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Access to Capital and Women's Entrepreneurship

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Abstract

This paper presents a systematic review of the literature that evaluates the causal impact of interventions designed to enhance women's access to productive capital in low- and middle- income economies. The review identifies 27 studies that meet certain criteria, with wide geographic coverage. Overall, the evidence suggests that grants can spur entrepreneurship, but that such effects are mostly short-lived and not experienced by women operating subsistence businesses. For individual-liability loans, the evidence shows some positive impacts—but only when credit products are designed to overcome flexibility needs and collateral constraints, and again often only for existing women entrepreneurs with higher baseline profits. The review also identifies an emerging research frontier, focused on the use of alternative data for credit scoring and the development of novel credit products facilitated by these data sources.

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Access to Capital and Women's Entrepreneurship *

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Gender, Entrepreneurship, Firms, Capital, Microfinance, Credit
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1 Introduction

Women-owned businesses are ubiquitous in low- and middle- income countries (LMICs), but they are less profitable than their male-owned counterparts and usually do not grow (Hardy and Kagy, 2018; World Bank, 2019). Limited access to finance is one of the key constraints faced by women-owned businesses (de Mel et al., 2009; Agier and Szafarz, 2013; Morsy, 2020). A broad spectrum of economic factors, such as informality, risk aversion and lack of physical collateral — and social constraints, such as norms and discrimination — conspire to reduce both the demand for and supply of access to productive capital for women entrepreneurs.

In contexts where credit markets are imperfect, capital grants and subsidized micro-credit may help fill the financing gap for both start-ups and expanding businesses. The explosive growth of microfinance in LMICs, especially group lending, is in no small part motivated by the idea of improving women's access to productive capital (**?**). There has subsequently been further experimentation with different types of loan and saving products, as well as both cash and in-kind grants.

The expansion of such programs has also spurred a growing research interest, with studies seeking to evaluate rigorously their impacts on entrepreneurship including by women. To credibly identify such effects, studies have increasingly relied on randomized controlled trials (RCTs), comparing the outcomes of those who are randomly assigned to receive grants or credit with those who were not. A smaller number of studies rely on quasi-experimental methods, such as exploiting quasi-random features in the roll-out of availability of credit or grant schemes, or discontinuities in eligibility.

This paper offers a systematic review of studies that test for the *causal* relationship between interventions aimed at enhancing *women's* access to capital and their *entrepreneurial* outcomes — including business start-up, profitability, and survival. The review aims to address two interrelated questions. First, what do we learn on the effectiveness of such interventions, and the conditions under which they work? Second, what are the key questions

that remain for future research?

The review extends the recent reviews of microcredit without gender disaggregation, that typically exclude grants, and typically although not exclusively focus on joint-liability microfinance — as featured in special-edition journal articles (Banerjee et al., 2015), meta-analyses (Meager, 2019) and systematic reviews (Cai et al., 2023).[1] These existing reviews highlight the disappointing results on average, but the heterogeneity of context, interventions, and outcomes — suggesting the importance of continued research and synthesis to establish a solid knowledge base.

Where gender-disaggregated results are available, results also suggest that the impact of capital support may not be equal for men- and women-owned enterprises. When such disparities arise, few studies have gone beyond highlighting the gap in returns between men- and women-owned enterprises, and speculation as to possible drivers of these differences. An exception is a recent narrative review by Buvinic and Gokhroo (2023), who consider interventions designed to enhance women's economic empowerment by improving access to credit — but unlike the present review, the authors focus on empowerment outcomes rather than entrepreneurial outcomes.[2]

Our review indicates that relaxing access to capital can promote entrepreneurship and improve profitability among women-owned businesses, particularly for those with strong baseline performance. However, for the most part the evidence remains inconclusive — not only on whether loans or grants are effective, but also on the magnitude and distribution of the benefits, as well as the optimal size and form of capital support for business creation and enterprise growth.

[1] Graney et al. (2024) also provide a recent synthesis note, highlighting select interesting studies on credit since Banerjee et al. (2015). Like our study, they focus on all-female or gender-disaggregated samples. Unlike our study, their objective is not a systematic review with stipulated criteria nor to be exhaustive. They also do not cover studies on credit predating 2015, and studies on grants. Of the studies they include, some are mentioned in our review in Sections 4 and 5 as interesting papers that do not meet our full review criteria (e.g., lab-in-field experiments, or studies of loan officer bias that do not extend to impacts on firm outcomes). A few studies fall into our main review criteria and are mentioned in Section 4. A few fall outside our review criteria altogether, as they consider joint-liability microfinance.

[2] Buvinic and Gokhroo (2023) consider studies published in 2012-22, excluding earlier studies, and combine experimental and observational studies.

Our inclusion criteria are as follows. First, we restrict the review to studies that use rigorous evaluation techniques to identify the causal impacts of the interventions — including RCTs and quasi-experimental methods. Second, we focus on provision of individual grants and individual-liability loans. We exclude studies that examine purely group-liability financial products, since these have already been the subject of other systematic reviews mentioned above. We also exclude savings and insurance products, as our aim is to synthesize the evidence on the injection of external capital. Third, we include studies that look at business-level outcomes for aspiring or existing entrepreneurs. Fourth, the studies must present gender-disaggregated results when the sample includes both women and men, or work with women-only samples.[3] Fifth, the study must be published in a peer-reviewed journal or working paper series, and the intervention must take place in an LMIC. We considered studies up to December 2024. Our search protocol is detailed in Section 2.[4]

We identify 27 studies that meet these criteria, mostly in Sub-Saharan Africa and South Asia but with other geographical coverage. Of these studies, 15 are focused on grants, and three on both individual-liability loans and grants. Ten studies offer individual-liability microfinance loans to samples including women. Evaluation of capital grant interventions typically constitute one-off cash or in-kind transfers, amounting to $85 to $382 with a median grant size of $150. Evaluations commonly bundle capital grants with interventions integrating skills training components. For individual-liability microfinance products, the average loan sizes ranged from US$180 to US$1,012, with dispersion in loan sizes largely reflecting the country context — from South Asia to Eastern Europe respectively. A small number of studies examined the offer of new, much larger loan products in Pakistan and Ethiopia, with average loan sizes of US$1,697 to US$12,000. Table A1 in the Online Appendix lists the 27 studies and highlights the key characteristics of each products — such as location or

[3]We found a couple of experiments that sampled both men and women but did not report gender-disaggregated results explicitly. We reached out to the authors and learned that their studies do not have sufficient statistical power for such analysis.

[4]For comparison, Cai et al. (2023) review research evaluating the effectiveness of microcredit products, including both group lending and individual liability loans — without a primary focus on gender, and excluding studies focused on other forms of capital provision such as grants.

intervention size — for ease of comparison.

Empirical results on the effectiveness of capital grants are largely mixed, with substantial heterogeneity by gender and method of delivery. One set of results show that capital grants can transform women's livelihoods, by increasing the range of economic opportunities available to them. Eight of the reviewed studies, for example, show that capital grants supported sectoral transition such as from agriculture to non-farm businesses — thereby expanding labor supply, increasing profitability and income for women entrepreneurs. Only two studies, however, show that such impacts can persist over the longer term. Five of the reviewed studies suggest that capital grants had limited impacts, particularly for women operating subsistence businesses. Lack of productive and life skills, social constraints, sectoral choices, competition-aversion, resource diversion and intra-household dynamics favoring men potentially meditate the impact of grants on women-owned enterprises.

The lack of effects on subsistence entrepreneurs raises questions as to whether such interventions are effective policy levers for poverty alleviation. However, poverty is often multidimensional, and lack of physical capital is just one of the myriad deprivations faced by the poor. An emerging literature explores the impact of integrating grants within social protection and economic inclusion programs, commonly labeled as "graduation programs", to overcome these multiple constraints. Such multifaceted packages show some promise.

Regarding individual-liability loans, the evidence is also mixed. Similar to the findings on grants, there is evidence that in some contexts the average returns to borrowing may be positive for male borrowers but not for female borrowers. Female borrowers may face pressure to channel funds into non-investment purposes. Targeting is key, even for smaller loans — with returns often only present in the upper tail of the distribution of firms by baseline profitability. The absence of a grace period may also deter use of funds for profitable investments, that may generate returns after some delay. Collateral requirements are often present as tool for MFIs to reduce risk when lending is individual-liability, and appear to be a strong barrier to uptake.

Results are somewhat mixed when innovations are made to provide flexibility or implicit insurance. The evidence on providing direct credit insurance is scarce and not yet promising. There is also very limited but tentatively promising evidence on innovations to reduce collateral constraints. A very small number of studies suggest that larger loans may hold promise for growth-oriented entrepreneurs in some settings, although more evidence is needed in this area — again, particularly regarding targeting.

Finally, this study identifies emerging evidence that does not fit our review criteria — and hence is not counted in the systematic review sections — but highlights the research frontier. Given the novelty of this strand of literature, there are few fully-fledged causal studies on the impacts of capital provision via these innovative methods, and the few randomized trials that exist lack sufficient statistical power for gender-disaggregated results. Nonetheless, this literature presents a range of innovations — including the use of alternative data for credit scoring and the development of digital credit products — that may hold promise in making capital more impactful for women entrepreneurs, by addressing additional constraints identified in the papers we review.

We begin by presenting the design of the systematic review in Section 2. In Sections 3 and 4, we highlight the key results from the studies identified on capital grants and on credit, respectively. In Section 5, we identify the emerging research areas from papers that did not meet our search criteria but are highly related. Section 6 concludes.

2 Study design

We reviewed rigorous evidence on interventions that provide access to productive capital for women in low- and middle-income countries (LMICs). To ensure a focus on high-quality research, we restricted our review to empirical studies that apply robust experimental and quasi-experimental econometric methods.

We included studies as follows:

- We identified studies through a systematic search on Google Scholar, using varying combinations of the terms *women, female, gender, micro-enterprises, small and medium enterprises, entrepreneurship, credit, credit constraints, access to finance, grants, loans, financial access, randomized controlled trial, randomized experiment* and *instrumental variables*. Two or three of these terms were used in sequential searches, and papers were pre-selected based on their title.

- We also conducted forward citation checks in these pre-selected papers, to identify additional relevant articles.

- We only searched for studies written in English.

- We only searched for papers published up to December 2024.

We then excluded studies as follows:

- We excluded studies not published in peer-reviewed journals, or reputable working paper series with an element of peer review.

- We excluded studies that did not report business outcomes — such as profit, business ownership, or survival — rather than household or individual outcomes alone.

- We excluded studies that focus only on group-liability financial products, as reviews on this topic already exist, e.g. Banerjee et al. (2015); Meager (2019).

- However, we retained evaluations of individual-liability products even when delivered via groups to reduce transaction costs or harness peer effects to increase repayment — provided the loan was evaluated in isolation from any other notable components of an intervention.

- Similarly, we were open to retaining studies of individual-liability loans within hybrid savings and lending institutions like Village Savings and Loan Associations, had designs sought to evaluate the loan component in isolation. However, we found that evaluations

of such interventions did not separate out the large savings component, and thus did not meet our criteria.

