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Vocational and business training to improve women's labour market outcomes in low- and middle-income countries

A systematic review

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About this review

Vocational and business training to improve women's labour market outcomes in low- and middle-income countries: a systematic review, was submitted in partial fulfilment of the requirements of grant SR7.1094 awarded under Systematic Review Window 7. This review is available on the [3ie website](#). 3ie is publishing this technical report as received from the authors; it has been formatted to 3ie style, however the tables and figures have not been reformatted. 3ie will also publish a summary report of this review, designed for use by decision makers, which is forthcoming. This review has also been published in the Campbell Collaboration Library and is available [here](#).

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Conflict of interest statement

None of the proposed authors have developed studies that focus on the topic area. However, María Balarin and Lorena Alcázar are part of GRADE, an institution that has published several studies on the effectiveness of vocational and business training in the context of Latin America. We mitigate this concern by placing a greater emphasis on the assessment of these studies by the non-GRADE authors.

Executive summary

Background

Although women's labour market participation has improved markedly, evidence suggests that once in the labour market, women around the world still face limited opportunities. For instance, they tend to perform jobs that have minimal skill requirements, and they encounter few opportunities for learning and advancement due to institutional, societal, and structural barriers. These barriers generate a gender gap in skills development, which in turn contributes to the reproduction of gender inequalities and further limits low- and middle-income countries' development potential. One way that governments and development agencies have tried to improve the supply of skills is through vocational and business training programmes. This systematic review focuses on the impacts of such programmes on women's labour market outcomes. The review also synthesizes evidence on the barriers to and facilitators of vocational and business training effectiveness.

Objectives

The primary objective of this review is to synthesize the evidence on the effects of vocational and business training programmes that aim to improve women's labour market outcomes. The secondary objective is to improve our understanding of the barriers to and facilitators of vocational and business training effectiveness for women, and how these barriers and facilitators operate.

Search Methods

We searched electronic databases, grey literature, relevant journals, and institutional websites, and we performed keyword hand searches and requested recommendations from key stakeholders. The search was conducted from July to September 2015, and from July to September 2016.

Selection Criteria

We included studies published in English or Spanish and conducted after 1990 that examined the impact of vocational and business training programmes that aim to increase women's participation in higher skilled occupations on labour market outcomes. We included evaluations of programmes that targeted women who were 18 years or older in low- and middle-income countries, as defined by the World Bank. To be included in the review, studies had to measure the impact of vocational and business training programmes that aimed to increase the skill levels of the disadvantaged, unemployed, or underemployed; fostered entrepreneurship to expand employment; and increased women's income prospects. We excluded vocational and business training programmes targeted exclusively at men, as well as studies that focused on interventions that trained women to work in very low-skill occupations. We included quantitative studies with experimental designs using random assignment to the intervention and quasi-experimental designs with non-random assignment (such as regression discontinuity designs, "natural experiments," and studies in which participants self-select into the programme). In addition, we included qualitative and mixed-methods studies focused on

the interventions included in the review that explored the evidence surrounding barriers to and facilitators of vocational and business training effectiveness.

Data collection and analysis

We systematically coded information from the studies included in the review and critically appraised them. We conducted statistical meta-analysis and sensitivity analysis using the data extracted from quantitative experimental and quasi-experimental studies. We also used narrative meta-synthesis techniques to synthesize the findings from studies including findings on barriers to and facilitators of intervention effectiveness. In addition, we produced a detailed programme characterization gathered through a number of supporting documents that we used to characterize and classify the included interventions. Finally, we triangulated the findings from the quantitative meta-analysis with the findings from the narrative meta-synthesis.

Main Results

To address the primary research question we included a total of 35 quantitative studies describing the impact of 30 interventions. To answer the secondary research questions, the qualitative narrative meta-synthesis included findings on barriers to and facilitators of intervention effectiveness from 50 studies (the 35 included impact evaluations studies, and 15 studies linked to selected interventions which used qualitative or mixed-methods techniques). We used an adapted set of criteria to assess the risk of selection-bias, performance bias, outcome and analysis reporting bias, and other biases in experimental and quasi-experimental studies (Hombrados & Waddington, 2012). Of the 35 studies included in the review, 14 were rated as having a low risk of selection bias, 23 were rated as having a low risk of performance bias, 24 were rated as having a low risk of outcome and analysis reporting bias, and all were rated as having a low risk of other biases. In addition, a quality appraisal of the included qualitative studies was carried out using an adaptation of the nine-item Qualitative Research Checklist, which was developed by the Critical Appraisal Skills Programme (CASP). Of the 26 identified studies, 3 had only minor limitations, 20 had medium limitations, and 3 had major limitations.

In addition to these studies, we used 93 supporting documents providing factual programme information to prepare detailed characterizations of the included interventions. These documents included project documents, programme or institutional websites, and programme information found in qualitative and quantitative papers included in the review.

We found that vocational training, on average, had positive but small effects on the employment, formal employment, earnings, and income of women in low- and middle-income countries. The results suggested that, on average, vocational training increased the likelihood of employment and formal employment by 11% (95% CI=1.03, 1.18; evidence from eight programmes) and 8% (95% CI=1.00, 1.18; evidence from five programmes), respectively. These results are based on a synthesis of study results with a total sample size of 82,359 women (18,753 programme participants and 63,606 women in the control or comparison group) for employment outcomes and 17,411 women (9,098 programme participants and 8,313 women in the control or comparison

group) for formal employment outcomes. We found that the average effect of vocational training on earnings was 5.54% (95% CI =2.50%, 8.96%; evidence from 8 programmes) or 0.11 standardized mean differences (95% CI = 0.05, 0.18; evidence from 8 programmes). These results are based on a total sample size of 85,981 women (20,517 programme participants and 65,464 women in the control or comparison group). We also found evidence of heterogeneity in effect sizes across different dimensions. For example, we found that the effects of vocational training on employment were statistically significantly higher in Africa and Asia than in low- and middle-income countries in other regions. In addition, we found evidence that the impact of vocational training on employment and earnings was larger for programmes that included a gender focus, compared to programmes that did not. We also examined whether life skills training or internships had an indirect effect on labour market outcomes by increasing participants' employability. We did not find evidence that vocational training programmes that did and did not include life skills training or internships had different effects on employment. However, we did find some evidence that the effects of vocational training on earnings may increase with the inclusion of life skills training or an internship, as well as some evidence that vocational training programmes that were evaluated 6 months after the programme had stronger effects, compared to programmes that were evaluated at a later stage. Although these results point to potential heterogeneities in the impact estimates, we need to be careful when interpreting the results because each of the patterns in the effect sizes may be related to confounding factors, such as other programme or contextual characteristics.

Nonetheless, the short time vocational training programs have for program implementation may explain the lower impact of vocational training programmes that were evaluated after 12 months or more. It is possible that vocational training programmes need to provide follow-up training to participants in order to achieve longer term effects. We also found that vocational training programmes were commonly outsourced without establishing adequate quality control procedures or monitoring mechanisms. This is likely to increase the heterogeneity of the content and quality of the training and may contribute to the relatively small effects of vocational training programmes on women's employment and income.

In addition, our results revealed that business training combined with cash transfers or life skills training had positive and statistically significant effects on the likelihood of self-employment. The results suggested that, on average, business training combined with cash transfers or life skills training increased the likelihood of self-employment by 73% (95% CI=1.28, 2.09; evidence from three programmes). These results are based on a total sample size of 7,373 women (3,815 programme participants and 3,558 women in the control or comparison group). Again, however, we need to be careful when interpreting this result because it is unclear whether these effects were caused by business training or other programme components, such as cash transfers or life skills training. We also found evidence that business training had a positive and statistically significant effect on sales or profits. On average, business training increased women's sales or profits by 0.10 standardized mean differences (95% CI = 0.00, 0.20; evidence from four programmes) or 6.83% (95% CI =0.15%, 9.95%; evidence from four programmes). These results are based on a total sample size of 14,729 women (6,123 programme participants and 8,606 women in the control or comparison group). The

effect size did not appear to increase significantly when business training was complemented with either cash transfers or microfinance. However, we found evidence for some heterogeneities in the effect sizes. For example, we found evidence for larger positive effects on sales or profits in sub-Saharan Africa than in other continents. In sub-Saharan Africa, business training increased sales or profits by 0.31 standardized mean differences (95% CI = -0.02, 0.64; evidence from three programmes) or 15.47% (95% CI = -0.90%, 30.61%; evidence from three programmes), on average, compared to an average effect size of just 0.05 standardized mean differences (95% CI = 0.00, 0.10; evidence from six programmes) or 2.55% (95% CI = 0.20%, 4.89%; evidence from six programmes) in other low- and middle-income countries. The large effect sizes in sub-Saharan Africa were almost entirely driven by two studies, however. The larger impact of business training in sub-Saharan Africa may be related to a stronger gender focus in the programmes that produced the largest effects on sales or profits. The programme with the strongest gender focus also had the largest effect of business training on profits. The positive effects on sales and profits appear to be driven by the inclusion of mentoring and technical assistance components which contribute to enhanced business knowledge and practices. We find positive effects on both of these outcome measures in our quantitative narrative synthesis. In addition, our quantitative narrative synthesis indicated that a strong gender focus increased the impact of business training on the likelihood of self-employment in South Asia. However, we again need to be careful when interpreting these differences in effect sizes. As with vocational training, these differences may be associated with confounding factors, such as other programme or contextual characteristics.

We found mixed evidence for the sustainability of positive effects of business training programmes based on impact trajectories of individual studies. Specifically, the findings suggested that the impacts of business training on profits decreases with time in some contexts. However, in other contexts impacts on profits become slightly more positive over time.

Unlike vocational training programmes, the content of business interventions tended to be homogenous. Each of the business training programmes also appeared to suffer from design problems related to their short durations, which ranged from one afternoon to 3 months. These short durations may well have had a negative effect on the quality of business trainings. We also found that business interventions tended to have less gender focus than vocational programmes, identifying only two business training programmes with a strong gender focus.

The narrative meta-synthesis suggests that structural conditions and gender norms were the main barriers to programme effectiveness. Structural barriers typically included the distance and cost of transportation, time constraints for participation, and economic and labour market barriers. In terms of gender norms, occupational segregation and the unequal division of domestic and care responsibilities, as well as the cost and availability of childcare facilities, also discouraged women's participation in vocational and business training.

Conclusions

Our review highlights several important implications for practice and policy. The quantitative evidence suggests that vocational training had positive but small effects on employment, formal employment, and earnings. In addition, we found that business training combined with other programme components had positive effects on self-employment, as well as small but positive effects on sales or profits. However, these relatively small effects may be insufficient to justify scaling up vocational or business training programmes. We did find some evidence of a positive relationship between the effects of vocational training programmes and the inclusion of a stronger gender focus, life skills training, or an internship in addition to the vocational training. These results suggest that including a gender focus, life skills training, or internships could strengthen vocational training programmes. However, it is important to test these mechanisms further through rigorous mixed-methods studies with multiple treatment arms. The current evidence from meta-regressions is not sufficient to make strong claims about the potential relationship between gender focus or life skills training and the effectiveness of vocational training because it is possible that confounding factors drove these results.

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1. Background

1.1 The problem, condition or issue

Acquiring skills has come to be widely recognized as central to labour market outcomes in low- and middle-income countries (Lauder et al., 2012). For this reason, improving skills is a central concern of national governments and the international donor community alike (UNESCO, 2012; World Bank, 2012). However, several social, cultural, institutional, and structural barriers generate a gender gap in skills development, which in turn contributes to the reproduction of gender inequalities in the labour market (International Labour Organisation [ILO], 2014). For instance, societal and cultural norms often lead to typically feminine occupations or traits being undervalued, regardless of the objective skill requirements of the activities performed (Armstrong, 2013). In other words, women's work is often considered less valuable simply because it is performed by women (Phillips & Taylor, 1980). Moreover, gender norms compromise the ability of women to acquire skills that are relevant to the labour market (Vossenbergh, 2013). For example, women may not be able to attend trainings because of time constraints resulting from their household responsibilities.

These factors contribute to women's limited participation in the labour market and affect the quality and type of women's labour market opportunities. As a result, women's labour market participation is around 27 percentage points below that of men (ILO, 2016). The gender gap in labour force participation is especially high in the Arab states, Northern Africa, and South Asia, where it is almost double the world average (above 50%). Women also appear to be overrepresented in the informal economy (ILO, 2016), especially in low- and middle-income countries (Borges Månsson & Färnsveden, 2012). In sub-Saharan Africa and South Asia, for example, a high proportion of women are contributing family workers (34.9% and 31.8%, respectively) or own-account workers (42.5% and 47.7%, respectively) (ILO 2016). Work in the informal sector is characterized by low pay, low productivity, and insecurity (ILO, 2016), as well as precarious working conditions and unequal power relationships, which may lead to exploitation (Borges Månsson & Färnsveden, 2012).

The lack of part-time and flexible jobs that are compatible with domestic and care responsibilities—especially in low- and middle-income countries—also contributes to women's decisions to remain self-employed in small-scale enterprises or in domestic and care work, rather than pursuing professional careers in higher skilled occupations (ILO, 2009). Women are also less likely to start a business than men. In low- and middle-income countries, men are 75% more likely than women to start a business (Vossenbergh, 2013; see also Kelley et al., 2012).

1.2 The intervention

In recent decades, national governments and development agencies have created a range of vocational and business training programmes designed to improve the skill levels and labour market outcomes of populations in low- and middle-income countries. Some of these programmes specifically aim to develop women's occupational or entrepreneurial skills in order to increase their employment and earnings and reduce

poverty (Blattman & Ralston, 2015; McKenzie & Woodruff, 2012). However, many existing programmes do not have an explicit focus on women.

Vocational training programmes often target low-income, unemployed, or under-employed individuals who may or may not be in the formal education system. These programmes typically focus on preparing participants for jobs related to a specific occupation or trade, although many programmes are increasingly being tailored to the shifting demands of the labour market. Trainings include courses in administrative occupations (e.g., marketing, secretarial work, sales); manual occupations (e.g., electrician, cooking assistant); or fairly skilled occupations (e.g., account assistant, information technology [IT] specialist).

Many vocational training programmes also combine the development of specific occupational skills with strategies to facilitate access to job opportunities—for instance, through internships or on-the-job training, or by actively connecting participants with potential employers. A representative programme in Colombia called *Jovenes en Accion* provided 3 months of in-classroom and three months of on-the-job training to young people between the ages of 18 and 25 in the two lowest socio-economic strata of the population (Attanasio, Kugler, & Meghir, 2009). Similarly, the Peruvian youth labour training programme *ProJoven* offered poor youth 3 months of training and a 3-month internship with a local firm if they successfully completed their coursework (Ñopo, Robles, & Saavedra, 2007).

Many vocational programmes also include a focus on life skills training. This can range from specific job-related life skills (such as preparing a curriculum vitae and developing skills for interpersonal relationships) to broader skills, such as those related to reproductive health and household economics. For example, Gap Inc.'s *Personal Advancement and Career Enhancement* programme focuses on improving non-cognitive skills through learning modules that emphasize skills such as communication, problem-solving, decision-making, and time and stress management (Gap Inc., 2015). Other programmes, such as the *Ninaweza Project* in Kenya, include reproductive health education. A literature review by Katz (2008) suggests that integrated programmes that combine hard skills, labour market connections, and life skills may be most effective in improving women's prospects of gaining employment in higher skilled occupations.

Business training programmes attempt to develop skills through business management training and assistance in order to improve the performance of small and medium-sized enterprises (McKenzie & Woodruff, 2012). Governments, microfinance organizations, and nongovernmental organizations (NGOs) offer such programmes. The length of these programmes ranges from as short as 2 days to several months, and they are commonly offered to groups (although some also provide additional one-on-one follow-up training).

The majority of business trainings focus on general business skills that can be applied to most businesses (e.g., keeping business records and encouraging small business owners to separate household and business finances). Other business trainings focus on technical knowledge or sector-specific content, or on trying to change entrepreneurial attitudes or aspirations. Several other programmes focus specifically on increasing women's understanding of the value chain for their product, sources of raw material, and access to markets. For example, a PRASAC programme in Cambodia helped weavers

improve their businesses by identifying and building relations with suppliers, wholesalers, retailers, and designers (German Technical Cooperation Agency [GTZ], 2003).

Finally, some business training programmes are offered with additional incentives. These could include asset or in-kind transfers (such as livestock or inventory), capital as a small cash loan or grant, or saving accounts. For example, a programme implemented by BRAC, called Targeting the Ultra Poor, offered very poor and rural women in selected rural communities in Bangladesh and other countries where BRAC operates training in a variety of business activities, ranging from livestock rearing to small retail operations. The programme was combined with complementary and intensive asset-specific training and regular follow-up visits by asset specialists (Bandiera, Burgess, Gulesci, Rasul, & Sulaiman, 2013).

Both vocational and business training programmes typically target low-income, unemployed, or under-employed individuals, but there is also a range of programmes that focus explicitly on building women's skills. For instance, the Jordan New Opportunities for Women programme focuses on providing work opportunities to young, female college graduates in Jordan (Groh, Krishnan, McKenzie, & Vishwanath, 2012), while the Women for Women International Social Protection and Cash Transfer programme in Nigeria offers bi-weekly business, vocational, and life skills training, including lessons in health awareness, decision-making, negotiation, and civic participation (McIlvaine & Oser, 2014). Both programmes focus on women exclusively.

Vocational and business training programmes that target women in particular may also include additional components intended to address gender barriers to women's participation in either the training itself or the labour market more generally. Programmes with a more narrow gender focus may include specific features such as stipends for childcare or may help women to negotiate their families' permission to participate in the training (Aedo & Nuñez, 2004; Ñopo, Robles, & Saavedra, 2007; Revenga, Riboud, & Tan, 1994). Programmes with a stronger gender focus may also include life skills components that address gender norms and practices that affect women's occupational and business development, such as reproductive care and family planning. At the most comprehensive end of the gender-focus spectrum, vocational and business training programmes might include an overall gender focus in their design, addressing specific limitations that affect women every step of the way, from the acquisition of skills to their participation in the labour and business markets (e.g., Economic Empowerment of Adolescent Girls and Young Women (EPAG) in Liberia). Recognizing the specific constraints that women face in acquiring skills and participating in the labour market, the ILO has called for the inclusion of a stronger "gender focus in skills development policies and strategies" and for the creation of "gender sensitive training environments" (ILO, 2014, p. 9).

1.3 How the intervention might work and theory of change for business training programmes targeting women

Vocational or business training programmes aim to improve women's labour market outcomes by developing women's knowledge, skills, and practices. Improving these intermediate outcomes can, in turn, increase women's labour market opportunities (Revenga & Shetty, 2012). We developed a theory of change for both vocational and

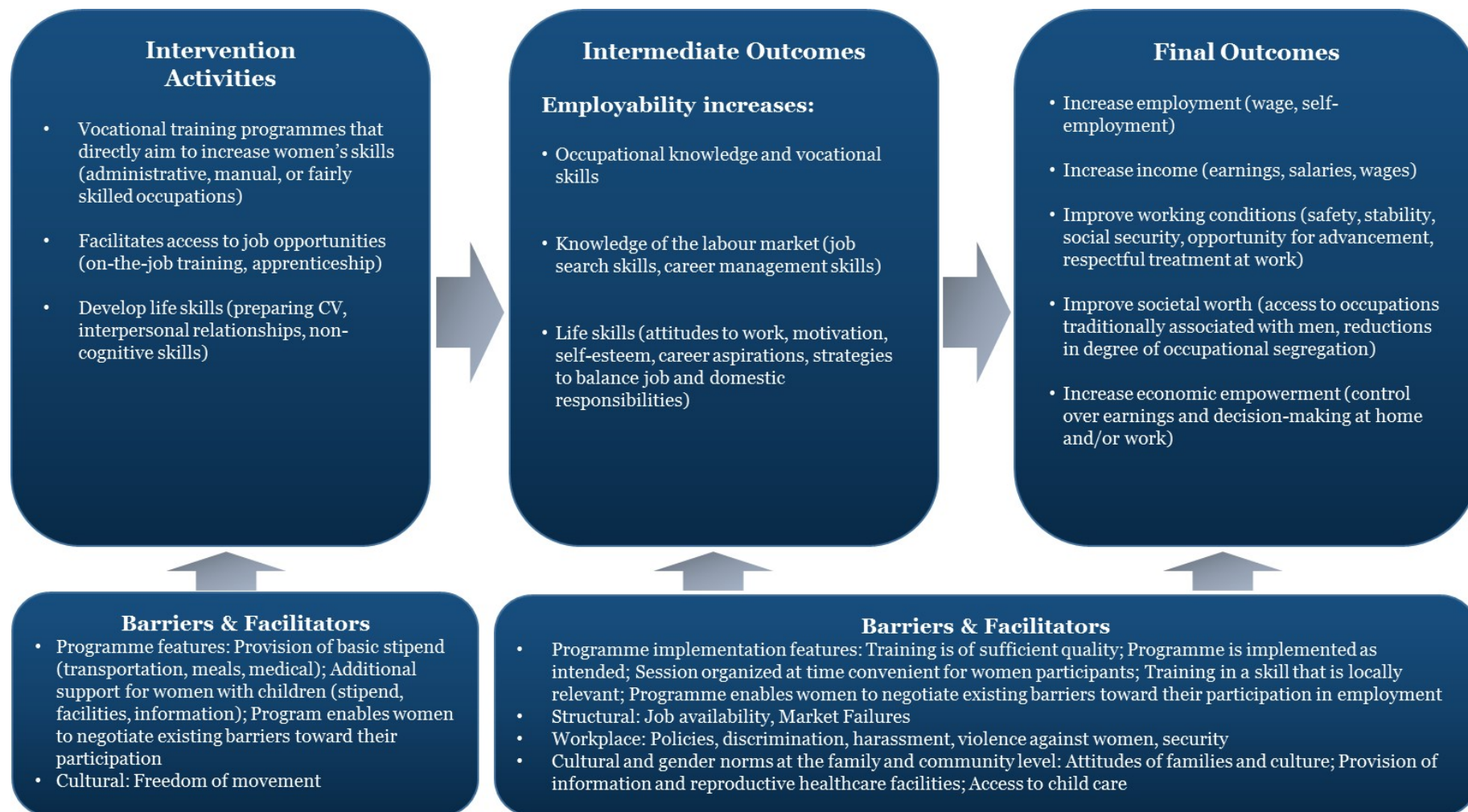
business training programmes, outlining how these programmes might work. The theory of change maps out the causal chain along interventions, intermediate outcomes, and final outcomes, as well as the assumptions underpinning the theory of change (White, 2009). Using such programme theories helped to provide a framework for the analysis in this review and determine relevant outcomes. We outline the theories of change for each type of programme below.

Figure 1 provides a theory of change for how vocational training programmes may improve women's labour market outcomes. Firstly, vocational programmes can provide training that directly aims to increase women's skills (e.g., marketing, sales, account assistant, IT specialist); facilitate access to job opportunities (e.g., on-the-job training or apprenticeships); or equip women with life skills to improve aspects of life such as interpersonal relationships and reproductive health.¹ Secondly, vocational training can result in improvements in women's employability by increasing their occupational knowledge and vocational skills; their knowledge of the labour market (e.g., job search skills, career management skills); and their life skills, such as attitudes towards work, motivation, self-esteem, career aspirations, and strategies to balance job and domestic responsibilities. In turn, these improvements in women's skills and employability may result in increases in women's employment status, income (measured by earning, salaries, and wages), improve women's working conditions (such as safety, stability, social security) and opportunities for advancement, and reduce the degree of occupational segregation by improving access to occupations traditionally dominated by men.² Finally, the theory of change indicates that increasing women's skills may lead to an improvement in women's economic empowerment, such as increased control over earnings and a greater role in decision-making at home and at work.

¹ We did not include studies that focus exclusively on life skills training to improve reproductive health. To be included, a study needed to focus on either vocational or business training.

² The impact evaluation of the Peruvian youth training programme ProJoven showed that women increased their participation in the following occupational groups: sales personnel, restaurant and food service workers, and domestic workers. These occupations are traditionally male-dominated.

Figure 1: Theory of change for vocational programmes targeting women’s labour market outcomes



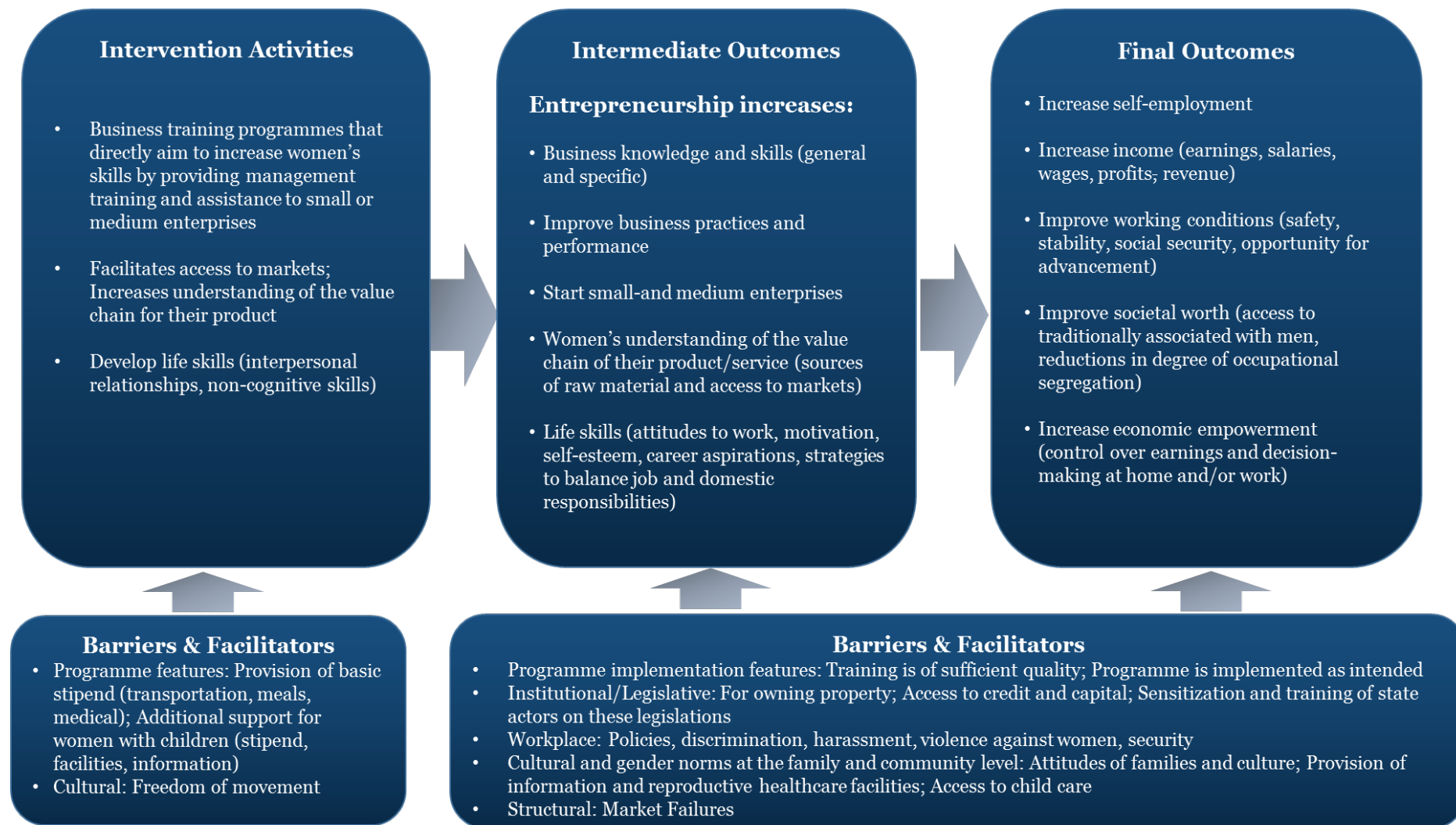
1.3.1 Theory of change for business training programmes targeting women

Figure 2 provides a theory of change for how business programmes can improve final outcomes such as income and empowerment. Business training programmes typically provide training to equip women with business and life skills; provide assistance to small or medium-sized enterprises; provide capital in the form of assets, cash, loans, or saving accounts; and facilitate access to markets. Providing these inputs can result in improvements in a range of intermediate outcomes associated with entrepreneurship, such as business knowledge and skills (generic business skills and specific skills, such as knowledge about value chains); life skills (such as attitudes toward work, motivation, self-esteem, career aspirations); and strategies to balance job and domestic responsibilities. These changes may, in turn, increase the likelihood that women will start their own business and/or improve their business performance by adopting better practices. These improvements can also result in increases in income (measured by earnings, salaries, wages, profits, revenue, or productivity); improvements in working conditions (stability, social security, opportunity for advancement); and reductions in the gender gap in entrepreneurship. Finally, changes in intermediate and final outcomes could lead to an improvement in women's economic empowerment, such as increased control over earnings and a greater role in decision-making at home and at work.

1.3.2 Assumptions underlying the theory of change for vocational and business programmes

The validity of the theory of change for both vocational and business programmes relies on a number of assumptions. If these assumptions do not hold, the causal pathways in the theory of change may break down. For both types of programme, a number of contextual and structural factors may influence success, and there are a number of assumptions regarding programme design that can be considered preconditions for inputs to translate into intended outcomes. One key assumption is that women are able to participate in training programmes. However, several barriers may in fact limit their participation in available trainings. For example, women's movement may be restricted outside the home or other household members may restrict their participation, which may limit their access to trainings. Alternatively, women may be required to spend too much time on domestic chores or care work to participate in training, particularly if there is no access to or additional stipends for childcare. Culturally mediated preconceptions about what trainings and jobs might be suitable for women, may also influence their willingness to participate and their choice of either more or less feminized training or occupational option.

Figure 2: Theory of change for business programme targeting women



Other critical assumptions, which apply to both vocational and business trainings, relate to the quality of the training, legislative conditions, and access to credit. Training of insufficient quality may not lead to improvements in women's knowledge, skills, or entrepreneurship. Effective training requires high-quality trainers and relevant curricula, with tailored content designed to teach women vocational or business skills. Legislative conditions may also need to be in place to facilitate gains in women's participation in higher skilled occupations. For example, women often require access to formal credit to benefit from business training, because without credit it may be challenging to set up a small business.³ Women with children may also require access to affordable childcare in order for the training to translate into improved employment outcomes, even if women can participate in training and develop their skills. Finally, policies in the workplace—including those relating to discrimination, harassment, and job security—could influence the extent to which programmes succeed in changing final outcomes.

1.4 Why it is important to do this systematic review

It is important to understand which programmes are more effective at improving the skills of the populations of low- and middle-income countries to cope with the demands of the "knowledge economy." However, women around the world are at a disadvantage when it comes to acquiring skills and applying them in the labour market due to a number of social, cultural, institutional, and structural barriers. These barriers generate a gender gap in skills development, which in turn contributes to the reproduction of gender inequalities in these countries. In this context, governments and development agencies have created a wide range of programmes, such as vocational and business programmes, as a potential solution to the widely recognized problem of a skills deficit. However, although the literature on these programmes is growing, there is no existing systematic review to inform decision-making in this area.

This study will be the first systematic review to assess the effects of vocational and business training on women's labour market outcomes.⁴ Tripney and colleagues (2013) provide a systematic review of evidence on the effects of technical and vocational education training programmes on employment outcomes, concluding that such programmes improve outcomes overall. However, Tripney and colleagues' review does not differentiate the effects by gender, nor does it include any qualitative studies. Our analysis of the evidence also revealed an increase in the number of randomized controlled trials (RCTs) since the completion of Tripney and colleagues' (2013) review, which suggests that the rigor of the evidence may have improved since that review. Our review will also be important for policymakers and practitioners who would like to learn about the types of programme that are more effective in terms of improving women's labour market outcomes (and how they achieve this). This information could help to improve the design of vocational and business training programmes.

³ At the same time, however, changes in legislation may be insufficient if bank staff remain unconvinced about women's ability to repay loans, even in the presence of legislation that protects women's rights.

⁴ Katz's (2008) review is highly relevant to this topic but is not a systematic review. It focuses only on young women, and it does not include business training programmes.

Recent non-systematic literature reviews have been critical of the effectiveness of vocational and business training programmes in terms of improving outcomes, raising concerns about both the size of the effect and the cost-effectiveness of such programmes (Blattman & Ralston, 2015; McKenzie & Woodruff, 2012). Blattman and Ralston (2015) suggest that skills training has only had limited effects on poverty or stability, while McKenzie and Woodruff (2012) note that few studies with an emphasis on business training found evidence of positive effects on profits or sales 1 year after the start of the programme. Other systematic and non-systematic reviews and meta-analyses of the related literature include reviews that focus on the effects of business support services on job creation, labour productivity, and the ability of firms to invest (Piza et al., 2016); the impact of programmes targeted at microentrepreneurs on job creation (Grimm & Paffhausen, 2014); the effects of entrepreneurship development interventions on women entrepreneurs (Patel, 2014); and the impact of active labour market programme evaluations (Card, Kluve, & Weber, 2015). This review will address a gap in the effectiveness literature, namely the effects of vocational and business training on women's labour market outcomes.

Understanding the effectiveness of vocational and business training for women may be of interest to a range of decision makers, particularly in developing countries, where governments (supported by the World Bank and other multilateral organizations) make significant investments in vocational and business training programmes. For example, many ministries of labour in countries in Latin America (such as Peru, Argentina, and Colombia) have invested in the ProJoven programme (Aedo & Nuñez, 2004; Ñopo et al., 2007; Ministerio de Trabajo Colombia, 2016). Specifically, the World Bank and its client governments invested \$9 billion for vocational and business training between 2002 and 2012 (Blattman, 2015). The findings of this review will also be relevant for developing policies and programmes to achieve two of the sustainable development goals (SDGs): SDG 5, which calls for gender equality and empowering all women and girls; and SDG 8, which calls for sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all (United Nations, 2015).

Several development organizations already highlight the importance of helping women to acquire skills to improve employment outcomes. For example, the Economic Commission for Latin America and the Caribbean, the Food and Agriculture Organization (FAO), UN Women, the United Nations Development Programme (UNDP), and the ILO all highlight the importance of investing in development programmes designed to improve employment access and quality for women in Latin America and the Caribbean. In addition, a United Nations Conference on Trade and Development report (2016) argues that better education and on-the-job training are required to let trade create opportunities for women's empowerment and well-being. These initiatives demonstrate the importance policymakers attach to women acquiring skills such that their employment outcomes improve (Blattman & Ralston, 2015; McKenzie & Woodruff, 2012).

2. Objectives

The primary objective of this systematic review is to synthesize the evidence on the effects of vocational and business training programmes that aim to improve women's labour market outcomes, including employment, income, working conditions, societal worth, and economic empowerment. The secondary objective is to improve our understanding of the barriers to and facilitators of vocational and business training effectiveness for women, and how those barriers and facilitators operate.⁵ To achieve these goals, we addressed the following research questions.

Primary research question:

1. What are the effects of vocational and business training programmes on women's income, working conditions, societal worth, and economic empowerment?

Secondary research question

2. What are the barriers to and facilitators of vocational and business training programme effectiveness?
3. What are the programme design and implementation characteristics associated with effective vocational and business training programmes for women?

3. Methods

3.1 Criteria for considering studies for this systematic review

We relied on quantitative experimental or quasi-experimental studies to address the primary research question (Research Question 1). We included both experimental studies that used random assignment to the intervention and quasi-experimental designs with non-random assignment. We only included quasi-experimental studies that used methods that can credibly address selection bias. Cook and colleagues (2008) and Shadish (2011) demonstrate that quasi-experimental studies can address concerns about selection bias, but only under certain conditions. Controlling for selection bias from covariates and including pretest measures of outcome variables are particularly effective in reducing selection bias (Shadish, 2011; Steiner et al., 2010). We therefore included only quasi-experimental studies that either included a baseline measurement of the outcome of interest or other relevant confounding factors, or studies in which allocation rules enabled the use of regression discontinuity designs or analyses on the basis of natural experiments. We excluded quasi-experimental studies that did not include a baseline measure of the outcome of interest and did not enable the use of either regression discontinuity designs or analyses on the basis of natural experiments.

To address the secondary research questions (Research Questions 2 and 3), we used an approach similar to Snilstveit and colleagues (2015) in their systematic review of the effects of education programmes. Snilstveit and colleagues (2015) used project documents to characterize interventions and qualitative studies to explore barriers to and

⁵ The influence of cultural and gender norms varies across different regions. These regional variations were taken into consideration in the quantitative and qualitative analyses by relying on random-effect meta-analyses and a narrative review that takes contextual characteristics into consideration.

facilitators of intervention effectiveness. In our review, we only used project documents to characterize the programmes selected to address Research Question 1, and studies (mixed-methods and qualitative studies) to address barriers to and facilitators of programme effectiveness. The information on barriers and facilitators and the programme characterization were later triangulated to support the analysis of design and implementation barriers and facilitators.

Specifically, we used the following two main types of sources:

1. Documents with project information describing the background, design, and implementation features of the interventions. These supporting documents were used to prepare detailed characterizations of the interventions. These documents included official project documents with little or no primary evidence, as well as quantitative, qualitative, or mixed-methods studies with programme information. These documents were not used to extract information on barriers to and facilitators of programme effectiveness, and therefore they did not undergo critical appraisal.
2. Studies related to selected interventions that used qualitative or mixed-methods techniques for data collection and analysis. Examples of such studies include 1) process evaluations, which may explore subjective experiences with the interventions or more objective issues, such as how the interventions were operationalized; and 2) studies that used interviews, focus group discussions, or survey methods to analyse issues such as participants' experiences or trajectories before, during, and after the training, as well as barriers to and facilitators of achieving intermediate and final outcomes; 3) included impact evaluations which discussed barriers and facilitators. These studies were used to extract information on barriers to and facilitators of programme effectiveness, and therefore they went through critical appraisal.

3.1.1 Types of participants

We included studies that focused on programmes that included women who were 18 years or older in low- and middle-income countries, as defined by the World Bank.⁶ In cases where programme participants were not exclusively women, studies were eligible for inclusion only if the effects on women were assessed separately from the effects on men, or if at least 80% of the sample were women. In cases where beneficiaries were younger than 18 years, studies were eligible only if a subgroup of the beneficiaries were female and 18 years or older. We included studies about the effects of vocational and business training regardless of the employment status or skill level of women at the time of the intervention.

3.1.2 Types of interventions

Types of interventions included

The interventions included in this review were vocational and business training programmes that aimed to increase the skill level of the disadvantaged, unemployed, or underemployed; fostered entrepreneurship to expand employment; and increased income prospects of women.

⁶ We used the 2014 definition of low- and middle-income countries, which included Argentina, Hungary, Seychelles, and Venezuela. However, these countries were categorized as high-income countries in the July 2015 update.

To identify programmes that focused on high-skill occupations for women, we used Acemoglu and Autor's (2011) classification of occupations according to skill requirements as a starting point. However, we adjusted their definition for this review and included studies that focused on programmes that provide women with either "high skills" or "medium skills" to account for a degree of variation regarding what constitutes a high, medium, or low skill in the context of low- and middle-income countries. For example, a bank teller would be categorized as a low-value, low-skill, routine cognitive job in a high-income country, but in a low- or middle-income country, a job as a bank teller would qualify as a high-skill occupation.

Acemoglu and Autor (2011) define three broad occupational categories:

1. Low-skill occupations: Routine manual occupations (those that require working at a pace determined by the speed of equipment, or spending time making repetitive motions), as well as routine cognitive occupations (those that require repeating the same tasks, or being exact or accurate)
2. Medium-skill occupations: Non-routine manual physical occupations (such as operating vehicles, mechanized devices, or equipment), as well as non-routine cognitive interpersonal occupations (those that require establishing and maintaining personal relationships; guiding, directing, and motivating subordinates; or coaching and developing others)
3. High-skill occupations: Occupations requiring the performance of non-routine cognitive analytical tasks (such as analysing data or information, thinking creatively, or interpreting information for others)

Eligible studies could also focus on vocational training programmes that included one or more of the following components in addition to vocational training:

- Strategies to facilitate access to job opportunities (through internships or on-the-job training, or by actively connecting participants with potential employers)
- Development of life skills among programme participants (specific job-related skills, such as preparing a curriculum vitae, or broader skills, such as those related to reproductive health and household economics)

We also included studies that focused on business training programmes providing management training and assistance to small and medium-sized enterprises. These studies could also have focused on business training programmes that included one or more of the following components in addition to business training:

- Microfinance
- Cash transfers
- Development of life skills among programme participants (specific job-related skills, such as preparing a curriculum vitae, or broader skills, such as those related to reproductive health and household economics).
- Strategies to facilitate access to markets and increase understanding of the value chain for the enterprise product

Types of interventions excluded

We excluded vocational and business training programmes targeted exclusively at men. Studies that focused on interventions that trained women to work in very low-skill occupations also fell outside the scope of this review and were excluded. We used a scoping review to further understand how low-skill occupations are defined within low- and middle-income countries. On the basis of the scoping review and Acemoglu and Autor's typology, we excluded studies of programmes that increased women's access to the domestic service or agricultural labour market because the scoping review indicated that these sectors almost exclusively provide employment in routine manual jobs.

Some vocational training programmes are offered within high schools or tertiary institutions. We did not include studies that focused on these types of vocational training programme because they are likely to influence outcomes through different mechanisms (such as increases in school enrolment and attendance) and would therefore require a different theory of change.

3.1.3 Types of outcomes

To address Research Question 1, we included studies that focused on a range of intermediate and/or final outcomes. To be included, studies needed to assess at least one of the outcomes outlined below, regardless of whether the outcome was an intermediate, primary or secondary outcome.

