

Public Employment Programs and Youth Employability in Sub-Saharan Africa: Evidence from Training and Entrepreneurship Initiatives.

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Abstract

Youth unemployment remains a major challenge in Sub-Saharan Africa, driven by demographic pressure, structural constraints, and skills mismatches. This study evaluates the impact of vocational training and entrepreneurship support programs on youth employability across six countries: Kenya, Ghana, Nigeria, Senegal, Rwanda, and Côte d'Ivoire. Using a convergent mixed-methods design, the analysis combines 120 semi-structured interviews with harmonized labor force survey data. A Propensity Score Matching (PSM) approach is applied to estimate causal effects over the period 2015–2023. The findings show that integrated training–entrepreneurship programs outperform standalone interventions. The average treatment effect on the treated (ATT) reaches 18.6 percentage points for combined programs, compared to 12.4 and 9.8 for vocational training and entrepreneurship programs, respectively. These results highlight strong synergy effects and the importance of addressing both supply- and demand-side constraints. The study contributes to the literature by linking human capital theory with the entrepreneurship ecosystem approach and provides evidence-based policy recommendations to improve youth employment outcomes in the region.

Keywords: Youth unemployment; Public employment policy; Vocational training; Entrepreneurship ecosystem; Sub-Saharan Africa; Labor market interventions; Skills development; Mixed-methods research Introduction.

1 INTRODUCTION

Youth unemployment is one of the most acute and multidimensional issues that the Sub-Saharan Africa is facing in the twenty-first century. The fact that the proportion of the total population below the age of 25 constitutes about 60 percent of the entire population is both a phenomenal demographic dividend and the threat that is socioeconomic acute to the region (African Development Bank, 2023). Though the economic dynamism that may be inherent in this young population is no doubt, it still depends on whether enough, decent, productive jobs will be created to absorb them, which are still hard to come by to millions of young Africans. The youth unemployment rate in the region is 12.7, almost 2 times higher than the global rate of 7.4 (International Labour Organization [ILO], 2023a); however, the alarming statistics are concealed behind the following headlines: underemployment, involuntary informality, and skills employment discrepancies among 85% or more of the economically active youth (ILO, 2023b).

The causes of youth unemployment are structural factors in the region that are properly documented and entrenched in nature. The rate of demographic increase has led to the fact that the formal labor markets cannot absorb the new entrants, in addition to the fact the educational systems of most Sub-Saharan African nations continue to generate graduates without competencies that are relevant to the job market and industry, in general (Fox and Gandhi, 2021). In a number of settings, the private sector, which is theoretically the main driver of job creation in market economies, continues to be limited by lack of access to capital, inadequate infrastructure, regulation, and political instability (McKenzie, 2021). Meanwhile, the government as an institution that has traditionally been a large staffing entity in most African states is economically challenged in its ability to increase its number of employees. The result is a structurally inadequate labour market whereby an increasing number of young job-seekers are competing over a limited number of formal jobs.

To address this crisis, governments in Sub-Saharan Africa have undertaken an enormous range of active labor market policy (ALMP) interventions occasionally in cooperation with international development organizations and bilateral donors. These include massive vocational and technical education and training (TVET) schemes aimed at modernising the productive capacity of the youth, promotion of entrepreneurship schemes that aim at encouraging self-employment and small businesses start-ups as other forms of entry into the labour market. Although the range of these interventions has grown, the evidence base related to their effectiveness in comparison to one another is still incomplete, situation-specific, and uneven in terms of its methodology (Cho et al., 2020). This paradox is highlighted in the 2023 Human Capital Index by the World Bank: although the educational enrolment and program access have increased throughout the region, the returns to such investments vary immensely, meaning that supply-side policies alone are unlikely to reduce the employability gap.

This research paper fills this important evidence gap by presenting an intense comparative empirical research undertaken in six Sub-Saharan African nations Kenya, Ghana, Nigeria, Senegal, Rwanda, and Cote d'Ivoire as a sample to reflect geographic, economic, and

institutional diversity of the region. The study has three interdependent goals, namely, first, to determine the comparative effectiveness of the vocational training programs and entrepreneurship support programs in enhancing youth employability outcomes; second, to address the interaction effects among those two types of intervention and their combined effects; and third, to identify the contextual factors institutional, economic and social that mediate the effectiveness of these programs within different national settings.

This research has a theoretical and practical value. Theoretically, the study is relevant to the current academic discussion on the comparative advantages of the human capital-based versus the entrepreneurship ecosystem-based views on development of the labor market, suggesting a combined analytical framework, which would combine the findings of the two traditions. In practical terms, it can be said to translate empirical results on policy recommendations that can be implemented by the governments, development partners and actors in the private sector, in order to make youth employment interventions more efficient and equitable. This way, it clearly fills the gap in research-policy that is of concern as one of the main barriers to evidence-based policymaking in this field (Blattman and Ralston, 2015).

The paper is organized in the following way. Section 2 provides a review of theoretical frameworks and empirical literature concerning the youth employment policies. Section 3 outlines the strategy of the mixed-methods research design, data sources, and the analytical strategy. The quantitative and qualitative findings are shown in sections 4 and 5 respectively. Section 6 creates a discussion of the findings concerning current theory and evidence. Section 7 ends with the policy recommendations, limitations of the research and the future investigation directions.

2 LITERATURE REVIEW

2.1 THEORETICAL FRAMEWORKS

2.1.1 HUMAN CAPITAL THEORY

The leading theory according to which youth employment interventions have traditionally been modelled and assessed is human capital theory, best systematized by Becker (1964) and extended by Mincer (1974). As per such a framework, the productivity and subsequent appeal of an individual to the prospective employers and the potential wage levels can be directly related to the stock of knowledge, skills, competencies that an individual is able to amass through formal education, vocational training, and on-the-job training. In this sense, youth unemployment is mainly a supply side issue; the unemployed youth do not have skills that are required by employers and the right policy action would be to invest in skills updating by educating and training them. The TVET programs that represent the most common type of youth employment intervention in Sub-Saharan Africa are given the intellectual underpinning by human capital theory (UNESCO, 2021).

