Vocational Education and Training

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 is prepared by Swati Mantri, Campbell South Asia, and Howard White. The Research and Evaluation Centre. 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 Toolkit. This report provides results from both the quantitative evidence from effect studies and the qualitative evidence from process evaluations. The former is the basis for the analysing the effect and the latter 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
CPC	Community Production Centres
EDC	Education Development Center
EGM	Evidence and Gap Map
ELA	Empowerment and Livelihood for Adolescent
EPAG	Economic Empowerment of Adolescent Girls and Young Women
GEEL	Growth, Enterprise, Employment, and Livelihoods
ICT	Information and Communication Technology
IT	Information Technology
JP	Joint Programme
KNYD	Kenya National Youth Development and Training
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organisation
PP	Percentage points
RCT	Randomised Controlled Trial
SSA	Sub-Saharan Africa

SYLP	Somalia Youth Livelihoods Program
TVET	Technical and Vocational Education and Training
UN	United Nations
UNESCO	United Nations Education, Science and Culture Organization
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
YES-JUMP	Youth Employment Support-Jobs for the Unemployed and Marginalised Young People

Plain language summary

What is this report about?	This technical report summarises the evidence from evaluations of interventions related to technical and vocational education and training (TVET).
What is TVET?	Technical and vocational education and training focuses on providing individuals with practical skills and knowledge for specific occupations or trades. In addition to technical skills, TVET includes personal skills needed for the workplace.
In what context is TVET implemented?	TVET may be part of a system of tertiary education or provided in a more *ad hoc* manner. There are some studies of TVET in post-conflict situations, but mostly it takes place in stable political settings. TVET may be provided by employers in the private sector, by government or NGOs.
What are the main design choices?	Support to TVET may be either systems development (e.g. curricula development and accreditation, building or upgrading facilities and training of trainers), or direct support to the provision of training through stipends, and payment to trainers.
	TVET allows young people to acquire task-specific and personal skills which increase their employability, make connections with employers, and receive certificates of completed training. Other design choices include the duration and intensity of the programme, and what other activities to combine with technical training.
How is TVET expected to work?	Engagement with the private sector to ensure relevance is seen as important.

What sort of activities do TVET programmes support?	TVET programmes may support building and rehabilitation, equipment supply, curriculum

	development, training of trainers and direct support to TVET for young people
Implementation issues	Implementation issues include: (i) beneficiaries 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 skills or equipment for the task; (iv) budget constraints in the implementation process influencing the duration of the program; and (v) failure to engage the private sector risks making the programme ineffective.
The effects of TVET	There is a moderate positive effect on skills, as well a smaller effect on employment and both income and material wellbeing. There are effects on business outcomes and psychosocial outcomes, but these are not significant.
Cost analysis	TVET interventions are generally high cost. Since the effects are limited they are likely not cost effective when offered alone.
How strong is the evidence base?	The evidence of effect in this technical report is based on 21 impact evaluations. Overall confidence is low. Evidence on implementation is supplemented with evidence from eight process evaluations. There is medium confidence in findings from process evaluations.
Implications for research	There is a need for additional rigorous evaluations to assess the effectiveness of the programmes and testing different design choices for interventions supporting TVET.
Implications for policy and practice	Strengthening systems will have to address design challenges such as instructor qualifications, curriculum relevance, and facility adequacy.

What is technical and vocational education and training?

Technical and vocational education and training (TVET) is a form of learning that prepares individuals for specific occupations or trades. It can go beyond strictly technical skills, as shown by the UNESCO-ILO definition of TVET as "a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life" (UNESCO and ILO 2003: p.7).

Interventions to support TVET often support systems development. This includes: (i) the **establishment, upgrading and maintenance of training centres; (ii) curriculum development and accreditation; (iii) the training of trainers; and (iv) the production and use of labour market information to inform course selection and content**. Interventions to directly support TVET include both identification of and agreements with both government and private sector providers and supporting the training of young people.

A recent joint report of ILO, UNESCO, and the World Bank points out that **TVET is under-developed in sub-Saharan Africa, with a smaller proportion of young people in TVET than in other regions** (World Bank, UNESCO and ILO, 2023). The report argues there is a need to transform TVET. This transformation includes: (i) ensuring the delivery of skills needed by enterprises and foundational skills; (ii) improving financing with a focus on outcomes not just outputs; and (iii) making better use of data to make TVET relevant.

How are TVET interventions expected to work?

- **Acquiring task-specific skills** which increase their employability;

Systems development interventions work by increasing the availability, and quality, of TVET, and so should strengthen the benefits to trainees. Liaison between TVET providers and employers helps ensure that the trainees develop the skills valued by employers.

- **Building of personal skills** needed in the workplace;
- Training centres may have **connections to employers**, creating a possible pathway into employment;

Trainees are expected to benefit through:

- **Certification for training received increases the value of the training.**

What are examples of TVET interventions in sub-Saharan Africa?

The list of a selection of different interventions supporting vocational education and training in the studies included in this technical report (see Table 1) illustrates the range of projects and the design choices for TVET programmes.

Design choices

Firstly, for many programmes, the design aligns with the national poverty reduction strategy and employment promotion policy, i.e., to contribute to poverty reduction by enhancing youth employability through either wage employment and self-employment opportunities. Many projects do both. For instance, recognising the need for youth training, the Guinean government prioritised this initiative in its development agenda (Diouf et al., 2017).

A second design choice is to increase stakeholder engagement in programme development, i.e., involving employers in curriculum development, and training of trainers.

A third design element is the collaboration and partnership of implementing organisations with local bodies. To leverage existing partnerships with local organisations in understanding local dynamics and the political economy can shape the outcome of any programme, affecting the sustainability of the programme.

Fourth, increased use of digital platforms and social media to engage youth to disseminate job information through targeted digital campaigns. For example, *Somalia Youth Livelihoods Program (SYLP)* demonstrated how low-cost, modern technology could be very effectively utilised to connect youth and transmit a variety of information related to training and employment opportunities (Cook and Younis, 2012).

Fifth, the design of programme to include work-placements post-training can boost programme uptake and make the programme more sustainable. Trainees value the opportunity to undergo an internship and find paid positions with private and public employers.

Sixth, design elements which may increase female participation through income-generating activities in a wider range of training programs, literacy training targeted at females, childcare support, and sensitisation of trainers.

Finally, vocational training is provided alongside other activities, which may be training or something else. The

Economic Empowerment of Adolescent Girls and Young Women (EPAG) in Liberia covered both technical skills and life skills, and the six-month phase of classroom-based training, followed by a six-month placement and support period (Adoho et al., 2014).

