrower is a housewife. To test this hypothesis, we compare the average percentage of missed repayments between housewives and their matched male counterparts and present the findings in Figure 11, panel (b). The gender difference in repayment behavior during the moratorium period disappears. Housewife loans consistently exhibit a slightly higher rate of missed repayments than their male counterparts, a pattern that persists throughout the moratorium period. Additionally, we estimate the likelihood of missing repayments, using the same approach as in equation 4 and report the estimated coefficients and their 95% confidence intervals in Figure 11, panel (c). None of the coefficients are statistically different from zero, suggesting that when the primary female borrower lacks sufficient intra-family bargaining power, the gender gap in repayment behavior during the moratorium period vanishes.

6.4.2. Differences in 2013 and 2014 Cohorts

Similar to section 6.1, where we use loan-default behavior to infer female participation in financial decision-making, this section revisits the question of whether nudge-induced female loans represent mere tokenism or a genuine enhancement of women's intra-household

[30] The dataset contains no marital status field. We assume a female applicant who lists her profession as housewife is married and she does not work outside the home in a formal or informal job.

bargaining power—specifically, by examining whether repayment decisions during the moratorium period reflect greater involvement of women in financial choices.

To test this possibility, we first plot the average percentage of missing repayments for the loans sanctioned one year before (i.e., 2013) the introduction of the 5 bps concession policy and one year after (i.e., 2014) by the primary borrower's gender. The plots are displayed in Figure 12, panel (a). The solid lines represent the loans originated in 2014 and the dashed lines represent the loans originated in 2013. Both the dashed lines and solid lines show no obvious differences over time in periods outside the moratorium. During the moratorium period, loans taken by women have a significantly lower percentage of missed repayments than those taken by men, indicating female borrowers are more likely to continue repaying during this period. The gender gap in repayment differences is similar for both 2013 and 2014 loans, showing no signs of a reduced gender gap in 2014 loans. We estimate regression equation 4 for the loans originated in 2013 and 2014 separately and report the estimated coefficients and their 95% confidence interval in Figure 12, panel (b). Female borrowers are significantly less likely to omit repayments during the moratorium period for both samples. As with the previous default test, the gender gap in repayment during the moratorium period is similar for loans originated in 2013 and 2014. This observation further supports the interpretation that the increase in female-loan uptake induced by the nudge also reflects enhanced female bargaining power in intra-household financial decision-making. It does not support the hypothesis that the increase in female loans due to the nudge was primarily driven by tokenism.

6.4.3. Geographical Differences in Female Bargaining

Next, we examine whether gender differences in repayment choices during the moratorium period are associated with women's intra-family bargaining power, measured at the state and district levels based on the primary borrower's residence. This data is obtained from the Consumer Pyramids Dx, a database based on surveys conducted by CMIE. We use the two datasets within the Consumer Pyramids Dx—"People of India" and "Income Pyramids"—for

our study. These surveys are conducted every four months. These surveys, which began in January 2014, collect a variety of household information from more than 600,000 individuals in India on income, consumption, assets, and employment. Importantly for us, the surveys also collect personal information, including gender. This information allows us to assess the status of gender equality at both the district and state levels.

Greater gender equality reflects higher intra-household bargaining power for women, meaning women's preferences are more likely to influence household financial decisions. In regions where gender equality is lower, even when women are designated as the primary mortgage borrowers for various reasons, this designation may represent tokenism rather than genuine involvement in household decision-making. As a result, the difference in repayment behavior between male and female borrowers should be less. Thus, differences between female and male loans should be lower in regions with greater gender inequality and higher in regions with lower gender inequality.

We test if the above differences in states or districts exist, using the Prowess survey data at the beginning of 2014 to measure gender inequality. Ideally, we would prefer to have data from 2013 to measure pretreatment conditions; however, no comparable large sample survey is available for the Indian economy prior to this date. Because gender equality is a slowly changing social characteristic, we believe data at the beginning of 2014 would still reflect regional gender-equality differences before the introduction of the Her Ghar scheme. We include households consisting of one husband and one wife. For each of these households, we assess gender equality across three dimensions: workforce participation (i.e., housewife), the gender gap in education, and the gender gap in income. We present the average statistics at the state level in Table 6. The northeastern states are aggregated into one single unit due to low population density. To ensure sufficient mortgage samples in smaller regions (states or districts), we retained all originated mortgage loans from 2010 to 2018 for these tests.

The states are ordered by the gender gap in income, which is defined as the ratio of the wife's total income to the combined total income of both husband and wife. Relative income

has been robustly shown to be a determinant of female bargaining power in intra-household decisions.[31] Even for states at the top (i.e., the lowest gender gap in income), such as Goa and Tamil Nadu, women's income share is at most 13%, reflecting the poor economic status of women in India as a whole. At the bottom are Bihar and Jharkhand, where female income share is less than 2% of the combined income. Other measures of inequality are correlated with the income measure that we use for ordering. For example, Tamil Nadu and Goa also have the lowest percentages of housewives, whereas Bihar and Jharkhand have the highest percentage. The relatively low percentage of working women also highlights the low labor supply of females in India, consistent with Field et al. (2021), who document that poor economic status acts as an impediment to female labor force participation.

On the other hand, the gender gap in education (roughly interpreted as the difference in the number of years of schooling) is lowest for Kerala, where females have 0.25 more years of education than men. All other states have lower education for females than males. The largest gaps are observed in Jammu and Kashmir and Rajasthan, where the gap is around three years of schooling. However, the gender gap in education is quite different from the gender gap in income, thus providing an alternative independent test for women's rights. As such,Goldin and Olivetti (2013) found increases in female labor participation induced by World War II were concentrated on females with above-median education. Likewise, Banerjee et al. (2021) found the impact of financial literacy on financial decision-making was larger for educated women.

We present the correlation across states in Figure 13. For each state, we estimate the gender gap in repayment during the moratorium period. The estimated gender gap, along with its 95% confidence interval, is plotted on the y-axis, while the x-axis represents the average gender-inequality measures for each state. States are labeled with their respective abbreviations, which can be found in Appendix Table A.4. Additionally, we include conditional fitted lines in the figure.[32]

[31] See, e.g., Anderson and Eswaran (2009), Luke and Munshi (2011), and Qian (2008).

[32] The fitted lines are estimated while controlling for state-level variables, including GDP per capita, population,

Panel (a) illustrates that states with a higher proportion of women who are housewives exhibit a smaller gender gap in repayment propensity during the moratorium period. In panel (b), we observe that states with a greater education disparity between wives and husbands are also associated with a smaller gender gap in repayment behavior. Conversely, panel (c) demonstrates that when women's income share is higher, the gender gap in repayment propensity widens during the moratorium period. In all three conditional regressions, the estimated coefficients capturing the relationship between gender inequality and the gender difference in repayment behavior are statistically significant. To further validate these findings, we replicate the analysis at the district level and report results in Table 7. The findings remain consistent, indicating intra-household gender inequality explains the observed gender differences in repayment decisions during the moratorium period at the state and district levels.

Note the cross-sectional results across regions do not support the hypothesis that male selection drives the gender gap in the repayment decisions we capture. We have no reason to believe men who are better at financial decision-making self-select into female loans only in regions with relatively higher levels of gender equality. Moreover, in this case, we would also expect to observe similar superior financial decision-making for loans taken out by housewives; the data do not support this scenario. Our cross-sectional evidence further rejects the male-selection hypothesis and is instead consistent with the interpretation that female loans reflect women's greater bargaining power.

7. Women Empowerment, Evidence from Savings and Income

In this section, we examine whether becoming a mortgage borrower empowers women in other dimensions, such as increase in income or wealth. This can further help us understand the mechanisms that prevent default and support repayment during times of economic hardship for female loans.

percentage of female population, percentage of homeowners, and percentage of secondary school graduates.

7.1. Women's Bank Saving Deposit

Can mortgage borrowing lead to increased savings among women? To answer this question, we use data from the BSR-II deposit dataset.[33] The summary statistics are presented in Table 8, Panel A. We exploit variation in exposure to the increase in female mortgage borrowers across districts to construct treatment and control groups. This approach allows us to assess whether, following the implementation of the female-mortgage concession rate, women's deposits increased more in districts with greater exposure to the policy. We estimate the following regression equation:

$$Saving_{i,t} = \gamma_0 + \gamma_1 \times YR2013 \times Treat_i + \gamma_2 \times YR2014 \times Treat_i + D_{i,t} + B_{i,t} + YR_t + \epsilon_{i,t}. \quad (6)$$

Our dependent variable is the natural log of the total balance amount at the branch level, either in savings accounts or term deposit accounts.[34] The data cover the years 2012, 2013, and 2014. The year 2012 serves as the comparison base. The key independent variable is an interaction term between year indicators and a treatment-group indicator based on district-level exposure. Specifically, we define a district as treated if the growth in the share of female borrowers from 2013 to 2014 exceeds 40%—the 75th percentile of the distribution within our sample. [35] All other districts are categorized as the control group. In our regression, we include district fixed effects, branch fixed effects, and year fixed effects. Standard errors are clustered at the state level.

The results are presented in Table 8, Panel B. Columns (1) to (3) show the findings from

[33] The BSR-II (Basic Statistical Returns-II) data are sourced from RBI, which mandates all Scheduled Commercial Banks in India to annually report branch-level deposit balances. The dataset includes information on current accounts, savings accounts, and term deposit accounts. Because current accounts are primarily used by small businesses and are less relevant to our study, we focus on savings and term deposit accounts. For each branch, the data report both the total amount and the amount specifically held in accounts owned by women.

[34] Saving deposits are intended for saving purposes and offer moderate liquidity. Term deposits are held for a fixed duration and cannot be withdrawn early without incurring a penalty. The term deposit amount is much larger than the saving deposit amount.

[35] We require each district to have at least 50 mortgage loans originated in 2013. We also restrict the sample to bank branches with data available for all three years. The final sample includes 387 districts for which data are available.

the SBI deposit data for female accounts. The results indicate that in 2014, following the introduction of the female-mortgage concession rate in SBI, districts that experienced a larger increase in female loans also saw a significant rise in total female deposits. The coefficient for the year 2013 is statistically indistinguishable from zero, suggesting the observed effect is not driven by a pre-existing time trend. Columns (3) and (4) present the results for male accounts within SBI. We do not find any significant effects for male accounts. This result helps rule out the possibility of confounding factors and does not support the hypothesis that deposits were simply shifted from male to female accounts. Columns (5) and (6) report the results for female accounts at other banks.[36] Female accounts in non-SBI banks do not show any notable changes during the same period. This finding is consistent with the fact that these banks did not implement female-targeted interest concessions similar to those introduced by SBI. Consistent with previous studies (Riley (2024), Bartscher (2023) and Field et al. (2021)), our findings suggest women's ownership of financial accounts (i.e., mortgage loans) may lead to increased labor supply and earnings, thereby improving their financial well-being and contributing to women's empowerment.

7.2. Women's Income

In this section, we examine whether such financial inclusion has any effect on women's income levels. Because our mortgage data do not provide dynamic insights into earnings, we utilize individual-level survey data to address this question. We use the income from the first and fourth quarters of the Prowess Dx survey data to test whether the increase in women's labor income over 2014 is correlated with the increase in the number of female loans across urban districts. In unreported results, we find urban areas where the increase in female loans is large (defined as districts where the increase was in the top quartile) had an increase in income. Thus, some part of credit risk reduction may be driven by increases in income. However, the differences in repayment during COVID cannot be explained by the income effect. Thus, the Her Ghar scheme may have had a positive effect on woman's

[36] We run placebo tests using non-SBI banks. To ensure a more comparable sample size, we focus on the three largest Indian banks other than SBI: ICICI Bank, HDFC Bank, and Punjab National Bank.

intra-household bargaining power both in a direct sense, due to increases in property rights, and indirectly, by allowing women to earn a higher income. Due to difficulties in accessing individual-level income data, we are unable to separate out these two effects. However, the above effect is not found in rural districts, consistent with women's lower bargaining power in these areas.

8. Conclusion

Our paper studied the impact of Her Ghar, a State Bank of India scheme that offered home loans to women. This scheme gave a 5 bps reduction if the woman was the first applicant as well as the first owner of the property. We find the economic value of the discount was very small—often less than 0.02% of the borrower's annual income. Thus, the scheme can be characterized as a nudge, although it induced a large increase in loan applications by women within one year of its commencement.

One hypothesis was that these loans were induced by tokenism—that men, seeking to avail themselves of the 5 bps discount, put their wives' names first. Another was that the increase in loans established a genuine increase in bargaining power for women, as reflected in household decision-making. Using default rates as well as repayment behavior of loans during COVID, we found the Her Ghar scheme induced increases in intra-household bargaining power for women in terms of financial decision-making. Lastly, consistent with prior research, we found female loans have a lower default rate.