- We excluded papers if they contained exclusively male samples; or had mixed samples but did not report results for women as a sub-group. In three cases, we contacted study authors where the female sample appeared potentially large enough to permit disaggregated analysis, but it was not featured in the published paper. However, the authors confirmed insufficient statistical power for women-specific results. In further cases, it was clear from the sample description that there would not be sufficient power.

Our final selection included 27 studies, of which 14 focus on grants (cash, in-kind or both), ten on loan products, and three on both loans and grants. Most studies are from Sub-Saharan Africa and South Asia, reflecting the large number of access-to-finance interventions in these regions. We also included one study each from Egypt, Colombia, Tunisia, the Philippines, Mexico, Mongolia, and Bosnia and Herzegovina. Interventions vary significantly in the size of the grants and loans offered and the types of firms and individuals targeted.

In addition to the systematic review of the causal evaluations, we highlight recent studies that employed innovative interventions aimed at expanding women's access to capital. These interventions include digital wallets, fintech-driven lending models, and equity-like financing contracts that rely on data driven approach to assess applicants' repayment ability and offer flexible payment options. While studies on these topics mostly fall outside our strict review criteria, they offer important insights on the changing nature of access to capital and a promising possible research frontier.

3 Grants

In this section, we review the evidence on the effects of capital grants targeting women on enterprises led by women. We came across 14 studies that randomize access to financial grants to existing women entrepreneurs, or women who had limited income-generating ac-

tivities before the interventions, and three which compare grants and loans.[5] The studies that focus purely on grants cover evaluations from Kenya, Ghana (two studies), Sri Lanka (two studies), Uganda (three studies), Tanzania, Niger, Burkina Faso, Tunisia and Zambia. Additionally, one study revisited earlier research conducted in Ghana and Sri Lanka. The three studies examining both grants and loans cover Egypt, Uganda, and one study estimating new results from experiments in India and Sri Lanka.

3.1 Cash versus in-kind capital grants

Theoretically, interventions that relax productive capital constraints help women entrepreneurs overcome significant upfront investment costs associated with business start-up, and working capital required to sustain an optimal scale of operations (e.g., Blattman et al. (2014)). Capital grants commonly take two forms: cash grant and in-kind grants. Cash grants often provide unconditional cash directly to entrepreneurs, without specifying how the grant should be used. Such grants can alleviate entrepreneurs' liquidity constraints in fixed and working capital, which could help expand investment and business growth opportunities. However, cash grants are typically fungible, and there is a possibility that entrepreneurs may choose to divert resources towards non-business-related purposes — potentially expanding personal consumption at the expense of productive activities.

In contrast, in-kind grants provide entrepreneurs with physical capital, such as business assets, materials, tools or equipment, instead of cash. These resources purchased through the grant potentially enhances the productive assets of the business, thereby establishing a direct link between the grant and the business need, which Arthur Okun labels as "the flypaper effect" (Okun, 1969; Fafchamps et al., 2014). However, this type of support also imposes limitations on the extent to which businesses can adapt and pursue higher-return opportunities, which can constrain women's ability to invest in other areas that may be more pressing or have a higher growth potential (Crépon et al., 2024).

[5] Hussam et al. (2022) studied the effects of cash grants on microentrepreneurs in India; however, it remains unclear whether their results include gender-disaggregated estimates of returns to capital.

The most compelling proof that capital grants enhance women's businesses and livelihood outcomes comes from experimental studies in the Arab Republic of Egypt, Ghana, Uganda, Niger and Zambia. Using a sample of 3,294 approved loan applicants in Egypt, Crépon et al. (2024) study the impact of three types of capital injections — subsidized loan, in-kind grant and cash grant — on business creation and profitability. Approximately 12 months after randomization, the study finds that all three forms of capital support interventions increased profitability, especially for women entrepreneurs. Interestingly, both loans and grants had similar impacts on profitability for women. The primary driver of this effect appears to be the creation of new businesses, indicating that credit constraints act as a significant barrier for initiating business ventures.

The in-kind grant had the largest impact on new business creation, with women in the treatment group experiencing a 158% increase in business start-up compared to the control group. Changes in labor supply appear to explain these results for women, where in-kind grants facilitated transition from unpaid household and care work to self-employment. Meanwhile the cash grant increased women's labor supply in both wage- and self-employment activities. The authors also show that total income, including wage earnings, increased significantly for all the three treatments groups compared to the control group. The impacts on total income, however, are concentrated at the top of the distribution.

Janes et al. (2019) revisit two previous experiments that provided cash and in-kind grants to entrepreneurs: de Mel et al. (2008) in Sri Lanka and Fafchamps et al. (2014) in Ghana.[6] Janes et al. (2019) show that capital grants have a sizable and significant effect on micro-entrepreneurs' income and productivity. Strikingly, both in Sri Lanka and Ghana, Janes et al. (2019) and Fafchamps et al. (2014) find that capital grants do not have any impact on profitability of subsistence women-owned businesses. In Ghana, Janes et al. (2019) show that positive effects are confined to high-growth women-led businesses; while the sample in Sri Lanka did not have successful women-owned enterprises. The authors caution that their

[6] Janes et al. (2019) estimate a production function to explore the impact of capital grant on enterprise productivity by combining data from de Mel et al. (2008) in Sri Lanka and Fafchamps et al. (2014) in Ghana.

study may lack sufficient statistical power to test gender differences in productivity and that they cannot reject the null hypothesis of equal effects in both countries.

While the impact of cash and in-kind grants are found to be comparable in Sri Lanka (de Mel et al., 2008) and Mexico (McKenzie and Woodruff, 2008), in Ghana, Fafchamps et al. (2014) find that in-kind grants are more effective than cash grants. The authors randomize men and women micro-enterprise owners to an in-kind or cash treatment groups, or to a control group who get neither. The authors find that the grant generates large impacts on monthly profits for both men and women entrepreneurs. Similar to Janes et al. (2019) however, the study does not find any impact for women running more subsistence businesses during the baseline. The results also suggest that these higher returns arise when capital grant is provided in the form of in-kind rather than cash grants. In-kind grants helps women overcome self-control challenges caused by time-inconsistent preferences and high discount rates, that could potentially redirect resources away from the business. In contrast, capital provision in the form of cash is less likely to stick, and instead could boost consumption and turn investment away from the business.

Notwithstanding these positive and sizable impacts of capital injection on women's entrepreneurship or livelihood changes, several other studies did not find any significant effects. Studies from Sri Lanka, Ghana and Uganda, for example, show that either capital grants had no effects or effects are largely confined to men-owned businesses. de Mel et al. (2009) examine the impact of providing cash or in-kind grants (materials) to enterprises owned by both men and women in Sri Lanka. They find that both treatments increase profit and returns to capital by 8% and 9% respectively for male-owned enterprises, but no effect for women-owned enterprises.

In the same spirit, de Mel et al. (2012) study the short- and long-term impacts of cash grant of $100 and $200 offered to micro-enterprises in Sri Lanka. For male-owned businesses, the authors show $8-$12 higher profit per month and a 10 percentage points greater likelihood of business survival. The impacts persist five years after the treatment. The effects are,

however, entirely driven by male-owned businesses and there are no effects for women.

Similarly, Fiala (2018), offers micro-entrepreneurs in Uganda either a discounted loan, cash grant or a combination of loan and cash grant with business skills training. None of the interventions affect the profitability of women-owned businesses. In contrast, men who were assigned to the discounted loan treatment arm experience a 54% increase in monthly profit. The impacts increase over time and higher with business skills training. Interestingly, there were no significant effects of the grants with or without the training for both men- and women-owned businesses.

3.2 Capital grants and human capital interventions

Lack of finance may be one of the key constraints that prevent women from initiating and operating successful businesses, but it may not be the only one.[7] Business skills, such as financial literacy, recording keeping, marketing, budgeting and planning — as well psychosocial skills, such as communication, teamwork and empathy — may be important to improve business outcomes, and may complement capital injections. To test these hypotheses, researchers have often combined cash and in-kind grants with various forms of interventions aimed at tackling social and human capital constraints, typically targeting entrepreneurs' business and managerial skills.

These interventions yield varying degrees of success. Capital grants combined with technical skills training programs had some success in fostering self-employment opportunities, particularly for poor and unemployed youth. Blattman et al. (2014) study a government employment program that randomizes a grant amounting to $382 to finance vocational skills training and business start-up in Uganda. Individuals in the treatment group are found to invest in skills training as well as procurement of materials and tools required for running their businesses. After four years, treatment is associated with a sizable increase in business

[7]The converse also holds: many skills-based interventions, when implemented in isolation, often fail to improve enterprise performance, suggesting that capital constraints may be a binding constraint when non-capital constraints are addressed (McKenzie, 2021).

earnings (38%), self-employment (50%), business asset (57%) and labor supply hours (17%). While effects are largely similar between men and women beneficiaries, the impacts are larger for women relative to their situation without the program; treated women experienced a 73% increase in income compared to the control group, while the corresponding gain for treated men was 29%.

For the most part, these economic gains appear to arise due to the employment transition of treated individuals from agriculture to self-employment in cottage industries. The results suggest that cash grants can be used to overcome credit constraints faced by poor and young people, in markets where capital has potentially higher returns. The findings are also indicative of the potential long-lasting impacts of a one-off cash grant in promoting self-employment, reducing unemployment, and alleviating poverty.

Blattman et al. (2016) also look at the impact of a bundle of interventions that combines a $150 cash grant with five days of business skills training and ongoing supervision to war-affected women with limited non-farm self-employment experience in Uganda. A year-and-a-half after receiving the package of interventions, women in the treatment group were more likely to start new businesses, doubling their micro-enterprise ownership and income. While the results suggest that such programs can revitalize the economic activities of women in ultra-poor communities, the long-term impact of such interventions is unclear, as the control group joined the program sixteen months after the treatment.

A similar experiment in urban Kenya offers a look at the impact of productive grant on a longer time-horizon. Brudevold-Newman et al. (2023) randomized poor young women in Nairobi into three groups: i) a one-off unconditional cash grant amounting to $239; ii) a "franchise" intervention designed to simultaneously alleviate credit and skills constraints, consisting of vocation and life skills training, mentoring and in-kind asset transfers; or iii) a control group. In the short run, seven to ten months after the intervention, Brudevold-Newman et al. (2023) find that unconditional cash grants had roughly a comparable impact to the bundled "franchise" intervention — both interventions increase income by 56% relative

to the control group mean, and increase the likelihood of self-employment by approximately 10 percentage points. In the second year after treatment however, while treated women were still more likely to be engaged in self-employment, the income and labor supply gains dissipated. The authors build a model that suggests that the lack of persistent income effects, and women's inability to transition out of poverty, is likely due to savings rather than credit constraints.

