# What works for women microentrepreneurs?

A meta-analysis of recent evaluations to support female entrepreneurship

Ana Revenga Meagan Dooley

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Ana Revenga Nonresident Senior Fellow Brookings Institution Meagan Dooley Senior Research Analyst Brookings Institution

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| I. Introduction   | 4  |  |  |  |  |  |
|---|----|--|--|--|--|--|
| II. Entrepreneurship in developing countries: Choice or necessity?  |    |  |  |  |  |  |
| Type of firm  | 7  |  |  |  |  |  |
| Barriers to entrepreneurship  | 9  |  |  |  |  |  |
| Paper focus   | 12 |  |  |  |  |  |
| III. Constructing the data set for the meta-analysis                | 14 |  |  |  |  |  |
| Selection criteria and search strategy                              | 14 |  |  |  |  |  |
| Search strategy   | 16 |  |  |  |  |  |
| Extraction of program estimates                                     | 17 |  |  |  |  |  |
| Defining and constructing the key variables                         | 17 |  |  |  |  |  |
| The database  | 20 |  |  |  |  |  |
| IV. Basic results   | 23 |  |  |  |  |  |
| Sign and significance   | 23 |  |  |  |  |  |
| Effect size   | 25 |  |  |  |  |  |
| Generalizability of results   | 32 |  |  |  |  |  |
| V. Meta-review estimation strategy                                  | 34 |  |  |  |  |  |
| Results   | 34 |  |  |  |  |  |
| VI. Cost considerations   | 40 |  |  |  |  |  |
| VII. Conclusions  | 42 |  |  |  |  |  |
| References  | 46 |  |  |  |  |  |
| Annex 1: Effect size estimates for additional variables of interest | 54 |  |  |  |  |  |
| Annex 2: Robustness check, probits at 5% significance               | 56 |  |  |  |  |  |
| Annex 3: Cost estimates   | 58 |  |  |  |  |  |
| Annex 4: Papers included in meta-review                             | 62 |  |  |  |  |  |

## **I. Introduction**

Around the globe, women participate less in paid economic activities than men. The gender gap in labor force participation is around 14 percent in the median OECD country, 26 percent in the median middle-income country, and 13 percent in the median low-income country.<sup>1</sup> When women do participate, they are often conscribed to different, lower paying jobs and sectors. This is true whether we focus on wage jobs, on farming or on entrepreneurship. These gender gaps come at a substantial economic cost, ranging from an average income loss of 10 percent in Central Asia to 38 percent in the Middle East and North Africa.<sup>2</sup>

A growing number of papers argue that increasing women's economic opportunities and leveling the playing field between men and women is good for aggregate economic growth and good for development.<sup>3</sup> In line with these arguments, governments in many countries, of different income levels, are looking for effective ways to increase women's participation in the economy and support women's economic empowerment. Often, and especially in middle- and lower-income countries, they look to entrepreneurship programs as a way around the lack of good jobs for women, and men for that matter. Entrepreneurship programs come in many forms—they vary by type and duration of intervention, target group, delivery mechanisms. And their effects are, perhaps not surprisingly, equally heterogeneous.

In a recent meta-review of entrepreneurship programs in developing countries, Cho and Honorati (2014) conclude that programs vary widely in effectiveness by target group (better for youth than for women or other sub-groups); type of outcome (better for business knowledge and practice but with little effect on business expansion or incomes); and type of intervention (packages of training plus financing more effective than lone interventions except for existing entrepreneurs for whom business training alone was effective). Their study, however, did not focus especially on women—in fact women as a target group

<sup>&</sup>lt;sup>1</sup> Ostry, Alvarez, Espinoza and Papareorgiu (2018).

<sup>&</sup>lt;sup>2</sup> Cuberes and Teignier (2016).

<sup>&</sup>lt;sup>3</sup> Cuberes and Tiegnier (2014, 2015, 2017); Duflo (2012); Ostry et al. (2019); Munoz Boudet and Revenga (2020).

were included only in a subset of their 37 evaluated studies. Perhaps not surprisingly given this small sample size, they find little or no effect of interventions on female entrepreneurs, except for financing. To our knowledge, few comparable meta-review type studies include a sizeable representation of evaluations of entrepreneurship programs for women or that focus exclusively on women. Carranza et al. (2018) review the differences between female and male entrepreneurs and what types of interventions can help address input and knowledge gaps, but they do not conduct a quantitative review of intervention effectiveness. Buvinic and O'Donnell (2016) and Patel (2014) rank the relative effectiveness of interventions that promote women's economic empowerment, including female entrepreneurship (Patel only looks at entrepreneurship), but do not conduct quantitative cross-study comparisons. A number of meta-reviews examine a single type of intervention that targets entrepreneurs. Mehra et al. (2012) look at finance interventions that target women, while Duvendack et al. (2011) look at the impact of microfinance on the poor, reporting female-specific impacts when available. Brody et al. (2015) conduct a systematic review of women's self-help groups on empowerment outcomes. McKenzie and Woodruff (2014) review business training and entrepreneurship programs, and Valerio et al. (2014) look at entrepreneurship education and training programs, both disaggregating by gender when available. Each of these reviews sheds important light on what works in promoting entrepreneurship outcomes. But these intervention specific reviews do not allow for comparison across intervention **types** to assess whether self-help groups are more effective than training for enterprise outcomes. Furthermore, as only a small subset of papers in each of these individual studies reports gender-disaggregated effects, many reviews lack sufficient statistical power to say much about the overall impact of these programs on women.

The objective of our study is to partially fill this evidence gap. Building on the work of these earlier papers, we attempt to systematize some of these prior findings by looking at which interventions work best for women and comparing effects across intervention types. Following the approach developed in Card et al. (2010) and Cho and Honorati (2014), we use a meta-analysis methodology to shed light on the impacts of entrepreneurship programs that target women entrepreneurs (programs may also include other target groups who are not women, but they must report gender disaggregated effects). By meta-analysis,

we mean an approach which combines the estimated impacts of multiple rigorous evaluation studies in order to derive greater explanatory power and draw more insights about differential program effects.

Our study covers 54 evaluations in 27 countries. These studies include a wide range of outcome variables, a variety of interventions (skills training, financing, mentorship, self-confidence/personal initiative training, combined training and financing, attempts to address market failures) and methodologies (although all are experimental or quasi-experimental evaluations). The breadth and range of the studies gives us a substantial number of estimates and effects to work with. Details are provided in Section 3 below.

We find that training plus something else—whether finance, technical assistance, or mentorship—has a larger impact on female entrepreneurs than training alone. Programs have a moderate impact on encouraging women to engage in entrepreneurial activity, while results are more mixed on outcomes related to entrepreneurial quality and firm performance. However, there are a wide range of size estimates for each type of intervention, suggesting that program design and country context matter greatly for intervention success.

The paper is organized as follows. In the next section, we look at the ecosystem of entrepreneurship in developing countries, looking at both general and genderspecific constraints to growth. In Section 3, we explain the procedure for constructing the database of studies included in the meta-review. This includes laying out the criteria for inclusion of a paper in our database; the description of our literature search strategy; method for selecting and constructing the key variables (outcomes of interest, type of intervention, countries of focus and beneficiaries/target groups); and other methodological aspects. We also describe the basic features of our final database, including study counts by type of intervention, outcome and country as well as key descriptive statistics. In Section 4, we present our main initial results and findings. Section 5 tries to systematize the patterns shown in Section 4 through a simple econometric analysis a la Card et al. (2010). In Section 6, we outline what we know about the costs of these various types of interventions, with the caveat that many of the studies reviewed did not include formal cost-benefit analyses. Finally, Section 7 synthesizes these findings and draws some conclusions about what these results mean for governments, donors, and implementors moving forward.

# II. Entrepreneurship in developing countries: Choice or necessity?

The entrepreneurial landscape in developing countries often looks quite different than that in high income countries. Due to a dearth of good jobs in many places, many people become entrepreneurs out of necessity, running small, informal firms that employ few paid employees. Others, however, run established small and medium size enterprises (SMEs) that are looking to grow. It is important to distinguish between the various types of entrepreneurs in developing countries when designing and targeting programs, for their needs differ. Some obstacles to entrepreneurship are common to all, while others vary with size or gender of the firm operator. In order to design effective policies and programs that lead to substantial improvements in the lives of entrepreneurs, it is thus crucial to accurately identify program target groups and the barriers they face.

#### Type of firm

One-third of workers in low- and middle-income countries are either employers or own-account workers. Gindling and Newhouse (2014) find, in a survey of selfemployed workers in 74 countries, that 9 out of 10 firms have no employees. Markets in developing economies are thus dominated by a large number of tiny firms and a handful of large firms. There is largely a missing middle in many of these markets—few small firms are able to grow to SME status, unlike in developed markets which have a more continuous distribution of firm size.<sup>4</sup>

Varying push and pull factors lead both women and men to start their own businesses. Microentrepreneurs and household-level businesses engage in entrepreneurship largely at a subsistence level to provide for their families. Many turn to entrepreneurship out of necessity due to limited wage employment opportunities, either due to location or an underdeveloped wage sector.<sup>5</sup> For women, home production or self-employment may allow them to balance unpaid

<sup>&</sup>lt;sup>4</sup> Beck et al. (2004); Herrera and Lora (2005).

<sup>&</sup>lt;sup>5</sup> See Schoar (2010) for discussion of subsistence versus growth-oriented entrepreneurship.

care work and paid labor. They may also look to self-employment if there are legal or social norm restrictions around women engaging in paid work. These small firms typically employ few, if any, workers outside of the family, and many do not aspire to grow their businesses (though some do). Most are informal (not formally registered with the government as a small business), with lower productivity and limited access to capital and market connections. For this paper, we classify microentrepreneurs and own-account workers as those with fewer than 10 employees.

SMEs and growth-oriented enterprises, on the other hand, aim to grow their businesses beyond a subsistence level. These entrepreneurs often start their firms because of an opportunity they see in the market. They provide regular, paid employment to non-family workers, and are thus job creators in their communities. Owners tend to have higher education, longer tenure, and greater aspirations for firm growth. Studies find that growth-oriented entrepreneurs also have greater risk tolerance, self-confidence, locus of control, and feelings of efficacy.<sup>6</sup> In the literature, some define SMEs by firm size, while others focus on growth orientation and sector. While sector choice is an important determinant of firm grow, as we discuss below, we consider firm size a better categorization of SME status; a five person firm in textiles and in construction may have different growth potentials, but organizationally they operate similarly and are constrained by the same economies of scale limitations.

Research suggests that very few microentrepreneurs in developing countries grow their businesses into established SMEs. For instance, many programs have attempted to incentivize firm formalization in developing countries, with mixed impact at best.<sup>7</sup> There is some evidence that female microenterprises are less likely to respond to incentives to formalize than men, due to social norms around aspirations and interactions with government authorities, and smaller scale operations.<sup>8</sup> Thus, interventions that target microentrepreneurs are largely concerned with activating women and encouraging them to start businesses. Interventions targeting SMEs, on the other hand, are often focused on helping

<sup>&</sup>lt;sup>6</sup> Croson and Gneezy (2009); Acharya et al. (2007).

<sup>&</sup>lt;sup>7</sup> See Bruhn and McKenzie (2014) and Jayachandran (2020) for review of the literature on firm formalization in developing countries.

<sup>&</sup>lt;sup>8</sup> Benhassine et al. (2018), Demenet et al. (2016), Babbitt et al. (2015).

firms grow by improving business practices, connecting them with larger networks/market opportunities, expanding access to capital, and reducing red tape to help firms formalize.

#### **Barriers to entrepreneurship**

Entrepreneurs face a variety of barriers. Some of these barriers impact small and large firms alike, while some are size specific. Others impact male and female entrepreneurs alike, while some are gender specific. Interventions that aim to improve entrepreneurship outcomes thus need to not only understand who their target group is, but what barriers that specific group faces. Often, these barriers are overlapping and mutually reinforcing, such that reducing one does not necessarily improve outcomes without simultaneously addressing another.

Some constraints are common across firms. Looking at the World Bank Enterprise Surveys, Dinh et al. (2010) find that finance is a major constraint for microenterprises and SMEs alike. Microentrepreneurs often rely on their own funds to start their business, and thus their growth potential is limited by the amount of capital they can leverage from friends and family. As a result, a host of microfinance institutions have risen up over the last 20 years to provide small loans and credit options to these small firms; however, as we discuss below, the efficacy of these interventions has been mixed at best. SMEs are also constrained by access to finance. Growth-oriented firms are stuck in the missing middle in many developing country capital markets: too large to benefit from small scale microcredit, but too small to unlock larger loans from major financial institutions. Rodriguez Arregui (2012) argues that in order to jumpstart greater growth in Mexico, SMEs need improved access to private capital, which the government could facilitate by providing incentives for venture capital and foreign direct investment (FDI) and enforcing the rules for loan guarantees. Grimm et al. (2012), finds that growth-oriented firms need longer term risk capital and some form of insurance to grow. Luckily, Ayyagari et al. (2016) find that once finance constraints are alleviated, finance has a larger impact on micro and SME firms than on large firms.

Schoar (2010) and Auriol (2013) find that both microenterprises and SMEs in developing countries are constrained by administrative barriers to formalization. They find that barriers associated with startup costs and registration prevent

most microenterprises from formalizing. Yet formalizing opens the door to greater market access and connections. For instance, many larger government contracts and export opportunities are only open to formalized firms, further entrenching the system of a few larger players who dominate the market and an abundance of tiny firms too small to compete. Studies find that regulations of labor and product markets, in addition to restrictions around new firm entry, are most constricting for SMEs (Grimm et al. 2012; Auriol 2013; Schoar 2009).

Some barriers differ by firm size. Schoar (2010) finds that necessity microenterprises are often constrained by both internal constraints like a lack of skill (business knowledge, managerial, accounting), as well as external constraints, such as the market ecosystem and a lack of capital. In Latin America, Lederman et al. (2013) find evidence that low-guality entrepreneurship is a problem for SMEs as well; indeed, quality seems to be a major reason why firms do not grow beyond a certain size. On the other hand, Schoar (2010) and Grimm et al. (2012) find that external constraints may dominate for SMEs. Social networks, access to markets, and information asymmetries are often a large inhibitor of growth for SMEs, though are of course important for microenterprises as well. Auriol (2013) finds that inefficient hiring practices may likewise constrain SMEs. There is often pressure to employ friends and family due to social obligations, who may not be the best workers for the job. While this is constraining for micro-firms as well, as firms grow in size and increase the number of paid workers they hire, these inefficiencies can be a large inhibitor of growth.

The above constraints impact both male and female owned firms. Yet for women entrepreneurs, there is an additional set of barriers that restrict access to entrepreneurship opportunities. Entrepreneurial skill is an important determinant of success among microentrepreneurs. Yet due to gender disparities in access to educational opportunities, in some countries, women have lower levels of educational attainment than men, especially among the older cohorts.<sup>9</sup> In addition to attainment, girls and boys often sort into different educational streams in school due to gender stereotypes about ability and future aspirations. These streaming decisions impact the sectors that women and men self-select

<sup>9</sup> See World Bank (2012); World Bank Africa GIL and FCI (2019) for more details on gender specific barriers to entrepreneurship.

into. Men tend to self-sort into more highly skilled, higher paid sectors and occupations with higher growth potential. Women often choose lower skilled, lower paid sectors. This decision is partially driven by social norms about "acceptable jobs for women"-women sort into traditionally female sectors; and partially driven by social norms around who is responsible for care and homework—women choose sectors where it is easier to work part time, so as to balance paid and unpaid care responsibilities.<sup>10</sup> Yet sector choice is one of the largest determinants of firm performance. A number of recent interventions have focused on encouraging women to "cross-over" into these traditional male dominated sectors with greater growth potential, with impressive effects.<sup>11</sup> Yet without addressing the underlying structural educational and sector streaming choices, the majority of women owned firms will continue to operate in low productivity sectors.

Women may also face legal barriers to entrepreneurship. According to the World Bank Women, Business, and the Law database, 40 percent of countries have laws that limit women's entrance or participation in the labor force. Countries may have discriminatory laws regarding women's ability to register a business, open a bank account, sign contracts, and move freely about the country. They find that countries with more gender discriminatory laws have less female firm ownership. While difficult to change, there are a few examples where efforts to reform gendered laws have led to an increase in female labor force participation.<sup>12</sup>

While all entrepreneurs are constrained by access to capital, women may face additional barriers to obtain financing. Limited land and inheritance rights may restrict women's access to productive assets, which are often used as collateral for loans. Women may have limited credit history and are thus seen as riskier borrowers; they are often required to pay higher interest rates and receive smaller loans than male entrepreneurs.<sup>13</sup> Without addressing these specific gendered finance constraints, interventions to improve entrepreneurs' access to credit may not help women. What's more, due to gendered intrahousehold dynamics, women may not control the capital they gain access to.

<sup>&</sup>lt;sup>10</sup> Bardasi et al. (2007); Chowdhury et al. (2018); Currie and Chaykowski (1992).
<sup>11</sup> Campos et al. (2015); Alibhai et al. (2017).
<sup>12</sup> See Hallward-Driemeir (2013); Deininger, Goyal and Nagarajan (2010); Roy (2008); OECD (2017).

<sup>&</sup>lt;sup>13</sup> Muravyevy et al. (2009); Alesina et al. (2008).

Women have smaller social and business networks than men. They are less likely to have other service providers or entrepreneurs in their networks, who could provide valuable information, know-how, and connections to help grow their business. In fact, studies looking at women who were able to break into male dominated sectors found that they were more likely to have strong professional networks and supportive male family members.<sup>14</sup> Networks are a way to circumvent some of the other barriers to entrepreneurship outlined above, such as limited credit, regulatory hurdles, and sector know-how. Thus, while network and information failures hurt men as well, they are particularly harmful to women because they interact with other gendered barriers, limiting women-owned firms' ability to grow.

#### Paper focus

Most existing entrepreneurship programs for women in developing countries, though not all, have targeted microenterprises, and thus the vast majority of evaluations in this space look at microentrepreneurship interventions. In contrast, there is less evaluation literature on what works to support SMEs; and even fewer on what works to support female-led SMEs.

Many interventions to support SMEs have focused on training to improve business practices, connecting firms with larger networks/market opportunities, expanding access to capital, and reducing red tape to help firms formalize.<sup>15</sup> Training often focuses on management skills, as opposed to basic business or finance skills. Cirera and Qasim (2014) find that while management practices among female SMEs seem to improve after business training courses, this does not seem to translate into improved firm performance, contrary to men. Networks and mentoring seem to be particularly important in encouraging women to "cross-over" into traditionally male dominated sectors.<sup>16</sup> Training that provides some element of psychosocial training—risk taking, achievement orientation, and self-confidence—have shown some promise, as these traits are associated with growth-oriented entrepreneurship. Personalized consulting

<sup>&</sup>lt;sup>14</sup> Campos et al. (2015); Alibhai et al. (2017).