Our results imply lower mandated capital charges for loans by women, as mandated by the Central Bank of Mexico, could also be considered in the Indian context. Another policy implication is that nudges can also be effective in increasing female involvement in financial decision-making, whereas past studies focus on legislative actions. This points to the important role non-state actors can play in strengthening women's access to financial rights.

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Table 1: Summary Statistics

This table presents summary statistics of the variables used in the tests of the paper. Panel A shows the characteristics for all mortgages originated between 2013 and 2014. 1 lakh is equivalent to 100,000. Panel B displays the summary statistics for mortgage repayment, focusing on loans originated between 2013 and 2014, with repayment data covering the period from April 2015 to March 2023. The variable definitions can be found in Appendix A.0.2.

Variable	**N**	**Mean**	**P25**	**Median**	**P75**	**SD**
Panel A: Mortgage Characteristics						
Male	310600	0.78	1	1	1	0.41
Age	310600	41.93	35.33	41.8	48.19	8.74
Interest Rate	310600	7.58	7.4	7.55	7.9	0.88
Loan Tenure	310600	219.93	180	240	241	57.15
Loan Amount (lakh)	310600	14.2	7.24	11.5	18	10.91
Collateral Value (lakh)	310600	28.16	13.85	21.43	33.95	29.4
EMI (000)	310600	12.14	6.47	9.8	15	9.25
Loan-to-Value Ratio	303620	0.57	0.41	0.6	0.74	0.21
Financial Benefit (000)	310600	4.72	2.17	3.63	6.03	3.97
Panel B: Mortgage Repayment						
Delinquent indicator	17678404	0.18	0	0	0	0.38
Delinquent amount (000)	3183801	17.6	4.06	9.65	19.44	38.92
Default indicator	17678404	0	0	0	0	0.04
Default amount (000)	20770	35.99	10.98	22.95	42.5	80.21
Repayment amount (000)	17678404	15.64	7.16	12	19	29.19
Prepay indicator	17678404	0.8	1	1	1	0.4
Prepay amount(000)	17678404	109.6	3.21	39.54	120.72	222.57
Prepayment to loan amount ratio	17678404	0.07	0	0.04	0.09	0.10

Table 2: Summary Statistics by Gender and Year of Loan Origination

This table presents the summary statistics of the mortgage loans by primary borrower gender and loan origination years. Panel A presents the summary statistics for the mortgages sanctioned in the year of 2013. Panel B presents the summary statistics for the mortgages sanctioned in the year of 2014. The columns labeled "Female" and "Male" correspond to the gender of the primary mortgage borrowers. The last two columns display the t-test results, comparing the loan characteristics of female borrowers with male borrowers for all mortgages sanctioned in either 2013 or 2014. Panel C reports the difference between loans originated in 2013 versus the loans originated in 2014 by gender. The last two columns report the estimated coefficients for the interaction term Female × YR14 and the corresponding t-statistics from a DID regression analysis. *** p<0.01, ** p<0.05,* p<0.1

Panel A: Loans originated in 2013								
	Female			Male			Diff (female-male)	t-stat
	N	Mean	Median	N	Mean	Median		
Age	30017	41.39	41.07	123424	41.8	41.7	-0.42***	-7.55
Interest rate	30017	7.6	7.55	123424	7.59	7.55	0.01**	2.08
Loan tenure	30017	219.83	240	123424	219.85	240	-0.02	-0.07
Loan amount (lakh)	30017	14.01	11.5	123424	13.7	10.8	0.31***	4.62
Collateral value (lakh)	30017	28.07	21.15	123424	27.01	20.31	1.05***	5.75
EMI (000)	30017	11.99	9.7	123424	11.72	9.4	0.28***	4.81
Loan-to-Value ratio	29267	0.57	0.6	120613	0.57	0.6	0	-1.22
Panel B: Loans originated in 2014								
	Female			Male			Diff (female-male)	t-stat
	N	Mean	Median	N	Mean	Median		
Age	36822	41.32	40.95	120337	42.39	42.35	-1.07***	-20.22
Interest rate	36822	7.52	7.4	120337	7.58	7.45	-0.06***	-10.75
Loan tenure	36822	222.9	240	120337	219.12	240	3.78***	10.57
Loan amount (lakh)	36822	15.91	12.8	120337	14.25	11.5	1.66***	24.77
Collateral value (lakh)	36822	31.24	24	120337	28.43	21.87	2.81***	15.57
EMI (000)	36822	13.49	11.08	120337	12.21	9.96	1.28***	22.62
Loan-to-Value ratio	35965	0.58	0.61	117775	0.57	0.6	0.01***	8.88
Panel C : Comparison by Loan Origination Year								
	Female			Male			Female × YR14	
	Diff (14-13)	t-stat		Diff (14-13)	t-stat		DID	t-stat
Age	-0.06	-0.98		0.59***	16.44		-0.650***	-8.49
Interest rate	-0.08***	-12.02		-0.01	-1.52		-0.0716***	-9.30
Loan tenure	3.07***	6.98		-0.73***	-3.14		3.803***	7.59
Loan amount (lakh)	1.9***	21.45		0.55***	12.66		1.348***	14.12
Collateral value (lakh)	3.17***	12.72		1.42***	12.24		1.754***	6.81
EMI (000)	1.5***	19.94		0.49***	13.27		1.005***	12.41
Loan-to-Value ratio	0.01***	4.65		-0.01***	-6.18		0.0131***	6.96

Table 3: Summary Statistics of Default Rate

The table presents summary statistics of the default rate by the gender of the primary borrower and by year for all loans sanctioned between 2013 and 2014. For each year from 2016 until March 2023, the table reports the average percentage of loans that defaulted. For the year of 2020, we exclude the COVID moratorium period from March 2020 till August 2020. A t-test is to compare the default rates between male and female primary borrowers, with the difference and corresponding t-statistics shown in the last two columns. Statistical significance at the 1% level is indicated by ***.

	Female		Male			
	N	Mean	N	Mean	Diff(female-male)	t-stat
2016	404491	0.29%	1397340	0.40%	-0.11%***	-9.71
2017	504741	0.74%	1815706	0.98%	-0.24%***	-15.61
2018	551388	0.56%	2007060	0.82%	-0.26%***	-19.26
2019	551388	0.56%	2007060	0.89%	-0.32%***	-23.67
2020	275694	0.56%	1003530	0.92%	-0.36%***	-18.31
2021	532877	0.81%	1939742	1.26%	-0.45%***	-26.84
2022	540432	0.78%	1967004	1.16%	-0.38%***	-24.24
2023	137847	0.78%	501761	1.10%	-0.32%***	-10.5

Table 4: Primary Borrower Gender and Loan Default Propensity

This table reports the results from estimating regression equation 2. The sample includes all loans originated between 2013 and 2014 for which we have observable loan repayment data. The explanatory variables include the interaction between the loan sanction period dummy *Post* and primary loan borrower gender indicator and all loan characteristics. *Post* takes the value of 1 if the loan originated in 2014 and zero otherwise. The data covers the loan performance period from April 2015 to March 2023. In column (1), a default event is defined as any consecutive default lasting more than three months. In column (2), a default event is defined as any consecutive default lasting more than 6 months. Standard errors are clustered at the district level and reported in the parentheses. *** p<0.01, ** p<0.05,* p<0.1.

	(1)	(2)
	>3 months	>6 months
Post × Female	0.0650	0.0762
	(0.136)	(0.179)
Female	-0.387***	-0.300**
	(0.0989)	(0.117)
Age	0.0150***	0.0135*
	(0.00507)	(0.00689)
ln(Loan amount)	-0.730***	-0.792***
	(0.124)	(0.156)
Loan tenure	6.66e-05**	8.56e-05**
	(2.66e-05)	(3.59e-05)
ln(collateral)	0.109	0.0816
	(0.113)	(0.138)
Loan to value ratio	-0.567	-0.845
	(0.752)	(0.923)
Interest rate	0.473***	0.519***
	(0.0377)	(0.0558)
EMI/Income	0.399***	0.395***
	(0.0990)	(0.134)
Loan Sanction Quarter Fixed Effect	Y	Y
District Fixed effect	Y	Y
Constant	-1.542	-0.759
	(1.268)	(1.571)
Observations	40,073	33,325
Pseudo R-squared	0.162	0.168

Table 5: Default during Covid and Gender of Primary Borrower

This table reports the results on default dynamics for the mortgage loans sanctioned between 2013 and 2014. The sample has been matched based on loan characteristics. The matching outcome is reported in Appendix Figure A.1. Column (1) includes mortgage repayment data from 2018 to March 2023, while Column (2) spans the same period but excludes the year 2020. The default indicator is based on the bank's definition of default. The *PostCOVID* dummy variable is set to 1 for periods after 2021 and 0 otherwise. Control variables include all available loan characteristics. Standard errors are clustered at the district level and shown in parentheses. *** p<0.01, ** p<0.05,* p<0.1.

	(1) with 2020	(2) w/o 2020
PostCOVID × Female	-0.0265	-0.0353
	(0.0947)	(0.106)
Female	-0.452***	-0.440***
	(0.0923)	(0.0963)
Age	0.0106	0.0124*
	(0.00694)	(0.00741)
Ln(loan amount)	-0.629***	-0.657***
	(0.147)	(0.144)
Interest rate	0.496***	0.493***
	(0.0519)	(0.0504)
Loan tenure	0.00231**	0.00279**
	(0.00115)	(0.00126)
Ln(collateral)	0.182	0.181
	(0.139)	(0.137)
Loan to value ratio	-1.912**	-1.920**
	(0.861)	(0.843)
EMI/Income	0.474***	0.469***
	(0.110)	(0.114)
year-month Fixed Effect	Y	Y
District Fixed Effect	Y	Y
Loan Sanction Quarter Fixed Effect	Y	Y
Constant	-4.556***	-4.242***
	(1.633)	(1.632)
Observations	2,711,332	2,240,074
Pseudo R-squared	0.171	0.170

Table 6: State Social Economics Statistics

This table presents the socioeconomic status of various states in India, using data from 2014. Definitions of the variables can be found in Appendix A.0.2. The percentage of housewives, gender gap in education, and gender gap in income are sourced from the CMIE survey. Population (Lakh), % of females, % of homeowners, % of secondary school graduates, and GDP per capita (000) are derived from the 2011 census data. The states are ordered by the gender gap in income variable, from largest to smallest.

State	% of housewife	Gender gap in education	Gender gap in income	Population (Lakh)	% of female	% of home owner	% of secondary school graduates	GDP per capita (000)
GOA	78.95%	-0.96	13.12%	14.59	49.32%	78.06%	62.20%	216.43
TAMIL NADU	75.35%	-1.29	12.52%	721.47	49.91%	63.23%	42.72%	118.09
ANDHRA PRADESH	78.43%	-1.93	11.81%	845.81	49.82%	67.86%	40.23%	48.13
PUDUCHERRY	77.59%	-1.48	10.34%	12.48	50.92%	30.20%	45.08%	153.61
MAHARASHTRA	82.10%	-1.83	10.18%	1123.74	48.17%	80.24%	45.62%	129.18
KARNATAKA	85.68%	-1.60	10.00%	610.95	49.31%	59.98%	39.14%	115.31
Northeast States	86.76%	-0.76	9.27%	457.72	48.96%	59.21%	30.51%	56.69
UTTARAKHAND	88.89%	-1.90	8.50%	100.86	49.06%	62.09%	45.30%	133.03
DELHI	86.10%	-2.70	7.90%	167.88	46.47%	76.56%	49.71%	234.04
KERALA	86.49%	0.25	7.60%	334.06	52.02%	-		120.57
HARYANA	87.23%	-2.47	7.49%	253.51	46.77%	82.98%	35.23%	137.08
PUNJAB	89.88%	-1.37	6.63%	277.43	47.23%	87.07%	43.05%	107.94
CHHATTISGARH	87.00%	-2.20	6.50%	255.45	49.76%	72.98%	31.58%	71.47
HIMACHAL PRADESH	86.79%	-1.80	6.33%	68.65	49.28%	62.79%	53.01%	120.69
JAMMU & KASHMIR	91.04%	-2.86	6.01%	3.81	46.69%	46.10%	47.80%	117.93
WEST BENGAL	92.27%	-1.15	5.15%	911.67	48.72%	83.45%	35.91%	61.26
ODISHA	93.45%	-1.68	4.59%	419.70	49.46%	74.86%	46.89%	63.35
GUJARAT	91.11%	-2.30	4.12%	604.40	47.90%	83.25%	39.85%	121.49
RAJASTHAN	93.08%	-3.37	4.01%	685.48	48.14%	79.73%	29.50%	70.93
MADHYA PRADESH	94.32%	-2.63	3.52%	726.27	48.21%	77.34%	34.57%	50.28
UTTAR PRADESH	96.28%	-2.85	2.49%	1998.12	47.71%	83.90%	31.49%	40.14
BIHAR	97.03%	-2.76	1.66%	1041.00	47.86%	89.46%	28.11%	25.90
JHARKHAND	97.00%	-2.77	1.61%	329.88	48.68%	77.58%	33.75%	50.27