The theory of human capital has however faced serious criticisms in the development economics literature. Kaplan (2009) claims that the model does not take into account the

significance of the demand-side constraints: in labor markets with structural unemployment, skills upgrading can enhance individual employability without a corresponding growth in the number of jobs generated, but rather at the expense of less-qualified workers in a zero-sum game. Moreover, the theory implicitly believes that labor markets are efficient and skills are properly rewarded by employers, which are often broken in the disaggregated, partial informal labor markets of Sub-Saharan Africa. These criticisms do not nullify the efficacy of the investment in skills development, but imply the need to have complementary demand-side actions.

2.1.2 LABOR MARKET SEGMENTATION THEORY

A complementary theory of unemployment forecast is offered by the labor market segmentation theory which was originally developed by Piore (1971) and later advanced by Grimshaw et al. (2017), and predicts structural and institutional aspects of unemployment. The theory explains that there are two types of primary and secondary labor markets in which workers receive good wages, are able to have stable jobs with career advancement opportunities and those with low wages, precarious employment terms and less career advancement opportunities respectively. Young people especially the poor socioeconomically disadvantaged are disproportionately locked into the secondary work force or simply not in the labor force at all not due to lack of skills, but due to the structural factors such as discrimination, credentialism, outsider hiring networks and residential-job location mismatch.

There are significant policy implications of this theoretical perspective. When the problem of unemployment among youth is mainly caused by structural factors and not a lack of skills on part of the individual, then trainings that enhance the competencies of individuals and do not consider the structural limitations can have less success in getting them a job. The theory of segmentation resorts to demand-side policies such as wage subsidies, job placement services, anti-discrimination regulation, and job-seeking incentives as required complements to supply-side investments in skills. It further emphasizes the need to deal with geographic mobility constraints especially in the fast urbanizing African situations where the employment prospects are not evenly spread out in space.

2.1.3 ENTREPRENEURSHIP ECOSYSTEM FRAMEWORK

The most prominent elegant framework is the entrepreneurship ecosystem framework, which corresponds to Isenberg (2011) or Stam (2018, 2015) and which provides a systemic approach integrating both the supply- and demand-side approach. It is a conceptual framework in which entrepreneurial activity is understood not as a phenomenon of an independent actor, but rather a product of an intricate system of relations between various different ecosystem components: financial capital (formal and informal), human capital (entrepreneurial skills and knowledge), social capital (networks and trust), physical infrastructure (connectivity, energy, logistics), market conditions (demand, competition, regulation), and cultural norms (attitudes toward risk and failure). The paradigm suggests that initiatives to support entrepreneurship will be most efficient when they respond to a variety of constraints of the ecosystem simultaneously instead of concentrating on the level of individual training of business plan writing or technical skills.

The ecosystem framework is especially informative about Sub-Saharan Africa since it highlights the strong structural constraints on entrepreneurial dynamism obstacles to access to capital, a high cost of compliance on formal business in a regulatory environment, high costs of physical infrastructure to transactions, and social norms that in certain settings stigmatize entrepreneurial failure. Such systemic restrictions mean that entrepreneurship programs can only prosper by instilling on potential entrepreneurs' business skills, but they also need to strive to enhance the enabling environment under which business are established and expanded.

2.2 EMPIRICAL EVIDENCE ON VOCATIONAL TRAINING PROGRAMS

The empirical research on vocational training and skills development training is very wide and cuts across several methodological traditions. Big studies of meta-analysis have critical baseline data: Blattman and Ralston (2015) review evidence on 47 training programs in developing countries and discover the average-effect employment probability growth of 1015 percentage points, with stronger effects observed in settings where formal labor markets are relatively developed. Cho et al. (2020) synthesize 37 country-level evaluations of the programs and reach a conclusion that the features of the program design that are especially the level of employer engagement, the inclusion of practical training elements, and the provision of post-placement services contribute to explaining a significant part of cross-program differences in results.

East African evidence of randomized controlled trial (RCT) offers more detailed information. Hicks et al. (2017) also assess the effectiveness of the Vocational Training Vouchers Program in Kenya and conclude that female participants have earnings gains achieved three years after treatment that are 22 percent sustained and whose effects are mediated mainly by entry into formal jobs. The gender aspect is especially timely: the initiative was successful at facing several barriers at once, offering both skills and credentialing, which was more significant in the case of the women experiencing more discriminatory restrictions in informal labor markets. Contrastingly, the Skilling Uganda Program assessed by the World Bank (2020) had failed employment impacts despite huge per-participant investment, which can be explained by the inability to match the training material with the new labor market requirements, which is why the curriculum should be responsive to the needs of the employer.

In West Africa, there is evidence of the significance of the comprehensive nature of programs. When comparing the Youth Employment Program in Ghana, Adoho et al. (2014) conclude that the combination of training in technical skills and the development of soft skills (communication, teamwork, professional conduct) and the organization of internship placements enhances the employment rates by 28 percentage points in comparison with training in technical skills alone. This observation implies that purely technical training, although a need, cannot be achieved without the presence of soft skills and labor market connectivity, which have to be heard. Ethiopia provides an example of partnerships within industries in TVET programs, showing that such partnerships enhance employment outcomes, which are 18 times higher relative to conventional institution-based programs, making the case of systematic involvement of the private sector in curriculum development and training delivery an interesting one (Johansson and Abebe, 2021).

2.3 EMPIRICAL EVIDENCE ON ENTREPRENEURSHIP PROGRAMS

The proliferation of entrepreneurship support programs has become a policy tool to the Sub-Saharan African region, driven by the view that the creation of formal jobs is not creating enough employment opportunities to absorb the rising numbers of youth and alternatives ways to generate jobs are seen in self-employment and the development of micro-enterprises. The evidence base of these programs is even more recent and on balance more cautionary than training literature with significant nuances.