<sup>&</sup>lt;sup>15</sup> See Cirera and Qasim (2014) for an overview of the evidence on what works to support female growthoriented firms.

<sup>&</sup>lt;sup>16</sup> Campos et al. (2015); Alibhai et al. (2017).

services have also proven successful, but most programs targeting women have not included such services due to high cost.<sup>17</sup> Evidence on the effect of finance on SMEs is more limited, as most interventions to date have focused on microenterprises.

Acknowledging the data gap on what works to promote female SME growth, the World Bank launched the Women's Leadership in Small and Medium Enterprises (WLSME) program in 2011 to rigorously evaluate 12 pilot interventions for female SMEs. Three evaluations have been completed to date,<sup>18</sup> while the rest are in progress or planned for the future, hopefully providing a new wave of needed evidence in the female SME space.

Given the scarcity of rigorous evaluations of programs targeting female SMEs and the relative abundance of evaluations targeting female microentrepreneurs, in this meta-review we focus on largely on the latter.

<sup>&</sup>lt;sup>17</sup> Bruhn et al. (2018); Bloom et al. (2013).

<sup>&</sup>lt;sup>18</sup> Alibhai et al. (2017) defines growth oriented firms by sector, but firm size falls within our microenterprise threshold. However, they only look at what characteristics cause female firms to enter male dominated sectors—it is not an evaluation of a program or policy, so it is excluded here. Alaref et al. (2020) looks at a university entrepreneurship track within a business school in Tunisia, but does not measure firm size, just whether students are self-employed after 4 years. It is included in our database. McKenzie (2017) looks at a business plan competition in Nigeria, with the aim to increase the number of firms with more than 10 employees. While they do succeed in increasing the number of firms in this SME category, the average firm is still a microenterprise, thus we include the results here.

# III. Constructing the data set for the meta-analysis

#### Selection criteria and search strategy

We include in our database all studies that evaluate entrepreneurship programs and that include women as a target group (even if not exclusively). To be included in our database studies must meet the following criteria:

- a) <u>Methodology</u>: we include only experimental or quasi-experimental studies that evaluate an intervention using a counterfactual. Tracer studies or other studies that do not compare results between a treatment and control group are not included. Studies that look at differences between male and female firms, but do not look at outcomes related to a specific policy or program, are likewise excluded.
- b) <u>Target group</u>: Interventions must include women entrepreneurs or potential entrepreneurs as a target group. While they do not need to focus exclusively on women, we do not include studies that do not break out effects by gender. We do not discuss differential effects between men and women in this paper, as we are concerned with what works for women writ large. However, if evaluations found meaningful differences between genders, we report these findings in our paper database, found in Annex 4.
- c) <u>Interventions</u>: We began by searching across a broad range of interventions that target the multiple constraints that affect women entrepreneurs. These included constraints pertaining to:
  - Skills
  - Access to markets and to information
  - Access to financial resources and/or financial instruments
  - Access to productive inputs (land, labor, infrastructure)
  - Time-constraints associated with gendered social norms about care and housework

 Lack of self-confidence/efficacy associated with constraints to women's agency (may be linked to socio-cultural factors, social norms etc.)

However, the paucity of rigorous evaluations in some of these areas led us to narrow our focus down to interventions that target constraints related to skills, entrepreneurial mindset and practices, and access to finance. We also exclude interventions that only target female farmers, as interventions that help increase farmer productivity are quite different than those targeting microenterprises. We do however include interventions in the agro-processing sector.

- d) <u>Outcomes</u>: As we are interested in how interventions impact entrepreneurial outcomes, we only include studies that report on some measure of self-employment, labor income, or business performance. We exclude studies that only look at household consumption, income, savings, or asset accumulation. While it is difficult to accurately measure microenterprise profits and revenue, and in most studies these measures are self-reported, we prefer these imperfect measures to household level outcomes, as household variables do not allow us to assess if the intervention actually increased female entrepreneurship, or if resources were simply reallocated to household needs.
- e) <u>Country coverage</u>: Given our interest in women's economic empowerment in developing countries, we limit our search to studies of interventions in low-, middle-, and upper-middle-income countries. We do not include studies from high-income, advanced economies.
- f) <u>Minimum sample size</u>: We discarded studies where the sample size was deemed too small to extract generalizable effects. For example, we discarded a handful of studies that were quasi-experimental, but included a sample size of 30 or fewer entrepreneurs. The smallest sample size included in our evaluation is 66, though only two papers have sample sizes of less than 100. The mean sample size is 2,190 and the median 1,474.
- g) <u>Duration of impact/evaluation</u>: We include studies that look at both short term (less than 2 years post-intervention) and longer-term (2 + years) outcomes. These characteristics are noted in our database and used in the analysis.

Table 1 summarizes these selection criteria.

#### Table 1. Paper selection criteria

| Purpose                   | Interventions that promote entrepreneurial activities of female entrepreneurs.  |  |  |  |  |  |
|---------------------------|---|--|--|--|--|--|
| Target group              | Existing or potential female entrepreneurs. Intervention does not<br>nave to focus exclusively on women, but must break out effects by<br>gender.   |  |  |  |  |  |
| Methodology               | Quasi-experimental or experimental methods using a counterfactual. Tracer studies or other studies that do not compare results between a treatment and control group are not included.  |  |  |  |  |  |
| Types of<br>Interventions | <ul> <li>Skills training (financial, business, managerial)</li> <li>Access to markets, information, networks</li> <li>Access to financial resources (microcredit, loans, grants)</li> <li>Access to productive inputs (land, labor, infrastructure)</li> <li>Reducing time constraints due to care and housework</li> <li>Personal initiative, entrepreneurial mindset, self-confidence training</li> </ul> |  |  |  |  |  |
| Outcomes                  | <ul> <li><u>Employment/entrepreneurial activity</u>: has a business, started a business, engage in entrepreneurship, probability of self-employment, hours worked per week</li> <li><u>Earnings</u>: labor income, business profits</li> <li><u>Business performance</u>: sales, revenue, number of employees, returns to capital, firm survival/failure</li> </ul>   |  |  |  |  |  |
| Country<br>coverage       | Low- and middle-income countries  |  |  |  |  |  |
| Sample size               | Greater than 30 people  |  |  |  |  |  |
| Time frame                | Last 20 years   |  |  |  |  |  |
| Duration of<br>impact     | Both short and long term effects  |  |  |  |  |  |

#### Search strategy

We focus on studies available in the public domain (published papers or working papers) published over the last 20 years. We began by looking at papers included in other meta-reviews on women's economic empowerment, cited above. We also culled papers from major gender evaluation databases, such as the Women's Economic Empowerment (WEE) Roadmap database at the United

Nations Foundation, the enGender Impact Evaluation database at the World Bank, the Gender Action Portal database at Harvard University and the World Bank Development Impact Evaluation (DIME) database. We searched for papers relating to female entrepreneurship in Google Scholar, EBSCO host, and the IZA and NBER working papers series databases, using the following search terms: "female" or "women" and "entrepren\*," "intervention," "experiment," "program," "train\*," "microfinance," "mentor\*," "network," "confidence," and "efficacy." We also culled potential papers from the reference list of other included papers.

In total, we looked at 243 papers, of which 54 met our inclusion criteria. Most of those excluded either did not look at entrepreneurship outcomes (but rather household consumption, income, or other wellbeing measures), did not disaggregate results by gender, were policy reviews as opposed to rigorous evaluations, used non-experimental methodologies, or did not take place in developing countries.

#### **Extraction of program estimates**

Finally, we extracted program information and effect size estimates from our universe of papers. We gathered information on program location, sample size, design details, dates of program implementation and evaluation data collection, target population, methodology, estimated program impacts, and potential explanations of findings. We include this information in our evaluation database in Annex 4.

#### Defining and constructing the key variables

#### Outcome variables

We are interested in studying the effectiveness of interventions to support and improve female entrepreneurship. Our first step is to define what outcome variables we want to focus on.

A first dimension of relevant outcomes is female entrepreneurship itself, e.g. are interventions activating women to become entrepreneurs? We define this variable as "Entrepreneurial Activity". Given that the variables measured in our included studies varied greatly, we include the following in our "entrepreneurial activity" bucket, as all seem to capture some measure of activation—if potential entrepreneurs became entrepreneurs, and if existing entrepreneurs continued to operate their businesses. Depending on the study, this may be defined as a) started a business; b) has a business at endline; c) became an entrepreneur; d) carried out entrepreneurial activities or practices; or e) hours worked per week in self-employment. We lump these outcomes together to assess what types of interventions have the greatest effect on entrepreneurial activation. We also look at disaggregated outcomes for hours worked and probability of engaging in entrepreneurship, a dummy composite variable of outcomes a-d above.

A second set of outcome variables pertain to firm performance, e.g., are interventions helping women become better entrepreneurs and their firms more profitable and productive? We define this variable as "Entrepreneurial Quality." This includes variables such as sales and revenues or profits. All studies in our database either report sales or revenue as an outcome measure (none report both), and thus for our analysis we combine these outcomes into one indicator, as both seem to be capturing the same thing in our studies. Occasionally studies will also look at net income or take-home earnings. If the paper defined income or earnings as some sort of net measure, i.e., income minus costs or labor, we include it in the profits measure. We dropped those measures that just reported gross income or earnings, as this likely overestimates the impact of the intervention on actual take home earnings. Other studies look at changes in firm size (measured by number of employees), business survival, or firm closure. A few studies also report returns on capital or some standardized index of sales and profits. We lump all these outcomes together (sans business survival, firm closure, and returns on capital due to insufficient observations) to look at what types of interventions have the largest impact on entrepreneurial quality. We also look at disaggregated outcomes for sales/revenue, profits, and number of employees.

#### Interventions

Although we started with a broader set of interventions, the paucity of rigorous evaluations of interventions in some areas led us to narrow our focus down to interventions targeting skills and financing. This means we end up with three major categories of interventions: Training, Finance, and a Combination (training + finance). A fourth category, "Other," includes interventions that met our inclusion criteria but did not fit in one of these three buckets. Most are focused on addressing some form of market failure, such as firm informality, information failures, or a lack of productive inputs. These are included in the evaluation database (see Annex 4), but excluded from the analysis due to insufficient sample size for statistical power and comparability.

Training: Training has been a particular focus among interventions targeting women in order to address some of the knowledge-based barriers female entrepreneurs face due to less formal education and limited business networks. The training bucket captures a range of interventions, including training in basic business practices, management, financial literacy, and bookkeeping (see McKenzie and Woodruff 2014 for a review of business training interventions). We group all these interventions under a "basic training" category, though the content and intensity of these trainings vary. The database also includes more advanced training efforts, which combine basic training with some form of mentorship, on-site consulting services or technical assistance, or training by a role model, typically an existing female entrepreneur in the local community. These aim to both improve knowledge transfer and retention, as well as provide moral support and inspiration to aspiring or nascent entrepreneurs. We classify these interventions as "training with mentorship." A third group focuses on psychology based interventions, such as personal initiative training, providing self-confidence, self-efficacy, or entrepreneurial mindset training to improve softskills among microentrepreneurs. We classify this group of interventions as "personal initiative training." In some specifications, we group training with mentorship and personal initiative training into one bucket, labeled "enhanced training," to compare their effectiveness relative to basic training initiatives.

<u>Finance</u>: Expanding access to finance is another branch of interventions. The finance bucket captures two major categories of interventions: loans and grants. Most of the loan based interventions are some form of microcredit program, whether through more informal village savings and loan groups or larger national microfinance programs like Grameen Bank, as microenterprises often lack access to formal financial institutions. We compare these interventions with grant based interventions, both cash and in-kind. Given the small number of studies for in-kind grant programs in our database, we keep both kinds of grants bundled together, though a description of the differential impacts of cash and in-kind is included in the database in Annex 4 for papers with both treatment arms.

<u>Combination</u>: Some programs attempt to address multiple constraints at the same time. The combination bucket captures package interventions that provide some form of training (basic or enhanced) and finance (grants or loans) to entrepreneurs. Some interventions were designed with a training, finance and training+finance arm to allow for meaningful comparisons between package components. For the purposes of our analysis, we refer to combination interventions as the training+finance arm, and use estimates for the training arm and finance arm in their respective category. However, we do report effect size comparisons between package intervention arms in the database in Annex 4. There are not enough observations to distinguish between basic and enhanced combination interventions, thus we leave them grouped together

#### The database

Table 2 and 3 present some basic features of the database. Our database includes 50 evaluations and 385 estimates (4 papers in "Other" intervention category dropped from subsequent analysis). About 63 percent of those estimates pertain to training interventions, 21 percent to financing interventions, and 16 percent to combination interventions. Among training interventions, about 57 percent of estimates are for basic training interventions, 26 percent for training with mentorship, and another 17 percent for personal initiative training. Among finance interventions, 56 percent of estimates are for microcredit interventions and the remaining 44 percent for grants.

When we look at outcomes of interest, the majority of estimates focus on either sales/revenue (28 percent) or profits (32 percent). The rest of the estimates refer to measures of hours worked, number of employees, or the probability of engaging in entrepreneurship, followed by a handful of other outcomes with few observations. Overall, around 20 percent of the observations report on some measure of entrepreneurial activity, while the other 80 percent measure entrepreneurial quality. Given the small number of observations for business closure, business survival, and returns to capital, we do not include these observations in the analysis in subsequent sections.

| Outcomes                                    | Training | Finance | Combination | Total |
|---|----------|---------|-------------|-------|
| Sales/revenue                               | 90       | 9       | 8           | 107   |
| Profits                                     | 64       | 42      | 15          | 121   |
| Number of employees                         | 22       | 9       | 10          | 41    |
| Hours worked per week                       | 22       | 3       | 6           | 31    |
| Probability of engaging in entrepreneurship | 16       | 6       | 14          | 36    |
| Started a business                          | 2        | 3       | 2           | 7     |
| Business closure                            | 8        | 5       | 1           | 14    |
| Business survival                           | 6        | 0       | 0           | 6     |
| Sales/profit composite index                | 12       | 1       | 7           | 20    |
| Returns to capital                          | 0        | 2       | 0           | 2     |
| Total                                       | 242      | 80      | 63          | 385   |

#### Table 2. Number of estimates by outcome and intervention type

In terms of geographic distribution, our database contains evaluations from 27 countries. Over half of the estimates are from sub-Saharan Africa, about a quarter from Latin America and the Caribbean, and another 20 percent from South Asia. Unfortunately, we have very low coverage from East Asia and the Pacific (1 study each from Mongolia, Philippines, and Thailand) and the Middle East and North Africa (1 study from Tunisia). This is an area for further research and evaluation efforts moving forward.

#### Table 3. Distribution of estimates by region

| Region                      | Share |
|-----------------------------|-------|
| East Asia and Pacific       | 1%    |
| Latin America and Caribbean | 27%   |
| Middle East/North Africa    | 1%    |
| South Asia                  | 19%   |
| Sub-Saharan Africa          | 52%   |

Over 72 percent of our estimates are for existing entrepreneurs. Another 14 percent are for potential entrepreneurs, women who were not entrepreneurs at baseline, with the remaining 13 percent for a pooled sample of existing and potential entrepreneurs. Because of the high share of estimates for existing entrepreneurs, we do not disaggregate our results by length of entrepreneurship in this paper.

Around 60 percent of the estimates report short-term effects, i.e., less than 2 years post-intervention, while the rest report long-term impacts. Given this breakdown, we control for effect duration in our specifications.

# **IV. Basic results**

A first cut at the data suggests that effects are quite varied across outcomes and interventions. Table 4a through Table 4c summarize the basic results of the interventions (by category and outcome variable) in terms of whether effects are positive and significant or not.

#### Sign and significance

The majority of <u>training</u> interventions appear to have a positive effect on sales and profits, but only around a third are significant at the 10 percent level. Impacts on hours worked and probability of engaging in entrepreneurship are likewise predominately positive, while the other outcome variables appear more mixed. Results from the <u>finance</u> interventions are similar: 54 out of 80 estimates are positive, but only 18 are significant at the 10 percent level. Sales and profits estimates are more likely to be positive than other outcome variables. The <u>combination</u> interventions (training + finance) yield the same pattern albeit with slightly stronger significance of results: 60 out of 63 estimates are positive, with 34 significant at the 10 percent level and 32 significant at the 5 percent level. When it comes to "probability of engaging in entrepreneurship" the combination of training + finance has substantially stronger positive results than the individual interventions alone, with all estimates positive.

| Outcomes               | Total | Sales/<br>revenue | Profits | No. employees | Hours worked | Probability of<br>entrepreneurship | Business closure | Business survival | Sales/<br>profit index |
|------------------------|-------|-------------------|---------|---------------|--------------|------------------------------------|------------------|-------------------|------------------------|
| No. estimates          | 242   | 90                | 64      | 22            | 22           | 18                                 | 8                | 6                 | 12                     |
| Significant at 10%     |       |                   |         |               |              |                                    |                  |                   |                        |
| Positive significant   | 75    | 32                | 17      | 1             | 9            | 8                                  | 0                | 2                 | 4                      |
| Positive insignificant | 100   | 33                | 37      | 6             | 8            | 7                                  | 3                | 3                 | 2                      |
| Negative insignificant | 59    | 19                | 10      | 15            | 5            | 1                                  | 5                | 1                 | 6                      |
| Negative significant   | 8     | 6                 | 0       | 0             | 0            | 2                                  | 0                | 0                 | 0                      |
| Significant at 5%      |       |                   |         |               |              |                                    |                  |                   |                        |
| Positive significant   | 53    | 17                | 15      | 1             | 7            | 6                                  | 0                | 2                 | 3                      |
| Positive insignificant | 122   | 48                | 39      | 6             | 10           | 9                                  | 3                | 3                 | 3                      |
| Negative insignificant | 63    | 23                | 10      | 15            | 5            | 1                                  | 5                | 1                 | 6                      |
| Negative significant   | 4     | 2                 | 0       | 0             | 0            | 2                                  | 0                | 0                 | 0                      |