Table 7: Gender Difference in Repayment during Moratorium Period and Gender Inequality
This table presents the regression results on district-level gender inequality and the gender disparity in repayment during the moratorium period. The dependent variable is the gender difference in missed repayments during the moratorium period, estimated at the district level. Gender inequality in each district is measured by the percentage of housewives, the gender education gap, and the gender income gap. We also control for other district-level demographics, including population, percentage of females, percentage of homeowners, and percentage of secondary school graduates. A district is included in the sample only if there are at least 1,000 mortgage loans and 30 valid survey responses. *** p<0.01, ** p<0.05,* p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Gender difference in repayment during moratorium period					
% of housewife	0.0494***	0.0465***				
	(0.0157)	(0.0172)				
Gender gap in education			-0.00542***	-0.00508***		
			(0.00171)	(0.00193)		
Gender gap in income					-0.0882***	-0.0837***
					(0.0269)	(0.0301)
Ln (population)		-0.00452**		-0.00375		-0.00451*
		(0.00228)		(0.00229)		(0.00229)
% of female		-0.159		-0.199		-0.161
		(0.154)		(0.153)		(0.157)
% of home owner		0.0188		0.0171		0.0192*
		(0.0117)		(0.0115)		(0.0115)
% of secondary school graduates		0.0365*		0.0404**		0.0383**
		(0.0186)		(0.0189)		(0.0188)
Constant	-0.0574***	0.0612	-0.0253***	0.0994	-0.00799***	0.108
	(0.0139)	(0.0889)	(0.00377)	(0.0870)	(0.00239)	(0.0836)
Observations	229	226	229	226	229	226
R-squared	0.057	0.102	0.047	0.093	0.048	0.094

Table 8: Female Mortgage Borrower and Deposit Behavior

Panel A: Summary Statistics of Deposit Data

This table reports summary statistics of deposit balances at the year-branch level across India for the years 2012 to 2014. The statistics are separately presented for male account holders at the State Bank of India (SBI), female account holders at SBI, and female account holders at other banks.

	N	Mean	P25	Median	P75	SD
SBI : Male Accounts						
Saving Deposit	29,235	208,300.5	56,662	125,407	265,647	253,047.0
Term Deposit	29,235	256,509.4	44,998	108,287	266,452	780,134.7
SBI : Female Accounts						
Saving Deposit	29,235	262,492.4	72,600	159,164	335,489	311,166.1
Term Deposit	29,235	95,026.9	13,811	36,678	101,698	192,343.9
Other Banks : Female Accounts						
Saving Deposit	32,793	202,604.7	48,599	104,751	227,020	361,521.1
Term Deposit	32,793	63,446.76	10,406	29,507	75,618	97,066.4

Panel B: Female Mortgage Borrower and Saving Deposit Estimates

This table presents the results from estimating regression equation 6. The dependent variable is the natural logarithm of either the savings balance or the term deposit balance. The sample period is from 2012 to 2014. The year of 2012 serves as the comparison base. *Treat* is a binary indicator equal to 1 if the bank branch is located in a district that experienced a high increase (over 40%) in the share of female mortgage borrowers from 2013 to 2014, and 0 otherwise. All regressions include fixed effects at the district, branch, and year levels. The tests are run separately for three samples namely the SBI female accounts, the SBI male accounts, and the other India Banks' female accounts. **** p<0.01, ** p<0.05, * p<0.1.*

	SBI: Female Accounts		SBI: Male Accounts		Other Banks: Female Accounts	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ln(Saving)	ln(Term Deposit)	ln(Saving)	ln(Term Deposit)	ln(Saving)	ln(Term Deposit)
FY2013 × Treat	-0.0153	0.0192	-0.0129	0.00902	0.0218	0.00498
	(0.00954)	(0.0132)	(0.0100)	(0.0133)	(0.0180)	(0.0179)
FY2014 × Treat	-0.0156	0.0481***	-0.0152	0.0270*	0.0141	0.0272
	(0.0103)	(0.0148)	(0.0107)	(0.0146)	(0.0187)	(0.0194)
District FE	Y	Y	Y	Y	Y	Y
Branch FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Constant	11.75***	10.36***	11.51***	11.42***	11.53***	10.16***
	(0.00225)	(0.00317)	(0.00236)	(0.00325)	(0.00412)	(0.00421)
Observations	29,235	29,235	29,235	29,235	32,781	32,781
R-squared	0.985	0.976	0.985	0.975	0.897	0.924

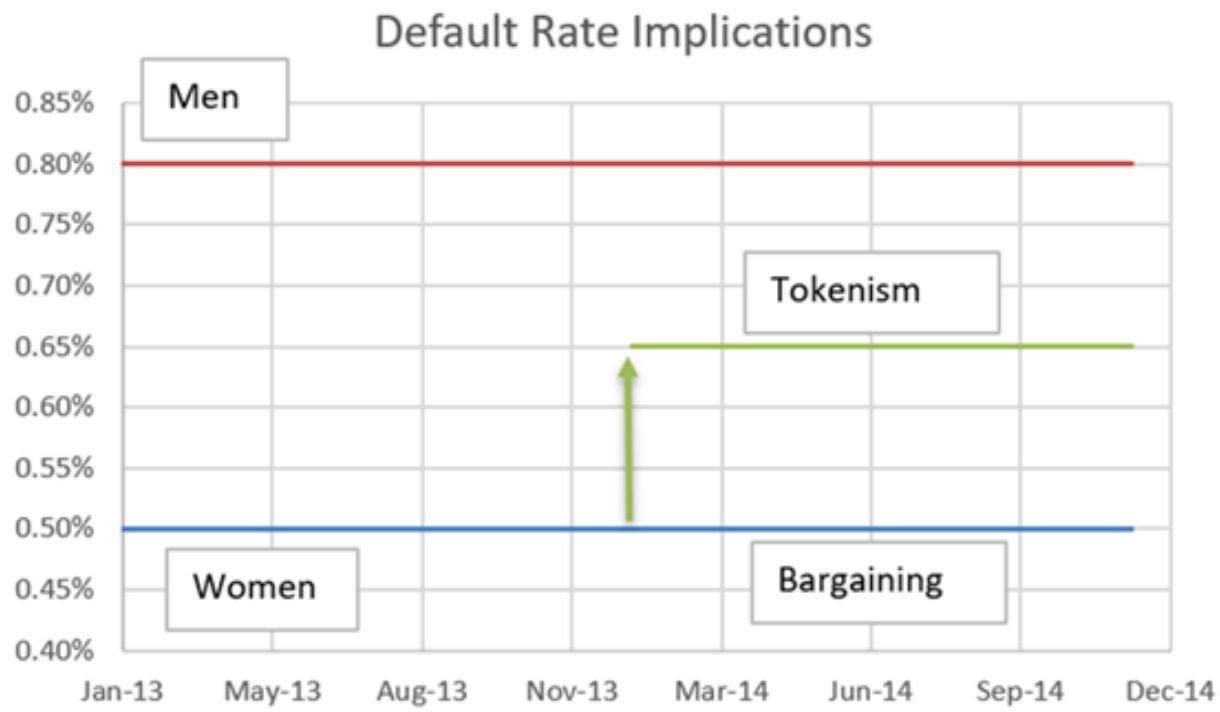


Figure 1: Illustration of Predicted Default Rate Patterns under Two Hypotheses
If the tokenism effect dominates, the default rate for female loans (blue line) increases after the implementation of the 5 basis point concession policy, leading to a narrowing gender gap in default rates (difference between red and green lines). Conversely, if the bargaining power effect dominates, the default rate for female loans remains unchanged, and the gender gap (difference between red and blue lines) stays constant.

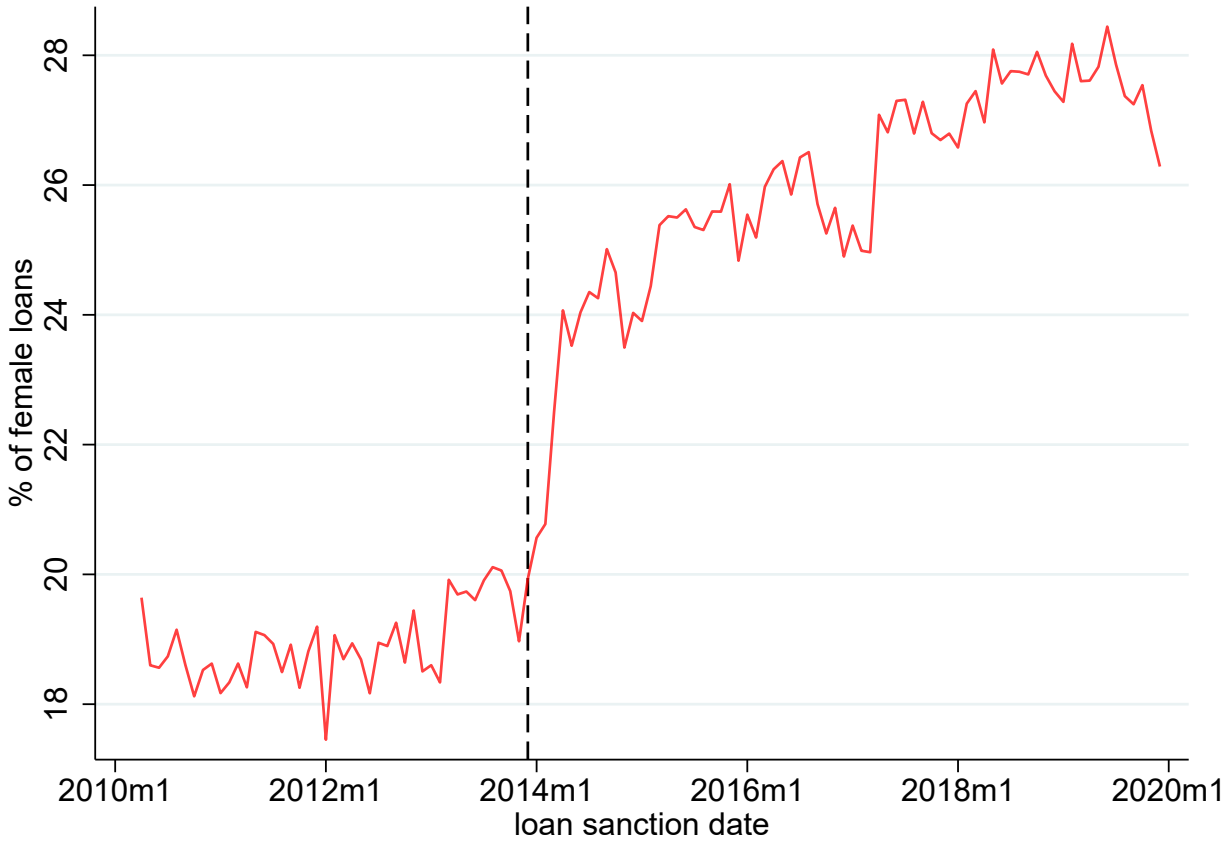


Figure 2: Proportion of Female Primary Borrowers
This figure presents the monthly distribution of the percentage of female primary borrowers for sanctioned mortgage loans. The red line represents the proportion of female primary borrowers, with the corresponding percentage values delineated on the left y-axis. The vertical dotted line indicates the announcement and implementation month of the 5 bps concession for female loans, which occurred in December 2013.

