Apprenticeships and Internships

Technical Report for the Youth Employment in sub-Saharan Africa Toolkit

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Technical reports are intervention-specific summaries of relevant studies for sub-Saharan Africa contained in the Youth Employment Evidence and Gap Map (EGM). This report was prepared by Swati Mantri and Howard White. The meta-analysis was performed by Nina dela Cruz, Centre for Evidence-Based Social Sciences, Lanzhou University.

About this technical report

This technical report is one of a series of technical reports being produced to document the evidence base for interventions to increase youth skills and employment in sub-Saharan Africa. The report is based on relevant studies for sub-Saharan Africa contained in the Youth Employment Evidence and Gap Map (EGM).

The purpose of this report is to inform the content of the What Works for Youth Employment in sub-Saharan Africa Toolkit. This report provides results from both the quantitative evidence from eight effectiveness studies and the qualitative evidence from seven process evaluations. The former is the basis for the effectiveness rating and the latter is the lessons from implementation. The critical appraisal of the studies, which was undertaken for the EGM, provides the basis for the confidence in study findings.

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Abbreviations

AK	Akazi Kanoze Youth Livelihoods Project
EGM	Evidence and Gap Map
GIP	Graduate Internship Programme
ICT	Information and Communication Technology
KhS	Kenyan Shilling
KYEP	Kenya Youth Empowerment Project
MRU	Mano River Union
NAP	National Apprenticeship Program
NGO	Non-Governmental Organisation
OR	Odds Ratio
QIA	Quality Informal Apprenticeship
RCT	Randomised Controlled Trial
SYLP	Somalia Youth Livelihoods Programme
SMD	Standardised Mean Difference
SME	Small and Medium Enterprises
SSA	Sub-Saharan Africa
TREE	Training for Rural Economic Empowerment
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
YEEP	The Youth Employment and Empowerment Program

Plain language summary

What is this report about?	This technical report looks at the English language evidence of apprenticeships and internships interventions on skills, employment and earnings for young people in sub-Saharan Africa
What are apprenticeships and internships?	Apprenticeships and internships are temporary placements with an employer. Internships are generally shorter and less structured than apprenticeships and may take place whilst the intern is still in education. In developed countries, internships are generally in the formal sector, whereas in SSA internships are often with informal sector enterprises. Apprenticeships and internships provide work experience and often both on and off-the job training. They also provide connections to potential employers. External interventions can also help the apprenticeship system work better by supporting activities such as developing training curricula and standards, accreditation, or training for master craftspeople.
In what context are apprenticeships and internships implemented?	Apprenticeships and internships are provided by employers, which may be private sector, government or NGOs. Apprenticeships are most likely in private firms, whereas internships are common across all forms of employers. Apprenticeship interventions may use existing informal apprenticeships or create new schemes for formal sector employers.
What are the main design choices?	Design choices include whether to work with existing firms hiring apprentices or recruit new ones, developing or adopting rules and regulations for apprenticeships and internships (such as what types of employer are eligible, if to provide pre-placement training, what payments are to be made and to whom), duration and intensity of the programme, the nature of mentoring and training to be provided, and whether to provide certification.

How are apprenticeships and internships expected to work?	Apprenticeships and internships provide work experience to develop workplace and vocational skills, as well as to build networks. They may provide a pathway into employment with the firm providing the placement
What sort of activities do apprenticeship and internship programmes support?	Apprenticeship and internship programmes may provide direct support to firms to provide these positions, which may be a subsidy or equipment and supplies as well as training for master craftspeople. Interventions may also set standards including accreditation and certification.
Implementation issues	Implementation issues discussed include: (i) youth are unaware of the training opportunities available to them, (ii) training occurs at an unsuitable time or place for the target participants, (iii) trainers or trainees may not have the necessary equipment for the task, and (iv) failure to engage the private sector risks making the apprenticeship or internship programme irrelevant
The effects of apprenticeships and internships	The average effect size from the eight randomised controlled trials shows a large positive effect on both skills and employment and a slightly smaller effect on earnings. The conclusion is that the interventions have a moderate to large effect.
Cost analysis	Few evaluations conduct an economic analysis. The findings of such analysis are generally not promising. However, unit costs can vary greatly so low cost approaches using local systems may be cost-effective.
How strong is the evidence base?	The evidence of effectiveness in this technical report is based on eight impact evaluations. Evidence on implementation is based on evidence from seven process evaluations. Overall confidence in study findings is medium for both effectiveness studies and process evaluations.
Implications for research	There is a need for additional rigorous evaluations testing the effectiveness of different design choices for interventions supporting apprenticeships

Implications for policy and practice	The evidence supports providing apprenticeships through existing informal channels. More evidence is required as to the best way in which to do this.