#### Table 4a. Estimates and significance for training interventions

#### Table 4b. Estimates and significance for finance interventions

| Outcomes               | Total | Sales/<br>revenue | Profits | No. employees | Hours worked | Probability of<br>entrepreneurship | Business closure | Returns capital | Sales/profit<br>index |
|------------------------|-------|-------------------|---------|---------------|--------------|------------------------------------|------------------|-----------------|-----------------------|
| No. estimates          | 80    | 9                 | 42      | 9             | 3            | 9                                  | 5                | 2               | 1                     |
| Significant at 10%     |       |                   |         |               |              |                                    |                  |                 |                       |
| Positive significant   | 18    | I                 | 8       | 3             | 0            | 3                                  | 0                | 1               | 0                     |
| Positive insignificant | 36    | 5                 | 21      | 1             | 2            | 4                                  | 2                | 0               | 1                     |
| Negative insignificant | 23    | 1                 | 13      | 3             | 1            | 2                                  | 2                | 1               | 0                     |
| Negative significant   | 3     | 0                 | 0       | 2             | 0            | 0                                  | 1                | 0               | 0                     |
| Significant at 5%      |       |                   |         |               |              |                                    |                  |                 |                       |
| Positive significant   | 13    | 2                 | 6       | 2             | 0            | 2                                  | 0                | 1               | 0                     |
| Positive insignificant | 41    | 6                 | 23      | 2             | 2            | 5                                  | 2                | 0               | 1                     |
| Negative insignificant | 25    | 1                 | 13      | 5             | 1            | 2                                  | 2                | 1               | 0                     |
| Negative significant   | 1     | 0                 | 0       | 0             | 0            | 0                                  | 1                | 0               | 0                     |

| Outcomes               | Total | Sales/<br>revenue | Profits | No. employees | Hours worked | Probability of<br>entrepreneurship | Business closure | Sales/profit index |
|------------------------|-------|-------------------|---------|---------------|--------------|------------------------------------|------------------|--------------------|
| No. estimates          | 63    | 8                 | 15      | 10            | 6            | 16                                 | 1                | 7                  |
| Significant at 10%     |       |                   |         |               |              |                                    |                  |                    |
| Positive significant   | 34    | 1                 | 4       | 8             | 4            | 13                                 | 0                | 3                  |
| Positive insignificant | 26    | 7                 | 8       | 2             | 2            | 3                                  | 1                | 3                  |
| Negative insignificant | 3     | 0                 | 3       | 0             | 0            | 0                                  | 0                | 1                  |
| Negative significant   | 0     | 0                 | 0       | 0             | 0            | 0                                  | 0                | 0                  |
|                        |       |                   |         |               |              |                                    |                  |                    |
| Significant at 5%      |       |                   |         |               |              |                                    |                  |                    |
| Positive significant   | 32    | 1                 | 4       | 8             | 4            | 12                                 | 0                | 2                  |
| Positive insignificant | 28    | 7                 | 8       | 2             | 2            | 4                                  | 1                | 4                  |
| Negative insignificant | 3     | 0                 | 3       | 0             | 0            | 0                                  | 0                | 1                  |
| Negative significant   | 0     | 0                 | 0       | 0             | 0            | 0                                  | 0                | 0                  |

#### Table 4c. Estimates and significance for combination interventions

#### Effect size

Table 5 shows the estimated size of the effects, as well as the range of estimates, by outcome and intervention type. Given the varying units in our database (some papers report profits and sales in local currency, while others report in logs), we convert all outcome variables to percent change. Card et al. (2010) and Cho and Honorati (2014) standardize effect size by dividing estimated coefficients by the standard deviation of the control group (Card et al.) or pooled sample (Cho and Honorati) to control for varying power across studies. We attempted to follow a similar methodology, but found only a quarter of the studies in our database reported the standard deviation of the pooled sample or the control group. Thus, we keep our estimates in percent change, with the caveat that our size effect estimates are not as robust as our sign and significance analysis, and should be treated as such. While many interventions achieve average effects that are quite large in size, what really stands out is the wide range of estimated effects. For the same type of intervention and outcome variable, different studies report widely different impacts. For example, "enhanced training," which includes both training with mentorship and personal initiative training, increases sales by 12 percent on average, but the range of effects is quite wide, -16-42 percent. Grants have a smaller average effect on sales, 9 percent, but a tighter range of estimates at 3-13 percent. The combination package appears to have the largest effect on average on sales (+14 percent), but the range of effects is also broader at 1-40 percent. The same degree of variability is visible for the other outcome variables—indeed, profits seem to have a wide range of estimates across intervention types.

This variability suggests the importance of context and design in determining the effectiveness of an intervention, but could also reflect the weak statistical power of the individual studies. This is why a meta-review approach such as this one can help put these varying results in perspective.

Figures 1 through 3 illustrate the range of effects more clearly by presenting the effect estimates and corresponding 90 percent confidence interval by individual study (and hence country). We include estimates for sales/revenue, profits, and probability of engaging in entrepreneurship here, with estimates for number of employees and hours worked included in Annex 1.

Let's start with the impact of interventions on sales/profits (Figure 1). The effect of basic training on sales is, as the original table suggested, largely positive but with large confidence intervals that make it difficult to argue that the effects are statistically different from zero. However, the estimated effects of enhanced training on sales seem more robust. They are largely positive and significant, with the exception of a few individual studies at the upper and lower end. Estimates for finance and combination intervention are likewise mostly positive, but most are statistically insignificant. Thus, overall it looks as if most interventions, except perhaps enhanced training where the results look more significant, have a positive effect on sales, but one that is largely indistinguishable from zero.

Turning to firm profits (Figure 2), we find that, similar to sales, basic training has a largely positive but insignificant impact. The confidence intervals on most estimates are quite wide, which could be partially explained by the imprecise nature of self-reported measures of microenterprise profits. Also similar to sales, we find a largely positive impact for enhanced training, with a large portion of statistically significant impacts at the 10 percent level. Microcredit interventions have a mostly positive impact, but few estimates are distinguishable from zero. Grants, on the other hand, have a mixed record. About a third of estimates suggest grants had a negative, though insignificant, impact on firm profits. There is another group of estimates for grants at the upper end of the distribution that are guite large and statistically significant, complicating the overall picture. This wide range of estimates may suggest that context and design matter greatly for grant effectiveness. Combination interventions have a largely positive impact on profits, though most effects are insignificant. Thus, most interventions have a positive, though insignificant, impact on profits, perhaps with the exception of enhanced training where the results look more significant. However, the confidence intervals and range of effect sizes are much larger for profits than for sales, suggesting that noise in the data makes drawing concrete conclusions more difficult.

Finally, we look at effects on the probability of engaging entrepreneurship (Figure 3). Basic training seems to have a mixed impact, with a range of effects statistically significant, both positive and negative. All estimates for enhanced training, on the other hand, are positive and most significant. Microcredit seems to also have a positive and largely significant impact, though the size of the effects are much smaller here. Package interventions seem to be the most effective at encouraging engagement in entrepreneurship, with all estimates positive, and most large and significant. The size of the effects are quite large compared to other intervention types.

|                    |                      | Sales/revenue |               |              | Profits       |               |               | Number of<br>employees | Probability of<br>entrepreneurship | Hours<br>Worked |
|--------------------|----------------------|---------------|---------------|--------------|---------------|---------------|---------------|------------------------|------------------------------------|-----------------|
|                    | Time                 | Total         | Short term    | Long term    | Total         | Short term    | Long term     | Total                  | Total                              | Total           |
| Training           | Basic training       | 10%           | 7%            | 17%          | 12%           | 12%           | 14%           | -1%                    | 2%                                 | 1%              |
|                    | Dasie training       | (-34% to 73%) | (-34% to 73%) | (-7% to 41%) | (-32% to 76%) | (-32% to 76%) | (-9% to 43%)  | (-16% to 9%)           | (-27% to 19%)                      | (-30% to 22%)   |
|                    | Enhanced<br>Training | 12%           | 10%           | 15%          | 21%           | 21%           | 21%           | -8%                    | 15%                                | 5%              |
|                    |                      | (-16% to 42%) | (-16% to 42%) | (-5% to 21%) | (-31% to 74%) | (-31% to 74%) | (12% to 40%)  | (-35% to 17%)          | (3% to 44%)                        | (-4% to 16%)    |
|                    | Microcrodit          | 8%            |               |              | 17%           | 5%            | 28%           | 7%                     | 3%                                 | 0%              |
|                    | Microcredit          | (-47% to 36%) |               |              | (-58% to 65%) | (-58% to 65%) | (0% to 57%)   | (-67% to 79%)          | (0% to 13%) (-4                    | (-4% to 4%)     |
| Jce                | Grants (             | 9%            |               |              | 12%           | 11%           | 13%           |                        |                                    |                 |
| Finan              |                      | (3% to 13%)   |               |              | (-42% to 83%) | (-42% to 54%) | (-23% to 83%) |                        |                                    |                 |
| Comb               | bination             | 14%           |               |              | 11%           | 11%           |               |                        | 26%                                | 67%             |
| (Training+Finance) |                      | (1% to 40%)   |               |              | (-49% to 73%) | (-49% to 73%) |               |                        | (3% to 29%)                        | (4% to 133%)    |

#### Table 5. Average effect size (percent change), by intervention and outcome type

Note: Effect size standardized to percent change for comparability across units. Outliers trimmed. Numbers in parenthesis show the range of estimates reported for that intervention/outcome type. Time indicates length of time post intervention the evaluation was carried out. We denote outcomes measured less than 2 years post-intervention short term, and those measured 2 years or more post, long term.



#### Figure 1. Estimated effect (percent change) of interventions on sales/revenue







#### Figure 3: Estimated effect (percent change) of interventions on probability of engaging in entrepreneurship

#### Generalizability of results

While effect size does vary substantially within the same outcome and intervention type, a few patterns do seem to emerge. Basic and enhanced training seem to have a positive effect on sales and profits, with more cases of significant results for long term versus short term outcomes. Enhanced training (whether mentorship or personal initiative) seems to have more consistently significant results than basic training. Finance interventions do not seem to have a clear effect on sales or profits for female entrepreneurs. Combination interventions seem to have a positive effect on sales and profits, however, the effects do not look that different than training alone. However, the combined package does seem to have larger impacts on activating women to engage in entrepreneurial activity.

Our results seem to mirror larger findings in the entrepreneurship literature. Banerjee, Karlan and Zinman (2015) review 6 microcredit RCTs 1 to 3 years after implementation and find that while credit did lead to some increase in business investments, this did not translate into increased profits for female entrepreneurs. This mirrors results from Fiala (2018) and de Mel et al. (2009), which found that finance alone improved business outcomes for male entrepreneurs, but not for female. In fact, Patel (2014), in an ILO review of what works for women entrepreneurs, found that microcredit seems to have minimal impact on female entrepreneurs. This aligns with the larger literature around women's empowerment and intra-household dynamics. Expanding women's access to finance does not ensure that they are able to control these new resources; in fact, Bernhardt et al. (2017) finds that female beneficiaries of a microenterprise grant program in India were more likely use the cash to invest in their husband's businesses, rather than their own. These choices are often driven by social norms around the appropriate roles for men and women, as well as household power dynamics.

The literature also supports our findings that training alone does not seem to be enough to improve business outcomes for women. Patel (2014) and Cho (2015), in reviews of what works to promote entrepreneurship in developing countries, find that business training on its own is not effective, except when combined with finance or access to inputs. This mirrors results from de Mel et al. (2014) and Martinez et al. (2018), who run RCTs that disaggregate effects across training, finance, and package intervention arms, and find that combination treatment yielded larger impacts than each intervention alone. Our effects on enhanced training also align with this larger narrative that female entrepreneurs need something beyond basic accounting or business management training. McKenzie and Puerto (2017), Valdivia (2015) and Brooks et al. (2018) find that training programs with a follow up mentoring component have a much larger impact on female firm performance than training alone; although all these studies do find the effects diminish with time. Some of this additional impact may come from networking and peer to peer effects, but it also may come from the on-site training and support mentors provide, which supplements learning in group training courses.

While these results are suggestive of what types of interventions work best for female entrepreneurs, they are only descriptive. We are comparing lots of different types estimates, many self-reported, which by nature are quite noisy. Thus, in the next section, we attempt to test these patterns systematically, putting a structure on the estimates and controlling for a host of program design components, to see if we can say anything more concrete about which types of interventions are most effective in increasing entrepreneurial activity and quality among women.

### V. Meta-review estimation strategy

The above analysis, while suggestive, has the disadvantage of not allowing for a systematic comparison of effects across intervention categories and outcome variables. We need to standardize across indicators and studies for comparability. Given that sign and significance are neutral to unit of measurement we can follow Card et al. (2010) and construct an ordinal indicator of positive significant, insignificant, and negative significant results. However, there are very few negative significant results, so we propose to follow the same approach as Cho and Honorati (2014) and limit our ordinal indicator to positive significant versus non-positive outcomes. This allows us to run a simple probit regression of the type:

$$E = \alpha + X^{o}\beta_{o} + X^{i}\beta_{i} + X^{t}\beta_{t} + \varepsilon$$

Where program effectiveness (E), measured by a positive and significant effect, is explained by observable characteristics of the program, such as outcome group (X°) (entrepreneurial activity versus entrepreneurial quality), intervention type (X<sup>i</sup>) (training, microfinance, etc.), and the time interval of the evaluation (X<sup>t</sup>) (short term versus long term effects), as well as an error term ( $\epsilon$ ).

We run a standard probit model to estimate program effectiveness at the 10 percent significance level. We also run our model using 5 percent significance and get similar results (which can be found in Annex 2). We weight by study sample size to allow those estimates with greater power to have more weight in our regression. We also cluster standard errors by study, as program characteristics remain constant within studies.

#### Results

Table 6 shows our baseline probit results. We first run all estimates in one pooled sample to assess overall program effectiveness across intervention types and outcomes. In column 1, we see that both enhanced training and combination interventions have a large, positive effect on program effectiveness relative to basic training. In other words, for all outcomes combined basic training alone is

less effective than packages that combine training with supporting interventions such as financing or a mentorship/personal initiative component. In column 2, we disaggregate enhanced training into training with a mentorship and personal initiative training. We find that the enhanced training effect seems to be driven by the success of training programs with a mentorship component; personal initiative training itself seems to have no significant impact on program effectiveness. Looking at outcomes, we find that interventions have a larger impact on sales/revenue and entrepreneurial activity (probability of engaging in entrepreneurship, hours worked per week, started a business), relative to profits.

We then run outcome-group specific samples to assess what types of interventions have the largest impact on entrepreneurial activity and entrepreneurial quality respectively. This makes sense because "activating" women to become entrepreneurs can be thought of as a separate and quite different goal than improving the entrepreneurship qualities and results of women-run firms. It follows that policies that succeed at the first, may not necessarily succeed at the second. Looking at the sub-sample of outcomes related to entrepreneurial activity, we find that both enhanced training and combination interventions have a large, positive impact on women's likelihood of engaging in some sort of entrepreneurial activity. Disaggregating enhanced training into its two components, we find that both training programs with a mentorship component and personal initiative training have a positive impact, though personal initiative only weakly. However, we find that microcredit programs are less effective than basic training programs in encouraging women to engage in self-employment.

Looking at the sub-sample of outcomes on entrepreneurial quality, we find that enhanced training has a large positive impact on firm performance relative to basic training. This effect seems to be driven by training with mentorship—as opposed to personal initiative training. While our base specification in column 6 does not show a significant effect for combination interventions, we find that once we look at individual outcome variables within the entrepreneurial quality bucket, training + finance programs also have a positive, significant effect on quality. Programs have a larger impact on sales/revenue, relative to profits.

The benefit of grouping outcomes into buckets is that we can isolate two types of interventions—those that activate entrepreneurs, and those that improve the

quality of entrepreneurs—while minimizing some of the noise created by specific outcome measures. However, these buckets could be masking important trends; for example, two outcomes in a single bucket could be moving in divergent directions, which makes the overall effect of that bucket appear neutral. Thus, in Table 7, we run a series out outcome-specific probit regressions to see if our grouped regressions were hiding any differential impacts. Looking first at the sub-components of entrepreneurial quality, we find that enhanced training, specifically training with a mentorship component, has a large positive effect on firm profits, relative to basic training. Microcredit, on the other hand, is less effective than basic training in terms of profit growth. Interestingly, combination interventions do not have a significant effect on profits. Looking a sales/revenue, we again find that enhanced training, specifically mentorship, has a positive impact relative to basic training. Microcredit also has a large, positive impact, while combination interventions seem to have no impact.

We have fewer observations for the remaining outcomes of interest, and thus results here should be treated as preliminary. However, we do find that microcredit and combination interventions have a positive impact on firm size (number of employees) relative to basic training. Enhanced training has a positive impact on probability of engaging in entrepreneurship, though given the small number of observations, effects disappear after disaggregating by subtype. Combination interventions, on the other hand, have a large positive impact across specifications. This mirrors our earlier findings in the effect size discussion that combination interventions seem to have an especially large impact on getting women to engage in self-employment activities. Microcredit, however, is less effective than basic training in promoting entrepreneurial engagement. Enhanced training, specifically training with mentoring, has a positive impact on hours worked per week (another proxy for engaging in entrepreneurship) relative to basic training. Combination interventions have an insignificant effect here, but given the small sample size this may be a result of power.

Overall, our results suggest that training plus something else—whether mentorship, technical assistance, or finance—has a larger impact than training alone for female entrepreneurs. Interventions seem to have a larger impact on entrepreneurial activity than entrepreneurial quality. This is not all that surprising; training may help women gain the information or confidence they need to start a
business, but that does not mean that their firm will be profitable. Interestingly, we find that personal initiative/mindset trainings are largely ineffective-at best they may help encourage entrepreneurial activity, but have no impact on firm performance. This does not mean these types of interventions are not useful; in fact, many have had substantial impacts on women's self-confidence, efficacy, and agency. Alibhai et al. (2019) look at two personal initiative interventions, and find that the one which yielded positive impacts on firm profits was able to impact the way female entrepreneurs viewed themselves. Those that completed the mindset training had higher self-reported measures of self-efficacy, personal initiative, and internal local of control. However, they found no impact on business practices or knowledge outcomes. Campos et al. (2017), who do find positive impacts on profits, find that mindset training can improve innovation and business practices, encouraging entrepreneurs to be proactive and search out new opportunities. Lopez-Pena (2017), looking at a stress management intervention for small female firm owners, finds that the program did have short term effects on stress levels for all women, though long term stress and profit impacts were limited to women in male-dominated sectors. These outcomes clearly matter in and of themselves, and further research may suggest that these mindset shifts have larger downstream effects on women's agency and empowerment outside of the labor force. However, in terms of business outcomes examined here, we do not find a significant impact. Combination interventions are most effective at encouraging entrepreneurial engagement, but may have a more muted impact on profits and sales. Microcredit has a large, positive impact on sales, but is less effective than basic training in terms of increasing profits and encouraging entrepreneurial activity. This makes sense, as microcredit is typically designed to help existing entrepreneurs invest in or expand their businesses; the goal is not to get individuals to engage in more entrepreneurship, but rather to become better entrepreneurs. The mixed results of microcredit on firm profits also make sense in this light. Entrepreneurs may use credit to buy more inventory, and hence sell more products, but this does not necessarily translate into greater take-home profits. Taken together, our results suggest that training + finance or training with mentorship have the largest impact on female entrepreneurs, but that program design and context matter greatly for program success.