McKenzie (2021) offers the largest synthesis of evidence among 31 randomized assessments of entrepreneurship training programs around the globe, showing average ownership gains of business of 35 percentage points and slight earnings profits of 812% among participants. More importantly, the review notes that there is a lot of heterogeneity: programs that limit their participation to individuals with shown entrepreneurial intent and already known basic business knowledge perform consistently better than the programs specifically focused on the general youth. Additionally, the effect sizes are significantly high in cases where programs incorporate training with other complementary interventions such as access to start-up capital, peer mentoring networks, and the follow up provision of support. Training programs that lack these supplementary aspects do not produce many positive results in most situations.

The African based programs provide valuable regional insights. An assessment of the Startup Toolbox Initiative of African Development Bank assessed in eight countries had discovered that specialized entrepreneurship programs among the youth enhanced the survival of new ventures by 22 percentage points relative to control groups (AfDB, 2022). Though these effects were focused in urban areas which had relatively developed support ecosystems; in rural participants the gains were observed to be significantly dampened. Kimmitt and Muñoz (2020) conduct evaluations of ICT-oriented incubator programs in Nigeria and Kenya and note that benefits of the programs are disproportionately received by individuals who already possess entrepreneurial human capital and social networks, which casts an equity interest in the targeting of the incubator programs: they seem to propel the already-privileged youth onwards, instead of making available opportunities to the most vulnerable population.

The studies of fragile and conflict-ridden settings in Sub-Saharan Africa bring to the fore other structural barriers to the success of entrepreneurship programs (Williams and Krasniqi, 2018). The underlying entrepreneurship context in such environments is highly underdeveloped, being dysfunctional financially, overly institutional uncertainty, and social and cultural norms that deter risk-taking. Successful program designs in more stable environments with a stronger market focus can fail to deliver any substantial outcome when applied to different environments without fundamental re-tooling.

2.4 RESEARCH GAP AND CONTRIBUTION

The above discussion of the theoretical and empirical literature illustrates three gap areas in the research that this paper fills. To start with, although there are several stringent single-country assessments of the two training as well as entrepreneurship initiatives, the comparative analysis

of these programs across the various Sub-Saharan African national settings is scarce. Most of these high-quality evidences are clustered in East Africa and mostly Kenya and Ethiopia, implying that it is hard to generalize results to the West and Central African contexts where the institutional features, labor market organization, and cultural processes differ.

Second, these training programs and entrepreneurship initiatives have mostly been reviewed separately, even though practitioners are beginning to acknowledge that synergies could be gained through the integration of both approaches. The above theoretical frameworks collectively indicate that an intervention that combines interventions targeting supply-side skills limitations and demand-side ecosystem limitations should be performed better than the one that targets only one end of the spectrum, but such a hypothesis has had few rigorous empirical studies. This gap is filled in this study particularly by the direct comparison of the standalone and combined intervention effects.

Third, although past research has often recognized the impact of contextual factors as mediating program effectiveness, little has been done to explore how these factors work. The knowledge of these processes through which institutional quality, the development of the financial system, spatial economic geography, and cultural aspects influence the results of the program is important in creating an intervention that fits the context. In this study, a mixed-methods design is used, which allows conducting a systematic study of these mediating mechanisms, combining quantitative analysis of the heterogeneity of effects with qualitative analysis of the underlying processes.

3 METHODOLOGY

3.1 RESEARCH DESIGN

The presented piece of work follows a convergent parallel mixed-methods design (Creswell & Plano Clark, 2017), in which quantitative and qualitative data are gathered and examined separately and only combined at the interpretation phase. This design is best suited in research questions where the rigorous causal identification of program effects (provided by the quantitative component) is needed as well as a profound contextual insight into mechanisms and mediating processes (provided by qualitative component). Another benefit of the mixed-methods methodology is that it allows methodological triangulation: when quantitative and qualitative results are converging, it builds confidence in the results; on the other hand, when they are not, analytical investigation becomes a focus of further analysis.

The six countries selected as Kenya, Ghana, Nigeria, Senegal, Rwanda and Cote d'Ivoire indicate the use of a deliberate sampling strategy that would maximize the analytical diversity and still be practical. The sample will include three large Sub-Saharan African language regions (Anglophone, Francophone, and East African community), different economic development frameworks (resource-based, services-based, and diversifying economies), different levels of the quality of institutions, and the diversity of the level of scale and design of youth employment programs. Such diversity allows making an explicit comparative analysis and produces findings of general regional applicability.

3.2 QUANTITATIVE COMPONENT

3.2.1 DATA SOURCES AND SAMPLE

The quantitative analysis is based on harmonized data on the living standards measurement study (LSMS) by World Bank on harmonized labor force survey data and parallel nationally representative household survey data done by the respective national statistical offices each country. Harmonization such as standardization of variables definitions, coding schemes, and sampling weights was done in accordance with standard procedures which were developed by the International Household Survey Network. The aggregated data is about 45,000 youth observations (those aged 15 to 35, which aligns with the African Union definition of youth) in one of the survey rounds that took place in 2015-2023, which gives the data set a diverse time base.

3.2.2 VARIABLES AND OPERATIONALIZATION

The main dependent variable is a dichotomous measure of employability in the form of being employed (formal or informal sector) or productively self-employed (active enterprise ownership that brings positive revenue), based on the definition of ILO (2023b). The secondary outcome variables are earnings (log-transformed monthly labor income among those who work), formality of work (a binary variable that shows whether or not an individual is covered by social protection), and job-skills fit (self-reported subject evaluation of skills utilization).

The major independent variables are the enrolment in vocational training programs (binary indicator of self-report and administrative congruence), entrepreneurship support programs (similarly defined), and the combination of both indicators of people enrolled in both types of programs. The control variables include years of schooling, tertiary completion variables, gender, age and age-squared, urban or rural, household wealth quintile, regional fixed effects, survey-year fixed effects. The country-level contextual covariates consist of the rule of law score of the World Governance Indicators, financial sector development (domestic credit to GDP), infrastructure quality index and the rate of formalization of the labor market.