Similarly, Gazeaud et al. (2023) investigate whether large cash grants amounting to US$768 – with or without gender-sensitive financial training — can promote women's income-generating activities. They randomizes women in Tunisia into three treatment arms: i) access to a cash grant and a one-day financial training; ii) access to a cash grant and joint gender-sensitive financial training with their male partners; and iii) a control group. They find that two years after the program, women that receive cash grants are more likely to start income-generating activities, work more hours and earn larger income but only when the male partner is not invited to the training program. While receiving the cash grant improved households' food consumption, asset ownership and investment, it does not do much to improve women's employment and agency across both groups. More worrying is the finding that inviting male partners to programs designed for women can have unintended consequences that offsets potential gains from large capital grants. This suggests that gender norms can become so deeply entrenched that even the most well-meaning attempts to relax them might inadvertently undermine women's welfare.

Two experiments in Burkina Faso and Tanzania raise questions about the effectiveness of cash grants in altering how micro-enterprises are operated. Grimm et al. (2024) randomly assigned firms to receive either cash grants, matching funds for tailored consulting services, or to a control group that does not receive any support. Two years later, both interventions improved firm survival, business practices, formalization, and innovation — with stronger effects for cash grant recipients — compared to the control group. Notably, employment increased significantly in female-owned firms that received the cash grant. However, despite

the scale of these interventions — $3,420 on average for the cash groups and $3,443 for the matching grant group (equivalent to approximately 91% of the firms' average capital stock) — neither intervention resulted in a significant impact on profits, sales, or employment for either men- or women-owned firms. The authors find suggestive evidence that the matching grant may have supported women to start businesses in traditionally male-dominated sectors.

Similarly, Berge et al. (2015) test the effectiveness of a cash grant when it is offered alone or in combination with business skills training in Tanzania. The grant amount, set at $85 (100,000 Tanzanian shillings), was roughly equivalent to half of the firms' average annual investment. The study finds that while the business training had a significant effect on profitability of male-owned firms, the grant had no effect on women-owned businesses irrespective of whether grant is offered with or without business skills training. The authors show that the absence of impacts on women entrepreneurs can be attributed to less aggressive business strategies and soft labor management practices. These practices, such as reluctance to fire unproductive workers and reliance on bonuses, prevent women-owned businesses from enhancing the quality of their workforce.

Additionally, using incentivized lab evidence, the authors show a considerable mindset differences between women and men with respect to competition-aversion, where women were found to be less likely to be willing to compete. As a result, women had lower rates of engagement in competitive commercial activities that potentially offer greater scope to expand their businesses. These findings lead the authors to conclude that focusing on financial and human capital may be "fruitless", instead suggesting interventions to target other constraints, including those that limit women's motivation and ambitions.

Berge et al. (2015) and Brudevold-Newman et al. (2023) are not alone in documenting the absence of significant impacts associated with physical and human capital interventions. Karlan et al. (2015) randomize access to individualized consulting service, cash grants amounting to $139, and cash grant plus consulting among tailoring businesses in urban Ghana. After eight rounds of surveys within two years, the authors find that neither of the treatments

had significant impacts on profitability or business growth. The study cannot reject the hypothesis that there is no difference in treatment effects for men and women, although the confidence intervals are large. In fact, profit declined for the cash grant group, suggesting that while capital grants could initially increase investment and allow firms to experiment with new techniques, firms might soon discover that those techniques may not be necessarily profitable. Mirroring Berge et al. (2015), this finding also points to the observation that capital grants alone may not be sufficient to relax the multitude of constraints that small businesses face in low-income countries.

The discussion above highlights that, further to capital constraint, women face many human capital barriers that could potentially attenuate the effectiveness of cash or in-kind support programs —women face distinct limitations on how they could make use of additional capital injection to grow their business(Fiala, 2018). Our review of the literature that simultaneously relax physical and human capital constraints faced by women-owned businesses generate mixed evidence. Some studies shows that skills training combined with capital grant stimulates businesses creation and generates higher income. However, other studies suggest that combining capital grants with business skills training or consulting services does not produce greater impacts than providing cash grants alone. Emerging evidence show that intrahousehold dynamics, such as the pressure within households to share capital, lack of inclination to grow businesses and concentration in low return sectors explain lack of impacts on enterprise performance (de Mel et al., 2009; Fafchamps et al., 2014; Fiala, 2018; Bernhardt et al., 2019). The question thus remains regarding the type of complementary skill-based interventions that could assist women in overcoming the multiple business and household constraints that they routinely face when operating a business while managing a household.

3.3 Capital grants and multifaceted interventions

While interventions that bundle physical capital with human capital show promise, there is an argument that they still may not be enough. In a context of severe resource scarcity, capital market imperfections, and unfavorable gender and social norms, piecemeal interventions that provide only capital and skills may not be sufficient to enable women to escape entrenched poverty and unemployment, and transition successfully into productive self-employment. Further to production and managerial skills, behavioral and psychological interventions focused on entrepreneurs' mindsets and aspirations might be needed to augment the effectiveness of capital support.

Motivated by this logic, a growing number of publicly-provided social protection and economic inclusion projects, backed by development partners, are deploying multifaceted interventions. By offering substantial support for poor women, these packages are aimed at addressing multiple constraints simultaneously. We identified two recent studies conducted in Niger and Zambia that rigorously evaluated such multi-faceted social protection program.

Bossuroy et al. (2022) implemented an experiment that combines financial grants and package of skills interventions in a complex multi-faceted programming approach. The paper examines a government program in Niger that delivers an economic inclusion intervention to female beneficiaries. The study randomizes eligible beneficiaries to a "capital" package (lump-sum cash grant of $127), "psychosocial" package (life skills training and community sensitization on aspirations and social norms) or a "full package" that combines the cash grant and the psychosocial interventions. Furthermore, all groups receive group savings promotion, coaching, and entrepreneurship training, in addition to the national cash transfer program. The interventions increase profits significantly, by $136-$244 per year per household, particularly for women-led off-farm business and livestock activities. Household consumption and food security also improve significantly. Effects are larger in the full package than the "capital" package and "psychosocial" packages.

Botea et al. (2023) study the impact of a similar multifaceted large-scale livelihood support package targeting rural women in Zambia. The authors compare the direct and spillover impacts of three treatment arms on women beneficiaries: a "full package", a "human capital" package and a "financial capital" package. The "full package" consisted of life skills and business training, a $225 grant, support to form savings groups and a six months mentoring. The "human capital" bundle included skills training and mentoring, and the "financial capital" bundle offered only the grant and savings groups support. The authors find that the "full package" resulted in significant welfare gains, including improvements in consumption, assets, savings and mental health. The "financial capital" bundle also produced comparable welfare gains to the "full package", and perhaps surprisingly, led to even higher income than the "full package". Meanwhile the "human capital" bundle had no such impacts. The "financial capital" and "financial capital" component of the "full package" encouraged women to transition out of wage labor to self-employment, increasing the average number of businesses per household by 47% compared to the control group.

Additionally, these two bundles stimulated market-oriented agricultural activities, resulting in a 50% increase in the share of households that sell for profit compared to the control group. As a consequence, households assigned to these treatment arms experienced a significant improvement in business profit (45%-75%) and household income (28%-56%), with statistically significantly larger effects observed for the "financial capital" bundle.

These findings imply that women's entrepreneurship may be limited by a combination of credit constraints, skills shortages, and the high cost associated with starting a business due to the lumpy nature of initial investment. Furthermore, skills programs and comprehensive, large-scale multifaceted programs can help address capital and skills constraints typically faced by poor women in LMICs. However, whether such approaches are cost-effective compared to simple cash transfer programs remains an area of active research.

3.4 Long-term impacts

Only a handful of studies offer an opportunity to explore the longer-term impacts of capital injection on women's business and household level outcomes. Janes et al. (2019) show that the effects of capital grants are sustained over time. While they do not offer results disaggregated by gender, they show that three and six years after the intervention capital grants moved micro-entrepreneurs from a low- to a high- productivity trajectory. The six-year effects are, however, imprecisely measured. Similarly, Blattman et al. (2014) shows that capital grants have a large and persistent effect on self-employment in Uganda that lasted at least four years — groups assigned to the capital grant were more than twice as likely to be in skilled self-employment. The four-year effects of the grants are especially strikingly larger for women, with a significant 73% increase in income compared to women in the control group. In contrast, men experienced a 29% gain in income.

However, Fafchamps et al. (2014) show that income and profit impacts associated with in-kind grant are short-lived, and dissipate in the second year following the interventions. Similarly, de Mel et al. (2012) show that capital injections had neither short-run nor long-run impacts for women-owned businesses.

The limited number of studies exploring capital grant impacts over longer time horizons presents opportunities for further research to study whether the impact of productive capital interventions decays or persists over time. Such follow-ups are particularly important for financial indicators, where results could be lagged over time, and cost-effectiveness or cost-benefit calculations could consider a longer time horizon.

3.5 Exploring when grants work and when they do not

In sum, the literature indicates that capital grants could have large impacts on improving women entrepreneurs' business creation on the extensive margin, and profitability in the intensive margin. Capital grants facilitate women's employment transition from un-

paid household work to paid employment, through the creation of new businesses and wage employment opportunities. Evidence from Egypt and Ghana indicates that in-kind grants particularly supported such transitions. Yet, out of the 17 studies that offered capital grants with or without other complementary interventions, eight of them indicate that grants did not have significant impacts on women (see Table A1 in the online Appendix for an overview of the results). Further, two studies from Ghana and Sri Lanaka indicate that effects are concentrated only among high-performing women entrepreneurs, and those operating subsistence businesses do not respond to capital grant interventions.

There are several reasons for lower returns to capital observed among enterprises led by women. de Mel et al. (2009) suggest that this is partly explained by limited investment of the financial grant received by women entrepreneurs, and differences in the type of investment women and men entrepreneurs made. Women were both less likely to invest a large share of the cash grant in business-related ventures; and even when they invest, their investment tend to combine procurement of items that have both business and household consumption values. As a result, the returns for working capital in women-owned enterprises are 1.4% whereas for equipment, it is -5.8%. These figures are significantly lower than the corresponding values of 8.5% and 5.3% respectively for men-owned enterprises.

Similarly, de Mel et al. (2012) show that lack of effects for women-owned businesses are explained by resource diversion from business to household use; and by women's sector choices, where women concentrate in low-return sectors compared to their male counterparts. Further, Bernhardt et al. (2019) show that lack of impact on profit could be partly explained by diversion of women's business capital to their husband's enterprise. This is further compounded by women's lack of decision-making autonomy over their own and the household's resources (Berge et al., 2015). It is also plausible that a women's decision to invest in her husband's business may improve allocative efficiency in capital and may be an optimal household decisions, particularly if capital returns are higher in the husband's than her business.

One alternative explanation for the lack impacts of capital grants on women entrepreneurs' outcomes is the possibility that researchers may not be looking at the right set of outcomes. The intra-household allocation of capital could be a significant factor, and it is possible that capital grants might affect household-level outcomes differently than enterprise-level outcomes. This is because, for both men and women entrepreneurs, investment decisions are not made only on the basis of resources and opportunities that are present at the single enterprise level. Multiple and competing business opportunities available within the household, and household bargaining, are important factors that determine the quality of investment decisions by entrepreneurs (Bernhardt et al., 2019; Banerjee and Duflo, 2007) . Using data from experiments in India, Sri Lanka, and Ghana, Bernhardt et al. (2019) offer interesting insights into how the impact of capital grants differed depending on whether they were allocated to the enterprise or the household. In households with more than one business, they find that capital is more likely to be allocated to male-owned enterprises than female-owned enterprises. This finding explains why Bernhardt et al. (2019) observe that capital grants had no impact on profit and income for women-owned enterprises, and that women who received the capital grant experienced a significant increase in household income in India and Sri Lanka.