### Table 6. Probit regressions on program effectiveness at 10% significance level (marginal effects)

|   |          |          | Entrepren | eurial Activi  | <b>ty</b> (engage | Entrepreneurial Quality (profits, |              |              |           |  |
|---|----------|----------|-----------|----------------|-------------------|-----------------------------------|--------------|--------------|-----------|--|
|   | Full S   | ample    | in entre  | epreneurship   | , hours           | sales/rev                         | enue, sales, | /profit inde | x, number |  |
|   |          |          | worked    | , started a bι | usiness)          |                                   | of emp       | loyees)      |           |  |
| VARIABLES   | (1)      | (2)      | (3)       | (4)            | (5)               | (6)                               | (7)          | (8)          | (9)       |  |
| <b>INTERVENTION</b> (basic training omitted)            |          |          |           |                |                   |                                   |              |              |           |  |
| Enhanced training                                       | 0.331*** |          | 0.459**   |                |                   | 0.299***                          |              |              |           |  |
|   | (0.0698) |          | (0.193)   |                |                   | (0.0558)                          |              |              |           |  |
| Personal initiative training                            |          | 0.264    |           | 0.440*         | 0.313             |                                   | 0.194        | 0.256        | 0.258     |  |
|   |          | (0.179)  |           | (0.253)        | (0.248)           |                                   | (0.185)      | (0.175)      | (0.176)   |  |
| Mentorship + training                                   |          | 0.271*** |           | 0.488**        | 0.456**           |                                   | 0.339***     | 0.329***     | 0.245***  |  |
|   |          | (0.0750) |           | (0.198)        | (0.187)           |                                   | (0.0591)     | (0.0645)     | (0.0825)  |  |
| Microcredit   | -0.00883 | -0.0813  | -0.450*** | -0.450***      | -0.619***         | 0.113                             | 0.113        | 0.178        | 0.105     |  |
|   | (0.121)  | (0.122)  | (0.123)   | (0.123)        | (0.0966)          | (0.131)                           | (0.131)      | (0.132)      | (0.137)   |  |
| Grant   | -0.0431  | -0.0335  |           |                |                   | -0.152                            | -0.152       | -0.0243      | -0.0230   |  |
|   | (0.151)  | (0.175)  |           |                |                   | (0.126)                           | (0.125)      | (0.161)      | (0.178)   |  |
| Combination (training + finance)                        | 0.319*** | 0.325*** | 0.446***  | 0.446***       | 0.454**           | 0.132                             | 0.132        | 0.221*       | 0.216**   |  |
|   | (0.124)  | (0.124)  | (0.169)   | (0.169)        | (0.190)           | (0.114)                           | (0.115)      | (0.114)      | (0.106)   |  |
| OUTCOMES (profits omitted)                              |          |          |           |                |                   |                                   |              |              |           |  |
| Sales/revenue   | 0.275*** | 0.287*** |           |                |                   |                                   |              | 0.271***     | 0.275***  |  |
|   | (0.0878) | (0.0873) |           |                |                   |                                   |              | (0.0826)     | (0.0797)  |  |
| Sales/profits index                                     |          |          |           |                |                   |                                   |              | 0.195        |           |  |
|   |          |          |           |                |                   |                                   |              | (0.152)      |           |  |
| Number of employees                                     | 0.0584   | 0.0903   |           |                |                   |                                   |              | 0.0418       | 0.0609    |  |
|   | (0.201)  | (0.196)  |           |                |                   |                                   |              | (0.177)      | (0.173)   |  |
| Entrepreneurial activity                                | 0.187*   | 0.209**  |           |                |                   |                                   |              |              |           |  |
|   | (0.104)  | (0.0977) |           |                |                   |                                   |              |              |           |  |
| Probability of entrepreneurship (hours of work omitted) |          |          |           |                | 0.215***          |                                   |              |              |           |  |
|   |          |          |           |                | (0.0774)          |                                   |              |              |           |  |
| OTHER FACTORS   |          |          |           |                |                   |                                   |              |              |           |  |
| Long term (2+ years post-intervention)                  |          | 0.206*   |           |                | 0.330*            |                                   |              |              | 0.197*    |  |
|   |          | (0.106)  |           |                | (0.195)           |                                   |              |              | (0.106)   |  |
| Observations  | 343      | 343      | 74        | 74             | 74                | 289                               | 289          | 289          | 289       |  |
| Pseudo R2   | 0.131    | 0.159    | 0.415     | 0.415          | 0.476             | 0.0660                            | 0.0701       | 0.117        | 0.141     |  |

Table reports marginal effects of probit regression. Standard errors, clustered at study id level, in parentheses. Regressions weighted by study sample size. Stars indicate significance at the 1% (\*\*\*), 5% (\*\*), and 10% (\*) levels.

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|                     | Sales/Revenue |          |          | Profits  |          |          | Number of Employees |          |          | Probability of<br>Entrepreneurship |               |               | Hours Worked |          |          |
|---------------------|---------------|----------|----------|----------|----------|----------|---------------------|----------|----------|------------------------------------|---------------|---------------|--------------|----------|----------|
| VARIABLES           | (1)           | (2)      | (3)      | (4)      | (5)      | (6)      | (7)                 | (8)      | (9)      | (10)                               | (11)          | (12)          | (13)         | (14)     | (15)     |
| Enhanced training   | 0.298***      |          |          | 0.290*** |          |          |                     |          |          | 0.576**                            |               |               | 0.384*       |          |          |
|                     | (0.0807)      |          |          | (0.0904) |          |          |                     |          |          | (0.242)                            |               |               | (0.206)      |          |          |
| Personal initiative |               | 0.00957  | 0.00178  |          | 0.277    | 0.270    |                     |          |          |                                    |               |               |              | 0.279    | -0.0147  |
|                     |               | (0.305)  | (0.334)  |          | (0.204)  | (0.195)  |                     |          |          |                                    |               |               |              | (0.246)  | (0.212)  |
| Mentorship          |               | 0.334*** | 0.241**  |          | 0.317*** | 0.258    |                     |          |          |                                    | 0.388         | 0.359         |              | 0.444*** | 0.305**  |
|                     |               | (0.0766) | (0.105)  |          | (0.0992) | (0.175)  |                     |          |          |                                    | (0.352)       | (0.364)       |              | (0.155)  | (0.131)  |
| Microcredit         | 0.459***      | 0.458*** | 0.427*** | -0.167** | -0.167** | -0.181** | 0.539*              | 0.539*   | 0.377    | -<br>0.460***                      | -<br>0.422*** | -<br>0.395*** |              |          |          |
|                     | (0.136)       | (0.134)  | (0.148)  | (0.0784) | (0.0775) | (0.0822) | (0.305)             | (0.305)  | (0.285)  | (0.140)                            | (0.135)       | (0.138)       |              |          |          |
| Grant               |               |          |          | -0.0459  | -0.0459  | -0.0413  |                     |          |          |                                    |               |               |              |          |          |
|                     |               |          |          | (0.109)  | (0.109)  | (0.117)  |                     |          |          |                                    |               |               |              |          |          |
| Combination         | -0.160        | -0.160   | -0.159   | 0.122    | 0.122    | 0.119    | 0.658***            | 0.658*** | 0.704*** | 0.579***                           | 0.569***      | 0.569***      | 0.272        | 0.269    | 0.280    |
|                     | (0.218)       | (0.218)  | (0.207)  | (0.148)  | (0.149)  | (0.141)  | (0.117)             | (0.117)  | (0.134)  | (0.148)                            | (0.188)       | (0.182)       | (0.187)      | (0.184)  | (0.208)  |
| Long term           |               |          | 0.256**  |          |          | 0.0983   |                     |          | 0.474**  |                                    |               | -0.0822       |              |          | 0.597*** |
|                     |               |          | (0.110)  |          |          | (0.137)  |                     |          | (0.238)  |                                    |               | (0.127)       |              |          | (0.217)  |
| Observations        | 104           | 104      | 104      | 121      | 121      | 121      | 30                  | 30       | 30       | 43                                 | 41            | 41            | 28           | 28       | 28       |
| Pseudo R2           | 0.114         | 0.128    | 0.165    | 0.133    | 0.134    | 0.145    | 0.248               | 0.248    | 0.362    | 0.568                              | 0.500         | 0.504         | 0.0957       | 0.120    | 0.344    |

#### Table 7. Probit regressions on program effectiveness by outcome at 10% significance level (marginal effects)

Table reports marginal effects of probit regression. Intervention variables relative to basic training category (omitted). Long term dummy variable indicating evaluation results collected 2+ years after intervention. Standard errors, clustered at study id level, in parentheses. Regressions weighted by study sample size. Stars indicate significance at the 1% (\*\*\*), 5% (\*\*), and 10% (\*) levels.

# VI. Cost considerations

In a world of finite development resources, it is important to look at the costs as well as the benefits of these programs. Given that benefit estimates were given in a wide range of currency values, we are not able to do a traditional cost-benefit analysis with this set of studies. However, we do take a look at costs for the 27 out of 54 studies in our database that provide estimates, to see if there are any general conclusions one can draw (see Annex 3, for full list of cost estimates from papers).

First, program costs, even for similar type programs, vary widely. Simple business or financial literacy training, implemented by a partner NGO, can cost as little as \$20-\$60 per person (Drexler et al. 2014; Calderon et al. 2013). However, more involved vocational training programs cost much more; several hundreds of dollars per person (Attanasio et al. 2011; Verner and Verner 2005). Many programs have high upfront fixed costs, but the marginal cost per participant after year one is quite modest (Karlan and Valdivia 2011; Bandiera et al. 2012). Many of the enhanced training programs are quite expensive, comparable with some of the pro-poor graduation programs (Adoho et al. 2014; Bandiera et al. 2012; Bauchet et al. 2015).

Many of the successful <u>enhanced</u> programs, though expensive, find that the programs pay for themselves within 2-3 years (Adoho et al. 2014; Campos et al. 2017; McKenzie and Puerto 2017). While upfront training costs may be high, some studies find that the marginal cost of add-ons, training plus mentoring/technical assistance, or training plus finance, are quite modest (Brooks et al. 2018; Berge et al. 2015; Martinez et al. 2018). Some of the inexpensive mentoring and role model interventions find that they are able to achieve comparable results with personalized consulting services at a small fraction of the cost (Lafortune et al. 2018; Lubega et al. 2017). However, a few studies find that mentorship and supervisory visits are quite costly, doubling the cost of the intervention (McKenzie and Puero 2017; Blattman et al. 2016).

Overall, we find that context matters; training frequency and intensity are large drivers of cost. Location matters as well; the opportunity cost of attending

training varies greatly between Mali and Colombia. While many programs are expensive, there are many in our database under \$100 per person. While personalized consulting and technical assistance may add to program bottom lines, cheaper interventions with local female mentors or informal support groups seem to improve program effectiveness for women at a fairly small marginal cost.

# VII. Conclusions

In setting out to assess what works for women entrepreneurs, we find that bundled interventions, especially training plus something, have clearly the largest impacts. This is perhaps not that surprising since typically women face more than one constraint in accessing and engaging in entrepreneurial activity.

First, women may lack the skills, inputs, or information necessary to start a business or navigate registration processes. Training interventions that try to make up for this skills gap are hence likely to be helpful. And indeed, we find that even basic training interventions have a positive impact on women. But effects are not homogenous. Many studies find that effects are largest (and significant) for those with higher levels of education (Adobo et al. 2014; Attanasio et al. 2015; Brixiova et al. 2020), higher initial firm profits/tenure (Fafchamps et al. 2014; Bardasi et al. 2019), stronger socioeconomic backgrounds (Adoho et al. 2014; Field et al. 2010), and those working in more profitable sectors (Fafchamps et al. 2014; Campos et al. 2015; Lopez-Pena 2017). These studies suggest that interventions targeting microentrepreneurs can help boost firm performance for those with a requisite level of skill/success, but may be less helpful in jump starting new or low level household firm growth without additional program components.

Second, women may lack access to adequate financing due to limited assets for collateral, a lack of credit history, or fewer connections to solicit foreign direct investment. However, expanding access to finance alone does not seem to be particularly effective for improving the performance of women-led firms. Intrahousehold dynamics play a role here. Many finance interventions, either with or without training, found that women did not have full control over how additional funds were spent, and thus ended up investing grants/loans into a male family members' business, or using funds for household consumption needs (Beaman et al. 2014; Garkipati 2012; Karlan and Zinman 2011; Bernhardt et al. 2017; de Mel et al. 2009; de Mel et al. 2012; Fafchamps et al. 2014; Berge et al. 2015; Fiala 2018; Dupas and Robinson 2013; Gine and Mansuri 2014). While evidence suggests female entrepreneurs are credit constrained, simply giving

women access to financing without addressing underlying social norms around gender roles does not seem to help alleviate this constraint for women.

Third, due to smaller and different social networks, female entrepreneurs may lack access to information and connections needed to help navigate institutional and market access constraints. Women tend to operate in different sectors than men, which are often less profitable. Campos et al. (2015) and Alibhai et al. (2017) find that women who had stronger networks and familial support were more likely to cross-over into male dominated sectors and earn higher profits. We find that programs with some form of mentoring component achieved stronger impacts for women by facilitating network connections and information sharing.

Fourth, social norms about appropriate roles for men and women compound the above challenges. Women may have less time to devote to their business during the day due to childcare and housework responsibilities. Many studies in our database found that care work constraints limited program impact; trainings were often in the middle of the day with no child care options, and thus women had higher drop out rates and more program absences than men (Cho et al. 2013; lacovone et al. 2018; Nakasone and Terero 2014; Garkipati 2012; Berge et al. 2015).

Given this multiplicity of constraints, it is not surprising that intervention packages that tackle more than one barrier at a time—say via support for skills and financing, or via skills training plus mentoring to improve information networks and sector choice—perform better than interventions that only address a single barrier.

In light of these findings, where should development organizations and governments who want to promote female entrepreneurship focus their attention?

A key question should guide these discussions: what is the goal of the intervention? Is it to encourage greater female labor force participation by inducing women to become self-employed or micro-entrepreneurs? Or is it to improve the quality of existing female-led firms? This is an important distinction, because interventions that help activate women may not be the same ones than help them become more profitable entrepreneurs.

In general, the interventions analyzed in this meta-review were more effective in inducing women to engage or continue in self-employment than they were at improving firm quality. This may be because it is simply much easier to get someone to start a firm than it is to improve firm performance metrics. Alternatively, interventions may not be as effective in improving quality outcomes because there are other constraints—such as barriers to market access, barriers to sector choice, institutional or legal constraints, etc.—that contribute to poor female-led firm performance and that remained unaddressed. A number of studies indeed suggest that muted program impacts may be explained by this failure to address other constraints (Alaref et al. 2020; Lafortune et al. 2018; de Mel et al. 2008; de Mel et al. (2014); Berge et al. 2015). While many evaluations do not go the next step to posit what constraints the program failed to address, this body of evidence suggests that helping female firms grow will require a much broader set of interventions.

In line with these findings, we suggest that actors focus their efforts to promote female entrepreneurship on package interventions that address more than one constraint. Evidence suggests that training + relatively low cost things such as mentorship are more effective than training alone, and that training + finance is more effective than training or finance alone. However, female entrepreneurs likely need further supporting interventions that tackle other barriers, such as market access or time constraints due to child/home responsibilities. We also may need interventions that encourage women to enter male dominated sectors, where firms seem to be more profitable.

The link between participant education, skills, background and resources, and program outcomes also suggests that donors need to think carefully about selection criteria for program participation especially if the goal is to improve the quality of female entrepreneurship and female-led firm performance. Program selection filters somehow need to do a better job of distinguishing between necessity entrepreneurs and entrepreneurs with growth potential. Programs to improve the quality of entrepreneurship need to focus on those female entrepreneurs with entrepreneurial potential. Female necessity entrepreneurs may be better served via broad policies to support job creation and targeted interventions that help connect them to jobs.

Because the success of interventions is highly dependent on context, actual design and implementation, we need a lot more piloting and experimentation of these new package interventions to be able to assess their effectiveness. We had originally hoped to include a wide range of intervention types in this analysis (see Table 1) yet found only a handful of rigorous evaluations that addressed anything beyond training, financing, or some combination. We found one interesting study that looked at the impact of social networks and internet access (addressing information failures) on female entrepreneurship in India (Venkatesh et al. 2017). The intervention provided mobile internet kiosks, staffed by a trained female attendant, to help facilitate greater access to information in 20 rural villages where most women were illiterate. They found that both entrepreneurial activity and profits increased significantly during the 7-year program. Interventions like this that address other constraints such a network and information failures could prove promising, but more piloting is needed. Thus, another step development actors and governments can take is to pilot and rigorously evaluate interventions beyond traditional training and financing.

Furthermore, more research is needed to pilot entrepreneurship interventions on women in the Middle East/North Africa and East Asia. We only found a handful of interventions with gender disaggregated effects for these regions, which limits the universality of our findings. Development actors and governments could help prioritize the expansion of pilot interventions in these regions to see if these larger findings hold. We suspect, for instance, that package entrepreneurship interventions in the Middle East will need to address social norms constraints that limit female labor force participation writ large in order to be effective.

Beyond piloting, there is a great need to push for publishing gender disaggregated data in all program evaluations. We would have a much wider sample size in our metareview, allowing for more robust estimates and a wider sample of intervention types, if we could include the large number of papers on interventions to support to entrepreneurship that did not disaggregate effects by gender. Program effects are never distribution neutral—they always work better for some groups than others. Pushing for standardized disaggregated data will not only help expand the knowledge base of what works for women entrepreneurs, but also help development actors and governments design more effective and targeted programs to improve program effectiveness.