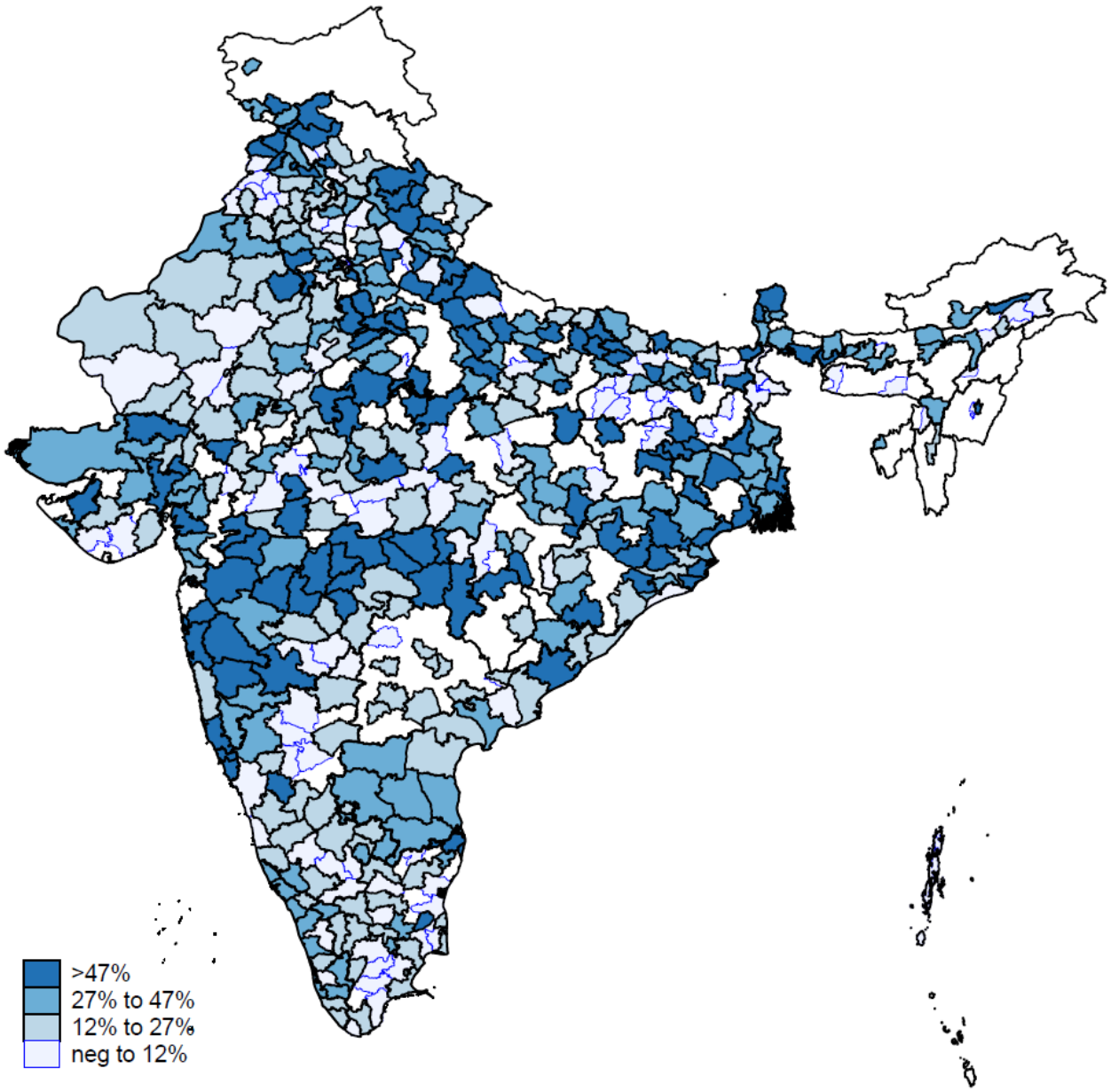
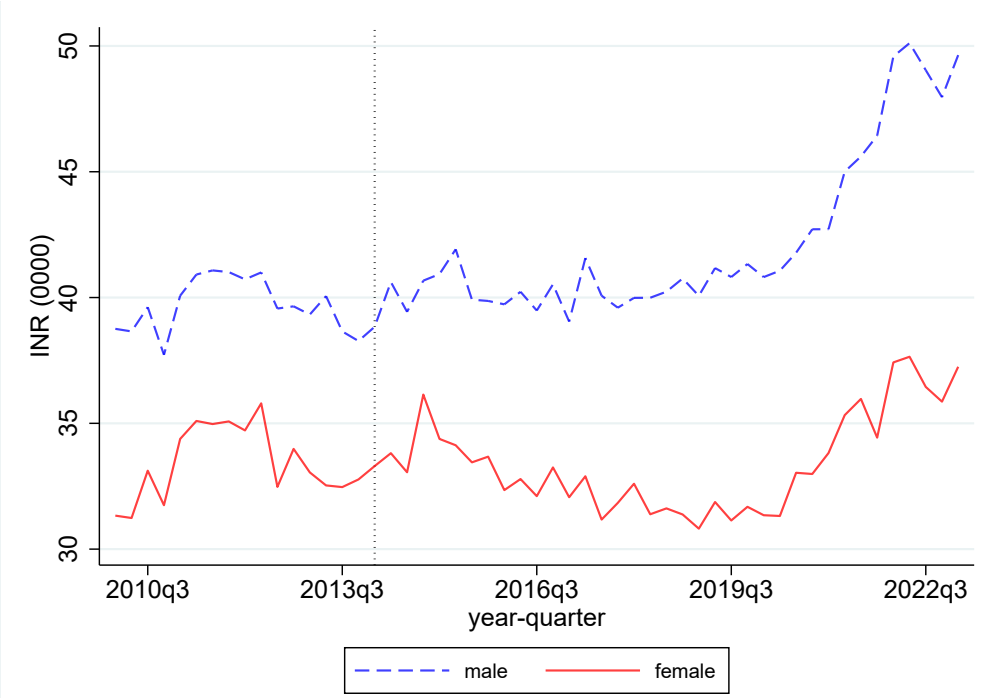
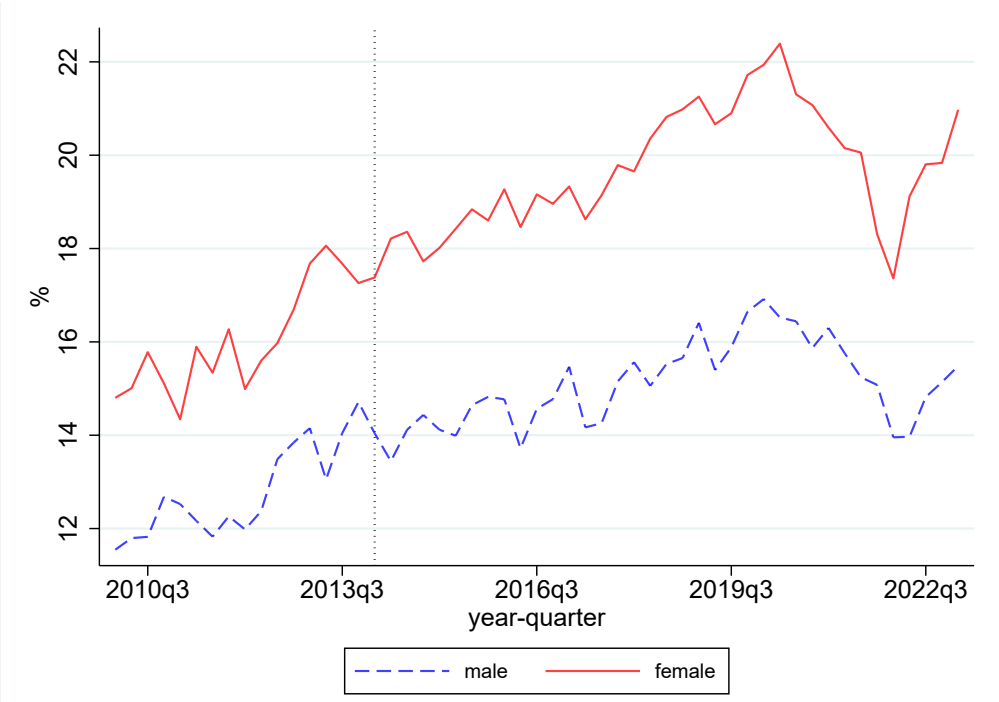


Figure 3: Pan-India Impact on the % of Female Primary Borrowers

Figure 3 shows the change of % of female loans by districts in India. For each district, $\%Female_{pre}$ represents the percentage of mortgage loans with female primary borrowers from 2010 to 2013. $\%Female_{post}$ represents the percentage of mortgage loans with female primary borrowers from 2014 to 2015. We only retain the data from the two years after the policy change, as this better reflects the increase in female loan driven by the 5 bps concession. We drop the districts if they do not have at least 50 loans issued in the pre or post periods. The map shows the value of $(\%Female_{post} - \%Female_{pre})/(\%Female_{pre})$ meaning the change of % of female loans relative to the pre-treatment period condition. The darkest areas indicate a growth in the proportion of female loans higher than 47%. Other colors and the corresponding increase ratios are indicated in the legend. The white areas are the regions where we lack sufficient mortgage loan data.



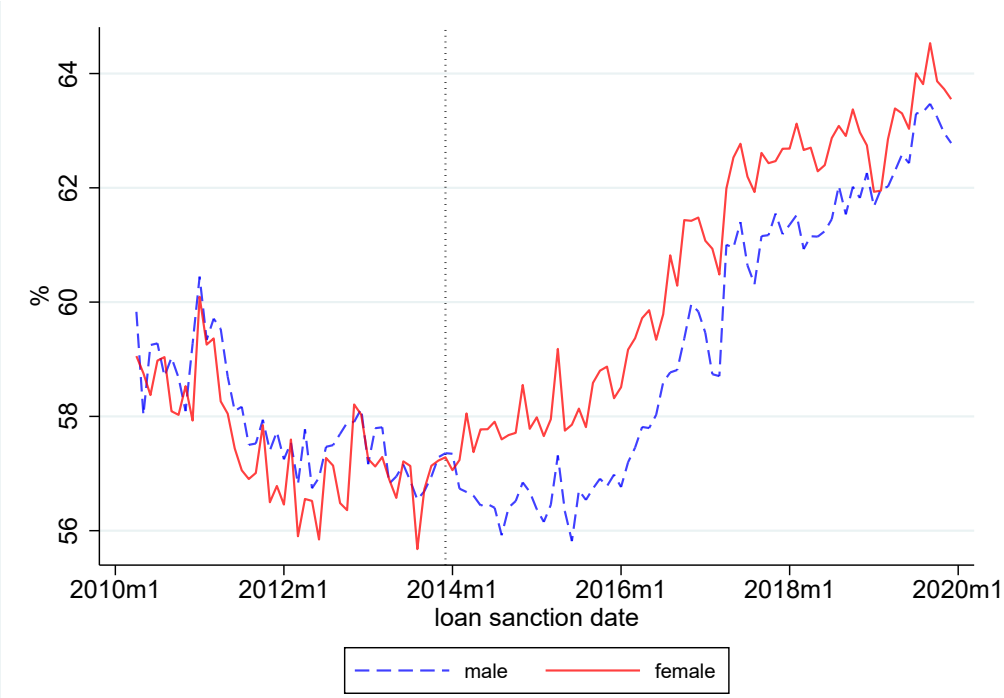
(a) Average Income



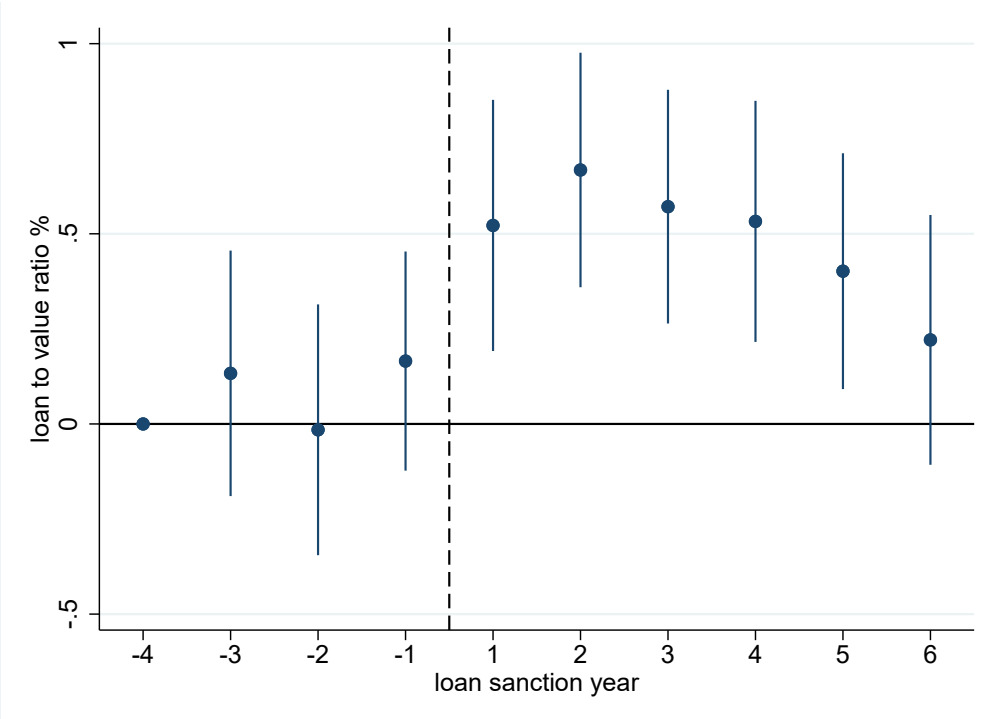
(b) Average EMI to Income Ratio

Figure 4: Average Income and Primary Borrower Gender

Figure (a) plots the average income in 10 thousand India Rupee by primary borrower gender over quarters when the loans were sanctioned. The vertical dotted line indicates the announcement and implementation month of the policy change, which occurred in December 2013. Figure (b) shows the average EMI to income ratio by primary borrower gender over quarters when the loans sanctioned.