Table 1: Examples of TVET interventions

The *Economic Empowerment of Adolescent Girls and Young Women (EPAG)* intervention aimed to increase employment and income of young Liberian women. EPAG consisted of a six-month phase of classroom-based training, followed by a six-month placement and support period to help participants start their own business or find jobs. The training covered both livelihood skills and life skills (Adoho et al., 2014).
The *Empowerment and Livelihood for Adolescent (ELA)* programme in Uganda aimed to empower vulnerable girls by equipping them with life skills, vocational training, and encourage economic independence through small-scale businesses. ELA operated through voluntary adolescent development clubs, led by female mentors, offering a safe space for learning, socialising, and skill development (Bandiera et al., 2012).
The *Joint Programme (JP) Creating Opportunities for Youth Employment in South Sudan* aimed to enhance youth employment in the region by rehabilitating vocational training centres and providing vocational and life skills training. A key strategy was to align training with actual job market demands through skills assessments. Innovative approaches included peer-to-peer learning, mobile training, agricultural training, farmer field schools, and basic literacy programs. To create more sustainable impact, the JP launched two initiatives: the *Payam Youth Service* to integrate young people into national development and the *Cattle Camp Initiative* to reach pastoralist youth in remote areas (Chiwara, 2012).
The *Somalia Youth Livelihoods Program (SYLP)* aimed to boost youth employment by providing skills training, internships, and job placements. Partnering with approximately 60 local and a few international NGOs, the programme leveraged technology to connect trainees with employers via mobile apps to deliver educational content. Education development centres (EDC) provided overall programme management and support. 87% of the 9,280 programme graduates secured internships or jobs in both private and public sectors (Cook and Younis, 2012).

The UNIDO-implemented project *Support Job Training for Youth in Guinea* aimed to bolster community resilience in Guinea by providing diverse training and income-generating opportunities for youth. To accomplish this, it strengthened existing community production centres (CPCs), identified promising employment sectors, and developed tailored training curricula. The goal was to equip young people with skills to secure jobs or start their own businesses. Over four years, the project trained 3,402 youth in entrepreneurial and technical skills, empowered CPCs, and facilitated training in selected value chains for both youth and women (Diouf et al., 2017).

The *Growth, Enterprise, Employment, and Livelihoods (GEEL)* programme in Somalia focused on empowering smallholder farmers in sectors like dairy, cattle, sesame, fruits, vegetables, and fisheries. The programme also aimed to equip Somali youth to become entrepreneurs and employees within these value chains. To achieve this, it strengthened public-private partnerships in youth workforce development and workforce readiness activities. A key component was training local trainers to teach youth soft skills. Provision of targeted technical assistance (vocational training, capacity building, advisory services), in addition to capital yielded positive results (USAID, 2022).

The *Youth Employment Support-Jobs for the Unemployed and Marginalised Young People (YES-JUMP)* programme aimed to create job opportunities in selected districts of Kenya and Zimbabwe. The programme focused on two key areas of skill development, i.e., providing young people with entrepreneurship, vocational, and life skills training; and financial support by enhancing access to finance through savings and credit cooperatives, and supporting small businesses and community organisations. The programme also emphasised modernising apprenticeship programmes, aiding local job creation and sustainable livelihoods, and strengthening small enterprises and cooperatives (Karuga, 2012).

The *Kenya National Youth Development and Training (KNYD)* programme focused on improving the skills of young people by supporting youth polytechnics. The programme initially targeted university graduates but was later expanded to include regions affected by post-election violence (Mburugu, 2011).

What has been the implementation experience of TVET interventions?

Benefits and challenges of collaboration and partnerships

Inter-sectoral and stronger collaborations between government agencies and the private sector were fostered in different interventions through partnerships. This resulted in an institutional strengthening that facilitated connections between training, internships, and employment opportunities via services for job placement (Chiwara, 2012; USAID, 2022). Although this was important for mainstreaming youth issues such as unemployment, the TVET programmes selected in this report state that youth who received skills training were not always connected to employment opportunities.

Reliance on direct implementation by external agencies hindered the development of local capacity and thus long-term sustainability. An example is the implementation of JP in South Sudan which was reported to be overburdened by excessive UN agency involvement (Chiwara, 2012). Many agencies lacked the requisite skills to effectively implement key programme activities, which compromised the core objective of empowering youth economically through skills training and income generation. Hence while initial capacity limitations justified using external agencies, it ultimately proved counterproductive and made a national implementation approach impractical.

Using digital solutions to meet the challenge of low foundational skills

High illiteracy rates among the trainees in some areas of the country was a reality that SYLP addressed. **The SYLP programme effectively leveraged information and communication technologies (ICTs), especially mobile phones, for efficient and cost-effective financial reporting and monitoring** (Cook and Younis, 2012). While the technology required significant initial training and support, it ultimately proved valuable. Mobile phones and equipment companies benefited from the programme's focus on ICTs.

Provision of rudimentary reading, writing, and arithmetic skills was needed for the effective delivery of some of the training activities within SYLP. The EDC provided for this by setting a higher training fee for less-literate trainees. In limited cases, the implementing

partners had to meet the costs of providing literacy instruction. SYLP also intended that innovative ICT would counter lower literacy levels by providing audio programmes on entrepreneurship and financial literacy; feedback from students exposed to the programmes was positive (Cook and Younis 2012).

Implementation challenges

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 did not suit the beneficiaries. The common problems of funding and staff may also affect the programmes.

- **Funding shortages and delays**: Budgetary limitations pertaining to poor allocation of project funds, unequal allocation of allowances, low incentives and allowances were also noted (Karuga, 2012). Similarly, vocational training in Guinea could not rehabilitate a training centre as originally planned as the funds were insufficient. This meant that the community infrastructure to be rehabilitated by youth trained at that centre was also not rehabilitated. Also, there was no provision for finance, which was noted by the evaluation as a constraint on business activities (Diouf et al., 2017:24-25).

- **Lack of financial stability**: Lack of stability put a considerable strain on trainers and resources for the programmes. Late and unpredictable payments cause programme delays, so components may get cancelled (Cook and Younis, 2012). The evaluation of SYLP reported difficulties in finding qualified trainers and a high turnover rate (Cook and Younis, 2012). Guinea's CPCs within the vocational training project faced significant financial challenges. These centres were unable to generate enough revenue to cover operational costs, and trainers were discouraged by the mandated 40% profit share, often opting to work independently. Additionally, high operating expenses, such as generator-powered electricity, coupled with prohibitive tuition fees compared to local incomes, resulted in low attendance rates (Diouf et al., 2017).

- **Limited duration**: An inadequate project implementation timeline (Karuga, 2012; USAID, 2022), along with insufficient training time, limited skill development and reduced graduate employability. For example, the JP in South Sudan allocated inadequate time for skills training, despite providing starter kits for entrepreneurship. Trainees in Wau and Kuajok demanded longer training durations—four months instead of two weeks—to acquire necessary skills in welding, masonry, carpentry, painting, and electricity (Chiwara, 2012). Further, the stakeholders opined the duration of training to be of "limited market value and not sufficient to transfer skills, given the low literacy levels of some of the participants" (Chiwara, 2012: p.35). Functional literacy and entrepreneurship training proved particularly problematic due to their short duration and inadequate content (Diouf et al., 2017). Insufficient time hindered the development of financial linkages post-training. For instance, the YES-JUMP programme, initially planned for a year, faced delays in agreement signing and fund release, reducing its effective implementation period to six months. The time constraints also impacted the mentoring aspect of the programme (Karuga, 2012).

- **Project delays:** Project delays further compounded these challenges. The implementation of the Kenya National Youth Development and Training Programme was hindered by bureaucratic delays in certificate issuance, fund disbursement, and unclear procedures, affecting beneficiary engagement and project progress (Mburugu, 2011). These delayed disbursement of funds for project activities recorded in the quarterly progress reports. It is reported that in some cases it took a total of two months for the project funds to be made accessible. The evaluation of a youth training project in Guinea notes that "the management and procurement procedures implemented by UNIDO were overly complicated. Procurement was largely carried out from Vienna with very little responsibility ceded to the field offices. This greatly affected the capacity of the project to carry out its activities in a timely manner" (Diouf et al., 2017: p.14).