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# Annex 1: Effect size estimates for additional variables of interest

### Figure 1. Estimated effect (percent change) of interventions on number of employees





### Figure 2. Estimated effect (percent change) of interventions on hours worked per week

# Annex 2: Robustness check, probits at 5% significance

 Table 1. Probit regressions on program effectiveness at 5% significance level (marginal effects)

|   |          |          | Entrepren | eurial Activit | t <b>y</b> (engage | Entrepreneurial Quality (profits, |              |              |           |  |
|---|----------|----------|-----------|----------------|--------------------|-----------------------------------|--------------|--------------|-----------|--|
|   | Full S   | ample    | in entre  | epreneurship   | , hours            | sales/rev                         | enue, sales, | /profit inde | x, number |  |
|   |          |          | worked    | , started a bu | isiness)           |                                   | of emp       | loyees)      |           |  |
| VARIABLES   | (1)      | (2)      | (3)       | (4)            | (5)                | (6)                               | (7)          | (8)          | (9)       |  |
| <b>INTERVENTION</b> (basic training omitted)            |          |          |           |                |                    |                                   |              |              |           |  |
| Enhanced training                                       | 0.295*** |          | 0.494**   |                |                    | 0.259***                          |              |              |           |  |
|   | (0.0774) |          | (0.201)   |                |                    | (0.0625)                          |              |              |           |  |
| Personal initiative training                            |          | 0.204    |           | 0.508**        | 0.373              |                                   | 0.148        | 0.172        | 0.170     |  |
|   |          | (0.185)  |           | (0.256)        | (0.254)            |                                   | (0.181)      | (0.183)      | (0.155)   |  |
| Mentorship + training                                   |          | 0.234*** |           | 0.497**        | 0.469**            |                                   | 0.304***     | 0.298***     | 0.211***  |  |
|   |          | (0.0691) |           | (0.219)        | (0.212)            |                                   | (0.0592)     | (0.0620)     | (0.0680)  |  |
| Microcredit   | -0.0402  | -0.119   | -0.414*** | -0.414***      | -0.577***          | 0.0932                            | 0.0932       | 0.118        | 0.0423    |  |
|   | (0.137)  | (0.110)  | (0.142)   | (0.142)        | (0.111)            | (0.149)                           | (0.150)      | (0.159)      | (0.131)   |  |
| Grant   | 0.00947  | 0.0157   |           |                |                    | -0.0574                           | -0.0574      | 0.0169       | 0.0148    |  |
|   | (0.141)  | (0.166)  |           |                |                    | (0.117)                           | (0.117)      | (0.142)      | (0.159)   |  |
| Combination (training + finance)                        | 0.357*** | 0.356*** | 0.510***  | 0.510***       | 0.528***           | 0.220**                           | 0.220**      | 0.259**      | 0.250***  |  |
|   | (0.120)  | (0.123)  | (0.170)   | (0.170)        | (0.199)            | (0.0988)                          | (0.0997)     | (0.106)      | (0.0964)  |  |
| OUTCOMES (profits omitted)                              |          |          |           |                |                    |                                   |              |              |           |  |
| Sales/revenue   | 0.155*   | 0.156*   |           |                |                    |                                   |              | 0.140*       | 0.139*    |  |
|   | (0.0909) | (0.0914) |           |                |                    |                                   |              | (0.0833)     | (0.0817)  |  |
| Sales/profits index                                     |          |          |           |                |                    |                                   |              | 0.181        |           |  |
|   |          |          |           |                |                    |                                   |              | (0.162)      |           |  |
| Number of employees                                     | 0.111    | 0.147    |           |                |                    |                                   |              | 0.0867       | 0.105     |  |
|   | (0.197)  | (0.198)  |           |                |                    |                                   |              | (0.168)      | (0.168)   |  |
| Entrepreneurial activity                                | 0.209*   | 0.237**  |           |                |                    |                                   |              |              |           |  |
|   | (0.108)  | (0.103)  |           |                |                    |                                   |              |              |           |  |
| Probability of entrepreneurship (hours of work omitted) |          |          |           |                | 0.194**            |                                   |              |              |           |  |
|   |          |          |           |                | (0.0823)           |                                   |              |              |           |  |
| OTHER FACTORS   |          |          |           |                |                    |                                   |              |              |           |  |
| Long term (2+ years post-intervention)                  |          | 0.198**  |           |                | 0.348*             |                                   |              |              | 0.168**   |  |
|   |          | (0.0771) |           |                | (0.193)            |                                   |              |              | (0.0706)  |  |
| Observations  | 343      | 343      | 74        | 74             | 74                 | 289                               | 289          | 289          | 289       |  |
| Pseudo R2   | 0.117    | 0.150    | 0.433     | 0.433          | 0.500              | 0.0554                            | 0.0607       | 0.0772       | 0.100     |  |

Table reports marginal effects of probit regression. Standard errors, clustered at study id level, in parentheses. Regressions weighted by study sample size. Stars indicate significance at the 1% (\*\*\*), 5% (\*\*), and 10% (\*) levels.

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|                     | Sales/Revenue |          |         | Profits   |           |           | Number of Employees |          |          | Probability of<br>Entrepreneurship |          |          | Hours Worked |         |          |
|---------------------|---------------|----------|---------|-----------|-----------|-----------|---------------------|----------|----------|------------------------------------|----------|----------|--------------|---------|----------|
| VARIABLES           | (1)           | (2)      | (3)     | (4)       | (5)       | (6)       | (7)                 | (8)      | (9)      | (10)                               | (11)     | (12)     | (13)         | (14)    | (15)     |
| Enhanced training   | 0.189**       |          |         | 0.316***  |           |           |                     |          |          | 0.692***                           |          |          | 0.382*       |         |          |
|                     | (0.0822)      |          |         | (0.0844)  |           |           |                     |          |          | (0.180)                            |          |          | (0.216)      |         |          |
| Personal initiative |               |          |         |           | 0.262     | 0.250     |                     |          |          |                                    |          |          |              | 0.319   | -0.0151  |
|                     |               |          |         |           | (0.214)   | (0.197)   |                     |          |          |                                    |          |          |              | (0.259) | (0.216)  |
| Mentorship          |               | 0.247*** | 0.149   |           | 0.376***  | 0.318***  |                     |          |          |                                    | 0.527*   | 0.491    |              | 0.408** | 0.164    |
|                     |               | (0.0742) | (0.119) |           | (0.0793)  | (0.122)   |                     |          |          |                                    | (0.291)  | (0.309)  |              | (0.200) | (0.189)  |
| Microcredit         | 0.330         | 0.331    | 0.265   | -0.169*** | -0.168*** | -0.178*** | 0.534*              | 0.534*   | 0.371    | -0.350*                            | -0.302*  | -0.265   |              |         |          |
|                     | (0.306)       | (0.303)  | (0.281) | (0.0520)  | (0.0499)  | (0.0442)  | (0.307)             | (0.307)  | (0.285)  | (0.187)                            | (0.174)  | (0.173)  |              |         |          |
| Grant               |               |          |         | 0.0237    | 0.0237    | 0.0269    |                     |          |          |                                    |          |          |              |         |          |
|                     |               |          |         | (0.0943)  | (0.0944)  | (0.105)   |                     |          |          |                                    |          |          |              |         |          |
| Combination         | -0.0411       | -0.0418  | -0.0412 | 0.191     | 0.191     | 0.186     | 0.658***            | 0.658*** | 0.704*** | 0.685***                           | 0.672*** | 0.675*** | 0.309        | 0.309   | 0.339    |
|                     | (0.197)       | (0.201)  | (0.190) | (0.137)   | (0.137)   | (0.128)   | (0.117)             | (0.117)  | (0.133)  | (0.111)                            | (0.147)  | (0.138)  | (0.198)      | (0.197) | (0.245)  |
| Long term           |               |          | 0.219*  |           |           | 0.0749    |                     |          | 0.469**  |                                    |          | -0.0977  |              |         | 0.680*** |
|                     |               |          | (0.133) |           |           | (0.0825)  |                     |          | (0.239)  |                                    |          | (0.111)  |              |         | (0.224)  |
| Observations        | 104           | 96       | 96      | 121       | 121       | 121       | 30                  | 30       | 30       | 43                                 | 41       | 41       | 28           | 28      | 28       |
| Pseudo R2           | 0.0461        | 0.0591   | 0.0911  | 0.181     | 0.185     | 0.195     | 0.247               | 0.247    | 0.358    | 0.618                              | 0.552    | 0.559    | 0.0932       | 0.0998  | 0.386    |

#### Table 2. Probit regressions on program effectiveness by outcome at 5% significance level (marginal effects)

Table reports marginal effects of probit regression. Intervention variables relative to basic training category (omitted). Long term dummy variable indicating evaluation results collected 2+ years after intervention. Standard errors, clustered at study id level, in parentheses. Regressions weighted by study sample size. Stars indicate significance at the 1% (\*\*\*), 5% (\*\*), and 10% (\*) levels.

# **Annex 3: Cost estimates**

| Paper                       | Country               | Туре                 | Policy/Program description   | Cost description  | Cost (\$)                   |
|-----------------------------|-----------------------|----------------------|--|---|-----------------------------|
| Attanasio et al<br>2011     | Colombia              | Basic training       | Subsidized vocational training for disadvantaged youth,<br>Jovenes in Accion (national government program).<br>Classroom and on the job training. Most courses in<br>administrative occupations, but some on manual<br>occupations like seamstress, electrician, food stall<br>operators.  | Direct cost of training + stipend<br>\$750/person. Net lifecycle gains \$2.993,<br>assuming the person works for 40 years. IRR<br>35%   | \$750/person                |
| Calderon et al<br>2013      | Mexico                | Basic training       | Business literacy training for female entrepreneurs. NGO program.  | Cost effective. Teacher salary + materials<br>\$58/person. Program led to an increase of<br>3.4% in daily profits. Present discounted<br>value of increase profits is \$4395  | \$58/person                 |
| Drexler et al<br>2014       | Dominican<br>Republic | Basic training       | Financial literacy for microenterprises. Compare standard<br>accounting training versus simplified basic financial<br>training (using rule-of-thumb shortcuts). 90% of sample<br>female. Program run in conjunction with existing<br>microfinance institutions in DR.  | Program costs \$21/person   | \$21/person                 |
| Karlan and<br>Valdivia 2011 | Peru                  | Basic training       | Business training for female microentrepreneurs at<br>microfinance organizations operating in Lima, Ayacucho<br>and Huancavelica. Training conducted among 140 pre-<br>existing lending groups.  | Training costly, for partner organizations,<br>implementing training costs 6-9% of their<br>total operating costs. There are high fixed<br>costs, though the cost per client is low,<br>additional \$4/person. Client retention<br>generates more increased net revenue than<br>the marginal cost of the training | fixed costs +<br>\$4/person |
| Verner and<br>Verner 2005   | Cote<br>d'Ivoire      | Basic training       | Training component of Labor Force Training Support<br>Program (PAFPA) for firms in informal sector. Technical<br>and basic skills training for small informal businesses and<br>women's enterprises to increase productivity and labor<br>force mobility.  | Initial cost \$383/person, by end of the program down to \$260/person   | \$260/person                |
| Adoho et al<br>2014         | Liberia               | Enhanced<br>training | Economic Empowerment of Adolescent Girls (EPAG), led by<br>Liberian government. 6 months classroom training + 6<br>months of placement and support (micro-enterprise<br>advisory services, internship, job placement). Two tracts -<br>jobs skills training and business development training.<br>Report effects for business development training.  | Training \$1200 round 1, similar to cost of<br>Jovenes. Benefit, additional \$44/month in<br>earnings. Costs recouped within 3 years  | \$1200/person               |
| Alibhai et al<br>2019       | Ethiopia              | Enhanced<br>training | Mindset oriented business trainings for women owned<br>micro and small enterprises. Digital Opportunity Trust<br>(DOT) program, focuses on building life skills and mindset<br>shifts required for aspiring entrepreneurs to set and reach<br>goal. Compare program with personal initiative training via<br>TVET colleges (based on action regulation theory) and<br>basic business skills and entrepreneurship development | \$30/person   | \$30/person                 |

| Paper                       | Country | Туре                 | Policy/Program description   | Cost description   | Cost (\$)  |
|-----------------------------|---------|----------------------|--|--|--|
|                             |         |                      | training (BSED) (training needs analysis with women entrepreneurs).  |  |  |
| Bandiera et al<br>2012      | Uganda  | Enhanced<br>training | Life skills training and vocational training (how to start a small enterprise) in BRAC youth club setting for adolescent girls.  | Upfront fixed costs, \$28/person first year,<br>but second year, program costs \$18/person.<br>Benefit of \$27/person, benefits offset the<br>costs  | \$28/person year<br>1, \$18/person<br>year 2           |
| Brooks et al<br>2018        | Kenya   | Enhanced<br>training | Mentorship for inexperienced female entrepreneurs in<br>Kenyan slum where lack of information key constraint for<br>business growth. Female entrepreneurs paired with local<br>female business owners within their sector, meet weekly.<br>Compared with traditional classroom business training.  | Training \$40/person. Mentoring increased<br>profits by \$1.63 per dollar spent. Class<br>increased profits by \$0.30 per dollar spent   | \$40/person  |
| Campos et al<br>2017        | Togo    | Enhanced<br>training | Psychology based personal initiative training, teaching<br>proactive mindset and entrepreneurial behaviors to female<br>microentrepreneurs. Beneficiaries selected among<br>applicants to government business training program.  | Cost effective, pays for itself within 1 year.<br>Personal initiative training \$756/person,<br>similar to the cost of traditional training.<br>Program yields increase profits of<br>\$60/month for the first 2 years.<br>Conservative ROI estimate 82%, 140-393%<br>over 10 years  | \$756/person   |
| Field et al<br>2016         | India   | Enhanced<br>training | Business training for female entrepreneurs with and<br>without friend, looking at impact of training as well as<br>peer/network effects. Beneficiaries selected from sample<br>of customers at India's largest bank in Ahmedabad.  | Cost of providing training, \$4/person   | \$4/person   |
| Lafortune et al<br>2018     | Chile   | Enhanced<br>training | NGO run business management training program, with<br>follow visits by successful alumnus of program, to assess<br>impact of role models on program success. 3 cohorts<br>selected from basic training course for potential<br>entrepreneurs. 1 cohort selected from advanced training<br>course for existing entrepreneurs. Compared with<br>personalized group consulting sessions. Targeted to both<br>genders, but mostly women (92% in sample). | Personalized technical assistance 10x more<br>expensive than group technical assistance.<br>Role mode achieve similar impacts to<br>technical assistance at 1/10 of the cost.<br>\$4.50 stipend per person per session.  |  |
| Lubega et al<br>2017        | Uganda  | Enhanced<br>training | Impact of role models on HIV positive women starting a<br>business in Uganda. Video of role model who started a<br>business with HIV shown at each clinic, group discussion<br>sessions follow. Participants selected among patients<br>attending HIV clinics in 4 regions of Uganda.  | Cost effective, alternative to costly training programs.   |  |
| McKenzie and<br>Puerto 2017 | Kenya   | Enhanced<br>training | Business training program randomized at market and firm<br>level - ILO Get Ahead for Women in Enterprise. Teach<br>entrepreneurial skills from a gender perspective - business<br>and management skills, how to develop entrepreneurial<br>talent through networks. One year training, follow by follow<br>up mentoring component.   | Cost of training \$222-\$333/person trained.<br>Cost of mentoring \$553/person assigned to<br>the training. Weekly profits gains of \$2.60.<br>Need to see these gains for 1.5 years for<br>benefits to exceed costs. Adding mentoring<br>does not pass the cost-benefit test, given<br>that there is no statistically significantly<br>different impact | Training<br>\$222/person,<br>mentoring<br>\$553/person |

| Paper                       | Country   | Туре                 | Policy/Program description  | Cost description  | Cost (\$)  |
|-----------------------------|-----------|----------------------|---|---|--|
| Nakasone and<br>Terero 2014 | Peru      | Enhanced<br>training | Strengthening Women Entrepreneurship in Peru (SWEP)<br>program. SWEP trained female micro entrepreneurs in<br>business management practices (such as accounting and<br>marketing). The training, which was provided in 4- to 5-hour<br>sessions, used soap operas and practical exercises<br>specifically designed for the program. Goal of showing<br>female entrepreneurs in soap operas was to assess the<br>effect of role models in program success. | Training \$27/person  | \$27/person  |
| Valdivia 2015               | Peru      | Enhanced<br>training | Business training + technical assistance for female<br>microentrepreneurs. Women recruited from the 6 largest<br>districts in Lima.   | Training \$342/person, paid for with 3<br>months of average sales increase of<br>\$112/month. Huge time cost though - 3 hour<br>sessions/3 days a week/3 months,<br>opportunity cost prohibitive to many                              | \$342/person   |
| Berge et al<br>2015         | Tanzania  | Combination          | Business training and business grant with PRIDE, largest<br>microfinance institution in country. Mixed gender groups,<br>gender disaggregated effects.  | Training same cost as grant. Grant<br>~\$85/person, so grant+training =<br>\$170/person   | Training<br>\$85/person,<br>training+grant<br>\$170/person |
| Blattman and<br>Dercon 2018 | Ethiopia  | Combination          | Compare industrial job offer with entrepreneurship program<br>of \$300 grant plus business training. Participants 80%<br>women.   | Implementation cost \$450/person for grant, training, and program administration  | \$450/person   |
| Blattman et al<br>2016      | Uganda    | Combination          | NGO program providing cash grants and basic business<br>skills training to poor, war affected women. 2 months post<br>grant, one arm came back together for group dynamics<br>training to encourage participants to form self-help groups.  | \$1946 for standard program. Supervisory<br>visits are twice as costly as grants. WINGS<br>half as costly as other livestock based ultra-<br>poor programs though.  | \$1946/person  |
| de Mel et al<br>2014        | Sri Lanka | Combination          | Compare business training course versus training plus cash<br>grant for female subsistence enterprises and females<br>interested in starting a business.  | Training cost \$126-\$131/current business owner, \$133-\$140/potential business owner  | \$130/person   |
| Gine and<br>Mansuri 2014    | Pakistan  | Combination          | Business training paired with larger loans for rural microfinance clients. Compare impacts on men versus women with non-farm enterprises.   | Not cost effective for microfinance<br>institutions, despite positive impact on male<br>clients. Cost \$126/person, \$20/person after<br>taking out up front, one time costs. Net<br>benefit \$8 for the lender, \$225 for the client | \$126/person   |
| Martinez et al<br>2018      | Chile     | Combination          | Large scale publicly run microentrepreneurs program<br>providing asset transfers and business training for poor<br>female Solidario beneficiaries who are unemployed or<br>underemployed.   | Direct cost \$1200 training, \$1400<br>training+grant. Cost-benefit ratio of 1.24 and<br>1.06 respectively, on the low side relative to<br>comparable programs - Banerjee et al 2015<br>found a range of -1.98 to 4.3                 | Training \$1200,<br>training+grant<br>\$1400               |
| McKenzie<br>2017            | Nigeria   | Combination          | National business plan competition, which provided training<br>and start-up grants to winners (varying amounts by place in<br>competition - average award US \$49,000). Women made up<br>only 18 percent of applicants, but report gender<br>disaggregated impacts.   | Program cost \$8538 per job created,<br>equivalent to earnings over 60 months of<br>employment. In the US, cost per job from<br>various fiscal stimulus programs ranges<br>from \$92136-\$145351. Wage subsidy and                    | \$8538/job created   |

| Paper                         | Country | Туре        | Policy/Program description   | Cost description   | Cost (\$)      |
|-------------------------------|---------|-------------|--|--|----------------|
|                               |         |             |  | vocational training programs, cost per job<br>\$11000-\$80000.   |                |
| Beaman et al<br>2014          | Mali    | Microcredit | NGO village savings and loan groups (no outside capital,<br>just formalization of informal lending groups). All female<br>participants.  | Group based microsaving inexpensive<br>compared to microcredit, low administrative<br>cost. Implementation cost \$20/household | \$20/household |
| Bauchet et al<br>2015         | India   | Other       | NGO arm of commercial microfinance institution, providing<br>poor households without a male worker with inputs to<br>create new, sustainable livelihoods. Operate in 198 villages<br>in Andhra Pradesh, and later rolled out program in Odisha.  | Comparable in cost to ultra-poor gradation<br>pilots in India. \$343/person direct cost, total<br>cost \$571/person            | \$571/person   |
| Benhassine et<br>al 2018      | Benin   | Other       | Government efforts to bring informal firms into formal<br>sector. Package 1 - information and assistance in<br>registering business. Package 2 - Package 1 + provide<br>business services, training, and assistance opening bank<br>account. Package 3 - Package 1 + tax preparation support<br>and tax mediation services. 63% of sample women. | Cost of formalizing firms exceeds added<br>taxation they will pay over next 10 years.<br>Costs \$1200-\$2200/firm formalized   | \$1200/firm    |
| Dupas and<br>Robinson<br>2013 | Kenya   | Other       | Rural village bank in Busia provides no interest bank<br>accounts to self-employed workers - market vendors<br>(mostly women) and taxi drivers (men).  | Relatively small cost  |                |