Primary or final outcomes

- **Employment (status, occupation):** We included all studies that focused on a range of measures of women's employment status and type of occupation, including whether women were employed, the status of their employment (full-time/part-time, permanent/temporary, formal/informal), and the type of occupation in which they were employed.
- **Income (earnings, wages or salaries):** We included studies that measured the income women earned through paid work, defined as earnings, wages, or salaries. We included studies that measured earnings or wages through administrative data, as well as self-reported data where women had been asked about their earnings, wages, or salaries. We only included studies that measured these incomes at the individual level in order to ensure that we could distinguish between the income of men and the income of women. We did not include studies that used expenditure or other consumption data as a proxy for income, unless those data could distinguish between the expenditure levels of men and women.
- **Revenue and profits:** We defined revenue as the total amount of income generated by the sale of goods or services from a business, and we defined profits as the total amount of income generated by the sale of goods or services from a business minus the costs. We included studies that measured revenue or profits through administrative and self-reported survey data. We only included studies that reported the revenues or profits of women or women-owned businesses specifically.
- **Working conditions:** As the ILO notes, this term covers "a broad range of topics and issues, from working time . . . to remuneration, as well as the physical conditions and mental demands that exist in the workplace" (ILO, n.d.). More

specifically, working conditions may include factors such as safety, stability of employment, social security, access to health insurance, opportunities for advancement, job permanence, career and employment security, health and well-being in the workplace, and work–life balance, as well as respectful treatment at work. We included all studies that measured these factors through administrative or self-reported data. Importantly, however, we used these factors as a proxy for formal employment as opposed to using these factors as a separate outcome variable.

- Societal worth: We defined improved societal worth as women gaining access to occupations traditionally associated with men, which in turn might lead to a reduction in the degree of occupational segregation. Occupational segregation and the feminization of certain occupations may contribute to gender inequalities in earnings and the reduced societal value attributed to women’s work (Borges, Mansson, & Farnsveden, 2012). Improved societal worth may improve the contribution of women in the labour market. We included studies that measured societal worth or occupational segregation through survey or administrative data.
- Economic empowerment: In line with Brody and colleagues (2015), we defined economic empowerment as “the ability of women to access, own, and control resources” (p. 20). Women’s empowerment can be measured through survey data (for example, by asking women about their ownership of assets and land); the division of domestic labour across men and women; and control over financial decision-making (Brody et al., 2015).
- Studies addressing Research Question 1 and 3: Outcome measures were not considered for filtering qualitative studies or other programme documents.

Secondary or intermediate outcomes

- Knowledge and skills: We included any studies that measured women’s business knowledge and skills, women’s understanding of the value chain of their product/service, women’s occupational knowledge and vocational skills, and women’s life skills. Studies that measured these outcomes through tests, administrative data, or self-reported data were all included.
- Business practices: We included all studies that measured the adoption of business practices associated with good business outcomes. These practices may include regular bookkeeping, clear recordkeeping, good planning, and other practices that are taught during business trainings. We included studies that measured the adoption of these and other good business practices (as reported by the authors of the study) through surveys.
- Life skills: We included studies with intermediate outcome measures related to changes such as attitudes towards work, motivation, self-esteem, career aspirations, and knowledge about how to manage domestic and work responsibilities, as well as measures related to knowledge of reproductive health, gender relations, and gender norms that may affect women’s acquisition and deployment of skills in the labour and business market. We included all studies that measured life skills through administrative or self-reported data. However, we did not include studies that focused solely on reproductive health. Each of the included studies needed to have a focus on vocational or business training, as well as outcome measures associated with labour market outcomes.

Language

We included studies published in English or Spanish after 1990. We did not exclude studies based on publication status.

Types of settings

We included studies from low- and middle-income countries, as defined by the World Bank.⁷

3.2 Search methods for identification of studies

We developed a comprehensive search strategy in consultation with information specialists. Our search strategy enabled us to identify published and unpublished literature by focusing on relevant academic and institutional databases, citation tracking, and snowballing of references. For searches of electronic databases, we used a detailed search string. Searches of grey literature and institutional websites typically relied on simpler, more tailored searches.

The search strings were designed to return studies that included at least one keyword from the following four themes:

4. Participants: woman, female, wife, mother, gender, occupational stratification, empowerment businesswoman, woman industry
5. Employment: employment, employability, employer, employee, work, workforce, job, vocation, career, occupation, livelihood, workplace, part-time, casual, informal, wages, labour market, school-to-work
6. Intervention: skill, upskill, life skills, training, retraining, mentor, apprentice, internship, prestige, expertise, professional, qualification, education, coaching, leadership, entrepreneur, human capital, business management, business support, capacity building
7. Setting: transitional, low-income, middle-income, third world, developing, underdeveloped, underserved nations/countries/populations/economies, LMIC (low- and middle-income country), LAMI (low- and middle-income), low GDP (gross domestic product), low GNP (gross national product).

To capture both quantitative studies for answering Research Question 1 and qualitative and mixed-methods literature relevant to Research Questions 2 and 3, we did not include search strings for study design, comparison condition, or outcome measures. Using these criteria in the search strategy would have excluded relevant qualitative studies, as well as quantitative and mixed-methods studies that omitted this information from the title and abstract.

Appendix 1 provides an example of a search string. Each search string was adapted to fit the syntax of the database host in order to utilize Boolean operators (AND/OR), wildcards, truncation, and other database search features. Below, we list the sources covered by our search.

⁷ We are using the 2014 definition of low- and middle-income countries, which included Argentina, Hungary, Seychelles, and Venezuela. However, these countries were categorized as high-income countries in the July 2015 update.

3.2.1 Electronic searches

Comprehensive database searches included the following paid-access and free-access electronic databases.

Paid-access databases

- Web of Science
- Scopus
- ASSIA
- IBSS
- PAIS
- ERIC
- Econlit
- Academic Search Complete
- Business Source Corporate
- Gender Studies Database

Open-access databases

- Ideas-REPEC
- Campbell Library
- 3ie Impact Evaluation Repository
- Labourdoc

3.2.2 Hand search: selected journals

We hand-searched the most recent issues of the journals listed below for any papers not yet indexed in electronic databases.

- American Economic Review
- Quarterly Journal of Economics
- American Economic Journal: Applied Economics
- Journal of Labour Economics
- Journal of Development Economics
- Journal of Development Effectiveness
- Economic Development & Cultural Change
- International Labour Review
- World Bank Economic Review
- World Development
- Journal of Development Studies
- Journal of Human Resources
- Journal of Education and Work
- Journal of International Women's Studies
- Gender & Development
- Feminist Economics
- Feminist Review

3.2.3 Grey literature

Grey literature searches included a review of the institutional websites and research funders listed below.

- International Labor Organization (<http://www.ilo.org>)
- World Bank (<http://www.worldbank.org>)
- ELDIS (<http://www.eldis.org>)
- DfID R4D (<http://r4d.dfid.gov.uk>)
- ASEAN (<http://www.asean.org>)
- IADB (<http://www.iadb.org>)
- UNGEI (<http://www.ungei.org>)
- UN Women (<http://www.unwomen.org>)
- J-PAL (<http://www.povertyactionlab.org>)
- IPA (<http://www.poverty-action.org>)
- British Library for Development Studies (<http://blds.ids.ac.uk/>)
- World Bank DIME (<http://www.worldbank.org/en/research/dime>)
- World Bank enGENDER Impact
(<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTGENDER/0,,contentMDK:23457844~pagePK:210058~piPK:210062~theSitePK:336868,00.html>)
- World Bank Policy Research Working Paper Series
(<http://documents.worldbank.org/curated/en/docsearch/document-type/620265>)
- NBER (National Bureau of Economic Research; <http://www.nber.org/>)
- Social Science Research Network (SSRN;
<http://papers.ssrn.com/sol3/DisplayAbstractSearch.cfm>)
- IZA Discussion Papers (<http://www.iza.org/en/webcontent/publications/papers>)
- Centre for Economic Policy Research Discussion Papers
(<http://cepr.org/content/discussion-papers>)
- READ Working Papers (<http://ibread.org/bread/papers>)

3.2.4 Searching other sources

Citation Tracking

Forward and backward snowballing of the references of key papers provided additional studies for review that may not have been found in database searches. Citation searches were conducted in Google Scholar, Scopus, and Web of Science. The set of key papers included anchor papers identified by the authors (listed below); key papers identified by an advisory group of reviewers for our scoping study (Chinen et al., 2015); key papers identified by the review's advisory group; key papers identified by the external funder (3ie); studies that passed the inclusion criteria; and additional key papers identified from institutional websites.

Table 1 presents the list of key papers identified by authors and reviewers that was used in citation searches.

Table 1: Key papers

Study
Attanasio, O., Kugler, A., & Meghir, C. (2009). <i>Subsidizing vocational training for disadvantaged youth in a developing country: Evidence from a randomized trial.</i>
Bandiera, O., Burgess, R., Gulesci, S., Rasul, I., & Sulaiman, M. (2013). <i>Capital, skills and the economic lives of the poor: Recent evidence from field experiments.</i>
Blattman, C., & Ralston, L. (2015). <i>Generating employment in poor and fragile states: Evidence for labour market and entrepreneurship programs.</i>
Blattman, C., Fiala, N., & Martinez, S. (2013). <i>Generating skilled self-employment in developing countries: Experimental evidence from Uganda.</i>
Borges Månsson, A., & Färnsveden, U. (2012). <i>Gender and skills development: A review.</i>
Bravo, D., Sanhueza, C., & Urzúa, S. (2008). <i>An experimental study of labour market discrimination: Gender, social class and neighborhood in Chile.</i>
Buvinic, M., & Furst Nichols, R. (2014). <i>Promoting women's economic empowerment: What works?</i>
Chigateri, S., Jugran, T., Nanda, R., & Nandi, R. (2015). Learning from STEP Evaluations. In <i>Engendering meta-evaluations: Towards women's empowerment.</i>
Cho, Y., & Honorati, M. (2013). <i>Entrepreneurship programs in developing countries: A meta regression analysis.</i>
Erulkar, A., Bruce, J., Dondo, A., Sebstad, J., & Matheka, J. (2006). <i>Tap and Reposition Youth (TRY): Providing social support savings and microcredit opportunities for young women in areas with high HIV prevalence.</i>
Ibarrarán, P., & David Rosas, S. (2008). <i>Evaluating the impact of job training programs in Latin America: Evidence from IDB-funded operations.</i>
International Center for Research on Women (2003). <i>Equal opportunity and youth employment: A background report for the Equal Opportunity Working Group of the Youth Employment Network.</i>
International Center for Research on Women. (2012). <i>Catalyzing Growth in the Women-Run Small and Medium Enterprises Sector (SMEs).</i>
Kabeer, N. (2005). <i>Is microfinance a "magic bullet" for women's empowerment? Analysis of findings from South Asia.</i>
Kabeer, N. (2012). <i>Women's economic empowerment and inclusive growth: Labour markets and enterprise development.</i>
Katz, E. (2008). <i>Programs promoting young women's employment: What works?</i>
McKenzie, D., & Woodruff, C. (2012). <i>What are we learning from business training and entrepreneurship evaluations around the developing world?</i>
Nanda, P., Mishra, A., Walia, S., Sharma, S., Weiss, E., & Abrahamson, J. (2013). <i>Advancing women, changing lives: An evaluation of Gap Inc.'s PACE program.</i>
Ñopo, H., Robles, M., & Saavedra, J. (2007). <i>Occupational training to reduce gender segregation: The impacts of ProJoven.</i>
Sudarshan, R. M., & Bhattacharya, S. (2009). <i>Through the magnifying glass: Women's work and labour force participation in urban Delhi.</i>
Tripney, J., Hombrados, J., Newman, M., Hovish, K., Brown, C., Steinka-Fry, K., & Wilkey, E. (2013). <i>Technical and vocational education and training (TVET) interventions to improve employability and employment of young people in low- and middle-income countries: A systematic review.</i>

Targeted search for addressing Research Questions 2 and 3

After identifying relevant studies for answering Research Question 1, we undertook targeted searches for:

- Documents with project information providing details of the interventions included in the review
- Additional qualitative and mixed-methods studies exploring various aspects of the included interventions—for example, how structural conditions and gender norms, as well as programme design and implementation features, may have affected programme implementation and outcomes

We conducted citation tracking of included studies to identify any relevant papers and Internet and database searches using the names of programmes from studies included in the review. We also searched databases of project documents and websites of implementing agencies to identify project documents.

The targeted search involved the following steps:

1. Citation tracking: We conducted forward and backward citation tracking of included studies to identify relevant papers and other documents.
2. Search by programme name: We conducted searches for the programme name on the Internet and in Google Scholar. We also conducted searches using Boolean logic through combining “programme name” and country/funder/implementer. We screened the first 50 hits on Google, following Snilstveit and colleagues’ (2015) example.
3. Targeted searches of funder and implementer websites: We conducted searches on the websites of implementers and funding agencies of included interventions. We again conducted searches using Boolean logic through combining “programme name” and country/funder/implementer.

3.3 Data collection and analysis

We extracted a range of data including bibliographic details, outcomes, period covered, study design and outcomes data. Data were extracted for each study by a single team member, with this process independently repeated for a random sample of 10 percent of studies by another team member, in order to assess and reinforce consistency of coding.

Where studies did not provide information on the size of subsidy, wherever possible we identified programme names and periods of implementation. We then used secondary sources of information in order to clarify the level of subsidy provided by a given programme over the period covered by the study.

3.3.1 Selection of studies

Screening took place in two phases: first, on the basis of titles and abstracts, and then on the basis of full texts.

Screening Phase 1

In the first phase, two team members independently reviewed titles and abstracts or executive summaries (where available) and excluded all studies that were not relevant. Disagreements about inclusion were resolved through discussion.

Screening Phase 2

In the second phase, we reviewed the full text of all studies that passed the first phase of screening. We searched for the most recent version of each included study by reviewing authors' websites and conducting searches in Google and Google Scholar. Two reviewers independently assessed studies against the inclusion criteria, and studies meeting all criteria were retained for inclusion in the review. A senior team member reviewed any discrepancies between the two reviewers' assessments and ultimately made the decision about inclusion in the review.

Studies that passed the second phase of screening were also screened for the secondary research questions, based on the exclusion/inclusion criteria outlined above. All selected studies used to address Research Question 1, were also used to address Research Questions 2 and 3. Other studies that used qualitative or mixed methods and described the design, implementation, or barriers and facilitators related to the included interventions were also included for addressing Research Questions 2 and 3. In order to be included in the review, studies needed to report some information on all of the following: (a) the research question, (b) procedures for collecting data, and (c) sampling and recruitment. Documents with programme information were used to prepare a detailed characterization of each of the included interventions.

Titles and abstracts of the search results from database, grey literature, and citation searches were uploaded to the EPPI-Reviewer 4 online system (<http://eppi.ioe.ac.uk/eppireviewer4>). Duplicate studies were identified and removed automatically using the duplicates feature built into EPPI-Reviewer 4. Two reviewers piloted the inclusion criteria, each of whom independently assessed a sample of studies for relevance. Screening results were compared, and the inclusion criteria were adapted as needed. All titles and abstracts were then screened against the inclusion criteria outlined above, retaining potentially relevant studies for a screening of the full text (Phase 2).

3.3.2 Data extraction and management

Two team members (working independently) extracted information from each quantitative or qualitative study included in the review. Both team members used a pre-piloted data-extraction form, and the data were summarized in a table. Disagreements in coding were resolved through discussion. Study-, group-, outcome-, and effect-level data extraction and coding forms guided the data extraction. The data extraction form in Appendix 2 summarizes this process in more detail.

3.3.3 Assessment of risk of bias in included studies

Risk of bias in quantitative studies

We used an adapted set of criteria to assess the risk of bias in experimental and quasi-experimental studies (Hombrados & Waddington, 2012). Specifically, we assessed the risk of the following biases:

1. **Selection bias and confounding**, based on the quality of the identification strategy used to determine causal effects and assessment of equivalence across the beneficiaries and comparison or control group, including an assessment of differential risk of attrition

2. **Performance bias**, based on the extent of spillovers to the students in the control or comparison groups and contamination of the control or comparison group
3. **Outcome and analysis reporting biases**, including
 - The use of potentially endogenous control variables
 - Failure to report non-significant results
 - Other unusual methods of analysis
4. **Other biases**, including
 - Courtesy and social desirability bias
 - Strong researcher involvement in the implementation of the intervention and the Hawthorne effect

Quality Appraisal of Studies Included to Answer Research Questions 2 and 3

In order to address Research Questions 2 and 3, we used the included impact evaluations—all of which provided some level of information on barriers to and facilitators of intervention effectiveness—as well as additional qualitative and mixed-methods studies. All included studies used to answer Research Questions 2 and 3 were critically appraised for quality. Although all of the included impact evaluations were assessed for risk of bias, only a subset reported on results from data gathered through qualitative methods. The qualitative sections of those studies along with the additional qualitative and mixed-method studies we found were included in the quality appraisal for qualitative studies as well. This quality appraisal only focused on the qualitative information in the included studies.

The quality appraisal was carried out using an adaptation of the nine-item Qualitative Research Checklist (Table 2), which was developed by the Critical Appraisal Skills Programme (CASP). This involves making judgments on the adequacy of stated aims, the data collection methods, the analysis, the ethical considerations, and the conclusions drawn (Critical Appraisal Skills Programme, 2013). Two researchers determined whether studies adequately met each item, providing “yes,” “no,” or “can’t tell” responses. If researchers disagreed, they discussed the item to reach consensus. We rated studies that scored zero to two “no” or “can’t tell” responses as having minor limitations, studies that scored three to five “no” or “can’t tell” responses as having medium limitations, and studies that scored six to nine “no” or “can’t tell” responses as having major limitations.

Documents with project information were only used to prepare the detailed programme characterizations, providing supporting descriptive information. These documents did not undergo critical appraisal. Instead, we assessed the relevance of the documents for understanding programme design and implementation features and assessed whether they provided factual information about the interventions. In most cases, we found a number of sources for each included intervention, which we used to triangulate with the programme information included in the impact evaluations to get a more complete picture of what each intervention proposed.

Table 2: Quality appraisal criteria

Criteria	Coding
Screening Question: Is there a clear statement of study aims of the research?	Yes / Can't tell / No
Screening Question: Is the proposed methodology appropriate to address the study aims?	Yes / Can't tell / No
Was the research design appropriate to address the aims of the research?	Yes / Can't tell / No
Was the recruitment strategy appropriate to address the aims of the research?	Yes / Can't tell / No
Were the data collected in a way that addressed the research question?	Yes / Can't tell / No
Has the relationship between researcher and participants been adequately considered?	Yes / Can't tell / No
Have ethical issues been taken into consideration?	Yes / Can't tell / No
Was the data analysis sufficiently rigorous?	Yes / Can't tell / No
Is there a clear statement of findings?	Yes / Can't tell / No

3.3.4 Measures of treatment effect

We extracted information from each quantitative study to estimate standardized effect sizes. In addition, we calculated standard errors and 95% confidence intervals if possible. We calculated the Hedges' *g* sample-size-corrected standardized mean differences (SMDs) for continuous outcome variables, which measure the effect size in units of standard deviation of the outcome variable.

We first calculated SMDs (Cohen's *d*) by dividing the mean difference with the pooled standard deviation by applying the formula in Equation 1:

$$(1) \text{ SMD} = \frac{Y_t - Y_c}{S_p}$$

SMD refers to the standardized mean differences, Y_t refers to the outcome for the treatment group, Y_c refers to the outcome for the comparison group, and S_p refers to the pooled standard deviation.

The pooled standard deviation (S_p) can be calculated by relying on the formulae in Equations 2 and 3:

$$(2) S_p = \frac{\sqrt{((SD_y^2) * (nt + nc - 2)) - \left(\frac{\beta^2 * (nt + nc)}{nt + nc}\right)}}{nt + nc}$$

$$(3) S_p = \frac{\sqrt{(nt - 1) * st^2 + (nc - 1) * sc^2}}{nt + nc - 2}$$

We used Equation 2 for regression studies with a continuous dependent variable. In this equation, SD_y refers to the standard deviation for the point estimate from the regression, nt refers to the sample size for the treatment group, nc refers to the sample size for the control group, and β refers to the point estimate. We used Equation 3 when information was available about the standard deviation for the treatment group and the control group.

We corrected the standardized mean difference for small sample size bias by relying on Equation 4, which transforms Cohen's d to Hedges' g .

$$(4) \text{SMD}_{\text{corrected}} = \text{SMD}_{\text{uncorrected}} * \left(1 - \frac{3}{4 * (nt + nc - 2) - 1}\right)$$

We also relied on Equation 5 to estimate the standard error of the standardized mean difference:

$$(5) \text{SE} = \sqrt{\frac{nt + nc}{nc * nt} + \frac{\text{SMD}^2}{2 * (nc + nt)}}$$

To guide the interpretation of the results, we followed Oya et al. (2017), who transform standardized mean differences into standardized percentages using binomial effect size displays (Randolph & Edmondson, 2006). To derive these effect size displays, we first translated standardized mean differences into point-biserial correlation coefficients (r). Next we calculated success rates for the treatment and control group based on an arbitrary base success rate of 50%. Deviations from this base rate were then determined by the size of r (Oya et al., 2017). Upper and lower bounds were finally determined based on the the inter-group differences at the upper and lower bounds of the correlation coefficient's confidence interval.

Although we publish the differences in percentage points as the main effect size estimate in this systematic review, binomial effect size displays should, however, not be interpreted as percentage changes in the underlying data. We merely presented binomial effect size displays to communicate effect sizes to get a clearer sense of the size of the impact estimates as in Oya et al. (2017).

We calculated odds ratios (ORs) for dichotomous outcome variables. The odds ratio is the ratio of the odds of an event occurring in the group of beneficiaries to the odds of the same event occurring in the comparison group (Bland & Altman, 2000).

We conducted meta-analyses based on ORs, but summarized the results as a summary risk ratio (RR). We used this method because ORs have favourable mathematical properties, but RRs are easier to interpret. To transform the ORs to RRs, we relied on Equation 6:

$$(6) \text{RR} = \frac{\text{OR}}{1 - \text{ACR} * (1 - \text{OR})}$$

Here ACR is the assumed control risk, which we estimated using the median control group risk from the studies in the meta-analysis. This approach is in line with recommendations of the Cochrane Handbook (Higgins & Green, 2011).

3.3.5 Unit of analysis issues

We planned to adjust standard errors for those studies that used outcome variables that were clustered at a higher level of aggregation than the individual level and used treatment assignment at the higher level of aggregation than the individual level, but did not take this into consideration in the estimation of the standard errors and confidence intervals. However, each of the included experimental and quasi-experimental studies relied on clustered standard errors when the treatment assignment was at a higher level of aggregation than the individual level. For this reason, it was not necessary to adjust standard errors and we always relied on clustered standard errors in the meta-analysis.

3.3.6 Methods for handling dependent effect sizes

We included only one effect size per study in a single meta-analysis. Where studies presented several impact estimates for different outcomes variables that measure the same construct, we used a sample-size weighted average effect size to construct a “synthetic effect size.” For example, we calculated synthetic effect sizes for studies that measured the impact of vocational training on employment in the last week and employment in the last month (Honorati, 2015).

In cases where one study measured the same outcome variable at different periods in time, we extracted data on all time periods, and included the outcome measure that is closest to the time period of the measurement in other studies included in the same meta-analysis. For example, we did not include the impact of vocation training after 27 months (as calculated by Groh and colleagues, 2016) in the meta-analysis because none of the other included studies measured the impact of vocational training during such a long time period. Similarly, we only included short-term impact estimates of Blattman, Fiala, and Martinez (2014) in our main meta-analyses. In addition, we conducted separate narrative analyses to analyse differences in effect sizes over time using these and other studies.

In cases where one study measured the same outcome variable at different periods in time, but it was unclear which outcome measure was closest to the time period of the measurement in other studies included in the same meta-analysis, we used a sample-size weighted average effect size to create a synthetic effect size for studies that measured the same outcome variables at different points in time. For example, we calculated synthetic effect sizes for evaluations of business training programs that measured impacts on profits after 6, 12, and 18 months (Galdo & Chong, 2012; Ñopo et al., 2007) as well as evaluations of business training programs that measured impacts 4, 8, 16, and 25 months after the start of the programme (McKenzie & Woodruff, 2012). In these cases it was unclear which outcome measure was closest to the time period of the measurement in other studies included in the same meta-analysis because of the wide variety of measurement time periods included in the meta-analysis. For these studies we again conducted separate narrative synthesis to examine differences in treatment effects over time as well.

In cases where the same paper reports multiple effect sizes for the same outcome with different regression specifications, we extracted the effect size from the authors' preferred specification. The authors preferred specification was clear in all cases.

In cases where more than one study used the same data set to measure an outcome variable, we extracted the effect size from the study with the lowest risk of bias. For example, we excluded the quasi-experimental study by Diaz & Jaramillo (2006) from the meta-analysis because Diaz and Rosas (2016) designed and implemented an RCT to evaluate the same programme.

If studies included more than one treatment arm, we included the effect size from the treatment arm that is most similar to the other programs that are included in the meta-analysis as recommended in Borenstein et al. (2009). For example, we did not include business training programs that included a cash transfer in the meta-analysis when the majority of the other business training programs did not include a cash transfer component.

When different studies measured the impact of the same programme and all else was equal, we calculated a pooled summary effect size using a random effect meta-analysis that included the two studies to prevent bias from dependency across the two studies. Next, we included this summary effect size in the final meta-analysis. We applied this procedure to calculate summary effect sizes for the studies of Aedo and Nunez (2004) and Elias and colleagues (2004).

3.3.7 Dealing with missing data

If it was not feasible to estimate the effect size because of missing information, we contacted the authors of the primary studies to request the missing information required to calculate the effect sizes. If we could not retrieve the missing data, we extracted or imputed effect sizes and associated standard errors based on commonly reported statistics such as the *t* or *F* statistic or exact *p* or *z*-values using David Wilson's practical meta-analysis effect-size calculator. When studies did not report sample sizes for the treatment and the control or comparison group, we assumed equal sample sizes across the groups.

We faced several challenges with missing data in the calculation of effect sizes for dichotomous dependent variables. Firstly, the majority of studies that had a dichotomous dependent variable used a linear probability model rather than a logit or probit regression to estimate the effects of vocational and business training. In these cases, we followed Brody and colleagues' (2015) example and estimated odds ratios under the assumption of linearity in the estimation of the standardized effect sizes. This assumption can be considered reasonable because, empirically, there are not many differences in marginal effects between linear probability models and nonlinear logit and probit models (Angrist & Pischke, 2009).

3.3.8 Quantitative data synthesis

We addressed Research Question 1 by synthesising studies in a meta-analysis using an inverse-variance, random-effects model due to the anticipated heterogeneity in the included studies. We combined estimates only from studies assessing the effect of comparable programmes on similar outcome constructs (Borenstein et al., 2009).

3.3.9 Subgroup analysis and investigation of heterogeneity

We examined the heterogeneity of the effect sizes visually and by estimating the *I* squared and *Q*, as well as *tau*-squared (Borenstein et al., 2009). We also investigated

factors explaining heterogeneity by using inverse-variance weighted meta-regressions and stratified meta-analysis, according to the following contextual and methodological moderator variables.

1. Intervention components
 - The degree of gender focus for vocational training
 - The inclusion of an internship with vocational training
 - The inclusion of life skills training with vocational training
 - The inclusion of microfinance with business training
 - The inclusion of cash transfers with business training
 - The degree of gender focus for business training
2. Geography
 - Separate effects for vocational training by continent
 - Separate effects for business training by continent
3. Time to follow-up
 - Separate effects for vocational training by intervention period (shorter or longer than 6 months)
 - Separate effects for business training by intervention period (shorter or longer than 6 months)

We also examined the relative effectiveness of studies that evaluated different types of intervention through stratified meta-analysis. For this, we used a similar approach to Brody and colleagues (2015), who compare point estimates and then formally test differences in effect sizes between programmes with different intervention constructs if the overlap in effect sizes is minor or non-existent. In addition to the meta-analysis, we used a synthesis to explore heterogeneity in the results for these subgroups because our sample of studies was relatively small. For this analysis, we integrated the findings of the qualitative analysis with the findings of the quantitative analysis to the extent possible. For example, we defined a hypothesis on the moderating effect of the degree of gender focus on the basis of the qualitative synthesis, which we subsequently tested in a formal manner in the quantitative synthesis.

3.3.10 Sensitivity analysis

We performed sensitivity analysis for two methodological effect size moderators:

- Risk of bias status for each risk of bias category
- Study design (RCTs versus quasi-experimental studies)

We started our analysis with separate meta-analyses of RCTs and quasi-experimental evaluations to determine the effects of vocational and business training. We then used an iterative approach to determine the potential bias from pooling RCTs and quasi-experimental evaluations, and from studies with low, medium, and high risk of bias for each of the types of bias we assessed in our risk-of-bias assessment. First, we conducted stratified meta-analyses for the RCTs and quasi-experimental evaluations in our sample. We then conducted meta-analyses for experimental and quasi-experimental studies with low, medium, and high risk of bias, respectively. Finally, we compared the effect sizes of the different analyses to determine whether studies could potentially be combined into a single meta-analysis. In cases where we were not certain whether we could combine studies in a single meta-analysis, we conducted several meta-regressions

to make decisions about combining studies with different characteristics in one meta-analysis. We decided to combine studies in a single analysis when the meta-regression did not show significant differences, either substantively or statistically, in the effect sizes between the studies with different risks of bias.

3.3.11 Assessment of publication bias

We assessed the potential for publication bias using funnel plots for impact estimates for vocational training's effect on employment and earnings, and for business training's effect on sales or profits. In addition, we conducted Egger's test. For other outcome measures, our sample size was insufficient for funnel plots to be informative about the potential for publication bias. We only assessed the potential for publication bias using funnel plots when a minimum of 5 studies was included in the meta-analysis.

3.3.12 Analytical strategy used to address research questions 2 and 3

The analytical strategy used to address Research Questions 2 and 3 included two stages. During the first stage, we produced detailed characterizations of the included interventions. During the second stage, we analysed findings from included studies through a narrative meta-synthesis. The following paragraphs describe the steps in each of these stages.

3.3.13 Detailed characteristics of included interventions

During this phase, we developed some key analytical categories on intervention design and implementation features. Programme characterization was a fundamental building block for the analysis because it provided a lot of details about programme implementation. These details enabled us to better interpret the barriers to and facilitators of programme effectiveness.

The characterization of included interventions was based on a number of documents containing project information, which were found through the purposive searches discussed earlier. (Appendix 3 shows the full list of documents used for this purpose.) We used a data extraction sheet that included elements such as a short description of the intervention, the country and cities where the intervention was implemented, the years during which the intervention took place, the content and duration of the training, and the characteristics of the target population, among others (Appendix 3, Table 1). Continuous searches had to be conducted to gather all of the required information.

We also identified all the intervention activities to prepare the programme characterizations. For example, we identified whether the programme provided strategies to facilitate access to job opportunities (vocational training) or support for business development (business training), life skills training, stipends, wage subsidies, incentives, and so on. Some interventions included strategies to facilitate access to job opportunities through job placements or internships, specific support strategies for interns, or incentives for employers. Other interventions explicitly sought to break gender segregation patterns through incentives and sensitization. Interventions that included life skills training either offered generic training or specific gender-relevant content (e.g., on reproductive health, occupational segregation, and so on). Some interventions also offered generic stipends to cover transportation costs, while others offered extra resources for women to cover childcare costs.

The detailed characterizations of interventions enabled us to construct an analytic category for the gender focus of the intervention—something that the literature had highlighted as a key element for achieving results for women (Fawcett and Howden 1998). Interventions were classified based on 1) whether they had a gender focus, and 2) the strength of this gender focus.

The intervention characterizations also enabled us to construct a variable identifying the intensity of trainings. However, information on programme duration was not always consistent, with some sources providing details of hours, days, and months, while others mentioned only an overall duration.

3.3.14 Narrative meta-synthesis

The findings from studies included to address Research Questions 2 and 3 were systematically analysed in order to produce a narrative meta-synthesis (see Snilstveit, Oliver, & Vojtkova, 2012; Sandelowski, Docherty, & Emden, 1997; Walsh & Downe 2005; Zimmer, 2006). Narrative meta-syntheses aim to aggregate and interpret findings, rather than merely accumulate findings from different studies. However, unlike in quantitative meta-analysis (where findings from different studies are pooled together using a common metric), narrative meta-syntheses translate key concepts within and across studies in order to produce a new interpretation (Harden, 2010; Lockwood 2015).

Our narrative meta-synthesis sought to understand the barriers to and facilitators of the effectiveness of the included interventions. To achieve this goal, we synthesized relevant findings from included impact evaluation studies used to address Research Question 1, all of which provide some level of discussion of barriers to and facilitators of intervention effectiveness. Additionally, the narrative meta-synthesis considered relevant findings from qualitative and mixed-methods studies that related to selected interventions and had passed the critical appraisal.

In the first stage of the narrative meta-synthesis, we read and coded the full version of included papers. We coded information on barriers and facilitators into three broad categories: 1) structural conditions, 2) gender norms, and 3) design and implementation features. In the second stage, we coded the information in each of the initial categories into more specific codes. For example, we organized structural barriers and facilitators into more specific themes, such as transport availability and quality of infrastructure.

Triangulating the findings from the included studies with the information gathered for the detailed programme characterizations considerably strengthened the narrative meta-synthesis.

3.4 Deviations from the protocol

The review deviates from the proposed protocol in three important ways. Specifically, we proposed to conduct a meta-analysis to determine the effects of business training on business knowledge and business practices. However, our review of the literature demonstrated that there is a wide variation in the methods to measure business knowledge and practices. As a result, we were no longer convinced that the included studies refer to the same construct when they measure business knowledge and business practices. For this reason, we conducted a quantitative narrative synthesis to determine the impact of business training on business knowledge and practices. We did not conduct

a meta-analysis to determine the impact of vocational or business training on these outcome measures.

Furthermore, we did not assess the impact of vocational or business training on working conditions. Instead, we included outcome variables associated with good working conditions, such as employment that includes health insurance, as a proxy variable for formal employment. In our review we assumed that employment with health insurance or a written contract could be considered as formal employment. This approach is in line with Card et al. (2011) who use employment with health insurance as a proxy variable for formal employment.

In addition, we included two studies in the review that did not differentiate by gender in the estimation of the effect sizes (Alcid, 2014; Hicks et al., 2015). We included these studies because we anticipated that we would be able to obtain gender-segregated effects from the authors and because these studies proved to be useful for the narrative meta-synthesis. However, we did not receive these gender-segregated effects in the end. Therefore, we were not able to include the studies in the quantitative meta-analysis.

4. Results

4.1 Description of included studies

The full searching process described previously led to the inclusion of 35 experimental and quasi experimental studies which investigated the impact of 30 interventions. Of the 35 studies, 19 evaluated the impact of vocational training programs, 12 evaluated the impact of business training programs, and four examined the impact of what we termed “mixed” interventions—that is, interventions that included both vocational and business training elements.

Tables 3 and 4 summarize the main characteristics of the studies that focus on vocational and business training. The tables include some key characteristics of the studies, such as the name of the programme, the region and country where the study took place, the study design and methodology, and the outcome measures included in the study and the subset used for the meta-analysis. Additionally, Table 3 also includes information about the gender focus of the intervention, whether the intervention included an internship or life skills training, and the time between the vocational training and the impact estimate. Similarly for business training programmes, Table 4 includes the gender focus of the intervention, whether the intervention included cash transfers or microfinance, and the time between the end of the business training and the impact estimate.

4.1.1 Population and settings

Selected interventions targeted women from various age groups. More than half of the studies targeted women from all ages, including those as young as 14 and mature participants. For example, the vocational programmes Satya-Pratham from India and the Ninaweza Project from Kenya targeted women between ages 18 and 39, and 18 and 35 respectively (Maitra & Mani, 2014; De Azevedo, Davis, & Charles, 2013). About 44% of the included interventions targeted young people aged 14 to 29. For example, the Peruvian vocational programme named ProJoven and the Dominican vocational programme named Programa Juventud y Empleo targeted people between 16 and 24

years old and 16 and 29 years old, respectively. However, studies were included only if a subgroup of the female beneficiaries were 18 years or older. Table 5 presents these results.

Both vocational and business training programmes focus on people from the lowest socio-economic backgrounds. Evaluations of vocational training programmes tend to focus on vulnerable, and unemployed people with minimum levels of education. Business trainings tend to focus on poor people, clients of financial institutions, and micro and small entrepreneurs.

Business training programmes are more likely to exclusively target women. Seventy-two per cent of the identified vocational training programmes (13 out of 18) targeted men and women, compared to 50% of the business training programs (eight out of 16). In other words, only 28% of the identified vocational training programmes focused exclusively on women, compared to 50% of the identified business training programs.

A large percentage of the included studies took place in Latin America ($n = 11$), with four of those 11 studies evaluating the impact of the Peruvian vocational training programme, ProJoven. Another three vocational studies evaluated the impact of two Argentinean interventions: Programa Joven and Proempleo. Two studies were conducted in Colombia and evaluated the effect of the Jovenes en Accion programme and the Colombian Unemployment Subsidy Programme. Another two studies evaluated the Dominican Republic intervention, Juventud y Empleo.

The rest of the evaluations of vocational training programs were conducted in Africa ($n = 3$), Asia ($n = 2$), and the Middle East ($n = 2$). The studies conducted in Africa evaluated three Kenyan programs: the Ninaweza Project, the Vocational Training Programme for Kenyan Youth, and the Kenya Youth Empowerment Project (KYEP). The two studies that took place in Asia examined the Adolescent Girls Employment Initiative (AGEI) in Nepal and the SATYA-PRATHAM vocational training programme in stitching and tailoring services in India. The two studies with an emphasis on the Middle East investigated the impact of the Jordan New Work Opportunities for Women (Jordan NOW) programme and the Turkish Employment Agency's vocational training programme.

The business studies were also distributed across the regions of Latin America ($n = 5$), Africa ($n = 4$), and Asia ($n = 3$). The Latin America studies evaluated the Argentinean business intervention Herramientas por Trabajo (part of the Microemprendimientos Productivos Programme), the Mexican business literacy training, and three business training interventions in Peru: business training for microfinance clients (FINCA), Business Development Services (BDS) for female microentrepreneurs, and the Strengthening Women Entrepreneurship in Peru (SWEP) programme. The African studies examined the impact of two Ugandan interventions—Empowerment and Livelihood for Adolescents (ELA) and Women's Income Generating Support (WINGS)—and one intervention in Tanzania known as the Promotion of Rural Initiatives and Development Enterprises (PRIDE). The three evaluations in Asia took place in India, Pakistan, and Sri Lanka.

The five studies examining the impact of the mixed interventions were all conducted in Africa in the countries of Côte d'Ivoire, Liberia, Malawi, Rwanda, and Uganda.