Gender issues

With respect to gender parity and participation we find the programmes addressing a balanced gender participation, for example, in the GEEL programme *Somalia Agricultural Girls Association* was instrumental in awareness of the programme and boosting participation among young women (USAID, 2022: 3), however in case of SYLP just 40% of enrolees were female compared to the target of 50%. This was explained by the larger number of male-oriented training skills offered. 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).

Additional challenges: conflict and COVID

Free skills training with transportation support can boost youth employment, but widespread lack of affordable education, exacerbated by conflict, remains a major barrier in uptake as well as trainees completing the programme (Cook and Younis, 2012). The complex operating environments in Somalia, Sudan, and South Sudan presented significant challenges to project implementation. These countries faced a complex interplay of factors including violent conflict, economic instability, weak governance, natural disasters, and pandemics like Ebola and COVID-19 (USAID, 2022). For instance, the Ebola outbreak in 2014-2015 halted project activities in Somalia (Diouf et al., 2017). In South Sudan, infrastructure deficits, poverty, and government capacity constraints hindered progress (Chiwara, 2012). These volatile contexts underscored the difficulties of project implementation in these regions, demanding very effective communication between the donors and the implementing agencies (Cook and Younis, 2012).

Trainer capacity

The YES-JUMP evaluation reported that **capacity building for potential young entrepreneurs worked best when working with trainers who had prior experience of the curriculum from another project** (Karuga, 2012: 30). The trainers, too, in some cases faced significant financial burdens due to transportation and living expenses, leading to decreased income (Diouf et al., 2017). Somali authorities felt that EDC should have coordinated more with

them at the level of programme planning and implementation and so support government's own capacity to deliver education and youth services (Cook and Younis, 2012).

Location

Location of interventions can affect participation. **Vocational training centres located far from major population centres, tend to make them inaccessible due to time and cost constraints**. The presence of existing workshops offering similar services in these areas further deterred potential participants, as noted in the case of job training for youth in Guinea (Diouf et al., 2017). Consequently, enrolment rates were low as many trainees dropped out.

Monitoring

With regard to monitoring and evaluation (M&E), mobile surveys offered cost-effective, direct access to beneficiaries, reducing bias and enabling data collection from remote areas. Cell phone records provided valuable data for verification and longitudinal studies (Cook and Younis, 2012). However, a weak M&E system in Guinea with ambiguously defined indicators and double counting of outputs - as reported by Diouf et al. (2017) - weakened the implementation process. The evaluation team was unable to find any database to verify the 3,200 people claimed to have been trained (Diouf et al., 2017:12-13). Chiwara (2012) reporting on the JP states that the training centres were meant to use standardised modules developed through community input. While the evaluation team could access summaries of these modules, the complete versions were unavailable. Training durations varied widely between centres, ranging from one to three years according to centre managers. Stakeholders were reported to question the market value of the training. The trainees in some cases were given starter kits but there was no follow up to monitor usage. Similarly, the planned monitoring activities for a vocational training project in Guinea were weakened by lack of funding for local participation, though it had been promised, and that the project in each region was managed separately with few opportunities for the staff from different regions to meet each other (Diouf et al., 2017:20).

The effects of TVET interventions

The results of our meta-analysis show that **TVET has a moderate positive effect on skills, with smaller effects on employment and both earnings and material wellbeing.** All these effects are statistically significant. There is a small effect on business outcomes, though it is not statistically significant, and no effect on psycho-social outcomes, such as self-efficacy.

The average effect from meta-analysis is commonly reported as a standardised 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 vocational skills training has a positive statistically significant effect on skills (g=0.15), employment (g=0.08), income (g=0.15), and material wellbeing (g=0.06). There are effects on business (g=0.06) and psychosocial outcomes (g=0.02), but these are not statistically significant. There is high confidence in these findings (see Annex 3).

The effect size can be translated into an absolute and relative change in employment (see Annex 2 for details of the calculation). An effect size of g=0.07 equates to a 3.2 percentage point (pp) absolute difference in employment between treatment and control, which is equivalent to a 7.2% relative increase. This figure can also be presented as the number needed to treat, which is 28. That is, for every 28 young people receiving vocational training one gets a job who would not have done so in the absence of the training.

The following table (Table 2) illustrates the range of 'types of intervention' and 'types of findings' that are mapped in the EGM.

Table 2: Studies of TVET interventions in sub-Saharan Africa

Study	Intervention	Findings
Alcid (2014)	Provided training on life-skills including personal awareness, communication, professional conduct, financial literacy, personal health, and rights and responsibility, Rwanda	Employment: Participants: 62% Control: 48%
Brudevold-Newman (2017)	Provided business skills training, specialized training for the chosen franchise, financial assistance to start the business, and continuous guidance and mentoring, Kenya	Had a positive and significant effect on the likelihood of self-employment (by 10 percentage point) though they did not increase the likelihood of involvement in any income-generating activity.
Crépon et al. (2019)	Provided theoretical training, lasting either 12 or 24 months, tailored to specific occupations followed by apprenticeships, 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
De Azevedo et al. (2013)	Provided an 8-week course in skills training with advanced training in ICT. The training lasted for 8 weeks, leading to internship and a job placement support, Kenya	Employment: 39% Control group: 26%
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
Unnikrishnan et al. (2022)	Provided skills necessary for youth to start farming or become agri-preneurs in the cocoa farming, Ghana	Improved agricultural adoption practices (26%) and a greater likelihood of active farming engagement (22%) compared to the control group. Additionally, increases in income, hours worked, and utilization of banking services for savings were observed

Study level findings

There are 21 papers on the effectiveness of TVET programmes. This report provides an overview of six programmes from the effect studies, 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 that provided them with relevant education and workforce training. The project had three components: (i) training using a work readiness curriculum; (ii) technical training; and (iii) workforce linkages. The study reports the results of a randomised controlled trial (RCT) of the programme as a whole, i.e., the multi-components present in the programme. A total of 600 youths were selected to take part in the programme; 300 were selected for the treatment group and the remaining 300 were the control group. Those in the treatment group were formally enrolled in the programme and received the intervention and its benefits. Those assigned to the control group did not receive any intervention. The treatment group and control group were surveyed at the start of the AK training in September 2013. The treatment group received approximately five months of work readiness and technical training, with 135 hours of classroom modules. The majority of the treatment group then transitioned to a three-month internship that was finished by April 2014. The treatment group and control group were surveyed again approximately six months after the treatment group finished the training. AK training equipped youth with the skills to find new employment faster than the control group. The intervention took place at a time of falling employment levels, and participants were awarded a certificate upon programme completion. Youth were given the opportunity to improve their employability during the *Work Readiness Training* and to apply these skills on the job during internships after the training. Nonetheless, youth in the intervention group were more likely to be in employed (62%) compared to the control group (49%) (Alcid 2014, rated low confidence).