## **Annex 4: Papers included in meta-review**

| Paper                         | Country  | Size  | Date    | Policy/Program   | Target    | Method | Outcome   | Effect   | Explanation (if given)  |
|-------------------------------|----------|-------|---------|--|-----------|--------|---|--|---|
| Training                      |          |       |         |  |           |        |   |  |   |
| <b>Basic Train</b>            | ing      |       |         |  |           |        |   |  |   |
| Alaref et al.<br>(2020)       | Tunisia  | 1,702 | 2011-14 | Entrepreneurship track in tertiary<br>education institutions -<br>entrepreneurship courses, follow-<br>up support with business plan<br>development, supervision from<br>coaches. Look at medium to long<br>term impacts.  | potential | RCT    | participated in self-<br>employment in last<br>week | Positive, insignificant<br>after 1 year and 4 years  | No medium term impacts for<br>any sub-group, only short burst<br>1 year post grad for some.<br>Women may require additional<br>mentorship interventions.                                  |
| Attanasio<br>et al.<br>(2011) | Colombia | 3,300 | 2005    | Subsidized vocational training for<br>disadvantaged youth, Jovenes in<br>Accion (national government<br>program). Classroom and on the<br>job training. Most courses in<br>administrative occupations, but<br>some on manual occupations like<br>seamstress, electrician, food stall<br>operators. | potential | RCT    | self-employment<br>earnings                         | Positive, insignificant 13-<br>15 months   | Strong impacts for women, but<br>more moved into paid<br>employment than self-<br>employment.   |
| Brixiova et<br>al. (2020)     | Eswatini | 640   | 2013    | Business training in financial<br>literacy for entrepreneurs.  | existing  | PSM    | monthly sales                                       | Financial literacy and<br>business training:<br>positive, insignificant<br>Tertiary education +<br>financial literacy training:<br>positive, significant | Training can help if<br>entrepreneurs already have<br>complementary skills, or<br>shortages of skills is also<br>addressed. Alone, training only<br>has limited impact on<br>performance. |
| Calderon et                   | Mexico   | 900   | 2009    | Business literacy training for   | existing  | DiD    | previous day's<br>revenue                           | Positive, significant<br>pooled sample and 18<br>months<br>Positive, insignificant<br>after 3 years  | Marginally increased the<br>number of goods entrepreneurs<br>sold after the class. Profits<br>cane from reduced costs, rather   |
| al. (2013)                    |          | 200   | 2007    | program.   | CARGENING |        | previous day's<br>profits                           | Positive, significant<br>pooled sample and 18<br>months<br>Positive, insignificant<br>after 3 years  | than increased prices.<br>Entrepreneurs began changing<br>the composition of goods they<br>sold.  |

RCT – randomized control trial; DiD – difference in difference; IV – instrumental variable; PSM – propensity score matching; OLS – ordinary least squares

| Paper                   | Country   | Size  | Date    | Policy/Program  | Target    | Method            | Outcome   | Effect  | Explanation (if given)  |
|-------------------------|-----------|-------|---------|---|-----------|-------------------|---|---|---|
|                         |           |       |         |   |           |                   | quit business                                   | Positive, insignificant<br>after 18 months and 3<br>years   |   |
| Campos et<br>al. (2015) | Uganda    | 700   | 2011-12 | Look at cross-overs, female<br>entrepreneurs in male sectors.<br>Data part of evaluation of skills and<br>managerial training program.                    | existing  | OLS with controls | monthly sales                                   | Positive, significant   | Effects due to provision of<br>information about better<br>earnings in other sectors, as<br>well as mentorship from<br>women who had already<br>crossed over. |
|                         |           |       |         |   |           |                   | started a business<br>during last 12<br>months  | Negative, significant 1<br>year   | Women have less time for<br>training then men due to<br>household chores and family   |
| Cho et al.<br>(2013)    | Malawi    | 1,900 | 2009-11 | Government vocational and entrepreneurial training for youth.   | potential | RCT               | hours worked in<br>self-employment<br>last week | Negative, insignificant 1<br>year   | obligations. They have more<br>absences from training<br>sessions and are more likely to<br>drop out part way through the<br>course.                          |
|                         |           |       |         |   |           |                   | sales, average<br>week                          | Rule of thumb: positive,<br>insignificant 1 year<br>Standard accounting:<br>negative, insignificant 1<br>year |   |
| Drexler et              | Dominican | 1 102 | 2007    | Financial literacy for<br>microenterprises. Compare<br>standard accounting training<br>versus simplified basic financial<br>training (using rule-of-thumb | ovicting  | DCT               | sales, bad week                                 | Rule of thumb: positive,<br>significant 1 year<br>Standard accounting:<br>negative, insignificant 1<br>year   | Program improved revenue<br>performance during bad<br>periods, reduced the variability<br>between good and bad months.<br>Impacts were largest for firms      |
| al. (2014)              | Republic  | 1,193 | 2007    | shortcuts). 90% of sample female.<br>Program run in conjunction with<br>existing microfinance institutions<br>in DR.                                      | existing  | KC1               | revenue index                                   | Rule of thumb: positive,<br>significant 1 year<br>Standard accounting:<br>negative, insignificant 1<br>year   | starting a low levels of<br>performance - more room for<br>growth. Programs need to<br>match the training product to<br>the cliental - context matters.       |
|                         |           |       |         |   |           |                   | number of<br>employees                          | Rule of thumb: negative,<br>insignificant 1 year<br>Standard accounting:<br>positive, insignificant 1<br>year |   |

| Paper                  | Country       | Size  | Date    | Policy/Program  | Target   | Method | Outcome  | Effect   | Explanation (if given)  |
|------------------------|---------------|-------|---------|---|----------|--------|--|--|---|
| Field et al.<br>(2010) | India         | 636   | 2006-07 | Training in basic financial literacy<br>and business skills of poor self-<br>employed women, who are<br>customers of SEWA bank in<br>Ahmedabad. Look at impact on<br>upper caste, scheduled castes and<br>Muslims.  | existing | RCT    | any personal labor<br>income over past<br>week | Positive, significant for<br>upper caste women 4<br>months | Effective for upper caste<br>women, who had greater social<br>norms about women's<br>participation in economic<br>activity to work against.<br>Training allowed them to<br>challenge norms in new ways. |
|                        |               |       |         |   |          |        | sales last month                               | Negative, insignificant 1<br>year                          |   |
|                        |               |       |         | Business training for female  |          |        | sales good month                               | Negative, insignificant 1<br>year                          |   |
| Karlan and             | Doru          | 2.265 | 2002.02 | microentrepreneurs at<br>microfinance organizations   | ovioting | סיס    | sales normal<br>month                          | Positive, insignificant 1<br>year                          |   |
| (2011)                 | Peru          | 3,265 | 2002-03 | Huancavelica. Training conducted  | existing | טוט    | sales bad month                                | Positive, insignificant 1<br>year                          |   |
|                        |               |       |         | groups.   |          |        | weekly profits main<br>product                 | Positive, insignificant 1<br>year                          | -   |
|                        |               |       |         |   |          |        | Number of<br>employees                         | Positive, insignificant 1<br>year                          | -   |
|                        |               |       |         | Training component of Labor Force<br>Training Support Program (PAFPA)   |          |        | revenue  | Positive, significant 2<br>years                           |   |
| Verner and<br>Verner   | Cote d'Ivoire | 192   | 1997-99 | for firms in informal sector.<br>Technical and basic skills training  | existing | DiD    | sales  | Positive, significant after<br>3 years                     | -   |
| (2005)                 |               | 172   |         | women's enterprises to increase<br>productivity and labor force<br>mobility.  | existing | g DiD  | income   | Negative, insignificant 2<br>years                         | -   |
| Enhanced T             | raining       |       |         |   |          |        |  |  |   |
|                        |               |       |         | Economic Empowerment of<br>Adolescent Girls (EPAG), led by  |          |        | total earnings last<br>week                    | Positive, significant 6 months                             |   |
| Adoho et<br>al. (2014) | Liberia       | 2,500 | 2009-12 | Liberian government. 6 months<br>classroom training + 6 months of<br>placement and support (micro-<br>enterprise advisory services,<br>internship, job placement). Two<br>tracts - jobs skills training and<br>business development training.<br>Report effects for business<br>development training. | both     | DiD    | participation in<br>self-employment            | Positive, significant 6<br>months                          | Largest impacts for those in<br>middle of wealth distribution<br>and girls with higher education<br>levels. Training alone not<br>sufficient to address additional<br>barriers for low income women.    |

| Paper                    | Country  | Size  | Date    | Policy/Program  | Target                 | Method   | Outcome                    | Effect   | Explanation (if given)   |
|--------------------------|----------|---|---------|---|------------------------|--|----------------------------|--|--|
|                          |          |   |         |   |                        |  | average monthly<br>revenue | Mindset training: positive,<br>insignificant 1 year,<br>negative, insignificant 2<br>years<br>Personal initiative and<br>business training:<br>negative, insignificant 1.5<br>years  |  |
| Alibhai et<br>al. (2019) | Ethiopia | 800   | 2014-17 | indset oriented business<br>ainings for women owned micro<br>id small enterprises. Digital<br>oportunity Trust (DOT) program,<br>cuses on building life skills and<br>indset shifts required for aspiring<br>itrepreneurs to set and reach<br>bal. Compare program with<br>ersonal initiative training via TVET<br>olleges (based on action<br>gulation theory) and basic | . existing             | RCT  | average monthly<br>profits | Mindset training: positive,<br>significant 1 year,<br>positive, insignificant 2<br>years<br>Personal initiative training<br>positive, insignificant 1.5<br>years<br>Business training:<br>positive, insignificant 1.5<br>years | Psychology approach requires<br>greater personalization of<br>training by instructors. Program<br>is more successful when<br>instructions can relate to<br>students (are entrepreneurs<br>themselves). |
|                          |          | entrepreneurship development<br>training (BSED) (training needs<br>analysis with women<br>entrepreneurs). |         |   | Log monthly<br>profits | Mindset training: positive,<br>significant 1 year,<br>positive, insignificant 2<br>years<br>Personal initiative<br>training: positive,<br>insignificant 1.5 years<br>Business training:<br>positive, insignificant 1.5<br>years<br>Positive, insignificant all |                            |  |  |
|                          |          |   |         |   |                        |  | number of<br>employees     | Negative, insignificant all  |  |

| Paper                    | Country  | Size  | Date    | Policy/Program  | Target    | Method | Outcome   | Effect  | Explanation (if given)  |
|--------------------------|----------|-------|---------|---|-----------|--------|---|---|---|
|                          |          |       |         |   |           |        | hours owner works<br>per work                       | Mindset: negative,<br>insignificant 1 year, 2<br>years<br>Personal initiative:<br>positive, insignificant 1.5<br>years<br>Business training:<br>negative, insignificant 1.5<br>years                  |   |
|                          |          |       |         |   |           |        | business closure                                    | Negative, insignificant all   |   |
|                          | Uganda   |       |         | Life skills training and vocational<br>training (how to start a small<br>enterprise) in BRAC youth club<br>setting for adolescent girls.  | potential | DiD    | total income past<br>year from self-<br>employment  | Positive, significant 2<br>years  | Combining life skills and<br>vocational training seemed to<br>have positive impact. Program<br>does not seem to have negative<br>downstream effects, such as<br>increased school drop outs. |
| Bandiera et              |          | 4 800 | 2008-10 |   |           |        | participation in self-employment                    | Positive, significant 2<br>years  |   |
| al. (2012)               |          | .,    |         |   |           |        | house spent on<br>self-employment in<br>typical day | Positive, significant 2<br>years  |   |
|                          |          |       |         |   |           |        | spend any hours in self employment                  | Positive, significant 2 years   |   |
| Bardasi et<br>al. (2019) | Tanzania | 821   | 2010-12 | Business training program run by<br>NGO in Dar es Salaam, targeting<br>women with established small<br>businesses - class sessions on<br>managerial and technical skills and<br>enhanced program with individual<br>visits from business coaches and<br>tailored individual services. | existing  | RCT    | average monthly<br>revenue                          | Basic training: negative,<br>significant 1 year<br>Enhanced training:<br>negative, insignificant 1<br>year<br>>14 years of tenure +<br>basic or enhanced<br>training: positive,<br>significant 1 year | Program only successful for<br>seasoned entrepreneurs, 14+<br>years of tenure. Training as a<br>complement, but not a<br>sufficient solution, to improve<br>performance.                    |
|                          |          |       |         |   |           |        | revenue   | 1 year  |   |

| Paper                   | Country | Size | Date    | Policy/Program   | Target   | Method | Outcome                     | Effect  | Explanation (if given)   |
|-------------------------|---------|------|---------|--|----------|--------|-----------------------------|---|--|
|                         |         |      |         |  |          |        | previous year<br>revenue    | Basic training: positive,<br>insignificant 1 year<br>Enhanced training:<br>negative, insignificant 1<br>year<br>>14 years of tenure +<br>basic or enhanced<br>training: positive,<br>significant 1 year |  |
|                         |         |      |         |  |          |        | previous monthly<br>profits | Basic and enhanced<br>training: negative,<br>insignificant 1 year<br>Tenure + basic or<br>enhanced training:<br>positive, insignificant 1<br>year   |  |
|                         |         |      |         |  |          |        | previous year<br>profits    | Negative, insignificant all<br>1 year   |  |
| Brooks et<br>al. (2018) | Kenya   | 538  | 2014-16 | <ul> <li>Mentorship for inexperienced<br/>female entrepreneurs in Kenyan<br/>slum where lack of information key<br/>constraint for business growth.</li> <li>Female entrepreneurs paired with<br/>local female business owners<br/>within their sector, meet weekly.<br/>Compared with traditional<br/>classroom business training.</li> </ul> | existing | RCT    | weekly revenue              | Mentorship: positive,<br>insignificant pooled 1-17<br>months<br>Class training: negative,<br>insignificant pooled 1-17<br>months  | Program increases profits, but<br>effect fades over time. Result<br>driven by dissolution of<br>mentorship matches over time.<br>Study found that those that still<br>met with their mentor did earn<br>higher profits. Mentorship<br>important for providing<br>information and supplier<br>relationships to mentees. |
|                         |         |      |         |  |          |        | average weekly<br>profits   | Mentorship: positive,<br>significant 0-7 months,<br>positive, insignificant 12-<br>17 months<br>Class training: positive,<br>insignificant all months   |  |

| Paper                   | Country | Size  | Date      | Policy/Program  | Target   | Method | Outcome   | Effect   | Explanation (if given)   |
|-------------------------|---------|-------|-----------|---|----------|--------|---|--|--|
| Campos et<br>al. (2017) | Togo    | 1,500 | ) 2013-16 | Psychology based personal<br>initiative training, teaching<br>proactive mindset and<br>entrepreneurial behaviors to<br>female microentrepreneurs.<br>Beneficiaries selected among<br>applicants to government business<br>training program. | existing | RCT    | monthly sales   | Business training:<br>negative, insignificant 2<br>years<br>Personal initiative:<br>positive, insignificant 2<br>years |  |
|                         |         |       |           |   |          |        | monthly profits   | Business training:<br>positive, insignificant 2<br>years<br>Personal initiative:<br>positive, significant 2<br>years   |  |
|                         |         |       |           |   |          |        | weekly profits  | Business training:<br>positive, insignificant 2<br>years<br>Personal initiative:<br>positive, significant 2            |  |
|                         |         |       |           |   |          |        | profits and sales<br>index                              | Positive, insignificant 2<br>years   | _  |
|                         |         |       |           |   |          |        | business survival                                       | Positive, insignificant 2 years  | _  |
| Field et al.<br>(2016)  | lundin. | 400   | 2006 07   | Business training for female<br>entrepreneurs with and without<br>friend, looking at impact of training<br>as well as peer/network effects.<br>Beneficiaries selected from sample<br>of customers at India's largest<br>bank in Ahmedabad.  | existing | RCT    | sold less, same, or<br>more than last year<br>last week | Pooled: negative,<br>insignificant 4 months<br>Treated with friend:<br>positive, significant 4<br>months               | Participants took actions to<br>expand revenue as a result of<br>program, by diversifying their<br>business and increasing the<br>number of clients. Seems to be<br>some positive peer/network<br>effects. |
|                         | India   | 400   | 2006-07   |   |          |        | index of volume of<br>business activity                 | Pooled: negative,<br>insignificant 4 months<br>Treated with friend:<br>positive, insignificant 4<br>months             |  |

