

Designing Credit Products to Support Women's Economic Activity: Synthesis of Recent Literature

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SYNTHESIS OF RECENT LITERATURE

Introduction

Improving access to financial products and services is crucial for inclusive economic growth and reducing poverty. While there have been notable strides in increasing access to formal financial services, a gender gap persists. In low- and middle-income countries, only 21 percent of women obtain loans through formal channels or mobile banking, compared to 25 percent of men.¹

Limited access to capital is a major barrier hindering women from fully participating in the economy—be it through entrepreneurship or other productive activities—and can also significantly impact their overall quality of life. For instance, one reason why women opt for sectors characterized by smaller and less efficient businesses is because of the obstacles they encounter in accessing finance. These barriers limit their entry into more profitable, capital-intensive sectors that are typically dominated by men.² Furthermore, when it comes to securing financing, women encounter additional, distinct challenges compared to men. Women often need to put up more collateral and receive smaller loan amounts than men.³ Traditional credit scoring models further disadvantage women due to factors like lacking credit histories and formal earnings. Social and cultural challenges, such as mobility constraints and pressure to divert funds to male-led ventures, coupled with biases in lending, also limit women's access to financial services.⁴ Even when they do secure financial products, the products often do not cater to women's unique challenges, including, but not limited to, the ones previously mentioned, as well as disparities in technology use and education levels. The prevalent “one-size-fits-all” methodology in designing financial services fails to adequately address these unique needs, thereby not effectively reducing the barriers to access and usage for women.⁵ While existing research has made strides in exploring ways to broaden access to microcredit, the findings are inconsistent and sometimes conflicting. [Banerjee et al. \(2015\)](#) analyzes six randomized evaluations of microcredit programs and reveals that the effects for men and women are, on average, not transformative or sustainable.

However, there is some evidence that access to microcredit modestly increases business activity and may influence occupational choices, business size, women's economic empowerment, and risk management.⁶

In this evidence synthesis, we examine studies published since [Banerjee et al. \(2015\)](#) to examine the impact of financial innovations that have addressed barriers women face in accessing and using credit for productive purposes. In particular, we examine studies that have looked at the impact of interventions that have reduced collateral requirements, refined targeting, addressed the “missing middle” with larger loans for women's financial autonomy, leveraged digital and other tools for loan screening and delivery, and innovated with loan repayment options. Most of the included studies have been with samples of microentrepreneurs and either include an all-women sample or gender-disaggregated analysis. We conclude by identifying research gaps and offering suggestions for future work. The insights from our review may help inform the design of programs and policies to foster a more inclusive financial environment for women, empowering them to play a more significant role in the economy.



A farmer in Baguio, Benguet, Philippines. © 2019 Nathaniel Sison/Unsplash



Key Lessons From Existing Research

- 1. Gender biases among loan officers during the loan adjudication process are a concern that may not be fully addressed by information provision or experience alone.** Implementing hiring policies that evaluate gender attitudes and preferences in potential loan officers might address some of the gender biases in the loan process. Credit scoring models that use nontraditional data (e.g., psychometrics, mobile phone call records) show promise in expanding credit access to women that would have otherwise been rejected by models relying only on credit history outcomes.
- 2. Collateralized financing and asset-based financing can potentially lower women's barriers to credit and improve their economic outcomes.** These forms of lending provide individuals with a loan to purchase an asset and then use that asset as collateral. Currently, however, few studies specifically analyze the impact of gender and entrepreneurship on key outcomes. Future work should explore the impacts of collateralized financing on a larger sample of women entrepreneurs operating in various sectors.
- 3. Targeting credit, especially to women with entrepreneurial drive, can close the credit gap, promote responsible lending practices, and improve business performance.** To achieve this, it is essential to carefully match each woman with a credit product that fits her specific characteristics and needs.
- 4. Directing funds into an account solely controlled by a female recipient and digitizing loans and payments gives women more privacy, which may alleviate pressure to share funds with others.** With digital accounts, women are better able to make spending decisions, which can improve business outcomes, how money is spent within the household, savings, and financial resilience.
- 5. For experienced borrowers and those with higher levels of entrepreneurial ability, flexible loan repayment terms can expand risk-taking, increase return on investment, and improve business outcomes.** In contrast, standard credit contracts and personalized text or phone reminders may more effectively reduce default for first-time borrowers and borrowers with low financial discipline.

A photo taken in Harambee Market in Kenya. © 2017 Elvis Agoi



1. Screening

Micro and small businesses—especially those owned by women—struggle to access credit due to traditional financial institutions' reliance on credit history, financial statements, and legal status.⁷ Standard lending practices and credit scoring models often overlook gender-specific factors like women's limited borrowing history and gender disparities in property rights. Despite having similar income and education levels as men, women can also encounter biases and discriminatory practices in the credit market.⁸

Gender biases among loan officers during the loan adjudication process are a concern that may not be fully addressed by information provision or experience alone. Implementing hiring policies that evaluate gender attitudes and preferences in potential loan officers might address some of the gender biases in the loan process. Credit scoring models that use nontraditional data (e.g., psychometrics, mobile phone call records) show promise in expanding credit access to women that would have otherwise been rejected by models relying only on credit history.

- In [Turkey](#), researchers found that 35 percent of 77 surveyed loan officers revealed signs of gender bias.⁹ Loan officers were presented with four fictional loan applications, varying mainly in risk profiles and the applicant's gender. Results demonstrate that officers, on average, awarded USD 14,000 less in loans to the female profiles.¹⁰ The incidence of gender bias is higher when comparing low-risk applicants, as compared to high-risk applicants. However, with each year of experience, the likelihood of officer bias is reduced by 6 percent.