- A study of researcher-led intervention examined the effect of two standard labour market interventions in Uganda; vocational training, vocational training combined with matching youth to firms, and matching only. The first group was assigned to six months

of training, and then upon graduation, transitioned into the labour market to search for jobs unassisted (T1). The second group of trained workers were upon graduation from a vocational training institute, offered light touch and short term offers to match with firms (T2). At the same time as those assigned to vocational training were graduating, these unskilled workers were either: (i) offered the same kind of light touch match offer (T3); or (ii) held as a control (C). The RCT found that workers offered vocational training – with and without match offers – both found first jobs more quickly than controls, had significantly shorter unemployment spells and longer employment spells. Individuals who received vocational training alone progressed from temporary to permanent jobs, but those who also received job placement assistance advanced at a considerably slower pace. For both groups of workers, their long-run overall labour market index was significantly higher than for controls (Bandiera el al. 2022, rated high confidence).

- A micro-franchising programme, offered young women in Nairobi, Kenya, a combination of vocational and life skills training. The franchise programme helped young women launch branded franchise businesses, either salons or mobile food carts. The intervention combined a number of elements including business skills training, franchise-specific vocational training, start-up capital, and ongoing mentoring. Women assigned to the salon franchise received six weeks of classroom training and then a two-week internship with a local salon. After these trainings, participants stratified by their franchise organised themselves into small groups and received business start-up kits. For the grant's treatment group, applicants were offered an unrestricted transfer of 20,000 Kenyan Shillings (or 239 US$). A RCT of the two labour market interventions stratified by neighbourhood and application date and randomly assigned to one of three treatment arms: a franchise treatment, a cash grant treatment, and a control group. Both the franchise and grant interventions had a positive and significant effect on the likelihood of self-employment (by 10 PP) though they did not increase the likelihood of involvement in any income-generating activity. Point estimates suggest effects that are both economically and statistically significant. The grant treatment had a large positive effect on hours worked (6.8 more hours= 38%), but not the franchise treatment (p-value=0.607), though self-employment hours increased substantially with the franchise

treatment associated with 4.1 additional self-employment hours/week (87%), while the grant was associated with 7.6 additional hours of work in self-employment/week (162%). The franchise treatment increased weekly income by US$1.6 (30%) and the grant's treatment by 3.2 dollars/week (56%). There was no evidence that the treatments improved women's living conditions or food security or expenditures or self-esteem and empowerment. The study concludes that the two labour-market interventions directed at young women had a beneficial short-term effect, but that these effects diminished in the long-term (Brudevold-Newman 2017, rated high confidence).

- The *Côte d'Ivoire Formal Apprenticeship Program* offered a subsidised apprenticeship program with both on-the-job and theoretical training taking 12 or 24 months, tailored to specific occupations. The subsidised dual apprenticeships included youth access to training, delivered by local training institutions. Initially targeting 3,000 young people, the programme was expanded to accommodate approximately 10,000 participants. Low-skilled youth aged 18 to 24 were placed in businesses to receive hands-on training under the guidance of a skilled mentor. Formal apprenticeships concluded with an assessment of the skills of the youth, which led to certification. A RCT was conducted where participants were randomly assigned to either the control or intervention arms. 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 were less likely to be employed or self-employed whilst they were apprentices. The participation in vocational training in the control group is reported to be quite low (7.2%), but the programme had a relatively large effect in reducing this proportion by 5.7 percentage points. The study concluded that subsidised dual apprenticeships had the potential to expand access to training, upgrade skills and improve earnings for youths. The evaluation states that a subsidised programme increased participation in apprenticeship by reducing the cost of training and providing a commitment to a minimum level of training (Crépon et al. 2018, rated high confidence).

- The *Ninaweza* programme in Kenya was a 24-months youth employability initiative that provided young people with advanced training in 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. A RCT evaluated the programme's effectiveness. Results indicate that the training effectively equipped participants with ICT and life skills, boosting their confidence and job prospects. Participants in the programme experienced significantly higher employment rates and increased weekly income compared to those in the control group (De Azevedo et al. 2013, rated high confidence).

- The *Kenya Youth Empowerment Project* (KYEP) consisted of a three-month training period followed by a three-month work experience. The component on vocational education and training included life skills training that lasted two weeks, core business training that lasted five weeks and focused on communication, customer service, entrepreneurship, basic computer usage, and office practices, among other things, and sector specific training that lasted five weeks in each of the five formal sectors. By subsidising training and first-time work experience, the programme also proved successful in easing access to job relevant skills training. A RCT conducted found that the programme significantly increased the likelihood of paid wage employment, specifically an increase of 15% in the current employment rate, with a formal contract for male participants, leading to a substantial increase in their weekly working hours. Male participants' monthly wages grew by approximately KSh 5,000, while female participants saw an increase of KSh 7,500 (approximately US$50 and US$75 respectively). The highest employment rates were associated with those who had been interns in firms operating in the finance, ICT, and tourism sectors. Effect was higher for more educated and males toward the top end of the eligible age range of 15-29. 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).

Multicomponent interventions

Youth employment interventions are generally multicomponent. The rationale is that other interventions will enhance the effectiveness of the vocational training. This rationale is borne out by the meta-analysis in which the effect is larger for multicomponent

interventions, though the difference is not that great (g==0.09 versus g=0.07, which is a 8.1% relative increase in employment rather than 6.2%). However, for skills development the effect is notably larger for single component interventions (g=0.29 compared to g=0.12). **This finding supports the argument that the complementary components do matter, as the higher skills development alone does not convert to higher employment from single component approaches.**

The most rigorous approach to evaluating the effects of multicomponent interventions is what is called a factorial design. In a factorial design one group gets treatment A, a second group gets treatment B, a third group gets both A and B, and a fourth group is the control. This design allows a test of whether combining the two treatments has larger effects than either treatment alone.

There are two studies with factorial studies in our included studies of TVET. Bandiera at al. (2022) study an intervention in Uganda which offered vocational training and a matching intervention in which young people are given an interview at a firm. The combined effect of vocational training and matching on employment is not better than vocational training alone. Matching alone also has little effect on employment outcomes, though it does affect expectations as so few participants got a job offer.

Roass et al. (2022) examine the effect of vocational training, business skills training, and the two combined in Sierra Leone. There was an Ebola outbreak during the intervention so employment fell to very low levels, muting the effects of the intervention. However, the intervention group did enjoy higher employment than the control (15% compared to 12%), but with no significant difference between the treatment arms. In fact, the combined treatment arm did have a larger effect on employment, self-employment, wage work, and monthly earnings than the single treatment arms, but the differences were not statistically significant.

These two studies do not support the argument that multicomponent interventions are more effective. But one study combines matching, which is itself ineffective. All the effects are small, which could be due to the Ebola outbreak.

A common factor influencing the effectiveness of an outcome is intervention duration. **The longer the intervention the larger the effect on skills:** a negative effect is reported for very short interventions of less than one month (though based on only one study), but positive effects have been found for longer interventions, with g=0.16 for one to six months, g=0.19 for six to 12 months, and g=0.29 for interventions of more than a year. The pattern is less marked but still present for the effect on employment, with very short interventions having no effect (g=0.03, which is insignificant).

Cost analysis

Not all evaluations present cost data or, if they do, present an economic analysis. In such cases while immediate financial returns remained unclear, long-term economic benefits were anticipated "as it contributed to the income generation skills development within communities. The costs associated with its implementation also appear to be reasonable in relation to potential profits" (Diouf et al., 2017: p.20). A second example of economic benefits is Honorati's (2015) analysis of a skills development programme in Kenya which reports unit costs of KSh 97,000 per (approx. US$970) beneficiary, which was justified by the increase in income by beneficiaries.