The discrepancy between enterprise-level and household-level outcomes suggests that female entrepreneurs may face unique challenges in accessing and controlling resources within the household, which can impact their ability to make investment decisions that benefit their own businesses — women's capital, in certain cases, may be redirected towards their husband's business. These findings have significant implications for the design of studies seeking to assess the impacts of capital grant interventions on women-owned enterprises. Specifically, analysis of treatment effects would risk being incomplete or focus on the wrong outcomes if researchers fail to account for the complex interconnections between households and micro-enterprises, including those related to finance, labor, risk, household bargaining and decision-making. These results also suggest the need to map carefully the channels

through which feedback effects flow between the household and enterprises over time.

The findings of Gazeaud et al. (2023) also suggest that involving men in programs designed for women may have inadvertently legitimized men's influence over household spending decisions — potentially steering resources in ways that do not align with women's economic interests. These findings highlight the importance of considering the broader context in which women entrepreneurs operate, including household-level factors, when examining the impact of capital support on economic outcomes. Section 5 discusses how emerging evidence indicates that innovative instruments such as digital wallets could improve women's control over resources (Ky and Rugemintwari, 2022).

4 Credit

Beyond grants, the other widely implemented way to channel capital to female entrepreneurs is in the form of loans. Our search yielded ten eligible studies that randomize access to credit to existing women entrepreneurs, or women who had limited income-generating activities before the interventions, and three which compare grants and loans. The studies that focus purely on loans comprise evaluations from Bangladesh, Bosnia and Herzegovina, Colombia, Ethiopia (two studies), India, Mongolia, Pakistan, the Philippines, and Sri Lanka. The studies that examine both grants and loans — from Egypt, Uganda, and revisiting several studies combined — are already discussed in Section 3.1 above. We revisit them here to examine the results on direct comparison of grants versus loans.

4.1 Grants versus loans

If female entrepreneurs have access to investment opportunities that bear modest or sizable returns, then credit is a natural instrument to channel funds — as long as screening, transaction and monitoring costs do not imply prohibitively high interest rates. Use of credit rather than grants may permit sustainability and broader outreach of interventions to sup-

port women entrepreneurs, since capital can be recycled and the costs of capital recovered, and lending may even crowd in private sector capital if profitable lending models are demonstrated. If mechanisms for enforcing repayment or punishing default are strong enough to avoid adverse selection, credit also has the potential to enhance targeting efficiency compared to capital grants, if only entrepreneurs who expect high returns select into taking loans.

Of the studies mentioned above, two directly compare the impacts of grants versus loans in the same setting: Crépon et al. (2024) and Fiala (2018). Meanwhile Bernhardt et al. (2019) reconsider evidence from different studies examining grants and loans across different contexts — the only paper including loans being Fiala (2018).

Crépon et al. (2024) find similar positive impacts of both grants and loans, especially for women, arising from the creation of new businesses. However, the experiment was conducted on a sample already screened for loan eligibility, so does not offer evidence on whether offering grants or loans generate different targeting efficiency. It is interesting that the impacts of a grant are not higher than the impacts of a loan for this select study population, since *a priori* one would imagine that the same individuals would benefit more when they do not have to repay the initial capital injection (i.e., grants) compared to when they have to repay, and with interest (i.e., loans).

Meanwhile Fiala (2018) finds that neither grants nor loans have impacts for women-owned businesses. Loans produce positive impacts on profits for male-owned businesses, whereas grants do not, even when combined with business skills training. Again, it is noteworthy that grants do not dominate loans — but rather vice versa. The other results from these papers are discussed in more detail above in Section 3.1.

4.2 Individual-liability microfinance

As mentioned above, our review does not cover studies that evaluate the impact of group-liability microfinance, since these are already the subject of existing systematic reviews. One study, Attanasio et al. (2015), directly compares individual-liability to joint-liability

microfinance — randomizing the product offered to poor women across villages in Mongolia. Given the focus on business creation and expansion, all loans had a grace period of one to two months. Individual loans were similar in principle to the loans provided to group members, and the average size of the first loan under individual liability was $411 compared to $435 under the group loans, though in practice the individual loans were larger on average. The MFI did not have strict collateral requirements, but took collateral if available, and in practice 91 percent of the individual loans were collateralized.

The study finds large, positive impacts of access to group loans on the probability of female entrepreneurship and hours worked on the female-run business — driven by women with lower education. There are also positive impacts on household food consumption, although not on households' total working hours or income. These positive impacts stand in contrast to much of the evidence on joint-liability microfinance (Banerjee et al., 2015). Although not tested directly, this divergence in findings might be attributable to the more flexible nature of the group lending product studied compared to other traditional microfinance schemes. Specifically, along with the inclusion of a grace period, groups decided on the modalities of their cooperation, including whether to meet regularly or not. Alternatively, the divergent findings may be attributable to differences in loan context and targeting.

The individual-liability micro-credit program delivers no such impacts. Take-up or granting of individual loans was much lower — perhaps due to higher collateral requirements or loan officers being stricter in practice, or to women being more averse to taking on the risk of a loan alone. Additional results on informal transfers to families and friends suggest that joint liability may deter borrowers from using loans for non-investment purposes, with stronger impacts as a result. The authors find no difference in repayment rates between both types of micro-credit.

Some earlier studies that focused purely on individual-liability microfinance are similarly discouraging for women entrepreneurs. A study with an MFI in the Philippines randomly liberalized screening for marginal borrowers — effectively expanding access to a random

subset of borrowers who were marginally rejected by the typical screening process (Karlan and Zinman, 2011). The average loan size was $225. The study found that while the probability of having any loan from a lender or close substitute in the last month increased by 25% relative to control group, this led to significant increases in profits only for men and not for women — despite 85% of the MFI's clients being women. Further, the treatment decreases the number of businesses, and the number of helpers or employees in businesses owned by the household.

However, a subsequent study showed more positive effects of individual-liability microfinance on entrepreneurship, including female entrepreneurship. An RCT in Bosnia and Herzegovina employed a similar design, offering individual-liability microfinance to randomly-selected marginally rejected households (Augsburg et al., 2015). The average loan size was $1,012. The sample was 40% female, and results were identical for men and women. In particular, households offered the individual-liability microfinance loan product were six percentage points more likely to receive income from self-employment (with a similar decline in the probability of income from wage employment), and six percentage points more likely to own a business. While there were no significant average impacts on profits, there were large, significant positive impacts on profits for households who had baseline businesses with profits in the higher quantiles, and households who declared at baseline that they were intending to use the loan for business purposes.

Two sets of results from Augsburg et al. (2015) are particularly worth highlighting from a welfare perspective. First, the authors note that households without savings (mainly less-educated households) reduced consumption, while those with a prior business and some savings ran down their savings. These patterns are consistent with investments being lumpy, and with the loans being too small to start or expand a business alone, so with households topping up loans with their own resources in anticipation of future returns. Second, household hours worked in the business increased, offset by a decrease in hours worked on other activities. In particular, hours worked by teens aged 16–19 on the business increased, especially for the

children of less-educated borrowers, although teens did not show an overall increase in hours worked. Therefore if microfinance crowds adolescents' labor into entrepreneurship and away from building human capital elsewhere, then depending on the value of different types of human capital, microfinance may introduce a trade-off between current versus future welfare for adolescents and their households. Moreover, it is important to consider that adolescent children as well as women tend to perform unpaid household enterprise and care work, and that these sources of labor may substitute or complement one another; hence efforts to advance women's entrepreneurship in particular may have unintended consequences on adolescents' labor and schooling. More, and more gender-disaggregated evidence is needed on such effects and how to mitigate them.

4.3 Innovations to standard individual-liability contracts

There is growing evidence that innovations to traditional microfinance loan products to make them more flexible — providing implicit insurance that enables entrepreneurs to take more risk — may enable greater impact on entrepreneurship including female entrepreneurship. In this section, we discuss studies that directly test whether the addition of such features improves the performance of individual-liability loans — whether made in a group setting without joint liability, or individually.

Field et al. (2013) conduct an RCT adding a two month grace period into individual-liability loans made by an MFI to existing female clients in low-income neighborhoods of Kolkata, India. Loan sizes range from approximately $90 to $225, with a mode of $180. The loans appear well targeted to women entrepreneurs — averaging across the treatment and the control group, over 91% of the clients spent at least some of their loan on business-related expenditures, with close to 70% of clients reporting that they spend on inventory and raw materials. The grace period increases short-term investment and long-run profits. Relative to clients not receiving the grace period, the average grace period client invests six percent more of her loan in her business — and reports a significant decline in non-business

spending, driven by a reduction in spending on house repairs. Micro-enterprises in grace-period households end up 81% larger in terms of assets and inventory and raw materials. Grace-period clients are less likely to report very low or zero profits, and more likely to report high profits. They are almost three times as likely to start a new business. The authors interpret the results as supporting the hypothesis that classic microfinance contracts — which require repayments beginning almost immediately after disbursement — discourage illiquid, risky investment and thereby potential micro-enterprise growth. On the other hand, it should be noted that introducing the grace period increases default rates.

Battaglia et al. (2023) also find that flexibility in microfinance contracts leads to improvements in business outcomes — again linked to increased entrepreneurial risk-taking, and again driven by borrowers in the upper tail of the distribution. In contrast to Field et al. (2013), Battaglia et al. (2023) find that flexibility leads to lower default rates. The authors conduct an RCT with existing clients of the MFI BRAC in Bangladesh. The control group get a standard loan contract, and the treatment group get a flexible contract with the option to delay up to two monthly repayments at any point during a 12-month loan cycle. The experiment is conducted with female borrowers of an uncollateralized microfinance product, with average loan size $250; and with both male and female borrowers of a larger, collateral-backed product, with average loan size $2,200. The authors find that for the all-female uncollateralized clients, repayment increases borrowing from BRAC by 11%, the value of business assets by 51%, revenues by 87%, and profits by 25%. Uncollateralized clients offered flexibility end up with 17% higher household income, 25% more household assets, and 26% more owned land. These effects are associated with increased risk — a doubling in sales volatility, and with lower sales and lower revenue and income growth in the left tail of the distribution compared to the control group. In contrast, there is out-performance of the control group in the right tail of the distribution. There are no significant effects on business or household outcomes for the collateralized borrowers, nor significant heterogeneity. The authors suggest that the larger business owners face additional constraints to risk-taking

beyond repayment flexibility.