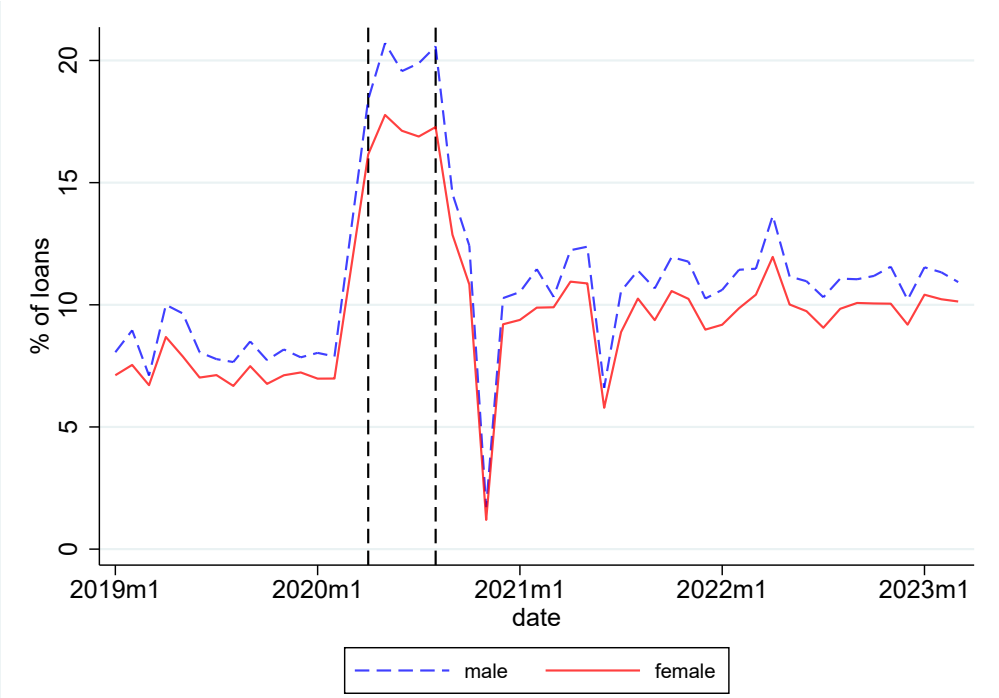
(a) Loan-to-Value ratio by Gender



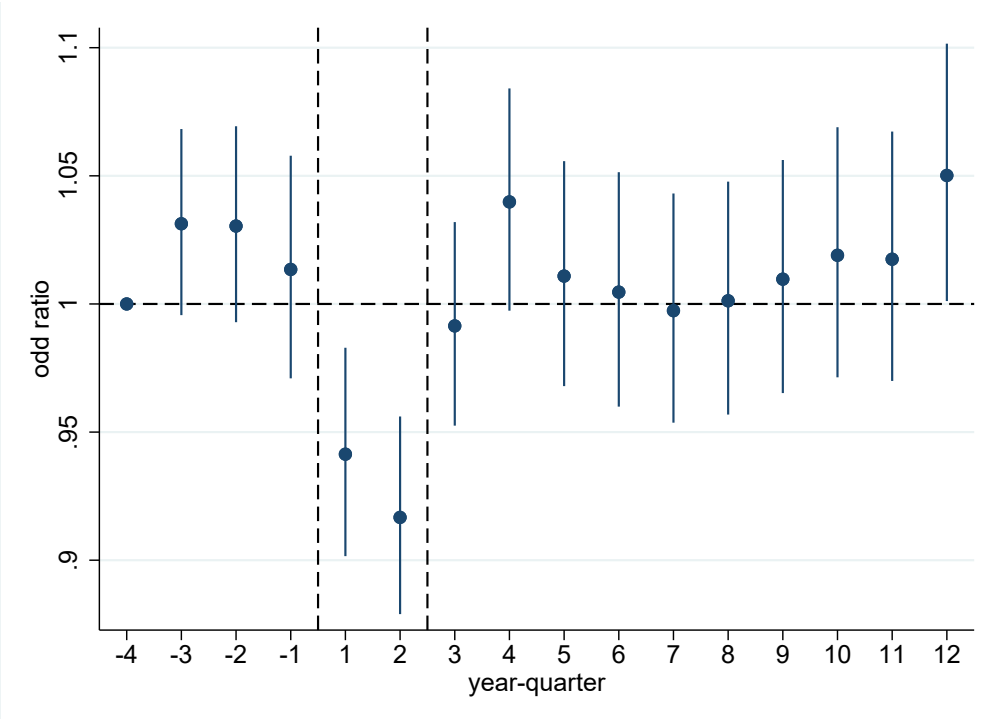
(b) Change in Loan-to-Value ratio for Female Loans

Figure 5: Loan-to-Value ratio and Primary Borrower's Gender

Figure (a) displays the average loan-to-value ratio for male and female loans by the month each loan was sanctioned. The vertical dotted line indicates the announcement and implementation month of the policy change, which occurred in December 2013. Figure(b) shows the estimated coefficients and their 95% confidence interval from regression equation 1 The vertical dotted line separates the pre- and post- treatment loan sanction years.



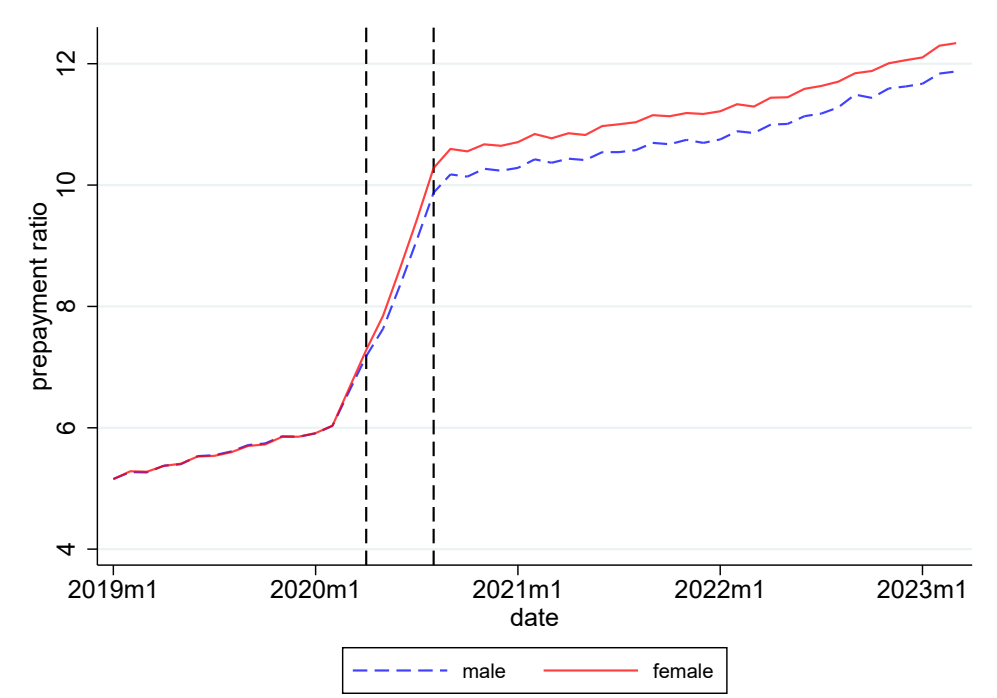
(a) Missing Repayment during Moratorium Period



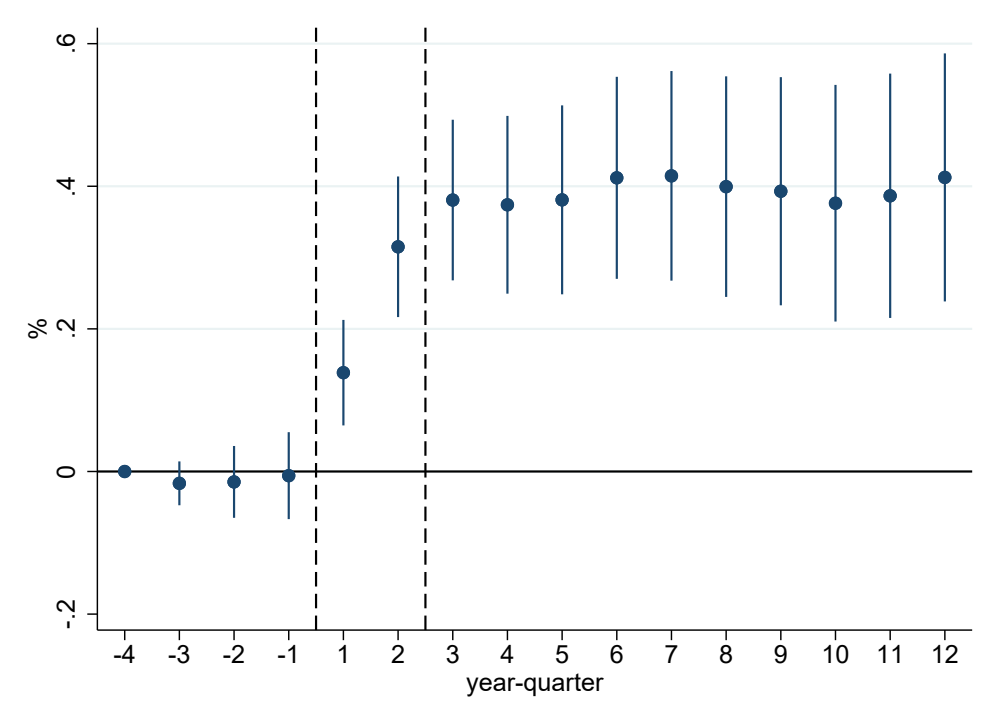
(b) Change in Gender Difference in Missing Repayment

Figure 6: Missing Repayment and Primary Borrower Gender

Figure (a) reports the % of loans with zero repayment from January 2019 to March 2023 which is the end of the sample period. The two vertical lines indicate the moratorium period starting from March 2020 till August 2020. The results presented are derived from the matched sample. Figure(b) shows the estimated coefficients and their 95% confidence interval from regression equation4.