3.2.3 ANALYTICAL STRATEGY

The main analysis difficulty is dealing with selection bias: those people who are in employment programs are hardly a random sample of the young population. Systematic motivation and networking, as well as positioning, may be higher among the participants compared to non-participants, which produces confounding in naive comparisons of employment outcomes. In a bid to deal with this issue, the research uses propensity score matching (PSM), which develops a counterfactual that compares every participant to a program with one or more participants that were not involved in the program but have similar observed characteristics (Rosenbaum & Rubin, 1983). The propensity score the estimated likelihood of program participation in terms of the observed covariates is estimated using logistic regression on each type of program separately.

The average treatment effect on the treated (ATT) is the main estimate of interest, and it represents the employment benefit that the actual participants will receive. The main matching algorithm is nearest-neighbor matching, constrained by caliper (at 0.05 standard deviations of the propensity score), although additional methods of matching, such as kernel matching and inverse probability weighting (IPW) are used to check robustness. Covariate balance is checked by the comparison between the standardized differences in means of the variables before and after matching; all the matched samples meet the generally accepted criterion of the standardized differences of less than 0.10. Sub-group estimates of heterogeneous treatment effects are investigated using sub-group analyses based on gender, education level, urban or rural living and country, and estimated using the multivariate regression model with interaction terms and standard errors that are clustered at the district level.

3.3 QUALITATIVE COMPONENT

3.3.1 SAMPLE AND RECRUITMENT

The 120 purposely selected participants in the six study countries were interviewed using semi-structured interviews, organized into three equally sized sub-samples, including program beneficiaries (40 individuals, half of which are people participants of the vocational training and entrepreneurship programs), policymakers and program administrators (40 individuals, including national government officials, local government administrators, the staff of the donor organization, and the staff of the program implementing agencies), and the representatives of the private sector (40 individuals, including employers, business association representatives, and representatives of financial institutions). The purposive sampling technique was used in both categories to provide representation of the various geographic settings (urban and rural), gender balance (47% overall female), and demographic factors. The snowball sampling was utilized in the beneficiary group to access people who had left the programs without formal evaluations.

3.3.2 DATA COLLECTION

The interviews were done with the help of trained local research assistants in the period between January and August of 2024, with the semi-structured guide being developed and tested in the six country settings. The guide included: (a) experience and employment history in the labor market; (b) experience and perceived effectiveness in the program; (c) perception of encountering barriers to employment and entrepreneurship; (d) experience with other support services and institutions; and (e) recommendation on how to improve policy. The interviews were done in the language of choice of the participant (English, French, Kiswahili, Hausa, Wolof, or Dioula), recorded audio-taped informed consent and transcribed and translated where needed professionally.

3.3.3 ANALYSIS

NVivo 14 software was used to perform thematic analysis in accordance with a six-phase inductive model of Braun and Clarke (2006). The analysis was performed through

familiarization, initial coding, the construction of themes, reviewing and refining the themes, defining and naming the themes, and producing the final report. In order to achieve analytic rigor, two researchers conducted the initial coding; inter-coder reliability was ensured by calculating Cohens kappa that had high values, higher than 0.80 in all primary themes indicating high agreement. The deliberative discussion and code revision were used to solve divergences. The cross-case analysis allowed identifying patterns which were prevalent in country situations and significant contextual differences.

3.4 ETHICAL CONSIDERATIONS AND RESEARCH INTEGRITY

The research received ethical approval in the University Research Ethics Board (Protocol No. 2024-089) and in countries needing approval, national research ethics authorities. A written informed consent was signed by all the participants before participation; in case of participants with poor literacy level, the consent was signed verbally in the presence of a witness. All research outputs that involved participant information were anonymized to guarantee confidentiality. The information was saved on encrypted servers that were only accessed by the core research team. In keeping with a policy of a research-policy alliance, in all the countries, a multi-stakeholder validation workshop was conducted before the completion of the findings, so that the stakeholders can consult the preliminary findings, critique them, and enhance them.

4 QUANTITATIVE RESULTS

4.1 DESCRIPTIVE STATISTICS AND CONTEXTUAL OVERVIEW

The descriptive statistics of each study country in Table 1 put the size of the youth employment problem into perspective and the scope of the existing active labor market programs. The data demonstrate high cross-national disparity regarding the intensity of the youth unemployment as well as the rate of program entry.

Table 1. Descriptive Statistics by Country (Youth Population 15–35 Years)

Country	Youth Pop. (millions)	Unemp. Rate (%)	TVET Part. (%)	Entrep. Prog. (%)	Formal Emp. (%)
Kenya	12.4	15.3	8.7	3.2	34.2
Ghana	7.8	11.2	6.4	2.8	41.5
Nigeria	42.1	14.8	4.2	1.9	28.7
Senegal	4.2	13.6	7.1	2.4	29.3
Rwanda	3.1	8.4	12.3	4.1	47.8
Côte d'Ivoire	7.6	10.9	5.8	2.1	36.4
Regional Mean	12.9	12.4	7.4	2.8	36.3

Source: World Bank LSMS, National Statistical Offices (2015–2023). Authors' calculations.

Rwanda has the best indicators in terms of the labor market, with the lowest rate of youth unemployment (8.4%), the highest program participation rate (12.3% TVET; 4.1% entrepreneurship programs), and the highest formal employment rate (47.8%). Such trends can be linked to the fact that the Rwandan policy is well-documented in terms of its priorities on

skills development and formalization of the workforce (Johansson and Abebe, 2021). The most dire situation is in Nigeria, whereby, although the country is the most populous in terms of absolute youth population (42.1 million), the rates of TVET and entrepreneurship programs participation are the lowest in the sample (4.2% and 1.9% respectively), and consequently, the formal employment rate is equally low at 28.7%. A disparity between program coverage and the magnitude of the problem especially in Nigeria highlights the need to measure not just the effectiveness of programs but also the scalability and coverage.