Table 3: Vocational interventions: summary of included quantitative studies

Included Study	Study Name	Region: Country	Intervention	Study Design: Method	Outcomes	Gender Focus	Intern ship	Life Skills	Time from Training to IE	Publication Type
1	Aedo & Nunez, 2004	Latin America: Argentina	Programa Joven	QE: PSM with Baseline	Employment, income. In meta-analysis: employment, income	Low	Yes	No	12 months	Working paper
2	Attanasio, Kugler, & Meghir, 2009	Latin America: Colombia	Jovenes en Accion	RCT	Employment, employment (paid) Earnings, earnings (self-employment), tenure. In meta-analysis: employment, earnings	Low	Yes	Yes	20 months	Working paper
3	Blattman, Fiala, & Martinez, 2014	Africa: Uganda	Youth Opportunities Programme (YOP)	RCT	Earnings, employment, work hours. In meta-analysis: earnings	None	No	No	24-48 months	Peer-reviewed journal
4	Card, Ibarra, Regalia, Rosas-Shady, & Soares, 2011	Latin America: Dominican Republic	Juventud y Empleo	RCT	Employment, earnings. In meta-analysis: employment, earnings	Low	Yes	Yes	13 months	Peer-reviewed journal
5	Chakravarty, Lundberg, Nikolov, & Zenker, 2016	Asia: Nepal	Adolescent Girls Employment Initiative (AGEI)	QE: PSM (IPSW)	Employment (type, self), earnings, hours of work, savings, knowledge, economic empowerment. In meta-analysis: employment, earnings	High	No	Yes	24 months	Working paper

Included Study	Study Name	Region: Country	Intervention	Study Design: Method	Outcomes	Gender Focus	Internship	Life Skills	Time from Training to IE	Publication Type
6	De Azevedo, Davis, & Charles, 2013	Africa: Kenya	Ninaweza Project	RCT	Income, employment, knowledge. In meta-analysis: employment, income	High	Yes	Both	2-6 months	Report
7	Diaz & Jaramillo, 2006	Latin America: Peru	ProJoven	QE: PSM with Diff-in-Diff	Employment (paid, formal), earnings, hours of work. In meta-analysis: employment, formal employment, earnings	Low	Yes	Yes	6-18 months	Working paper
8	Diaz & Rosas, 2016	Latin America: Peru	ProJoven	RCT	Employment (wage, months of employment), hours of work, income. In meta-analysis: employment, income	Low	Yes	Yes	36 months	Working paper
9	Elias, Núñez, Cossa, & Bravo, 2004	Latin America: Argentina	Programa Joven	QE: PSM with Diff-in-Diff	Wages, earnings, employment. In meta-analysis: employment	Low	Yes	No	12 months	Working paper
10	Galasso, Ravallion, & Salvia, 2004	Latin America: Argentina	Proempleo	RCT: 2SLS with Diff-in-Diff	Income, employment, employment. In meta-analysis: employment	None	No	Yes	19 months	Peer-reviewed journal
11	Galdo & Chong, 2012	Latin America: Peru	ProJoven	QE: PSM with Diff-in-Diff	Earnings	Low	Yes	Yes	12 months	Peer-reviewed journal

Included Study	Study Name	Region: Country	Intervention	Study Design: Method	Outcomes	Gender Focus	Internship	Life Skills	Time from Training to IE	Publication Type
12	Groh, Krishnan, McKenzie & Vishwanath, 2012	Middle East: Jordan	Jordan New Work Opportunities for Women (Jordan NOW)	RCT	Employment, formal employment, income, hours of work, labour force participation, tenure. In meta-analysis: employment, formal employment, income	High	No	Yes	6-12 months	Working paper
13	Hicks, Kremer, Mbiti, & Miguel, 2015	Africa: Kenya	Vocational Training Programme for Kenyan Youth	RCT	Employment	Low	No	No	21 months	Working paper
14	Hirshleifer, McKenzie, Almeida, & Ridao-Cano, 2014	Middle East: Turkey	Vocational programme of the Turkish Employment Agency (İŞKUR)	RCT	Income, employment, employment (formal), hours of work, occupational status. In meta-analysis: employment, formal employment, income	None	No	No	12 months	Peer-reviewed journal
15	Honorati, 2015	Africa: Kenya	Kenya Youth Empowerment Project (KYEP)	RCT	Employment (paid, wage, self, benefits, contract), hours of work, tenure, earnings (self, wage). In meta-analysis: employment, formal employment	None	Yes	Yes	15 months	Working paper
16	Ibarran, Ripani, Taboada, Villa, & Garcia, 2014	Latin America: Dominican Republic	Juventud y Empleo	RCT	Employment, employment (with health insurance, with written contract), earnings. In meta-analysis: employment, formal employment, earnings	Low	Yes	Yes	21 months	Peer-review journal

Included Study	Study Name	Region: Country	Intervention	Study Design: Method	Outcomes	Gender Focus	Internship	Life Skills	Time from Training to IE	Publication Type
17	Maitra & Mani, 2014	Asia: India	SATYA-PRATHAM vocational training programme in stitching and tailoring services	RCT	Employment (casual wage, full-time, self), hours of work, earnings. In meta-analysis: employment, earnings	Medium	No	No	6 months	Working Paper
18	Medina, Nunez, & Tamayo, 2013	Latin America: Colombia	Colombia Unemployment Subsidy (US)	QE: RDD	Employment, unemployment, income, earnings. In meta-analysis: employment	None	No	No	18 months	Working paper
19	Nopo, Robles & Saavedra, 2008	Latin America: Peru	ProJoven	QE: PSM with Diff-in-Diff	Employment, hours of work, wage, earnings, occupation segregation. In meta-analysis: employment, earnings	Low	Yes	Yes	6-18 months	Peer-reviewed journal
Mixed Programmes (With vocational and business components)										
20	Verner & Verner, 2005	Africa: Côte d'Ivoire	Labour Force Training Support Project / Project d'Appui a la Formation de la Population (PAFPA)	QE	Income, revenues. In meta-analysis: income	None	No	No	6 months	Working paper
21	Adoho, Chakravarty, Korkoyah,	Africa: Liberia	Economic Empowerment of Adolescent	RCT	Employment, employment (self, wage), days of work, hours of work, earnings. In meta-	High	No	Yes	6 months	Working paper

Included Study	Study Name	Region: Country	Intervention	Study Design: Method	Outcomes	Gender Focus	Internship	Life Skills	Time from Training to IE	Publication Type
Lundberg & Tasneem, 2014	The EPAG Project in Liberia		Girls and Young Women (EPAG)		analysis: employment, earnings					
22 Alcid, 2014	A Randomized Controlled Trial of Akazi Kanoze Youth in Rural Rwanda	Africa: Rwanda	Akazi Kanoze (AK)	RCT	Work readiness, employment	None	No	Yes	6 months	Report
23 Cho, Kolamba, Mobarak & Orozco, 2016	Gender Differences in the Effects of Vocational Training: Constraints on Women and Drop-Out Behavior	Africa: Malawi	Technical Education and Vocational Education and Training Authority (TEVETA)	RCT	Earnings, hours of work (paid labour), self-reported skills, business knowledge. In meta-analysis: earnings	None	Yes	No	4 months	Working paper

Note. IE = impact evaluation; IPSW = inverse probability score weighting; diff-in-diff = difference-in-difference. Some studies included other outcomes that are not listed in the table because they were not aligned with the theory of change.

Table 4: Business training: summary of included quantitative studies

Included Study	Study Name	Region: Country	Intervention	Study Design: Method	Outcomes	Gender Focus	Cash Transfer	Time from Training to IE	Publication Type
24	Almeida & Galasso, 2009	Latin America: Argentina	Herramientas por Trabajo	QE	Income, self-employment. In meta-analysis: self-employment	High	Both	6 months	Peer-reviewed journal
25	Bandiera et al., 2015	Africa: Uganda	Empowerment and Livelihood for Adolescents (ELA)	RCT	Employment (self, wage), entrepreneurial ability, empowerment. In meta-analysis: self-employment	High	No	24 months	Working paper
26	Berge, Bjorvatn, & Tungodden, 2015	Africa: Tanzania	Promotion of Rural Initiatives and Development Enterprises (PRIDE)	RCT	Business knowledge, business practices, business performance (profits, sales). In meta-analysis: profits, sales	None	Both	4.5-24 months	Peer-reviewed journal
27	Blattman, Green, Jamison, Lehmann, & Annan, 2016	Africa: Uganda	Women's Income Generating Support (WINGS)	RCT	Self-employment, hours of work, earnings, assets, economic empowerment. In meta-analysis: self-employment	Medium	Yes	16 months	Peer-reviewed journal

Included Study	Study Name	Region: Country	Intervention	Study Design: Method	Outcomes	Gender Focus	Cash Transfer	Time from Training to IE	Publication Type
28	Calderon, Cunha, & De Giorgi, 2013	Latin America: Mexico	CREA, business literacy training Programme	RCT	Revenues, profits, <i>N</i> of clients, business practice, hours of work, <i>N</i> of employees, formality. In meta-analysis: profits	Low	Both	30 months	Working paper
29	De Mel, McKenzie, & Woodruff, 2014	Asia: Sri Lanka	Start and Improve Your Business (SIYB) programme	RCT	Business practices, profits, sales, income, hours of work (self-employment). In meta-analysis: profits, sales	Low	Both	4-25 months	Peer-reviewed journal
30	Fiala, 2014	Africa: Uganda	PRIDE Microfinance	RCT	Business performance, business profits, sales. In meta-analysis: profits, sales	None	Yes	6-9 months	Other journal
31	Field, Jayachandran, & Pande, 2010	Asia: India	Business training intervention conducted in conjunction with SEWA Bank	RCT	Income (dummy any income). In meta-analysis: No	Low	No	4 Months	Other journal

Included Study	Study Name	Region: Country	Intervention	Study Design: Method	Outcomes	Gender Focus	Cash Transfer	Time from Training to IE	Publication Type
32	Gine & Mansuri, 2014	Asia: Pakistan	Business training with microfinance clients	RCT	Business practice, income, assets, profits. In meta-analysis: profits	None	Both	18 months	Working paper
33	Karlan & Valdivia, 2011	Latin America: Peru	Business training for microfinance clients, FINCA	RCT	Business performance, business sales, business knowledge, business practices. In meta-analysis: profit, sales	None	Both	12 months	Peer-reviewed journal
34	Nakasone & Torero, 2014	Latin America: Peru	Strengthening Women Entrepreneurship in Peru (SWEP)	RCT	Business practices, business outcomes (year sales, payroll, and business expenditures). In meta-analysis: sales	Low	Yes	12 months	Working paper
35	Validivia, 2015	Latin America: Peru	Business Development Services (BDS) for female microentrepreneurs	RCT	Business practices, formality, employees, sales, capital. In meta-analysis: sales	Medium	No	8.5-22 months	Peer-reviewed journal

Note. IE = impact evaluation; IPSW = inverse probability score weighting; diff-in-diff = difference-in-difference. Some studies included other outcomes that are not listed in the table because they were not aligned with the theory of change

4.1.2 Description of the interventions

We evaluated the impact of 30 interventions. Of these, 14 were vocational training programs, 12 were business training programs, and four were mixed interventions that included both vocational and business training components.⁸ Table 5 summarizes the main characteristics of the interventions. Appendix 3 (“Detailed Description of the Interventions”) provides a full description of the 30 interventions, including information about intervention type and the country where the intervention was implemented; a description of the intervention (name, objectives, and components); the courses and skills provided (when such information was available); the intensity of the training; and information on the implementing and funding agency.

Table 5: Summary of intervention characteristics

Characteristic	Vocational Training		Business Training		Total	
	N	%	N	%	N	%
Region						
Latin America	6	33.33%	5	31.25%	11	32.35%
Africa	8	44.44%	9	56.25%	17	50.00%
Asia	2	11.11%	1	6.25%	3	8.82%
Middle East	2	11.11%	1	6.25%	3	8.82%
Target population						
Women only	5	28%	8	50%	13	38%
Men and women	13	72%	8	50%	21	62%
Target population by age group						
Women only (14–15 years and over)	2	11%	5	31.25%	7	21%
Men and women (14–15 years and over)	6	33%	6	37.50%	12	35%
Young women only (<29 years)	3	17%	3	18.75%	6	18%
Young men and women (<29 years)	7	39%	2	12.50%	9	26%
Implementing agency						
Government agency	9	50%	3	19%	12	35%
NGO or private agency	4	22%	11	69%	15	44%

⁸ In the following table, these four mixed interventions are counted in the vocational and business columns, for a total of 18 vocational and 16 business interventions.

Characteristic	Vocational Training		Business Training		Total	
	N	%	N	%	N	%
Government agency and NGO or private agency	5	28%	2	13%	7	21%
Funding agency						
Government agency	6	33%	1	6%	7	20.59%
NGO or private agency	7	39%	11	69%	18	52.94%
Government agency and NGO or private agency	2	11%	0	0%	2	5.88%
N/A	3	17%	4	25%	7	20.59%
Training intensity						
High	6	38.89%	4	25%	10	29%
Medium	11	55.56%	8	50%	19	56%
Low	0	0.00%	4	25%	4	12%
N/A	1	5.56%	0	0%	1	3%
Life skills included						
Yes	10	56%	5	31%	15	44%
No	8	44%	11	69%	19	56%
Facilitates access to job opportunities or support for business development						
Yes	12	67%	4	25%	16	47%
No	6	33%	12	75%	18	53%
Other intervention features (stipends, wage subsidies, and other incentives)						
Yes	15	83.33%	12	75%	27	79%
No	3	16.67%	4	25%	7	21%
Gender focus						
High	4	22%	2	13%	6	18%
Medium	1	6%	2	13%	3	9%
Low	5	28%	4	25%	9	26%
None	8	44%	8	50%	16	47%
TOTAL¹	18	100%	16	100%	34	100%

Note. NGO = nongovernmental organization; N/A = information not available.

¹ The four interventions that were considered mixed are counted in both the vocational and the business columns.

The majority of the included vocational and business trainings were provided in Africa (17) and Latin America (11), and only a small number were in Asia and the Middle East (three in each case).

In terms of the implementing agency, 78% of the identified vocational interventions were implemented by government agencies, either on their own or in conjunction with local NGOs or private actors. The funding agencies for the vocational interventions were mainly government agencies or sources that included the government and local NGOs or private actors (44%). In contrast, 69% of the identified business interventions were implemented and funded by NGOs or private actors.

Intensity of the Training

We also classified the interventions in terms of the intensity of training, which was assessed by looking at the duration of the different components of the intervention. This included elements such as classroom sessions, internships, technical assistance, mentorship, and group discussions. The analysis of the different components of the interventions led to the following classifications:

- Low intensity: The duration of the different components of the intervention was less than 40 hours total (less than a month).
- Medium intensity: The duration of the different components of the intervention was between 40 hours and 6 months (considering that a month should include 50 or 60 hours).
- High intensity: The duration of the different components of the intervention was 6 months or more.

Our classification of interventions suggested that vocational training had more intense training than business training. Most vocational trainings had either high (39%) or medium (56%) intensity, while business trainings had a broader spread of intensity, including low (25%), medium (50%), and high (25%) intensity. For example, the training for some business trainings was as short as one afternoon (e.g., the SWEF programme in Peru), while for other business trainings the training took longer than 6 months (e.g., the BDS programme in Peru).

It is important to mention that classifying interventions in terms of their intensity was subject to the authors' interpretation of the information in some cases. This was necessary for two reasons. Firstly, the information available for retrieval from complementary papers and programme documents was highly heterogeneous in terms of breadth and quality. For example, some of the consulted studies or programme documents presented detailed information related to the duration of the training sessions (such as number of hours and days per week or month), while others referred only to the number of days or months and sometimes reported this information as an average. Secondly, in some cases it was necessary to use qualitative information on the characteristics and duration of the training sessions to allow for the categorization of the intervention. For example, in some cases we inferred the duration and intensity of the training by analysing information on which days of the week or time of day beneficiaries reported attending training sessions or participating in other types of training (such as internships, group discussions, or mentorship).

Life skills training

As mentioned in the theory of change, in addition to providing vocational and business training, interventions may provide other relevant components such as life skills training. We found that vocational trainings were more likely to offer a life skills component (10 interventions, or 56%) than business trainings (five interventions, or 31%). However, the life skills training components varied substantially across interventions, ranging from job readiness to aspirations, self-esteem, and sexual and reproductive health, as well as different combinations of these components.

The following are examples of life skills components identified in vocational trainings:

- Employability, job readiness, or labour market orientation: ProJoven, Jordan NOW, KYEP, Proempleo, and Akazi Kanoze
- Negotiation skills, workers' rights, sexual and reproductive health, dealing with discrimination: AGEI intervention
- Developing life projects with a focus on self-esteem and communication: Programa Juventud y Empleo
- Workplace behaviour and health-related issues: Ninaweza Project

The following are examples of life skills training identified in business trainings:

- Formation of self-help groups: WINGS Programme
- Sexual and reproductive health, and rights and responsibilities workshops: ELA
- Aspirations: Business Training India

Facilitating access to job opportunities or the market

The theory of change indicates that vocational trainings may facilitate access to job opportunities and business trainings may facilitate access to business opportunities. We found that 12 (67%) of the selected vocational trainings included features designed to facilitate access to job opportunities in the following forms:

- Paid or unpaid internships: ProJoven (paid), Juventud y Empleo (unpaid), Jóvenes en Acción (unpaid), Programa Joven/Proyecto Joven (unpaid), Vocational Training Programme for Kenyan Youth, Akazi Kanoze, and KYEP (in the last three cases, there was no information available regarding payment)
- Mentoring, job placement services, and follow-up visits after placement: AGEI (this programme included incentives for trainers, who received a higher final payment for each employed graduate) and Vocational and Entrepreneurial Training for Malawian Youth
- Job placement support/information of job opportunities: Ninaweza Project, Juventud y Empleo, and the Unemployment Subsidy Programme
- Technical assistance after the programme: Youth Opportunities Programme (YOP)
- Employer subsidies: Jordan NOW

In contrast, only four (25%) of the identified business trainings provided support for business development in the following forms:

- Technical assistance to develop a business plan: WINGS
- Individual technical assistance and formation of groups to support business activities: BDS
- Exposure to business sectors: Sri Lanka Start and Improve Your Business (SIYB; provided information on sectors with growing business opportunities)

- Mentoring: Wings Programme, Akazi Kanoze, BDS, PAFPA, and Business Training in Pakistan

Incentives and facilities to encourage participation and permanence

The theory of change also indicates that vocational and business trainings may include incentives and facilities to encourage participation and permanence. These incentives are commonly provided to participants in the form of stipends, subsidies, childcare, or capital.

Among the vocational trainings, we identified the following incentives:

- Stipends to cover transportation costs: ProJoven, vocational programmes of the Turkish Employment Agency, Juventud y Empleo, Jóvenes en Acción, and Programa Joven/Proyecto Joven
- Stipends to cover childcare costs or childcare provision: ProJoven and AGEI
- Wage subsidies: Unemployment Subsidy Programme and Proempleo
- Healthcare: Unemployment Subsidy Programme

Among business trainings, we identified the following incentives:

- Stipends and other incentives for course continuance (certificates, raffles, promises of acceptance to future courses): CREA, KYEP, and Sri Lanka SIYB
- Childcare provision: EPAG
- Cash to develop a business plan: WINGS Programme
- Loans: PRIDE Tanzania
- Participation in clubs and groups with social purposes and for sharing training experiences: WINGS Programme and BDS

Gender focus

Some authors suggest that interventions with a stronger gender focus have stronger impacts on women's outcomes (Fawcett & Howden, 1998). However, interventions with a gender focus can be specific or broad in range, and can include different features. This means that categorizing the interventions with a gender focus is not straightforward and requires analysis of the different features included in each case.

We classified interventions by considering relevant programme features in terms of their inclusion of gender focus, such as providing additional support for women with children, providing life skills training oriented to women's issues, and enabling women to negotiate existing barriers to their participation. Based on this information, we generated the following gender focus categories to qualify the interventions:

- Low gender focus: Interventions that target women only, and/or acknowledge practical barriers to female participation, and provide some specific support for women, typically through differentiated stipends for women, provision of childcare, or by targeting women in recruitment strategies.
- Medium gender focus: Interventions that fulfil the conditions of low gender focus (target women only, and/or acknowledge practical barriers for female participation, and provide some specific support for them) but also acknowledge the existence of gender norms and practices that negatively affect women's labour or business-development outcomes and introduce some programme design features to address these limitations. This typically involves the introduction of gender-focused life skills training.

- High gender focus: Interventions that, in addition to fulfilling the conditions of medium gender focus, are characterized by an overall gender-focused design that seeks to facilitate women's access to and persistence in the programme, but also to address existing gender norms by promoting non-feminized occupation skills training, working with employers to promote women's labour force participation in traditionally non-female occupations, or designing the whole training (location, mentors, schedules, contents, and so forth) around women's needs.
- No gender focus: Interventions that do not include any of the above features.

Among the vocational trainings, only 28% were classified as having a high or medium gender focus, 28% were classified as having a low gender focus, and 44% were found to have no gender focus at all. Similarly, among the business trainings, only 26% were classified as having a high or medium gender focus, 25% were classified as having a low gender focus, and 50% were classified as having no gender focus. Below, we illustrate the elements and interventions identified for each of the gender-focus categories.

Low gender focus

Vocational trainings with low gender focus included the following features:

- Provides differentiated stipends for women: ProJoven, Jóvenes en Acción, and Programa Joven/Proyecto Joven.
- Deploys strategies to promote female enrolment: the Vocational Training Programme for Kenyan youth (presenting a video about successful women working as mechanics) and Juventud y Empleo (placing special emphasis on looking for vulnerable women during the recruitment process)

Business trainings with low gender focus included the following features:

- Targets women only: SWEP, CREA, Sri Lanka SIYB, and Business Training Experiment India
- Provides stipends to facilitate women's access: Sri Lanka SIYB

Medium gender focus

Vocational trainings with medium gender focus included the following features:

- Targets women only: SATYA-PRATHAM
- Promotes female enrolment through targeted campaigns and facilitates female participation through stipends: SATYA-PRATHAM
- Includes life skills training with an emphasis on increasing women's confidence: SATYA-PRATHAM

Business trainings with medium gender focus included the following features:

- Targets women only: BDS and WINGS Programme
- Facilitates access through stipends, and/or seeks to promote women's empowerment through training in life skills with an emphasis on women's issues, and/or develops women's social capital: BDS and the WINGS Programme

High gender focus

We identified three vocational trainings (AGEI in Nepal, Ninaweza in Kenya, and JORDAN NOW in Jordan), one mixed intervention with a strong vocational focus (EPAG

in Liberia), and one business intervention (ELA in Uganda) that had high gender focus. These interventions included the following features:

- Targets women only: All of the identified interventions included this feature.
- Provides various ancillary services for women: AGEI (childcare, mentoring); ELA (club activities, mentoring, courses offered in sessions to accommodate participants' schedules); EPAG (courses offered in sessions to accommodate girls' schedules, childcare, and support to girls during placement phase); Ninaweza Project (assistance/mentoring for job placement); and JORDAN NOW (facilitation of women's access to the labour market)
- Provides gender-focused life skills: AGEI, Ninaweza Project, JORDAN NOW, and ELA
- Overall intervention was designed with a gender focus:
 - AGEI: The programme was designed to confront social norms and promote women's labour participation in traditionally non-female trades such as masonry, carpentry, and welding. Training aimed to equip girls with technical skills for which there is a proven demand in the local labour market and which have a higher income potential.
 - JORDAN NOW: The intervention aimed to address barriers that women face in accessing the labour market, providing incentives for employers and generating awareness among employers of the importance of breaking barriers for women. For example, the programme includes training on how to make a presentation, and writing business reports and different types of correspondence (Groh et al., 2016).
 - Ninaweza Project: The intervention design considered existing gender barriers and aimed to address them by providing training in traditionally non-female areas such as computer hardware and software, entrepreneurship, and business process outsourcing.
 - EPAG: The whole intervention was designed around girls' needs. It included different types of incentives and features to promote girls' participation and permanence, and to successfully place graduates in jobs or microenterprises.
 - ELA: This programme was designed to change social norms. Training features (including location, schedules, incentives, and mentors' characteristics) were designed around girls' needs. The intervention also included intense training in reproductive topics, women's legal rights, and other female needs.

Similarities and Differences Between Vocational and Business Training Programmes

Overall, we found some important differences between vocational and business training programmes that were relevant to this systematic review. Vocational training programmes were often implemented by third parties and relied on existing technical vocational education and training (TVET) providers to deliver the content. As a result, the heterogeneity of the content and characteristics of these trainings was relatively large. In contrast, business interventions often used existing content—such as the ILO's Start and Improve Your Business packages—and therefore tended to be more homogenous in terms of content.

Vocational training programs also tended to offer trainings that had a longer duration and a more complex design, and commonly included strategies to promote access to job opportunities, as well as various strategies to promote access to the programme and to labour markets. Business training programs, meanwhile, tended to offer trainings of shorter duration, ranging from one afternoon to 3 months. On average, these trainings tended to last about a week. This characteristic may be partly explained by the fact that most business training programs were implemented in the context of specific experiments designed for the purposes of an impact evaluation, and, in most cases, were based on the activities of a microcredit provider (Table 6). Of the 12 business training programs included in the review, nine were experiments especially designed for an impact evaluation and seven were implemented with participants associated with a microfinance institution or saving group. In contrast, only one of the vocational training programs was implemented in the context of a specific experiment: Proempleo Experiment.

Table 6: Special characteristics of business training interventions

Business Intervention, Country	Intervention Takes Place in the Context of the Impact Evaluation Only (Is Not Part of Broader Programme)	Intervention Participants Are Associated With a Microfinance Institution or Saving Group
Strengthening Women Entrepreneurship in Peru (SWEPE), Peru	No	Yes
Herramientas por Trabajo, Argentina	No	No
Start and Improve Your Business (SIYB), Sri Lanka	Yes	Yes
CREA Business Literacy Training Programme, Mexico	Yes	No
WINGS Programme, Uganda	Yes	Yes
Empowerment and Livelihood for Adolescents (ELA), Uganda	No	No
Experiment among microfinance clients of FINCA, Peru	Yes	Yes
Business Development Services (BDS), Peru	Yes	No
Promotion of Rural Initiatives and Development Enterprises (PRIDE), Tanzania	Yes	Yes
Start and Improve Your Business (SIYB) programme, Sri Lanka	Yes	No
Business training experiment, India	Yes	Yes
Business training experiment, Pakistan	Yes	Yes

4.1.3 Outcomes

The theory of change included a number of intermediate and final outcomes that vocational and business interventions could influence. The intermediate outcomes included measures relate to knowledge, skills, practices (for business), and life-skills. The final outcomes included measures related to employment, income, working conditions, societal worth, and economic empowerment. Tables 3 and 4 list the outcomes identified in each of the selected studies that were aligned with the theory of change. As Table 3 shows, the majority of vocational studies examined impacts on final outcomes such as employment and income, while fewer studies examined impacts on intermediate outcomes such as knowledge (e.g. Chakravarty, Lundberg, Nikolov, & Zenker, 2016; De Azevedo, Davis, & Charles, 2013). Similarly, the majority of business studies investigated impacts on self-employment and income. In addition, a large variety of studies measured impacts on intermediate outcomes such as business knowledge or business practices (e.g. Berge, Bjorvatn, & Tungodden, 2015; Gine & Mansuri, 2014; Karlan & Valdivia, 2011).

Some evaluations of vocational trainings included additional outcomes, such as household income, which were not considered because they were not aligned with the theory of change. Some business studies also included additional outcomes such as saving or the likelihood of taking a loan (Field, Jayachandran, & Pande, 2010) which were not included in the analyses for the same reason.

Tables 3 and 4 report the outcomes that were used for meta-analyses, which most of the times, included a subset of the identified outcomes. Specifically, our sample size permitted a meta-analysis only for employment, formal employment, and income for vocational training; and self-employment, sales, and profits for business training. We present meta-analyses for these outcome measures and a narrative synthesis (including a description of effect sizes for individual studies) for some of the other outcome measures.

4.1.4 Study designs and methods

The 35 studies included in the review to address Research Question 1 used experimental and quasi-experimental designs. Of the 35 studies 26 used RCTs to investigate the impact of vocational and business training programs, while nine studies used quasi-experimental designs. The most common methods used in the quasi-experimental designs were propensity score matching, difference-in-difference models, and a combination of propensity score matching and difference-in-difference analysis.

Of the 18 evaluations of vocational training programmes 11 used experimental designs to assess the impact of the interventions, while the remaining seven studies used quasi-experimental techniques to estimate the impact of the programs. Instead, all but one of the evaluations of business trainings (11 out of 12) used experimental designs to examine the impact of these interventions. Similarly, three out of the four mixed interventions, used RCTs to examine the impact of those programs.

The 50 studies included to address Research Questions 2 and 3 included the 35 experimental and quasi-experimental studies described above, 9 of which used qualitative data collection methods. The remaining 26 experimental and quasi-experimental studies used descriptive qualitative or quantitative information, but did not

explicitly use qualitative research methods. The 15 additional studies (those that were only included to address research question 2 and 3) either relied on mixed-methods designs or exclusively relied on qualitative data collection. Of these studies, 10 studies used mixed-methods data collection and 5 studies only used qualitative data collection methods.

4.1.5 Publication type

Fifty one per cent of the included studies were published as working papers and 37% were published in peer-reviewed journals. The remaining 12% were found in other types of journals or were unpublished reports or articles.

The majority of the evaluations of vocational training and business training programs were conducted fairly recently. The evaluations of vocational training programs were implemented between 2001 and 2016. The studies with a focus on business training were also primarily conducted in the last decade, between 2007 and 2016.

4.2 Risk of bias in included studies

We relied on a risk-of-bias tool containing 59 questions to assess the selection bias and confounding, performance, outcome, and analysis reporting biases, as well as other biases of the included quantitative studies. The complete tool and a detailed assessment of the risk of bias for each individual quantitative study can be found in Appendix 5.

Appendix 5 shows that, of the 35 studies included in the review, 14 were rated as having a low risk of selection bias. These studies were all cluster-RCTs or RCTs with a sample size that we considered sufficient to detect small but meaningful effects of the vocational or business training programmes. In addition, each of the studies with a low risk of selection bias had either an attrition rate below 10% or provided credible sensitivity analysis to demonstrate that higher attrition rates did not bias the impact estimates. For example, Calderon et al. (2013) present a cluster-RCT with an attrition rate above 15%, but their sensitivity analysis shows that this attrition rate is unlikely to bias the impact estimates. De Mel et al. (2014) also present a well-designed RCT with a relatively low attrition rate, suggesting that this study's risk of selection bias can be considered low.

We rated eight of the 35 included studies as having a medium risk of selection bias. These studies included RCTs with selective and/or high attrition rates and no credible robustness checks, which could result in a lack of balance in observable characteristics. For example, Cho et al. (2016) present the results of an RCT with an attrition rate of more than 20%, which raises some concerns about the study's ability to estimate the impact of the programme credibly. In addition, we rated quasi-experimental studies with a reasonable identification strategy but lingering doubts about the study's ability to address counterfactual questions as having a medium risk of selection bias. For example, Almeida and Galasso (2009) used an instrumental variable strategy to identify the impact of a vocational training programme in Argentina. The identification strategy seems credible, but the use of potentially endogenous instrumental variables always carries some risk of selection bias.

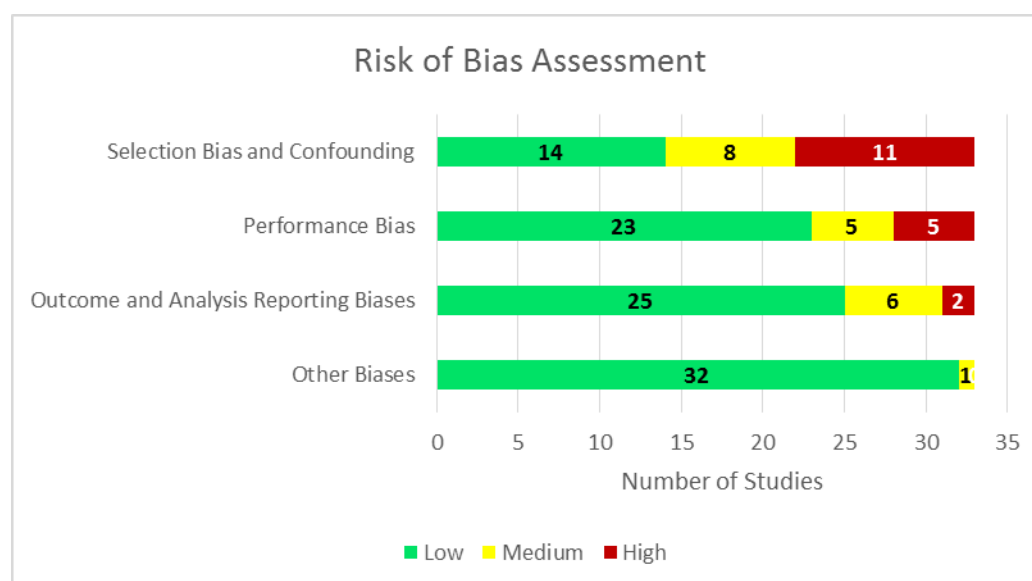
Finally, we rated 11 of the 35 included studies as having a high risk of selection bias. These studies included RCTs with a very high or very selective attrition rate. For example, Card and colleagues (2011) relied on an RCT to assess the impact of a

vocational training programme in the Dominican Republic, but they did not track a large percentage of the beneficiaries who did not participate in the programme, which could have resulted in a strong lack of balance in observable characteristics. Nakasone and Torero (2014) also used an RCT to determine the impact of a vocational training programme in Peru, but they were unable to track more than 50% of their original sample, resulting in a high risk of selection bias.

Of the 35 included studies, 23 were rated as having a low risk of performance bias, five were rated as having a medium risk, and seven were rated as having a high risk. Studies with a low risk of performance bias were either RCTs or quasi-experimental studies in which the treatment group was sufficiently isolated from the control group to prevent spillovers, and in which none or only a minimal percentage of the control group received access to the programme. We also rated studies that credibly estimated spillover effects as having a low risk of performance bias. For example, Calderon and colleagues (2013) designed their RCT in Mexico to measure spillovers, and they took these spillover effects into consideration in their estimate of the intention-to-treat effect. Studies with a medium risk of performance bias included those that relied on a comparison between beneficiaries and non-beneficiaries who potentially knew each other, which may have resulted in spillovers. For example, Galdo and Chong (2012) used a control group that lived in the same neighbourhood as the treatment group, which could result in spillovers. Finally, we rated studies as having a high risk of performance bias when there was clear evidence of displacement effects on the labour market. For example, Groh and colleagues (2012) reported that their impact estimates may have been biased towards zero because of displacement effects resulting from beneficiaries operating in the same labour market as the control group. We also rated studies in which a substantial percentage of the control group received the programme as having a high risk of performance bias. For example, Diaz and Rosas (2016) reported that more than 20% of their control group received the programme.

Of the 35 included studies, 24 were rated as having a low risk of outcome and analysis reporting bias, six were rated as having a medium risk, and five were rated as having a high risk. We found no indications of outcome and analysis reporting bias in the large majority of the studies that were rated as low risk. Studies with a medium risk of outcome and analysis reporting bias included those that focused on impact estimates very shortly after the programme began, which is unusual and may not be very informative. For example, Cho et al. (2016) present impact estimates for a vocational training programme 4 months after the start of the programme. We also rated studies with less transparent econometric methods as having a medium risk of outcome and analysis reporting bias. For example, Card et al. (2011) were not clear in describing why they made specific choices in the econometric specification. We also rated studies that selectively reported impact estimates as having a medium risk of outcome and analysis reporting bias. For example, Field and colleagues (2010) present only heterogeneous impacts of a business training programme in India when they report their impact estimates. Finally, we rated studies that place less emphasis on statistically insignificant effects than on statistically significant effects as having a high risk of outcome and analysis reporting bias. For example, Berge et al. (2015) focus more attention on statistically significant effects on profits than on statistically insignificant effects in their evaluation of a business training programme in Tanzania.

Figure 3: Risk of bias assessment



We rated each of the 35 included studies as having a low risk of other biases. We anticipated rating studies that failed to cluster standard errors as having a medium risk of other biases, but none of the included studies failed to cluster standard errors when this was required.

4.3 Synthesis of results

This section presents the meta-analyses and narrative synthesis conducted to determine the effects of vocational and business training on the outcome measures identified in the protocol. We present separate impact estimates for vocational and business training. Within these categories, we also present separate impact estimates for RCTs, quasi-experimental studies, and studies with high, medium, and low risk of bias. We analyse heterogeneity by comparing effect sizes across geographic contexts, between interventions with and without a gender focus, between vocational training with and without internships and life skills training, between business training with and without additional cash transfers, and between business training with and without additional microfinance. We start with a discussion about the effects of vocational training, followed by analyses of the impact of business training.

Importantly, we were only able to conduct meta-analyses to determine the effects of vocational training on the likelihood of employment and formal employment as well as income or earnings, and the effects of business training on the likelihood of self-employment and sales and profits. We did not find a sufficient number of studies to conduct meta-analyses for determining the effects of vocational or business training on societal worth, or economic empowerment. We also did not conduct meta-analyses to determine the effects of vocational-or business training on knowledge and skills, business practices, or life skills because the measurement of these outcome measures was too different across studies. Meta-analyses may not have been valid because the outcome measures were likely to measure different constructs. For this reason, we present a narrative synthesis (including the estimated effect sizes) for the outcome measures for which we were not able to conduct meta-analysis or for which meta-

analysis would not have been appropriate. However, none of the studies included impact estimates on societal worth. Furthermore, we were not able to credibly estimate the effect sizes in Alcid (2014) and Hicks et al. (2015) because the studies do not present separate effect sizes by gender.⁹ For this reason, we did not include these studies in the meta-analysis.

4.3.1 Impacts of vocational training

To determine the effectiveness of vocational training, we present impact estimates on the likelihood of employment and the likelihood of formal employment, income or earnings, and economic empowerment. We included 16 studies in the meta-analysis to determine the effects on employment, five studies to estimate the effects on formal employment, and 17 studies to assess the impact on earnings. Studies that included empowerment as an outcome measure primarily focused on psychological as opposed to economic empowerment. Nonetheless, we identified one study with a focus on the effects of vocational training on economic empowerment that met the inclusion criteria. However, we did not encounter any studies that focused on the effects of vocational training on societal worth that met the inclusion criteria.

We summarize the studies and programmes included in the meta-analysis for vocational training in Table 3. In this table, we also include some key characteristics of the intervention, such as the methodology, outcome measures, region, gender focus, inclusion of an internship or life skills training, and time between the vocational training and the impact estimate. We used each of these variables in our meta-analysis or subsequent meta-regressions to determine the impact of vocational training. The table demonstrates that although the programmes were fairly homogeneous, some key differences could influence the effects of the vocational training on employment outcomes. For example, effect sizes may differ across regions, and an increased gender focus or emphasis on life skills, or the inclusion of an internship, could increase the effects of the programme. Vocational training may also become more effective as the time between implementation and the outcome data collection increases. Alternatively, the effects of vocational training on employment could fade as time passes. We tested each of these hypotheses and others through stratified meta-analyses. Several forest-plots and all meta-regressions are included in Appendix 7.

We found only a few differences in the measurement of employment across studies. Each of the included studies relied on a self-reported measure of employment to determine the impact of vocational training on the likelihood of employment. However, the studies were not always clear about the measurement period for employment. Some studies measured employment in the week before the participant was interviewed, while other studies measured employment in the month before the participant was interviewed. There were also studies that did not specify the period of employment in their reporting.

We did find important differences in the measurement of income and earnings across studies. Of the 17 studies that estimated the impact of vocational training on these outcomes, 12 included an impact estimate for earnings and five focused on the impact on income. Although these two outcome measures can be considered different

⁹ We nonetheless included these studies in the review because the description of the program proved to be relevant for the narrative meta-synthesis.

constructs in a strict sense, we felt that it was appropriate to include them in the same analysis. We consider both outcomes to be good proxies for the socio-economic status of an individual who was involved in vocational training.

Although a large majority of the studies did not distinguish between employment and formal employment in their estimations of effect sizes, we were nonetheless able to conduct a separate meta-analysis for those studies that separately assessed the impact on formal employment. This meta-analysis is presented after the meta-analysis focused on the effects of vocational training on employment. Thereafter, we present a meta-analysis on the effects of vocational training on earnings followed by a description of the single study that assessed the effects of vocational training on women's economic empowerment.

4.3.2 Impacts of vocational training on employment

We started the meta-analysis by examining the impact of vocational training on employment on the basis of RCTs. Figure 4 presents the forest plot that summarizes the effects of vocational training on women's employment. The results suggest that, on average, vocational training increased the odds of employment by 1.18 (OR = 1.18; 95% confidence interval (CI) = 1.06, 1.32; evidence from eight programmes), which is equal to a RR of 1.11 or 11% (RR=1.11; 95% CI=1.03, 1.18; evidence from eight programmes). The impact estimate was significant at the 95% level. The meta-analysis also suggested strong heterogeneity in the impact estimates. Observed heterogeneity in effect sizes ranged from 1.06 to 2.44 ORs. However, statistical tests showed less evidence for strong heterogeneities in the effect sizes (Chi-squared = 9.29, *Tau*-sq = 0.01, *I*-sq = 25%). Specifically, the evaluation of the Satya-Pratham vocational training shows larger effect sizes than the other studies. However, excluding this study from the analysis does not change the qualitative interpretation of the meta-analysis.

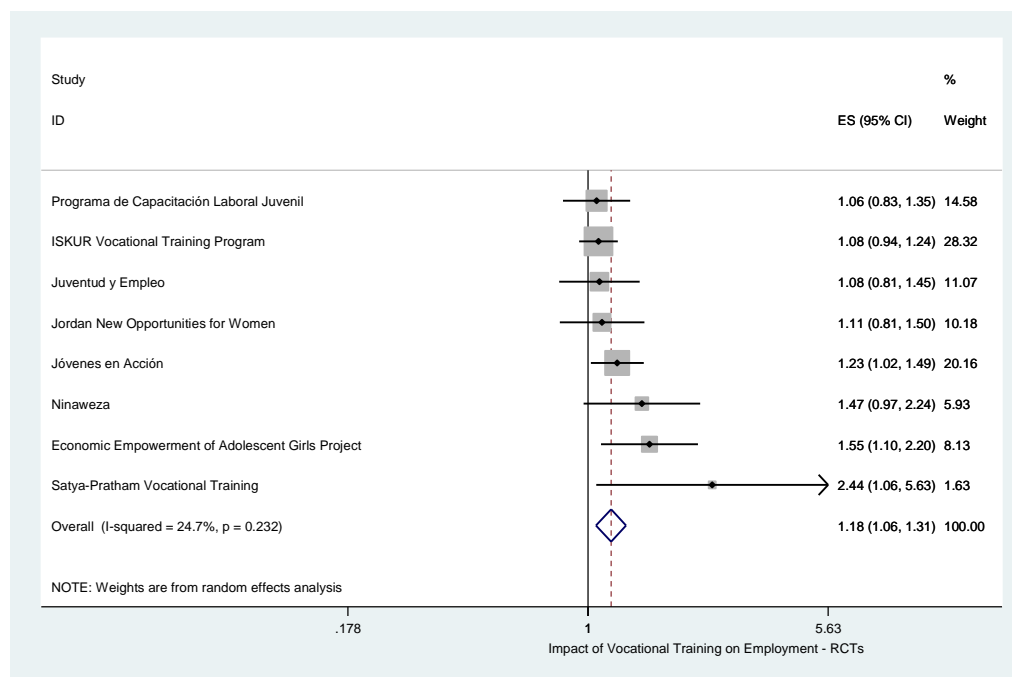
We conducted sensitivity analyses to account for variation across the studies. We illustrated differences in the effect sizes between studies through a meta-regression, which demonstrated that the effects of vocational training on employment were higher in Africa and Asia (OR = 1.59, 95% CI = 1.23, 2.05; RR=1.34, 95% CI=1.15, 1.55; evidence from three programmes) than in low- and middle-income countries in other regions (OR = 1.12, 95% CI = 1.02, 1.22; RR=1.06, 95% CI=1.01, 1.11; evidence from five programmes). In addition, we found evidence that the impact of vocational training on employment was stronger for programmes that had a strong gender focus (OR = 1.33, 95% CI = 1.06, 1.66; RR=1.21, 95% CI=1.04, 1.38; evidence from three programmes) than for programs that did not have a strong gender focus (OR = 1.13, 95% CI = 1.01, 1.26; RR=1.06, 95% CI=1.01, 1.12; evidence from five programmes). A meta-regression showed that the effect size for programmes in Africa and Asia was statistically significantly higher than in other contexts (OR = 1.43, 95% CI=1.04, 1.81), while the effect size for programmes with a strong gender focus was not statistically significantly different from the effect size for programmes without a gender focus, but the difference in effect sizes can be considered substantive (OR = 1.18, 95% CI=0.89, 1.46). We present each of the meta-analyses and meta-regressions in Appendix 7.