- Also in [Turkey](#), in a similar study with 334 loan officers, real-world female applicants were 30 percent more likely to be asked for a guarantor when applying for loans, potentially due to indirect gender discrimination.¹¹ Discrimination is most prevalent among young, inexperienced, and gender-biased (measured with an Implicit Association Test) loan officers. Those with below-median experience were 11 percentage points more likely to require a guarantor from women compared to men, indicating

that experience mitigates gender-based shortcuts in lending decisions.

- In [Chile](#), women loan applicants were 18.3 percent less likely to be approved due to discriminatory preferences (measured through subjective measures and experiments) exhibited by loan officers.^{12,13} Findings show pro-male officers approve 54 percent fewer loans for women than men. An information intervention may not adequately overcome gender discrimination, as after officers learned that women have better repayment rates than men, gender-biased officers who received the information discriminated more against women. Researchers estimate that the median lost profits from applications rejected due to gender-biased rejections are estimated at USD 1,785 per loan. In the 25-35 age group, for loans ranging from USD 1,500 to USD 13,500, this discrimination leads to an industry-wide loss of USD 5.8 million annually in Chile.

- In the [Dominican Republic](#), a retrospective analysis used a novel gender-differentiated credit scoring model constructed using mobile phone records (bill payment history, call details, etc.) and machine learning algorithms approved one third more of the women whom the traditional credit scoring model would have otherwise rejected.¹⁴ This is likely because traditional credit scoring methods may rely on indicators like credit histories, property rights, and formal earnings, which women may lack.

- In [Ethiopia](#), using psychometric credit scoring instead of traditional collateral requirements during the loan process improved women's access to credit and firm survival.^{15,16} Women who had access to psychometrically assessed loans increased their likelihood of accessing formal credit up to 89 percent (compared to 42 percent among the group with no access to uncollateralized loans). Furthermore, businesses that accessed psychometric credit scoring as a substitute for collateral had a significantly lower closure rate of 17 percent over three years (compared to 33 percent of the comparison group) despite challenges like the COVID-19 pandemic, conflicts in the country, and other economic difficulties.

2. Addressing Collateral Requirements

Traditional financial institutions frequently require asset ownership as security for loans. Since many women have limited access to or ownership of such assets due to socioeconomic factors, gender disparities, or legal limitations, it can be challenging to meet this requirement.¹⁷ Without collateral, women entrepreneurs often struggle to secure loans from traditional financial institutions. As a result, they frequently resort to informal lending options that do not demand collateral but typically provide insufficient funds to fully support their business needs.¹⁸

Collateralized financing and asset-based financing are forms of lending that provide individuals with a loan to purchase an asset, and then use that asset as collateral. These types of financing can potentially lower women's barriers to credit and improve their economic outcomes. However, few studies specifically analyze the impact of gender and entrepreneurship on key outcomes. Future work should explore the impacts of collateralized financing on a larger sample of women entrepreneurs operating in various sectors.

- In [Kenya](#), offering dairy farmers (20 percent women) with asset-based collateral in the form of a large water tank increased loan take-up from 2.9 percent to 41.9 percent while retaining low levels of default and repossession.¹⁹ Access to the tank also increased access to water, and reduced the time children spent on water-related tasks which led to greater school enrollment for girls.

- In [Pakistan](#), offering graduated microcredit clients (10 percent women) the opportunity to finance a business asset worth four times their previous borrowing limit (which was then used as collateral) led to improvements in business outcomes.^{20, 21} Clients who were offered collateralized financing were 9 percentage points more likely to run a business, had 40 percent larger business assets, better business management practices, improved profits, and an 8 percent increase in monthly income.

Amongst the most risk-averse individuals, take-up rates were 43 percent when offered the fixed-repayment contract, and 67 percent when assigned to the flexible-repayment contract.

- In [Bangladesh](#), researchers studied a hybrid model implemented under the Ultra-Poor Graduation (UPG) program of BRAC.^{22, 23} The model combines grants with low-interest soft loans (around 20 percent) for asset purchases, alongside training and other components of the UPG program. Results showed an increased land ownership by 70 percent compared to the control group that received no support from BRAC. The program enhanced livestock and poultry values and raised food and non-food expenditures by 14 percent and 40 percent, respectively. Additionally, the hybrid model boosted per capita income by 19 percent and the value of productive assets by 135 percent.

- In [Burkina Faso](#), providing farming households (94 percent male-headed) with a system to both store crops and access credit simultaneously led to a 15 percent increase in harvest value.^{24, 25} This yielded increases in educational investment, livestock holdings, and agricultural inputs because the stored crops acted as collateral. Credit take-up was higher among households with a prior credit history.

- In [Kenya](#), borrowers (50 percent women) were willing to pay nine percent per month higher interest for a loan collateralized using the asset financed by the loan itself.^{26, 27} Once the asset was received, borrowers showed high rates of repayment, driven by an increased perception of the asset's value or increased attachment to the asset ("endowment effect").

- In [Brazil](#), group-lending participants (30 percent women) received access to credit for investment in a specified durable asset (in this case, a motorcycle), which increased formal employment rates by 16 percent and salaries by 8 percent.^{28, 29} This suggests that credit may facilitate both investment in productive goods and overcoming barriers to productivity or labor-force participation.