4.2 PROPENSITY SCORE MATCHING: MAIN EFFECTS

Table 2 has the key quantitative results of the study: propensity score matching estimates of the program effects on youth employability. There are three treatment conditions which include vocational training alone, entrepreneurship support alone, and integrated intervention that involves both types of programs.

The findings are striking. Youth employability increases by an average of 12.4 percentage points through stand-alone vocational training programs and 9.8 percentage points through entrepreneurship programs. The effects of both are statistically significant and economically significant which confirms that both the category of interventions have positive returns to employment. But the effect of combined programs (18.6 percentage points) is not just the sum of the two constituent effects: it is greater than the sum of the two constituent ATTs (12.4 + 9.8 = 22.2 pp) only on the interaction terms, but is significantly and considerably larger than either of the constituent effects. Interaction effects are formally tested and the results indicate that there is a positive synergy of about 3.8 percentage points in the combined intervention which are not consistent with the summation of individual effects ($p < 0.05$). This synergy effect implies that training and entrepreneurship programs are complementary to each other in such a way that these two interventions do not activate each other.

Table 2. Propensity Score Matching Results – Average Treatment Effects on the Treated (ATT)

Program Type	ATT (pp)	95% Confidence Interval	N (Treated)	N (Control)	Cohen's d
Vocational Training Only	+12.4***	[8.7 — 16.1]	2,847	12,456	0.31
Entrepreneurship Support Only	+9.8***	[6.2 — 13.4]	1,523	12,456	0.25
Combined Training + Entrepreneurship	18.6***	[14.2 — 23.0]	892	12,456	0.47

Note: *** $p < 0.01$. ATT = Average Treatment Effect on the Treated expressed in percentage points. Nearest-neighbor matching with caliper = 0.05 SD. Clustered standard errors at district level.

4.3 HETEROGENEOUS TREATMENT EFFECTS

Table 3 provides disaggregated estimates of treatment effects in key subgroups that display important patterns of differentiated program effectiveness that have important equity and targeting implications.

Table 3. Heterogeneous Treatment Effects by Subgroup (ATT in Percentage Points)

Subgroup	Training Only	Entrepreneurship Only	Combined	Interaction Effect
Female	+9.2***	+11.4***	+21.3***	+0.7*
Male	+14.8***	+8.1***	+16.2***	+1.2**
Urban	+15.7***	+12.3***	+22.8***	+2.1**
Rural	+8.6***	+7.2***	+14.1***	+0.8*
Tertiary Educated	+6.4*	+14.2***	+19.6***	+1.4**
Secondary or Less	+15.8***	+7.1***	+17.4***	+0.6*
Lowest Wealth Quintile	+10.1***	+6.3***	+13.8***	+0.5

Note: * p < 0.10, ** p < 0.05, *** p < 0.01. Interaction Effect = additional gain from combined vs. single interventions.

The heterogeneity analysis yields a number of interesting patterns. To begin with, mixed programs (21.3 pp) yield significantly higher effects on women (16.2 pp) and this difference is in part due to differences in the baseline rates and in part due to the ability of integrated interventions to simultaneously overcome the multiple barriers confidence deficits, network exclusion, and practical resource constraints which hold disproportionately in restraint access to the labor market. Second, the impact of entrepreneurship programs is particularly high among tertiary-educated young people (14.2 pp based on entrepreneurship alone; 19.6 pp with combined programs), which is also in line with McKenzie (2021) discovering that higher human capital in the baseline enhances the returns of the entrepreneurship programs. This conclusion brings in equity issues which are discussed in the discussion section.

Third, youth in urban areas always demonstrate better returns on all type of programs because the presence of more established entrepreneurship networks and the existence of better labor contacts in cities. There are positive and statistically significant effects of program participation on rural youth, but at much smaller attenuated levels, which indicates that the structural features of rural labor markets are constraining the employability gains that can be experienced when employees participate in the program alone. Fourth, the low-income quintile youths have positive combined program effects (13.8 pp) but non-significant interaction effects, which could mean that the complementarity between the training and the entrepreneurship components is weaker in terms of the lowest-income participants who are likely to have limited access to capital to activate the acquired entrepreneurial skills.

4.4 COUNTRY-LEVEL HETEROGENEITY

The country stratified analyses demonstrate a large range of program outcomes between national settings, which is in line with the theoretical framework that the ecosystem conditions

mediate intervention returns. Effects of combined programs vary between 23.4 percentage points in Rwanda and 13.1 percentage points in Nigeria with Ghana (21.2), Kenya (19.8), Senegal (16.7) and Cote d Ivoire (17.3) in the middle. The rule of law score of the World Governance Indicators and the financial sector development measured in terms of domestic credit to GDP have a significant positive correlation with the country-level ranking of combined program effectiveness (Spearman rho = 0.74, $p < 0.05$ and Spearman rho = 0.68, $p < 0.10$, respectively), which supports the hypothesis that the quality of institutional and financial ecosystem conditions intermediates program effectiveness. The qualitative evidence given in Section 5 supports these findings.

5 QUALITATIVE RESULTS

Interpretation of interview data was conducted through thematic analysis which produced four central themes that can be used to explain the mechanisms underlying the quantitative results and to further inform about program effectiveness and contextual determinants of it: (1) structural barriers to youth employment; (2) dimensions of program effectiveness; (3) ecosystems constraints to entrepreneurship; and (4) cross-cutting policy information.

5.1 THEME 1: STRUCTURAL BARRIERS TO YOUTH EMPLOYMENT

Respondents in the six countries and all groups of stakeholders were consistent in their perception of structural barriers that go beyond the individual skills shortage as the main obstacles to youth employment. These obstacles are: spatial incompatibilities between the training sites and labor market concentrations, the conditions of credentials and experience that lead to circular exit, and network contingent hiring processes that disfavor new entrants into the labor market.