| Paper                         | Country | Size  | Date    | Policy/Program  | Target   | Method | Outcome                           | Effect   | Explanation (if given)   |
|-------------------------------|---------|-------|---------|---|----------|--------|-----------------------------------|--|--|
|                               |         |       |         |   |          |        | hours worked per<br>week          | Pooled: positive,<br>significant 4 months<br>Treated with friend:<br>positive, insignificant 4   |  |
|                               |         |       |         |   |          |        |                                   | months   |  |
|                               |         |       |         |   |          | RCT    | sales per week                    | Positive, insignificant 1<br>year  |  |
|                               |         | 2,030 |         |   |          |        | sales per day                     | Positive, significant 1 year   |  |
|                               |         |       | 2014-15 | Training program in business<br>literacy and personal initiative for<br>female entrepreneurs. Offered in 5<br>different states, implemented by<br>NGO.  | existing |        | sales and profit index            | Positive, significant 1 year   | Those that actually completed<br>the full training allocated less  |
| lacovone et<br>al. (2018)     | Mexico  |       |         |   |          |        | profits per week                  | Positive, insignificant 1<br>year  | time to child rearing and live in<br>smaller households. Thus time<br>constraints are likely also a<br>r constraint for women that the<br>training does not address.<br>Study found similar impacts<br>between role model training<br>and personalized technical<br>assistance at the<br>entrepreneur's business. But<br>role model training significantly<br>cheaper. Role model training<br>most useful for individuals with<br>little experience. Personalized<br>assistance may be useful for<br>established firms; study found<br>technical assistance more<br>effective for entrepreneurs with<br>more business experience and |
|                               |         |       |         |   |          |        | profits per day                   | Positive, significant 1 year   |  |
|                               |         |       |         |   |          |        | Number of paid<br>workers         | Negative, insignificant 1<br>year  |  |
|                               |         |       |         |   |          |        | number of days<br>worked per week | Positive, insignificant 1<br>year  |  |
| Lafortune<br>et al.<br>(2018) | Chile   | 1,712 | 2013-14 | 2013-14<br>NGO run business management<br>training program, with follow visits<br>by successful alumnus of program,<br>to assess impact of role models on<br>program success. 3 cohorts<br>selected from basic training course<br>for potential entrepreneurs. 1<br>cohort selected from advanced<br>training course for existing<br>entrepreneurs. Compared with<br>personalized group consulting<br>sessions. Targeted to both<br>genders, but mostly women (92%<br>in sample). | existing | RCT    | sales last month                  | Role model: positive,<br>significant 1 year<br>TA in class: positive,<br>insignificant 1 year<br>TA at business: positive,<br>insignificant 1 year |  |
|                               |         |       |         |   |          |        | profits last month                | Role model: positive,<br>significant 1 year<br>TA in class and at<br>business: positive,<br>insignificant 1 year                                   |  |

| Paper                    | Country    | Size  | Date       | Policy/Program  | Target    | Method | Outcome                              | Effect   | Explanation (if given)   |
|--------------------------|------------|-------|------------|---|-----------|--------|--------------------------------------|--|--|
|                          |            |       |            |   |           |        | number of<br>employees last<br>month | Role model: negative,<br>insignificant 1 year<br>TA in class and at<br>business: positive,<br>insignificant 1 year                                 | formal education than role<br>model training. Other<br>constraints outside of credit<br>and knowledge likely also<br>inhibit program success, such<br>as entrepreneur confidence.                        |
|                          |            |       |            |   |           |        | has a business                       | Role model: positive,<br>insignificant 1 year<br>TA in class: positive,<br>significant 1 year<br>TA at business: positive,<br>insignificant 1 year |  |
|                          |            |       |            |   |           |        | hours per week<br>worked             | Role model; positive,<br>significant 1 year<br>TA in class and at<br>business: negative,<br>insignificant 1 year                                   |  |
|                          | Bangladesh |       | 10 2016-17 | Stress management training for<br>female small firm owners,<br>affricated with Bangladesh<br>Chamber of Commerce.   | existing  | RCT    | average monthly<br>sales             | Positive, insignificant for all 6 months   | Strong results for women working in male dominated   |
| Lopez-<br>Pena<br>(2017) |            | 310   |            |   |           |        | average monthly<br>profits           | Full sample: positive,<br>insignificant 6 months<br>Women in male<br>dominated sectors:<br>positive, significant 6<br>months                       | sectors. But hard to tease out<br>program impacts, as women<br>that self-select into male-<br>dominated sectors may have<br>other traits that moderate<br>returns to capital aside from<br>the training. |
|                          |            |       |            | Impact of role models on HIV  |           |        | enterprise income                    | Positive, significant 1 year   | -  |
| Lubega et<br>al. (2017)  | Uganda     | 2,121 | 2014-15    | positive women starting a business<br>in Uganda. Video of role model<br>who started a business with HIV<br>shown at each clinic, group<br>discussion sessions follow.<br>Participants selected among<br>patients attending HIV clinics in 4<br>regions of Uganda. | potential | DiD    | operates enterprise                  | Positive, significant 1 year   | Role models provide<br>entrepreneurs with information<br>and inspiration. Empowerment<br>angle to seeing someone who<br>looks like you successfully run<br>a business.                                   |

| Paper                            | Country | Size     | Date  | Policy/Program  | Target   | Method             | Outcome   | Effect  | Explanation (if given)  |
|----------------------------------|---------|----------|---|---|----------|--------------------|---|---|---|
| McKenzie<br>and Puerto<br>(2017) | Kenya   | ra 3,537 | 2013-16<br>Business training program<br>randomized at market and firm<br>level - ILO Get Ahead for Women in<br>Enterprise. Teach entrepreneurial<br>skills from a gender perspective -<br>business and management skills,<br>how to develop entrepreneurial<br>talent through networks. One year<br>training, follow by follow up<br>mentoring component. | Business training program<br>randomized at market and firm<br>level - ILO Get Ahead for Women in<br>Enterprise. Teach entrepreneurial<br>skills from a gender perspective -<br>business and management skills,<br>how to develop entrepreneurial<br>talent through networks. One year | existing | RCT                | daily sales   | Positive, significant 1<br>year, 3 years<br>Mentoring alone: positive,<br>insignificant 3 years<br>Training alone: positive,<br>significant 3 years | Significant results after three<br>years suggest small businesses<br>did expand as a result of the<br>program. Study did not find that<br>growth came from taking sales<br>away from other businesses, as<br>there was overall market sales<br>growth during this period.<br>Found most entrepreneurs |
|                                  |         |          |   |   |          |                    | weekly sales  | Positive, insignificant 1<br>year; positive, significant<br>3 years<br>Mentoring, training alone:<br>positive, significant 3<br>years               |   |
|                                  |         |          |   |   |          | main product sales | Positive, insignificant 1<br>year, positive, significant<br>3 years<br>Mentoring, training alone:<br>positive, insignificant 3<br>years | products sold in their firm after<br>the program.   |   |
|                                  |         |          |   |   |          |                    | weekly profits  | Positive, insignificant 1<br>year, positive, significant<br>3 years<br>Mentoring, training alone:<br>positive, significant 3<br>years               |   |

| Paper | Country | Size | Date | Policy/Program | Target | Method | Outcome                  | Effect   | Explanation (if given) |
|-------|---------|------|------|----------------|--------|--------|--------------------------|--|------------------------|
|       |         |      |      |                |        |        | main product<br>profits  | Positive insignificant 1<br>year, 3 years<br>Mentoring alone: positive,<br>insignificant 3 years<br>Training alone: positive,<br>significant 3 years                           |                        |
|       |         |      |      |                |        |        | hours per week<br>worked | Positive, insignificant 1<br>year, positive, significant<br>3 years<br>Mentoring alone: positive,<br>significant 3 years<br>Training alone: positive,<br>significant 3 years   |                        |
|       |         |      |      |                |        |        | firm survival            | Positive, insignificant 1<br>year, positive, significant<br>3 years<br>Mentoring alone: positive,<br>insignificant 3 years<br>Training alone: positive,<br>significant 3 years |                        |
| Paper                            | Country | Size  | Date    | Policy/Program  | Target   | Method | Outcome                        | Effect   | Explanation (if given)  |
|----------------------------------|---------|-------|---------|---|----------|--------|--------------------------------|--|---|
| Nakasone<br>and Terero<br>(2014) | Peru    | 2,600 | 2011-12 | Strengthening Women<br>Entrepreneurship in Peru (SWEP)<br>program. SWEP trained female<br>micro entrepreneurs in business<br>management practices (such as<br>accounting and marketing). The<br>training, which was provided in 4-<br>to 5-hour sessions, used soap<br>operas and practical exercises<br>specifically designed for the<br>program. Goal of showing female<br>entrepreneurs in soap operas was<br>to assess the effect of role models<br>in program success. | existing | RCT    | annual sales                   | Negative, insignificant 6<br>months  | Women reported that they not<br>to adopt business practices<br>recommended by program due<br>to a lack of time. Training alone<br>may not be enough to change<br>practices.                     |
| Valdivia<br>(2015)               | Peru    | 2,000 | 2009    | Business training + technical<br>assistance for female<br>microentrepreneurs. Women<br>recruited from the 6 Jarnest   | existing | RCT    | monthly sales,<br>normal month | Training + TA: positive,<br>significant short term (7-<br>10 months) and long term<br>(19-25 months)<br>Training alone: positive,<br>insignificant short term,<br>positive, significant long<br>term | Additional training through<br>technical assistance may have<br>helped jump start business<br>growth, but both arms achieved<br>similar long term gains. Study<br>finds that management capital |
|                                  |         |       |         | districts in Lima.  |          |        | sales last week                | Training + TA: positive,<br>significant short term and<br>long term<br>Training alone: positive,<br>insignificant short term<br>and long term  | is a binding constraint, and<br>providing support to<br>entrepreneurs can help firms<br>grow.   |

| Paper                    | Country  | Size  | Date    | Policy/Program  | Target   | Method   | Outcome                                  | Effect  | Explanation (if given)  |
|--------------------------|----------|-------|---------|---|----------|----------|--|---|---|
|                          |          |       |         |   |          |          | sales good month                         | Training + TA: positive,<br>significant short term;<br>positive, insignificant long<br>term                     |   |
|                          |          |       |         |   |          |          |  | Training alone: positive,<br>insignificant short term<br>and long term  |   |
|                          |          |       |         |   |          |          |  | Training + TA: positive,<br>significant short term and<br>long term   |   |
|                          |          |       |         |   |          |          | sales bad month                          | Training alone: positive,<br>insignificant short term;<br>positive, significant long<br>term                    |   |
|                          |          |       |         |   |          |          | number of total<br>workers               | Negative, insignificant all   | _   |
|                          |          |       |         |   |          |          | number of non-<br>family workers         | Negative, insignificant all   | -   |
| Finance                  |          |       |         |   |          |          |  |   |   |
| Microcredit              |          |       |         |   |          |          |  | 11 12 1   |   |
|                          |          |       |         |   |          |          | Average yearly<br>profits                | Unconditional and<br>conditional on business<br>still being in operation:<br>positive, insignificant 3<br>years |   |
| Alibhai et<br>al. (2018) | Ethiopia | 2,369 | 2014-17 | World Bank project, helps<br>microfinance institutions provide<br>larger loans to growth oriented | existing | PSM, DiD | Number of<br>employees                   | Unconditional and<br>conditional on business<br>still being in operation:<br>positive, significant 3<br>years   | Larger loans had significant<br>impact on boosting<br>employment levels, but not firm |
|                          |          |       |         | temale firms. Program run with 12 institutions in 6 cities.                                       |          |          | hours worked by<br>employees per<br>week | Unconditional and<br>conditional on business<br>still being in operation:<br>positive, significant 3<br>years   | performance.  |

| Paper                         | Country  | Size   | Date   | Policy/Program  | Target | Method         | Outcome                                    | Effect  | Explanation (if given)   |
|-------------------------------|----------|--------|--|---|--------|----------------|--|---|--|
|                               |          |        |  |   |        |                | hours worked by<br>the business owner      | Unconditional: positive,<br>insignificant 3 years<br>Conditional on business<br>still being in operation:<br>negative, insignificant 3<br>years                           |  |
|                               |          |        |  | Microloane from Compartamos   |        |                | Revenue in last 2<br>weeks                 | Positive, significant 27 months   |  |
| Angelucci<br>et al.           | Mexico   | 16,560 | 2009-12  | Banco, largest microlender in<br>Mexico, which targets women who<br>operate a business or are   | both   | RCT            | household<br>business income<br>last month | Positive, insignificant 27 months   |  |
| (2015)                        |          |        | interested in starting one.<br>Evaluation of rollout of program t<br>new area in north-central Senora. | interested in starting one.<br>Evaluation of rollout of program to  |        |                | profits last 2<br>weeks                    | Zero, insignificant 27<br>months  |  |
|                               |          |        |  |   |        | has a business | Negative, insignificant 27 months          | -   |  |
|                               |          |        |  | Joint-liability group microcredit   |        | oth RCT        | monthly profits                            | Negative, significant 1.5<br>years  | Joint lending programs ensure better discipline among  |
| Attanasio<br>et al.<br>(2015) | Mongolia | 1,148  | 2008-11  | lending for women. Evaluation of<br>2nd largest microlender in the<br>country, operating in 40 villages<br>across 5 provinces.                              | both   |                | has self-<br>employment<br>activity        | Positive, significant 1.5<br>years  | entrepreneurs, so long run<br>effects can be achieved.<br>Results driven by educated<br>women, less successful for<br>other women. |
|                               |          |        |  | Group lendina microcredit lendina.  |        |                | monthly business<br>revenue                | Existing firms: positive,<br>insignificant 18 months<br>and 3.5 years<br>New firms: negative,<br>insignificant 18 months  |  |
| Banerjee et<br>al. (2015)     | India    | 6,850  | 2005-10  | targeting women, with large Indian<br>microfinance institution. Evaluation<br>conducted as institution expanded<br>to 52 new neighborhoods in<br>Hyderabad. | both   | RCT            | monthly business<br>profits                | Full sample: positive,<br>insignificant 18 months<br>and 3.5 years<br>Existing entrepreneurs:<br>positive, significant 18<br>months; positive,<br>insignificant 3.5 years | Program allowed women to<br>invest in their businesses, but<br>that did not mean their<br>businesses were profitable.              |
|                               |          |        |  |   |        |                | self-employment<br>activity                | Positive, insignificant 18 months and 3.5 years   |  |

| Paper                           | Country    | Size                              | Date                         | Policy/Program  | Target          | Method                            | Outcome   | Effect   | Explanation (if given)  |
|---------------------------------|------------|-----------------------------------|------------------------------|---|-----------------|-----------------------------------|---|--|---|
|                                 |            |                                   |                              |   |                 |                                   | started a business<br>last 12 months                | Positive, insignificant 18 months and 3.5 years  |   |
|                                 |            |                                   |                              |   |                 |                                   | closed a business<br>in last 12 months              | Zero, insignificant short<br>and long term   |   |
|                                 |            |                                   |                              |   |                 |                                   | number of<br>employees                              | Existing firms: positive,<br>insignificant 18 months<br>and 3.5 years<br>New firms: negative,<br>significant 18 months |   |
|                                 |            |                                   |                              | NGO village savings and loan  |                 |                                   | yearly business<br>sales                            | Positive, significant 20 months  | Women largely used loans to   |
| Beaman et<br>al. (2014)         | Mali       | 6,000                             | 2009-12                      | groups (no outside capital, just<br>formalization of informal lending   | potential       | RCT                               | yearly small<br>enterprise profits                  | Positive, insignificant 20 months  | increase livestock investments,<br>improve food security and<br>smooth consumption not to   |
|                                 |            | groups). All female participants. |                              |   | have a business | Positive, insignificant 20 months | invest in their business.                           |  |   |
| Dutta and<br>Banerjee<br>(2018) | Bangladesh | 1,200                             |                              | Compare microfinance recipients<br>and non-recipients in Bangladesh<br>working with a variety of small,<br>medium and large microfinance<br>institutions. Look at households<br>where women have had loans from<br>one of these institutions for more<br>than 15 years. | existing        | PSM                               | participation in<br>income generating<br>activities | Positive, significant 15<br>years  | Beneficiaries largely continued<br>running their existing firms in<br>female dominated sectors. The<br>program did not get women to<br>expand into new higher risk,<br>higher return sectors. |
|                                 |            |                                   |                              | Microfinance loan repayment   |                 |                                   | weekly business<br>profits                          | Positive, significant 3 years  |   |
| Field at al                     |            |                                   |                              | scheme with microfinance<br>institution in Kolkata. One arm,  |                 |                                   | returns to capital                                  | Positive, significant 3<br>years   | Loan grace period reduces liquidity constraints of  |
| Field et al.<br>(2013)          | India      | ı 845                             | 845 2007-10 g<br>a<br>c<br>a | group repayment begins 2 weeks<br>after receipt. Other arm, 2 month<br>grace period before loan payments<br>are due. Loans to low income  | existing        | RCT                               | likelihood of<br>starting a new<br>business         | Positive, significant 3<br>years   | microfinance, allowing<br>entrepreneurs to exploit high<br>returns.   |
|                                 |            |                                   |                              | women.  |                 |                                   | business closure                                    | Negative, significant 3<br>years   |   |

| Paper                                | Country     | Size  | Date    | Policy/Program  | Target   | Method | Outcome   | Effect   | Explanation (if given)  |
|--------------------------------------|-------------|-------|---------|---|----------|--------|---|--|---|
| Garikipati<br>(2012)                 | India       | 145   | 2001-03 | Microcredit self-help groups of 10-<br>15 women. Government program,<br>with goal to promote livelihood<br>diversification and women's<br>empowerment. Primary focus<br>access to credit; little capacity<br>building.  | both     | IV     | time spent in self-<br>employment                         | Positive, insignificant 3<br>years   | Program had little impact on<br>women. Most loans were used<br>to enhance male ownership of<br>productive assets. Only women<br>who used loans in self-<br>managed enterprises were able<br>to allocate more time to self-<br>employment. Women are<br>constrained by access to<br>finance and time use. Women<br>need to be able to retain control<br>over assets to see real impacts. |
| Kaboski<br>and<br>Townsend<br>(2012) | Thailand    | 800   | 2002-07 | Government microfinance<br>initiative, look at female versus<br>male headed households.   | both     | IV     | business profits  | Positive, insignificant 7<br>years   |   |
| Karlan and<br>Zinman<br>(2011)       | Philippines | 1,600 | 2006-08 | Individual liability microloans<br>(\$225) to microentrepreneurs.<br>Eligibility determined by credit<br>scoring among current<br>microfinance institution applicants.<br>Disaggregated by gender.  | existing | RCT    | number of paid<br>employees in<br>household<br>businesses | Negative, insignificant 11-<br>22 months   | Loan is fungible; women do not<br>necessarily invest the loan in<br>their business, but in other<br>household needs.  |
| Kevane and<br>Wydick<br>(2001)       | Guatemala   | 94    | 1988-93 | Group microcredit program though<br>FUNDAP and ACCION affiliated<br>lending institutions. Borrowing<br>groups of 3-6 members, some<br>gender segregated groups and<br>some mixed. Survey data includes<br>participants who have been in the<br>program 1-5 years, average 2.3<br>years. | existing | RCT    | number of<br>employees                                    | Positive, significant 3<br>years   | Access to finance changes the<br>marginal value of home<br>production throughout women's<br>lives. Has less of an impact<br>during childrearing years, but<br>larger impacts for younger and<br>older women.  |
| Grants                               |             |       |         |   |          |        |   |  |   |
| Bernhardt<br>et al.<br>(2017)        | India       | 845   | 2007-10 | Grants for micro-entrepreneurs<br>through exiting microfinance<br>institution in Kolkata, compare<br>female versus male recipients.   | existing | RCT    | average weekly<br>profits                                 | Full sample: positive,<br>insignificant 3 years<br>Woman only one with<br>enterprise in household:<br>positive, significant 3<br>years | Grant had no impact on<br>women's own enterprises, but<br>had a positive impact on total<br>household enterprises. Most<br>women use the grant to invest<br>in other businesses in the<br>household, not their own.   |