We did not find evidence that vocational training programmes that included life skills training or an internship had stronger employment effects. The estimated effect sizes of RCTs on employment were not substantively or statistically significantly different for

vocational training programmes that included an internship (OR = 0.99, 95% CI=0.75, 1.23) or a life skills training component (OR = 1.00, 95% CI=0.75, 1.26). We present these meta-analyses and meta-regressions in Appendix 7.

Interestingly, however, we found evidence that vocational training programmes' impact on employment decreased over time. We found stronger effects for vocational training programmes that were evaluated after 6 months (OR = 1.41, 95% CI = 1.12, 1.77; RR=1.25, 95% CI=1.08, 1.43; evidence from four programmes) than for those that were evaluated at a later stage (OR = 1.11, 95% CI = 1.01, 1.22; RR=1.05, 95% CI=1.01, 1.10; evidence from five programmes). A meta-regression further indicated that the difference in effect sizes between short-term programmes (evaluated after 6 months) and long-term programmes (evaluated at a later stage) was close to statistically significant (OR = 1.25, 95% CI= 0.98, 1.52). This finding suggests that the positive impacts of vocational training on employment may become smaller over time. However, we need to remain careful in interpreting this finding because the correlations are not statistically significant and may be biased due to confounding factors. We present these meta-analyses and meta-regressions in Appendix 7 as well.

Figure 4: Effects of vocational training on women’s employment—randomized controlled trials



We conducted a separate meta-analysis of the effects of vocational training on employment based on quasi-experimental evaluations (Figure 5). Based on this analysis, it appears that vocational training had a positive effect on employment that was statistically significant at the 95% level (OR = 1.41, 95% CI = 1.19, 1.67; RR=1.18, 95% CI= 1.09, 1.26; evidence from four programmes). Effect sizes of the studies ranged between 1.12 and 1.71 odds ratios.

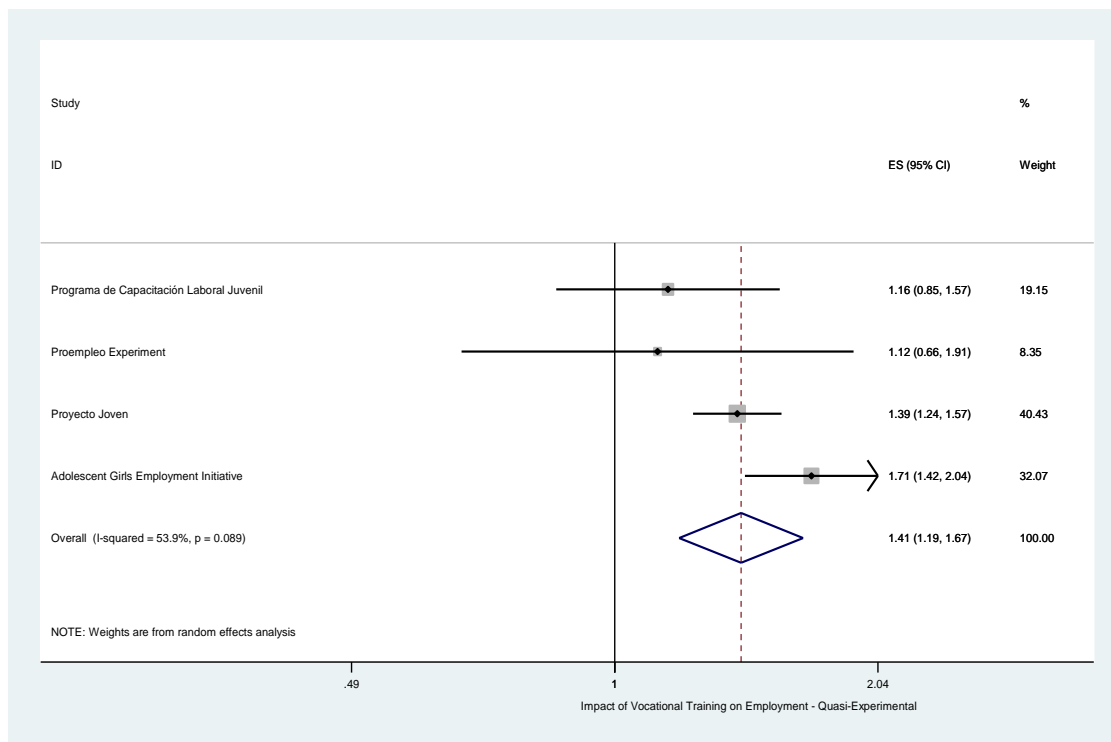
The meta-analyses also indicated larger effect sizes for quasi-experimental studies than for RCTs. Our risk-of-bias assessment indicated that these differences may be related to a high risk of selection bias for quasi-experimental studies. Of the RCTs with a focus on

the effects of vocational training on employment, the large majority showed a low risk of selection bias. Of the quasi-experimental studies that estimated the effects of vocational training on employment, each study was rated as having a high risk of selection bias. These results suggest that the quasi-experimental estimates of the impact of vocational training on employment may be biased.

Meta-regressions presented further evidence for the inability to pool RCTs and quasi-experimental studies. The estimated effect sizes on employment from RCTs were substantively and statistically significantly lower than the effect sizes from quasi-experimental studies with a high risk of selection bias (OR = 0.79; 95% CI=0.65, 0.92). We present this meta-regression in Appendix 7. Based on these meta-analyses and meta-regressions, we decided not to pool RCTs and quasi-experimental evaluations.

We did not find evidence for differences in effect sizes between studies with differences in other risk-of-bias types. Effect sizes of studies with a low, medium, or high risk of performance bias did not appear to be statistically significantly different from each other. Our analyses also did not provide evidence of significant differences in effect sizes between studies with low, medium, and high outcome and analysis reporting and other biases, respectively.

Figure 5: Effects of vocational training on women’s employment—quasi-experimental studies

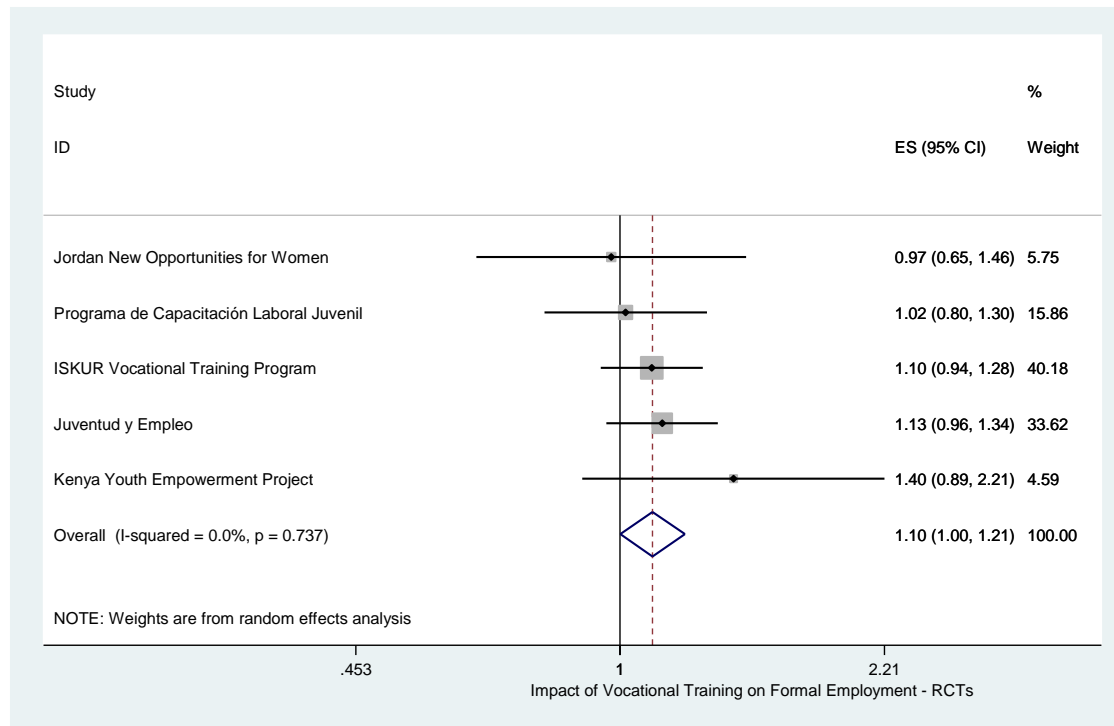


4.3.3 Impacts of vocational training on formal employment

We conducted a meta-analysis to determine the impact of vocational training on the likelihood of formal employment. We present the findings in Figure 6, which shows that vocational training had a positive and statistically significant effect on the likelihood of formal employment (OR = 1.10, 95% CI = 1.00, 1.21; RR=1.08, 95% CI=1.00, 1.18; evidence from five programmes). We only included RCTs in the meta-analysis because

our previous analyses indicated that pooling RCTs and quasi-experimental studies may lead to a bias in impact estimates for vocational training programmes. Due to the small number of studies that focused on the impact of vocational training on formal employment, we were not able to conduct any credible stratified analyses.

Figure 6: Effects of vocational training on women’s formal employment—randomized controlled trials



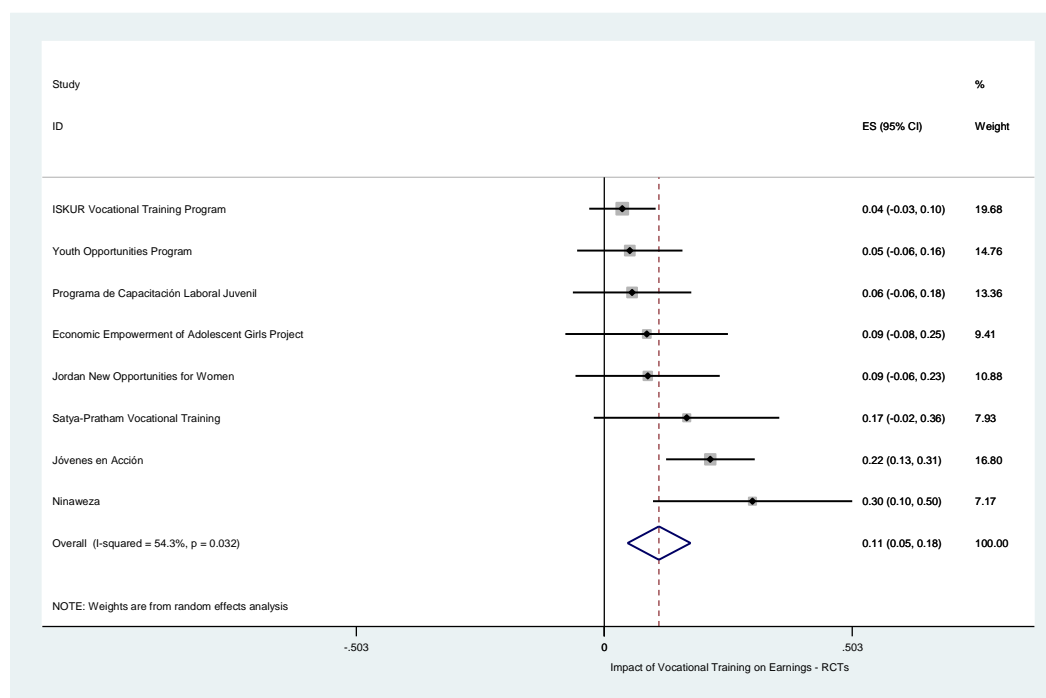
4.3.4 Impacts of vocational training on earnings and income

To determine the impact of vocational training on earnings and income, we started with a meta-analysis that included RCTs only. Figure 7 presents the results and shows that vocational training programmes, on average, had positive effects on earnings (SMD = 0.11, 95% CI = 0.05, 0.18; central estimate=5.54%, 95% CI =2.50%, 8.96%; evidence from 8 programmes). The point estimate was relatively small, but there appeared to be considerable heterogeneity in the effect sizes. This heterogeneity was illustrated by statistical tests that demonstrated a considerable degree of real heterogeneity, although the *tau*-squared was relatively small (Chi-sq = 15.32, *Tau*-sq = 0.042, I-sq = 54%). Effect sizes also ranged from 0.04 to 0.30 standardized mean differences.

In contrast to the results for the effects of vocational training on employment, we found little evidence of differences in effect sizes that can be predicted by geographic characteristics in our impact estimates for earnings. Meta-regressions suggested that effect sizes were not statistically significantly different across continents. The effect sizes for Africa and Asia (SMD = 0.13, 95% CI = 0.03, 0.23; central estimate=6.44%, 95% CI =1.30%, 11.52%; evidence from 4 programmes) were not different from the effect sizes for vocational training programmes in other continents (SMD = 0.10, 95% CI = 0.01, 0.19; central estimate=4.99%, 95% CI =0.00%, 9.56%; evidence from four programmes). We present these results (including the meta-regression) in Annex 7.

The meta-analysis demonstrated some evidence of larger effects on earnings for vocational training programmes that included a gender focus (SMD = 0.14, 95% CI = 0.02, 0.27; central estimate=7.18%, 95% CI =0.90%, 13.33%; evidence from three programmes), compared to vocational training programmes that did not include a gender focus (SMD = 0.10, 95% CI = 0.02, 0.18; central estimate=4.99%, 95% CI =1.00%, 8.86%; evidence from five programmes). However, meta-regressions suggested that the differences were not statistically significant ($\beta = 0.04$, 95% CI = -0.10, 0.19). Similarly, although meta-regressions showed no statistically significant differences ($\beta = 0.08$, 95% CI=0.06, 0.19), we did find some evidence that vocational training programmes that included life skills training had larger effect sizes (SMD = 0.14, 95% CI = 0.06, 0.23; central estimate=7.18%, 95% CI =2.95%, 8.72%; evidence from five programmes), compared to vocational training programmes that did not include life skills training (SMD = 0.05, 95% CI = -0.00, 0.106; central estimate=2.60%, 95% CI =-0.00%, 5.30%; evidence from three programmes). In addition, we found evidence that vocational trainings programs that included an internship (SMD = 0.18, 95% CI = 0.09, 0.31; central estimate=8.89%, 95% CI =2.40%, 15.22%; evidence from three programmes) had larger effects on earnings than vocational training programs that did not include an internship (SMD = 0.06, 95% CI = 0.01, 0.11; central estimate=2.95%, 95% CI =0.00%, 5.34%; evidence from five programmes). A meta-regression showed that this difference was statistically significant ($\beta = 0.11$, 95% CI=0.00, 0.21). We present each of these meta-analyses and meta-regressions in Annex 7.

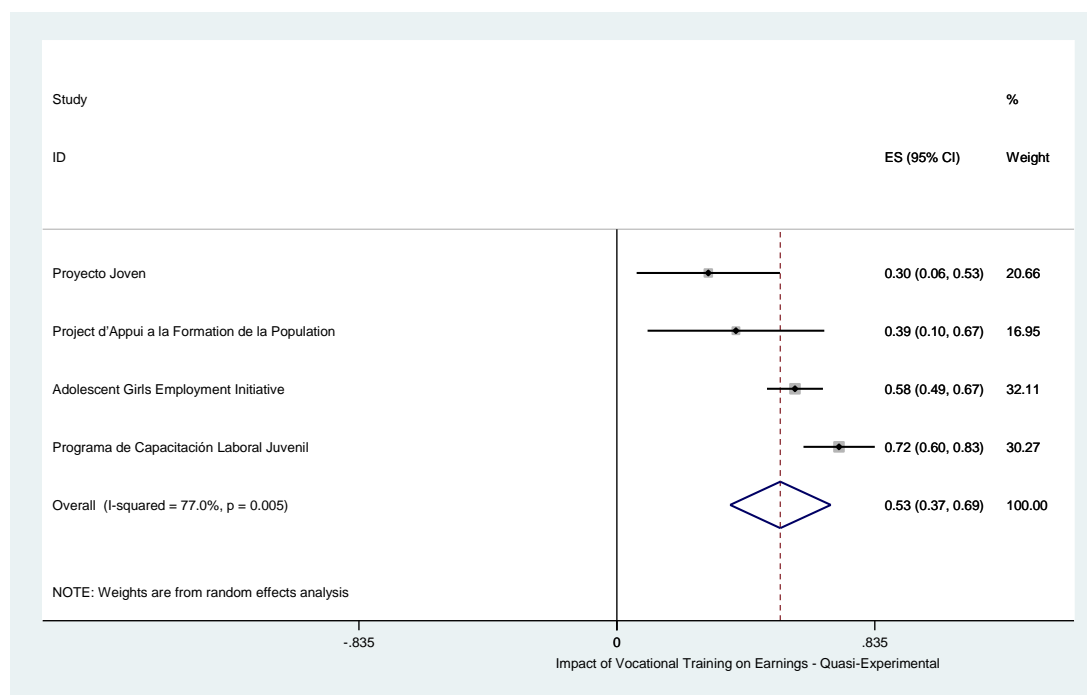
Figure 7: Effects of vocational training on women’s earnings—RCTs



We conducted a separate meta-analysis of the effects of vocational training on earnings based on quasi-experimental evaluations (Figure 8). Based on this analysis, it appears that vocational training had a large positive effect on earnings, which was statistically significant at the 95% level (SMD = 0.53, 95% CI = 0.37, 0.69; central estimate=25.62%, 95% CI =18.05%, 32.70%; evidence from four programmes). A meta-regression, which

we present in Annex 7, suggested that quasi-experimental studies showed effect sizes that were statistically significantly larger than cluster-RCTs ($\beta = -0.44$, 95% CI= -0.29, -0.59). We interpreted this finding as evidence of a high risk of bias in the quasi-experimental studies that focused on the effects of vocational training on earnings because the quasi-experimental studies that estimated the effects of vocational training on earnings were rated as having a high risk of bias. On the basis of this result, we concluded that it would not be appropriate to pool RCTs and quasi-experimental studies that focused on the effects of vocational training on earnings.

Figure 8: Effects of vocational training on women’s earnings—quasi-experimental studies



4.3.5 Impacts of vocational training on women’s economic empowerment

Although we only identified one study that focuses on the effects of vocational training on women’s economic empowerment, the study shows positive and statistically significant effects. Chakravarty et al. (2016) demonstrate that vocational training can have positive and statistically significant effects on women’s economic empowerment in a quasi-experimental study in Nepal. The study measures economic empowerment through questions that are associated with control over earnings, savings, and expenditures. On average, they find positive and statistically significant programme effects of vocational training on women’s economic empowerment (SMD = 0.12, 95% CI = 0.03, 0.20; central estimate=5.78%, 95% CI =1.32%, 10.20%; evidence from one programme). We need to be careful in interpreting this finding though because the finding is based on a single quasi-experimental study with a high risk of selection-bias.

4.3.6 Impacts of business training

We present meta-analyses to determinethe effect of business training on the likelihood of self-employment and profits. Of the 16 studies with a focus on business training, we included three studies in the meta-analysis to assess the effects of business training on the likelihood of self-employment, and 10 studies in the meta-analysis to determine the

impact of business training on sales or profits. We treated sales, the income of the owner of the business, and profits as one construct in our meta-analysis to increase statistical power. Additional analyses suggest that treating these outcome measures as two separate constructs does not result in different results. Meta-analyses that include profits as the main outcome measure show very similar results as meta-analyses that include sales as the main outcome measure. Additional meta-analyses also demonstrate that the findings we present are robust to the exclusion of studies that focus on sales or income of the owner, as opposed to profits. We present a summary of the studies and programmes that we included in the meta-analysis for business training in Table 4

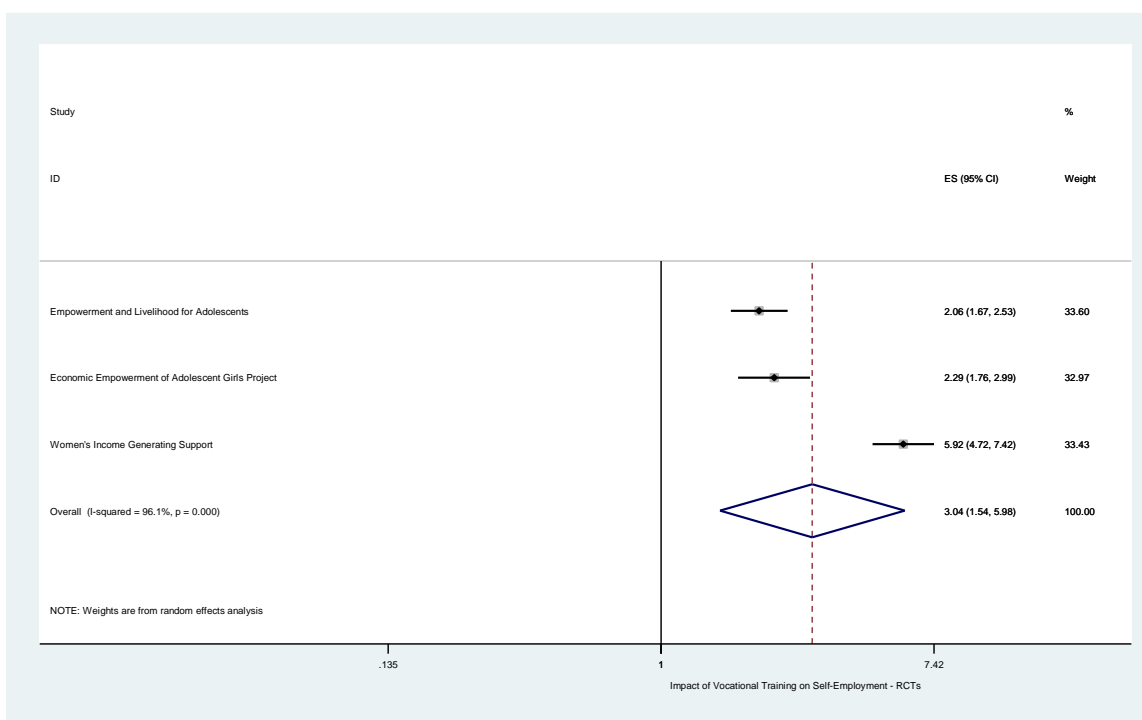
To determine the impact of business training on business knowledge and practices and economic empowerment we chose to rely on a narrative synthesis as opposed to a meta-analysis because the measurement of business knowledge and practices was too different across studies and because we only included two studies that estimated the impact of business training on economic empowerment. Meta-analyses for business knowledge and practices may not have been valid because the outcome measures were likely to measure different constructs. For this reason, we present evidence on the effects of business training on these outcome measures using a narrative synthesis below. We were also not able to conduct a meta-analysis on the effects of business training on economic empowerment because of the limited number of studies. Thus, for business knowledge, business practices, and economic empowerment outcomes, we focus on a narrative synthesis to assess the effects of business training on economic empowerment.

In addition, we present a narrative synthesis on the evolution of the impact of business training on sales and profits over time. We included several studies that measured these impacts at different time periods. Below we present narrative syntheses to analyze the trajectories of these impacts in more detail following the discussion on the impact of business training on self-employment, profits, and business knowledge and practices.

4.3.7 Impacts of business training on self-employment

We relied on a meta-analysis to determine the impact of business training on the likelihood of self-employment. The meta-analysis with three studies demonstrated that business training had positive and statistically significant effects on self-employment ($OR = 3.04$, 95% CI = 1.54, 5.98; $RR=1.73$, 95% CI=1.28, 2.09; evidence from three programmes). Although careful interpretation of this result is necessary due to the small number of studies, the findings provide evidence that business training had positive effects on the likelihood of self-employment. However, the limited number of studies meant that detailed, stratified analysis was not possible. We were also unable to determine the factors that predicted heterogeneities in the effect sizes. Finally, each of the studies that estimated the effects of business training on self-employment cannot distinguish between the effects of business training and the effects of other components within the same programme. For example, the positive effects may have been caused by life skills training instead of business training. In Figure 9, we present the meta-analysis for determining the effects of business training on the likelihood of self-employment.

Figure 9: Effects of business training on self-employment



4.3.8 Impacts of business training on profits and sales

To determine the impact of the programme on profits and sales, we conducted a meta-analysis. Of the 35 studies, 10 focused on the impact of business training on profits, sales, or the income of the business owner and were eligible to be included in the meta-analysis. Of these studies, several focused on the impact of a business training programme with additional cash transfers, while others focused on the impact of business training with additional microfinance, or on the impact of business training that did not include either cash transfers or microfinance. We first conducted a meta-analysis that included only RCTs for the latter category. Figure 10 presents the forest plot that examines the impact of this type of business training on profits or sales. We found evidence of a positive point estimate, although the impact was not statistically significant ($SMD = 0.13$, 95% CI = -0.03, 0.28; central estimate=6.44%, 95% CI =-1.25%, 14.01%; evidence from six programmes). The meta-analysis also provided evidence for large heterogeneity in the impact estimates. Statistical tests demonstrated evidence for a large I-squared, although τ -squared was relatively small (Chi-squared = 43.28, τ -sq = 0.03, I-sq = 88%).

We also conducted a meta-analysis to determine the impact of business training with a cash transfer component on profits or sales on the basis of RCTs. We found evidence that business training with a cash transfer component had positive and statistically significant effects on sales or profits, although the point estimate was somewhat smaller than for the impact of business training without cash transfers ($SMD = 0.10$, 95% CI = 0.00, 0.20; central estimate=6.83%, 95% CI =0.15%, 9.95%; evidence from four programmes). This finding indicates that business training that includes cash transfers can influence sales or profits positively, but that the effects are not necessarily larger than for business training without cash transfers. We present the results of the meta-analysis in Figure 11.

Because our analysis showed that RCTs and quasi-experimental studies could be pooled, we also present a meta-analysis that combines RCTs and quasi-experimental studies that focus on the impact of business training on sales and profits. For this analysis, we focus on business training that does not include cash transfers. The analysis shows that business training had positive and statistically significant effects on sales or profits ($SMD = 0.14$, 95% CI = 0.02, 0.26; central estimate=5.04%, 95% CI =0.90%, 12.70%; evidence from nine programmes). This finding indicates that the lack of statistically significant effects in the previous meta-analyses was most likely related to a lack of statistical power. We present the results of the pooled meta-analysis in Figure 12.

Figure 10: Effects of business training without cash transfers on profits or sales—randomized controlled trials

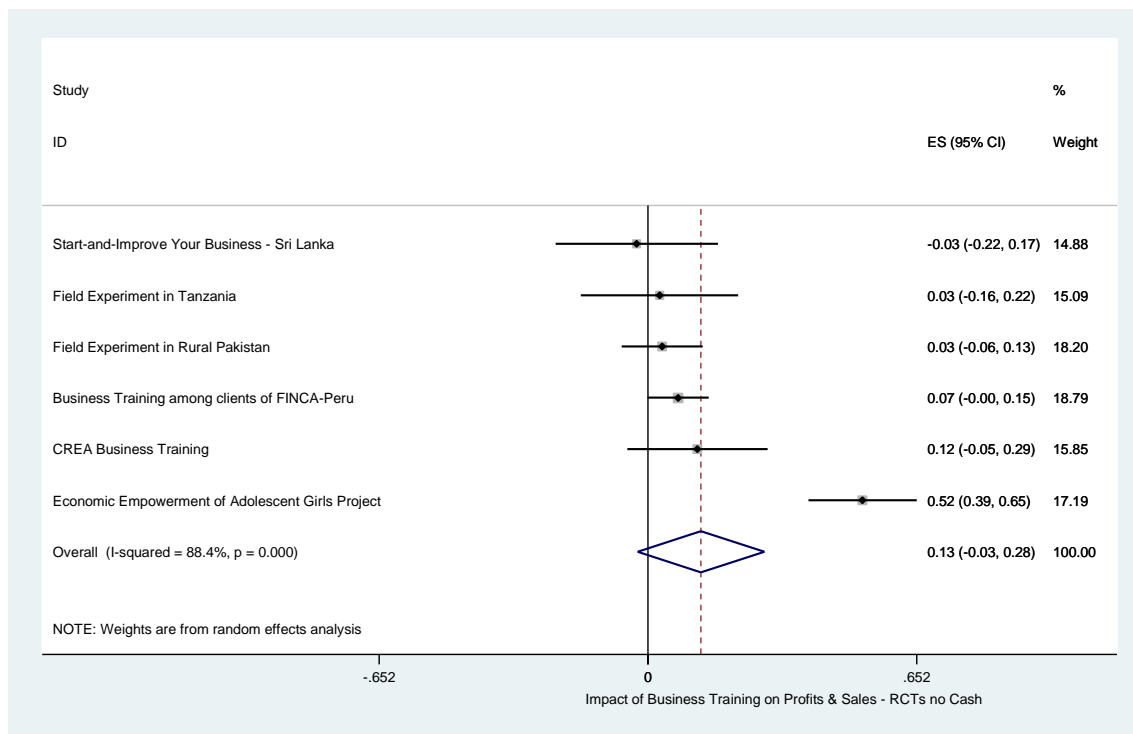


Figure 11: Effects of business training with cash transfers on profits or sales—randomized controlled trials

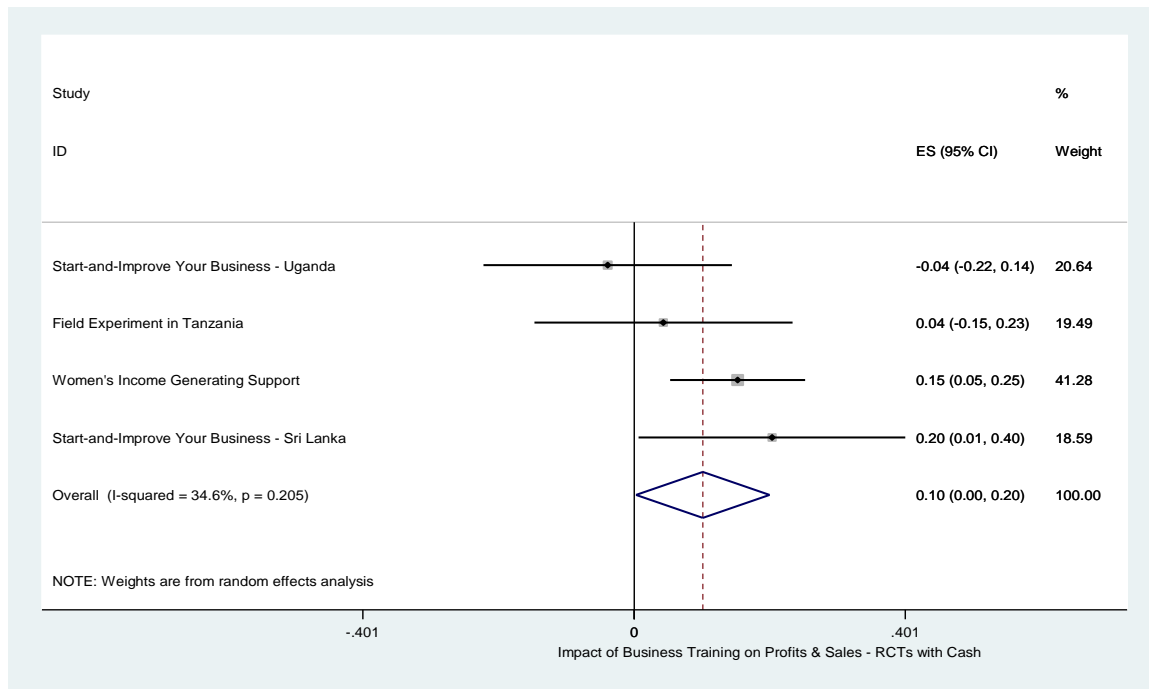
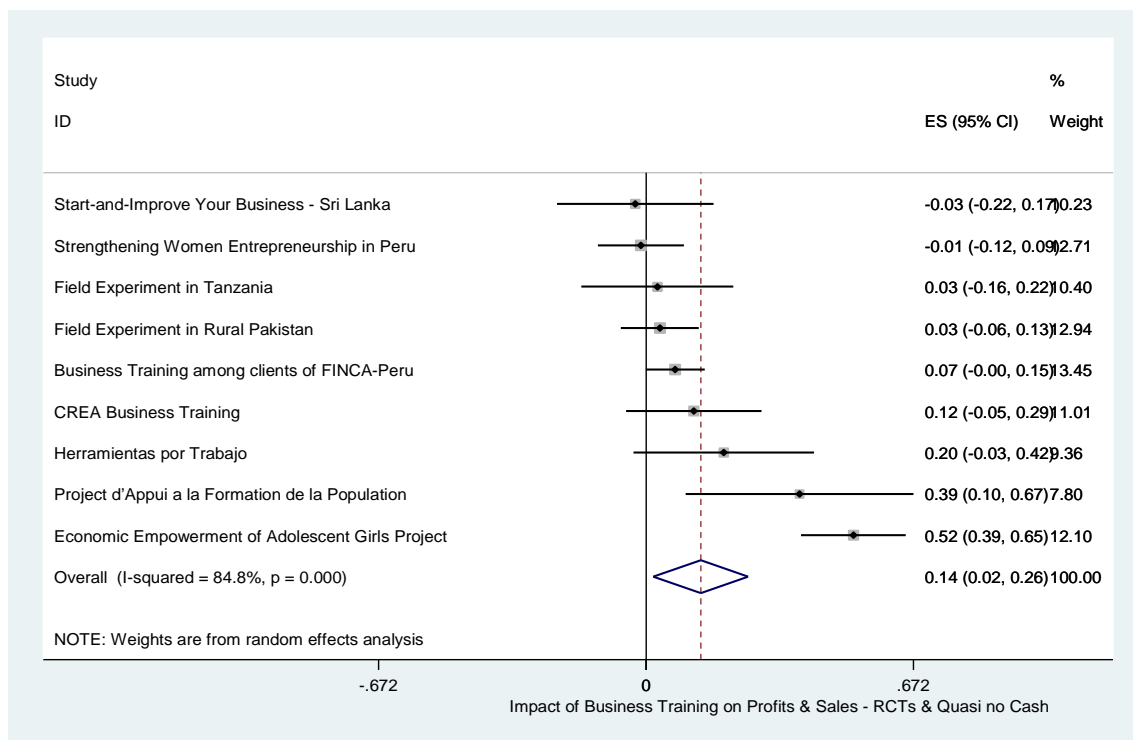


Figure 12: Effects of business training without cash transfers on profits or sales—randomized controlled trials and quasi-experimental studies



To further explore the impact of business training on sales or profits, we conducted a sensitivity analysis in which we pooled the RCTs and quasi-experimental studies. For this sensitivity analysis, we again focused on the impact of business training without cash transfers or microfinance. We first examined differences in impact estimates across continents. This analysis demonstrated that business training had larger positive effects on sales or profits in sub-Saharan Africa ($SMD = 0.31$, 95% CI = -0.02, 0.64; central estimate=15.47%, 95% CI =-0.90%, 30.61%; evidence from three programmes), compared to other low- and middle-income countries ($SMD = 0.05$, 95% CI = 0.00, 0.10; central estimate=2.55%, 95% CI =0.20%, 4.89%; evidence from six programmes). We present these meta-analyses and the associated meta-regression in Annex 7. Although the results from sub-Saharan Africa are promising, the large effect sizes were almost entirely driven by a study conducted by Adoho and colleagues (2014). Other studies showed smaller impact estimates, indicating large heterogeneity in the impact estimates in sub-Saharan Africa. This heterogeneity was confirmed by statistical tests (Chi-squared = 17.38, Tau -sq = 0.07, I-sq = 89%).

In addition, we estimated differences in impact estimates between business training programmes that included a gender focus and business training programmes that did not. This analysis suggested that the larger impact of business training in sub-Saharan Africa may result from a stronger gender focus. The study with the strongest gender focus also found the largest effect of business training on profits (Adoho et al., 2014). As this finding is based on only one study, we need to remain careful when interpreting this result. However, Bandiera et al. (2015) also found that business training had strong effects on the likelihood of self-employment in Uganda and attributed this large effect to a strong gender focus. A narrative synthesis therefore indicates that gender focus may play a key role in increasing the effectiveness of business training programmes. Alternatively, the larger effect may be caused by a strong focus on life skills. Both Adoho et al. (2014) and Bandiera et al. (2015) provide evidence that business training programmes with a strong focus on life skills had strong impact estimates. However, we need to be careful in interpreting these results because several other confounding factors (either contextual or programme characteristics) could have influenced the results.

4.3.9 Impacts of business training on business knowledge and practices

We identified seven studies that focuses on the effects of business training on business knowledge. Our analyses on the impact of vocational training on business knowledge shows positive and statistically significant effects for almost all of the studies included in the analyses. All analyses demonstrate positive point estimates ranging from 0.056 standardized mean differences in Karlan & Valdivia (2011) to 0.74 standardized mean differences in Cho et al. (2016). Arguably, the differences in effect sizes may be linked to differences in contextual and programme characteristics. However, it is equally likely that the differences in effect sizes are associated with differences in research instruments used to measure business knowledge. It is likely that the studies do not measure the same constructs because of these differences. Nonetheless, the universally positive point estimates suggest that business training generally shows positive impacts on business knowledge. Table 7 shows the effect sizes and the associated 95% confidence interval.

Table 7: Impact of business trainings on business knowledge

Programme Name	Effect Size	Confidence Interval
Business Training for Microfinance Clients of FINCA, Peru	0.06	-0.01, 0.12
Business Training with Microfinance Clients, Rural Pakistan	0.06	-0.03, 0.15
CREA Business Training, Mexico	0.07	-0.10, 0.24
Promotion of Rural Initiatives and Development Enterprise (PRIDE), Tanzania	0.15	-0.06, 0.37
Economic Empowerment of Adolescent Girls Project (EPAG), Liberia	0.19	0.07, 0.32
Start and Improve Your Business (SIYB), Sri Lanka	0.47	0.27, 0.67
Technical Education and Vocational Education and Training Authority (TEVETA), Malawi	0.74	0.36, 1.11

Our analyses on the impact of business training on business practices shows similar positive and statistically significant effects for half of the studies included in the analyses. We do not find positive effects of business training on business practices for the CREA Business Training and Business Training among clients of FINCA in Peru. All analyses demonstrate positive point estimates, however, ranging from 0.01 standardized mean differences in Calderon et al. (2013) to 0.66 standardized mean differences in Nakasone and Torero (2014). Again, however, the differences in effect sizes may be linked to differences in research instruments. It is likely that the studies do not measure the same constructs because of these differences. Nonetheless, the universally positive point estimates demonstrate that business training often demonstrates positive effects on business practices. Table 8 shows the effect sizes and the associated 95% confidence interval.

Table 8: Impact of business trainings on business practice

Programme Name	Effect Size	Confidence Interval
Business Training for Microfinance Clients of FINCA, Peru	0.27	-0.36, 1.39
CREA Business Training, Mexico	0.01	-0.16, 0.18
Promotion of Rural Initiatives and Development Enterprise (PRIDE), Tanzania	0.38	0.06, 0.70
Strengthening Women Entrepreneurship in Peru (SWEP)	0.66	0.40, 0.91

4.3.10 Impacts of business training on economic empowerment

We find mixed evidence for positive and statistically significant effects of business training on women's economic empowerment. Blattman et al. (2016) do not find evidence for positive effects of business training on an index of women's economic empowerment in Uganda, although the point estimates are positive. Blattman et. al. measured economic empowerment through an index associated with autonomy in household financial decisions (which measured for example whether they can decide

how to spend their pocket money, use their earnings to buy clothes without permission, or have a say in the purchase of large assets in the household). However, Bandiera et al. (2015) show evidence for positive and statistically significant effects of business training on an index of economic empowerment in Uganda. They measure economic empowerment through an index that cumulates responses to questions associated with bargaining power in the household about activities such as purchases, fetching water, education, etc. Interestingly, Bandiera et al. (2015) also find positive programme effects of business training on teen pregnancy and early marriage (which both reduce due to the programme) as well as the likelihood that girls engage in income-generating activities and monthly expenditures. Bandiera et al. (2015) attribute these positive effects to the strong gender focus of the programme in Uganda.

Although the small number of studies requires us to be cautious in the interpretation of the results, the results suggest that a business training programme with a strong gender focus may contribute to women's economic empowerment. Blattman et al. (2016) do not find evidence of positive programme effects of a business training programme that does not include a strong gender focus, while Bandiera et al. (2014) find evidence for large and statistically significant programme effects of a business training programme with a strong gender focus on women's economic empowerment. This evidence is consistent with some of the previous evidence we discussed, which found larger positive programme effects of business training programmes with a strong gender focus. Nonetheless, we need to remain careful in interpreting these findings because other factors (e.g. other programme and contextual characteristics) may have confounded the results. In addition, the studies only show evidence from a single country in sub-Saharan Africa. We do not present evidence on women's economic empowerment from other countries. Table 9 shows the effect sizes and the associated 95% confidence interval for the impact estimates on women's economic empowerment.