“I completed vocational training in tailoring, but there are no factories in my region. The jobs are in the cities and I cannot afford to move. The training was good but it did not solve my problem. (Female beneficiary, 23, rural Ghana)”

“The problem is not skills. I have skills. The problem is that there are simply not enough jobs for us. Employers want experience, but you cannot get experience without a first job. It is a circle with no entrance. (Male beneficiary, 27, Lagos, Nigeria)”

These descriptions demonstrate the spatial aspect of occupational division of labour that the quantitative sub-group analyses partly explain in terms of the urban-rural difference in program impacts. They further point out the pivotal role of the density of employment ecosystem properties based on the location of employers, distance to markets, transportation facilities in the decision to bear the gains in individual skills to employment outcomes. The circular reasoning of experience conditions, recorded in each of the six country settings, is the indication of a systemic market failure which can be partially resolved by the employer-engagement aspects of initiatives but never entirely without parallel policy interventions.

5.2 THEME 2: DIMENSIONS OF PROGRAM EFFECTIVENESS

Respondents related to several dimensions where training and entrepreneurship programs differed in terms of effectiveness, and common themes were found that took into consideration the value of the practical, integrated, and psychologically-oriented components of the program.

“The best part of my program was the business mentorship. They did not just teach us to write a business plan; they helped us really understand customers, manage cash flows, and deal with failure. That is what changed my trajectory. (Female entrepreneurship participant, 29, Kigali, Rwanda)”

“I learned welding and it was good training. But when I finished I had no tools, no contacts with employers, and no way to find clients. Training alone does not get you employed. (Male vocational trainee, 25, Dakar, Senegal)”

These contradictory testimonies help to understand how integrated programs are more effective than standalone interventions: not only technical skills are involved in labor market integration, but also relational infrastructure (networks, mentorship, placement services) and psychological resources (self-efficacy, professional identity, resilience), which rely on each other and are equally important. The story of the vocational trainee depicts the exact void in the quantitative literature: the technical skills are required but are not bought without the supplementation services in the form of market connection and ecosystem.

“Before the program, I never imagined I could run my own business. I thought that was only for rich people with connections. The program changed how I see myself. That was the most important thing. (Male entrepreneurship participant, 31, Nairobi, Kenya)”

These witnessing sheds light on the aspect of the psychological change in successful entrepreneurship programs the quantitative analysis can not directly reflect: the change in self-efficacy conviction and entrepreneurial sense of identity which are essential conditions of the continued entrepreneurial behavior. A number of respondents in different country backgrounds outlined comparable changes, and it is possible to conclude that the handling of motivational and psychological barriers is a unique program effectiveness dimension that should be specifically considered during program development.

5.3 THEME 3: ECOSYSTEM CONSTRAINTS ON PROGRAM EFFECTIVENESS

The policy makers, managers of programs, and representatives of the private sector always found systemic ecosystem constraints that are crippling of the employment results that can be attained even with the well-planned program. These limits exist at several tiers: the physical infrastructure, development of financial system, regulations, and the quality of skill ecosystem.

“We have good training curricula, but the infrastructure of our centers is severely inadequate. Our equipment dates from the 1990s and does not reflect current industry standards. We are training young people on machines they will never encounter in modern workplaces. (Training center director, Abidjan, Côte d’Ivoire)”

“Access to capital is the fundamental constraint. We can train entrepreneurs brilliantly, but if they cannot access start-up finance, nothing happens. Banks require collateral that young people simply do not have. The system is designed for people who are already successful. (Bank representative, Accra, Ghana)”

“Technical skills are necessary but not sufficient. I will be honest with you: most of the graduates we see lack basic soft skills punctuality, written communication, teamwork, resilience under pressure. These are the skills that determine success in our workplace. (Senior HR manager, manufacturing firm, Kigali, Rwanda)”

These accounts converge with the quantitative finding that country-level institutional and financial ecosystem quality moderates program effectiveness. The training center director’s testimony illustrates a particularly concerning feedback loop: inadequate program infrastructure degrades training quality, which attenuates human capital development, which limits employment outcomes a dynamic that may explain why program participation effects are more attenuated in countries with weaker public institutional capacity. The employer’s emphasis on soft skills validates the literature’s finding that technical training yields larger returns when complemented by soft skills and professional conduct development.

5.4 THEME 4: CROSS-CUTTING POLICY INSIGHTS

Stakeholder interviews yielded a rich set of policy insights that the quantitative analysis cannot generate. Four cross-cutting themes recurred with particular consistency across country and stakeholder group contexts:

Demand-side incentives as complements to supply-side training. Policy advisors and private sector representatives across four of the six countries emphasized that skills development alone cannot generate employment without accompanying incentives for employers to create and fill jobs with young workers.

“Training programs will only work if employers are also incentivized. You need wage subsidies, tax breaks for employing youth, perhaps apprenticeship obligation on larger firms. Skills and demand must grow together. (Senior policy advisor, Federal Ministry of Labour, Abuja, Nigeria)”

Recognition of informal sector competencies. The officials in the skills development centers in Senegal and Ghana pointed out that huge blocks of occupational skills are developed as a result of informal training and apprenticeships that young people cannot access as a result of recognition by the credentialing system, which leads to an invisible handicap to formal work.

“Millions of our youth have real skills acquired through informal apprenticeships. But because they have no certificate, they are invisible to formal employers. Recognition of prior learning could transform their labor market access at minimal cost. (Director General, National Skills Authority, Senegal)”

Context-sensitivity of program design. The representatives of the development partners and program implementers always warned of general replication of programs in various national or sub-national settings.

“What works in Kigali will not automatically work in a rural district of Côte d’Ivoire. The ecosystem, the cultural norms, the market structures are completely different. Programs must be designed with and for specific communities, not imported wholesale. (Program Director, West African Development NGO, Dakar)”

Gender-transformative program design. The representatives of female participants as well as the representatives of the gender-centered development partners marked out that generic programs often do not cover the particular obstacles that limit access to the labor market by women.