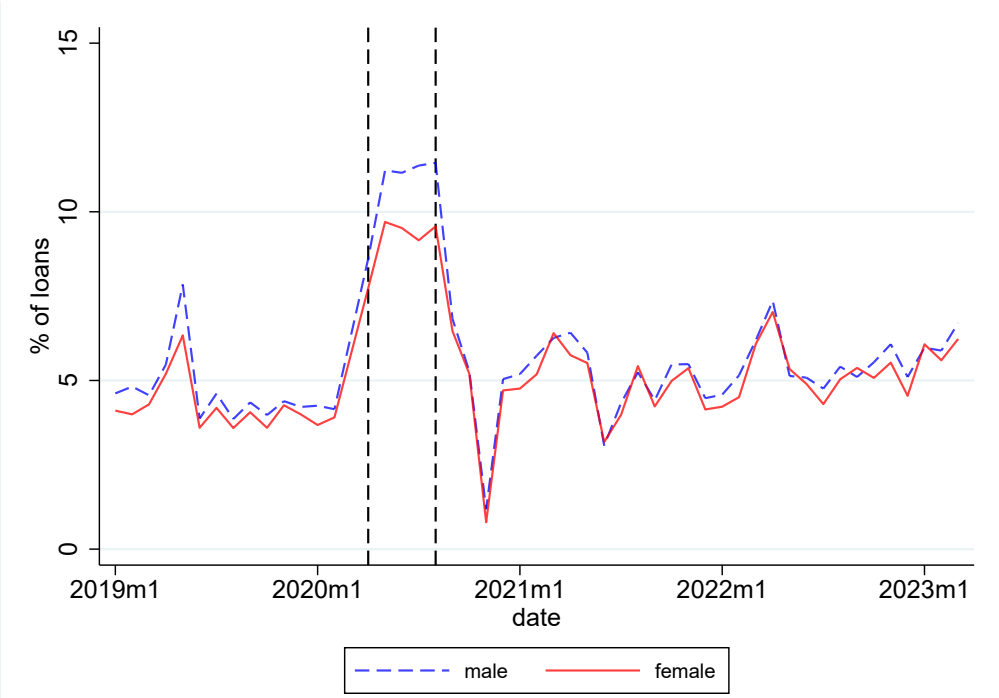
(a) Prepayment as % of Loan Amount



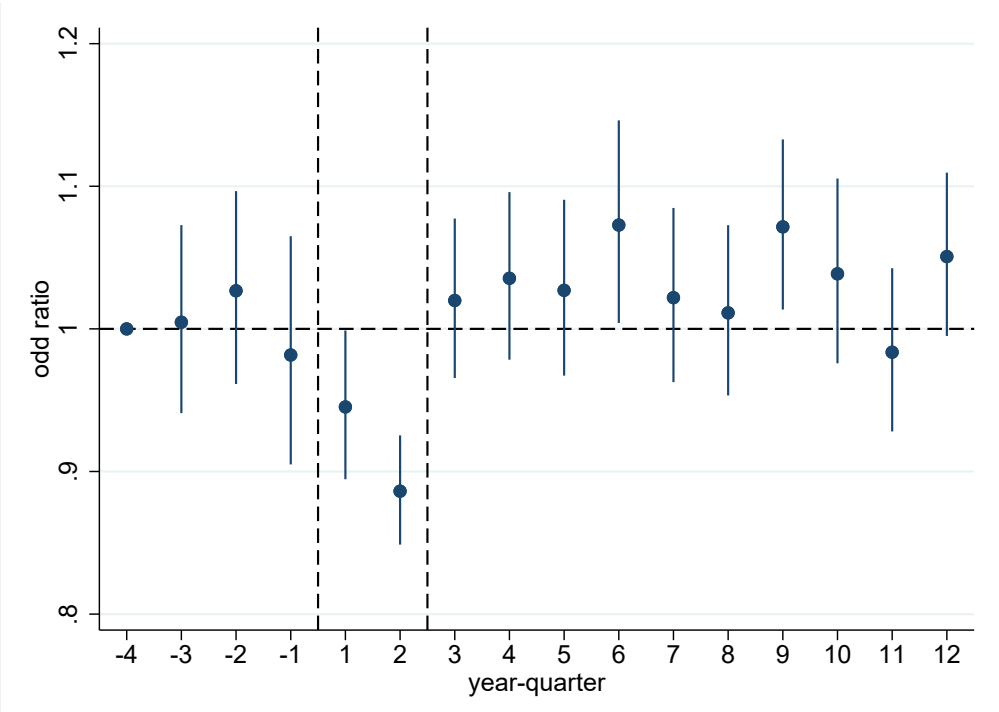
(b) Change in Gender Difference in Prepayment

Figure 7: Prepayment and Primary Borrower Gender

Figure (a) reports the average prepayment amount to initial total loan amount ratio from January 2019 till March 2023. The results are derived from the matched sample. The vertical dotted lines indicate the moratorium period starting from March 2020 to August 2020. Figure(b) shows the estimated coefficients and their 95% confidence interval from regression equation 5. The dependent variable is the amount of prepayment as a percentage of initial loan outstanding.

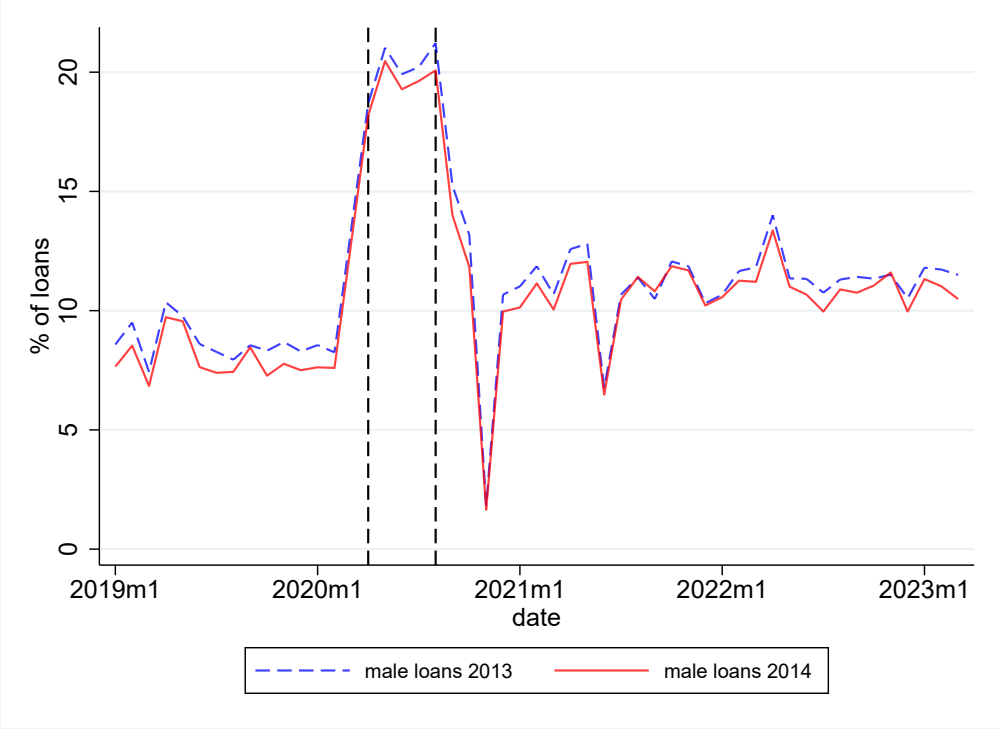


(a) Missing Repayment during Moratorium Period

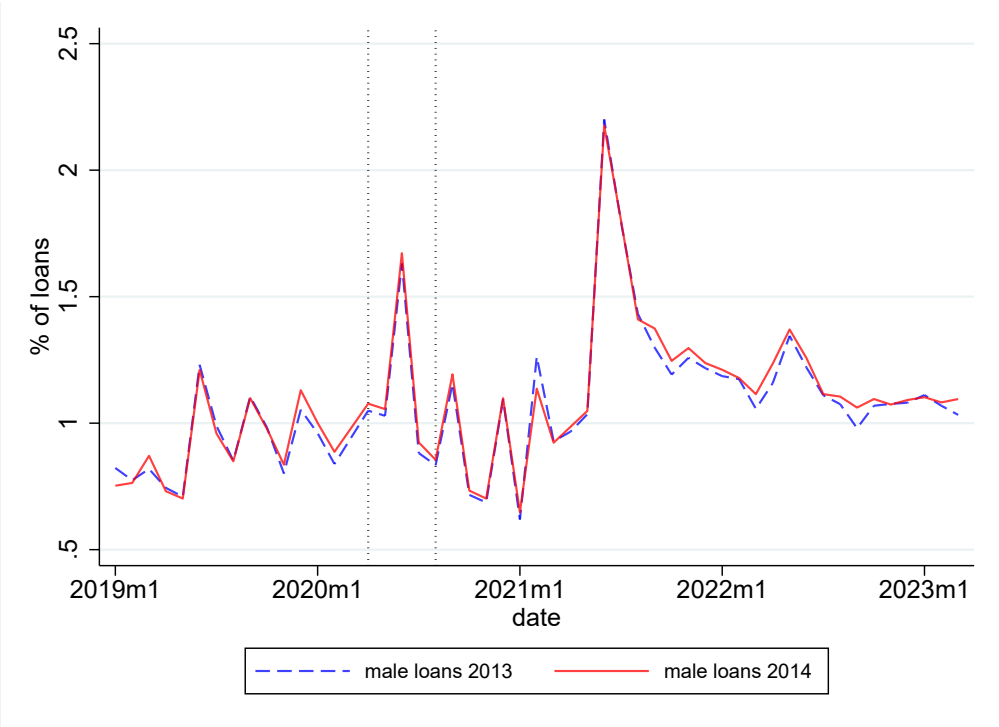


(b) Change in Gender Difference in Missing Repayment

Figure 8: Gender Difference in Missing Repayment among Government Employees
Figure (a) reports the % of loans with zero repayment from January 2019 to March 2023. The two vertical lines indicate the moratorium period starting from March 2020 to August 2020. The results presented are derived from the matched sample. The sample only retained individuals engaged in government-related work. Figure(b) shows the estimated coefficients and their 95% confidence interval from regression equation 4

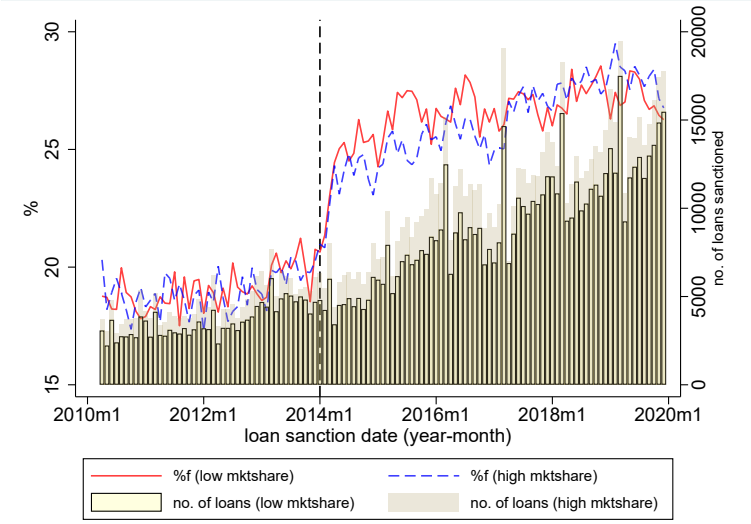


(a) % of Missing Repayment of Male Loans

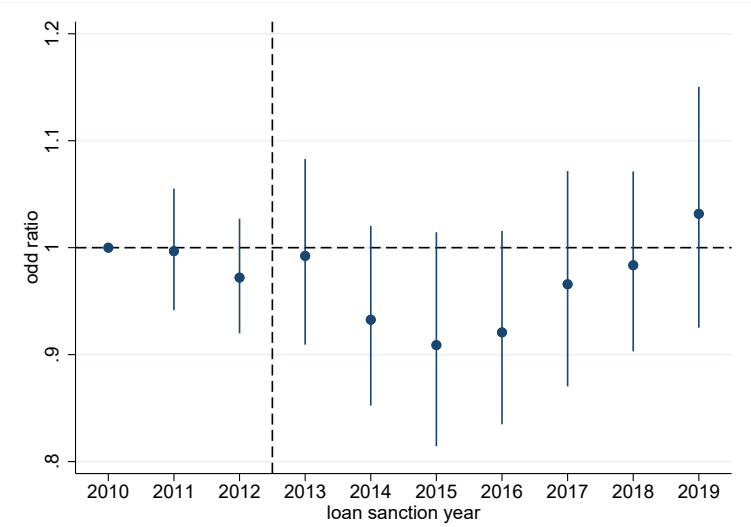


(b) Default Rate of Male Loans

Figure 9: Change in Composition of Male Loans
Figure (a) shows the monthly percentage of male loans with missed repayments from January 2019 to March 2023, for loans originated in 2013 and 2014, separately. Figure (b) shows the monthly loans default rate for male loans originated in 2013 and 2014 respectively.



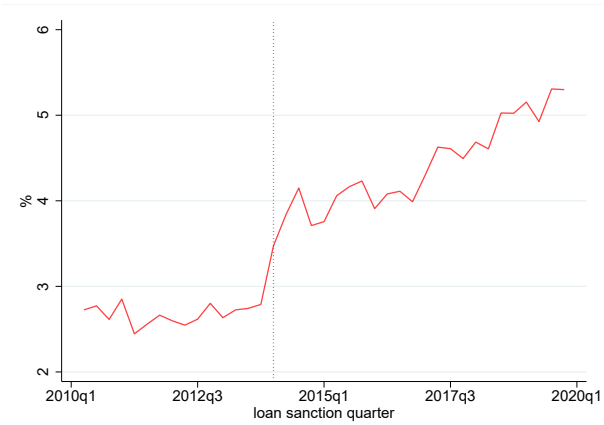
(a) % of female loans by SBI market share



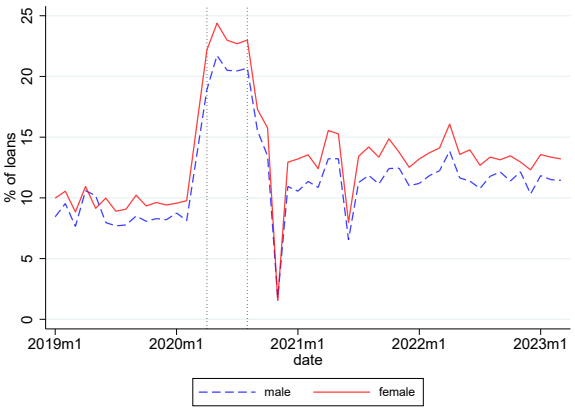
(b) change of % of female loans by SBI market share

Figure 10: SBI Market Share and Proportion of Female Loans

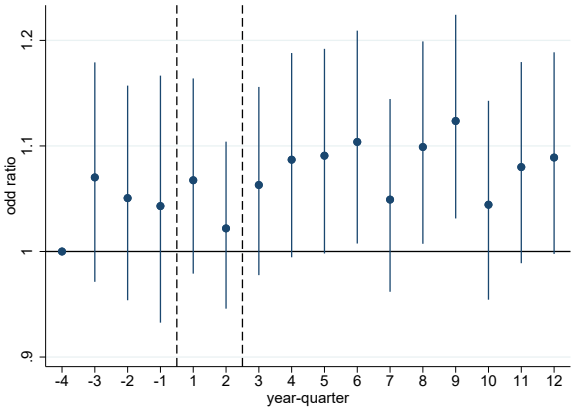
Figure (a) shows the percentage of female loans by the market share of the state bank of India. The red line represents the percentage of female loans in districts where the SBI has a low market share. The blue dotted line shows the percentage of female loans in districts with a high SBI market share. The empty bars depict the monthly number of loans sanctioned in districts with a low SBI market share, while the yellow shaded bars represent the monthly count of loans sanctioned in districts with a high SBI market share. Figure (b) reports the results by estimating regression equitation $Logit(Female_{i,t}) = \gamma_0 + \sum_{t=-3}^{t=6} \gamma_t \times SancYear_t \times MktShare_i + \gamma_7 \times MktShare_i + Controls_i + \epsilon_i t$. The graph reports the estimated coefficients γ_{-3} to γ_6 for the interaction term between loan sanction year dummy and district SBI market share dummy, along with their 95% confidence interval.