Factors affecting costs include:

- **How much trainees and trainers are paid, if at all.** One implementing partner for SYLP in Mogadishu, which received funds from EDC for providing training to 560 trainees admitted into its upper-level training programme another 89 trainees who met the training cost from their own resources (Cook and Younis, 2012).
- **The scale of administrative costs.** The JP in South Sudan involved a large number of UN agencies, leading to significant coordination challenges. This resulted in overlapping responsibilities and duplicated efforts, reducing programme efficiency and increasing administrative costs.
- **The quality of infrastructure.** Poor infrastructure drives up prices. As a result, staff costs are disproportionately high compared to project outcomes, even when work is outsourced to local partners.
- **Security issues frequently halt project activities,** resulting in extended timelines and continued overhead expenses without corresponding progress (Chiwara, 2012).

Typical costs to be incurred are:

- Costs associated with operational costs of training centres (drinking water, sanitation, etc.) and construction of infrastructure in conflict-prone regions, particularly the ones experiencing scarcity of infrastructure.

- Costs for hiring adequate number of qualified trainers and equipment. These costs depend also on programme duration.
- Costs associated with training of trainers and modifying the training and material accordingly, for example, making training material available in local languages.
- Costs incurred due to transportation and subsistence for the craftspeople employed to teach.
- Costs of certification scheme.

Implications of study findings

The overall findings from the summary of the studies of the effectiveness of TVET in sub-Saharan Africa is that training boosts skills, with smaller effects on employment, earnings, and well-being. There are positive effects of TVET programmes on skills when accompanied with job-placement opportunities.

- **Multicomponent interventions have a larger effect on employment than vocational skills alone.** But more testing is needed to determine the best combination of interventions, which is likely to vary by setting and intended participants.

The evaluations provide some insights for successful design and implementation:

- **Collaboration and partnerships are useful for successful project implementation.** Partnerships with private firms, government departments and local organisations were reported as success factors in strengthening the ability of some programmes for the youth to engage in the economy as entrepreneurs, employers, and employees (Cook and Younis, 2012; Honorati, 2015); enhance rural livelihoods by partnering with local communities to expand income opportunities (Diouf et al., 2017). Engaging with local organisations such as colleges and NGOs can enhance project effect and sustainability. For instance, GEEL effectively collaborated with partners to adapt livestock and dairy activities in response to drought challenges (USAID, 2022: p.23).

- **Providing internships or paid job placements in the private and public sectors as part of or after training may provide a pathway into employment. Engagement with the private sector is necessary to ensure the relevance of training.** Learning from earlier and existing programmes can support cost effectiveness, building upon the present system rather than creating a new, parallel one (USAID, 2022).

- Continuous monitoring of market conditions and skill demands can be useful as skill requirements can fluctuate (Cook and Younis, 2012).

- Testing the need to teach functional literacy will help distinguish between different learner levels and provide the foundational skills to support technical learning outcomes.
- Bottlenecks in implementation hamper the uptake of any intervention, such as timely disbursement of project funds results.
- System building and streamlining mandates for vocational and technical education, including on regulation, inspection, accreditation and M&E frameworks, as well as introducing entrepreneurial education into the system will help implementation (Mburugu, 2011; Chiwara, 2012).
- **Duration of interventions is an important feature which may affect the effectiveness of a programme**. Too short durations have limited effects and longer durations will better develop the skills demanded in the job market. While a short project duration can be valuable for piloting, it limits the ability to comprehensively assess long-term impacts and gather robust data on outcomes. For instance, although many youth businesses were linked with financial institutions, the actual number of businesses receiving support and their subsequent performance remains unclear, there are limited insights into post-programme outcomes (USAID, 2022). In order to allow for more focused capacity building activities and to realise initial outcomes on enterprises and employment levels, duration should be lengthened (Karuga, 2012). As identified by Cook and Younis (2012) while short-term training programmes can address immediate livelihood needs, the persistent demand for longer training highlights a deficit in tertiary-level and formal vocational and education training programmes. This indicates a gap in the education system's ability to provide comprehensive livelihood-oriented training.
- **Training curricula can ensure consistency and raise quality of training and support a move to certification**. The quality of instructors and certification remains a challenge in many programmes (Cook and Younis, 2012). Delayed award of certificates discouraged beneficiaries from implementing ideas and applying skills acquired during the training (Mburugu, 2011).
- The absence of travel and subsistence support as well as post-training placement all lead to high attrition rates. To encourage participation, programmes often offer stipends

covering transportation and income loss. Multicomponent projects may link access to finance or other support with training completion, creating additional incentives.

Implications for Research

Despite the relatively large number of evaluations of TVET there are still considerable gaps in our knowledge. There is a need for more research reporting on design issues such as the need for qualified instructors, relevant curricula, adequate facilities, financing models, and in particular the best combination of activities with TVET.

Furthermore, the implementation studies mostly assess the uptake of training programmes and although they had gender targets, most of them did not monitor it, so it is not known if they were met or not (such as the YES-JUMP project in Kenya which had a target that 30% of beneficiaries should be female (Karuga, 2012)).

Finally, the studies primarily focuses on the difficulties of implementing and operationalising TVET interventions in conflict zones. These challenges stem from a lack of adequate support at both community and government levels. Thus, more research is needed that explore how to deliver TVET in these settings.

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Annex 1 Results of meta-analysis

Figures A.1-A.6 show the forest plots for the effects of the interventions on skills, employment and wages.