Table 9: Impact of business trainings on women's economic empowerment

Programme Name	Effect Size	Confidence Interval
Empowerment and Livelihood for Adolescents in Uganda	0.12	0.06, 0.17
Women's Income Generating Support in Northern Uganda	0.07	-0.03, 0.17

4.3.11 Trajectories of the impact of business training on profits and sales

Of the included studies several estimate the impact of business training on profits at different points in time. Our meta-analyses for vocational training already suggested that the impact of vocational training on income may reduce over time. Some of the evaluations of business training programs find a similar pattern. For example, De Mel et al. (2012) show that business training's impacts on profits reduce from 0.20 standardized mean differences (after 4 months) and 0.22 standardized mean differences (after 8 months) to 0.04 standardized mean differences (after 16 months) and 0.02 standardized mean differences (after 25 months) when the business training is complemented with cash transfers. We find a similar pattern for business training without cash transfers in which negligible but positive point estimates after 4 and 8 months transform to slightly

negative point estimates after 16 and 25 months. Fiala (2014) finds a similar pattern in his study on the impact of business training. These findings suggests that business training may not have sustainable impacts on profits. However, Berge et al. (2012) show evidence for slightly increasing positive effects of business training over time. Hence, there is mixed evidence for how business training's impacts on profits transform over time.

4.4 Publication bias

4.4.1 Publication bias in the effects of vocational training

We relied on funnel plots to determine the potential for publication bias in studies that focused on the effects of vocational training on employment and earnings. We did not find a sufficient number of studies with a focus on the effects of vocational training on formal employment to determine the potential for publication bias. We only used funnel plots when the meta-analysis for a specific outcome variable included at least 5 studies.

Figure 8.1 in Annex 8 presents funnel plots for studies that focused on the effects of vocational training on employment, based on RCTs. The basic idea of a funnel plot is that publication bias is most likely when the effect sizes of studies do not follow a symmetric distribution. The effects of vocational training on employment were clearly not symmetrically distributed, and the funnel plot suggests that there might be publication bias in the studies that estimated the impacts of vocational training on employment. Funnel plots can be interpreted in multiple ways, however, so care is needed when interpreting the figure. We can only say that there is the potential for publication bias in the impact estimates for vocational training on employment.

We found a similar pattern for the effects of vocational training on earnings. Figure 8.2 of the same Appendix 8 shows a funnel plot for studies that focused on these effects. This figure shows a non-symmetric distribution, which suggests that studies that focus on the impact of vocational training on earnings could suffer from publication bias.

We formally tested for the potential for publication bias using Egger's test, and we found formal evidence for publication bias in the studies that focused on the effects of vocational training on employment. The results of the test were statistically significant for this relationship ($\beta = 1.75$, $SE = 0.69$, $p = 0.04$). Funnel plots and Egger tests can be interpreted in multiple ways, however, so we need to be careful when interpreting this finding. We can say only that there is the potential for publication bias in the impact estimates for vocational training's effect on employment. We found no formal evidence for publication bias in studies that focused on the effects of vocational training on earnings ($\beta = 1.65$, $SE = 1.45$, $p = 0.30$).

4.4.2 Publication bias in the effects of business training

We also developed funnel plots to determine the potential for publication bias in studies that focused on the effects of business training on sales or profits. Figure 8.3 of Appendix 8 presents the results. The funnel plot showed no evidence of publication bias in studies that focused on the effects of business training on sales or profits. We also conducted an Egger test to formally test for publication bias, and the test showed no formal evidence of publication bias in the effects of business training on sales or profits ($\beta = 1.69$, $SE = 2.23$, $p = 0.76$).

4.5 Summary of effect sizes

We finalize the quantitative analysis with a table that shows a summary of the effect sizes of vocational and business training on employment, income, and earnings. Specifically, we highlight the effect sizes of vocational training on employment and earnings and business training on self-employment and profits. We also present separate effect sizes for vocational training programs inside and outside Africa and Asia, vocational training programs with and without gender focus, life skills, and internships, business training programs inside and outside Africa, and business training programs with and without cash transfers. We highlight effect sizes based on randomized controlled for vocational training programs because the analysis suggests that randomized controlled trials and quasi-experimental studies cannot be pooled for this category. However, for business training programs we present effect sizes that rely on both randomized controlled trials and quasi-experimental studies.

The tables demonstrate that on average vocational and business training show small but positive effects on employment, income, and sales or profits. The effects of both vocational and business training appear to be significantly larger in sub-Saharan Africa. Vocational training also shows larger effects on employment and income in Asia. In general, the effects of both vocational and business training also appear to increase with a stronger gender focus and life skills. Furthermore, vocational training shows larger impact estimates on employment directly after the implementation of the program. And vocational training also appears to have larger effects on earnings when the vocational training is complemented by an internship.

Table 10: Summary of effect sizes: vocational training

Outcome	Mean Effect Size	Africa and Asia	Other Contexts	High Gender Focus	Other Gender Focus	Life Skills	No Life Skills	Internship	No Internship	Less than 6 Months	More than 6 Months
Employment	1.11RR	1.34RR	1.06RR	1.21RR	1.06RR	1.08RR	1.22RR	1.07RR	1.16RR	1.25RR	1.05RR
Income	5.54%	6.43%	4.99%	7.18%	4.99%	7.18%	2.60%	8.87%	2.95%	5.54%	4.54%

Table 11: Summary of effect sizes: business training

Outcome	Mean Effect Size	Africa	Other Contexts	High Gender Focus	Other Gender Focus	Life Skills	No Life Skills	Cash Transfers	No Cash Transfers
Sales or Profits	6.44%	15.46%	2.55%	25.16%	3.10%	25.16%	3.10%	5.04%	6.83%

4.6 Analysis of barriers to and facilitators of program effectiveness

As explained in the methodology section, we synthesized relevant findings from impact evaluation studies included in this review, as well as relevant findings from qualitative and mixed-methods studies that passed the critical appraisal, in order to address Research Questions 2 and 3. Based on the theory of change and the results of this narrative meta-synthesis of 50 studies, we identified three main groups of barriers to and facilitators of program effectiveness:

- Structural conditions
- Gender norms
- Intervention design and implementation features

The first two groups are relevant to Research Question 2, and the third group is relevant to Research Question 3.

The following sections discuss each of these groups. In each case, a table is also provided that summarizes the barrier or facilitator and other relevant information (for example, the sources from which the information was drawn, the number of studies, the respective interventions, and the countries in which the interventions took place).

4.6.1 What are the barriers to and facilitators of vocational and business training programme effectiveness?

Structural conditions

In this systematic review, the term “structural conditions” refers to the availability and quality of infrastructure (such as transportation), social service facilities, legal barriers, and other institutional and economic conditions not related to the design and implementation of the interventions, or to gender norms (which are treated separately). Structural conditions can affect training participation, as well as labour market insertion (vocational training programmes) and business development (business training programmes).

Our review revealed that the main structural barriers that impeded intervention effectiveness were as follows: distance and the cost of transportation to the training centre, time constraints for participation, and economic and labour market barriers. We did not identify any structural facilitators for the interventions included in the review. This may reflect the focus of the studies we reviewed, which were mostly concerned with understanding barriers to intervention effectiveness. It could also reflect the absence of structural facilitators in most low- and middle-income countries.¹⁰

Distance to training centres and transportation costs

Based on the meta-synthesis, one of the main barriers to accessing and completing training was the distance to training centres, as well as the availability and cost of public transportation. Distance can severely limit access to training, especially for the most vulnerable and for those living in remote areas. This is the case for both women and men, as illustrated by the Indian SATYA-PRATHAM vocational training programme (Maitra & Mani, 2014). Distance and the cost of transportation may also severely influence participants’ permanence in training programmes (Benavides, 2006). This barrier applies to both vocational and business programmes. Table 12 details the programmes in our review that faced such barriers.

Time constraints

Time constraints may affect access, participation, and permanence in both vocational and business interventions, particularly when training does not take potential participants’ schedules into account. Benavides (2006) explored this in the context of

¹⁰ Examples of elements that may have worked as structural facilitators include national childcare programmes or transportation reforms. However, none of the identified papers explored the relationship between such elements and the results of the interventions.

Peru's ProJoven programme, as did Valdivia (2015) in the context of the Peru BDS programme. Time-constraining factors may differ between men and women, and they may explain why some programmes have a much larger proportion of single male and female participants, as was the case in Peru's ProJoven programme (Jaramillo, et. al. 2007). For instance, time limitations may be associated with domestic and care responsibilities, but also with incompatibilities with participants' busy work schedules or the time demands they face when they need to work or run a business to support a family. These time constraints are particularly a barrier for women, who normally spend a great deal of time on domestic chores or care work, especially if there is no access to childcare or no additional stipends to cover childcare.

Economic and labour market outcomes

Structural barriers related to the economy and labour market conditions can also affect final outcomes such as labour market participation (for vocational interventions) and income (for business interventions). Our analysis revealed that interventions that took place in contexts where labour demand was very low faced important barriers to achieving the desired labour market outcomes (Galasso et al., 2004; Jacinto, 1997).

Table 12: Structural barriers to participation, labour market insertion, and business development.

	N° of Studies	Intervention	Type of Intervention	Countries	Description
Distance to training centres and transportation costs	5	SATYA-PRATHAM vocational training programme	Vocational	India	Distance to the training centre has been identified as an important barrier to programme completion and, therefore, skill accumulation. In the case of the SATYA-PRATHAM vocational training programme, a 10-minute increase in the time taken to walk to the training centre was associated with a 14% reduction in the likelihood of programme completion (Maitra & Mani, 2014).
		Vocational and Entrepreneurial Training for Malawian Youth	Mixed	Malawi	Distance was identified as an important barrier to programme completion (Cho, Kalomba, Mobarak, & Orozco, 2013).
		Business Development Services (BDS) programme	Business	Perú	High dropout rates were associated with time and access constraints. For example, the fact that the training took place in a different zone from where the women lived was found to increase dropout by 7% for female micro entrepreneurs (Valdivia, 2015).
		Programmea Juventud y Empleo	Vocational	Dominican Republic	In small cities and poor surrounding areas, long distances to training and job placements after training, coupled with a lack of transportation, were major barriers to training participation (Portorreal, 2010).
		Jóvenes en Acción	Vocational	Colombia	Cost of transportation was identified as a major barrier to training participation. Transportation subsidies were included to facilitate access, but only for certain subgroups (e.g., for people displaced by the internal conflict). The lack of childcare coverage was also identified as a barrier to women's participation (Acevedo, Prada, & Alvarez, 2008).
Time constraints	3	Projoven	Vocational	Perú	Lack of time was found to be an important factor explaining potential beneficiaries' unwillingness to participate in ProJoven (Benavides, 2006). The large proportion of single men and women who accessed the training was explained by the fact that married potential participants could not afford to lose income (Jaramillo et al., 2007).
		Business Development Services (BDS) programme	Business	Perú	On average, eligible women reported dedicating 75 hours of their time each week to productive activities: 48 hours to their business and 22 hours to household chores (with the remainder dedicated to other jobs or studies). Men worked 34 hours a week on jobs outside the household and 12 hours in a family business, but dedicated only five hours a week to household chores (Valdivia, 2015).
Economy and labour market barriers	3	Proempleo Experiment	Vocational	Argentina	A reduced effect was found in terms of accessing a job. This was partly explained by a lack of demand, due to stagnation in the labour market and in the economy (Galasso et al., 2004).
		Programmea Juventud y Empleo	Vocational	Dominican Republic	The intervention took place in small urban areas where job opportunities were limited (Portorreal, 2010).
		Programmea Joven/ Proyecto Joven/ Youth Training Programme (YTP)	Vocational	Argentina	The quantity and quality of the intervention's on-the-job training components were limited by the firms' strategies, but mostly by the limited possibilities of offering internships in a context of a stagnant economy, where many firms were reducing personnel (Jacinto, 1997).

Gender norms

Gender norms define what societies consider appropriate or expected in terms of male and female behaviour, leading to the development of gender roles. They include cultural rules and practices that may affect women's occupational and business development every step of the way, from opportunities to acquire skills to participation in the labour and business markets. Gender norms may translate into legal barriers, limited opportunities for women in the labour market, feminization of occupations with less societal value, restricted freedom of movement, lack of knowledge about reproductive health, the unequal distribution of domestic responsibilities, and many other factors that reinforce gender inequality.

Domestic and childcare responsibilities

It is likely that women's responsibilities at home prevent them from participating in and taking full advantage of training. Our review found that one of the main and most frequent gender barriers was the unequal division of domestic and childcare responsibilities. Women typically assume these responsibilities, which limits their access to and participation in training programmes (in both vocational and business interventions). As shown in Table 13, these responsibilities can also impede continuous participation once women have enrolled in a programme, accounting for the high female dropout rates reported in many studies. The cost and frequent unavailability of childcare services further add to the difficulties faced by women. The meta-synthesis showed that this type of barrier was faced by women in the Jovenes in Accion programme in Colombia, the ProJoven programme in Peru, the Technical Education and Vocational Education and Training Authority programme in Malawi, the SATYA-PRATHAM vocational training programme in India, and the Business Development Services programme in Peru.

Gendered segregation of occupations

Gender norms also influence the acquisition of skills (from both a supply and a demand perspective), access to training programmes, and labour market outcomes. Gender norms also influence the possibility of women benefiting from access to credit or cash associated with business training interventions. For instance, the courses offered in many training programmes, especially vocational ones, often reinforce existing gender-based occupational segregation by providing training in highly feminized areas for women and in more traditionally masculine areas for men (Chakravarty et al., 2016; Honorati, 2015). Even when interventions encourage female participation in traditionally non-female trades, women often demand courses that they perceive as appropriate for their gender (Bennell, 1999). This reflects a more general trend in labour markets, where women tend to be concentrated in a smaller group of occupations that are culturally defined as feminine, enable women to work from home, and are compatible with domestic tasks.

Restricted mobility and decision-making capacity

In some contexts, gender norms related to women's freedom of movement and limited decision-making capacity at the household level may also influence women's access to training and impose a barrier to obtaining the desired outcomes in terms of labour market participation, income, and economic empowerment for both vocational and business training interventions. However, although this appeared to be an important barrier in highly traditional or religious countries, such as Jordan and Pakistan (Giné & Mansuri,

2014; Groh et al., 2016), there was no evidence of such barriers for women in vocational and business interventions in Latin American countries.

Gender barriers to benefitting from credit and cash

Cultural and gender norms may also affect women's opportunities to benefit from access to credit or cash, which may constitute an important barrier for business training interventions (Blattman et al., 2014). For example, women may have less access to credit than men, or they may have no control over (or role in decision-making with regard to) the acquired resources (Maitra & Mani, 2014). The literature also suggests that domestic and family responsibilities can influence women's investment decisions and the possibility of improving their business outcomes because many women choose to invest available money in their families rather than their businesses (Fiala, 2014). As a result, interventions based on a combination of training and loans may be more effective for men than for women.

As with structural conditions, no facilitators were identified in relation to gender norms. Again, this may be because researchers in the included studies were primarily focused on exploring how gender norms negatively affect programme outcomes. It may also relate to the prevalence of traditional gender norms in most low- and middle-income countries (albeit with differences between regions).

Table 13: Gender barriers to participation, labour market insertion, and business development.

	N° of Studies	Intervention	Type of Intervention	Countries	Description
Domestic and childcare responsibilities	4	Vocational and Entrepreneurial Training for Malawian Youth	Mixed	Malawi	Women identified getting married and family obligations as the main reasons for not participating in the programme and for dropping out (Cho et al., 2013).
		SATYA-PRATHAM vocational training programme	Vocational	India	Issues relating to accessibility, credit/resources, and the availability of childcare support in the household severely constrained women from participating and completing training in the SATYA-PRATHAM programme (Maitra and Mani, 2014).
		Jóvenes en Acción	Vocational	Colombia	The programme did not address the needs of single adolescent/young mothers (in particular, by offering childcare), so they were unable to participate in training sessions (Depart. Nacional de Planeación, 2008).
		Business Development Services (BDS) programme	Business	Perú	Traditional gender patterns in time use constrained intervention effectiveness in BDS Peru. On average, eligible women reported dedicating 75 hours of their time each week to productive activities: 48 hours to their business and 22 hours to household chores (with the remainder dedicated to other jobs or studies). Men worked 34 hours a week on jobs outside the household and 12 hours in a family business, but dedicated only five hours a week to household chores (Valdivia, 2015).
Gendered segregation of occupations	2	AGEI (Adolescent Girls Employment Initiative)	Vocational	Nepal	Even if an intervention tries to encourage female participation in traditionally non-female trades, most of the training courses tend to be heavily gender-segregated. In AGEI, men tended to dominate electronics and construction courses, while tailoring and beautician trainings consisted almost exclusively of women (Chakravarty et al., 2016).
		Kenya Youth Empowerment Project (KYEP)	Vocational	Kenya	The KYEP programme offered training to young women but focused on rather traditional roles. It provided women with an opportunity to enhance their skills in domestic work in order to help them find work (Honorati, 2015).
Restricted mobility and decision-making capacity	2	Jordan New Work Opportunities for Women (Jordan NOW) pilot	Vocational	Jordan	In Jordan, community college graduates have limited access to independent financial resources and restricted mobility. (About half of the graduates report that they are not permitted to travel alone to the market, a government office, or even to a health centre.) This barrier lowered their probability of finding a job after graduation (Groh et al., 2016).
		Field Experiment – Rural Pakistan	Business	Pakistan	In the rural field experiment of business training in Pakistan, 40% of women reported that their (male) spouses were responsible for most of their business decisions. This suggests that female businesses showed no improvement because women had little decision-making control (Giné & Mansuri, 2011). “One plausible explanation for these gender differences is rooted in the norms about the role of women as caregivers and other social norms that limit their labour supply” (Giné & Mansuri, 2011, p. 3).
Cultural and gender barriers to benefiting from credit and cash	3	Youth Opportunities Programme (YOP)	Vocational	Uganda	Blattman et al. (2014) found that gains were highest for those who had the highest initial credit constraints, those with the fewest initial assets, and those with no access to loans.
		Start and Improve Your Business (SIYB)	Business	Uganda	Fiala (2014) argues that “family pressure on women appears to have significantly negative effects on business investment decisions: married women with family nearby perform worse than the control group in a number of the interventions” (p. 4). “Keeping cash in hand is difficult when there is pressure to spend money on school fees or health care. These pressures matter a lot for women who want to expand their business but have family members nearby” (Fiala, 2014, p. 30).
		SATYA-PRATHAM vocational training programme	Vocational	India	Gender barriers may prevent women from benefiting from programmes that provide credit or cash. In some cases, husbands may even take the money (Maitra & Mani, 2014).

4.6.2 What are intervention design and implementation features associated with effective vocational and business training for women?

The findings from the narrative meta-synthesis (as well as the supporting information gathered for the programme characterization) identified design and implementation barriers and facilitators that largely aligned with the literature reviewed in the background section of this report. In this section, we discuss the main programme features associated with effective vocational and business training for women, in terms of both intermediate outcomes (such as skills acquisition) and final outcomes (such as labour participation and income). Details of the relevant interventions and the sources used for the meta-syntheses are included in the accompanying tables.

Design and implementation facilitators

Various authors highlighted the importance of life skills training for achieving the desired final outcomes, especially labour market participation (Bandiera et al., 2014; Chakravarty et al., 2016; De Azevedo, Davis, & Charles, 2013; Katz, 2008). Authors suggested that although life skills training might not have a direct effect on employment outcomes such as earnings, it has indirect effects on such outcomes because it increases participants' employability. Many vocational and business training programmes include life skills components that deal with employability issues and/or promote economic and personal empowerment. Life skills training affects participants' attitudes, including how proactive they are about finding a job, as well as their self-confidence, life outlook, personal presentation, and general well-being. These results were illustrated in studies of the Jordan NOW programme (Groh et al., 2016) and the Ninaweza Project in Kenya (De Azevedo et al., 2013).

The inclusion of life skills generally improves the effectiveness of vocational and business interventions. However, qualitative evidence also suggests that programmes with a high gender focus—in which life skills training concentrates not just on employability issues, but also directly addresses women's issues—seem to be even more effective in achieving outcomes for women (discussed in more detail later in this section). Examples of such programmes include AGEI in Nepal, the Ninaweza Project in Kenya, the Jordan NOW programme in Jordan, and the ELA programme in Uganda.

Strategies to facilitate access to job markets or business development

Many vocational programmes include strategies to facilitate programme participants' access to job markets, and the literature suggests that this is highly valued by both participants and employers. In particular, job placements and internships tend to be most effective when adequate support for trainees is in place, as well as supervision and incentives or compensation for employers. Examples of vocational interventions that used this strategy include Jóvenes en Accion in Colombia (Departamento Nacional de Planeación 2008) and Juventud y Empleo in the Dominican Republic (Portorreal, 2010). For trainees, such support can take the form of mentoring strategies, as seen in the YOP in Uganda. In this programme, receiving advice from experienced mentors was seen as key to improving post-training decision-making (Blattman, Fiala, & Martinez, 2014). This was also true of the ELA programme in Uganda and the Field Experiment in Pakistan, where participants received follow-up hand-holding visits (Bandiera et al., 2014; Giné & Mansuri, 2011). For employers, a key element is the inclusion of incentives—such as additional compensation or bonuses—to ensure their commitment to the trainees. EPAG in Liberia provided a bonus to committed employers (Adoho et al., 2014), and the Kenya

Youth Empowerment Project provided compensation to employers for the time they spent overseeing interns (Honorati, 2015).

In business programmes, some of the strategies used to facilitate business development included providing personalized technical assistance and mentoring trainees over time to help them develop and start implementing their business plans. Business effectiveness is also facilitated when business interventions organize groups to promote self-help strategies among programme participants (Valdivia, 2015).

Some programmes specifically seek to break down barriers and promote access to job markets in traditionally non-female occupations. This can be done by actively promoting women's engagement in traditionally non-female courses and occupations, and through sensitization and supervision of employers on issues such as gender discrimination at work. Jordan NOW, for instance, deployed strategies to generate awareness among employers about the importance of breaking down barriers for women. The Ninaweza Project in Kenya, meanwhile, provided training in traditionally non-female areas, such as computer hardware and software, entrepreneurship, and business process outsourcing. (These features are also considered in relation to the interventions' gender focus, discussed later in this section.)

Other programme facilitators: stipends, wage subsidies, and other incentives

Many programmes include other features that act as facilitators and counteract some of the structural barriers discussed earlier. The reviewed qualitative literature suggests that programmes that include features such as stipends for transport and/or to cover childcare costs contribute to greater participant permanence, thereby increasing programme effectiveness (de Crombrughe et al., 2009; Fiala, 2014; Galasso et al., 2004). This was the case with programmes such as Vocational and Entrepreneurial Training for Malawian Youth, Proyecto Joven in Argentina, the Kenya Youth Empowerment Project, ProJoven in Perú, Juventud y Empleo in the Dominican Republic, and Jóvenes en Acción in Colombia.

Offering courses at times that are compatible with participants' schedules—and in the case of women, compatible with their domestic responsibilities or with the demands of tending to a business—is another design feature that emerged as a key facilitator of participation and permanence. This strategy was deployed by EPAG in Liberia and the Start and Improve Your Business programme in Uganda.

In some cases, programmes provided a wage subsidy to cover the cost of internships. This was found to contribute to employers' trust and willingness to hire programme participants, as well as participants' willingness to search for a job in the formal sector (e.g., Proempleo Experiment and Proyecto Joven in Argentina).

Authors also highlighted that offering courses for free could act as a facilitator of participation, and all the included interventions seem to have done this. However, some programmes (such as SATHYA-PRATHAM in India) asked participants to pay a small monthly fee, which would be reimbursed at the end of the programme, with an additional bonus if participants did not drop out.

Table 14 provides details of these programme design and implementation facilitators (including the sources used, the interventions, and the countries in which the interventions took place).

Table 14: Intervention design and implementation facilitators

	N° of Studies	Intervention	Type of Intervention	Countries	Description
Life skills training	3	Ninaweza Project	Vocational	Kenya	Life skills training was found to have a strong impact on participants' attitudes to job searching (i.e., participants adopted a more proactive approach). It was also reported that employers highly valued trainees' soft skills, such as personal presentation and confidence (De Azevedo et al., 2013).
		AGEI (Adolescent Girls Employment Initiative)	Vocational	Nepal	Female students responded positively to the life skills training. Their positive experience of this training contributed to the increased employment impact for women (Chakravarty et al., 2016).
		Jordan New Work Opportunities for Women (Jordan NOW)	Vocational	Jordan	Life skills training boosted self-confidence and had a significant effect on participants' well-being (Groh et al., 2016).
Strategies to facilitate access to job markets or business development	10	Jóvenes en Acción	Vocational	Colombia	Job placement support was highly valued by participants and employees, and it increased participants' knowledge of (the rules of) the formal labour market (Departamento Nacional de Planeación, 2008).
		Programmea Juventud y Empleo	Vocational	República Dominicana	Job placement support enabled participants to be in contact with employers (Portorreal, 2010).
		SATYA-PRATHAM vocational training programme	Vocational	India	This programme used recruitment strategies that targeted women, helping to break down existing barriers. It also carried out a 3-week campaign for potential beneficiaries (Maitra & Mani, 2014).
		Programmea Joven/ Proyecto Joven/ Youth Training Programme (YTP)	Vocational	Argentina	Programme participants viewed an internship component as a way of gaining access to the formal labour market and valued it highly (Jacinto, 1997).
		Youth Opportunities Programme (YOP)	Vocational	Uganda	This programme provided job placement support/mentoring after training, incorporating advice from experienced advisors. This was seen as key to improving post-training decision-making processes (Blattman, et al., 2011).
		EPAG	Mixed	Liberia	The programme included incentives for job placement by providing a bonus (Adoho et al., 2014).
		Kenya Youth Empowerment Project (KYEP)	Vocational	Kenya	The programme included incentives for job placement, providing compensation to employers for time spent overseeing interns (Honorati, 2015).
		Business Development Services (BDS)	Business	Perú	The BDS programme in Peru offered technical assistance and mentoring, and organized groups to promote self-help strategies, to improve participants "management capital" (Valdivia, 2015). In the ELA programme (Bandiera, 2014) and the Field Experiment in Pakistan (Giné & Mansuri, 2011), participants received follow-up hand-holding visits.
		Empowerment and Livelihood for Adolescents (ELA)	Business	Uganda	
Field Experiment – Rural Pakistan	Business	Pakistan			
Other programme features: stipends,	13	Vocational and Entrepreneurial Training for Malawian Youth	Mixed	Malawi	The Vocational and Entrepreneurial Training for Malawian Youth programme (Cho et al., 2013) and the Kenya Youth Empowerment Project (Honorati, 2015) provided stipends to facilitate access. For example, the Kenya Youth Empowerment Project provided stipends to cover transportation and food costs (Honorati, 2015).

	N° of Studies	Intervention	Type of Intervention	Countries	Description
wage subsidies, and other incentives		Kenya Youth Empowerment Project (KYEP)	Vocational	Kenya	
		Programma Joven/ Proyecto Joven/ Youth Training Programme (YTP)	Vocational	Argentina	This programme provided stipends to facilitate access, as well as a wage subsidy that allowed the programme to assume the cost of internships. Employers providing internships had no costs to assume (Aedo & Nuñez, 2004).
		Projoven	Vocational	Perú	These programmes provided women with a larger stipend to cover childcare costs (Ñopo, Robles, & Saavedra, 2008; Card et al., 2011; Attanasio et al., 2015). These facilitators were found to contribute to higher permanence in the programmes (de Crombrughe, 2009).
		Programma Juventud y Empleo	Vocational	República Dominicana	
		Jóvenes en Acción	Vocational	Colombia	
		Economic Empowerment of Adolescent Girls Project (EPAG)	Mixed	Liberia	EPAG provided childcare and offered training hours that were compatible with women's schedules (Adoho et al., 2014).
		Start and Improve Your Business (SIYB)	Business	Uganda	This programme in Uganda (Fiala, 2014) offered flexible training times that were compatible with the demands of business.
		Proempleo Experiment	Vocational	Argentina	The Proempleo Experiment provided a wage subsidy and assumed the cost of internships. This was found to contribute to participants' willingness to search for a job in the formal sector. It also contributed to employers' trust in the programme and willingness to hire programme participants (Galasso et al., 2004).
		SATYA-PRATHAM vocational training programme	Vocational	India	This intervention offered incentives for course continuance/attendance, requiring participants to pay a monthly fee that would be reimbursed at the end of the programme, with a bonus (Maitra & Mani, 2014).
		Experiment – ONG CREA Business Training	Business	Mexico	Incentives included issuing certificates (CREA in Mexico; Calderon, Cunha, & Giorgi, 2013) and providing a daily attendance payment (Sri Lanka SIYB; de Mel, McKenzie, & Woodruff, 2012).
	Sri Lanka – Start and Improve Your Business programme	Business	Sri Lanka		

4.6.3 Gender focus of interventions

As discussed above, the programme characterizations (developed through the qualitative analysis of relevant programme information) led us to identify an intervention's gender focus as an important design feature that supports programme effectiveness. Having categorized interventions based on whether they had a gender focus or not, and how strong that focus was, we were able to identify five interventions with a high gender focus whose effectiveness could be tested through the meta-analysis. This led to the important finding that such interventions were indeed more effective than those with a low gender focus or no gender focus (although we need to be careful in interpreting this finding because of potential confounding factors).

The gender focus of programmes can permeate all the programme features discussed earlier, from life skills training to strategies to facilitate job-market access. The gender focus of interventions can also translate into targeting women specifically, providing additional support for women to access training (for example, in the form of differentiated stipends), and providing childcare. Going further, gender focus can translate into gender-oriented life skills and hard skills training, or in cases of high gender focus, even into efforts to break down occupational segregation and gender discrimination in the labour market.

Interventions that focus only on women seem to be more likely to have a high gender focus, but it is clear that this is not necessarily a requirement. Interventions that do not exclusively target women may nonetheless have a high gender focus, and interventions that target only women may still have a low gender focus. To have a high gender focus, various elements of the intervention's design need to address specific gender constraints.

Those programmes with a high gender focus (i.e., including not only features to facilitate women's participation, but also an overall design that addresses existing gender norms) may be the most effective in achieving desired results for women. As noted previously, we identified five programmes with such characteristics: three vocational programmes (AGEI in Nepal, Ninaweza Project in Kenya, and JORDAN NOW in Jordan); one mixed programme with vocational and business components (EPAG in Liberia); and one business programme (ELA in Uganda).

4.6.4 Design and implementation barriers

The effectiveness of interventions may be affected by barriers associated with intervention design or problems faced at different stages of implementation.

Selection and assignment of courses

As can be seen in Table 15, many interventions (both business and vocational) faced design and implementation problems regarding participant selection and access to training. For example, a lack of appropriate dissemination strategies may hinder adequate recruitment of targeted groups (particularly the most vulnerable individuals), and the locations for training may not be adequately chosen, hindering participation. Both the Proempleo Experiment in Argentina (Galasso et al., 2004) and the Jóvenes en Acción programme in Colombia (Acevedo, Prada, & Alvarez, 2008) experienced these challenges. Regarding the beneficiary selection process, some studies found that participants were assigned to courses without adequate consideration of their differences and entry-level skills, which could negatively affect their understanding of the training and their permanence in the programme. The Business Training Programme in Pakistan

experienced this challenge (Giné & Mansuri, 2011). Others found that selection processes led to the best training providers getting the best participants, thereby reproducing existing inequalities of access to quality training. CREA in Mexico experienced this challenge (Calderon et al., 2013).

Low-quality training and short duration of courses

Low-quality training frequently acts as an implementation barrier. Many interventions (see Table 10), especially large vocational training interventions, outsourced the training to private providers or existing technical, vocational education, or training institutions. These providers/institutions were often weak, and the training varied from one provider to another, especially when interventions did not include adequate quality assurance mechanisms, such as supervision or incentives for providers. Various authors found that in many cases (for example, Proyecto Joven in Argentina and Akazi Kanoze in Rwanda) training providers did not fulfil the terms of their contracts, did not prepare their courses well, did not invest in sufficient provision of course materials or resources, and in some cases failed to provide agreed-upon courses (Alcid, 2014; Jacinto, 1997; Julcahuana, 2013).

Another design issue that may affect training quality is the short duration of courses. As discussed in Section 4.2.2, this affects business trainings in particular, which in some cases have an extremely short duration of only a few hours (e.g., SWEP in Peru).

Internship/placement design

Implementation barriers may also stem from weak internship or job placement design (mainly in vocational interventions), with various authors reporting a mismatch between training and job placement requirements (Departamento Nacional de Planeación, 2008; Grupo Gestión Moderna, 2010; Card et al., 2011; Julcahuana, 2013). This mismatch is not simply a matter of technical knowledge; in fact, the literature suggests that employers highly value life skills that are frequently not included in trainings (De Azevedo et al., 2013).

With regard to job placements, various authors also identified problems related to a lack of adequate supervision and a lack of incentives for placement providers to fully commit to trainees. This can lead to a range of problems, from poor work experiences to workplace discrimination (which can often mean that job placement or internship schemes reproduce existing gender segregation) (Portorreal, 2010)

Programme management

Implementation problems can also relate to questions of programme management and monitoring. The literature suggests that problems might emerge from organizational arrangements, which can sometimes be too rigid and can limit decision-making processes. These problems range from administrative errors in processing participants' information to delays in signing agreements between relevant parties (Card et al., 2011; Cho et al., 2013; Departamento Nacional de Planeación, 2008).

Table 15 details the implementation barriers identified through our review (including information about sources, interventions, and countries where interventions were implemented).

Table 15: Design and implementation barriers related to selection, quality of training, internship, placement, and management intervention processes

	N° of Studies	Intervention	Type of Intervention	Countries	Description
Selection and assignment of courses	7	Proempleo Experiment	Vocational	Argentina	The programme lacked appropriate dissemination strategies to ensure recruitment, especially of the most vulnerable target populations (Galasso et al., 2004).
		Programmea Joven/ Proyecto Joven	Vocational	Argentina	The programme did not appropriately assign courses (vocational orientation) and offered courses that were not attractive to participants (Jacinto, 1997).
		Unemployment Subsidy	Vocational	Colombia	The programme's high dropout rates were due to the inappropriate assignment of trainees to courses (Medina, Nuñez, & Tamayo, 2013).
		Jóvenes en Acción	Vocational	Colombia	The programme lacked appropriate dissemination strategies to ensure recruitment, especially of the most vulnerable target populations. It also lacked contextualized knowledge of participants, which would have allowed it to accommodate participant differences. For example, participants' entry-level skills were not taken into account when assigning them to courses or internships (Acevedo et al 2008). Inappropriate assignment of participants to courses (vocational orientation) meant that many participants were not satisfied with their experience (Departamento Nacional de Planeación, 2008).
		Experiment – ONG CREA Business Training	Business	Mexico	High-quality entrepreneurs seemed to benefit most from the business training (Calderon et al., 2013).
		Field Experiment – Rural Pakistan	Business	Pakistan	The programme lacked contextualized knowledge of its participants, which would have allowed it to accommodate participant differences. Participants had very low literacy levels and were unable to understand much of the training (Giné & Mansuri, 2011).
Quality of training	7	Projoven	Vocational	Perú	In the ProJoven programme, training varied from one provider to another, and training by some providers did not conform to the terms of reference (Benavides, 2006). Some providers also did not offer the full course (Julcahuana, 2013). Where training is demand-driven, some courses can also end up being too specific and can therefore limit participants' employability (Chacaltana 2005).
		Programmea Joven/ Proyecto Joven/	Vocational	Argentina	Programmea Joven was implemented in a context of deteriorated technical schools. Training was demand-driven, and some courses ended up being too specific, which limited participants' employability. Providers also did not invest in sufficient resources, such as course materials, computers, and so on (Jacinto, 1997).
		Jóvenes en Acción	Vocational	Colombia	The programme provided low-quality training due to insufficient quality assurance mechanisms and inadequate supervision of training providers (Card et al., 2011; Departamento Nacional de Planeación, 2008).
		Programmea Juventud y Empleo	Vocational	República Dominicana	
		Akazi Kanoze	Mixed	Rwanda	In Akazi Kanoze, training resources were insufficient and workshops were not adequately supplied. The programme also provided low-quality training due to insufficient quality assurance mechanisms and inadequate supervision of training providers (Alcid, 2014).

	N° of Studies	Intervention	Type of Intervention	Countries	Description
Internship/ placement design	7	Projoven	Vocational	Perú	There was a mismatch between the training and job placement requirements (Julcahuan, 2013; Jacinto, 1997).
		Programma Joven/ Proyecto Joven	Vocational	Argentina	
		Jóvenes en Acción	Vocational	Colombia	There was a mismatch between the training and job placement requirements. Internships were also of short duration and did not help the transition into the formal labour market (Departamento Nacional de Planeación, 2008).
		Programma Juventud y Empleo	Vocational	República Dominicana	There was a mismatch between the training and job placement requirements. The programme also inappropriately assigned participants to courses/placements, placing trainees in courses/jobs for which they lacked the necessary skills or interest (Grupo Gestión Moderna, 2010). Internships were limited or inappropriately implemented (Portorreal, 2010). Trainees also experienced workplace discrimination, especially those who came from vulnerable backgrounds (Portorreal, 2010), and there was a lack of appropriate commitment on the part of internship providers (Card et al., 2011).
		Ninaweza Project	Vocational	Kenya	Employers demanded that programmes focus more on developing life skills, such as conflict resolution, dress codes, and learning to express oneself (De Azevedo et al., 2013).
Programme management	3	Programma Juventud y Empleo	Vocational	República Dominicana	Administrative delays in defining agreements with potential offering firms negatively affected the availability of internships (Card et al., 2011).
		Jóvenes en Acción	Vocational	Colombia	The programme followed rigid decision-making processes, and the vertical nature of these processes contributed to heterogeneity in programme implementation throughout the country (Depart. Nacional de Planeación, 2002).
		Vocational and Entrepreneurial Training for Malawian Youth	Mixed	Malawi	Administrative errors and excessive paperwork generated problems for several beneficiaries and contributed to programme dropouts (Cho et al., 2013).

5. Discussion

5.1 Summary of main results

This systematic review synthesized the evidence on the effects of vocational and business training programmes that aim to increase women's labour market outcomes, including employment, earnings, self-employment, sales, profits, and economic empowerment. It also summarized the evidence on barriers to and facilitators of vocational and business training effectiveness.

We conducted meta-analyses to determine the effects of vocational and business training on outcome measures identified in the theory of change (for which we identified a sufficient number of studies). Furthermore, we conducted narrative syntheses on outcome measures for which we did not identify a sufficient number of studies or for outcome measures for which measurement was too different across studies to have them included in one meta-analysis. We also synthesized qualitative and mixed-methods evidence to increase our understanding of the barriers to and facilitators of vocational and business training programme effectiveness, and to identify which programme design and implementation characteristics are associated with effective vocational and business training programmes.

5.1.1 The effects of vocational training programmes

Our results revealed that vocational interventions, on average, had positive but small effects on the employment, formal employment, earnings, and income of women in low- and middle-income countries. The results suggest that, on average, vocational training increased the risk of employment and formal employment by 1.12 and 1.08, respectively. We found that vocational training had an average effect on earnings of 5.54% or 0.11 standardized mean differences. We also found some evidence for positive programme effects on women's economic empowerment (Chakravarty et al., 2016). The meta-analysis further indicated that quasi-experimental studies tended to show larger effect sizes than cluster-RCTs, which we interpreted as evidence of a higher risk of bias in quasi-experimental studies.

We also found evidence of strong heterogeneity in the effect sizes across different dimensions. For example, we found that the effects of vocational training on employment were statistically significantly higher in Africa and Asia than in low- and middle-income countries in other regions. The differences in effect sizes across continents were substantial. In sub-Saharan Africa and Asia, vocational training programmes increased the risk of employment by 1.34 on average, while vocational training programmes in low- and middle-income countries in other regions increased the risk of employment by just 1.06, on average. In addition, we found evidence that the impact of vocational training on employment and earnings was larger for programmes that included a gender focus, compared to programmes that did not. Meta-regressions revealed that these results were not statistically significantly different from each other. However, the effect sizes were substantively different from each other, and the lack of statistical significance may be related to a lack of statistical power. We found that vocational training programmes with a gender focus increased the risk of employment by 1.21, on average, while vocational training programmes without a gender focus increased the risk of employment by 1.01, on average. In addition, we found that vocational training programmes with a

gender focus increased earnings by 0.14 standardized mean differences or 7.18%, on average, while the average effect on earnings of vocational training programmes without a gender focus was just 0.10 standardized mean differences or 4.99%. However, we need to be careful when interpreting the results from the meta-regression because the differences in effect sizes may be related to confounding factors, such as other programme or contextual characteristics.

We also examined whether life skills training or internships had an indirect effect on labour market outcomes by increasing participants' employability. We did not find evidence that vocational training programmes with and without life skills training had different effects on employment. However, we did find some evidence that the effects of vocational training on earnings increased with the inclusion of life skills training. Specifically, we found that vocational training programmes that included life skills training increased earnings by 0.14 standardized mean differences or 7.18%, while vocational training programmes that did not include a life skills component increased earnings by just 0.05 standardized mean differences or 2.60%, on average. We also found some evidence that vocational training programmes that included an internship had stronger effects on earnings. Finally, we found evidence that vocational training programmes that were evaluated after 6 months had stronger effects than programmes that were evaluated at a later stage. Again, however, we need to be careful when interpreting these results because the differences in effect sizes may be related to confounding factors, such as other programme or contextual characteristics.