What are apprenticeship and internship interventions?

Apprenticeships and internships are temporary placements with an employer. Internships are generally shorter and less structured than apprenticeships, and may take place whilst the intern is still in education. Internships are usually in the formal sector in developed countries, whereas in SSA internships are often with informal sector enterprises.

Apprenticeships and internships bridge the gap between education and employment, providing work experience and often both on-the-job and off-the-job training. They also provide connections to potential employers. Informal apprenticeships are well established in sub-Saharan Africa: 20% of youth take such an apprenticeship compared to 5% attending vocational training (Filmer and Fox, 2014: p.90).

The intervention (i.e. the apprenticeship or the internship) **fulfils the following functions**:

- **Work experience** for young people combined with coaching and mentoring.
- **Skills development** in both technical skills and 'workplace' skills which are valued on the job market.
- **Connections to potential employment and training opportunities with potential employers**.

How are apprenticeships and internships expected to work?

Apprenticeships and internships may affect youth employment in the following ways:

- Young people **acquire workplace experience and task-specific skills** which increase their employability.
- **Employers learn about the skills and work readiness of interns and apprentices** which may lead to the young person being kept on at the end of the placement. Traditional apprenticeships in SSA are a common pathway into employment as the young person transitions from paying a fee to the master craftsman to being paid during the apprenticeship.
- **Certification for apprenticeships can improve access to jobs**. The adoption of certification for informal sector apprenticeships provides a means for apprentices to validate their acquired skills and so enhance their employability (Crépon and Premand, 2018; Cherukupalli, 2019).
- The interventions also result in a **strengthened system for technical and vocational skills provision** through apprenticeships (Zulu, 2015).
- Many apprenticeship and internship programmes aim to **provide beneficiaries with entrepreneurial skills** so they may start their own business after their placement (Burke, 2016; Lyby and Sy, 2010; Zulu, 2015).

Apprenticeships may be expected to result in a temporary decline in earnings compared to a comparison group in which youth enter regular employment. But after the apprenticeship, the earnings of the apprentices should overtake that of the comparison group.

What are examples apprenticeships and internships in sub-Saharan Africa?

The list of the different approaches to apprenticeships and internships in the studies included in this technical report (see Table 1) illustrates a range of projects supporting apprenticeships. These examples illustrate a number of design choices.

Design choices

The **first design choice is between the institutional and the systems development or directly supporting apprenticeships**. Many projects do both. Institutional support can include infrastructure and equipment for training as well as enhancing the skills of master artisans. **Systems development can also involve developing standards for apprenticeships including accreditation and certification schemes**. Direct support for apprenticeships includes pre-placement orientation or training, placement, oversight of the position, and possible financial support to the firm, the apprentice or both.

A second design choice is **whether to support the existing, traditional apprenticeship system, or whether to recruit firms who have not previously had interns or apprentices into the programme**.

A third design issue is the extent to which interns and apprentices need any **orientation or training prior to taking up their placement**. This may include short courses on workplace behaviour or a longer vocational training course.

Fourth, there is the need to decide **which organizations are eligible to take placements: government, NGOs or the private sector**? If the private sector is included, are informal sector firms eligible? This decision may be informed by the likelihood of a job offer at the end of the placement.

Finally, to determine **design elements for inclusion that may increase female participation** in a wider range of apprenticeships through the eligible professions, incentives such as childcare support, and targeted sensitisation and appropriate training for master trainers.

Table 1: Examples of apprenticeship and internship interventions

The *Youth Employment and Empowerment Programme* (YEEP) in Sierra Leone aimed at improving youth employment through micro and small business development through internship programmes, career advice, and business development services. This included a Graduate Internship Programme (GIP) (Adablah and Bockarie, 2018).
The UNIDO project *Enhancing Youth Employability and Entrepreneurship* in Tanzania included a pilot internship scheme which placed graduates in small and medium enterprises (SMEs). A team of mentors carried out placements and monitoring of the interns. Pre-internship training was planned but not carried out because of start-up delays (Burke, 2016). Employers kept interns for 18 months to 4 years, not the one year recommended by the project.
The Benin *Youth Employment Project* provided skills development through apprenticeships (traditional entrepreneurships for illiterate youth and dual model apprenticeships for educated youth), followed by business skills training (Cherukupalli, 2019).
The Somalia *Youth Livelihoods Programme* used a training and placement model under which 87% of the 9,280 young people who completed training were placed into internships or paid jobs in the private and public sectors (Cook and Younis, 2012).
The USAID-supported *Youth Map Uganda* internship programme included professional development support services, to strengthen the skills of young people, and to connect them to the job market through the provision of internship, entrepreneurship training, networking and research opportunities (Duggleby et al., 2015).
The Multi-stakeholder *Programme for Productive and Decent Work for Youth* in the Mano River Union (MRU) (Cote d'Ivoire, Guinea, Liberia and Sierra Leone) supported entrepreneurs who would act as trainers for apprentices in study tours to learn new approaches, and provided supported apprenticeships for round 2,600 youths in apprenticeships, mostly in traditional trades such as tailoring, tie-and-dye, hairdressing, and carpentry (Lyby and Sy, 2010).
The *Skills for Youth Employment and Rural Development in Western and Southern Africa Programme: Zimbabwe* included a component - the "Quality Informal Apprenticeships" (QIA) - which provided training to master craftspeople along with access to improved technology. Young people were provided three months of training in a vocational training centre and then nine months of apprenticeship with a craftsman. They received a competency certificate on completion (Zulu, 2015).