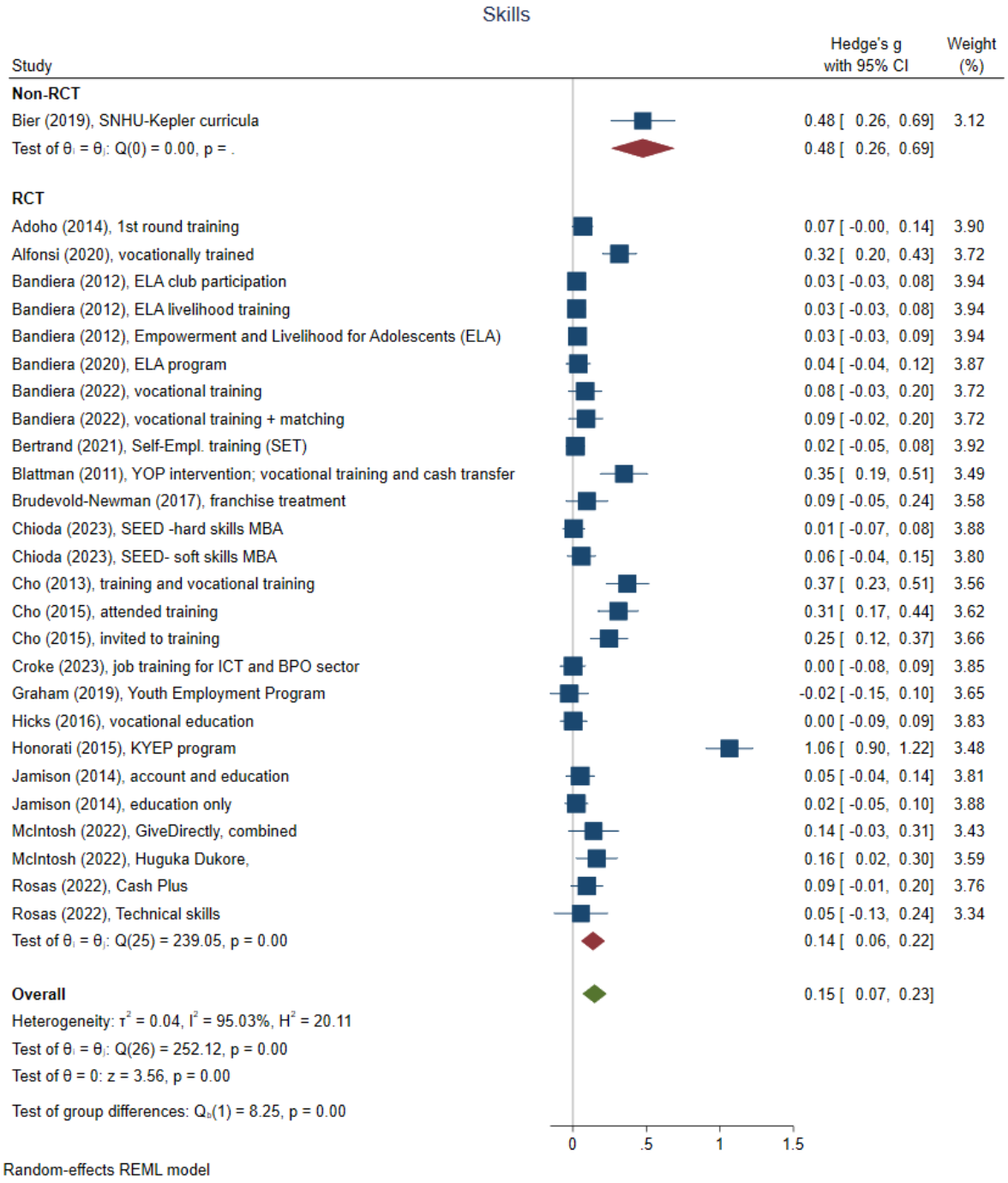
The average effect from meta-analysis is commonly reported as a standardised mean difference (d), which is the difference in the mean in outcomes between treatment and control, divided by the standard deviation of the outcome. Rather than d we report (Hedge's) g, which includes a small adjustment to 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.

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.

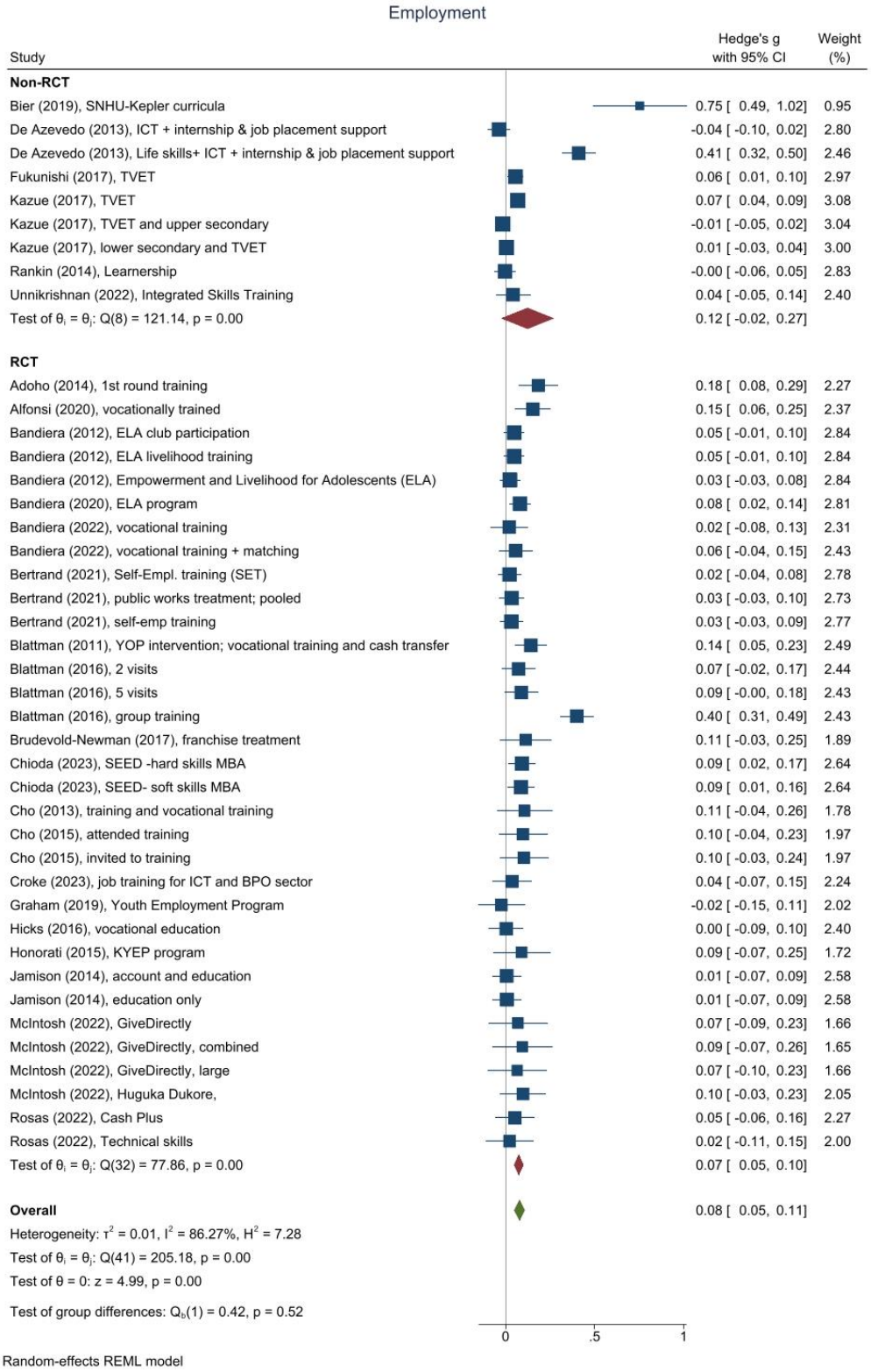
The results show the common pattern of effects becoming smaller along the causal chain for skills development and employment: g=0.15 for skills development, g=0.08 for employment, and **The meta-analysis (reported more fully in Annex 1) finds that vocational skills training has a positive statistically significant effect on skills (g=0.15), employment (g=0.08), income (g=0.15), and material wellbeing (g=0.06). There are effects on business (g=0.06) and psychosocial outcomes (g=0.02), but these are not statistically significant**. There is high confidence in these findings (see Annex 3).