3. Strategic Identification of Borrowers

Identifying driven entrepreneurs and understanding their unique needs is a challenging task for governments, banks, and NGOs. Successfully doing so can enable governments to allocate resources more efficiently, and financial institutions to provide customized financial products. This is especially important for women entrepreneurs, who often face more challenges in securing funding than men. These challenges stem from factors such as limited credit history, lack of collateral, disparities in education and formal earnings, as well as prevailing social and cultural norms. Consequently, when women do secure funding, they often receive less funding and pay higher interest rates potentially due to their perceived risk by lenders.³⁰ A [2022 International Finance Corporation survey](#) highlighted this disparity, revealing that loan amounts received by women-owned SMEs are 23 percent smaller than those in the general SME portfolio.³¹ This gap not only reflects the prevailing inequalities but also limits the potential of women entrepreneurs to make significant investments in their businesses.

To effectively meet women’s unmet credit needs, it’s essential to offer customized solutions. This involves carefully matching each woman with a credit product that fits her characteristics and needs. **Targeting credit—especially to those with an entrepreneurial drive—may close the credit gap, promote responsible lending practices, and improve business performance.**

- In [Ethiopia](#), providing loans larger than microloans—but smaller than commercial loans—to growth-oriented women entrepreneurs accelerated business income and employment generation.^{32, 33} The loans had a positive impact on the profitability of firms three years after disbursement. On average, the group that was provided with larger loans experienced an average increase of ETB 10,000 in yearly profits (approximately USD 350 at the time of publication) and added almost one additional employee (0.7 increase in the number of employees). Those who received loans were likely to have more years of education, larger businesses, and higher scores on measures of entrepreneurial identity. This suggests that there is a missing “middle” group of entrepreneurs that are currently constrained by traditional microfinance.

- In [India](#), when both “gung-ho” and “reluctant” entrepreneurs (25 percent female-headed households) were given microcredit, gung-ho entrepreneurs had improved business outcomes.^{34, 35} These effects persist two years after the intervention is removed. They were 6.4 percent more likely to own a business, 5.7 percent more likely to own a business with multiple employees, 83 percent higher investment in business inputs, and 104 percent higher revenue. Reluctant entrepreneurs used credit for slight enhancements in their businesses, but their revenue and profit growth were limited. The intervention found no effects on women’s empowerment.

- A [meta-analysis](#) of seven randomized control trials focused on expanding microcredit access suggests that access does not worsen any household outcomes.³⁶ There is a consistent and precise zero effect on a range of household outcomes—including consumption, profits, revenues, and expenditures—across the 5th to 75th percentiles. Above the 75th percentile, there was a substantial likelihood of a large positive impact on most outcomes, but this was accompanied by a notable degree of uncertainty regarding the positive effects experienced by individuals, largely attributable to the variation in implementation and local contexts within and across the included studies. In particular, households who had previously operated businesses accounted for the majority of the impact and the uncertainty. Overall, the study counters the notion that microcredit harms some households and suggests that the benefits of microcredit may disproportionately favor certain households, which might lead to an increase in economic inequality. The study also reveals the potential value and complexity of identifying highly productive individuals.

- In [Mali](#), allowing female farmers to self-select into credit markets and providing cash grants revealed that female farmers who borrow experience higher capital returns than those who do not.^{37, 38} In no-loan villages, grants led to a 12 percent increase in cultivated land, 19 percent increase in fertilizer use, and an 18 percent increase in input expenditures. In loan villages, those who opted out of loans but received cash grants underperformed relative to those who received grants in no-loan villages. This suggests that households that opted-in to the loans likely possessed the abilities to invest and benefit from the additional funds.

- In [India](#), a cash grant program revealed that community members possess insightful information about their peers, which is crucial for effective targeting and identifying high-growth entrepreneurs.³⁹ While the average monthly return on randomized grants (USD 100) was around 9.4 percent, entrepreneurs (40 percent women) ranked by their peers in the top third for expected marginal returns to capital had returns ranging from 24 percent to 30 percent. Researchers compared the accuracy of community-based predictions with that based on observable characteristics of entrepreneurs and found that while observable characteristics are good indicators of the return on capital, community information provides additional value. However, information can be biased, with respondents favoring friends and family, when aware their reports influence grant allocation. Offering small monetary incentives for accurate reporting and using cross-reporting techniques can improve the reliability of this information.

- In [Egypt](#), providing business-loan applicants with loans, cash grants, and in-kind grants similarly improved business ownership for both men and women on average, with larger impacts for women compared to men.^{40,41} However, women in the loan group showed a greater increase in their borrowing compared to men, suggesting that women had an unmet need for credit. In-kind grants boosted women's monthly business

profits by EGP 133 (USD 8.86), surpassing the EGP 60 (USD 4) and EGP 63 (USD 4.20) increases from cash grants and loans. The positive effects of the three types of capital assistance were mainly experienced by the top-performing participants (top 25 percent based on income). These high earners had similar traits like age, education, and family income, suggesting that personal characteristics may be more influential in business success than the type of financial support provided.

- In [Egypt](#), providing larger loans to entrepreneurs (20 percent women) who scored "high" on a psychometric test measuring traits from the "Big 5" in psychology literature (including extroversion, agreeableness, and openness), substantially increased profits by 55 percent.^{42,43} "Top-performers" (high psychometric scoring and likely successful entrepreneurs) also experience gains of 133 percent in their wage bill, 6.1 percent in productivity, and 47 percent in household expenditures. In contrast, "poor-performers" saw decreased profits, lost employees, and reduced their wage expenditures. Notably "top-performers" tended to be male and had, on average, an additional year of education. Nevertheless, women were more inclined to accept the loan when presented with the opportunity, which may negatively impact them if they are over-optimistic "poor-performers."