What has been the implementation experience of apprenticeship and internship interventions?

Several programmes worked successfully with SMEs providing traditional apprenticeships, such as the *Quality Informal Apprenticeship* (QIA) in Zimbabwe (Zulu, 2015). These schemes may include providing training and equipment to master craftspeople. Pre-placement training was generally valued by participants; for example, the evaluation of *Youth Map Uganda* reported that "**interns lauded the foundational skills training. In their opinion, the skills training prepared them for their internships as it covered areas such as professional and ethical behaviour, networking and ICT.** The workplace technical skills training enabled them to fit well in the placement throughout the internship period" (Duggleby et al., 2015: p.15). Developing schemes for certification of apprenticeships are valued and seem to be accepted by employers.

However, implementation challenges were noted in several cases. Some of these **problems are common ones such as lack of awareness of intended participants of the programme, and opportunities being offered at a time and place which does not suit the intended beneficiaries.** The common problems of funding and staff may also affect apprenticeships. The NAP in Ghana was meant to provide start-up kits to trainees, such as a sewing machine, but this was not achieved on account of a lack of funds (Hardy et al., 2019). Late and unpredictable payments cause programme delays, so components may get cancelled (Cherukupalli, 2019; Cook and Younis, 2012). The evaluation of the *Somalia Youth Livelihoods Programme (SYLP)* reported difficulty in finding qualified trainers and a high turnover rate (Cook and Younis, 2015).

Other issues noted are more specific to apprenticeships, such as **the failure to engage the private sector risks making the apprenticeship or internship programme irrelevant.** Where SMEs were engaged for a graduate internship programme in Tanzania, a proportion of SME owners thought graduates would not be interested in working with them, and another group were opposed to having graduate placements (Burke, 2016). A second example is that there may not be opportunities for youth to pursue apprenticeships in their chosen profession (Duggleby et al. 2015). When a placement is in a government office, actual hiring

policies or a hiring freeze may prevent keeping on the young person after the placement, as happened in *Youth Map Uganda* (Duggleby et al. 2015).

Apprenticeships and internships face the same issues with respect to gender bias as other youth employment interventions. Just over 40% of SYLP in Somalia enrolees were female compared to the target of 50%. This was explained by the larger number of male-oriented training skills offered. In addition, females were less likely to be offered internships. Furthermore, female graduates went on to earn an average of US$ 83.40, whilst males earned 80% more at a monthly average of US$ 141.40 (Cook and Younis, 2012).

The effects of apprenticeship and internship interventions

Apprenticeships and internships have a positive effect on skills, employment and earnings. The effect is largest on skills, smaller but still large on employment, but smaller on earnings. All these effects are statistically significant (reported in detail in Annex1).

The average effect from meta-analysis is commonly reported as a standardized mean difference (d), which is the difference in the mean in outcomes between treatment and control, divided by the standard deviation of the outcome. Rather than d we report Hedge's g, which includes a small adjustment to d to account for bias in small samples. A g of less than 0.1 is considered a small effect, 0.1-0.2 is moderate and above 0.2 a large effect.

The meta-analysis (reported more fully in Annex 1) finds that **apprenticeships and internships have a statistically significant large effect on both skills (g=0.32) and employment (g=0.08**). This compares with an average employment effect across all the youth employment interventions of g=0.08 (Eyal et al., forthcoming). **There is also a small, but not significant, effect on wages and earnings (g=0.01).**

The effect size can be translated into an absolute and relative change in employment (see Annex 2 for details of the calculation)**. The average effect size for the impact on employment of g=0.08 is equivalent to a 7.2% increase compared to the control group**. This statistic can also be converted to the number needed to treat, which is 28 in this case: that is for every 28 youth who is an apprentice or intern, one enters employment who would not have done so otherwise.