(a) % of housewives



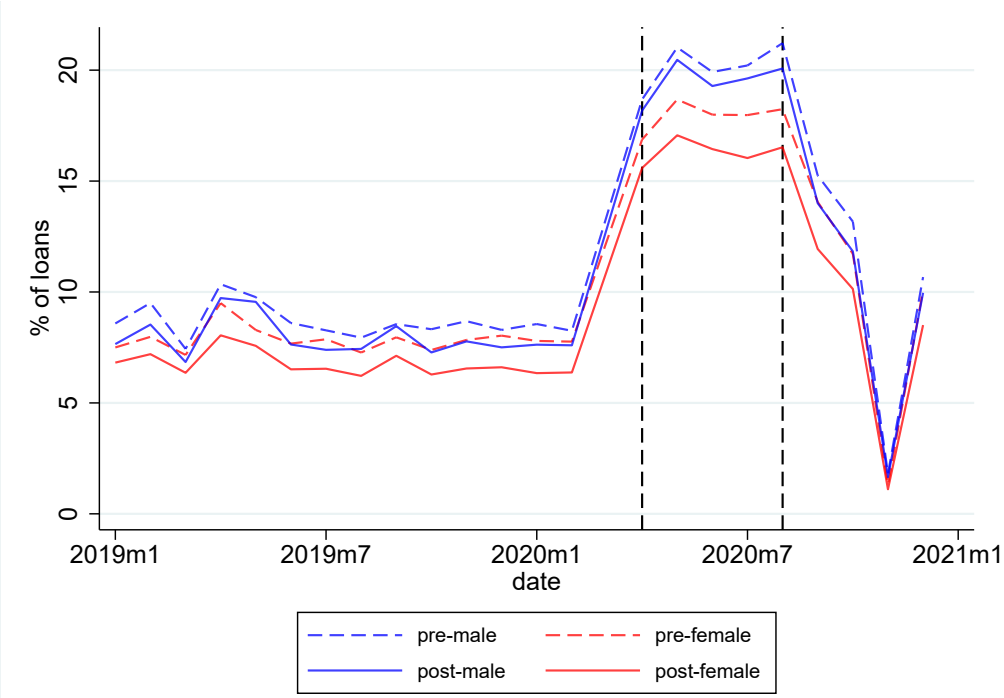
(b) Missing Repayment



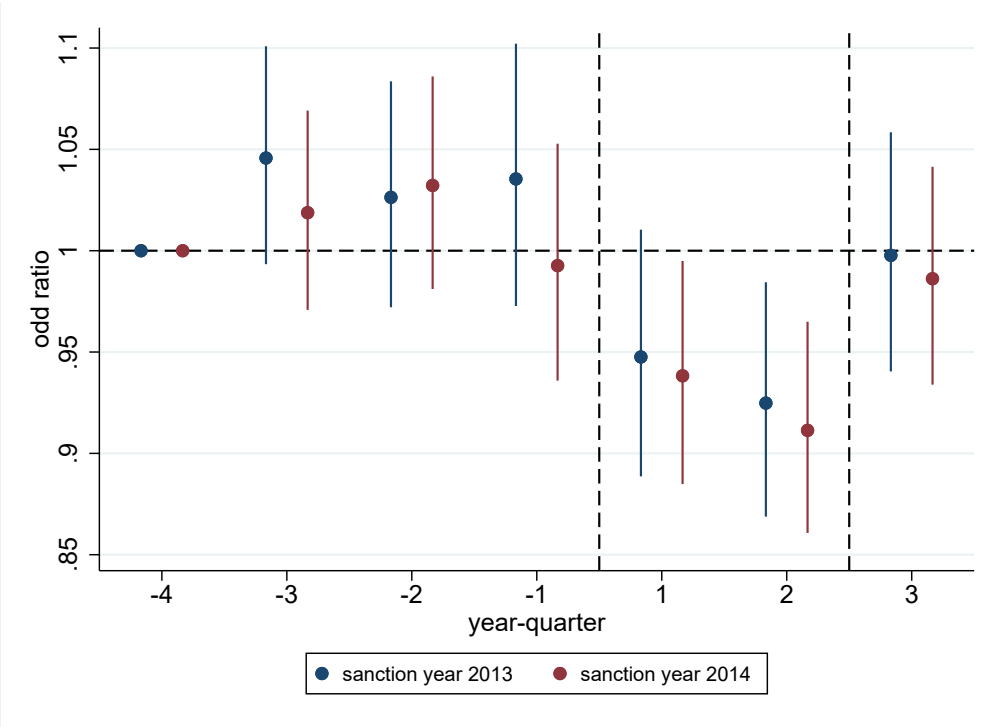
(c) Change in Missing Repayment

Figure 11: Housewives as the Primary Mortgage Borrowers

These figures present the results related to housewives as the primary mortgage borrowers. Figure (a) displays the proportion of housewives who are the primary borrowers of loans by quarters when the loans were sanctioned. Figure (b) shows the % of loans with missing repayment in a month from January 2019 till March 2023 for the housewife primary borrowers and their matched male primary borrowers. The sample includes 6687 male borrowers and 6687 housewife borrowers. The dotted vertical lines indicate the moratorium period. Figure (c) shows the results from estimating regression equation 4 among the housewife primary borrowers and their matched male borrower counterparts. The figure plots the estimated coefficients and their 95% confidence interval.

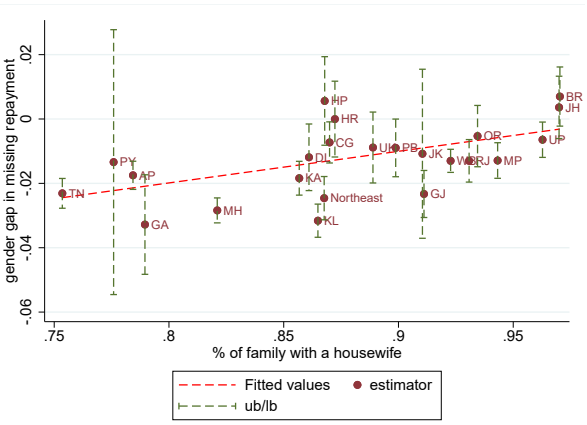


(a) Percentage of Loans with Missing Repayment

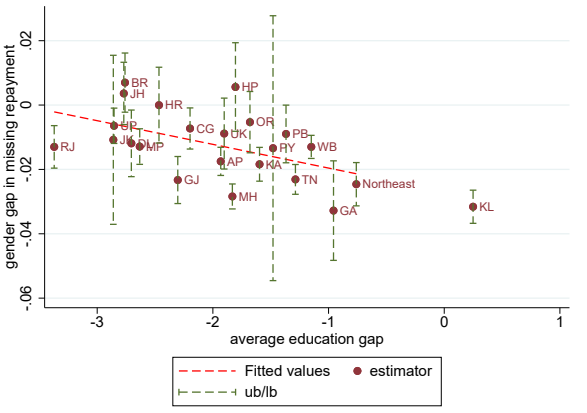


(b) Gender Difference in Missing Repayment by Loan Sanction Year

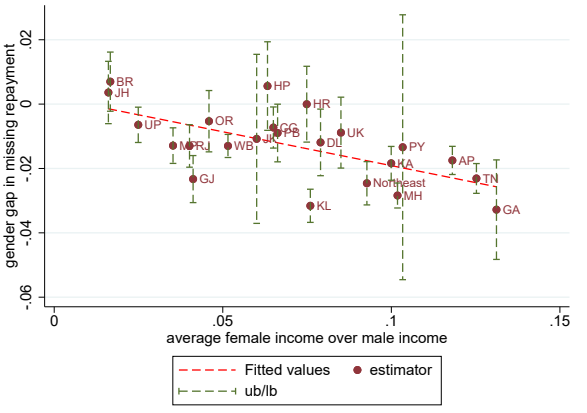
Figure 12: Missing Repayment during Moratorium Period and Loan Sanction Year
Figure (a) reports the % of loans with missing repayment from January 2019 to December 2020. The red lines represent the female loans. The blue lines represent the male loans. The dashed lines are for the loans sanctioned in the year of 2013. The solid lines are for the loans sanctioned in the year of 2014. The vertical dashed lines indicate the moratorium period. Figure (b) displays the results by estimating regression equation 4 separately for loans sanctioned in 2013 and 2014. The blue points report the estimation for loans sanctioned in 2013. The red points report the the estimation for loans sanctioned in 2014. The estimated coefficients and their corresponding 95% confidence interval are depicted in the figure.



(a) Labor Market Participation



(b) Education Gap



(c) Income Gap

Figure 13: Gender Inequality and Gender Difference in Repayment during Moratorium Period
These figures present the correlation between gender differences in repayment during moratorium period and the gender inequality status across states in India. Figure (a) measures the gender inequality by the percentage of families with a housewife. Figure (b) measures the gender inequality by the average education level difference between husbands and wives within a household. Figure (c) measures the gender inequality by the average wife and husband income ratio. The correlation regression equation also control for other state level demographics including population, GDP per capita, % of female, % of home owners.

Appendix

A.0.1. data cleaning process

Table A.1: Data Cleaning Summary
This table shows the data cleaning process.The first column describes what kind of loans were dropped out of the sample, the second column indicates how many such observations there are, and the third column shows the proportion of these observations.

	Num	**Percent**
Total number of loans	6,222,914	
drop if age is missing	17,109	0.3%
drop if age is more than 70 or age is below 18	27,236	0.4%
drop if gender is missing	9,012	0.1%
drop if loans sanctioned after 2019	595,993	9.6%
drop if interest rate is missing	75,359	1.2%
drop if interest rate is zero	1,518,118	24.4%
drop if interest rate is outliers (<5% or >15%)	660	0.0%
drop if loan tenure is missing	216,856	3.5%
drop if loan tenure is less than 6 months	2,924	0.0%
drop if loan amount is missing	77,031	1.2%
drop if loan amount is less than 1.5 lakh (This primarily pertains to a special loan provided by SBI to local government employees, with a loan amount cap of 1.5 lakh.)	1,139,350	18.3%
drop if loan amount are outliers (less than 1 lakh or more than 100 lakh)	15,066	0.2%
drop if collateral value is missing	288,528	4.6%
drop if collateral is zero	51,430	0.8%
drop if collateral value are outliers (less than 1 lakh or more than 1000 lakh)	900	0.0%
Total number of loans after data cleaning	2,187,342	35.1%

A.0.2. Variable Definition

Table A.2: Description of Variables used in this Study

Variable name	Definition
Age	The primary borrower's age at the loan origination date.
Interest Rate	The mortgage loan interest rate at the time of loan origination.
Loan tenure	The mortgage loan tenure in months at the time of loan origination.
Loan amount	The mortgage loan amount at the time of loan origination.
Collateral value	The collateral value of the mortgage loan at the time of the loan origination.
EMI	Equated Monthly Installment (EMI) is computed based on the formula $EMI = \left[\frac{L \times R \times (1+R)^N}{(1+R)^N - 1}\right]$. L stands for the loan amount. R stands for the monthly interest rate which is the initial annual interest rate divided by 12. N stands for the loan tenure
Loan-to-Value ratio	Mortgage loan amount over collateral value at the time of the loan origination.
Delinquent indicator	A binary variable indicating if the loan has any overdue amount in a given month.
Delinquent amount	The cumulative loan amount overdue as of a given month.
Default indicator	A binary variable indicating if the loan has been in default status as of a given month
Default amount	The cumulative loan amount overdue after the loan becomes in default status as of a given month.