In contrast, Brune et al. (2022) find more striking results from embedding flexibility within individual-liability microfinance contracts for *first-time* borrowers. The authors conduct an RCT in urban Colombia, offering entrepreneurs a loan of average size $350 (maximum observed size $1,800). The authors implement three treatment arms: i) contracts that are offered as flexible from the beginning, where clients are allowed to delay up to three monthly repayments on a 12-month loan; ii) standard loan contracts that then switch to the flexible contract after take-up as surprise (to see if flexibility induces a selection effect in i); iii) standard contracts for the whole duration (to see if flexibility induces a moral hazard effect in i). The authors report three main findings. First, there are no selection differences in the take-up rates, characteristics, or outcomes. The lack of selection effects suggests only a small share of profitable entrepreneurs would reject the standard contract but accept the flexible contract. Second, flexibility increases default — and the effect is driven by borrowers who used the flexibility to extend loan maturity, and had already missed payments at the time of default. Comparable borrowers in the standard group had better repayment performance without resorting to more expensive sources (i.e., informal loans). Third, flexibility leads to more self-reported client satisfaction, but not to higher retention of successful borrowers, nor to impacts on profits or revenues compared to the standard contract. The results are not differential by gender.

Further emerging evidence on larger loans is presented below, and on contractual innova-

tions is presented in Section 5.[8,9] Another option outside of introducing repayment flexibility might be to introduce insurance products alongside microfinance contracts. However, evidence on credit insurance or non-agricultural business insurance is scarce, and the little evidence that exists is not promising.[10]

Collateral and guarantor requirements may also be a key impediment to take-up of

[8]Barboni (2017) builds an adverse selection model that predicts the existence of a separating equilibrium, where lenders are able to achieve higher profits by simultaneously offering a rigid and a flexible repayment schedule, instead of just a rigid contract. Since the study does not consider take-up and impact of a real microfinance contact in the field, it falls outside our systematic review parameters. Nonetheless, the findings complement understanding of the role of contract rigidity and interest rate. The author conducts an unincentivized framed field experiment with clients of an MFI in India, 93% of whom are women. The author tests for the hypothetical take-up of i) a rigid microfinance contract with interest rate of 28%, versus ii) a flexible repayment microfinance contract introducing a grace period, at different interest rates ranging from 26% to 40%. She finds strongly declining stated take-up rates of the flexible contract as the interest rate increases. More entrepreneurial borrowers are more likely than less entrepreneurial borrowers to state that they would take up the flexible schedule, and even more so when the flexible schedule is more expensive than the rigid one. Risk-averse borrowers are more likely to stick to the rigid contract when this is cheaper than the flexible contract. Women are less likely to opt for the flexible contract — possibly because they are more risk-averse. The author calculates that the profit the lender would achieve by offering the rigid and the flexible repayment schedule simultaneously is higher than the profit the lender obtains by simply offering the rigid repayment schedule.

[9]Khan and Bedi (2022) provide evidence on the returns to capital via an RCT of *interest-free* microcredit in Pakistan. Their study falls outside our systematic review as they do not appear to have power to conduct analysis for female borrowers separately (24% of their sample). The authors use the random assignment of a US$96 loan to eligible applicants, versus random assignment to a control group for other eligible applicants, to instrument capital and estimate the returns. They find average monthly returns to capital of 8.6 to 11.9 percent a month, higher than the interest rates charged by conventional microfinance institutions in Pakistan, suggesting that in principle interest-bearing lending might still generate returns for micro-enterprises. However, it is not clear if the returns they observe would persist under interest-bearing lending, for example if the obligation of interest repayments would push borrowers into different kinds of investments with potentially lower returns. More work is needed to understand the returns to capital — and the impacts of interest-free lending — for women entrepreneurs in this context.

[10]Groh and McKenzie (2016) conduct an RCT in Egypt to test an insurance product offered alongside credit. The study falls outside our search criteria since it does not test the impact of an injection of capital in the form of a grant or loan. The authors sample MSME owners renewing loans, 36% of whom are women. The treatment group are offered a 12-month insurance plan to protect against macroeconomic and political shocks, with a payout equivalent to two months of the loan principal installments — one payout to the MFI to cover that month's installment, and the other payout to the client for cashflow. Initial take-up is high, with 37% of micro-enterprises offered the insurance purchasing it. However, the authors find small, insignificant impacts of the offer of insurance on pre-specified outcomes: purchase of machinery or equipment; introduction of a new product or service; starting a second business; hiring a worker; level of inventories and raw materials. The impact on revenues is negative, statistically significant at the 1% level, and large — equivalent to a 12.6% reduction in revenue relative to the control group. The authors conclude that since micro-enterprises in this context largely invest the loans in inventories and raw materials — rather than irreversible investments — macroeconomic and political risk is not a binding constraint on investment. The authors also observe very low take-up in the second year, after political events came close to but did not trigger insurance payouts in the first year. Evidence is lacking on whether insurance against other kinds of shocks faced by entrepreneurs might be a viable accompaniment to microfinance and produce positive impacts, including for women.

individual-liability microfinance. A study in Sri Lanka sought to expand access to microfinance to high-return entrepreneurs — a 50-50 split of men and women — by providing information and reducing the guarantor requirement (de Mel et al., 2011). Loan sizes ranged from $50 to $250, which was in principle smaller than the MFI's other products (average loan size $254), although in practice almost everyone who successfully borrowed under the experiment borrowed the upper limit of $250. However, while the intervention significantly increased the proportion of firms receiving loans in the past three months, the effect size was only 5-7 percentage points, reflecting the fact that only 10% of the sample eventually received a loan. The most important reasons given for not applying for a loan were failures to meet the loan eligibility criteria: 25% reported an inability to find guarantors or collateral, and 21% reported not being able to fulfill other criteria.

4.4 Larger loans

Section 3.2 reviewed studies examining the impacts of cash or credit interventions when implementing with skills training programs. A further study in Pakistan, Giné and Mansuri (2021), tests the impact of training in combination with credit only, and specifically larger loans. The authors conduct an RCT with rural microfinance clients, in which half of the sample are women. They randomly assign clients to be offered business training, focused on business planning, marketing, and financial management. Cross-cutting this treatment, they offer a loan lottery in which clients can apply for a loan of up to seven times the average current loan size — amounting to a new limit of $1,697 — screened using the same criteria as normal loans. Successfully screened applications are randomized to receive the loan or not.

The authors find that, while being assigned as a lottery winner unsurprisingly increased average loan size, access to larger loans had little effect on household welfare. They suggest that the limit on the current loan size already met the demands of most borrowers. Business training did not increase the probability of borrowing, nor significantly impact sales or profits

for men or women. Offering business training did lead to increased business knowledge, better business practices, and an increase in household expenditures of about $82 per year, with effects mainly concentrated among male clients eligible for the loan lottery. The authors attribute the lack of impact of training among women, with or without access to larger loans, to women's lack of agency in this setting. For example, while male clients report they are responsible for all managerial decisions regarding their businesses, 40% of female entrepreneurs report that their male spouse makes all of the business decisions.

Much more promising results of larger loans and of training were found by a quasi-experimental study in Ethiopia (Alibhai et al., 2025). The study evaluates the impact of larger, collateralized loans of average size $12,000, in the context of a large-scale government program offering larger loans, trainings, or both to growth-oriented women entrepreneurs. Using propensity score matching, the authors estimate that firms that received a loan were 8% more likely than the rest of the sample to have started a business in that same year. Three years after the program started, receiving a loan had a positive significant impact on firm profitability, number of employees and the number of hours worked by employees per week. Most of the women who obtained a loan (34% of the total sample) did so in combination with training (24% of the total sample, with 8% of the total sample obtaining a loan without training). Thus the results may be interpreted as predominantly capturing the impact of larger loans in combination with training.

Low ownership of collateralizable assets is a constraint to many micro- and small enterprise owners, particularly women, accessing larger loans. Another study under the same program in Ethiopia worked with a microfinance institution to introduce psychometric credit scoring as a substitute for collateral, for loans up to US$7,500 (Alibhai et al., 2022). The study uses an RCT to randomize loan offers among women entrepreneurs who are seeking growth capital, lack collateral, but pass psychometric testing. The authors estimate the impact of expanding access to large, uncollateralized loans using this non-traditional screening data — compared to a control group who are psychometrically eligible but cannot borrow

under existing collateral requirements. The authors find positive impacts on borrowing and on firm survival — but limited evidence of impact on firm growth, noting that the study took place during the COVID-19 pandemic and conflict. Loan non-performance rates prior to the onset of COVID-19 are healthy and comparable to the rates for the pre-existing collateralized product, although worsen under COVID-19. Further work is needed to understand the potential impacts of larger, uncollateralized loan products screened by psychometrics under "business-as-usual" circumstances, and the potential use of psychometric credit-scoring for other use cases such as working capital.

4.5 Takeaways on credit

In sum, the evidence on individual-liability lending is mixed. Similar to the findings on grants, there is evidence that, in some contexts, the average returns to borrowing may be positive for male borrowers but not for female borrowers. Female borrowers may face pressure to channel funds into non-investment purposes. Targeting is key, even for smaller loans — with returns often only present in the upper tail of the distribution of firms by baseline profitability. The absence of a grace period may also deter use of funds for profitable investments, that yield returns after some delay.

Collateral requirements are often present when lending is individual-liability, and appear to be a strong barrier to uptake especially by women. It is important to note that while collateral requirements may help MFIs to reduce risk of default, or loss given default, they diverge targeting away from risk-adjusted return – as there is no reason to assume that collateral ownership is particularly correlated with expected return or risk-adjusted return. It makes sense that MFIs utilize capital for screening, given that an MFI's objective function is typically to minimize downside risk while expanding volume, as MFIs overwhelmingly engage in debt financing rather than equity or equity-like financing. Hence their incentives diverge from those of a social planner, or equity stakeholder, who would target risk-adjusted return. Encouraging MFIs to reduce collateral requirements therefore requires demonstrating

that there are other ways of effectively screening or reducing the risk of default, or loss given default.

The evidence is limited and also mixed when innovations are made to provide flexibility or implicit insurance — although the evidence on providing direct credit insurance is scarce and not yet promising. There is also very limited but tentatively promising evidence on innovation to reduce collateral constraints. A very small number of studies suggest that larger loans may hold promise for growth-oriented entrepreneurs in some settings, although more evidence is needed in this area — again, including on targeting.

Finally, more evidence is also needed on spillovers from credit. Cai and Szeidl (2024) conduct an experiment in China varying the proportion of firms in a market that have access to a new loan product. They find that the large positive direct effects on treated firms are offset by smaller negative effects on untreated firms, leading to nondetectable gains in producer surplus. Despite 41% of firms in their sample being female-managed, the authors do not report gender-disaggregated results in the paper nor the online appendix, hence are excluded from our systematic review and count of studies. However, correspondence with the authors indicates they did test for gender heterogeneity and did not find any. More evidence on spillovers in other contexts, and whether they are gendered, would be welcome.

5 Emerging evidence

The discussion in Sections 3 and 4 shows that providing women entrepreneurs with access to capital may not automatically result in business growth. Instead, the evidence points to several factors that may limit the impact of such interventions. Key barriers highlighted include collateral requirements that prevent capable entrepreneurs from accessing loans, rigid repayment structures that discourage productive risk-taking, and difficulties in scaling financial services in a cost-effective way. Even when capital is available, its impact on business profitability is often constrained by a lack of complementary skills for its productive use, time

poverty, behavioral factors that discourage investment, and pressures to divert resources toward household consumption. In response to these challenges, an evolving financial sector has given rise to new products and approaches that hold some promises in mitigating some of these barriers. It is to these innovations that we turn in this final section.