Table 2: Studies of apprenticeship and internship interventions in sub-Saharan Africa

Study	Intervention	Findings
De Azevedo et al. (2013)	An 8-week course in skills training with advanced training in ICT. The training lasted for 8 weeks, leading to an 8-week internship, followed by 6 months of job placement support, Kenya	Employment: 39% Control group: 26%
Crépon et al. (2019)	Provided structured apprenticeship, both on-the-job and theoretical training, lasting either 12 or 24 months, tailored to specific occupations, Côte d'Ivoire	A total of 4000 beneficiaries were placed in firms, where they receive on-the-job training under the supervision of a master craftsman
Alcid (2014)	Provided access to workforce linkage opportunities (internships and apprenticeships) including formal sector jobs, entrepreneurship and other livelihood opportunities, Rwanda	Employment: Participants: 62% Control: 48%
Hardy et al. (2019)	Provided fee-free access to apprenticeship training in masonry, welding, carpentry, garment making, and cosmetology. Participants were paired with master craftspeople and learned skills on-the-job in an apprenticeship-like setting, Ghana	Modest increases in the probability of starting an apprenticeship (by 13%), the probability of completing training (by 10%) and the duration of training compared to those in the control group
Honorati (2015)	Provided three months of instruction (skills training, business, sector-specific) and three months of work experience, Kenya.	Participants versus control: Employment (male): 15% Hours worked: extra 3 hours (26 versus 23 hours) Wages: KSh 5,000 (US$5) for male, and KSh 7,500 (US%7.50) for females

However, there is only medium confidence in these findings because of the concerns mentioned above about the included studies, such as high or unreported differential attrition between treatment and control groups.

Study-level findings

There are eight papers on the effectiveness of apprenticeship and internship programmes in SSA in the youth employment evidence and gap map (Apunyo et al., forthcoming). We report on five programs out of these eight reports, all of which have an experimental study design.[1] The details of which are as follows:

- The *Akazi Kanoze (AK) Youth Livelihoods Project* was a seven-year USAID initiative in Rwanda intended for targeted dropouts aged 14 to 35. The project had three components: (i) training using a work readiness curriculum, (ii) technical training, and (iii) workforce linkages, which included internships and apprenticeships. One study reports the results of a randomized controlled trial (RCT) of the programme as a whole, so it cannot disentangle the effects of the apprenticeships and internships from the other components. The intervention took place at a time of falling employment levels. Nonetheless, **youth in the intervention group were more likely to be employed (62%) compared to the control group (49%**) (Alcid, 2014).

- The ***Côte d'Ivoire Formal Apprenticeship Program*** offers a subsidized apprenticeship with an SME, with both on-the-job and theoretical training in Côte d'Ivoire. The programme offers a structured apprenticeship lasting either 12 or 24 months, tailored to specific occupations. Initially covering 3,000 young people, the programme is expanding to accommodate approximately 10,000 participants. Low-skilled youth aged 18 to 24 are placed in businesses to receive hands-on training under the guidance of a skilled mentor, either the business owner or a seasoned employee. In the RCT, 911 young people were assigned to the programme, while 921 were assigned to the control group. It was found that **individuals in the treatment group are 26% less likely to be employed or self-employed, and are more likely to become apprentices (55% versus 18% in treatment and control respectively)**. These findings apply to hours worked as well (Crépon and Premand, 2018, rated medium confidence). The authors examined whether firms substitute between traditional and subsidized apprentices. Substitution effects are found to be limited wherein the dual apprenticeship intervention creates 0.74 to 0.77

[1] Five reports are selected to present here. All are impact evaluations.

new position per subsidized apprentice. For the apprentice, the subsidy offsets forgone labour earnings. Subsequently it is reported that **four years after the start of the experiment, earnings of youth in the intervention group were higher by 15% than in the control group**. Hence the study concluded that subsidized dual apprenticeships had the potential to expand access to training, upgrade skills and improve earnings for youths without crowding out traditional apprentices (Crépon and Premand 2019, rated medium confidence).

- The ***Ninaweza*** **programme in Kenya** was a 24-months intervention that provided young people with advanced training in information and communication technology (ICT), life skills training, work experience through internships, and job placement assistance. It was an eight-week ICT and life skills training programme followed by an eight-week internship and six months of job placement support. Findings from an RCT show that the training effectively equipped participants with IT skills and life skills, boosting their confidence and job prospects. **Participants in the programme experienced 14% higher employment rates than the control and an increase in weekly income compared to the control group of around Ksh 500, equal to about US$5** (De Azevedo et al. 2013, rated high confidence).