The narrative meta-synthesis provided insights into some of the quantitative results described in this review. Specifically, we found that vocational training programmes in sub-Saharan Africa tended to have more comprehensive designs that included life skills training, job placements, internships, and/or mentoring. The stronger focus on life skills in sub-Saharan Africa may be related to the larger effect sizes of the vocational training programmes in that continent. This finding aligns with the findings of Katz (2008), who suggests that vocational training programmes in sub-Saharan Africa are more comprehensive than vocational training programmes in Latin America.

The results are based on a relatively large sample size. Several of the impact estimates are based on meta-analyses with thousands of participants. Importantly, however, some of the most rigorous studies in terms of internal validity are relatively small-scale, possibly because it is challenging to implement RCTs with relatively large samples in low-and middle-income countries. We summarize the sample sizes for the studies with a focus on vocational training in Table 16.

Table 16: Effect sizes of studies with a focus on vocational training

Outcome Measure	Total Sample Size	Total Sample Size Treatment Group	Total Sample Size Control Group
Employment	82,359	18,753	63,606
Formal employment	17,411	9,098	8,313
Income and earnings	85,981	20,517	65,464
Economic empowerment	2,504	1,853	651

Our review of the programme documentation also revealed that vocational training programmes often lasted only for a short time. This may explain the lower impact of vocational training programmes that were evaluated after 12 months or more. It is possible that vocational training programmes need to provide follow-up training to participants in order to achieve longer term effects.

We also found that vocational training programmes were often implemented by third parties and relied on existing TVET providers to deliver the content. These trainings were commonly outsourced without establishing adequate quality control procedures or monitoring mechanisms. This is likely to increase the heterogeneity of the content and quality of the training (including specifications of requirements, such as contracts and terms of reference) and may contribute to the relatively small effects of vocational training programmes on women's employment and income.

5.1.2 The effects of business training programmes

Overall, our results revealed that business interventions had positive and statistically significant effects on the likelihood of self-employment. The results suggest that, on average, business training increased the risk of self-employment by 1.73. We must take care when interpreting these results, however, because the analysis is based on a small number of programmes ($n = 3$), and because the business training programmes were accompanied by either cash transfers or life skills training.

We also found evidence that business trainings had a positive and statistically significant effect on sales or profits. We found evidence that, on average, business training increased women's sales or profits by 0.14 standardized mean differences or 5.04%. This effect size did not appear to increase when business training was complemented with either cash transfers or microfinance. However, we found evidence for large heterogeneities in effect sizes. Our narrative synthesis provides some evidence that positive programme effects of business training may be driven by the inclusion of facilitators such as mentoring and technical assistance which help enhance knowledge of business practices (Bandiera 2014, Valdivia 2015, Giné & Mansuri 2011).

We found evidence for larger positive effects on sales or profits in sub-Saharan Africa than in other continents. In sub-Saharan Africa, business training increased sales or profits by 0.31 standardized mean differences or 15.46% on average, compared to an average effect size of just 0.05 standardized mean differences or 2.55% in low- and middle-income countries in other regions. The large effect sizes in sub-Saharan Africa were almost entirely driven by a study by Adoho and colleagues (2014), however, and other studies showed smaller impact estimates, indicating large heterogeneity in the impact estimates in sub-Saharan Africa. The larger impact of business training in sub-Saharan Africa may result from a stronger gender focus. The programme with the strongest gender focus also had the largest effect of business training on profits (Adoho et al., 2014). We also found stronger evidence for positive programme effects of business training on women's economic empowerment when the business training had a strong gender focus (Bandiera et al., 2014).

We need to be careful when interpreting these results because the differences in effect sizes may be related to confounding factors, such as other programme or contextual characteristics. However, the stronger effects of business training programmes that

included a gender focus have also been demonstrated by Bandiera et al. (2013), who found strong effects of business training on the likelihood of self-employment in Uganda and attributed this large effect to a strong gender focus. A narrative meta-synthesis therefore indicates that gender focus may play a key role in increasing the effectiveness of business training programmes. Alternatively, the larger effects of business training programmes in sub-Saharan Africa may be attributed to a larger focus on life skills. Both Adoho et al. (2014) and Bandiera et al. (2013) show evidence for strong impact estimates for business training programmes with a strong focus on life skills training. The results could also be explained by confounding factors, but both meta-regressions and the narrative synthesis suggest that gender focus or life skills training may have positively influenced the effects of business training programmes.

Although the sample sizes were smaller than in the studies that focused on vocational training, the results are still based on a relatively large sample size. Most of the meta-analyses include thousands of programme beneficiaries and an equally large control control or comparison group. Importantly, however, again some of the studies with the highest internal validity operate with a relatively small sample size. We summarize the sample sizes for the studies with a focus on business training in Table 17.

Table 17: Effect sizes of studies with a focus on business training

Outcome Measure	Total Sample Size	Total Sample Size Treatment Group	Total Sample Size Control Group
Self-employment	7,373	3,815	3,558
Profits and sales	14,729	6,123	8,606
Business Knowledge	8,882	3,855	5,027
Business Practices	3,637	1,474	2,163
Economic Empowerment	1,548	771	777

The meta-synthesis and the analysis of programme documentation revealed some important characteristics of business training programmes. Unlike vocational programmes, the content of business interventions tended to be homogenous. Each of the business training programmes also tended to suffer from design problems related to their short durations, which ranged from one afternoon to 3 months (with an average of 1 week per training). These short durations may well have had a negative effect on the quality of business trainings. We also found that business interventions tended to have less gender focus than vocational programmes, identifying only two business training programmes with a strong gender focus (Adoho et al., 2014; Bandiera et al., 2013).

These characteristics suggest that business training programmes could increase their effectiveness when they would increase their gender focus and their duration. Although we need to be careful in interpreting the results, our results suggest that business training programmes tend to have larger effect sizes when they have a stronger gender focus (Bandiera et al., 2014). While we do not have formal evidence of this from our meta-analysis, through the program characterization and analysis, we can hypothesise that increasing the length of business training programmes could also increase their effectiveness.

5.1.3 Analysis of barriers to and facilitators of programme effectiveness

While the quantitative analysis helped us to synthesize evidence on the effects of vocational and business training programmes on a subset of labour market outcomes, the meta-synthesis enabled us to better understand how those interventions were designed and implemented, and to identify some of the most important barriers to and facilitators of intervention effectiveness.

The narrative meta-synthesis of the included studies, and additional qualitative and mixed-method studies suggests that structural conditions and gender norms were the main barriers to programme effectiveness. Structural barriers typically included the distance and cost of transportation, time constraints for participation, and economic and labour market barriers. In terms of gender norms, occupational segregation and the unequal division of domestic and care responsibilities, as well as the cost and availability of childcare facilities, also appeared to discourage women's participation. Gender norms also influenced final outcomes, especially income and access to higher quality jobs because of occupational gender segregation.

This analysis of barriers suggests that using a gender focus in vocational and business training programmes targeting women may help overcome typical barriers for women and thus increase program effectiveness. Our qualitative findings suggest that such a gender focus ideally permeates all aspects of programme design and all stages of implementation, including recruitment strategies, incentives for participation and permanence, and strategies to address occupational segregation. In addition, an increased gender focus in vocational and business training programmes could challenge gender norms that contribute to occupational segregation and to the low societal value assigned to traditional female occupations.

Furthermore, we found some evidence of a mismatch between labour market demands and the training courses. In some cases, descriptive evidence suggests that programmes that are attuned to labour market demand might be more effective if women obtain skills that the market demands (Portorreal, 2010, Maitra & Mani, 2014, Jacinto, 1997, Blattman et al. 2011, Adoho et al., 2014, Honorati, 2015). However, this is not so straightforward. For example, the demands of the labour market might require participants with higher entry skills, leading to the exclusion of those most in need, and often to the exclusion of women, whose skill profiles tend to be lower.

Finally, vocational programmes faced structural barriers related to stagnant markets and obstacles to job placement. These structural barriers remained even when vocational training programmes included job placement support and incentives.

5.2 Overall completeness and applicability of evidence

Our research findings indicate that our original theory of change did not explicitly address some important features of training programmes targeting women. Specifically, our review of the literature suggested the importance of adopting a gender focus in order for programmes to achieve results for women.

The quantitative analysis revealed the challenge of synthesizing the impact of vocational and business training on various intermediate and final outcomes. We found that outcomes such as business knowledge and practices were constructed in very different

ways across the different studies. For example, while some authors developed an index to report the impact of the intervention, others reported effects on individual items. Our review of the literature also demonstrated that final outcomes such as working conditions, societal worth, and economic empowerment were not very common or were not captured in systematic ways.

In addition, we found substantial variation in definitions of programme components across interventions. Life skills training components varied substantially and included very different focuses, from job readiness, to aspirations and self-esteem, to sexual and reproductive health, as well as different combinations of these components.

The strong heterogeneity in the impact estimates and the wide range of potential mechanisms to improve women's labor market outcomes identified in the qualitative research indicated that the theory of change needed to represent the social and cultural context within which women are making decisions, especially the gender norms. For example, women may choose not to reinvest in their business because this might result in conflict with their family, or they may choose not to participate in vocational interventions that offer training for traditionally non-female occupations.

The qualitative synthesis also presented some challenges. For example, it was not possible to find qualitative evidence for a number of the interventions included in the review. Although it was possible to establish a full characterization for each of the included interventions, it was impossible to analyse barriers to and facilitators of effectiveness for all of them.

5.3 Quality of the evidence

The accuracy of the findings from this systematic review depends on the quality of the primary studies on which the review relied. We found that both the quantitative and qualitative studies suffered from substantial limitations with respect to their quality. However, we believe that our risk-of-bias assessment for the quantitative research enabled us to distinguish clearly between the findings of studies with high, medium, and low risk of bias.

The meta-analysis showed that studies with a high risk of selection bias (such as quasi-experimental studies) were likely to present upward-biased estimates of the impact of vocational and business interventions on women's labour outcomes. For this reason, we were able to present a credible meta-analysis for only a small number of studies. We were also unable to show strong evidence of heterogeneous effects in a large sample of studies, possibly because of a lack of statistical power. Even studies with a low risk of selection bias often suffered from a high attrition rate, highlighting the importance of tracking respondents in follow-up surveys.

In addition, we could not conduct meta-analyses to determine the effects of vocational training on working conditions, societal worth, and economic empowerment, or the effects of business training on business knowledge and practices and economic empowerment. The studies included either did not measure these constructs or did not measure the constructs in a uniform manner. As a result, we could not pool a sufficient number of studies to determine the effects of vocational and business training on these outcome measures in a meta-analysis.

We also found some evidence that the effects of vocational training on employment may suffer from publication bias. Our results revealed that effect sizes were not symmetric, based on funnel plots and the Egger test. This demonstrates that we must be careful when interpreting the effects of vocational training on employment. However, we found no evidence of publication bias in the other impact estimates presented in this review.

The evidence reviewed for the meta-synthesis revealed important findings regarding the possible mediators and moderators of the effectiveness of vocational and business training with regard to women's outcomes. However, the decision to include only intervention related qualitative and mixed methods studies, may have limited the breadth of our understanding of these mediators and moderators. The evidence on design and implementation barriers and facilitators, which which was supported by our programme characterizations, was more complete than for structural conditions and gender norms.

Furthermore, several of the qualitative studies were narrow in scope and offered snippets of evidence that accompanied more thoroughly developed quantitative findings. Many of the qualitative studies included in the review also did not report sufficiently on their methodologies, including their recruitment, data collection, and data analysis strategies. As a result, we have some concerns about the methodological quality of the included qualitative studies.

5.4 Limitations and potential biases in the review process

The limitations of this review are specific to the two types of analyses. We were unable to triangulate all research findings because of the relatively small number of studies eligible for the meta-analyses when we had to rely on subsamples. In addition, several of the potential moderators in the qualitative research were not accurately reported in the quantitative research. For example, we could not accurately measure the quality of vocational and business training programmes. In addition, we had only limited information about the duration and intensity of the vocational and business training programmes. However, we were able to triangulate findings concerned with the gender focus of interventions, and we included several meta-analyses that focused on programme components that the qualitative research had identified as important, such as life skills training and internships. However, we need to be careful when interpreting these findings because the results could have been influenced by confounding factors, such as programme or contextual characteristics.

5.4.1 Limitations of quantitative data analysis

Publication bias

The results of our meta-analysis may be vulnerable to publication bias. We tested for the presence of potential publication bias by reporting funnel plots for the effects of vocational and business training and reporting the results of the Egger test. From these funnel plots, we concluded that there might be scope for publication bias with respect to the impact estimates for the effect of vocational training on employment. However, the Egger test did not show formal statistical evidence of publication bias in other impact estimates.

Statistical power for meta-regressions

We found evidence that vocational training programmes that included a gender focus or life skills training had a greater impact. However, we could not provide conclusive evidence about these relationships because meta-regressions did not show statistically significant differences between vocational training programmes with a gender focus or life skills training and vocational training programmes without a gender focus or life skills training. The lack of statistical significance may be the result of a lack of statistical power to conduct these stratified analyses and determine heterogeneities in the impact estimates. In addition, these meta-regressions may be vulnerable to bias due to confounding factors.

Attrition

A large percentage of the papers reported attrition rates of more than 10% or even 20%. Many of these papers applied Lee bounds to assess the robustness of the results to differential attrition. However, in many of these cases, the attrition rate actually exceeded the effect size, which raises some concerns about the risk of bias of these studies even when studies were rated as low risk of bias.

Sample size

A large percentage of papers face limitations because of a relatively small sample size. This raises concerns because of statistical power, but also because small sample sizes may limit the ability of randomized controlled trials to create equivalence in observable and unobservable characteristics.

Lack of cost data

Only a small percentage of the papers reports data on cost-effectiveness. This raises some issues about the ability of the papers to provide recommendations about the scale-up of vocational and business training programs.

5.4.2 Limitations of qualitative data analysis

Searches

It is possible that we missed some articles that may have been relevant to our analysis of barriers to and facilitators of programme effectiveness because we focused only on qualitative research. We made a concerted attempt to find all relevant qualitative studies related to the included interventions, but we noticed that fewer qualitative evaluations exist and even fewer make it into peer-reviewed publications. Therefore, our search strategy also emphasized the grey literature, including dissertations and unpublished reports. What appeared in the peer-reviewed literature was less comprehensive, with fewer quotations and less-developed theoretical frameworks. It was unclear if this finding was representative of a lack of strong qualitative studies altogether, or if there was bias because of the choice to focus only on intervention-related literature.

Focus

To answer Research Questions 2 and 3, we only used papers that referred to the included interventions, instead of drawing on the broader literature on women's training and labour market outcomes. On one hand, this decision considerably aided our systematic review process because it made the volume of literature much more manageable. On the other hand, however, the resulting narrative meta-synthesis is rather narrow, and there are a number of important barriers to and facilitators of

vocational and business training programme effectiveness for women's labour market outcomes that the review may be missing.

Undereporting of the influence of structural conditions and gender norms

Qualitative studies and intervention-related project documents included in this review focused mostly on design and implementation barriers and facilitators, and less on how structural conditions and gender norms might have affected the effectiveness of the interventions. The included qualitative studies tended to examine design and implementation issues, as well as other barriers to and facilitators of programme effectiveness. As a result, the studies included interviews or focus group discussions with programme participants, intervention managers, trainers, and/or employers. With only a few exceptions (e.g., Benavides, 2006), the studies did not include interviews with women who did not participate in the programmes or dropped out halfway through the training. Consequently, it is possible that some barriers were underreported in the qualitative literature.

Missing Information

Although the authors conducted a thorough quality assessment of each study, concerns remain that many of the qualitative studies lacked descriptions of important methodological processes. For example, although the data analysis of a study might have appeared rigorous judged by the results presented, some aspects of the research design—including the recruitment strategy and a description of the process of analysis—were weak in most studies. In addition, the researchers' relationship with study participants and other ethical considerations were either unreported or not examined. These are important parts of any qualitative research and should be reported in any dissemination of findings. The quality appraisal of qualitative studies (Section 4) offers a way for readers to assess completeness for themselves.

Data Analysis

Qualitative data analysis consisted of three different stages: (a) detailed characterizations of programmes, (b) analysis of programme features, and (c) analysis of barriers to and facilitators of programme effectiveness. The first stage was largely descriptive, and the second and third stages were analytic. In the second stage, the analysis of key programme information led to the identification of some important features of programme design, such as training duration and gender focus, which have played an important role in our understanding of programme effectiveness and in the meta-analysis process. The analysis of barriers and facilitators used content coding and aggregation into key categories. Although our analysis aligns with existing literature, it is possible that the few studies discussing barriers and facilitators (and the narrow focus of some of these studies) led to the exclusion of other barriers and facilitators.

5.4.3 Limitations of the synthesis process

The theory of a mixed-methods review is that the two parts of the analysis can inform each other during the analysis process, not just in the conclusions. For this reason, the researchers working on the two parts of the study spent time during the data extraction and analysis phase discussing the papers and the emerging findings. However, there were limitations to how much the exchange of information could affect each analysis. For example, only a few concepts that emerged from the qualitative studies could be used in the subgroup analysis of the quantitative studies because of missing data, although we

were able to assess the importance of integrating a strong gender focus and life skills training in the meta-analysis. Mixed-method reviews would be able to achieve more if primary studies focused more strongly on mixed-method designs. This recommendation aligns with the recommendation of Brody et al. (2015) in their systematic review of the effects of women's self-help groups.

5.5 Agreements and disagreements with other studies or reviews

The systematic review found that vocational training had positive significant effects on women's employment and formal employment, and that business training had positive effects on women's self-employment and sales or profits. However, on average, we found that the effects of these programmes were small, which aligns with the findings of Blattman and Ralston (2015) and McKenzie and Woodruff (2012). These studies suggest that although vocational and business training programmes may have small positive effects, these effects may be insufficient to justify continued funding of these programmes due to concerns about cost-effectiveness.

In addition, we found evidence that vocational training programmes that included a gender focus or life skills training had stronger positive effects. This finding aligns with some of the points made by Katz (2008) in his review of vocational training programmes. Katz (2008) concluded that narrow vocational training programs, which are typical of the Latin American region, could be enhanced if they were adapted to account for typical women's needs (e.g., by aligning the training curricula with women's needs and skills), similar to integrated female youth employment programs common in Africa that include life skills training. Katz's conclusion is consistent with our findings that the effects of vocational training programmes were greater in sub-Saharan Africa, and when they were combined with life skills training or a stronger gender focus.

We also found evidence of mechanisms similar to those identified in Brody and colleagues' review (2015) of the effects of women's self-help groups on women's empowerment. This review provided evidence that women often faced barriers that prevented them from participating in women's self-help groups. These barriers included socio-economic barriers, as well as traditional gender norms that impeded women's participation. Our review also found evidence of a combination of socio-economic and cultural barriers that impeded women's participation in vocational and business training programmes.

Our results were also similar to the findings of a previous systematic review of the effects of vocational training programmes on employment, formal employment, earnings, and self-employed earnings (Tripney et al., 2013). Unlike our review, Tripney and colleagues (2013) did not focus exclusively on women. Nonetheless, the results are quite similar, as they found that vocational training had small but positive effects on employment, formal employment, and earnings (Tripney et al., 2013).

6. Author's conclusions

6.1 Implications for practice and policy

Our review highlights several important implications for practice and policy related to the rollout, design, and potential impact of vocational and business training. Firstly, our quantitative evidence suggests that vocational training had positive but small effects on employment, formal employment, earnings, and women's economic empowerment. In addition, we found that business training had positive effects on business knowledge and practices, relatively large effects on self-employment, and small but positive effects on sales or profits. Although these effects are promising, they may be insufficient to justify scaling up vocational or business training programmes. Blattman and Ralston (2015) and McKenzie and Woodruff (2012) also found evidence of small but positive effects, but small effect sizes may not be sufficient in terms of cost-effectiveness. For this reason, major improvements are needed in the design and implementation of vocational and business training programmes.

Secondly, the systematic review identified some promising opportunities for improving the design and implementation of vocational training programmes. We found evidence that vocational programmes were more effective when they increased their gender focus. This suggests that vocational training programmes could become more effective if they include programme activities that consider gender norms, women's restricted mobility, and traditional gender patterns in time use, as well as offer childcare and stipends for transport. In addition, vocational training programmes may become more effective when combined with life skills training. Our sample size was not sufficient to draw definitive conclusions about the effectiveness of including a gender focus or life skills training in vocational training programmes. Furthermore, more research is needed to determine the causal effect of including a gender focus or life skills training in vocational training programmes as our meta-regressions may have been affected by confounding factors. However, the qualitative findings also revealed the potential of including a gender focus or life skills training in vocational training programmes.

Thirdly, the review revealed that the greatest quantitative effects of vocational and business training were found in sub-Saharan Africa. This highlights the importance of exploring differences between vocational and business training programmes in sub-Saharan African and programmes in other continents. Considering that structural conditions and gender norms are highly contextual, it will also be important to take into account how structural and gender barriers might affect women's participation in training and in the labour market in specific countries, and to devise appropriate strategies to address those barriers.

Fourthly, the review highlighted opportunities to improve the quality of business training programmes—a finding that has particularly important implications for future programmes and policies. It is important to reflect on which agencies should be given the responsibility of implementing business training programmes, and it is imperative that programmes establish adequate quality control procedures, monitoring mechanisms, and potential incentives when outsourcing business training. In all of these activities, the costs of implementation will also need to be taken into consideration.

Finally, both our quantitative and qualitative evidence suggested that more integrated vocational and business training programmes may be more effective than specific vocational or business training activities. Policymakers should consider implementing more integrated programmes to increase effectiveness in both areas.

6.2 Implications for research

This review has several implications for future research. Firstly, our synthesis of the quantitative evidence suggests that there is a need for more rigorous RCTs and higher-quality quasi-experimental studies. The quantitative synthesis showed that current quasi-experimental studies often could not adequately address concerns related to selection bias and, as a result, are likely to have overestimated the impact of vocational training programmes on employment and income. Impact evaluations also often only present few details about the specifics of programme implementation. It would be beneficial if impact evaluations would present more detailed characterizations of the implementation of vocational and business training programmes.

Secondly, our review highlighted the need to produce rigorous mixed-methods research on the effects of vocational and business training programmes. Currently, it is challenging to credibly assess the claims made in qualitative research because of limited information about the qualitative methods used. At the same time, quantitative research still includes too little information about the specifics of programme implementation, which complicates interpretation of the mechanisms through which vocational and business training programmes influence women's labour market outcomes. There is a need to design research that aims to explicitly assess which additional programme components are needed to increase the effectiveness of vocational and business training. Such quantitative research will enable us to more credibly assess the additive effects of an increased gender focus or life skills training on women's labour market outcomes. In addition, there is a need to design and implement RCTs with multiple treatment arms and longer time periods. Such studies will allow us to learn more about the causal effects of including a gender focus and life skills training, as well as the sustainability of the impact of vocational and business training programmes.

Thirdly, it will be important to examine the evolution of the impact of vocational and business training programs over time. At this point only a small percentage of studies demonstrates impacts at different points in time. However, it will be important to focus more research on this area to assess the sustainability of the impact of vocational and business training programs. In these assessment tables it will also be important to focus more attention on cost-effectiveness analyses.

Lastly, because vocational and business training programmes are implemented across many different regions of the world, it is critical that researchers do not assume that an intervention that works in one place should be replicated elsewhere. Nuanced programme modifications and sensitivity to local gender norms should play a role in future programme design and in the evaluation of programme impacts.

Appendix A: Example search strategy (EconLit)

Search	Query
S20	S3 and S6 and S9 and S19 – Final result
S19	or/S10-S18
S18	developing countries.hw.
S17	transitional countr*.ti,ab.
S16	(lmic or Imics or third world or lami countr*).ti,ab.
S15	(low adj3 middle adj3 countr*).ti,ab.
S14	(low* adj (gdp or gnp or gross domestic or gross national)).ti,ab.
S13	((developing or less* developed or under developed or underdeveloped or middle income or low* income) adj (economy or economies)).ti,ab.
S12	((developing or less* developed or under developed or underdeveloped or middle income or low* income or underserved or under served or deprived or poor*) adj (countr* or nation? or population? or world or state*)).ti,ab.
S11	(Afghanistan or Albania or Algeria or Angola or Argentina or Armenia or Armenian or Azerbaijan or Bangladesh or Benin or Byelarus or Byelorussian or Belarus or Belorussian or Belorussia or Belize or Bhutan or Bolivia or Bosnia or Herzegovina or Hercegovina or Botswana or Brazil or Bulgaria or Burkina Faso or Burkina Fasso or Upper Volta or Burundi or Urundi or Cambodia or Khmer Republic or Kampuchea or Cameroon or Cameroons or Cameron or Camerons or Cape Verde or Central African Republic or Chad or China or Colombia or Comoros or Comoro Islands or Comores or Mayotte or Congo or Zaire or Costa Rica or Cote d'Ivoire or Ivory Coast or Croatia or Cuba or Djibouti or French Somaliland or Dominica or Dominican Republic or East Timor or East Timur or Timor Leste or Ecuador or Egypt or United Arab Republic or El Salvador or Eritrea or Ethiopia or Fiji or Gabon or Gabonese Republic or Gambia or Gaza or Georgia Republic or Georgian Republic or Ghana or Gold Coast or Grenada or Guatemala or Guinea or Guiana or Guyana or Haiti or Honduras or Hungary or India or Maldives or Indonesia or Iran or Iraq or Jamaica or Jordan or Kazakhstan or Kazakh or Kenya or Kiribati or Korea or Kosovo or Kyrgyzstan or Kirghizia or Kyrgyz Republic or Kirghiz or Kirgizstan or Lao PDR or Laos or Lebanon or Lesotho or Basutoland or Liberia or Libya or Macedonia or Madagascar or Malagasy Republic or Malaysia or Malaya or Malay or Sabah or Sarawak or Malawi or Mali or Marshall Islands or Mauritania or Mauritius or Agalega Islands or Mexico or Micronesia or Middle East or Moldova or Moldovia or Moldovian or Mongolia or Montenegro or Morocco or Ifni or Mozambique or Myanmar or Myanma or Burma or Namibia or Nepal or Netherlands Antilles or New Caledonia or Nicaragua or Niger or Nigeria or Pakistan or Palau or Palestine or Panama or Paraguay or Peru or Philippines or Philipines or Phillipines or Phillippines or Papua New Guinea or Romania or Rumania or Roumania or Rwanda or Ruanda or Saint Lucia or St Lucia or Saint Vincent or St Vincent or Grenadines or Samoa or Samoan Islands or Navigator Island or Navigator Islands or Sao Tome or Senegal or Serbia or Montenegro or Seychelles or Sierra Leone or Sri Lanka or Solomon Islands or Somalia or Sudan or Suriname or Surinam or Swaziland or South Africa or Syria or Tajikistan or Tadzshikistan or Tadjikistan or Tadzshik or Tanzania or Thailand or Togo or Togolese Republic or Tonga or Tunisia or Turkey or Turkmenistan or Turkmen or Uganda or Ukraine or Uzbekistan or Uzbek or Vanuatu or New Hebrides or Venezuela or Vietnam or Viet Nam or West Bank or Yemen or Yugoslavia or Zambia or Zimbabwe).ti,ab,hw,ct.
S10	(Africa or Asia or Caribbean or West Indies or South America or Latin America or Central America).ti,ab,hw,gr.
S9	S7 or S8

Search	Query
S8	(J24 or I24 or L26 or I23 or I26 or I21 or P36 or M53).cc.
S7	(skill* or upskill* or "life skills" or life-skills or train* or retrain* or mentor* or apprentice* or intern or interns or internship* or value* or prestige or expertise or professional* or qualifi* or educat* or coaching or leadership or entrepreneur* or "human capital" or (business* adj2 (manag* or support*)) or (capacity adj2 (build* or acqui*)) or projoven).ti,ab.
S6	S4 or S5
S5	(J31 or J71 or J44 or G21 or J78).cc.
S4	(employment or employab* or employer* or employee* or work or workforce or job* or vocation* or career* or occupation* or livelihood* or workplace* or part-time or casual or informal* or wages or ((labour or labour) adj market*) or school-to-work or "school to work").ti,ab.
S3	S1 or S2
S2	J16.cc.
S1	(wom?n or female* or girl* or schoolgirl* or wife or wives or mother* or gender* or (occupation* adj2 (segregation or stratification)) or empower* or businesswomen or businesswoman or (wom?n adj2 (business* or industr* or enterpris* or commerc*))).ti,ab.

Appendix B: Data extraction form

Data Extraction Form for Studies Included to Address the Primary Research Question

Study data extraction/coding

Study ID (sid):

Coder's initials (coderid):

Date coded (date):

Author(s):

General Comments:

Publication date:

Publication type: (1) book, (2) peer-reviewed journal, (3) book chapter, (4) dissertation/thesis, (5) unpublished report

Program data extraction/coding

Intervention level:

Intervention Components (more than 1 answer possible): (1) courses in administrative occupations (e.g. marketing, secretarial work, sales), (2) courses in manual occupations (e.g. electrician, cooking assistant), (3) courses in fairly skilled occupations (e.g. account assistant, information technology specialist), (4) internships, (5) on-the-job training, (6) connecting participants with potential employers, (7) development of job-related life skills (e.g. CV training, interpersonal relationships), (8), development of broader life skills (e.g. reproductive health, household economics), (9) general business training (e.g. keeping business records and encouraging small business owners to separate household and business finances, (10) technical business training, (11) sector-specific business training, (12) changing entrepreneurial attitudes or aspirations, (13) knowledge about the value chain of the product, (14) asset transfers, (15) in-kind transfers, (16) cash transfers, (17) saving accounts, (18) asset-specific training, (19) regular follow-up visits by assets specialists, (20) stipends for women to participate in training, (21) additional support for women with children, (22) negotiation support with families to ensure participation in training, (23 other: define)

Name of intervention:

Implementer:

Intervention Description:

Scale of the intervention:

Intervention frequency/duration/intensity:

Intervention start date:

Intervention end date:

Is there information on program take-up or adherence?:

Which methods are used to assess program take-up or adherence?:

Are there any unit cost data/cost-effectiveness estimates provided?:

If so, report any details on unit cost and/or total cost:

Countries:

World Bank Region(s):

Is the study conducted in rural areas?:
Is the study conducted in urban areas?:
Percent of the sample female:
Average age of sample participants:

Primary outcomes measured:
Author's definition of primary outcomes:
Secondary outcomes measured:
Author's definition of secondary outcomes:
Data collection method:
Frequency of outcome data collection:

Level of assignment to treatment and control group:
Implementer of the programme:
Sampling frame for selection of study participants:
How was the population sampled and why?:
Target group (men, women or both):
Study design:
Sample size:

Effect size extraction/coding

Outcome category (outcat): (1) economic (2) political (3) social (4) psychological
Outcome name (outname):
Direction of effect (esdir): (1) effect favors self-help group (2) effect favors comparison
(3) effect favors neither (4) cannot tell

Effect is statistically significant (essig)?: (1) yes (2) no (3) cannot tell
Treatment sample size (shgss):
Comparison sample size (compss):

For continuous measures:

Treatment group mean (txmean):
Comparison group mean (compmean):
Are means reported above adjusted? (meanadj): (1) yes (2) no

Treatment group standard deviation (txsd):
Comparison group standard deviation (compsd):

Treatment group standard error (txse):
Comparison group standard error (compse):

t-value from an independent *t*-test (est)

For regression estimates:

Regression coefficient: (regress):
Regression standard error: (regresses):

For dichotomous measures:

Treatment group number of participants who experienced a change (txnum):
Comparison group number of participants who experienced a change (compnum):

Treatment group proportion of participants who experienced a change (txpro):
Comparison group proportion of participants who experienced a change (compro):

Are the proportions above adjusted for pretest variables? (proadj): (1) yes (2) no

Logged odds-ratio (eslgodd):

Standard error of logged odds-ratio (eslgoddse):

Logged odds-ratio adjusted? (e.g., from a logistic regression analysis with other independent variables) (1=yes; 0=no)

Chi-square value with df = 1 (2 by 2 contingency table) (eschi):

Correlation coefficient (esphi):

Data Extraction Form for Studies Included to Address the Primary Research Question

Study data extraction/coding

Study ID (sid):

Coder's initials (coderid):

Date coded (date):

Author(s) (author):

Publication date (pubdate):

Country (country):

Start date of study (startdate):

End date of study (enddate):

Publication type (pubtype): (1) book, (2) peer-reviewed journal, (3) book chapter, (4) dissertation/thesis, (5) unpublished report

Document type (doctype): (1) qualitative study, (2) process evaluation, (3) project document

Program data extraction/coding

Study ID (sid):

Coder's initials (coderid):

Name of Study Evaluated under Research Question 1:

Date coded (date):

Name of vocational or business training programme:

Vocational or business training:

Intervention Components (more than 1 answer possible): (1) courses in administrative occupations (e.g. marketing, secretarial work, sales), (2) courses in manual occupations (e.g. electrician, cooking assistant), (3) courses in fairly skilled occupations (e.g. account assistant, information technology specialist), (4) internships, (5) on-the-job training, (6) connecting participants with potential employers, (7) development of job-related life skills (e.g. CV training, interpersonal relationships), (8), development of broader life skills (e.g. reproductive health, household economics), (9) general business training (e.g. keeping business records and encouraging small business owners to separate household and business finances, (10) technical business training, (11) sector-specific business training, (12) changing entrepreneurial attitudes or aspirations, (13) knowledge about the value

chain of the product, (14) asset transfers, (15) in-kind transfers, (16) cash transfers, (17) saving accounts, (18) asset-specific training, (19) regular follow-up visits by assets specialists, (20) stipends for women to participate in training, (21) additional support for women with children, (22) negotiation support with families to ensure participation in training, (23 other: define)

Organization that implements vocational or business training programme:

Descriptive details about what is delivered to participants:

Descriptive details about who delivers the Intervention (profession training level, number of staff etc.)

Descriptive details about duration/frequency/intensity of training:

Start date of intervention:

End date of intervention:

Sector:

Target Group: (1) Women only, (2) Women and Men

Country:

Rural or Urban Area: (1) Rural, (2) Urban, (3) Both Rural and Urban

Age of beneficiaries:

Describe the Costs of the Intervention:

For Qualitative Data

Data Collection Type: (1) Focus Groups, (2) In-Depth Interviews, (3) Ethnographies, (4)

Participatory Research, (5) Other: Define

Sampling: (1) Random, (2) Purposive

Sample Size:

Description of Sampling Procedure:

Description of Themes:

Description of Analysis:

Appendix C: Description of the interventions

Table C1: Detailed description of the interventions

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Vocational Peru	<p>Projoven</p> <p>Projoven sought to promote employment by providing vocational training and on-the-job learning experience. The programme included general life skills training and job placements. It worked by outsourcing responsibility for both training and placements to selected training agencies (ECAPs). Training provision was expected to be demand-driven; ECAPs tailored courses to identified demands.</p>	Maintenance mechanics, electricians, janitors and building cleaners, cashiers, receptionist clerks, construction laborers, plumbers, pipefitters, maintenance and repair workers, sewing machine operators, textile operators and tenders, and computer operators	<p>High</p> <p>3 months of training, 3 months of internship with a local firm</p>	Government agency	Government
Vocational Colombia	<p>Unemployment Subsidy</p> <p>The Unemployment Subsidy offered vocational training courses to unemployed heads of household in order to increase their employment possibilities through better qualifications and support in their job search.</p>	N/A	N/A	Government agency	
Vocational Argentina	<p>Proempleo Experiment</p> <p>Proempleo Experiment consisted of a wage subsidy and training intervention for unemployed workers participating in a workfare programme (A Trabajar). The training consisted of an initial workshop and a second phase of training for which participants received coupons that provided them access to training in a specific skill and required 200–300 hours of attendance. In this second phase, the participants were given working materials and received a wage subsidy.</p>	<p>The training had two components. The first was a 3-day “labor-market orientation” workshop (labor demand in the area, how to look for work, and how to become self-employed).</p> <p>During the second component, according to their personal interest and the available quota, participants selected from a list of 10 subjects: two of the courses were on the management of small-scale enterprises, two on industrial welding, two on home building, one on professional cooking, one on raising pigs, one on greenhouse cultivation, and one on skills needed to become an electrician.</p>	<p>Medium</p> <p>3-day workshop (Part 1) plus 200–300 hours of training (Part 2)</p>	Government agency	Government agency; international organization

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Vocational Nepal	<p>Adolescent Girls Employment Initiative (AGEI)</p> <p>AGEI provided vocational and life skills training to young women with the aim of promoting their labor-market transition and their employment in nonfarm jobs. The programme worked through training providers who bid for funding. The programme promoted innovative, nonstereotypical trades for women with higher income earning potential.</p>	<p>Training consisted of a broad range of courses for occupations such as mobile phone repair, carpentry, tailoring, welding, and masonry. Beneficiaries also received a short business course.</p>	<p>Medium</p> <p>Approximately 3 months of skills training and life skills training (40 hours)</p>	<p>Government agency; international donor agency</p>	<p>Government agency; international donor agency</p>
Vocational Turkey	<p>Vocational programs of the Turkish Employment Agency (İŞKUR)</p> <p>The programs targeted unemployed citizens who must have been at least 15 years of age, had completed at least primary education, and who must have met other skill prerequisites depending on chosen courses.</p>	<p>The programs offered general vocational training courses covering a wide range of vocations. The most common course was computerized accounting, which 24% of trainees applied for. Twenty-one per cent of trainees were in service courses (babysitter, cashier, waiter, caring for the elderly), 15.4% were craftsman or machine operators (welders, natural gas fitters, plumbers, mechanics), 14.7% were in technical courses (computer technicians, computer-aided designers, electrical engineers), and 12.2% were in professional courses (Web designers, computer programmers, information-technology support specialists).</p>	<p>Medium</p> <p>3 months, on average</p>	<p>Government agency</p>	<p>Government agency</p>

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Vocational Dominican Republic	Juventud y Empleo This programme was led by the Dominican Ministry of Employment, and provided hard skills and life skills training, as well as apprenticeships in private companies. The programme targeted low-income youth (18–29 years) with less than a secondary education who were not currently employed or in school. The programme had two modalities: –Development of basic competencies, which offered training in a number of occupational areas –Development of basic competencies plus life project; besides receiving vocational training, participants received a course on life skills, technical skills, and a 2-month internship.	Training was provided in occupational areas such as beauty, sales, tourism and hospitality, carpentry, and electricity.	High Hard skills: 150 hours Soft skills: 75 hours Apprenticeship in private company: 240 hours	Government agency; private providers	Government
Vocational India	SATYA-PRATHAM The programme provided 6 months of training in stitching and tailoring. It was targeted toward women between 18 and 39 years who had at least five or more grades of schooling and resided in low socioeconomic areas or slums of New Delhi, India.	Stitching and tailoring	Medium 6 months	NGO	
Vocational Kenya	Ninaweza Project The programme was designed to provide unemployed young women from poor backgrounds with technical training in ICT, life skills training, work experience through internships, and job placement support. The main purpose of the programme was to improve participants' employability and earning capacity.	ICT (computer hardware and software, entrepreneurship, and business process outsourcing)	High 8 weeks of training, 8 week of internship, and 6 months of training support	International organization	International organization

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Vocational Colombia	<p>Jóvenes en Acción</p> <p>This was a programme for unemployed youth from poor backgrounds that sought to improve participants' employment prospects.</p> <p>The programme provided 3 months of classroom training followed by a 3-month unpaid internship at a company. The programme worked with training agencies (ECAPS), which led the classroom training component and made arrangements for the internships with selected enterprises.</p>	<p>Courses included basic work skills and specific occupational skills, including courses for taxi and bus drivers, office assistants, call center operators, nurses and physicians' assistants, pharmacy assistants, hairdressing and cosmetology assistants, and inventory assistants. The programme provided life skills training in basic, social, and other skills to improve participants' capacity to engage and perform in employment.</p>	<p>High</p> <p>3 months of classroom training plus 3 months of internship</p>	<p>Government agency; private providers</p>	<p>Government</p>
Vocational Argentina	<p>Programa Joven (also known as Proyecto Joven)</p> <p>This programme targeted young people aged 16 to 29 years from poor backgrounds or who were unemployed. The programme sought to promote participants' employment through skills training and short-term internships in selected businesses.</p>	<p>The raining includes:</p> <ul style="list-style-type: none"> –Technical knowledge phase (6 to 12 weeks): knowledge and technical skills for a particular occupation –Internship phase (8 weeks): beneficiaries complemented their technical knowledge with work in the field in which they received training. <p>Courses were provided in conventional areas such as metal work, electricity, catering, construction and sales, meatpacking, and agriculture. Courses in areas such as education, administration and accounting, dental assistant, elderly care, computation, gastronomy, hotels and tourism, and others were also available.</p>	<p>Medium</p> <p>6–12 weeks for technical knowledge phase, plus 8 weeks for internship phase</p>	<p>Government agency</p>	<p>International funding agency; government agency</p>
Vocational Kenya	<p>Vocational Training Program for Kenyan Youth</p> <p>This programme was an experiment targeting out-of-school youth ranging from 17 to 28 years. A randomly selected group of youth were awarded a voucher for vocational training. Half of the voucher winners could use their voucher only in public (government) institutions, while the other half could use them in either public or private institutions.</p>	<p>Courses offered by participant institutions ranged from trades such as skilled construction (e.g., masonry, carpentry, plumbing), automotive mechanics, and tailoring, to entrepreneurship courses, to industrial education and commercial courses in business, computers, and secretarial skills.</p>	<p>N/A</p> <p>Variable</p>	<p>NGOs; local training centers</p>	<p>N/A</p>