Table A.2 – continued from previous page

Variable name	Definition
Repayment amount	The total amount repaid on the mortgage loan in a given month, including both principal and interest payments.
Prepay indicator	A binary variable indicating if the mortgage loan cumulative repayment exceeds the scheduled amount in a given month.
Prepay amount	The cumulative total prepaid amount in a given month.
Prepayment to loan amount ratio	The ratio of prepayment amount to the initial loan amount in a given month.
% of housewife	Proportion of the households where the wife is a homemaker
gender gap in education	If the individual has no education, the education index is 0. The value of the education index is 1 for passing 1st standard. Similarly, the education index is 12 for passing 12th standard. The education index is 13 for completing a diploma or certificate course. The education index is 14 for graduating at the college level, and 15 for obtaining a PhD or MPhil. Within a household, the education gap is the difference between the wife's education index and the husband's education index
gender gap in income	Within a household, the income gap is defined as the wife's total income from all sources divided by the combined total income from all sources of both the husband and wife.
% of female	Percentage of female out of the total population
% of homeowner	Percentage of household owning a residential property.

Table A.2 – continued from previous page

Variable name	Definition
% of secondary school	Percentage of people who have graduated from a secondary school.

A.0.3. Interest Rate Concession

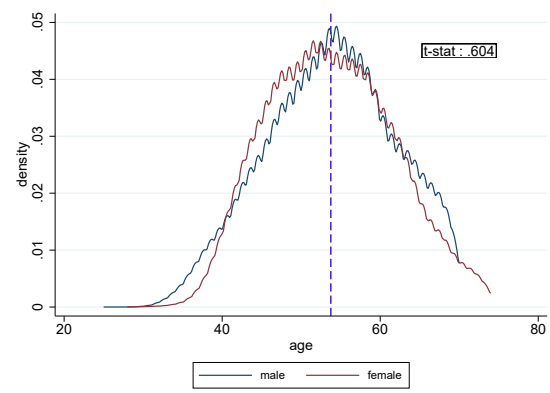
Table A.3: Interest Rate and Primary Borrower Gender

This table reports the results on primary borrower gender and interest rate. The Columns (1) and (2) include all loans sanctioned between 2013 and 2014, and Column (3) reports the results on a matched sample of male and female loans. Detailed summary statistics for the matched sample are provided in Appendix **??**. The variables include the interaction term between loans sanction year dummy *Post* and the primary borrower gender dummy *Female*, and all the other loan characteristics available. *Post* takes the value of 1 if the loan originated in 2014 and zero otherwise. Standard errors are clustered at the district level and reported in the parentheses. *** p<0.01, ** p<0.05,* p<0.1.

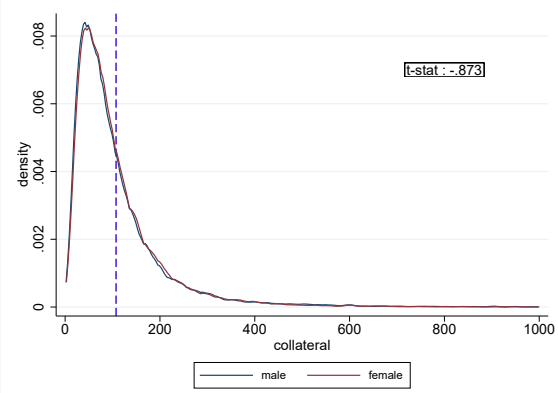
	(1) w/o matching	(2) w/o matching	(3) matching
Post × Female	-0.0520***	-0.0430***	-0.0459***
	(0.00824)	(0.00770)	(0.00986)
Female	0.0165*	0.00804	0.00175
	(0.00890)	(0.00841)	(0.00911)
Age		-0.0165***	-0.00987***
		(0.000663)	(0.000946)
Loan to Value ratio		-0.0589*	-0.104
		(0.0328)	(0.0661)
Ln (Loan amount)		-0.126***	-0.113***
		(0.0150)	(0.0292)
Tenure		-0.00357***	-0.00324***
		(0.000129)	(0.000141)
Ln (Collateral)		0.0327**	-0.0208
		(0.0141)	(0.0290)
Loan Sanction Quarter Fixed Effect	Y	Y	
District Fixed Effect	Y	Y	Y
Matched Pair Fixed Effect			Y
Constant	7.560***	10.35***	10.94***
	(0.00629)	(0.0944)	(0.127)
Observations	295,763	289,043	124,739
R-squared	0.037	0.104	0.568

A.0.4. Matching Outcome for the Loans with Repayment Data

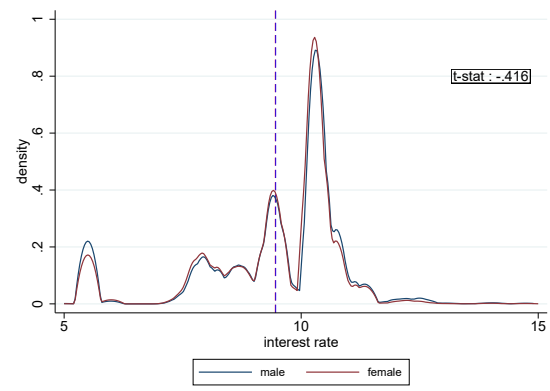
Here we present the outcomes following p-score matching. The matching was conducted among mortgage loans with available repayment data. For all mortgages originated between 2013 and 2014, we performed p-score matching within each quarter based on the borrower's age, loan collateral value, interest rate, loan amount, loan-to-value ratio, and loan tenure. The matching was based on the nearest neighbor method with replacement, ensuring the p-score differences were within 0.05. The matching outcome is presented in the Figure A.1 below. Each graph plots the kernel density distribution of the matched male and female loan sample.



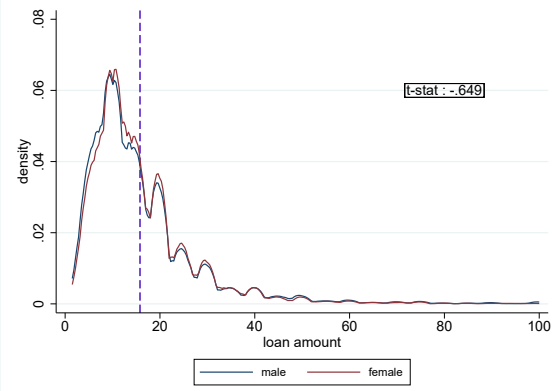
(a) Kdensity Distribution of Borrower's Age



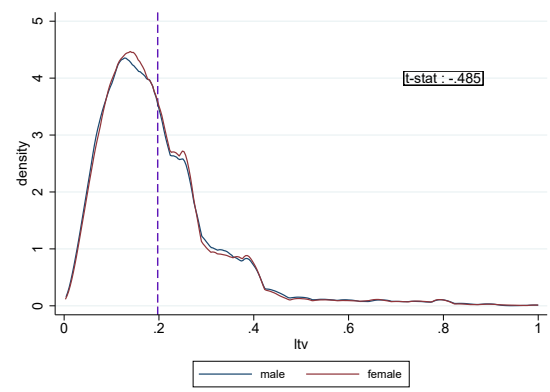
(b) Kdensity Distribution of Collateral Value (lakh)



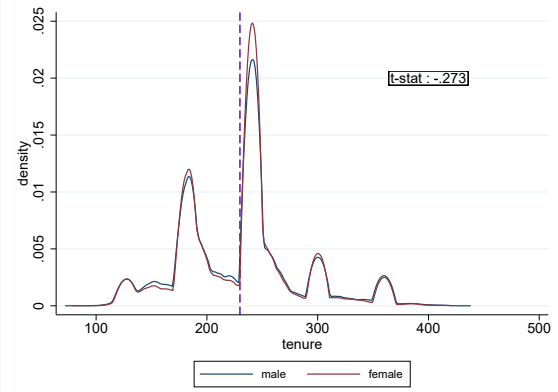
(c) Kdensity Distribution of Interest Rate



(d) Kdensity Distribution of Loan Amount (lakh)



(e) Kdensity Distribution of Loan-to-Value Ratio



(f) Kdensity Distribution of Loan Tenure (month)

Figure A.1: Kernal Density Distribution of Borrower and Loan Characteristics
The graphs plot the kernel density distribution for the borrower and loan characteristics for the matched male and female loans. The graphs compare female loan sample and the male loan sample after the propensity score matching. The dashed vertical lines indicate the mean value of each variable. The t-stats are reported in the box on the right upper corner.

A.0.5. State Name and Abbreviation

Table A.4: State Names and Abbreviations

State Name	State Name Abbreviation
JAMMU & KASHMIR	JK
PUDUCHERRY	PY
UTTARAKHAND	UK
WEST BENGAL	WB
ODISHA	OR
HIMACHAL PRADESH	HP
CHHATTISGARH	CG
RAJASTHAN	RJ
PUNJAB	PB
DELHI	DL
HARYANA	HR
BIHAR	BR
JHARKHAND	JH
TRIPURA	TR
TAMIL NADU	TN
MAHARASHTRA	MH
GUJARAT	GJ
KERALA	KL
ANDHRA PRADESH	AP
TELANGANA	TS
KARNATAKA	KA
UTTAR PRADESH	UP
ARUNACHAL PRADESH	Northeast
MEGALAYA	Northeast
MIZORAM	Northeast
NAGALAND	Northeast
ASSAM	Northeast
SIKKIM	Northeast
MANIPUR	Northeast
MADHYA PRADESH	MP
GOA	GA
DAMAN and DIU	GA

A.0.6. Mortgage Loan Repayment Method

Table A.5: Repayment Amount Variation by Gender

This table reports the differences in repayment variation between male and female loans. The sample includes all loans sanctioned in 2013 and 2014, with repayment data spanning from 2016 to March 2023, excluding the moratorium period. The dependent variable in columns (1) and (2) is the percentage of repayment amount that deviates from the mode. In columns (3) and (4), the dependent variable is the standard deviation of repayment amounts relative to the average repayment amount. Loan characteristics considered include loan amount, tenure, interest rate, initial EMI, and collateral value. Columns (1) and (3) present regression estimates without controlling for loan characteristics. The variable Male Loan is a dummy that equals 1 if the borrower is male and 0 otherwise. * 10%, ** 5% and *** 1%.

	(1)	(2)	(3)	(4)
	% Infrequent Repay	% Infrequent Repay	Std/Mean Repay	Std/Mean Repay
Male Loan	0.0107***	0.0120***	-0.0101***	-0.00396
	(0.00125)	(0.00125)	(0.00297)	(0.00294)
Loan Characteristics	No	Yes	No	Yes
Fixed/Floating FE	Yes	Yes	Yes	Yes
No.of Months FE	Yes	Yes	Yes	Yes
Sanction Year-Month FE	Yes	Yes	Yes	Yes
Constant	0.488***	0.281***	1.499***	1.185***
	(0.00283)	(0.00707)	(0.00667)	(0.0160)
Observations	213,192	213,192	210,985	210,985
R-squared	0.037	0.045	0.009	0.025

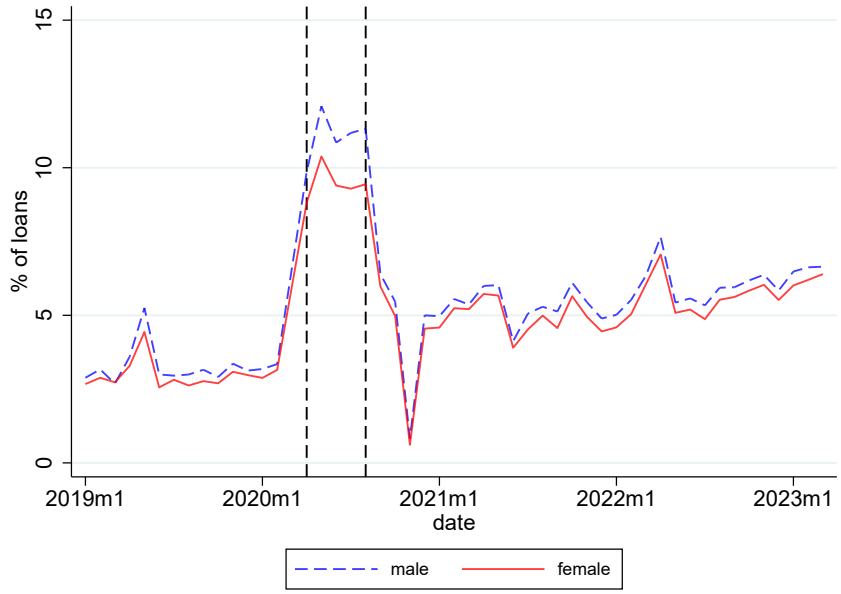


Figure A.2: Percentage of loans with missing repayments by gender

This figure shows the percentage of loans with missing repayments by gender, based on a subsample of loans. For repayment data prior to the moratorium period, we calculate the percentage deviation of repayment amounts from the mode and retain only loans where this deviation is below 20%.