| Paper                   | Country   | Size | Date    | Policy/Program   | Target   | Method | Outcome                    | Effect   | Explanation (if given)   |
|-------------------------|-----------|------|---------|--|----------|--------|----------------------------|--|--|
| de Mel et<br>al. (2008) | Sri Lanka | 174  | 2005-07 | Small scale grants, \$100 - \$200<br>cash and in-kind grants, to<br>microenterprises with less than<br>\$1000 USD in capital. Vary<br>treatment arms by amount and<br>type of grant. | existing | RCT    | real monthly profits       | Positive, insignificant<br>pooled 2 years                                    | Women must be constrained by other factors than finance.   |
|                         |           |      |         | Grants (\$100 and \$200) for micro-  |          |        | monthly profits            | Negative, insignificant pooled 1-3 years                                     | Men invested all of their grants;<br>women only invested large   |
| de Mel et<br>al. (2009) | Sri Lanka | 617  | 2005-08 | entrepreneurs, compare female<br>versus male recipients.<br>Beneficiaries receive half cash, half<br>working capital purchases.  | existing | RCT    | monthly returns to capital | Negative, insignificant<br>pooled 1-3 years                                  | grants. Yet women earned no<br>return on profits. Not<br>accounting for household<br>capture of investments made<br>by women.  |
|                         |           |      |         |  |          |        | monthly real profits       | Negative, insignificant pooled 1-6 years                                     |  |
|                         |           |      |         | One time business grants (¢100 to  |          |        | monthly real profits       | Positive, insignificant 1-2<br>years<br>Negative, insignificant, 3+<br>years | Most of the grant not invested<br>in business, but diverted for  |
| de Mel et<br>al. (2012) | Sri Lanka | 400  | 2005-10 | \$200) to microenterprises. Report<br>gender disaggregated results.  | existing | RCT    | total labor income         | Positive, insignificant 1-2<br>years<br>Negative, insignificant,<br>3+years  | industries with lower returns<br>than men. Capital alone is not<br>enough to spur growth in<br>subsistence level female firms. |
|                         |           |      |         |  |          |        | closed at end line         | Positive, insignificant pooled 1-6 years                                     |  |

| Paper                         | Country        | Size   | Date    | Policy/Program  | Target   | Method | Outcome              | Effect  | Explanation (if given)   |
|-------------------------------|----------------|--------|---------|---|----------|--------|----------------------|---|--|
| Fafchamps<br>et al.<br>(2014) | Ghana          | 400    | 2008-12 | Cash and in-kind grants (\$120) to<br>male and female microenterprises.                             | existing | RCT    | real monthly profits | Cash: positive,<br>insignificant short term (1<br>year); negative,<br>insignificant long term (3<br>years)<br>In-Kind: positive,<br>significant short term;<br>positive, insignificant long<br>term<br>Mixed gender sectors:<br>positive significant short<br>term cash and in-kind<br>High initial profits:<br>positive, significant short<br>term cash and in-kind;<br>positive, significant long<br>term in-kind | In-kind grants more difficult to<br>liquidate; easier for women to<br>maintain control. Program<br>impact driven by women with<br>high initial profits, and those<br>working in mixed gender<br>sectors.   |
| Combinatio                    | n (training+fi | nance) |         |   |          |        |                      |   |  |
| Berge et al.                  | Tanzania       | 644    | 2008-09 | Business training and business<br>grant with PRIDE, largest<br>microfinance institution in country. | existing | RCT    | monthly sales        | Training, grant, and<br>combined arm: negative,<br>insignificant short term (6<br>months)<br>Training, grant, and<br>combined arm: positive,<br>insignificant long term (2<br>years)  | Even after completing training<br>in mixed gender groups, most<br>women reported that they were<br>hesitant to compete for<br>business with men. However,<br>women that reported greater<br>confidence in competing with<br>men had better sales and<br>profits. Women reported that |
| ()                            |                |        |         | Mixed gender groups, gender<br>disaggregated effects.   |          |        | monthly profit       | Training, grant, and<br>combined arm: negative,<br>insignificant short<br>termTraining, grant, and<br>combined arm: positive,<br>insignificant long term  | domestic obligations, a lack of<br>influence over business<br>decisions, difficulty<br>implementing know-how from<br>training into practice, and less<br>access to long term credit<br>constrained their ability to<br>benefit from the program.                                     |

| Paper                       | Country   | Size   | Date    | Policy/Program   | Target       | Method | Outcome                                   | Effect  | Explanation (if given)   |
|-----------------------------|-----------|--------|---------|--|--------------|--------|---|---|--|
| Blattman et<br>al. (2014)   | Uganda    | 12,000 | 2006-07 | Group vocational training and<br>business start up grants for poor<br>unemployed young adults to<br>become self-employed artisans.<br>Government program in 17<br>districts in northern Uganda.<br>Gender disaggregated results. | potential    | RCT    | monthly cash<br>earnings, net<br>expenses | Positive, insignificant<br>after 2 years<br>Positive, significant after<br>4 years  | Women are more credit<br>constrained and more present<br>biased than men. Female<br>entrepreneurs begin with lower<br>liquidity and credit access.<br>Long term, positive impacts<br>may indicate that it takes time<br>for entrepreneurs to acquire<br>entrepreneurial abilities - there<br>is no training quick fix for<br>experience.                           |
|                             |           |        |         | NGO program providing cash   |              |        | monthly cash<br>earnings                  | With or without self-help<br>group formation: positive,<br>significant 16 months  |  |
| Blattman et                 | Usende    | 1 000  | 2000 12 | grants and basic business skills<br>training to poor, war affected<br>women. 2 months post grant, one  | n et en tiel | DOT    | any non-farm self<br>employment           | With or without self-help<br>group formation: positive,<br>significant 16 months  | Both cash and group<br>encouragement important for<br>program success. Study found   |
| Blattman et U<br>al. (2016) | Uganua    | 1,600  | 2009-12 | arm came back together for group<br>dynamics training to encourage<br>participants to form self-help   | potential    |        | started a business                        | With or without self-help<br>group formation: positive,<br>significant 16 months  | form of informal insurance and<br>group cooperation/knowledge<br>sharing.  |
|                             |           |        |         | groups.  |              |        | hours worked per<br>week (non-ag)         | With or without self-help<br>group formation: positive,<br>significant 16 months  | onannig.   |
| Blattman                    |           |        |         | Compare industrial job offer with  |              |        | earnings per week                         | Positive, significant 1 year  |  |
| and Dercon<br>(2018)        | Ethiopia  | 160    | 2010-13 | entrepreneurship program of \$300<br>grant plus business training.<br>Participants 80% women.  | potential    | RCT    | hours<br>workers/week,<br>past 2 weeks    | Positive, significant 1 year  |  |
| de Mel et<br>al. (2014)     | Sri Lanka | 1,200  | 2009-11 | Compare business training course<br>versus training plus cash grant for<br>female subsistence enterprises<br>and females interested in starting<br>a business.   | both         | RCT    | monthly sales                             | Training + cash: positive,<br>insignificant pooled 3-25<br>months; potential entrep.:<br>positive, insignificant<br>short (3-8 months) and<br>long term (15-25 months)<br>Training alone: negative,<br>insignificant pooled;<br>potential entrep.: positive,<br>insignificant short term;<br>positive, significant long<br>term | Business training alone does<br>not improve outcomes. Training<br>+ cash does, but effects seem<br>to be only temporary. Estimates<br>were much smaller after 15<br>months. There are likely other<br>constraints to growth besides<br>capital and skill. Treatment<br>spend up entry of firms into the<br>economy, but had no long term<br>effect on performance. |

| Paper           | Country | Size  | Date | Policy/Program  | Target   | Method | Outcome                                       | Effect   | Explanation (if given)   |
|-----------------|---------|-------|------|---|----------|--------|---|--|--|
|                 |         |       |      |   |          |        | monthly profits                               | Training + cash: positive,<br>significant pooled<br>Training alone: positive,<br>insignificant pooled<br>Potential entrep., training<br>+ cash: negative,<br>insignificant short term;<br>positive, insignificant long<br>term<br>Potential entrep., training<br>alone: positive,<br>insignificant short term;<br>positive, significant long<br>term |  |
|                 |         |       |      |   |          |        | likelihood of<br>entering self-<br>employment | Training + cash: positive,<br>significant short term;<br>positive insignificant long<br>term<br>Training alone: positive,<br>significant 3-4 months;<br>positive insignificant 7-16<br>months; negative,<br>insignificant 24-25<br>months  |  |
|                 |         |       |      |   |          |        | hours worked last<br>week                     | Training + cash and<br>training alone: positive,<br>insignificant  |  |
| Fiala<br>(2018) | Uganda  | 1,550 | 2012 | Microcredit loans and grants, plus<br>business training for male and<br>female microenterprise owners.<br>Participants selected from a<br>census of businesses operating in<br>4 districts in Uganda. | existing | RCT    | monthly profits,                              | Loan, grant, loan+training,<br>grant training: negative,<br>insignificant 6-9 months   | Women reported that family<br>members largely dictated how<br>they could invest the funds;<br>they were unable to make<br>business decisions themselves. |

| Paper                          | Country   | Size  | Date    | Policy/Program  | Target   | Method | Outcome  | Effect  | Explanation (if given)  |
|--------------------------------|-----------|-------|---------|---|----------|--------|--|---|---|
|                                |           |       |         |   |          |        | number of<br>employees                                   | Loan: negative,<br>insignificant 6-9 months<br>Grant: positive,<br>insignificant 6-9 months<br>Loan+training: positive,<br>insignificant 6-9 months<br>Grant+training: positive,<br>significant 6-9 months  |   |
| Gine and<br>Mansuri<br>(2014)  | Pakistan  | 747   | 2007-08 | Business training paired with larger<br>loans for rural microfinance<br>clients. Compare impacts on men<br>versus women with non-farm<br>enterprises.   | existing | RCT    | aggregate sales<br>and profits<br>business failure       | Training + loan: negative,<br>insignificant 22 months<br>Training alone: negative,<br>insignificant 22 months<br>Loan alone: positive,<br>insignificant 13 months<br>Loan+training: positive,<br>insignificant 22 months<br>Training alone: negative, | Labor markets are largely<br>separated by gender; women<br>owned firms concentrated in<br>lower performance sectors.<br>Social gender norms thus limit<br>the impact of intervention.<br>Female borrowers only have<br>partial control over the loans<br>they take out; intra-household<br>dynamics important factors to<br>consider. |
| Macours<br>and Vakis<br>(2014) | Nicaragua | 4,000 | 2006    | Atencion a Crisis, one year pilot<br>program with Ministry of Family.<br>Three arms - 1) CCT conditional on<br>school attendance and health<br>clinic visits; 2) CCT + vocational<br>training scholarship; 3)CCT + \$200<br>grant for productive investments<br>aimed to help develop small non-<br>agricultural businesses.<br>Beneficiaries (women) met in<br>groups of 10 periodically to talk<br>about requirements and program<br>objectives. Group led by local<br>female leader. | both     | RCT    | income from non-<br>ag self-<br>employment per<br>capita | Package: positive,<br>insignificant package 1<br>year<br>Package and group<br>leaders engaged in same<br>program: positive,<br>significant 1 year   | Social interactions with a leader<br>going through the same<br>program improved program<br>impacts. Less experience<br>entrepreneurs able to learn<br>from them, gaining additional<br>knowledge and confidence.  |

| Paper                     | Country | Size  | Date    | Policy/Program   | Target | Method | Outcome                               | Effect   | Explanation (if given)  |
|---------------------------|---------|-------|---------|--|--------|--------|---------------------------------------|--|---|
|                           |         |       |         |  |        |        | sales in past<br>month                | Training +: positive,<br>significant 1 year;<br>positive, insignificant 3<br>years<br>Training alone: positive,<br>significant 1 year;<br>negative, insignificant 3<br>years |   |
| Martinez et<br>al. (2018) | Chile   | 1,950 | 2010-13 | Large scale publicly run<br>microentrepreneurs program<br>providing asset transfers and<br>business training for poor female | both   | RCT    | monthly self-<br>employment<br>income | Training +: positive,<br>significant 1 year;<br>positive, insignificant 3<br>years<br>Training alone: positive,<br>significant 1 year;<br>positive, insignificant 3<br>years | Training alone more effective in<br>encouraging long run wage<br>employment. Training + for<br>better at encouraging self-<br>employment, though long term<br>effects are smaller. The very |
|                           |         |       |         | unemployed or underemployed.   |        |        | profits in past<br>month              | Training +: positive,<br>significant 1 year;<br>positive, insignificant 3<br>years<br>Training alone positive,<br>significant 1 year;<br>negative, insignificant 3<br>years  | poor likely require a big push -<br>training plus cash - to jump<br>start economic activity.  |
|                           |         |       |         |  |        |        | profits in good<br>month              | Training+: positive,<br>insignificant 3 years<br>Training alone: negative,<br>insignificant 3 years  |   |

| Paper | Country | Size | Date | Policy/Program | Target | Method | Outcome                        | Effect  | Explanation (if given) |
|-------|---------|------|------|----------------|--------|--------|--------------------------------|---|------------------------|
|       |         |      |      |                |        |        | profits in bad<br>month        | Training+ positive,<br>insignificant 3 years<br>Training alone: negative,<br>insignificant 3 years  |                        |
|       |         |      |      |                |        |        | profits in average<br>month    | Training+: positive,<br>insignificant 3 years<br>Training alone: negative,<br>insignificant 3 years   |                        |
|       |         |      |      |                |        |        | number of<br>employees         | Training +: positive,<br>significant 1 year and 3<br>years<br>Training alone: positive,<br>significant 1 year;<br>positive, insignificant 3<br>years  |                        |
|       |         |      |      |                |        |        | self-employment<br>probability | Training +: positive,<br>significant 1 year and 3<br>years<br>Training alone: positive,<br>significant 1 year;<br>positive, insignificant 3<br>years  |                        |
|       |         |      |      |                |        |        | weekly hours<br>worked         | Training +: positive,<br>significant 1 year;<br>positive, insignificant 3<br>years<br>Training alone: positive,<br>significant 1 years and 3<br>years |                        |

| Paper                          | Country | Size  | Date    | Policy/Program  | Target    | Method | Outcome  | Effect   | Explanation (if given)  |
|--------------------------------|---------|-------|---------|---|-----------|--------|--|--|---|
| McKenzie<br>(2017)             | Nigeria | 2,400 | 2011-14 | National business plan<br>competition, which provided<br>training and start-up grants to<br>winners (varying amounts by place<br>in competition - average award US<br>\$49,000). Women made up only 18<br>percent of applicants, but report<br>gender disaggregated impacts.  | both      | RCT    | profits and sales<br>index                                 | New firms: positive,<br>significant 1 - 3 years<br>Existing firms: positive,<br>insignificant 1-3 years                                      | Positive and significant impact<br>on new firms. Treatment seems<br>to help close the gap between<br>male and female entrepreneurs.<br>Program had no impact on<br>female firms with less than 10<br>employees, and lower initial<br>profits and sales. |
|                                |         |       |         |   |           |        | total employment   | New firms: positive,<br>significant 1 - 3 years<br>Existing firms: positive,<br>insignificant 1 year;<br>positive, significant 2-3<br>years  |   |
|                                |         |       |         |   |           |        | operate a firm   | New firms: positive,<br>significant 1 - 3 years<br>Existing firms: positive,<br>insignificant 1-2 years;<br>positive, significant 3<br>years |   |
| Other                          |         |       |         |   |           |        |  |  |   |
| Bauchet et<br>al. (2015)       | India   | 3,484 | 2007-10 | NGO arm of commercial<br>microfinance institution, providing<br>poor households without a male<br>worker with inputs to create new,<br>sustainable livelihoods. Operate in<br>198 villages in Andhra Pradesh.   | potential | RCT    | monthly per capita<br>non-ag self-<br>employment<br>income | Positive, insignificant 3<br>years   | Program increased livestock<br>income and agricultural labor<br>income, not non-agriculture<br>self-employment.   |
| Benhassine<br>et al.<br>(2018) | Benin   | 3,596 | 2014-16 | Government efforts to bring<br>informal firms into formal sector.<br>Package 1 - information and<br>assistance in registering business.<br>Package 2 - Package 1 + provide<br>business services, training, and<br>assistance opening bank account.<br>Package 3 - Package 1 + tax<br>preparation support and tax<br>mediation services. | existing  | RCT    | profits last month   | Negative, insignificant 2<br>years   | Firms that formalize do not<br>seem to benefit from this<br>status in the first 2 years. Costs<br>may be more than the tax<br>revenue gained during this<br>period.   |
|                                |         |       |         |   |           |        | summary index of sales and profits                         | Negative, insignificant 2<br>years   |   |
|                                |         |       |         |   |           |        | number of<br>employees                                     | Negative, insignificant 2<br>years   |   |

| Paper                           | Country | Size  | Date    | Policy/Program  | Target   | Method                                   | Outcome                                      | Effect                           | Explanation (if given)   |
|---------------------------------|---------|-------|---------|---|----------|--|--|----------------------------------|--|
| Dupas and<br>Robinson<br>(2013) | Kenya   | 392   | 2006-08 | Rural village bank in Busia provides<br>no interest bank accounts to self-<br>employed workers - market<br>vendors (mostly women) and taxi<br>drivers (men).  | existing | RCT                                      | average number of<br>hours worked per<br>day | Positive, insignificant 6 months | Women use accounts to hide<br>money from family and friends.<br>Most did not use it to save for<br>their business. Women seemed<br>to have strong present bias,<br>saved for household food,<br>education and health needs.                |
|                                 |         |       |         |   |          |  | daily average<br>business revenue            | Positive, insignificant 6 months |  |
|                                 |         |       |         | Impact of social networks and ICT use on women's success in   |          |  | entrepreneurial<br>activity, odds ratio      | Positive, significant 7<br>years |  |
| Venkatesh<br>et al.<br>(2017)   | India   | 1,300 | 7 years | entrepreneurship. NGO program in<br>20 rural villages, providing internet<br>enabled computer kiosks, staffed<br>by trained attendants for<br>16hrs/day, 7 days/wk. Attendants<br>mostly women. Facilitate access to<br>information in villages where most<br>women are illiterate. Train villagers<br>on how kiosks works, how to use<br>the internet, where to find<br>information. | both     | OLS with<br>treatmen<br>t and<br>control | entrepreneurial<br>profits                   | Positive, significant 7<br>years | Kiosks helped disseminate<br>useful information to potential<br>female entrepreneurs.<br>Intervention also helped women<br>overcome cultural barriers like<br>a rural setting or a lack of<br>familial support, in starting a<br>business. |

1775 MASSACHUSETTS AVE NW WASHINGTON, D.C. 20036

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