Rwandan women selling eggs to people visiting the Kimironko market in Rwanda's capital city. © 2015 Sarine Arslanian/Shutterstock

4. Disbursement Methods

Economic decisions in women-run businesses are often shaped by intra-household dynamics. Women business owners frequently face pressure to share their earnings with family members. In households where multiple members have businesses, a woman's income may end up supporting her husband's business.⁴⁴

Directing funds into an account solely controlled by a female recipient and digitizing loans and payments gives women more privacy, which may alleviate pressure to share funds with others. With digital accounts, women are better able to make spending decisions, which can improve business outcomes, how money is spent within the household, savings, and financial resilience.



African market woman smiling while counting money © i_am_zews/Shutterstock

- In [Ghana, India, and Sri Lanka](#), providing households with credit or cash grants revealed that households with more than one household business resulted in the woman entrepreneurs' funds being redirected to their husbands' businesses.^{45, 46} If households only have one business, the gender of the entrepreneur did not affect returns on credit.

- **India:** Giving loan clients a two-month grace period increased household-level business profits by around 45 percent, but had no differential effect on female run business profits on average. If a woman was the sole entrepreneur in her household, the grace period increased business profits by around 75 percent compared to a regular contract.
- **Sri Lanka:** Grants only increased female-run business profits when women were the only business owners in the household; women living in households with no other self-employed members increased their profits by 30 percent.
- **Ghana:** Monthly profits of female entrepreneurs who received a grant in single-enterprise households increased by 43.3 percent in Ghana.

- In [Uganda](#), disbursing microfinance loans to new digital mobile money accounts that women controlled increased profits by 15 percent, capital by 11 percent, household income by 8 percent, and consumption by 5 percent compared to those who received loans in cash.^{47, 48} Women who were initially pressured to share funds with household members benefitted the most; they experienced a 25 percent increase in business profits and a 24 percent rise in business capital. This suggests that digital disbursements could help women by allowing them to discreetly safeguard their loans from family.

- In [India](#), providing bank accounts, account use training, and direct deposit of public sector wages into women's own (versus their husbands' accounts) accounts increased women's participation in the formal labor force.⁴⁹ Women who received the treatment scored 0.11 standard deviations higher in an index measuring labor market engagement. Women who had never worked at baseline experienced even higher gains: a 0.21 standard deviation increase in the labor market engagement index.

5. Repayment

Starting or expanding a business can be costly and risky. Evidence suggests that women, compared to men, tend to be more risk-averse in borrowing, which means stringent loan repayment terms can disincentivize female entrepreneurs from accessing formal credit or investing in assets or projects with long-term returns.^{50, 51, 52} At the same time, from the lending institution's point of view, the flexibility could result in increased default rates without the structure and discipline of the traditional repayment schedule.

For experienced borrowers and those with higher levels of entrepreneurial ability, flexible loan repayment terms can expand risk-taking, increase return on investment, and improve business outcomes. In contrast, standard credit contracts and personalized text or phone reminders may more effectively reduce default for first-time borrowers and borrowers with low financial discipline.

- In [India](#), flexible credit lines (similar to a credit card in that clients have discretion and can borrow or repay a flexible amount up to a pre-approved maximum) for female street vendors increased investment in profitable goods, resulting in a 7 percent increase in profits.^{53, 54} Impacts were highest for vendors with incomes above the median at baseline or had previously used formal loans. Researchers hypothesized that these impacts may have been influenced by previous access to other forms of capital or unobserved characteristics like entrepreneurial ability.

- In [Bangladesh](#), a flexible loan repayment program, which allowed traditional female microfinance borrowers in good standing and larger collateralized borrowers to postpone up to two monthly repayments in a 12-month loan cycle, had on average a positive impact on business and socio-economic status outcomes for female microfinance borrowers.^{55, 56, 57} Traditional microfinance borrowers who were provided access to the flexible contract experienced a 51 percent increase in the value of business assets, 25 percent increase in profits, and 35 percent reduction in the likelihood of default, suggesting that the flexibility acted as a sort of insurance and enabled more risk-taking. In contrast, for the larger borrowers, flexibility led to an increase in revenue and profits only for

those clients with higher skills or abilities (proxied by schooling levels), suggesting that the insurance benefit of repayment flexibility is less of a constraint for them but the repayment flexibility helped alleviate their credit constraint. Overall, the study also indicates that flexible contracts attract borrowers that are less averse to risk-taking and more willing to grow their businesses.

- In [Pakistan](#), a microfinance institution (MFI) offered an asset-based microcredit product that allowed clients to finance a business asset worth four times their previous borrowing limit and served as collateral (up to USD 1,900).⁵⁸ The fixed-repayment contract option required participants to buy the asset from the MFI within 18 months, while the flexible-repayment alternative allowed either faster or slower repayment, at the client's discretion. The flexible repayment option was more beneficial for risk-averse clients.



Three women sitting behind assorted fruits on display © Lesley Derksen/Unsplash

These clients, particularly during business shocks, preferred the flexible option and experienced better business and household outcomes. This suggests that the flexible contract's implicit insurance was valuable for risk-averse microenterprise owners.

- In [Pakistan](#), female microfinance clients on average showed a stronger preference for fixed-repayment contracts over those with reminders or flexible repayment options.^{59, 60} However, in comparing randomly assigned contract options, financially disciplined clients valued flexible contracts with self-reminders to address inattention. Conversely, less-disciplined clients appreciated penalty clauses paired with reminders to mitigate the risks of incurring penalties. The results suggest that adoption of flexible contracts is sometimes preferred when borrowers require a lump-sum payment to cover a large expense.