- The ***National Apprenticeship Program*** **(NAP) in Ghana** placed youth applicants into apprenticeships with micro-enterprises. The programme eliminated the apprenticeship fee, offering youth the opportunity to train in one of five trades: garment making, cosmetology, carpentry, welding, and masonry. The programme targeted youth between the ages of 15 and 30. **Programme participants were 13% more likely to start an apprenticeship, 10% more likely to complete training, and had longer training periods compared to those in the control group. While the programme successfully transitioned participants from wage labour to self-employment, it led to a 13% decrease in average monthly earnings (approximately ¢12, where ¢ stands for Ghanaian cedis)**. This decline was strongest among male participants in the construction sector, where apprenticeships were most common. However, apprentices training under highly profitable trainers earned more than those with less successful mentors (Hardy et al., 2019, rated low confidence).

- The ***Kenya Youth Empowerment Project*** **(KYEP)** consisted of a three-month training period followed by a three-month practical placement in apprenticeships or internships, i.e., work experience. The RCT conducted found that **the programme significantly increased the likelihood of paid wage employment with a formal contract for male participants, leading to a substantial increase in their weekly working hours. Female participants in the RCT saw a significant increase in their wages, with an average growth of KhS 7,500. This was higher compared to male participants whose wages grew by approximately KhS 5,000**. While the programme did not influence the likelihood of starting a business, becoming self-employed, or working for a family business, it encouraged participants to open bank accounts, with women showing a higher propensity for saving (Honorati, 2015, rated low confidence).

Cost analysis

Few evaluations conduct an economic analysis. The findings of such analysis are generally not promising. Cheaper implementation is needed to make the programmes economically viable. For example, the evaluation of *Youth Map Uganda* concludes that "the rates of return are too low to justify the programme as it was implemented on cost-benefit criteria" (Duggleby et al., 2015: p.30).

Whilst not conducting an economic analysis, the evaluation of the successful internship programme in Zimbabwe concludes that "expenditures on administrative level and transaction costs of the project vis-à-vis project implementation costs appear to be high" (Zulu, 2015: vi).

Costs clearly vary depending on the intervention and its design. Costs per participant for similar programs can range from US$1,000 to US$10,000. However, the USAID-supported Youth Map Uganda internship programme had a higher cost per participant at US$25,000 (Duggleby, 2015: p.39).The programme in Côte d'Ivoire was toward the bottom end of this range at US$2,045 per participant for a 24-month apprenticeship, of which over 60% was for stipends (Crépon and Premand, 2018: p.9).

Typical costs incurred are:

- Programme management for recruitment of young people, firms to host them and matching and monitoring or supervision.
- Pre-placement orientation and training.
- Development of common training standards, and provision of off-the-job training if included.
- Stipends for apprentices or interns and fees paid to master craftspeople. These costs depend also on programme duration.
- Cost of any equipment and training provided to master craftspeople.
- Costs of certification scheme.

Implications of study findings

The overall findings from the summary of the studies of the effectiveness of apprenticeships and internships in sub-Saharan Africa are that there are positive effects of apprenticeship and internship programmes on skills and employment and smaller effects on earnings. With respect to income, income may fall during the apprenticeship period, partly accounting for this smaller reported effect on earnings.

Implications for policy and practice

Based on this evidence, funders should support further high-quality studies of the effectiveness of intervention programmes on apprenticeships and internships in sub-Saharan Africa. The evaluations provide some insights for design and implementation of such programmes:

- Interns and apprentices can be placed in both the private and public sector. Engagement with the private sector is necessary for apprenticeships and internships to find appropriate placements and can to ensure the relevance of any pre-placement training, as well as the skills development requirements for accreditation.
- Informal apprenticeships are very well established in sub-Saharan Africa. It is more cost-effective to work with this system rather than create a parallel system. Partnerships with private firms, government departments and local organisations were reported as being amongst the success factors in strengthening the ability of Somali youth to engage in the economy as entrepreneurs, employers, and employees (Lyby and Sy, 2010; Cook and Younis, 2012; Honorati, 2015).
- Pre-placement training or orientation appears useful, though the extent and nature of such training requires further study.
- The duration of interventions is an important feature of youth employment interventions which may affect effectiveness. Programmes of too short duration have limited effects. In Ghana, employers ignored the recommended apprenticeship of one year thinking it too short, retaining apprentices for 18 months to four years. Longer durations will better develop the skills demanded in the job market (Lyby and Sy, 2010).

- Training curricula can ensure consistency and raise the quality of training in apprenticeship and support a move to certification.
- Where dropout is a problem, studies place a significance on the absence of travel and subsistence support that affects the decision of many interns and apprentices to continue with a programme. However, in the traditional apprenticeship system, apprentices do pay a fee to their master in the early stages of the apprenticeship.

Implications for research

The effectiveness studies mostly assess internships and apprenticeships as part of a larger package. It would be useful to have a set of studies focused solely on apprenticeships which address design questions, such as the need for and nature of pre-apprenticeship training, the type of support which is helpful to master craftspeople and the benefits of certification.