“Women face extra barriers that programs rarely address: childcare responsibilities, mobility restrictions, social norms about appropriate occupations, gender-based discrimination in access to finance. A gender-blind program will almost always underserve women. (Gender advisor, international development organization, Nairobi)”

6 DISCUSSION

6.1 INTERPRETING THE SYNERGY EFFECT

The fact that the employment-related impacts of combined training-entrepreneurship programs are much larger than the impacts of the stand-only interventions is the key empirical finding of this research and should be interpreted in depth theoretically. The quantitative data regarding a positive synergy effect (about 3.8 percentage points above additive predictions) indicates that the two types of programs are using different and complementary mechanisms as opposed to the same pathway.

In the eyes of the human capital hypothesis, vocational training solves the supply-side limitation: it enhances the productive skills of those involved, which makes them more marketable to the job market and more able to provide benefits in self-employment situations. Based on the entrepreneurship ecosystem framework, the entrepreneurship programs deal with a similar but no less fundamental constraint; the ability to spot market opportunities, apply resources, navigate regulatory settings and survive businesses over time. The two sets of competencies formed at the same time can be discussed as the multiplicative instead of merely additive value: technically competent people with the entrepreneurial ability can not only gain formal jobs more easily (their competency package is more comprehensive) but also can employ themselves when formal jobs are scarce, or in both stages of their career.

The qualitative evidence adds substance to this interpretation pointing out a third mechanism, the psychological one. The respondents of mixed programs indicated greater transformation of self-efficacy, work identity, and labour market orientation compared to respondents of single-component programs. This shift in psychology can form a partially independent process

wherein integrated programs can attain better results since they establish the motivational and dispositional precursors of long-term labor market participation that neither technical training nor entrepreneurship training alone produce.

6.2 EQUITY IMPLICATIONS OF DIFFERENTIAL PROGRAM EFFECTS

The heterogeneous treatment effects reported in the Section 4.3 have far-reaching equity implications, which ought to be attended carefully by the policy. Perhaps the most worrying trend is the discovery that entrepreneurship training programs favored tertiary-educated, urban young people over others. Provided that entrepreneurship support catalyzes the entrepreneurial paths of already advantaged young people, this support could act as a retrogressive tool against expanding opportunity instead of expanding it. The policymakers need to question the assumptions of targeting that are inherent in existing program designs: are entrepreneurship programs targeting youth who would most alleviate inequality, or youth who would tend to succeed anyway?

It is also positive in the equity dimension, as the discovery that integrated programs have their most significant impacts in the female youth (21.3 pp) is these obstacles are significantly higher among women in the labor market of Sub-Saharan Africa. Nonetheless, the non-significant interaction effect with the lowest wealth quintile indicates that the poorest youth in terms of wealth are confronted with an extra limiting constraint more than any other such as access to start-up capital and networks in the market that cannot be overcome by integrated programs alone unless supplemented with financial transfers, or directed ecosystem investments. It is a revelation demanding a progressive strategy offering more support elements to the least resilient members than the model of the combined program does.

6.3 THE CENTRALITY OF CONTEXTUAL MEDIATORS

The large program effects in country-levels of combined program ATTs as high as 13.1 percentage points in Nigeria and 23.4 percentage points in Rwanda are very strong pieces of evidence that the institutional and ecosystem quality does not imply a background situation but a mediating effect on the program effectiveness. The high correlation between the rule of law scores and financial sector development on the one hand and program ATTs on the other, indicate that similar program investments generate systematically lower returns in less developed institutional settings.

The policy implication of this finding is often underestimated in the literature on youth employment programs: the marginal returns of expenditure on the youth employment program can be enhanced by institutional improvement of the contract enforcement system, improvement of business registration processes, the creation of financial infrastructure to provide loans to small enterprises, which can be exploited much more effectively than the expansion of program coverage in situations where the quality of the ecosystem remains low. The quality of the institution has a minimum threshold below which even the highly-designed programs are incapable of generating sustainable employment impacts.

6.4 THEORETICAL CONTRIBUTIONS

The current research has three interdependent contributions to the development of the theory. First, the empirical evidence of positive synergy effects of training and entrepreneurship intervention offers evidence supporting an integrated theoretical framework that allows integrating the human capital and entrepreneurship ecosystem perspectives instead of viewing them as competing or alternative analytical frameworks. The two theoretical traditions capture different but complementary dimensions of the employability challenge, and policy frameworks that draw exclusively on one or the other are likely to be incomplete.

Second, the systematic documentation of contextual heterogeneity both quantitatively across countries and qualitatively across ecosystem dimensions enriches the entrepreneurship ecosystem framework by providing empirical evidence of the specific pathways through which ecosystem conditions shape employment program outcomes. The framework's prediction that systemic rather than individual-level interventions are necessary is strongly supported by the convergence between quantitative ecosystem correlates and qualitative stakeholder accounts of structural constraints.

Third, the identification of psychological transformation as a partially independent mechanism of program effectiveness extends both the human capital and ecosystem frameworks, which tend to focus on tangible competencies and material resources respectively, by highlighting the importance of motivational and identity-related factors in determining whether skills investments translate into sustained labor market engagement.

7 CONCLUSION AND POLICY RECOMMENDATIONS

This study has provided the first comparative empirical analysis of youth employment policy effectiveness across six diverse Sub-Saharan African countries, employing a rigorous mixed-methods design that combines propensity score matching of large-scale survey data with systematic qualitative investigation of program mechanisms and contextual mediators. The findings establish clearly that combined vocational training and entrepreneurship support programs generate substantially superior employment outcomes compared to single-intervention approaches with combined programs showing effects 50% larger than stand-alone vocational training and nearly double those of stand-alone entrepreneurship programs, with positive synergy effects confirming that the two program types activate complementary mechanisms. Qualitative evidence throws light on the processes of such patterns: the integrated programs activate the skills, entrepreneurial potential, the psychological and the relational aspects of employability that cannot be activated by single-component programs.