The studies discussed below differ in important ways from the 27 studies that met our systematic review criteria. In this section, we highlight emerging interventions that have the potential to increase the availability and effectiveness of financing for women entrepreneurs. Because they rely on new approaches and technologies, many of the interventions have not yet been evaluated experimentally. In other cases, rigorous research does highlight the potential for business growth through greater financial inclusion, but results are not (yet) disaggregated for women entrepreneurs. We therefore do not present these studies as definitive evidence, but rather as an illustration of where financial innovation is headed and as an agenda for future research.

5.1 Innovations in credit scoring

As discussed in Section 4, access to collateral remains a major barrier to women's ability to obtain credit. Where financial institutions screen borrowers based on current asset ownership rather than expected returns, entrepreneurs with high-return investment opportunities may find themselves shut out of formal credit markets. Better understanding of a borrower's risk profile can reduce a lender's reliance on collateral. However, women-owned businesses — typically smaller and more informal — often lack credit bureau entries or detailed records (World Bank, 2019). Alternative data can help bridge this gap by serving as a proxy for creditworthiness. Three promising sources of such data include psychometric assessments, mobile phone behavioral data, and business transaction records.

Several fintech firms have developed psychometric tests to profile applicants and predict their willingness and ability to repay. This approach relies on the fact that personality traits like proactivity and resilience are widely recognized as important for entrepreneurial suc-

cess (Brandstätter, 2011), though identifying high-potential borrowers remains a challenge (McKenzie and Sansone, 2019). A number of studies suggest that such assessments can expand credit access without increasing risk. Arráiz et al. (2017), working with a lender in Peru, find that the introduction of a psychometric credit assessment allowed for the inclusion of previously unbanked borrowers without hurting repayment. In a study with women entrepreneurs in Ethiopia, Alibhai et al. (2019a) show that higher scores on a psychometric test are indeed associated with better repayment behavior. Further, Bryan et al. (2021) demonstrate that combining psychometric data with machine learning helped an Egyptian MFI allocate larger loans to firms with higher expected returns.[11]

A key advantage of psychometric data is its forward-looking nature — it does not rely on past financial behavior and can be generated instantly, making it particularly useful for 'thin file' borrowers with no credit history. However, these studies reveal little about gender differences in psychometric profiles and their impact on credit decisions. Alibhai et al. (2019a) focus exclusively on women, while Bryan et al. (2021) do not provide gender-disaggregated results. Future research should therefore examine whether psychometric tests trained on predominantly male borrowers introduce bias against women applicants.

A second group of studies examines the use of mobile device data to assess credit risk. Fintech lenders such as Branch and Tala track online activity, location data, and communication patterns via user-installed apps (Greenacre, 2020). Studies suggest that mobile data can indeed help predict repayment. Chioda et al. (2024), working with a fintech lender in Mexico, demonstrate that incorporating online behavioral and transaction data can significantly improve the predictive power of credit scoring algorithms for borrowers without credit bureau records, achieving similar accuracy as conventional credit scoring tools. Similarly, Djeundje Biatat et al. (2021) find that email usage, combined with demographic and psychometric data, improves credit score accuracy in Mexico and Nigeria. Through a field experiment

[11]While Bryan et al. (2021) conduct an RCT, the study falls outside our systematic review parameters since correspondence with the authors confirmed they lack power to estimate impacts on the female-only sub-sample.

with a Chinese MFI, Lu et al. (2019) show that online shopping, cellphone usage, and mobility patterns help forecast repayment. Tan et al. (2016), working with a fintech in Southeast Asia, similarly demonstrate a correlation between GPS tracking data and repayment.

Interestingly, the study by Chioda et al. (2024) suggests that using mobile data to train gender-segmented credit scoring models can increase women's access to credit without reducing predictive accuracy or repayment performance. This suggests that pooled models may overlook gender-specific patterns in credit behavior, and that algorithmic design can play a role in improving equity in credit allocation. However, all studies cited here focus exclusively on repayment outcomes, without examining how borrowers use the funds or whether they result in improved business performance. Privacy and data security concerns — particularly for borrowers with limited digital literacy — also warrant further scrutiny as digital credit scoring tools become more widespread.

A third approach to credit scoring leverages operational data from women entrepreneurs. Business management apps like Oze allow entrepreneurs to manage their business from a smartphone. Owners can use it both for administrative tasks (e.g., bookkeeping, managing inventory) and customer-facing activities (e.g., invoicing, payments), generating valuable data in the process. Such information offers insights into an entrepreneur's financial capacity and business performance, enabling fintech-driven credit solutions beyond traditional lending (Hommes et al., 2022). Initiatives to establish central data repositories for micro- and small businesses, aggregating information from diverse sources such as business registries, tax offices, and commercial banks, are also worth noting in this context (Mitha et al., 2023). Despite its obvious potential, however, this approach remains largely untested. Gender disparities in digital access also persist, underscoring the need for complementary financial and digital literacy interventions (Borgonovi et al., 2018).

5.2 Digital credit

Alternative data and the ubiquity of mobile devices have enabled new forms of digital credit. CGAP defines digital credit as instant, automated and remote: applications are submitted digitally, credit decisions are made by an algorithm, and funds are disbursed immediately (Hommes et al., 2022). Digital credit bypasses some of the obstacles to women's access to credit discussed in Section 4. Digital loans, while often small, typically dispense with traditional collateral requirements; they provide women with greater control over application and funds; and there is less scope for loan officer bias in assessing applications. While banks and MFIs are also offering digital credit, we briefly highlight two new variations: mobile loans and fintech-led credit.

Mobile money is a key driver of women's financial inclusion: data from the World Bank's Findex survey shows that the global gender gap in account ownership is narrowing, largely due to mobile money adoption by unbanked women (Klapper et al., 2022). New evidence suggests that the adoption of mobile money may also boost women's entrepreneurship. Koomson et al. (2023) find a correlation between mobile money usage and entrepreneurial activity for women from Kenya, Tanzania and Uganda, but not for men. In an RCT with female microfinance groups in Tanzania, Heath and Riley (2024) find that women who adopt mobile money are more likely to spend on their own priorities. Another RCT from Burkina Faso suggests that mobile merchant wallets promote business formalization, though the findings — from a sample with few women — are only significant for men (Ky and Rugemintwari, 2022).

In countries where mobile loans are widespread, they significantly lower credit access barriers. Unlike traditional bank loans, mobile loans require minimal paperwork and no collateral. Kenya's M-Shwari service, used by nearly 70% of the country's adults, exemplifies this shift. Suri et al. (2021) find that 34% of eligible subscribers take up M-Shwari loans, with no significant difference between men and women. Mobile money loans are typically small

($2–$50) and short-term (often no more than 7-30 days). While their impact may not be transformational, at least one study suggests that they can help women grow their business. In an RCT by Riley (2022), microloans averaging $5 were provided to 3,000 women – half of them in cash, the other half through mobile money accounts. After 8 months, women in the mobile money group had 11% higher business capital and 15% higher business profits, with effects especially pronounced for women who faced pressure to redistribute the funds within the household.[12]

However, other studies offer a more cautious perspective. Suri et al. (2021) find that M-Shwari loans help smooth consumption, but see no evidence that funds were used to start or grow a business. Similarly, Brailovskaya et al. (2021) observed high take-up of digital loans among both men and women in Malawi, but with just 20% utilizing them for business purposes. Bjorkegren et al. (2022) in Nigeria also finds that 42% of borrowers used them for business purposes, but sees no evidence of impact – positive or negative – on women's economic empowerment.

Fintech-driven small business finance is also proliferating. The term covers a range of arrangements between fintechs, traditional lenders, and even individuals interested in lending to small business owners, with the reliance on alternative data and digital channels as a common denominator. While these innovations hold promise for improving women's access to capital, rigorous evidence on their impact remains limited.

One model is peer-to-peer lending, where fintechs facilitate direct loans between entrepreneurs and investors. Bazarbash and Beaton (2020) show that digital peer-to-peer lending is a key source of finance for small businesses in China, and increasingly in other low-income economies. Peer-to-peer lending holds potential for women entrepreneurs, there is also evidence of discrimination. Using data from a leading platform in China, Chen et al. (2020) demonstrate that loans to women have lower probabilities of default; however, women are not more likely to obtain funding, suggesting that female borrowers must compensate

[12]This study was excluded from our systematic review because it assesses the impact of loan disbursement via mobile money, rather than the impact of the loan itself.

lenders with higher profitability to achieve similar rates of funding.

Crowdfunding, a related alternative, offers entrepreneurs a chance to raise capital through online campaigns. Platforms now exist in many LMICs, and social venture Kiva uses the approach to pool resources from backers in high-income countries to refinance loans in low-income countries, often for women entrepreneurs. While crowdfunding is not yet a major funding source, data from the United States suggests that women may benefit disproportionately: Greenberg and Mollick (2014) find that women-led Kickstarter campaigns are more successful, particularly in male-dominated sectors.

Digital supply-chain finance is another model in which anchor firms provide credit to suppliers based on shared inventory or transaction data. Cordaro et al. (2022) present a case from Kenya where a global food company successfully finances assets for last-mile distributors based on their inventory data, resulting in significant impacts on revenue and profit growth. Hommes et al. (2022) further explores the evolving landscape for supply chain-based digital lending, highlighting use cases such as merchant cash advances for e-commerce vendors and digital platforms for factoring or inventory financing.

While promising, digital credit also introduces new risks for women entrepreneurs. One concern revolves around unequal access to technology. Gender disparities in mobile phone ownership persist in many regions (Klapper et al., 2022), and female borrowers may be less aware of high-interest lending risks or more vulnerable to fraud and predatory practices (Chalwe-Mulenga et al., 2022). Anecdotal evidence suggests exposure to theft, extortion, and aggressive collections. While no rigorous study has yet found significant negative impacts of digital credit on women (Robinson et al., 2023), more research is needed to understand whether women are disproportionally affected by consumer protection risks, and whether these risks in turn affect the potential impact of digital financial products on entrepreneurial outcomes for women.

5.3 Equity and equity-like financing

As discussed in Section 4, a key critique of microcredit (digital or not) is that small loan sizes and rigid repayment schedules limit risk-taking and long-term investments. While microfinance can support growth at the margin, it rarely enables firms to scale (Schoar, 2010). Conversely, our review of the literature on capital grants showed that business grants can boost business creation and growth, especially when coupled with other services, but are expensive to implement at scale. In response, a growing literature explores equity financing and equity-like microfinance contracts as ways to mobilize risk capital for growth-oriented businesses while generating appropriate returns for investors.