Many of the included studies are rated as low confidence in study findings because of shortcomings in the design, implementation or reporting of these studies. For experimental studies common issues are the absence of power calculations to determine required sample size and the failure to report attrition rates separately for treatment and control groups. For process evaluations the most common issue is the lack of an explicit methodology for the analysis. Future evaluations should address these shortcomings.

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Annex 1: Results of meta-analysis

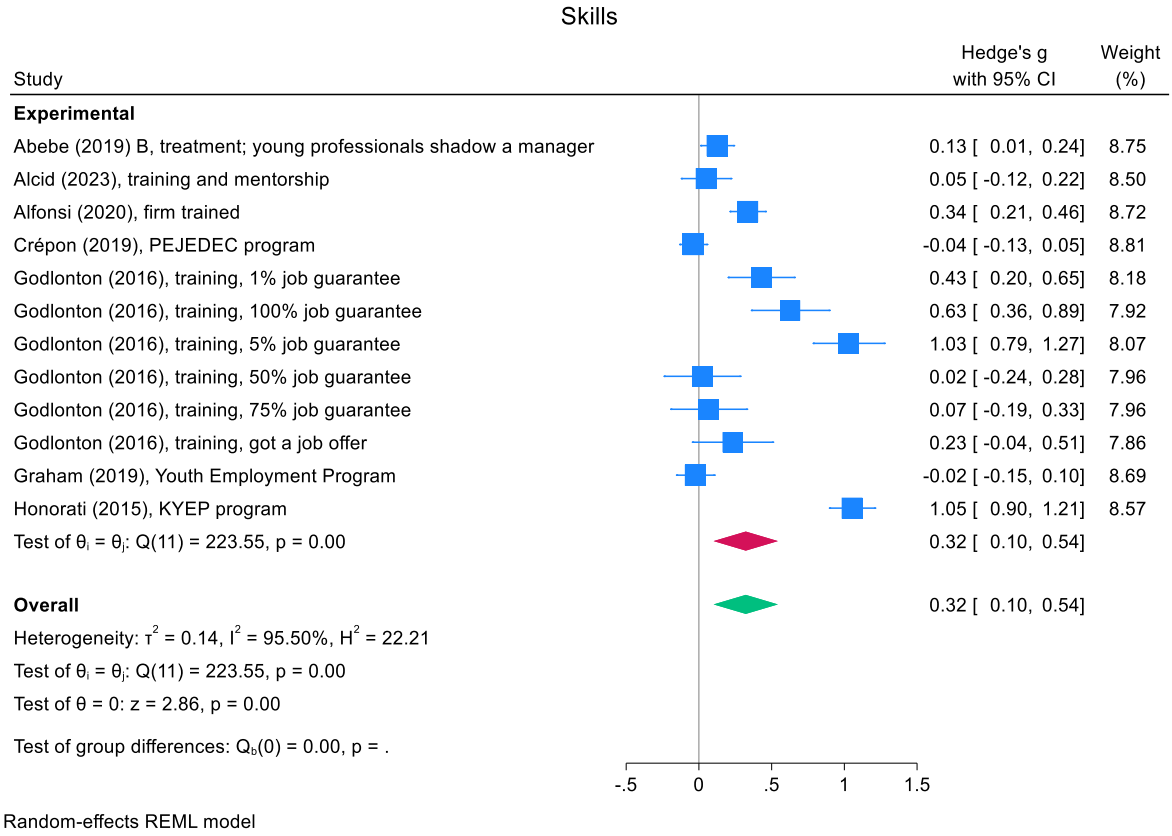
Figures A1.1 to A1.3 show the forest plots for the effects of the interventions on skills, employment and earnings.

Each horizontal line in a forest plot shows the 95% confidence interval for Hedges' g for a specific study, with the meta-analysed effect size represented by the diamond at the bottom of the figure. If the horizontal line crosses the vertical line then that study finds no significant effect. By pooling the samples across studies, meta-analysis increases statistical power, and so may detect a significant effect when the individual studies do not do so.

The I^2 and Q statistic are measures of heterogeneity, that is the extent of variation in effect sizes between studies. Where there is substantial variation (as in Figure A.1), then it is useful to conduct further analysis to understand the sources in that variation, which is presented in the sub group analysis.