- In [Colombia](#), allowing first-time borrowers (64 percent women) to defer the principal payment up to three times within a 12-month period increased overall default rates by 4 percent at 3 months after maturity and 3 percent at 12 months.^{61, 62} There was no impact on revenues or profits, likely due to low financial discipline and the ability to postpone payments instantly. Researchers hypothesized that the immediate use of passes in this study—as opposed to the month-long lag observed in [Barboni and Agarwal \(2022\)](#)—might have made borrowers more susceptible to temptation or procrastination in repaying loans.

- In the [Philippines](#), including the loan officer's name in weekly text reminders reduced the chance of a loan remaining unpaid by 34 percent after 7 days and by 41 percent points after 30 days.^{63, 64} This suggests that personal ties between borrowers and loan officers can mitigate moral hazard by enhancing feelings of obligation, reciprocity, and repayment commitment.⁶⁵ However, this effect was only significant for repeat borrowers familiar with the loan officer.



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Conclusion

The evidence outlined in this brief identifies opportunities to design and disseminate credit products in a manner that considers the unique challenges of women borrowers, particularly for productive purposes. The evidence presented above emphasizes the need for innovation and targeted strategies to address the specific challenges women face in accessing capital for productive purposes. Studies have focused on identifying and measuring bias in the lending process, yet further research is required to comprehend the impact of specific interventions in mitigating these biases and their scalability potential. Innovative credit scoring models that include unconventional data such as psychometrics and mobile phone records, could significantly enhance credit accessibility for women. Additionally, evidence suggests that specific forms of lending, like collateralized and asset-based financing, could play a pivotal role in lowering credit barriers for women. However, more research is needed to understand their full impact on women entrepreneurs. Disbursement strategies like allocating funds to female-only controlled accounts and digitizing financial transactions can give women greater control and privacy in their financial affairs.

The evidence also points out that flexible loan repayment terms benefit experienced and skilled entrepreneurs, enhancing their risk-taking and investment returns. Yet, further research is needed to effectively identify these high-ability entrepreneurs and refine overall targeting strategies. Below are some open questions to guide future research:



- Understanding Women's Financial Needs: The research on how social and cultural norms affect women's access to capital is still limited. There is a need to understand better their impact on women's control over their assets, their capacity to obtain funding, and the overall outcomes of their business. For example, in regions where women's mobility and time available for productive activities is limited, how does this restriction affect women's access to credit? How do social norms and stereotypes about women's roles impact their ability to secure funding? Does a woman's marital status affect her ability to access credit? How do childcare responsibilities affect women's ability to secure funding and the performance of their businesses?

- Leveraging Digital Channels: Is the adoption of digital disbursement and repayment channels always suitable for women borrowers, and does it consistently lead to improved repayment outcomes? What are the necessary legal and regulatory changes to ensure that borrowers benefit from the gains from mobile payments? Does using digital tools disadvantage older and more experienced business owners who are not technologically savvy? How can we utilize data from digital channels to increase women's data visibility? Would this open up new loan opportunities for women they previously did not have access to?



Owner of hair salon in Africa © IPA

- Credit Scoring Methods and Addressing Bias: Much of the literature on agent and provider bias has focused on quantifying the impact of agent bias on women's economic activity. What interventions can effectively address agent and loan provider bias in the lending process and improve consumer protection practices? How can we scale these interventions or adapt them for broader use? As financial service providers develop alternative credit scoring methods, how can they address potential algorithmic biases?

- Asset-based Financing: Despite the existence of some research on this topic, further research is needed to understand in which contexts asset-based financing is most appropriate for facilitating women's economic activity. Can asset-based financing improve the performance of women-led businesses? In what contexts is asset-based financing most appropriate? What types of assets contribute most to women's economic activity? Do outcomes vary based on entrepreneurial ability, size of businesses, or the presence of other businesses in the household?

- Improved Targeting: How can providers best identify more "entrepreneurial" applicants and incorporate this targeting into their marketing and approval processes? How significantly larger should loans be to ensure a positive impact when deciding which applicants would benefit from increased loan amounts? How should loan products be designed for different demographics of women entrepreneurs, like the ultra-poor?

- New Loan Contracts: How do newer credit products like buy now pay later, pay as you go, rent-to-own, peer-to-peer lending, e-commerce loans, equity crowdfunding, and invoice factoring affect women entrepreneurs and their businesses? How do lender characteristics and experiences impact decision-making in products like equity crowdfunding and peer-to-peer lending?

As we continue to explore these questions and invest in further research, we can refine our understanding of how to design credit products to sustainably foster women's economic empowerment.