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Vocational Uganda	<p>Youth Opportunities Program (YOP)</p> <p>This intervention had two main objectives: to raise youth incomes and employment, and to improve community reconciliation and reduce conflict. The programme, targeted at youth aged 16 to 35 years, required young adults from the same town or village to organize into groups and submit a proposal for a cash transfer to pay for: (a) fees at a local technical or vocational training institute of their choosing, and (b) tools and materials for practicing a craft.</p>	Each group decided on the training in which they want to invest the grant. Most training was in trades such as carpentry, metalworking, tailoring, or hairstyling.	<p>High</p> <p>Participants who chose to invest the grant in training received an average of 437 hours of training.</p>	Government agency	Government agency
Vocational Kenya	<p>Kenya Youth Empowerment Project (KYEP)</p> <p>KYEP sought to increase the employability and earning potential of vulnerable youth by providing them with skills and work experience needed by employers. The programme combined classroom and on-the-job training in selected economic sectors with life skills training.</p>	Training and internship by sectors, including energy, finance, ICT, manufacturing, and tourism	<p>Medium</p> <p>(1) Life skills training (2 weeks) (2) Core business skills training (offered for 3–5 weeks)</p>	Government agency	International organization
Vocational Jordan	<p>Jordan New Work Opportunities for Women (Jordan NOW)</p> <p>The Jordan Now Pilot Program was designed to assist Jordanian female community college graduates to find employment. A group of graduates (randomly chosen) was given a voucher that would pay an employer a subsidy equivalent to the minimum wage for up to 6 months if they hired the graduate. A second group was invited to attend 45 hours of employability skills training designed to provide them with the soft skills employers say graduates often lack. A third group was offered both interventions, and a fourth group formed the control group.</p>	Business Development Center designed a course that covered effective communication and business writing skills, team-building and teamwork skills, time management, positive thinking and how to use this in business situations, excellence in providing customer service, and CV and interviewing skills. Sessions were based on active participation and cooperative learning rather than lectures, with games, visual learning experiences, group exercises, and active demonstrations.	<p>Medium</p> <p>The training course was 45 hours over a 9-day period (5 hours per day), with a maximum of 30 participants in each training group. Training took place during September and October 2010.</p>	International organization; National government; local firms	International organization

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Business Peru	<p>Strengthening Women Entrepreneurship in Peru (SWEP)</p> <p>The SWEP programme sought to improve the contribution of women-headed micro and small enterprises to family incomes and the Peruvian economy by providing assistance aimed at broadening their access to business training. Short (one afternoon) training made use of a tailor-made soap opera to promote and facilitate a discussion among participants.</p>	Activity-based discussion of practical strategies to improve commercial processes and products, financial management, human resources management, and other business-related skills.	<p>Low</p> <p>One afternoon</p>	Private bank	International organization ; international donor agency
Business ARGENTINA	<p>Herramientas por Trabajo</p> <p>Herramientas por Trabajo was a business training programme that was part of the Microemprendimientos Productivos Program. Herramientas por Trabajo targeted unemployed heads of household with children 18 years or younger and aimed to improve their labor-market insertion by helping them develop productive projects. Many of the programme participants were also beneficiaries from the conditional cash-transfer programme JEFES, and continued to receive the JEFES subsidy. Once the projects had been approved, the programme provided tutoring in various relevant areas of the productive and business process.</p>	<p>Tutoring was provided for productive projects in the following areas: agroindustrial products, manufacturing, services, and commerce. Tutoring focused on elements such as productive processes, general aspects of management, financial and economic situations, and commercialization.</p>	<p>Low</p> <p>General entrepreneurship tutorials: four visits Optional specific tutorials: one or two visits from subject specialist</p>	Government agency	International organization

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Business Uganda	<p>Start and Improve Your Business (SIYB) Uganda</p> <p>This intervention was part of a field experiment conducted in Uganda that targeted micro-entrepreneurs and formed different groups, some of which received a loan or a cash grant as well as business skills training. Among the latter there were three subgroups, one which received business skills training and a cash grant and two which received skills training and a loan. SIYB, a training developed by International Labor Organization (ILO) for women and men desiring to start or improve their business, consisted of a 5-day training course. It included self-help/training manuals to be used by potential or current micro and small entrepreneurs with some formal education (reading and writing) to guide them through the process of starting or improving a business. SIYB could be implemented as weekly training courses or as a self-help tool. Participants produced a business plan that they could use as a step-by-step guide to starting their business</p>	<p>The training was a 5-day course covering the main aspects of starting a business, including selection of products and pricing, organization of staff, purchasing of equipment and other inputs needed to get started, and financial planning. Selected businesses included hair salons, retail shops, and tailoring services.</p>	<p>Medium</p> <p>5 days</p>	International organization	International organization
Business Mexico	<p>CREA Experiment</p> <p>The intervention consisted of an experiment conducted in rural Mexico that provided free practical business skills to small and micro female entrepreneurs who were engaged in activities such as selling food, artisan work, and small commerce. This intervention differed from most similar business training experiments because it offered relatively longer training and was not attached to a microfinance intervention.</p>	<p>The business literacy training included six modules:</p> <ol style="list-style-type: none"> 1. Costs and how to measure them 2. How to set optimal prices 3. Basic legal rights and obligations 4. General business organization and the choice of products to produce or sell 5. Marketing 6. How to be an effective salesperson 	<p>Medium</p> <p>A total of 48 hours over 6 weeks (two 4-hour meetings per week)</p>	NGO	--

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Business Uganda	<p>AVSI's Women's Income Generating Support (WINGS)</p> <p>The WINGS programme was designed for those who were illiterate. It provided grants along with 5 days of business skills training and planning that ended in the preparation of a business plan. Participants then received ongoing supervision to help implement the plan. Once a plan was approved, the participant received a grant of 300,000 UGX or \$150. AVSI trainers then traveled four to five times to the villages in the 6 months after the grant to provide one-on-one advising and supervision.</p>	<p>Training focused on business planning, sales, marketing, recordkeeping, and budgeting. In addition, participants received:</p> <ul style="list-style-type: none"> –Four to five times after the grant, one-on-one advising and supervision –A 3-day group dynamics training that encouraged participants in the village to form self-help groups that would exchange ideas for improving their business and agriculture and organize savings and credit 	<p>Medium</p> <p>5 days, plus one-on-one advising and supervision visits</p>	NGO	NGO
Business Uganda	<p>Empowerment and Livelihood for Adolescents (ELA)</p> <p>This programme provided adolescent girls an opportunity to accumulate two types of human capital: skills to enable them to start small-scale income-generating activities, and life skills to help them make informed choices about sex, reproduction, and marriage. In contrast to most skills programs, the intervention was delivered from “adolescent development clubs” rather than in schools, and could thus reach school dropouts as well as girls currently enrolled in school.</p>	<p>Courses were related to a broad range of income-generating activities, including hairdressing, tailoring, computing, agriculture, poultry rearing, and small trade operations. In addition, the courses were supplemented by financial literacy courses covering budgeting, financial services, negotiation, and accounting skills.</p>	<p>High</p> <p>Participation in sessions was voluntarily and variable, but on average, participating adolescents attended meetings once or twice a week (for a 2-year programme)</p>	BRAC; NGO	Self-funded (60% to 70%)

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Business Peru	<p>FINCA Experiment</p> <p>The intervention consisted of an experiment conducted in two regions of Peru (Lima and Ayacucho) that provided business skills to women clients of a microfinance institution. Training included general business skills and strategy training in sessions at the clients' regular weekly or biweekly microfinance meetings.</p>	The training included two modules. The first focused on how business works, the marketplace, and commercial planning. The second module explained how to separate business and home finances and how to calculate costs and profits.	<p>High</p> <p>30- to 60-minute sessions weekly or biweekly for a total of 22 sessions</p>	FINCA (microfinance institution), in collaboration with Freedom from Hunger and Atinchik (NGOs)	
Business Peru	<p>Business Development Services (BDS)</p> <p>This was an experimental intervention of business development skills serving female micro-entrepreneurs in Lima that included two groups. One received only general training, albeit more time-intensive than in previous studies, and delivered by experts, while other group also received technical assistance.</p>	<p>General training was organized in three modules: (a) personal development, which focused on strengthening women's self-esteem, social skills, and tools for life planning; (b) business development, which focused on tools to plan new businesses or process innovations, as well as marketing and sales strategies and costing; and (c) management and productivity improvements, which provided tools to improve treatment of clients, safety, and hygiene of production processes. Technical assistance included both individual sessions and group sessions among similar businesses over a 3-month period.</p>	<p>High</p> <p>Basic: three, 3-hour sessions a week over 3 months</p> <p>Technical: Included over a 3-month period</p>	World Bank and UNIFEM. Three specialized institutions were in charge of the training: CAPLAB, CELATS, and INPET.	International organization
Business Tanzania	<p>PRIDE Experiment</p> <p>The intervention consisted in a field experiment conducted with PRIDE loan beneficiaries. One group of participants was offered a business grant to develop and strengthen their business, while a second group received a business training intervention. The average age of participants was 38 years and most were small business owners, with women dominating the service sector businesses and men dominating manufacturing sector businesses.</p>	Practically oriented training focusing on basic business principles, including customer service, pricing, accounting, and entrepreneurial mindset issues	<p>Medium</p> <p>21, 45-minute sessions</p>	Microfinance institution; training institution	

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Business Sri Lanka	<p>Start and Improve Your Business (SIYB) Sri Lanka</p> <p>This intervention consisted of a field experiment with two groups of women: one operating subsistence enterprises and another composed of women who were out of the labor force but interested in starting a business. The first group was supported with training only and the second group with training plus a cash grant. For those who received training, the experiment used the ILO's SIYB training package. SIYB includes self-help/training manuals to be used by potential or current micro and small entrepreneurs with some formal education (reading and writing), to guide them through the process of starting or improving a business.</p>	<p>Three different training packages which varied according to the characteristics of the group:</p> <p>–Generate Your Business: a 3-day training course designed to help potential entrepreneurs decide if they should start a business, to generate feasible business ideas, and to choose the best idea from among this set</p> <p>–Start Your Business: for potential entrepreneurs who wanted to start their own business and already had a feasible business idea. The training was a 5-day course covering the main aspects of starting a business, including selection of products and pricing, organization of staff, purchasing of equipment and other inputs, and financial planning.</p> <p>–Improve Your Business: a 5-day course that trained existing business owners who wanted to develop their business. The modules included marketing, buying, costing, stock control, recordkeeping, and financial planning.</p> <p>In addition to these core modules, the intervention provided 1 day of training of a more technical nature, to provide exposure to some relatively high-return sectors in which it was perceived to be socially acceptable for women in Sri Lanka to work. These included food manufacturing, beauty culture (hairdressing, beauty treatments, and bridal dressing), sewing clothes, plant nursery, and soap manufacturing.</p>	<p>Low</p> <p>Variable, between 3 and 9 days</p>	NGO	NGO

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Business India	<p>Business Training Experiment—India</p> <p>The intervention consisted of a field experiment that aimed to explore how traditional religious and caste institutions that impose restrictions on women's behavior influence their business activity. A sample of self-employed women from two different religious backgrounds, Hindu and Muslim, were offered a streamlined 2-day training.</p>	<p>Training combined elements of financial literacy and business skills with material focused on aspirations. The aspirations component included a short film showcasing successful SEWA Bank members who used good financial practices to bring themselves out of poverty.</p>	<p>Low</p> <p>2 days</p>	Private bank	N/A
Business Pakistan	<p>Field Experiment - Rural Pakistan</p> <p>The was a field experiment in which a group of male and female microfinance clients were offered 8 full-time days of business training and the opportunity to participate in a lottery to access business loans of up to 100,000 Rs (\$1,700 USD).</p>	<p>Training focused on business planning, marketing, and financial management. The sessions were based on the “Know About Business” modules designed by the International Labor Organization but adapted as a series of role plays and case-studies (thus being more hands-on than lecture-based).</p>	<p>Medium</p> <p>8 days; each session lasted 6 hours, typically from 9 am to 4pm, except for the 4th day, on which participants visited a local market, and the last day, which concluded at noon and was followed by an awards ceremony</p>	International organization; national government agency	International organization
Mixed Malawi	<p>Vocational and Entrepreneurial Training for Malawian Youth</p> <p>This programme targeted vulnerable young people (orphans and school dropouts) aged 15–24 years. The programme worked with a pool of master craftspeople who offered training for young apprentices in a variety of areas. Trainers in each district were selected based on their expertise and business performance in the neighborhood.</p>	<p>Training in areas such as auto mechanics, beauty care, electronics, metalwork, and construction, as well as business training sessions</p>	<p>Medium</p> <p>3 months, on average</p>	Government agency	Government agency

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Mixed Rwanda	<p>Akazi Kanoze Youth Livelihoods Project</p> <p>This intervention provided business and vocational training to men and women between 14 and 35 years of age. Program participants received a compulsory work-readiness curriculum as well as training and support resources in a number of areas.</p>	Vocational training in targeted sectors, life skills, job seeking, and business development skills	<p>Medium</p> <p>Typically about 100 hours of work-readiness training complemented by 35 hours of entrepreneurship training</p>	International educational organization	International donor agency
Mixed Côte d'Ivoire	<p>Labor Force Training Support Project /Project d'Appui a la Formation de la Population (PAFPA)</p> <p>PAFPA is a labor training programme developed to increase labor-force productivity and mobility through technical and basic skills training, with special emphasis on small, informal-sector businesses and women's enterprises. The programme offered demand-driven training to improve trainees' capacity to find better employment opportunities in both the formal and informal sector; receive higher wages and salaries; and increase income generated from self-run businesses. The programme included three components: (a) microenterprise training, giving priority to master craftsmen; (b) training of displaced workers, especially those retrenched from private and public enterprises; and (c) training of female entrepreneurs to equip them with technical and management skills.</p>	Demand-driven training for three sectors: agriculture, tailoring, and electronics	<p>High</p> <p>Core business skills training: 3–5 weeks Interns in the informal sector: 3 weeks, plus 2 weeks of entrepreneurship skills training Interns in the formal sector: 5 weeks</p>	Government agency	International organization

Intervention Type and Country	Intervention Description	Courses and Skills	Training Intensity	Implementing Agency	Funding Agency
Mixed Liberia	<p>Economic Empowerment of Adolescent Girls Project (EPAG)</p> <p>EPAG combined 6 months of classroom-based technical and life skills training with a focus on skills with high market demand. Upon recruitment, participants were assigned to a "job skills" track or a "business development services" track. Training was followed by 6 months of follow-up support to enter employment or start a business. The programme targeted young women between 16 and 24 years.</p>	<p>The Job Skills track provided training in six areas: a) hospitality, (b) professional cleaning/waste management, (c) office/computer skills, (d) professional house/office painting, (e) security guard services, and (f) professional driving. These areas were determined based on independent labor-market assessments. The training taught young women how to identify microenterprise opportunities based on an assessment of market needs, and how to grow and manage any existing businesses they already had. The curriculum included entrepreneurship principles, market analysis, business management, customer service, money management, and recordkeeping.</p>	<p>Medium</p> <p>Three phases of workplace experience: Part 1: 6 weeks (after life skills training) Part 2: 6 weeks Part 3: 5 weeks (after core business and entrepreneurship skills training); Part 3 replaced the sector-specific training for the first cycle of the project and marked the end of the first cycle programme</p>	Government agency; NGOs	International organization

Appendix D: Information of sources used to address secondary questions

Table D1: List of sources used to address secondary questions

Study	Intervention	Intervention type	Country	Type of source
Díaz & Rosas, 2016	ProJoven	Vocational	Peru	Included IE
Ñopo, Robles, & Saavedra, 2008	ProJoven	Vocational	Peru	Included IE
Galdo & Chong, 2006	ProJoven	Vocational	Peru	Included IE
Díaz & Jaramillo, 2006	ProJoven	Vocational	Peru	Included IE
Benavides, M., 2006 “Para acercarse a los que se alejan. Exclusión, jóvenes y políticas públicas”, Informe Final, RES-BID, GRADE, Lima	ProJoven	Vocational	Peru	Mixed methods study
Medina, Núñez, & Tamayo, 2013	Unemployment Subsidy	Vocational	Colombia	Included IE
Attanasio, Guarín, Medina, & Meghir, 2015	Unemployment Subsidy	Vocational	Colombia	Other IE with programme information
Galasso, Ravallion, & Salvia, 2004	Proempleo Experiment	Vocational	Argentina	Included IE with qualitative component
Galasso, E., Ravallion, M., & Salvia, A. (2004). Assisting the transition from workfare to work: A randomized experiment. <i>Industrial & Labor Relations Review</i> , 58(1), 128-142.	Proempleo Experiment	Vocational	Argentina	Other IE with programme information
Chakravarty et al., 2016	Adolescent Girls Employment Initiative (AGEI)	Vocational	Nepal	Included IE
Hirshleifer et al., 2014	The Turkish Employment Agency (İŞKUR)	Vocational	Turkey	Included IE
Ibarrarán et al., 2012 (Use 2015 Version)	Programa Juventud y Empleo	Vocational	Dominican Republic	Included IE
Card et al., 2011	Programa Juventud y Empleo	Vocational	Dominican Republic	Included IE

Study	Intervention	Intervention type	Country	Type of source
Grupo Gestión Moderna. (2010). "Estudio cuantitativo/cualitativo sobre los vínculos operativos del sistema (COS) y las empresas de pasantía del Programa Juventud y Empleo". Ministerio de Trabajo	Programa Juventud y Empleo	Vocational	Dominican Republic	Mixed-methods study
Idionis, P., et.al. (2014). "Estudio de impacto de los egresados del programa juventud y empleo de los cursos de emprendimiento". Gerencia de Planificación Estratégica e Inteligencia Institucional y el Departamento de Investigación y Estadística de Mercados Laborales.	Programa Juventud y Empleo	Vocational	Dominican Republic	Mixed-methods study
De Azevedo, 2013	Ninaweza Project	Vocational	Kenya	Included IE with qualitative component
Attanasio, Kluger, & Meghir, 2008 (Note: use 2015 version)	Jóvenes en Acción	Vocational	Colombia	Included IE
Subprograma Jóvenes en Acción: Consultoría para la evaluación de impacto del Subprograma Jóvenes en Acción. Evaluación de Políticas Públicas Número 9.	Jóvenes en Acción	Vocational	Colombia	Other IE with programme information
Departamento Nacional de Planeación (2002) "Consultoría para la evaluación de impacto del Subprograma Jóvenes en Acción"	Jóvenes en Acción	Vocational	Colombia	Mixed-methods study
Elias et al., 2004	Programa Joven/ Proyecto Joven/ Youth Training Program (YTP)	Vocational	Argentina	Included IE
Aedo & Nuñez, 2004	Programa Joven/ Proyecto Joven/ Youth Training Program (YTP)	Vocational	Argentina	Included IE
Jacinto, C. (1997). "Políticas Públicas de Capacitación Laboral de Jóvenes: Un análisis desde las expectativas y las estrategias de los actores". En: Estudios del Trabajo, Buenos Aires, ASET, N° 13, 1997	Programa Joven/ Proyecto Joven/ Youth Training Program (YTP)	Vocational	Argentina	Mixed methods study
Blattman, Fiala, & Martinez (2014)	Youth Opportunities Program (YOP) programme	Vocational	Uganda	Included IE with qualitative component

Study	Intervention	Intervention type	Country	Type of source
Blattman et.al. (2012). Can employment programs reduce poverty and social instability? Experimental evidence from a Ugandan aid program. Draft Protocol	Youth Opportunities Program (YOP) programme	Vocational	Uganda	Other IE with programme information
Blattman et al. (2012). Employment Generation in Rural Africa: Mid-term Results from an Experimental Evaluation of the Youth Opportunities Program in Northern Uganda. German Institute for Economic Research	Youth Opportunities Program (YOP) programme	Vocational	Uganda	Other IE with programme information
Maitra & Mani, 2014	SATYA-Pratham programme	Vocational	India	Included IE
Groh et al., 2012	Jordan New Work Opportunities for Women (Jordan NOW) pilot	Vocational	Jordan	Included IE
Soft Skills or Hard Cash? What Works for Female Employment in Jordan?	Jordan New Work Opportunities for Women (Jordan NOW) pilot	Vocational	Jordan	Other IE with programme information
Nakasone & Torero, 2014	Strengthening Women Entrepreneurship in Peru (SWEPE)	Business	Peru	Included IE with qualitative component
Almeida & Galasso, 2009	Microemprendimientos Productivos	Business	Argentina	Included IE
Fiala, 2014	Start and Improve Your Business (SIYB)	Business	Uganda	Included IE with qualitative component
Calderon, Cunha, & Giorgi, 2013	Experiment - ONG CREA Business Training	Business	Mexico	Included IE
Blattman et al., 2016	Wings programme	Business	Uganda	Included IE with qualitative component
Blattman, C., Green, E., Annan, J., Jamison, J., Bureau, C. F. P., Aryemo, F., & Segura, A. (2013). Building Women's Economic and Social Empowerment Through Enterprise An Experimental Assessment of the Women's Income Generating Support (WINGS) Program in Uganda. AVSI and Innovations for Poverty Action, New Haven, CT.	Wings programme	Business	Uganda	Mixed-methods study

Study	Intervention	Intervention type	Country	Type of source
Bandiera, 2015	ELA Centers programme	Business	Uganda	Included IE
Karlan & Valdivia, 2006	Experiment among clients of FINCA	Business	Peru	Included IE
Shahnaz & Karim, 2008	ELA Centers programme	Business	Uganda	Included IE with qualitative component
Valdivia, 2014 (use 2015 version)	business development services (BDS) programme	Business	Peru	Included IE
Berge, Bjorvatn, & Tungodden, 2015	Experiment with PRIDE Tanzania	Business	Tanzania	Included IE
Hicks et al., 2015	Vocational Training Program for Kenyan Youth	Business	Kenya	Included IE
Cho et al., 2016	Youth Program for Malawi	Business	Malawi	Included IE
de Mel McKenzie & Woodruff, 2014	Sri Lanka - Start and improve your business programme	Business	Sri Lanka	Included IE
Field, Jayachandran, & Pande, 2010	Business training experiment - India	Business	India	Included IE
Giné & Mansuri, 2011	Field Experiment - Rural Pakistan	Business	Pakistan	Included IE
Honorati, 2015	Kenya Youth Empowerment Project (KYEP)	Mixed	Kenya	Included IE with qualitative component
Verner & Verner, 2005	Project d'Appui a la Formation de la Population (PAFPA)	Mixed	Côte d'Ivoire (Costa de Marfil)	Included IE
World Ban. (2015).Can skills training increase employment for young women? The Case of Liberia.	Economic Empowerment of Adolescent Girls Project (EPAG)	Mixed	Liberia	Mixed-methods study
Adoho et al., 2014	Economic Empowerment of Adolescent Girls Project (EPAG)	Mixed	Liberia	Included IE

Study	Intervention	Intervention type	Country	Type of source
Alcid, 2014	Akazi Kanoze (AK) Youth Livelihoods project	Mixed	Rwanda	Included IE with qualitative component
Diaz & Rosas, 2016	ProJoven	Vocational	Peru	Included IE
Ñopo, Robles, & Saavedra, 2008	ProJoven	Vocational	Peru	Included IE
Galdo & Chong, 2006	ProJoven	Vocational	Peru	Included IE
Diaz & Jaramillo, 2006	ProJoven	Vocational	Peru	Included IE
Benavides, M., 2006 “Para acercarse a los que se alejan. Exclusión, jóvenes y políticas públicas”, Informe Final, RES-BID, GRADE, Lima	ProJoven	Vocational	Peru	Mixed methods study
Medina, Núñez, & Tamayo, 2013	Unemployment Subsidy	Vocational	Colombia	Included IE
Attanasio, Guarín, Medina, & Meghir, 2015	Unemployment Subsidy	Vocational	Colombia	Other IE with programme information
Galasso, Ravallion, & Salvia, 2004	Proempleo Experiment	Vocational	Argentina	Included IE with qualitative component

Appendix E: Risk of bias tool and results

Table E1: Detailed description of the interventions

Code description	Code	Comment
Study ID	Last name of author, year	
Justification of use	Study design and methodology	
Ask these questions for all quantitative studies		
Which primary outcomes are measured in the study?		
Provide the authors definition of each included primary outcome		
Which secondary outcomes are measured in the study?		
Provide the authors definition of each included secondary outcome		
Describe methods of data collection		
What is the frequency of outcome data collection?		
At which level was assignment to treatment and control group conducted		
Does the study show baseline values of the outcome of interest (as defined in the protocol) of beneficiaries and non-beneficiaries?	1 = Yes 2 = No 9 = Unclear 99 = Not applicable	Comment: Open answer
If baseline values of the outcome of interest are not available at baseline, does the study show baseline values of characteristics of beneficiaries and non-beneficiaries that are not likely to be affected by the intervention?		
Are the mean values or the distributions of the covariates at baseline statistically different for beneficiaries and non-beneficiaries ($p < 0.05$)		
If there are statistically significant differences in plausibly exogenous characteristics between beneficiaries and non-beneficiaries are these differences controlled for using covariate analysis in the impact evaluation?		
If baseline characteristics are not available, does the study qualitatively assess why beneficiaries are likely/unlikely to be a random draw of the population at baseline?		
Confounding and selection bias (ask questions for all quantitative studies)		
Does the study use a comparison/control group of women without access to the programme?	1 = Yes 2 = No 9 = Unclear 99 = Not applicable	Comment: Open answer
Does the study use a comparison/control group of women with access to the programme but who chose not to participate in the programme?		
Does the study include data on the outcome of interest at baseline and endline (before and after the intervention)?		
Are the data on covariates collected at the baseline?		

Code description	Code	Comment
Is difference in differences estimation used?		
If the study is quasi-experimental and uses difference-in-difference estimation do the authors assess the parallel trends assumption?		
If the study does not use difference in difference, does the study control for baseline values of the outcome of interest (ANCOVA)		
If the study does not use difference in difference and does not control for baseline values of the outcome variable, does the study control for other covariates at baseline		
If the study does not use difference in differences estimation, is there any assessment of likely risk of bias from time invariant characteristics driving both participation and outcome?		
If the study does not use difference in difference estimation but does assess likely risk of bias from time invariant characteristics, are these time invariant characteristics likely to bias the impact estimates		
Does the study report the table with the results of the outcome equation (including covariates)?		
Where full results of the outcome equation are not reported, is it clear which covariates have been used?		
Are all relevant observable covariates (confounding variables) included in the outcome equation which might explain outcomes, if estimation does not use a statistical technique to control for selection bias (RCT, PSM or covariate matching, IV or switching regression)?		
Attrition (ask questions for all quantitative studies)		
For studies including baseline data, does the study report attrition (drop-out) from the study?	1 = Yes	Comment:
Is the attrition rate from the study below 10% ?	2 = No	Open
Does the study assess whether drop-outs from the study are random draws from the sample (e.g. by examining correlation with determinants of outcomes, in both treatment and comparison group)?	9 = Unclear	answer
	99 = Not applicable	
Spillovers and contamination (ask questions for all quantitative studies)		
Spillovers: are comparisons sufficiently isolated from the intervention (e.g., participants and non-participants are sufficiently geographically or socially separated) or are spillovers estimated by comparing non-beneficiaries with access to the intervention to non-beneficiaries without access to the intervention and/or through social network analysis?	1 = Yes	Comment:
Spillovers; if spillovers are not estimated, is the study likely to overestimate or underestimate the impact of the programme?	2 = No	Open
Contamination: does the study assess whether the control group receives the intervention?	9 = Unclear	answer
Contamination: if the control group receives the intervention but for a shorter amount of time does the study assess the likelihood that the control group has received equal benefits as the treatment group	99 = Not applicable	
Contamination: if the control group receives the intervention have they received the intervention sufficiently long to		

Code description	Code	Comment
argue that they have benefited from the intervention		
Other threats to validity (ask questions for all quantitative studies)		
Does the evidence suggest analysis reporting biases are a serious concern? Analysis reporting biases include failure to report important treatment effects (possibly relating to intermediate outcomes), or justification for (uncommon) estimation methods, especially multivariate analysis for outcomes equations.	1 = Yes 2 = No 9 = Unclear 99 = Not applicable	Comment: Open answer
Hawthorne and John Hendry Effects (ask questions for all quantitative studies)		
Do the authors argue convincingly that it is not likely that being monitored influences the behavior of the beneficiaries and non-beneficiaries in different ways?	1 = Yes 2 = No 9 = Unclear 99 = Not applicable	Comment: Open answer
Confidence Intervals (ask questions for all quantitative studies)		
Does the study account for lack of independence between observations within assignment clusters if the outcome variables are clustered?	1 = Yes 2 = No	Comment: Open answer
Is the sample size likely to be sufficient to find significant effects of the intervention?	9 = Unclear	
Do the authors control for heteroskedasticity and/or use robust standard errors?	99 = Not applicable	
Ask questions below only for studies that apply randomization		
Does the study apply randomized assignment?	1 = Yes 2 = No	Comment: Open answer
Does the study use a unit of allocation with a sufficiently large sample size to ensure equivalence between the treatment and the control group?	9 = Unclear 99 = Not applicable	
Ask questions below only for studies that apply regression discontinuity designs		
Is the allocation of the programme based on a pre-determined continuity on a continuous variable and blinded to the beneficiaries or if not blinded, individuals cannot reasonably affect the assignment variable in response to knowledge of the participation rule?	1 = Yes 2 = No 9 = Unclear	Comment: Open answer
Is the sample size immediately at both sides of the cut-off point sufficiently large to equate groups on average?	99 = Not applicable	
Is the mean of the covariates of individuals immediately at both sides of the cut-off point statistically significantly different for beneficiaries and non-beneficiaries?		
If there are statistically significant differences between beneficiaries and non-beneficiaries are these differences controlled for using covariate analysis?		

Code description	Code	Comment
Ask questions below only for studies that apply matching		
Quality of matching (PSM, covariate matching)		
Are beneficiaries and non-beneficiaries matched on all relevant characteristics?	1 = Yes 2 = No 9 = Unclear 99 = Not applicable	Comment: Open answer
Does the study report the results of the matching function (e.g. for PSM the logit function)?		
Does the study report the matching method?		
Does the study exclude observations outside the common support?		
Does the study use variables at follow-up that can be affected by the intervention in the matching equation?		
Does the study report the mean or distribution for the covariates of the treatment and control groups after matching?		
Are these characteristics similar, based on tests for statistically significant differences ($p > 0.05$)?		
Ask questions below only for studies that apply instrumental variable estimation		
Does the study describe clearly the instrumental variable(s)/identifier used?	1 = Yes 2 = No 9 = Unclear 99 = Not applicable	Comment: Open answer
Are the results of the participation equation reported?		
Are the instruments jointly significant at the level of $F \geq 10$? If an F test is not reported, does the author report and assess whether the R-squared of the instrumenting equation is large enough for appropriate identification ($R\text{-sq} > 0.5$)		
Are the instruments individually significant ($p \leq 0.05$)?		
For IV, If more than one instrument is used in the procedure, does the study include and report an overidentifying test ($p \leq 0.05$ is required to reject the null hypothesis)?		
Does the study qualitatively assess the exogeneity of the instrument/identifier (both externality as well as why the variable should not enter by itself in the outcome equation)?		
Ask questions below only for studies with censored outcome variables		
Do the authors use appropriate methods (e.g. Heckman selection models, tobit models, duration models) to account for the censoring of the data?	1 = Yes 2 = No 9 = Unclear 99 = Not applicable	Comment: Open answer
For Heckman models; is there is a variable that is statistically significant in the first stage of the selection equation and excluded from the second stage		
Overall Assessment		
Assessment Selection Bias	Low risk of bias	Comment: Open answer
Assessment Spillovers and Contamination Bias	Medium risk of bias	
Assessment Outcome and Analysis Reporting Bias	High risk of bias	
Assessment Other biases	Unclear risk of bias	

Table E2: Risk-of-bias results of included quantitative studies

Study	Selection Bias and Confounding	Performance Bias: Assessment, Spillovers, and Contamination	Outcome and Analysis Reporting Biases	Other Biases
Adoho et al., 2014	Low risk of bias The study uses a randomized controlled trial and has a relatively low attrition rate. The risk of selection-bias can be considered low.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
	Alcid, 2014	Medium risk of bias The study uses a randomized controlled trial but attrition appears to be correlated with the treatment condition. The risk of selection-bias can be considered medium.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.
Almeida & Gallaso, 2009	Medium risk of bias The study uses an instrumental variable strategy to determine the impact of the programme. The instrumental variable strategy has its strengths but there remain some lingering doubts about the validity of the instrument.	Medium risk of bias The beneficiaries and non-beneficiaries may know each which could result in spillovers and a medium risk of performance bias	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
	Attanasio et al., 2008	Low risk of bias The study uses a randomized controlled trial and has a relatively low attrition rate. The risk of selection-bias can be considered low.	Medium risk of bias The beneficiaries and non-beneficiaries may compete for the same jobs which could result in spillovers and a medium risk of performance bias	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.
Berge et al., 2015	Low risk of bias The study uses a randomized controlled trial and has a relatively low attrition rate. The risk of selection-bias can be considered low.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Medium risk of bias The study places more emphasis on statistically significant effects than on statistically insignificant effects, which may be an indication for outcome and analysis reporting bias	Low risk of bias We did not find any evidence for any other biases.
	Calderon et al., 2013	Low risk of bias The study uses a randomized controlled trial. The attrition rate is relatively high, but robustness checks take care of this concern.	Low risk of bias The study estimates spillovers and takes this into consideration in the estimation of the intention-to-treat effect	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.

Study	Selection Bias and Confounding	Performance Bias: Assessment, Spillovers, and Contamination	Outcome and Analysis Reporting Biases	Other Biases
Cho et al., 2016	Medium risk of bias The study uses a randomized controlled trial but attrition is very high. The latter raises concerns that are sufficient to rate this study as medium risk of bias.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Medium risk of bias The study estimates treatment effects 4 months after the start of the programme, which is unusual. For this reason, we rated this study as medium risk of outcome and analysis reporting bias.	Low risk of bias We did not find any evidence for any other biases.
	Blattman et al., 2014	Low risk of bias The study uses a randomized controlled trial. The attrition rate is relatively high, but robustness checks take care of this concern.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases. We did not find any evidence for any other biases.
Chakravarty et al., 2016	High risk of bias The study uses a nonexperimental propensity score matching design. It is unclear whether the study removes observations outside the common support in its analysis. We therefore rated the study as high risk of bias	High risk of bias A substantial percentage of the comparison group also receives the programme, resulting in a medium risk of performance bias	Medium risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
	Card et al., 2011	High risk of bias The study uses a randomized controlled trial but a substantial percentage of the treatment group dropped out of the study. This drop-out has almost certainly led to a bias in the impact estimates.	High risk of bias A substantial percentage of the control group crossed over to the treatment group, resulting in a high risk of performance bias.	Medium risk of bias The econometric methods used for the study were slightly unusual and the choices made for the construction of the econometric models were not always very transparent
Aedo & Nuñez, 2004	High risk of bias The study uses propensity score matching but does not balance tests and has no baseline value of the outcome of interest.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
	De Mel et al., 2014	Low risk of bias The study uses a randomized controlled trial and has a relatively low attrition rate. The risk of selection-bias can be considered low.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases. We did not find any evidence for any other biases.

Study	Selection Bias and Confounding	Performance Bias: Assessment, Spillovers, and Contamination	Outcome and Analysis Reporting Biases	Other Biases
Diaz & Jaramillo, 2006	High risk of bias The study uses propensity score matching but some of the control variables can be considered endogenous due to anticipation of the programme	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
	Medium risk of bias The study uses a randomized controlled trial but the attrition is quite high. Therefore, we rate this study as medium risk of selection-bias.	High risk of bias A substantial percentage of the control group received the programme, which resulted in a high risk of performance bias	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Elias et al., 2004	High risk of bias The study combines propensity score matching with a difference-in-difference analysis, but does not report the attrition rate. This raises some concerns, resulting in a high risk of selection-bias.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
	Medium risk of bias This study uses a randomized controlled trial and the attrition rate is relatively low. However, the study only reports a treatment effect on the treated and not an intention-to-treat effect. For this reason, we rate the study as medium risk of selection-bias.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	High Risk of bias The study only reports heterogeneous treatment effects, which may an indication for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Galdo & Chong, 2006	High risk of bias The study uses propensity score matching, but some of the control variables may be potentially endogenous due to anticipation effects. Therefore, we rate this study as high risk of bias.	Medium risk of bias The comparison group is selected from the same neighborhood, which may result in a risk of performance bias due to displacement effects	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
	Medium risk of bias The study uses a randomized controlled trial but the attrition rate is relatively high. The attrition rate is also correlated with the treatment assignment. Therefore, we rate this study as medium risk of selection bias.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Medium risk of bias It is unclear why some of the outcome variables are not included in the estimation of heterogeneous effects by gender. This may be an indication for outcome and analysis reporting bias	Low risk of bias We did not find any evidence for any other biases.

Study	Selection Bias and Confounding	Performance Bias: Assessment, Spillovers, and Contamination	Outcome and Analysis Reporting Biases	Other Biases
Medina & Nunez, 2005	High risk of bias The study uses propensity score matching and a regression discontinuity design to determine the impact of the programme. The authors acknowledge that the results could be biased due to the Ashenfelter dip. They also do not report attrition.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Groh et al., 2012	Low risk of bias The study uses a cluster-randomized controlled trial and the attrition rate is relatively low. The attrition rate is correlated with the treatment assignment, but the results are robust to bounds analysis.	High risk of bias The paper reports that the results may be biased due to displacement effects.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Hicks et al., 2015	Low risk of bias The study uses a randomized controlled trial and the attrition rate is relatively low. Therefore, we rate this study as low risk of selection-bias.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Honorati, 2015	Medium risk of bias The study uses a cluster-randomized controlled trial but the attrition rate is relatively high. Therefore, we rate this study as medium risk of selection-bias.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Bandiera et al., 2015	Low risk of bias The study uses a cluster-randomized controlled trial and the attrition rate is relatively low.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Fiala, 2014	Low risk of bias The study uses a cluster-randomized controlled trial and the attrition rate is relatively low.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.

Study	Selection Bias and Confounding	Performance Bias: Assessment, Spillovers, and Contamination	Outcome and Analysis Reporting Biases	Other Biases
Blattman et al., 2016	Low risk of bias The study uses a cluster-randomized controlled trial and the attrition rate is relatively low.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
De Azevedo, 2013	High risk of bias The study uses a cluster-randomized controlled trial, but the attrition rate is very high. Therefore, we rate this study as high risk of selection-bias	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Galasso et al, 2004	Low risk of bias The study uses a cluster-randomized controlled trial and the attrition rate is relatively low.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Hirsheifer, 2014	Low risk of bias The study uses a cluster-randomized controlled trial and the attrition rate is relatively low.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Ibarran, 2014	High risk of bias The study uses a randomized controlled trial but a substantial percentage of the treatment group dropped out of the study. This drop-out has almost certainly led to a bias in the impact estimates.	High risk of bias A substantial percentage of the control group crossed over to the treatment group, resulting in a high risk of performance bias.	Medium risk of bias The econometric methods used for the study were slightly unusual and the choices made for the construction of the econometric models were not always very transparent	Low risk of bias We did not find any evidence for any other biases.
Karlan & Valdivia, 2011	Low risk of bias The study uses a cluster-randomized controlled trial. The attrition rate is relatively high. However, the authors present convincing robustness checks to mitigate this concern	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.

Study	Selection Bias and Confounding	Performance Bias: Assessment, Spillovers, and Contamination	Outcome and Analysis Reporting Biases	Other Biases
Maitra & Mani, 2014	Low risk of bias The study uses a cluster-randomized controlled trial and the attrition rate is relatively low.	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Nakasone & Torero, 2014	High risk of bias The study uses a cluster-randomized controlled trial, but the attrition rate is very high. Therefore, we rate this study as high risk of selection-bias	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Nopo et al., 2008	Medium risk of bias The study uses a nonexperimental propensity score matching design in combination with difference-in-difference analysis. The identification strategy seems reasonable, but there remain some lingering doubts about the validity of the nonexperimental design	Medium risk of bias Beneficiaries and the comparison group were purposively selected from the same block, which may have resulted in some displacement effects or other spillovers.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Valdivia, 2015	Medium risk of bias The study uses a randomized controlled trial, but the low take-up rate of the programme may have resulted in a bias in the impact estimates	Low risk of bias Beneficiaries and non-beneficiaries appear to be sufficiently isolated from each and the control group does not receive the programme. The risk of performance bias can be considered low.	Low risk of bias We did not encounter any evidence for outcome and analysis reporting biases.	Low risk of bias We did not find any evidence for any other biases.
Verner & Verner, 2005	High risk of bias The study uses a nonexperimental difference-in-difference design but it is unclear how the comparison group was selected.	Medium risk of bias It is unclear how the comparison group was selected. They may have lived in the same communities as the beneficiaries of the programme.	High risk of bias The study does not report impacts on intermediate outcomes and it is unclear why the study only reports some outcome measures in the estimation of heterogeneous effects by gender. These are indications for outcome and analysis reporting biases	Low risk of bias We did not find any evidence for any other biases.