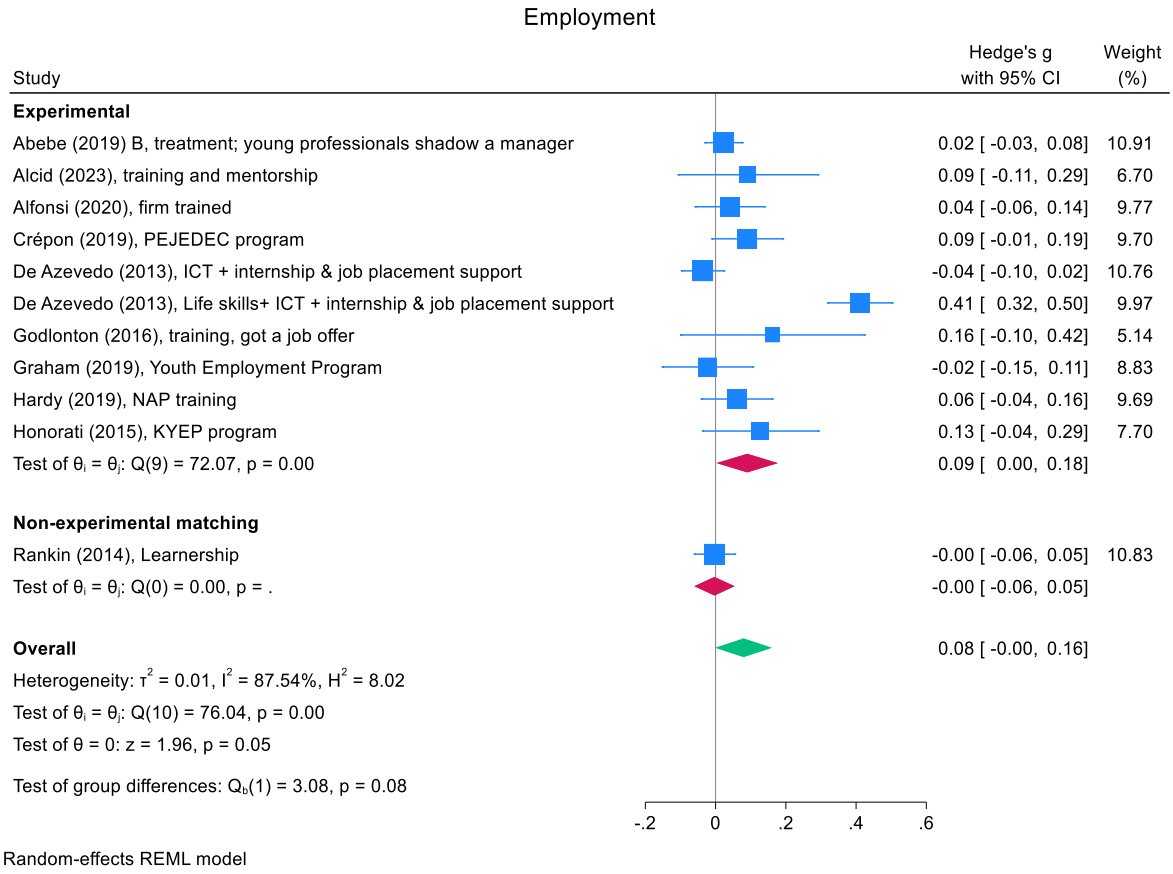
The results show the common pattern of effects becoming smaller along the causal chain: g=0.32 for skills development, g=0.08 for employment, and g=0.01 for earnings.

Figure A1.1: Effect of apprenticeship and internships on skills



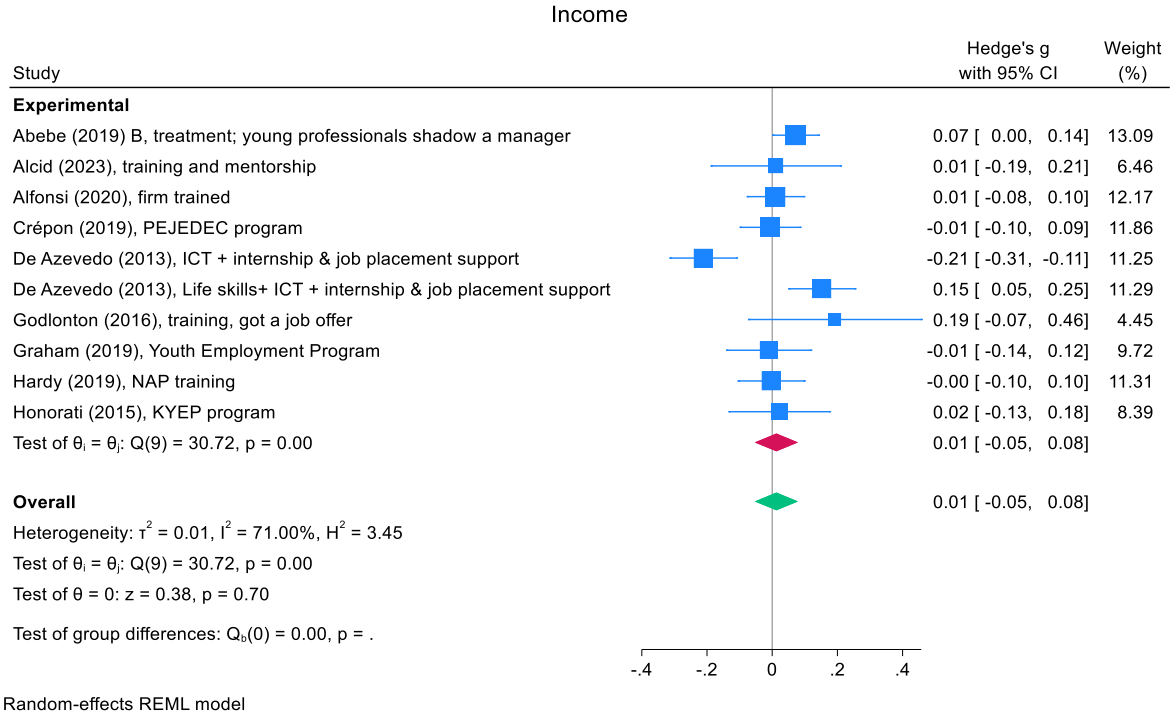
Notes: CI = confidence interval; p = prob value. I^2, H^2, τ^2, and Q are all measures of heterogeneity. Test of Θ=0 is a test that none of the effect sizes are significantly different from 0, and z the significance test for that statistic. See explanation of figure in the text.