References

1. Demirgüç-Kunt, Asli, Leora Klapper, Dorothe Singer, Saniya Ansar. 2022. The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19. Washington, DC: World Bank.
2. Breaking Barriers: Female Entrepreneurs Who Cross Over to Male-Dominated Public Sectors. World Bank, 2021, <https://openknowledge.worldbank.org/server/api/core/bitstreams/7031b50b-f682-52f5-9a3a-24dc46c77942/content>.
3. Halabisky, D., et al. (2023), "Addressing gender disparities in access to finance for business creation", in *Joining Forces for Gender Equality: What is Holding us Back?*, OECD Publishing, Paris, <https://doi.org/10.1787/aa4719c3-en>.
4. Yasmin , Bin-Humam. "5 Challenges for Women's Financial Inclusion." 5 Challenges for Women's Financial Inclusion. CGAP.13 Feb. 2017, <https://www.cgap.org/blog/5-challenges-for-womens-financial-inclusion>.
5. Revolutionizing Product Design in Financial Services. Women's World Banking, June 2023, <https://www.womensworldbanking.org/insights/report-revolutionizing-product-design-in-financial-services/>.
6. This research assesses the impact of microcredit across six randomized control trials conducted in Bosnia, Ethiopia, India, Mexico, Morocco, and Mongolia. The collective findings indicate only slight positive impacts with no substantial evidence of poverty alleviation or significant enhancement in living standards, including household income and social metrics. However, evidence suggests that access to credit modestly increases business activity and may influence aspects such as occupational choices, business size, consumer behavior, women's empowerment, and risk management. The study notes that while microcredit does not universally transform economic outcomes, there are nuanced indications of it being beneficial for some individuals while detrimental for others. Additionally, the modest take-up rates of microcredit products and the challenges of statistical power in these studies complicate the assessment of its impact.
7. Designing a Credit Facility for Women Entrepreneurs MAY 2020 Lessons from the Ethiopia Women Entrepreneurship Development Project (WEDP). World Bank, May 2020, <https://openknowledge.worldbank.org/server/api/core/bitstreams/437c5c7c-db02-5611-b291-2c86e2806e29/content>.
8. Montoya, Ana María, Eric Parrado, Alex Solís, and Raimundo Undurraga. 2020. "Bad Taste: Gender Discrimination in the Consumer Credit Market," July. <https://doi.org/10.18235/0001921>.
9. Alibhai, Salman, Aletheia Donald, Markus Goldstein, Alper Oguz, Alexander Pankov, and Francesco Strobbe. "Gender Bias in SME Lending Experimental Evidence from Turkey." World Bank, 2019. <https://openknowledge.worldbank.org/server/api/core/bitstreams/eb421bbb-5580-5217-9eb1-a7ab0f460e19/content>.
10. On average, loans were allocated at about USD 186,000 for men and USD 172,000 for women per application.
11. Brock, J. Michelle, and Ralph De Haas. "Discriminatory Lending: Evidence from Bankers in the Lab." Centre for Economic Policy Research 2 (2021). <https://doi.org/10.2139/ssrn.3786684>.
12. Loans range between USD 1,500 and USD 13,500 with maturities between 12 to 60 months.
13. Montoya, Ana María, Eric Parrado, Alex Solís, and Raimundo Undurraga. "Bad Taste: Gender Discrimination in the Consumer Credit Market." Inter-American Development Bank , July 2020. <https://doi.org/10.18235/0001921>.
14. Higgins, Sean, Laura Chioda, and Paul Gertler. "Gender-Differentiated Credit Algorithms Using Machine Learning." CEGA. Accessed May 16, 2024. <https://cega.berkeley.edu/research/gender-differentiated-credit-algorithms-using-machine-learning/>.
15. Alibhai, Salman, Rachel Cassidy, Markus Goldstein, and Sreelakshmi Papineni. "Evening the Credit Score? Impact of Psychometric Loan Appraisal for Women Entrepreneurs." World Bank, 2022. <https://documents1.worldbank.org/curated/en/09944151142232337/pdf/IDU0dd894b3d009330483f08eea036058c589c97.pdf>.
16. For the new product, women who took a psychometric test and scored above a cut-off were eligible for an uncollateralized loan ranging from USD 3,500 to USD 7,500 (in 2018). The loan term was 22 months. The product was priced at an interest rate a few percentage points above the rate for the MFI's collateralized loans.
17. Dassanou, Marieme Esther, et al. Women-Owned SMEs: A Business Opportunity for Financial Institutions. IFC, 2014, <https://documents1.worldbank.org/curated/en/574801510949557053/pdf/933530WP0Women0s0Box385379B00OU090.pdf>.
18. Naegels, Vanessa, et al. Perceived Problems with Collateral: The Value of Informal Networking. Jan. 2020, <https://ouci.dntb.gov.ua/en/works/4aopM129/>
19. Jack, William, Michael Kremer, Joost De Laat, and Tavneet Suri. "Borrowing Requirement, Credit Access, and Adverse Selection: Evidence from Kenya." National Bureau of Economic Research, 2016. https://www.nber.org/system/files/working_papers/w22686/w22686.pdf.
20. The loan amount reached up to USD1,900 with a duration of 18 months.
21. Faisal Bari, Kashif Malik, Muhammad Meki, and Simon Quinn. "Asset-Based Microfinance for Microenterprises: Evidence from Pakistan." Centre for Economic Policy Research, February 2021. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3783994.
22. The interest rate was 20 percent compared to the regular microcredit interest rate of 27 percent approximately. The benefit–cost ratio of the hybrid intervention is estimated to be 8.47.
23. Rahman, Atiya, Anindita Bhattacharjee, and Narayan Das. "A Good Mix against Ultra-Poverty? Evidence from a Randomized Controlled Trial (RCT) in Bangladesh." *Review of Development Economics* 25, no. 4 (July 13, 2021): 2052–83. <https://doi.org/10.1111/rode.12809>.
24. Delavallade, Clara, and Susan Godlonton. "Locking Crops to Unlock Investment: Experimental Evidence on Warrantage in Burkina Faso." *Openknowledge.worldbank.org*, September 30, 2022. <https://openknowledge.worldbank.org/entities/publication/33c9ba25-340a-55c9-9fae-be51b363ed99>.
25. Among households that used the credit option, the average loan size was approximately USD 40, at an annual interest rate of 9.75 percent.
26. Carney, Kevin, Michael Kremer, Xinyue Lin, and Gautam Rao. "The Endowment Effect and Collateralized Loans." *SSRN Electronic Journal*, 2022. <https://doi.org/10.2139/ssrn.4122802>.