Available data indicates that only 7% of private equity and venture capital globally is invested in businesses led by women IFC (2019). In Africa, all-male founding teams receive 25 times the funding of all-female teams (With et al., 2019). Supporting women in pitching to investors may help bridge this gap. With et al. (2019) find that female founders are less likely to pitch and express lower confidence in their firms' growth potential, despite similar qualifications and business performance. Expanding women's access to angel investors is another avenue. Gornall and Strebulaev (2018) find that women receive more responses from angel investors when pitching startups, though the process remains subjective and prone to bias (discussed further in the next subsection).

Equity investments are difficult to scale in low-income economies due to shallow capital markets and weak investor protections. Equity-like microfinance contracts – where repayments vary with business performance — offer a potential alternative, allowing borrowers to invest in larger assets with riskier cash flows. Earlier research with women entrepreneurs in India by Fischer (2013) suggested that equity-like contracts can compensate for the inefficiencies of joint-liability lending, such as excessive risk taking or excessive risk aversion by part of the group.[13] More recent studies have experimented with individual-liability versions of

[13] Aragón et al. (2020) show that more flexible credit terms can also improve business outcomes in a joint-liability setting. Working with female street vendors in India, they introduce a line of credit which allows the group to borrow and repay at any time, up to a specified ceiling. The authors find that borrowing from

equity-like contracts. In Sri Lanka, de Mel et al. (2019) develop a formula for self-liquidating 'microequity' investments in owner-operated businesses and trial these in nine firms. Bari et al. (2021) find that performance-based hire-purchase contracts lead to higher profitability with high take-up and low default rates. In Kenya, Cordaro et al. (2022) find that distributors offered revenue-linked contracts increase profits without shifting focus away from repayment-generating activities.

The implicit insurance function of performance-based contracts may be especially relevant to women entrepreneurs, who are often more risk-averse than men (Meki, 2019). However, this linkage remains underexplored. Most studies lack gender-disaggregated results, and female participation is low. Practical challenges, such as verifying revenue and shifting lenders from prudential to growth-focused lending, further limit the adoption of revenue-based finance (Meki, 2022). More research is needed to assess whether these financing models can effectively bridge the gender gap in access to capital.

5.4 Gender bias in financial institutions

Our discussion so far has focused on financial products and their impact on women entrepreneurs. A complementary perspective considers the institutions providing these products. Loan approvals often involve subjective decisions, particularly for larger amounts, and evidence suggests gender bias can restrict access to finance for otherwise eligible women. This concern is especially salient where the majority of decision makers is male — as is typically the case both in the banking (Sahay and Cihak, 2018) and venture capital (IFC, 2019).

While not all studies find evidence of gender discrimination (Ayalew et al., 2023), several have documented differences in the treatment of female and male loan applicants. In Chile, Montoya et al. (2020) find that women are 14.8% less likely to be approved for a consumer loan than men submitting an otherwise identical request, despite women having higher re-

the credit line increases profits by 7 percent compared to a standard microcredit term loan.

payment rates in the country overall. In Türkiye, Alibhai et al. (2019b) show that gender bias among loan officers results in women receiving business loans $14,000 smaller on average. Brock and De Haas (2023) further find that Turkish loan officers are 30% more likely to demand a third-party guarantee from female applicants. However, it remains unclear whether bias is driven by male decision-makers or broader institutional norms.

Similar patterns emerge in venture capital. Holding pitch quality constant, Brooks et al. (2014) find that men — especially those perceived as attractive — are more likely to secure funding. Kanze et al. (2018) show that investors ask men about potential but question women about risks, leading to lower investment. Bias also varies by sector: investors trust men in male-dominated industries and women in female-dominated ones (Kanze et al., 2020).

Structured decision-making frameworks emerge as one promising solution in this context. Miller et al. (2023) show that prompting investors to assess both risks and rewards — and to evaluate progress over time — eliminated, gender disparities in funding outcomes in a global field experiment with an early-stage venture capital fund. Similarly, female entrepreneurs in the study by Kanze et al. (2020) increase the funding they receive if they are able to refocus the conversation on growth potential rather than risks. More generally, gender bias in financial services appears to be moderated by experience; both in banks and in investment settings, more experienced assessors were less likely to show bias (Alibhai et al., 2019a; Brock and De Haas, 2023; Kanze et al., 2020).

Increasing women's representation in financial institutions, especially at senior levels, is another strategy worth investigating. In research by Beck et al. (2013), the portfolios of female loan officers consistently outperform those of their male counterparts. In the Alibhai et al. (2019b) study on small business lending in Türkiye, the authors find that bank branches under female management attracted more than twice the number of female loan applicants compared to branches led by men. Whether greater gender equity in financial services does indeed translate into increased access to capital for women entrepreneurs remains an open question.

6 Conclusion

This systematic review synthesized experimental evidence on interventions designed to increase women's access to capital in low- and middle-income countries. Taken together, this body of evidence shows that capital injections can generate positive impacts on women's business outcomes, but that these effects are far from universal. In some study settings, women start or expanded businesses response to grants or loans, while in others the interventions have little or no effect on businesses, and in several cases women entrepreneurs benefit less than men. While there is suggestive evidence that larger capital injections, relative to average firm profits at baseline, are associated with stronger effects, the variation of outcome metrics across studies does not allow us to establish this relationship with precision.

Our synthesis does not yield a definitive answer as to why capital alone often fails to generate consistent business growth for women. Across different studies, authors cite several non-financial factors as possible explanations for the limited impact of additional capital on women's businesses. These include household claims on resources, where new funds are diverted to meet immediate consumption needs or to support other family members' businesses; and limited decision-making power over household and business assets, which can reduce women's control over how capital is invested. Women are also more likely to operate in low-return sectors, where additional investment yields only modest profits. Restrictive social norms may limit women's mobility, market access, or acceptance in certain sectors, constraining the opportunities they can pursue. Gaps in business and psychosocial skills — such as financial literacy, record keeping, marketing, confidence, or negotiation — may further reduce the effectiveness of capital injections. Finally, behavioral factors, including lower tolerance for risk or aversion to competition, may influence the strategies women entrepreneurs adopt and the types of investments they are willing to undertake. A fuller assessment of such barriers and potential interventions to address them can be found, for example, in Ubfal (2024).

Similarly, the evidence does not yield a single narrative on why impacts often skew toward stronger firms. In the studies on individual-liability credit in particular, average results mask considerable variation, with positive effects concentrated among women entrepreneurs whose businesses were already more profitable at baseline. Several explanations are possible: women running higher-profit firms may have greater autonomy over household and business resources, benefit from scale effects, operate in sectors with greater potential for growth, or simply be more skilled as entrepreneurs. Regardless of what causes this variance, it has clear policy consequences. If the objective is to maximize returns, directing resources to growth-oriented firms may be most effective; if the aim is to support livelihoods more broadly, providing capital to relatively weaker firms may still be the right choice.

While the overall evidence regarding the impact of capital on women-led firms is thus mixed, we conclude with four implications for policy and further research. First, grants should be used selectively and with attention to cost-effectiveness. Because grants cannot become a self-sustaining business model, they are most valuable when deployed as part of broader packages that address multiple constraints rather than as stand-alone interventions. Policy makers should prioritize identifying the barriers faced by different groups of women and tailoring interventions that combine capital with non-financial support such as training, coaching, or savings mechanisms. Digital delivery mechanisms may further enhance women's control over resources and facilitate their integration into formal financial systems. Future research should evaluate the cost-effectiveness of such combined approaches, determine which components are essential, and test whether simpler or lower-cost versions of graduation models can achieve comparable outcomes at scale.

Second, redesigning credit products can increase their relevance for women entrepreneurs. Flexible features such as grace periods, adaptable repayment schedules, and larger loan sizes can help ensure that women can invest productively, while innovative mechanisms such as equity-like contracts and revenue-based financing may be particularly useful for those with irregular cash flows or higher-risk opportunities. Development partners can support finan-

cial institutions in expanding these products by providing risk-sharing instruments, building lender capacity, and promoting the use of alternative credit assessment tools that identify high-potential women borrowers. Further research should examine which loan designs are most effective for different segments of women entrepreneurs, whether new forms of borrower assessment improve targeting, and the commercial viability of offering larger and more flexible loans.

Third, digital financial services need to continue evolving if they are to drive business growth. Mobile money and app-based credit have expanded access, but their impact on women's enterprises remains limited. To make them more effective, products must focus on productive investment while reducing risks of consumer harm. Regulators and policy makers should ensure transparency, fair lending practices, and strong consumer protection standards, while also fostering the development of larger and longer-term digital credit products. Closing gender gaps in access to mobile devices, digital skills, and financial literacy is equally important to ensure women can fully benefit from these services. Future research should investigate whether digital credit can provide an entry point into more formal financial systems, identify the conditions under which it supports productive investment, and develop approaches to mitigate risks specific to women in digital lending.

Fourth, access to capital should be conceived as a continuous financing pathway rather than a one-off intervention. Sustained impacts on women's businesses are most likely when financing options evolve with business cycles and growth stages, linking grants, microloans, and larger formal credit into coherent systems of support. Policymakers should therefore prioritize building inclusive financial systems that offer client-centered products capable of adapting to women's evolving needs. Future research should contribute to this agenda by mapping how financing needs change over time, identifying the products and delivery models best suited for each stage, and developing methods to measure the cumulative and dynamic effects of capital access rather than treating interventions as isolated events.

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A Online Appendix

Table A1: Access to Capital and Women's Entrepreneurship: Summary Table

	Study (Year)	Intervention	Location	Sample	Sample size (of which female)	Positive Effect for Women	Impacts Found
GRANTS (CASH)							
1	Blattman et al. (2014)	(i) US$ 382 cash grant for skills training and enterprise start-up; (ii) control	Uganda	Young adults	11,288 (3762)	YES (Profit)	• Following participation in the program, women experience a 73% increase in earnings over the control group. • Effects are similar by gender, but larger relative income gains for women US$ 5.22 (+73% over control women) vs. US$ 5.03 for men (+29% over control men).
2	Blattman et al. (2016)	(i) US$ 150 cash grant, five days of business skills training, and ongoing supervision; (ii) US$ 150 cash grant and ongoing supervision; (iii) control	Uganda	Individuals in war-affected districts engaged in subsistence agriculture, petty trade, and cottage production	1800 (1548)	YES (Profit, Firm ownership)	• Likelihood of business start-up is 40% higher in the treatment group. • Income increases by 66% relative to the control group, amounting to $5.19 in absolute terms.

3	De Mel et al. (2012)	(i) US$ 100 cash grant; (ii) US$ 200 cash grant; (iii) control	Sri Lanka	Microenterprise owners	408 (190)	NO	• No significant impacts for women. • For men, grant reduced business closure by 10.9 percentage points over 5.75 years and increased survival with reported profits by 8.8 percentage points. Sustained profit increases of US$ 3-6/month (6–12% monthly return).
4	Grimm et al. (2024)	(i) Cash grant US$3420 on average; (ii) matching grants of $3443 on average for training and consulting services; (iii) control	Burkina Faso	Firms	400 (160)	YES (Employment)	• Female recipients of cash grants experienced a statistically significant increase in employment. • Treatment effects on profitability and sales are negative for the sample; however, for female-owned businesses, these outcomes were comparable to those of firms in the control group.