Figure A1.1: Effect of TVET on skills



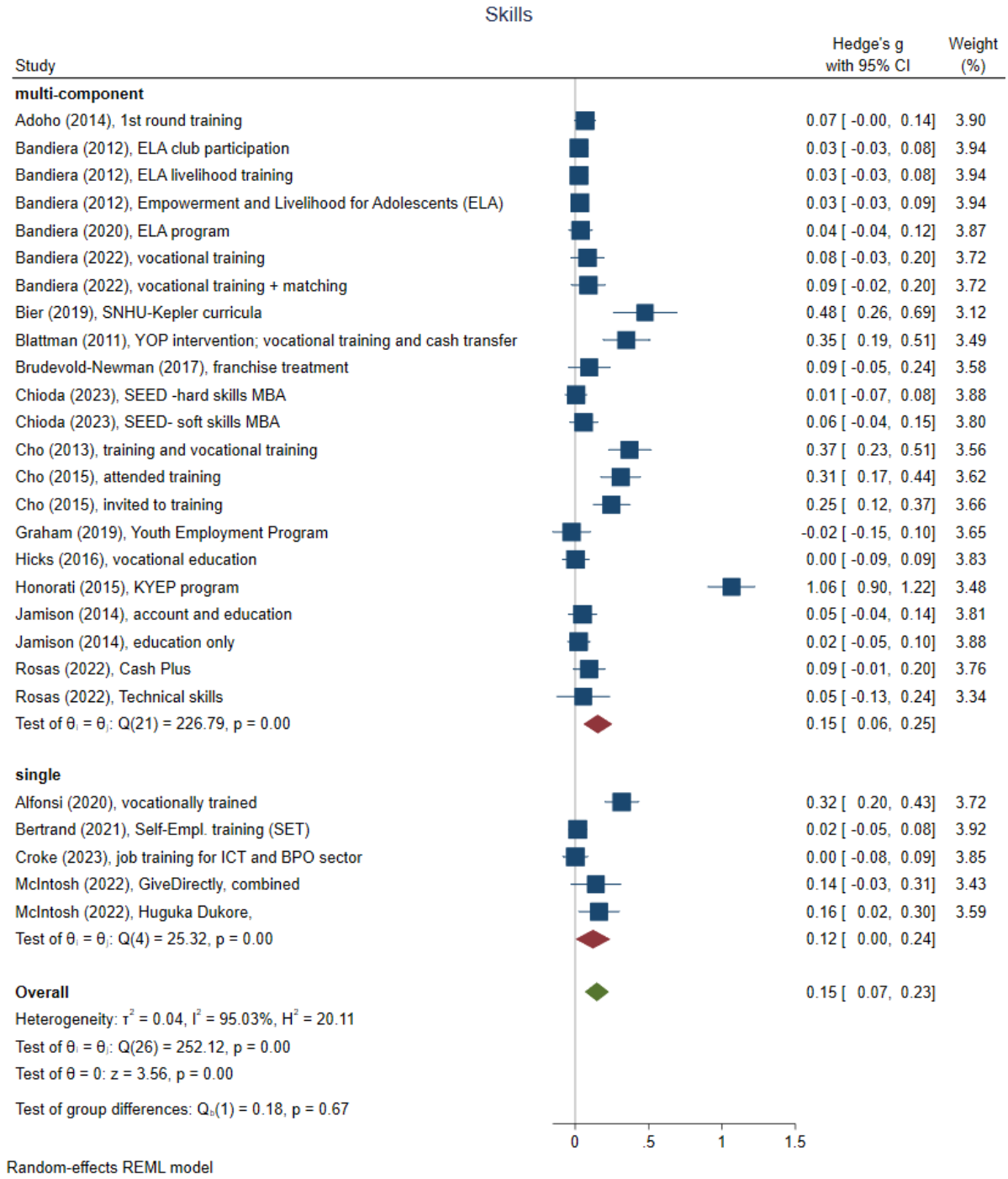
Notes: CI = confidence interval; RCT = randomised controlled trial; p = prob value. I^2, H^2, τ^2, and Q are all measures of heterogeneity. Test of Θ=0 is a test that none of the effect sizes are significantly different from 0, and z the significance test for that statistic. See explanation of figure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

Figure A1.2: Effect of TVET on employment



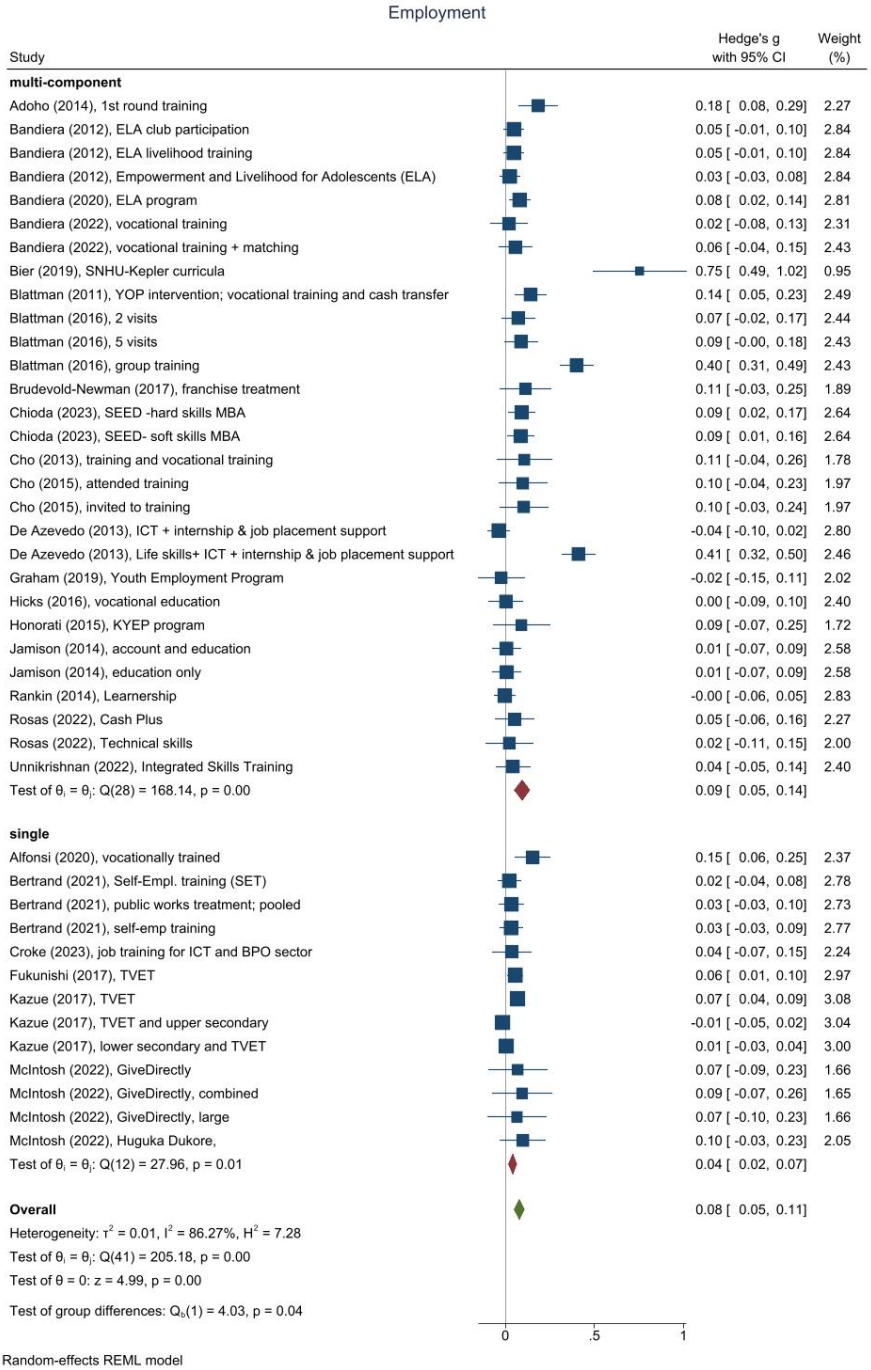
Notes: CI = confidence interval; RCT = randomised controlled trial; p = prob value. I^2, H^2, τ^2, and Q are all measures of heterogeneity. Test of Θ=0 is a test that none of the effect sizes are significantly different from 0, and z the significance test for that statistic. See explanation of figure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