Appendix F: Quality appraisal of studies used to address secondary research questions

Table F1: Quality appraisal of studies used to address secondary questions

Intervention	Source	Source Title	Type of source	Clear statement of study aims	Qualitative methodology is appropriate	Research design is appropriate to address the aims of research	Recruitment strategy is appropriate to address the aims of research	Were the data collected in a way that addressed the research question?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?
Included Studies												
ProJoven	Martin Benavides (2006)	Do the Poorest Among the Poor Benefit Less from Active Labor Market Programs? Evidence from Peru's Projoven.	Mixed methods study	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes	Yes
ProJoven	Chacaltana, J. (2005)	Determinants of dropout behaviour in a job training programme for disadvantaged youths	Qualitative study	Yes	Yes	N/A	Yes	Yes	N/A	N/A	Yes	Yes
ProJoven	Julcahuanga, J. (2013)	Evaluación de las estrategias de capacitación del programa de capacitación laboral juvenil projoven, para la inserción laboral de jóvenes entre 16 a 24.	Qualitative study	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Partially	Yes
ProJoven	Jaramillo, M., Galdo, J., & Montalva, V. (2007)	Do the Poorest Among the Poor Benefit Less from Active Labor Market Programs? Evidence from Peru's Projoven.	Included mixed methods studies	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes	Yes
ProJoven	De Crombrugghe, D, Henry, E., & Hans, H. (2010).	Determinants of dropout behaviour in a job training programme for disadvantaged youths (No. 008).	Included mixed methods studies	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes	Yes
Proempleo Experiment	Galasso, E.; Ravallion, R. and Salvia, A. (2004)	Assisting the transition from workfare to work: Argentina's Proempleo experiment.	Included IE with qualitative component	Yes	Yes	Yes	Yes	N/A	N/A	N/A	Partially	Yes

Intervention	Source	Source Title	Type of source	Clear statement of study aims	Qualitative methodology is appropriate	Research design is appropriate to address the aims of research	Recruitment strategy is appropriate to address the aims of research	Were the data collected in a way that addressed the research question?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?
Programa Juventud y Empleo	Portorreal, Fatima (2010)	Sistematización de los Cursos de Desarrollo de Competencias Básicas (DCB). Ministerio de Trabajo de la República Dominicana.	Qualitative study	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes	Yes
Programa Juventud y Empleo	Grupo Gestión Moderna (2010)	Estudio cuantitativo/cualitativo sobre los vínculos operativos del sistema (COS) y las empresas de pasantía del Programa Juventud y Empleo	Mixed methods study	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes	Yes
Programa Juventud y Empleo	Idionis, P. et.al. (2014)	Estudio de impacto de los egresados del programa juventud y empleo de los cursos de emprendimiento". Gerencia de Planificación Estratégica e Inteligencia Institucional y el Departamento de Investigación y Estadística de Mercados Laborales.	Mixed methods study	Yes	Partially	Yes	Yes	Yes	N/A	N/A	no	Partially
NINAWWEZA Youth Empowerment Program	Azevedo, T. A. D., Davis, J., & Charles, M. (2013). (Vol 1 & 2)	Testing What Works in Youth Employment: Evaluating Kenya's Ninaweza Program	Included IE with qualitative component	Yes	Yes	Yes	N/A	Yes	N/A	N/A	Yes	Yes
Jóvenes en Acción	Acevedo, M. C., Prada, J. F. M., & Álvarez, P. A. S. (2009)	La educación para el trabajo de jóvenes en Colombia: ¿mecanismo de inserción laboral y equidad?	Qualitative study	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes	Yes

Intervention	Source	Source Title	Type of source	Clear statement of study aims	Qualitative methodology is appropriate	Research design is appropriate to address the aims of research	Recruitment strategy is appropriate to address the aims of research	Were the data collected in a way that addressed the research question?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?
Jóvenes en Acción	Palomares Ramos, A. F. (2013)	Análisis de la experiencia del programa jóvenes en acción en Bogotá, como alternativa para romper el círculo de la pobreza a través de la alianza empresa-estado-universidad durante el periodo 2003 a 2007.	Qualitative study	Yes	Yes	Yes	N/A	Yes	N/A	N/A	Partially	Yes
Kenya Youth Empowerment Project (KYEP)	Honorati, M. (2015)	The Impact of Private Sector Internship and Training on Urban Youth in Kenya	Included IE with qualitative component	Yes	Yes	Yes	N/A	N/A	N/A	N/A	Partially	Yes
Economic Empowerment of Adolescent Girls Project (EPAG)	World Bank (2015)	Economic Empowerment of Adolescent Girls and Young Women (EPAG)	Included IE with qualitative component	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Partially	Yes
Strengthening Women Entrepreneurship in Peru (SWEP)	Nakasone, E., & Torero, M. (2014)	Soap Operas for Female Micro Entrepreneur Training	Included IE with qualitative component	Yes	Yes	N/A	N/A	N/A	N/A	N/A	Partially	Yes
Experimento: Start and Improve Your Business (SIYB) and PRIDE Microfinance	Fiala, N. (2014)	Stimulating Microenterprise Growth: Results from a Loans, Grants and Training Experiment in Uganda	Included IE with qualitative component	Yes	Yes	N/A	N/A	N/A	N/A	N/A	Partially	Yes
Wings programme	Blattman, C., Green, E. P., Jamison, J., Lehmann, M. C., & Annan, J. (2016)	The Returns to Microenterprise Support among the Ultrapoor: A Field Experiment in Postwar Uganda	Included IE with qualitative component	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Yes

Intervention	Source	Source Title	Type of source	Clear statement of study aims	Qualitative methodology is appropriate	Research design is appropriate to address the aims of research	Recruitment strategy is appropriate to address the aims of research	Were the data collected in a way that addressed the research question?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?
Wings programme	Jamison, J., Bureau, C. F. P., Aryemo, F., ... & Segura, A. (2013)	Building Women's Economic and Social Empowerment Through Enterprise An Experimental Assessment of the Women's Income Generating Support (WINGS) Program in Uganda	Mixed methods study	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Youth Opportunities Program (YOP) programme	Blattman, C., Fiala, N., & Martinez, S. (2014)	Generating Skilled Self-Employment in Developing Countries: Experimental Evidence from Uganda	Included IE with qualitative component	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	Yes
ELA Centers programme	Shahnaz, R., & Karim, R. (2008)	Providing Microfinance and Social Space to Empower Adolescent Girls: An Evaluation of BRAC's ELA Centres	Included IE with qualitative component	Yes	Yes	Yes	N/A	Yes	N/A	N/A	Yes	Yes
Akazi Kanoze (AK) Youth Livelihoods project	Alcid, A. (2014)	A Randomized Controlled Trial of Akazi Kanoze Youth in Rural Rwanda	Included IE with qualitative component	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partially	Yes
Jóvenes en Acción	Departamento Nacional de Planeación (2002)	Consultoría para la evaluación de impacto del Subprograma Jóvenes en Acción	Mixed methods study	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes	Yes
Programa Joven	Jacinto, C. (1997)	Políticas Públicas de Capacitación Laboral de Jóvenes: Un análisis desde las expectativas y las estrategias de los actores	Mixed methods study	Yes	Yes	Yes	Yes	N/A	N/A	N/A	Yes	Yes

Intervention	Source	Source Title	Type of source	Clear statement of study aims	Qualitative methodology is appropriate	Research design is appropriate to address the aims of research	Recruitment strategy is appropriate to address the aims of research	Were the data collected in a way that addressed the research question?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?
Programa Joven	Devia, S. (2003)	¿Éxito o fracaso de las políticas públicas de capacitación laboral a jóvenes? – Evaluación del programa testigo: "Proyecto Joven" de Argentina (1993-2000)	Mixed methods study	Yes	Yes	Yes	N/A	N/A	N/A	N/A	Yes	Yes
Total				22	20	17	13	13	1	1	10	19
Excluded Studies												
Experiment among clients of FINCA	Karlan (2007)	Social connections and group banking	Other mixed methods studies	-	--	-	-	-	-	-	-	-
Akazi Kanoze (AK) Youth Livelihoods project	Lauren Dawes, Prachi Nema & Ronda Zelezny-Green (2014)	Scaling Mobile Employment Services: A Stakeholder Perspective	Other qualitative studies	-	-	-	-	-	-	-	-	-

Appendix G: Meta-analyses and meta-regressions

Figure G1: Effects of vocational training on women’s employment in africa and asia and outside africa and asia- randomized controlled trials

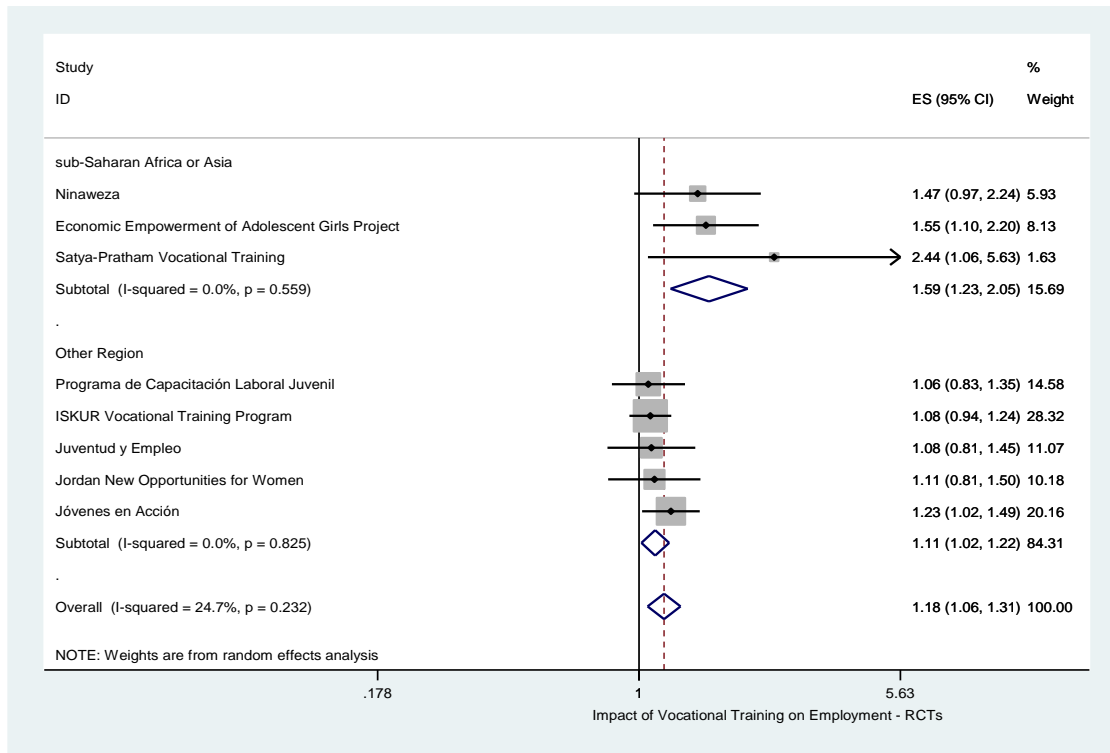


Figure G2: Effects of vocational training with high and other gender focus on employment – randomized controlled trials

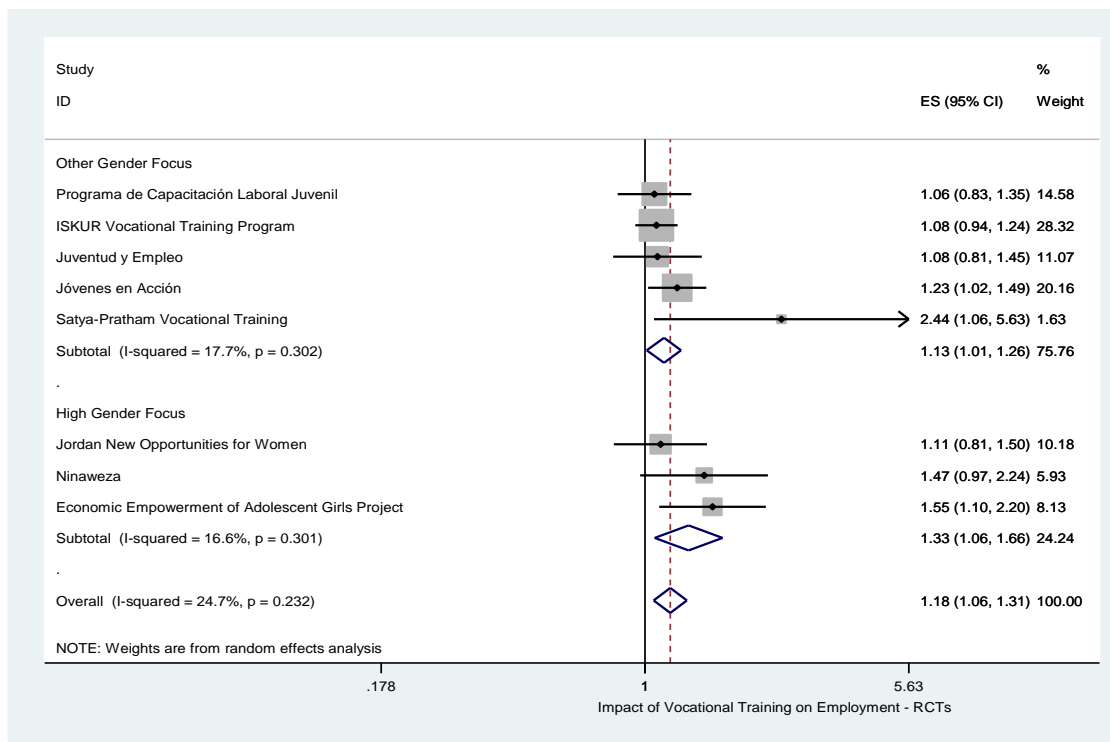


Figure G3: Effects of vocational training on employment after 6 months or less and after more than 6 months – randomized controlled trials

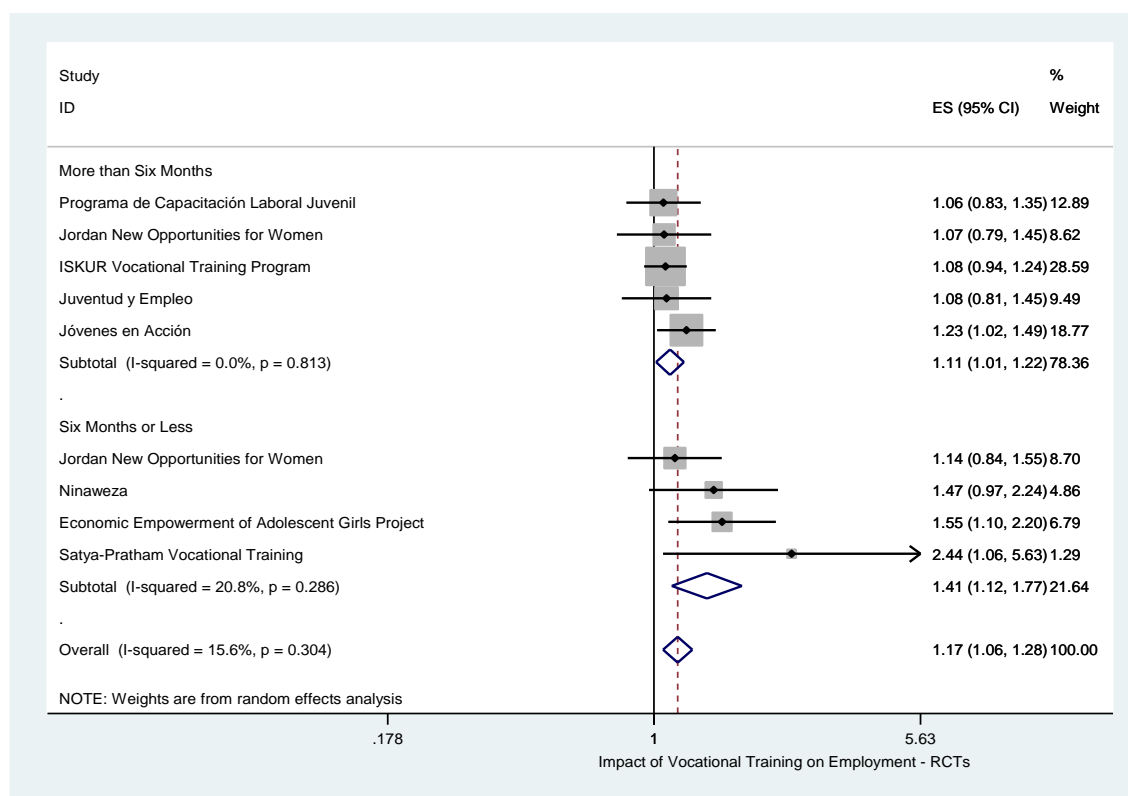


Table G1: Meta-regression to determine moderating effect of study taking place in africa or asia on the effect of vocational training on the likelihood of employment

	(1) Africa and Asia
Dummy for Study in Africa or Asia	1.43** (0.20)
Constant	1.11* (0.05)
Number of Studies	8
I-squared	0%

Table G2: Meta-regression to determine moderating effect of gender focus on the effect of vocational training on the likelihood of employment

	(1) Gender Focus
Dummy for Strong Gender Focus	1.18 (0.15)
Constant	1.12* (0.06)
Number of Studies	8
I-squared	17.4%

Table G3: Meta-regression to determine moderating effect of internships on the effect of vocational training on the likelihood of employment

	(1) Internship
Dummy for Internship	0.99 (0.12)
Constant	1.18 (0.11)
Number of Studies	8
I-squared	34.9%

Table G4: Meta-regression to determine moderating effect of life skills on the effect of vocational training on the likelihood of employment

	(1) Life Skills
Dummy for Life Skills	1.00 (0.13)
Constant	1.18 (0.12)
Number of Studies	8
I-squared	33.9%

Table G5: Meta-regression to determine moderating effect of time since treatment on the effect of vocational training on the likelihood of employment

	(1) Time since treatment
Dummy for Time since Treatment<=6 Months	1.25* (0.14)
Constant	1.11* (0.05)
Number of Studies	8
I-squared	0%

Table G6: Meta-regression to determine moderating effect of methodology on the effect of vocational training on the likelihood of employment

	(1) Randomization
Dummy for RCT	0.79** (0.07)
Constant	1.48*** (0.10)
Number of Studies	12
I-squared	27.6%

Figure G4: Effects of vocational training on women’s earnings – RCTs in Africa and Asia and outside Africa and Asia

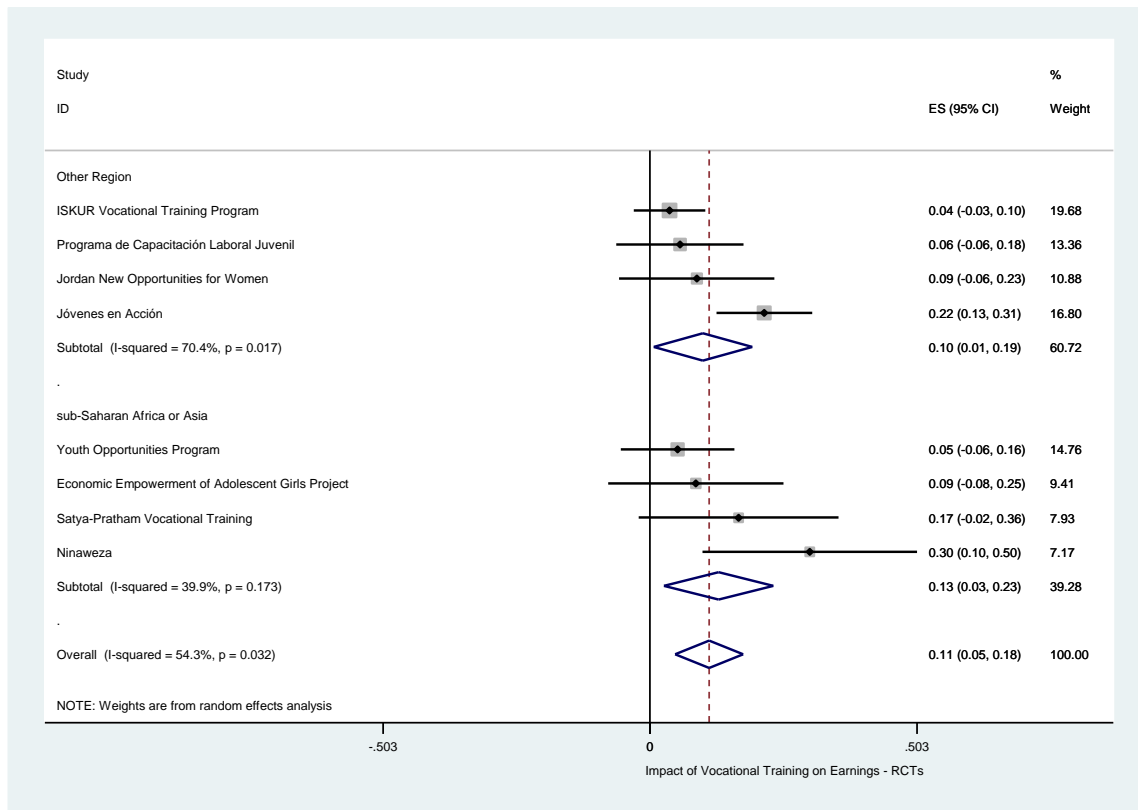


Figure G5: Effects of vocational training on women’s earnings – RCTs with and without gender focus

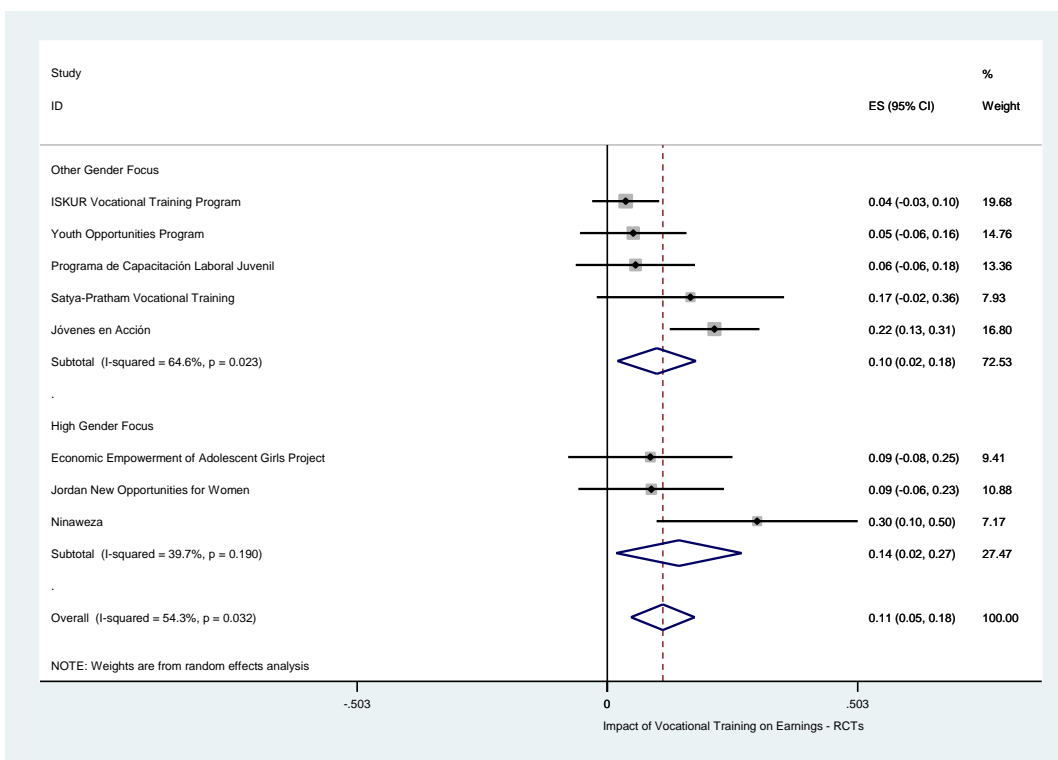


Figure G6: Effects of vocational training on women’s earnings – RCTs with and without life skills training

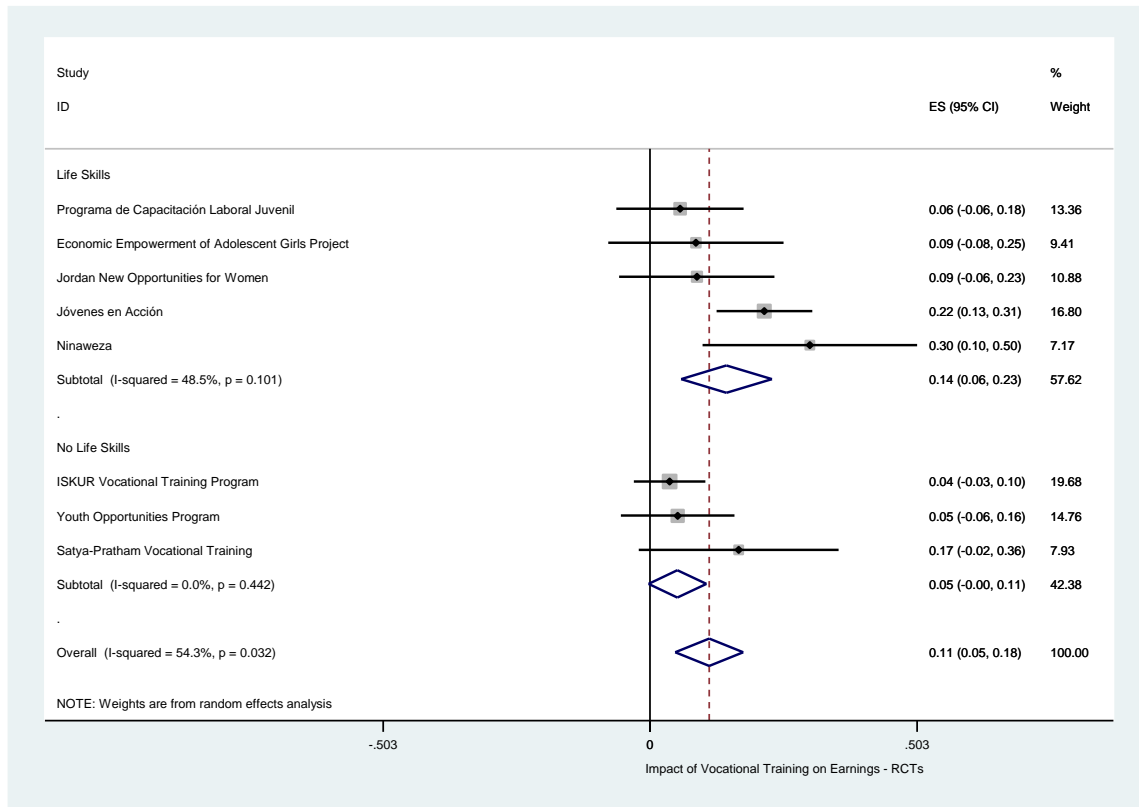


Figure G7: Effects of vocational training on women’s earnings – RCTs with and without internships

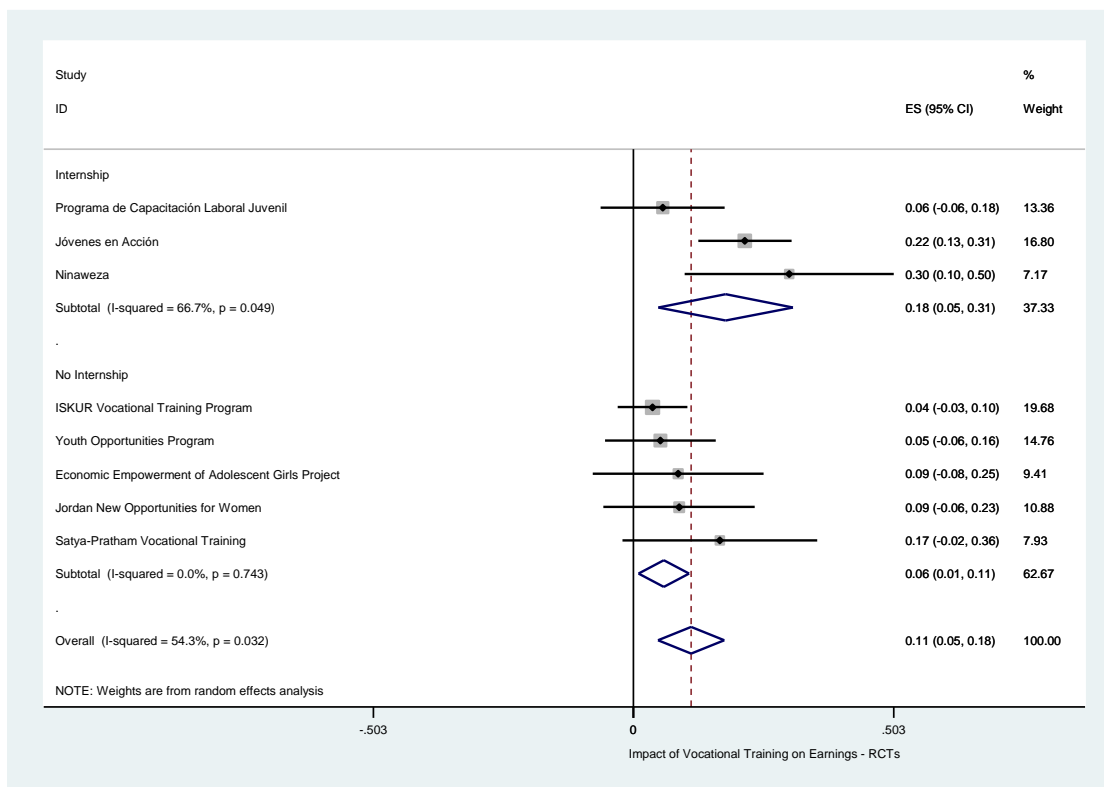


Table G7: Meta-regression to determine moderating effect of region on the effect of vocational training on earnings

	(1)
	Africa or Asia
Dummy for Africa or Asia	0.03 (0.07)
Constant	0.10* (0.04)
Number of Studies	8
I-squared	60.4%
Standard errors in parentheses	
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$	

Table G8: Meta-regression to determine moderating effect of gender focus on the effect of vocational training on earnings

	(1)
	Gender Focus
Dummy for Strong Gender Focus	0.04 (0.07)
Constant	0.10** (0.04)
Number of Studies	8
I-squared	36.2%
Standard errors in parentheses	
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$	

Table G9: Meta-regression to determine moderating effect of life skills on the effect of vocational training on earnings

	(1)
	Life Skills
Dummy for Life Skills	0.08 (0.06)
Constant	0.06 (0.04)
Number of Studies	8
I-squared	36.2%
Standard errors in parentheses	
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$	

Table G10: Meta-regression to determine moderating effect of internship on the effect of vocational training on earnings

	(1) Internship
Dummy for Internship	0.11* (0.05)
Constant	0.07* (0.03)
Number of Studies	8
I-squared	24.8%
Standard errors in parentheses	
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$	

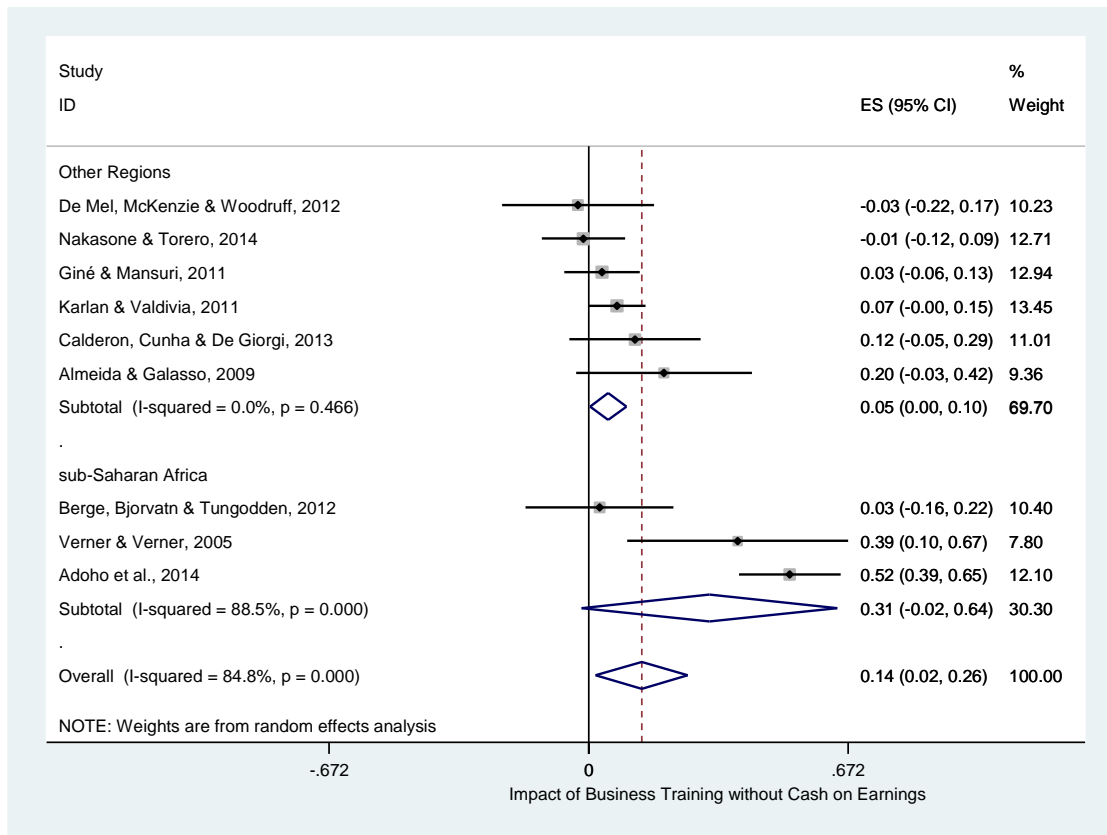
Table G11: Meta-regression to determine moderating effect of methodology on the effect of vocational training on earnings

	(1) RCT
Dummy for Randomized Controlled Trials	-0.44*** (0.08)
Constant	0.55*** (0.07)
Number of Studies	12
I-squared	64.8%
Standard errors in parentheses	
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$	

Table G12: Meta-regression to determine moderating effect of region on the effect of business training on profits or sales

	(1) Sub-Saharan Africa
Dummy for sub-Saharan Africa	0.26*** (0.11)
Constant	0.06 (0.06)
Number of Studies	9
I-squared	68.2%
Standard errors in parentheses	
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$	

Figure G8: Effects of business training with cash transfers on profits or sales – randomized controlled trials and quasi-experimental studies in sub-saharan africa and other low- and middle-income countries



Appendix H: Funnel Plots

Figure H1: Funnel plot for the effect of vocational training on employment

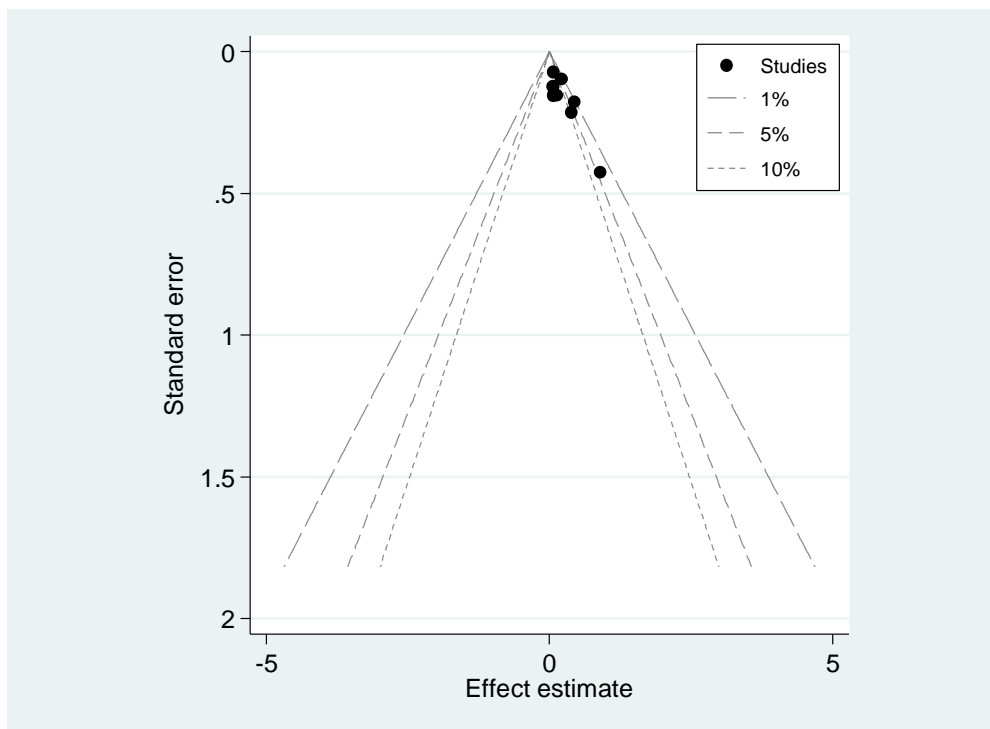


Figure H2: Funnel plot for the effect of vocational training on earnings

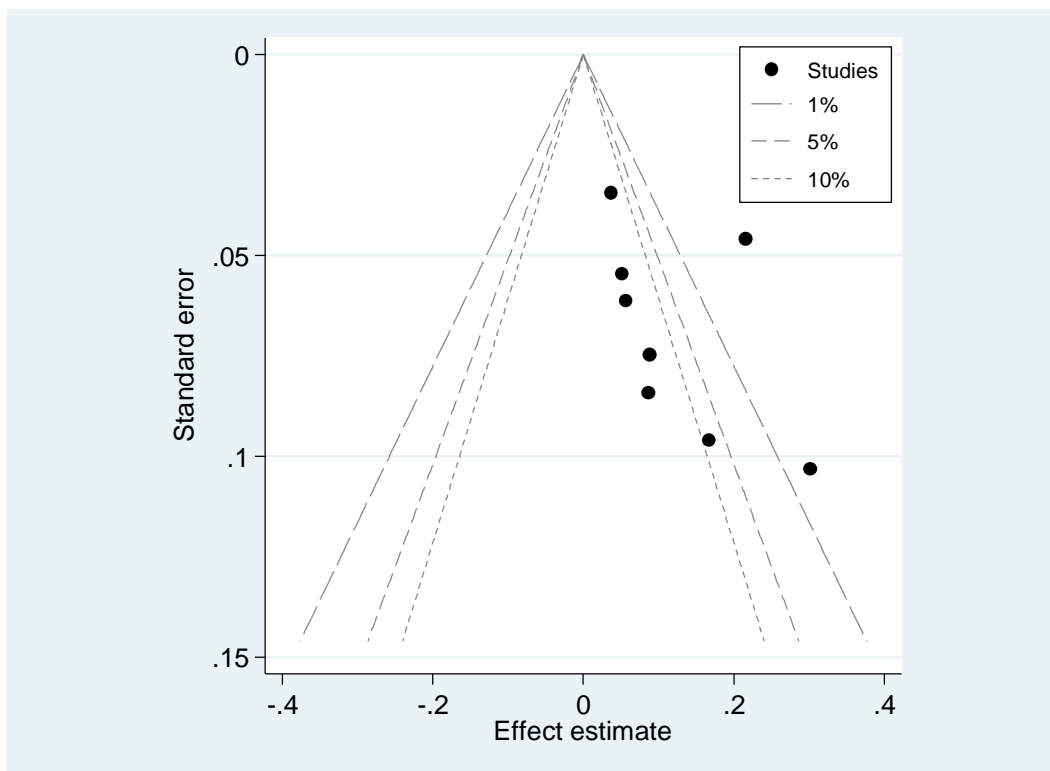
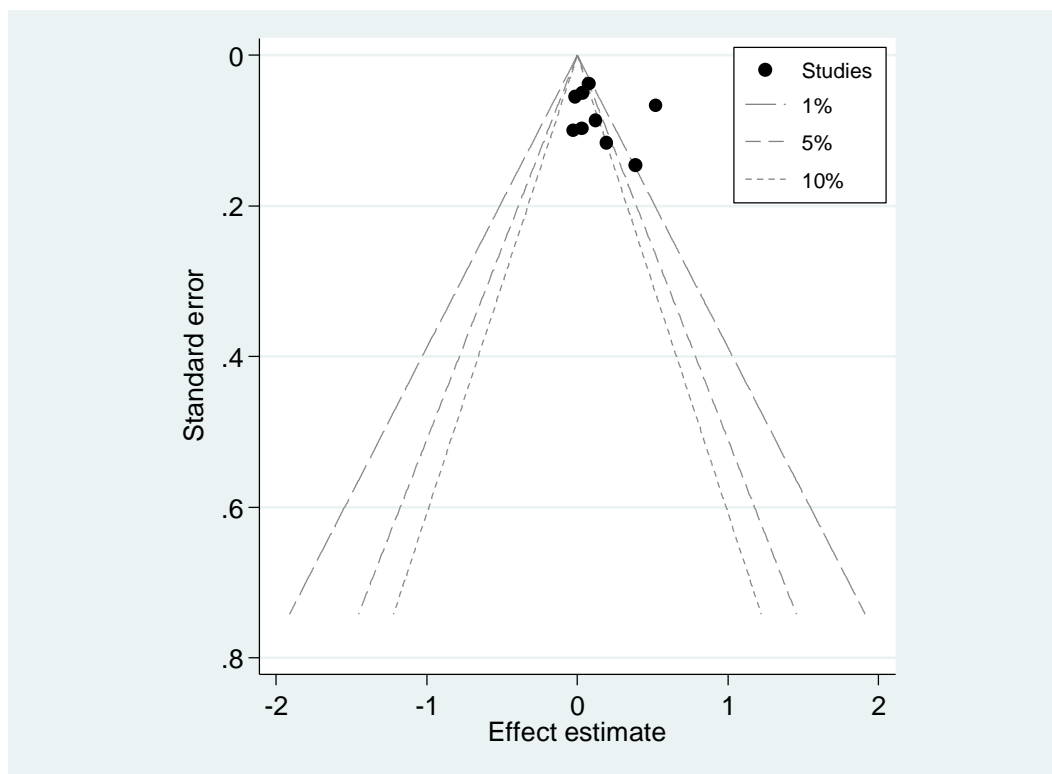


Figure H3: Funnel plot for the effect of business training on sales or profits



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