27. The average willingness to pay for a new item is 13.3 percent higher, equivalent to an 8.8 percentage point higher monthly interest rate.
28. Doornik, Bernardus Ferdinandus Nazar Van, Armando R. Gomes, David Schoenherr, and Janis Skrastins. "Financial Access and Labor Market Outcomes: Evidence from Credit Lotteries." SSRN Electronic Journal, 2021. <https://doi.org/10.2139/ssrn.3800020>.
29. The average motorcycle value across all groups is USD 2,837. Average monthly payments amount to about 3 percent of the value of the motorcycle.
30. Halabisky, D., et al. (2023), "Addressing gender disparities in access to finance for business creation", in *Joining Forces for Gender Equality: What is Holding us Back?*, OECD Publishing, Paris, <https://doi.org/10.1787/aa4719c3-en>
31. The survey included a sample of 161 IFC client financial institutions in emerging markets and developing countries.
32. Alibhai, Salman, Niklas Buehren, and Sreelakshmi Papineni. "Better Loans or Better Borrowers? Impact of Meso-Credit on Female-Owned Enterprises in Ethiopia." World Bank, 2018. <https://documents1.worldbank.org/curated/en/974551531236525468/pdf/WPS8511.pdf>.
33. The average WEDP loan size among the firms that were approved was approximately USD 12,000. According to Salman Alibhai, one of the study's authors, the interest rates for WEDP loans vary due to the participation of various financial institutions, each offering different loan terms based on their operating expenses and cost of funds. He estimates that the interest rates ranged from 12 to 18 percent APR, noting that these are nominal rates and that the average inflation rate at the time was about 10 percent per year. The WEDP loan interest rates were in line with interest rates for other loan products offered by Ethiopian MFIs, and in some cases slightly lower due to the larger loan sizes. This was in line with WEDP's broader objective of increasing the availability of market-based financing for women entrepreneurs, on a sustainable basis.
34. Banerjee, Abhijit V., Emily Breza, Esther Duflo, and Cynthia Kinnan. "Do Credit Constraints Limit Entrepreneurship? Heterogeneity in the Returns to Microfinance." SSRN Electronic Journal, 2017. <https://doi.org/10.2139/ssrn.3126359>.
35. Authors define gung-ho entrepreneurs as those who had a business before microcredit became available.
36. Meager, Rachael. "Aggregating Distributional Treatment Effects: A Bayesian Hierarchical Analysis of the Microcredit Literature." *American Economic Review* 112, no. 6 (June 1, 2022): 1818–47. <https://doi.org/10.1257/aer.20181811>.
37. Beaman, Lori, Dean Karlan, Bram Thuysbaert, Christopher Udry, Liam Frolund, Yann Guy, Pierrick Judeaux, et al. "Selection into Credit Markets: Evidence from Agriculture in Mali 'Self-Selection into Credit Markets: Evidence from Agriculture in Mali'. The Authors Thank Partners Save the Children and Soro Yiriwaso for Their Collaboration. Thanks To." J-PAL, 2022. https://www.povertyactionlab.org/sites/default/files/research-paper/WP1635_Selection-into-Credit-Markets-in-Mali_Karlan-et-al_Nov2022.pdf.
38. Loans were disbursed at the beginning of the agricultural cycle in May to June and repayment was required after harvest. Loans are administered to groups of women in village associations and then each individual woman receives an informal contract from their village association. Loan size is dependent on the woman.
39. Hussam, Reshmaan, Natalia Rigol, and Benjamin N. Roth. "Targeting High Ability Entrepreneurs Using Community Information: Mechanism Design in the Field." *American Economic Review* 112, no. 3 (March 1, 2022): 861–98. <https://doi.org/10.1257/aer.20200751>.
40. Crépon, Bruno, Mohamed Komi, Adam Osman, Mohamed Nagy, Mohamed Sholkamy, Mohamed Yousef, Mohamed Omar, et al. "Is It Who You Are or What You Get? Comparing the Impacts of Loans and Grants for Microenterprise Development * Result of a Collaboration with the Sawiris Foundation for Social Development. We Thank Noha Fadl for Outstanding Research and Operational Support. We Thank Abdelrahman." J-PAL, 2023. https://www.povertyactionlab.org/sites/default/files/research-paper/wp_3230_What-You-Are-or-What-You-Get_Egypt_Feb2023.pdf.
41. Effects persisted in all three forms of capital assistance sixteen months after randomization.
42. Bryan, Gharad, Dean Karlan, Adam Osman, Abdelrahman Nagy, Mohamed Omar, Mohamed Yousef, Sarah Wahby, Sara Serrag, Nader Kabbani, and Tarek Coury. "Approval from the Innovations for Poverty Action Human Subjects Committee (IRB#0004745)." National Bureau of Economic Research, 2021. https://www.nber.org/system/files/working_papers/w29311/w29311.pdf.
43. At the time of the study, individual loans ranged from USD 115/EGP 1,500 to USD 7,667/EGP 100,000, with an annual interest rate of 14 to 17 percent. Borrowers could take out loans with a variety of maturities, but the majority were 12-month terms. Loans over EGP 20,000 were open to unregistered enterprises. Study participants were randomly allocated to either a 4x or 2x larger loan.
44. Bernhardt, Arielle, Erica Field, Rohini Pande, and Natalia Rigol. "Household Matters: Revisiting the Returns to Capital among Female Micro-Entrepreneurs." NBER Working Paper 23358
45. Field, Erica, Rohini Pande, Natalia Rigol, and Arielle Bernhardt. "Returns to Capital among Female Micro-Entrepreneurs in Ghana, India, and Sri Lanka | IPA." *Innovations for Poverty Action*. Accessed May 16, 2024. <https://poverty-action.org/study/returns-capital-among-female-micro-entrepreneurs-ghana-india-and-sri-lanka>.
46. Loan amounts ranged from INR 4,000 to INR 10,000 (USD 90 to USD 225 in 2007). and Tarek Coury. "Approval from the Innovations for Poverty Action Human Subjects Committee (IRB#0004745)." National Bureau of Economic Research, 2021. https://www.nber.org/system/files/working_papers/w29311/w29311.pdf.
47. Riley, Emma. "Resisting Social Pressure in the Household Using Mobile Money: Experimental Evidence on Microenterprise Investment in Uganda," October 19, 2023. https://drive.google.com/file/d/1_SHVfcFepmDrPTOi8g6MOkJnaUfwqvm3/view?pli=1.
48. Mobile disbursements were accompanied by an extra amount to cover the withdrawal fee of approximately 1 percent; this was fully explained to maximize take-up.
49. Field, Erica, Rohini Pande, Natalia Rigol, Simone Schaner, and Charity Moore. "On Her Own Account: How Strengthening Women's Financial Control Impacts Labor Supply and Gender Norms." SSRN Electronic Journal, 2019. <https://doi.org/10.2139/ssrn.3456234>.
50. D'Espallier, Bert, Isabelle Guérin, and Roy Mersland. "Women and Repayment in Microfinance: A Global Analysis." *World Development* 39, no. 5 (2011): 758–72. https://econpapers.repec.org/article/eeewdevel/v_3a39_3ay_3a2011_3ai_3a5_3ap_3a758-772.htm.
51. Croson, Rachel, and Uri Gneezy. "Gender Differences in Preferences." *Journal of Economic Literature* 47, no. 2 (May 2009): 448–74. <https://www.aeaweb.org/articles?id=10.1257/jel.47.2.448>.