Figure A1.3: Effect of TVET skills: single versus multicomponent



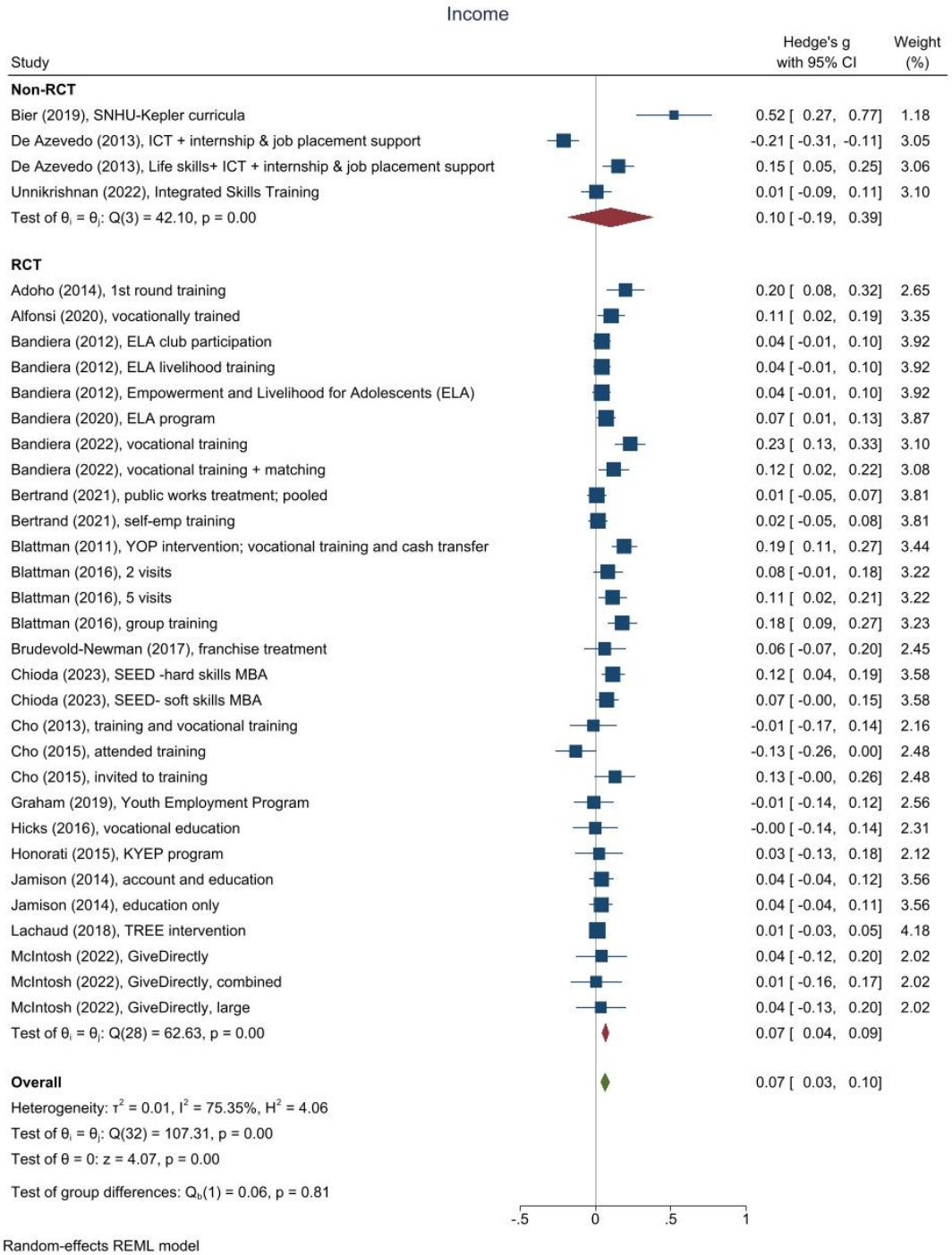
Notes: CI = confidence interval; RCT = randomised controlled trial; p = prob value. I^2, H^2, τ^2, and Q are all measures of heterogeneity. Test of Θ=0 is a test that none of the effect sizes are significantly different from 0, and z the significance test for that statistic. See explanation of figure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

Figure A1.4: Effect of TVET on employment: single versus multicomponent



Notes: CI = confidence interval; RCT = randomised controlled trial; 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 A1.5: Effect of TVET on earnings



Notes: CI = confidence interval; RCT = randomised controlled trial; 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.

The effect size can be translated into an absolute and relative change in employment (see Annex 2 for details of the calculation). An effect size of g=0.07 equates to a 3.2 percentage point (pp) absolute difference in employment between treatment and control, which is equivalent to a 7.2% relative increase. This figure can also be presented as the number needed to treat, which is 28. That is, for every 28 young people receiving vocational training one gets a job who would not have done so in the absence of the training.

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, though the result is not sensitive to that assumption. We assume 100 in each group. With Hedge's g=0.07, OR=1.14. This gives the 2x2 table:

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

	Employed	Unemployed	Total
Treatment	53.2	46.8	100
Control	50	50	100
Absolute % change		3.2	
% change (cf comparison rate)		6.3%	
Number need to treat		32	

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

Impact evaluations	Confidence	Process evaluations	Confidence
Adoho (2014)	Low	Chiwara (2012)	Medium
Alcid (2014)	Low	Cook (2012)	High
Alfonsi (2020)	Low	Diouf (2017)	Low
Bandiera (2012)	Low	Duggleby (2015)	Low
Bandiera (2022)	High	Karuga (2012)	Medium
Blattman (2011)	Medium	Mburugu (2011)	High
Brudevold-Newman (2017)	High	Ramirez (2020)	High
Cho (2015)	Low	USAID (2022)	High
Crépon (2018)	High		
Croke (2023)	Low		
De Azevedo (2013)	High		
Fukunishi (2017)	Low		
Graham (2019)	Low		
Hicks (2011)	Low		
Honorati (2015)	Low		
Kruss (2012)	Low		
Lachaud (2018)	Medium		
Miguel (2016)	Low		
Rosas (2022)	High		
Rosas (2017)	High		
Unnikrishnan (2022)	Low		
n= 21 High = 6 Medium = 2 Low= 13			

Table A3.2: Threshold values for critical appraisal

		No. of included studies for effect estimate		
		5 or less	6-9	10 or more
Study CA assessment	Mainly Low	Low	Low	Low
	Medium	Low	Medium	Medum
	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 twenty-one studies (impact evaluations). Of these 13 are rated low, so overall confidence is low.

Qualitative findings are from eight studies (process evaluations). Half of these are rated high confidence. Overall confidence is medium.