GRANTS (CASH VS. IN-KIND)							
5	De Mel et al. (2008)	(i) US$ 100 in-kind grant; (ii) US$ 200 in-kind grant; (iii) US$ 100 cash grant; (iv) US$ 200 cash grant; (v) control	Sri Lanka	Microenterprises in retail, manufacturing and services	405 (189)	NO	• No significant impacts for women. • For men, average real return to capital was 55%–63% per year and return on monthly profits ranging from 4% to 6% of the mean of baseline amounts. • Treatment effects are similar for both cash and equipment grants.
6	De Mel et al. (2009)	(i) US$ 100 equipment grant, (ii) US$ 200 equipment grant, (iii) US$ 100 cash grant, (iv) US$ 200 cash grant; (v) control	Sri Lanka	Microenterprises in retail, manufacturing and services	405 (189)	NO	• No significant impacts for women. • For men, treatment increased monthly profits by US$ 4 (8% return on grant). Mean return to capital of 11% per month.
7	Fafchamps et al. (2014)	(i) cash grant of US$ 120; (ii) US$ 120 in kind-grant; (iii) control	Ghana	Microenterprises	793 (479)	YES (Profits)	• For women, in-kind treatment increased profits, but only from the 50th–60th percentile upward. • Lasting gains for women with initially higher profits. • For men, both in-kind and cash treatments increased profits compared to control.

8	Janes et al. (2019)	Sri Lanka: (i) cash grant of either US$ 100 or US$ 200; (ii) in-kind grant of US$ 100 or US$ 200; (iii) control Ghana: (i) US$ 120 cash grant; (ii) US$ 120 in-kind grant; (iii) control	Ghana and Sri Lanka	Microenterprises	Sri Lanka: 385 (189) Ghana: 793 (479)	NO	• No treatment effects on productivity for women in Sri Lanka and some evidence of small effects in Ghana.
GRANTS + TRAINING							
9	Berge et al. (2015)	(i) business training to existing loan clients; (ii) cash grant of US$ 85; (iii) business training and cash grant; (iv) control	Tanzania	Microenterprises	644 (422)	NO	• Both grant and training generate substantial increases in sales and profit for male-owned businesses. • No such effects for women-owned businesses.

10	Bossuroy et al. (2022)	(i) cash grant of US$ 127; (ii) psychosocial interventions; (iii) cash grant plus psychosocial interventions; (iv) control. All groups receive group savings promotion, coaching, and entrepreneur-ship training, in addition to a national cash transfer program	Niger	Female beneficiaries of a national cash transfer program	4,712 (4,664)	YES (Profits, Firm ownership)	• All three treatment packages led to strong gains in off-farm business revenues, livestock, and agriculture. • 1st follow-up: Revenues increased by 76%–160% over control and profits by 39%–70%. • Full package had the strongest impacts, psychosocial the smallest.
11	Botea et al. (2023)	(i) Combined human and financial capital bundle amounting to a US $225 grant ; (ii) financial capital bundle offering productive grants amounting to US $225 grant and savings groups; (iii) human capital package offering training and mentorship; (iv) control	Zambia	Women	5,046 (5,046)	YES (Profits)	• Significant improvements in business profit (45%-75%) and household income (28%-56%) with larger effects observed for the “financial capital” bundle.

12	Brudevold-Newman et al. (2023)	(i) micro-franchise package including business model, training, and in-kind assets; (ii) unconditional cash grant of US$ 239; (iii) control	Kenya	Young women (age 18-20), mostly unemployed	851 (851)	YES (Income, Firm ownership)	• Both interventions increase income by 56% relative to the control group mean and the likelihood of self-employment by approximately 10 percentage points over the short term. • In the second year after treatment, treated women were still more likely to be engaged in self-employment, but the income and labor supply gains dissipated.
13	Karlan et al. (2015)	(i) US$ 133 cash grant; (ii) management consulting training; (iii) US$ 133 cash grant and management consulting training; (iv) control	Ghana	Microenterprises in tailoring industry	160 (91)	NO	• Business practices improve and investment increases, but no significant effects on key business outcomes.

14	Gazeaud et al. (2023)	(i) cash grant of US$ 768 and training; (ii) cash grant of US $768 and joint training with partners; (iii) control	Tunisia	Women	2,000 (2,000)	NO	• Cash grant and training increases women's likelihood of participating in any income generating activities by 3.3 percentage points and income by 60 percent. • Such effects are not observed when women receive grants but attend training with their partners.
GRANTS VS. CREDIT							
15	Bernhardt et al. (2019)	References Field et al (2013), De Mel et al (2008), Fafchamps et al (2014)	India, Sri Lanka and Ghana	Microenterprises	(Sample size not specified)	YES (Profits at household level)	• Capital shock has no impact on women's enterprise profit. • Household-level outcomes indicate that both male and female entrepreneurs make high-return investments, and women experience increase in household income following improved access to capital.

16	Crépon et al. (2024)	(i) subsidized loan of about US$750; (ii) in-kind grant of about US750; (iii) cash grant of about US750; (iv) control	Egypt, Arab Rep.	Young people (21-35) interested in starting a business or expanding an existing one	3,294 (1,976)	YES (Profits, Firm Ownership)	• All three treatments increased business creation (by 17.5 points) and profits (by 42%). • In-kind grants had the strongest impact on profits, while loans and cash grants boosted wage earnings, resulting in equal total income gains across treatments. • Impacts were concentrated at the top of the income distribution, with no effect at the bottom. • Business ownership increased more for women, especially with in-kind (+23.7 pts) and cash grants (+21.8 pts); loans raised ownership by 13.5 pts for both genders. • Women's assets more than doubled with grants; loans increased assets by 80%. • Women saw large profit gains (US$ 3.97 to 8.38/month), while men's gains were not significant.

17	Fiala (2018)	(i) loans of US$ 180 to US$ 220; (ii) loans 180 to US$ 220 and business skills training; (iii) cash grants of US$ 200; (iv) cash grants of US$ 200 and business skills training; (v) control	Uganda	Microenterprises	1,550 (945)	NO	• No significant impacts for women from any of the interventions. • For men, loans increased profits by 50%, and loans with training by 56%.
CREDIT							
18	Alibhai et al. (2022)	(i) uncollateralized loan ranging from US$ 3,500 to 7,500 after approval by a psychometric test (and other due diligence); (ii) control, after approval by the psychometric test (and other due diligence)	Ethiopia	Growth-oriented women enterprises	131 (131)	YES (Firm survival)	• Treatment increased the likelihood of borrowing for business purposes (from any source) from 61% to 90%. • Treatment more than doubled the likelihood of accessing a formal business loan, from 42% to 89%. • Treatment halved the firm death rate to 17% over three years, compared to 33% of firms in the control group permanently closing.

19	Alibhai et al. (2025)	(i) loan with an average size US$ 12,000; (ii) loan plus business training; (iii) business training only; (iv) control	Ethiopia	Women-owned enterprises	2,369 (2,369)	YES (Profits, Firm Ownership, Firm Survival)	• Firms that received a loan in 2014 were 8% more likely to start another business that year. • Three years after receiving a loan, firms showed significantly higher profitability. • Loans had a positive impact on employment, increasing both the number of employees and their weekly hours worked.
20	Attanasio et al. (2015)	(i) group liability microcredit loans of up to US$ 435; (ii) individual liability microcredit loans; (iii) control	Mongolia	Poor women in rural villages engaged in agriculture, retail, and cottage industries	1,148 (1,148)	YES (Firm ownership from group loans)	• In group lending villages, female entrepreneurship increased by 10 percentage points and women worked more weekly hours in their businesses.
21	Field et al. (2013)	(i) conventional microfinance loan of US$ 90 to US$ 225; (ii) flexible loan contract that includes a two-month grace period	India	Households (about 75% had microenterprises)	845 (845)	YES (Profits, Firm Ownership)	• Grace-period clients invested 6% more in their businesses than regular clients. Their microenterprises were 81% larger in assets and inventory/raw materials. • New business formation was nearly 3x higher among grace-period clients. • Effects were partly driven by top performers in the distribution.

22	Augsburg et al. (2015)	(i) loans ranging from US$ 250 to US$ 2000; (ii) control	Bosnia and Herzegovina	Loan applicants who were marginally for an MFI loan; half of them have businesses at baseline	1,196 (484)	YES (Firm ownership)	• Business ownership and self-employment income each increased by 6 percentage points. Wage income declined by 8 percentage points. • No significant differences between men and women. • Inventory holding rose by 5 percentage points. No significant overall impact on profits, except for those intending to use the loan for business.
23	Battaglia et al. (2023)	(i) Unsecured "Dabi" loan with average size of US$ 250 plus option to delay up to 2 monthly payments; (ii) collateralized "Progoti" loan with average loan size of US$ 2,200D plus option to delay up to 2 monthly payments; (iii) standard Dabi or Progoti loan without option to delay	Bangladesh	Dabi: microenterprises Progoti: small and medium-sized enterprises	Dabi: 1,115 (1,115) Progoti: 1,602 (1,602)	YES (Firm ownership for Dabi clients)	• Strong positive effects for Dabi clients; no significant impact for Progoti clients. • For Dabi Clients: – Increased borrowing from BRAC (+6.3 ppt) and financial outflows (+$122 PPP, 73%). – Business ownership rose slightly (+3 ppt) and business investment increased by 51%. – Annual revenue up 86%, profits up 26% (not statistically significant).

24	Brune et al. (2022)	(i) flexible loan of average size US$350 (maximum observed size $1,800) with ability to delay up to three monthly repayment installments over twelve months; (ii) standard loan of same size, with surprise switch to flexible loan after take-up; (iii) standard loan of same size	Colombia	Micro-entrepreneurs	8, 578 loan offers, of which 2,475 disbursed (66% female, so 5,661 offers and 1,633 loans to women)	NO	• No selection effects into flexible loans • Positive impacts of flexibility on client satisfaction, but not on retention, revenues or profits • Flexibility increases default
25	De Mel et al. (2011)	(i) microfinance loan of US$ 50 to US$ 250 with reduced guarantee requirements and no application fee; (ii) control	Sri Lanka	Micro-entrepreneurs	383 (199)	NO	• Despite larger numbers being randomized into a treatment offering the loan, only 10% of the sample actually took up a loan (partly dissuaded by collateral requirements), leading to increased access to credit by just 5.4–7.0 percentage points on average.

26	Karlan et al. (2011)	(i) microloans of US$ 225 on average; (ii) control	Philippines	Micro-entrepreneurs	1,601 (1,360)	YES (Firm Owner-ship)	• Formal borrowing increased by 9.4 percentage points (26%). No effect on informal borrowing. • Treated business owners operated 7% fewer businesses and had 31% fewer paid employees compared to the control group.
CREDIT + TRAINING							
27	Gine et al. (2021)	(i) business training; (ii) a loan lottery of up to seven times the average loan size (average US$ 609); (iii) both; (iv) control (loan lottery losers (average US$ 292))	Pakistan	Micro-entrepreneurs	4,161 (2,017)	NO	• No significant effects of the loan reported for men or women. • Some significant effects of the training for men but not women.