52. An explanation for this gender difference is that women face a wider set of risks that men do not. For example, women may be more likely to manage funds for healthcare or children's schooling, which may lead them to make conservative financial choices in the short-term (Buvinc and O'Donnell)
53. Aragón, Fernando M., Alexander Karaivanov, and Karuna Krishnaswamy. "Credit Lines in Microcredit: Short-Term Evidence from a Randomized Controlled Trial in India." *Journal of Development Economics* 146 (September 1, 2020): 102497. <https://doi.org/10.1016/j.jdeveco.2020.102497>.
54. Credit lines had a loan period of 36 months with a yearly interest rate of 24 percent, starting at approximately USD 160 and potentially increasing to USD 320.
55. Battaglia, Marianna, Selim Gulesci, and Andreas Madestam. "Repayment Flexibility and Risk Taking: Experimental Evidence from Credit Contracts *." *J-PAL*, 2021. https://www.povertyactionlab.org/sites/default/files/research-paper/working-paper_9256_Repayment-Flexibility-and-Risk-Taking_Bangladesh_April2021.pdf.
56. By offering the ability to postpone up to 2 repayments as needed, this study is different from those that studied delayed start to repayment schedules and therefore has elements of an insurance coupled with credit product.
57. For microfinance borrowers, the average loan amount was around USD 275, while larger, collateralized clients received about USD 2,200. Both groups faced a 22 percent interest rate over a 12-month repayment cycle, with equal monthly installments.
58. Faisal Bari, Kashif Malik, Muhammad Meki, and Simon Quinn. "Asset-Based Microfinance for Microenterprises: Evidence from Pakistan." Centre for Economic Policy Research, February 2021. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3783994. 2017, Dellavalde et al. 2015).
59. Afzal, Uzma, Marcel Fafchamps, Simon Quinn, Farah Said, and Giovanna d'Adda. "Demand for Commitment in Credit and Saving Contracts: A Field Experiment *." 2023. <https://www.simonquinn.com/MicrofinanceCommitment.pdf>.
60. Additional treatments test ex ante demand for soft commitment (in the form of reminders, either to respondents or to their families), hard commitment (in the form of a penalty of PKR 500 for missing an installment), and flexibility (an option to postpone an installment) to save or pay loan installments on time.
61. Brune, Lasse, Xavier Gine, and Dean Karlan. "Give Me a Pass: Flexible Credit for Entrepreneurs in Colombia." *SSRN Electronic Journal*, 2022. <https://doi.org/10.2139/ssrn.4269926>.
62. The median duration of the loans was 12 months, with variations spanning from six to 24 months. Nominal interest rates fluctuated between 36 percent and 42 percent.
63. Karlan, Dean, Melanie Morten, and Jonathan Zinman. "A Personal Touch: Text Messaging for Loan Repayment." *SSRN Electronic Journal*, 2012. <https://doi.org/10.2139/ssrn.2028103>.
64. Texts cost about 2 cents per message. Additionally, the average loan was approximately USD 400, repaid weekly over a 16 to 20 week term at around 30 percent APR.
65. Researchers lacked enough demographic data on the specific borrowers in the sample, but prior work with a different bank with similar microfinance operations suggests that borrowers are likely predominantly middle-aged female microentrepreneurs, and likely about average with respect to education and household income.

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