Figure A1.2: Effect of apprenticeship and internships on employment



Notes: CI = confidence interval; p = prob value. I^2, H^2, τ^2, and Q are all measures of heterogeneity. Test of Θ=0 is a test that none of the effect sizes are significantly different from 0, and z the significance test for that statistic. See explanation of figure in the text.

Figure A1.3: Effect of apprenticeship and internships on earnings



Notes: CI = confidence interval; p = prob value. I^2, H^2, τ^2, and Q are all measures of heterogeneity. Test of Θ=0 is a test that none of the effect sizes are significantly different from 0, and z the significance test for that statistic. See explanation of figure in the text.

Annex 2: Calculation of meaningful effect sizes

The standardised mean difference (SMD) can be converted to an odds ratio (OR) using the formula $lnOR = \frac{g\pi}{\sqrt{3}}$ (Borenstein et al., 2009). Using the odds ratio, a 2x2 table can be created, for which we need an assumption of the share of the control group gaining employment. We assume 50%. We also need to assume the sample size for treatment and control, though the result is not sensitive to that assumption. We assume 100 in each group. With Hedge's g=0.0.8, OR=1.16. This gives the 2x2 table:

Table A2.1: 2x2 Table to calculate percentage change in employment

	Employed	Unemployed	Total
Treatment	53.6	46.4	100
Control	50	50	100
Absolute % change		3.6	
% change (cf comparison rate)		7.2%	
Number need to treat		28	

The number needed to treat is calculated as the number treated divided by the absolute difference in employment between treatment and control groups.

Annex 3: Critical appraisal

Critical appraisal assesses the confidence we can have in study findings, being classified as high, medium or low. The results of the critical appraisal inform the overall confidence we have in the findings reported in the technical report.

Table A3.1: Critical appraisal of included studies

Studies	Confidence	Study Design
Adablah (2018)	Medium	Process
Alcid (2014)	Low	Impact
Alfonsi (2020)	Low	Impact
Burke (2016)	Low	Process
Cherukupalli (2019)	Medium	Process
Crépon (2018)	Medium	Impact
Crépon (2019)	Medium	Impact
Cook (2012)	High	Process
Duggleby (2015)	Low	Process
De Azevedo (2013)	High	Impact
Godlonton (2020)	High	Impact
Hardy (2019)	Low	Impact
Honorati (2015)	Low	Impact
Lyby (2010)	Medium	Process
Zulu (2015)	Medium	Process

Table A3.2: Threshold values for critical appraisal

		No. of included studies for the effect estimate		
		5 or less	6-9	10 or more
Study CA assessment	Mainly Low	Low	Low	Low
	Medium	Low	Medium	Medium
	Mainly High	Low	Medium	High

Mainly low = At least 60% of studies are rated low

Mainly high = At least 60% of studies are rated high

Medium = any estimate not covered by the above two categories

Adjustment for heterogeneity: reduce by one level if $I^2 > 80\%$

Application to this report

Reported effect sizes are from eight studies (impact evaluations). While four studies are rated as “low”, two are rated as “high”, and two as “medium”, so overall confidence is “medium”.

Confidence in qualitative findings is from seven studies (process evaluations). Most of the studies rate as “medium” followed by “low”, so overall confidence is “medium”.