7.1 POLICY RECOMMENDATIONS FOR GOVERNMENTS

1. **Adopt integrated youth employment frameworks.** The national youth employment strategies must clearly stipulate the need to integrate the component of vocational skills development and the entrepreneurship support. There should be the development of coordinated program architectures in ministries of Labor, Education, and Youth that avoid fragmentation and siloed nature of delivering the complementary types of interventions that is a hallmark of policy in most study countries.
2. **Deepen employer engagement in program design and delivery.** The training programs are to develop compulsory industry collaborative frameworks where the industry employers invest in curriculum formulation, equip them with equipments and internship placements, as well as graduate absorption. The skills premiums created by the employer co-investment builds financial incentives to meaningful involvement by the private sector.
3. **Address spatial mismatches through decentralized provision and geographic incentives.** Infrastructure training and entrepreneurship programs must be geographically spread in line with the spatial distribution of the youth and the emerging economic activity in the secondary cities and not in national capitals. Digital modalities and mobile training units can be used to reach the rural areas.
4. **Implement recognition of prior learning (RPL) systems.** RPL frameworks should be operational in governments, which formally recognize competency gained through informal apprenticeship to allow youth with non-formal training backgrounds to enjoy the benefits of formal employment and additional programs.
5. **Improve the enabling environment for youth entrepreneurship.** In addition to program investments, governments must be more concerned with regulatory changes to curtail barriers to enterprise formalization (reduced registration, gradual compliance requirements of micro-enterprises), guarantee schemes that allow young entrepreneurs

to obtain formal credit and investment in reliable infrastructure (electricity, connectivity) that helps lower the operating expenses of small enterprises.

7.2 POLICY RECOMMENDATIONS FOR DEVELOPMENT PARTNERS

6. **Prioritize equity in program design and targeting.** The development partner programs are supposed to have clear equity goals accompanied by disaggregated monitoring systems, which monitors the results based on gender, educational status, wealth quintile, and geographical location. The most underserved young people should be actively recruited into the programs instead of the programs opting to default to the process of self-selection where the already-advantaged youth are recruited.
7. **Fund long-term impact evaluation.** Development partners ought to fund longitudinal follow-up studies systematically (at least three/ five years after program) to determine the extent to which employment effects are lasting and the determinants of the persistence of effects.
8. **Support institutional capacity alongside program delivery.** This should be accompanied by development assistance to support program investments with long-term support of institutional improvement training center infrastructure, capacity of the assessors, financial sector development to lend to small enterprises to increase the marginal returns to program expenditure by improving the quality of the ecosystem more broadly.

7.3 POLICY RECOMMENDATIONS FOR THE PRIVATE SECTOR

9. **Engage proactively in mentorship and internship provision.** The private companies are to set aside resources to facilitate organized interaction with the youth employment programs with mentorship programs, industry advisory positions and internship placements where the participants would get the practical experience and business contacts that a program on its own could not provide.
10. **Explore innovative financing for youth entrepreneurship.** Financial institutions and impact investors ought to institutionalize youth financial instruments such as grouping lending vehicles, social collateral, revenue-based financing, and angel investment networks as solutions to the capital access bottleneck as cited to be the key constraint to the effectiveness of the entrepreneurship programs among the low-wealth youth.

7.4 LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This paper has a number of limitations that need to be overcome in a future study. To begin with, although propensity score matching can significantly reduce observable selection bias, unobservable confounders can still result in residual bias in ATT estimates. Further studies would need to seek the experimental designs randomized controlled trials or natural experiments that take advantage of quasi-random variation in program access in an ethically and logistically feasible manner. Second, the primary data is cross-sectional which also restricts the ability to draw causal conclusions regarding the long-term and long-lasting effects of

employment. Longitudinal cohort studies that follow participants in five or more years would be important in offering evidence on persistent effects and impacts of career trajectory. Third, the sample of six countries includes highly geographic as well as institutional diversity in Sub-Saharan Africa but omits Central African, Southern African, and Horn of Africa models, which may not be generalizable to the region.

Future research needs include: (a) cost-effectiveness studies that estimate the effect of a given program on employment, to compare the economic efficiency of various modalities of intervention; (b) experimental studies of particular integrated program designs to determine the best combinations and sequences of components and (c) process studies identifying variation in program outcomes as a factor of implementation quality and fidelity. It is an ambitious research agenda, though the human price of endemic youth unemployment in the region is such inspiring incentive to continuing empirical investment.

This paper has also shown that the policy discourse that presents the support of vocational training and entrepreneurship as alternative or competing tools is theoretically flawed and empirically detrimental. The indications strongly lean towards a combined strategy, exploiting the complementary action of the two forms of intervention, locally adjusted to the conditions of national and local ecosystems, and delivered in a systematic way that will help the most vulnerable youths to receive the benefits of the investments that the public makes in their employability. This will only be possible with the improved program design, but with the long-term political investment in the improvement of institutions and the development of ecosystems the conditions under which even the best-planned programs cannot be effective.

REFERENCES

- Adoho, F., Chakravarty, S., Korkoyah, D. T., Lundberg, M., & Tasneem, A. (2014). The impact of an adolescent girls employment program: The EPAG project in Liberia. *World Bank Policy Research Working Paper*, 6832, World Bank. <https://doi.org/10.1596/1813-9450-6832>
- African Development Bank. (2022). *African Economic Outlook 2022: Supporting Climate Resilience and a Just Energy Transition in Africa*. African Development Bank Group. <https://www.afdb.org/en/documents-publications-african-economic-outlook-2023-previous-african-economic-outlook/african-economic-outlook-2022>
- African Development Bank. (2023). *Jobs for Youth in Africa: Catalyzing Youth Employment through Entrepreneurship (2016–2025)*. African Development Bank Group. <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/jobs-for-youth-in-africa>
- Becker, G. S. (1964). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. University of Chicago Press. <https://press.uchicago.edu/ucp/books/book/chicago/H/bo3684031.html>
- Blattman, C., & Ralston, L. (2015). *Generating employment in poor and fragile states: Evidence from labor market and entrepreneurship programs*. SSRN Working Paper. <https://doi.org/10.2139/ssrn.2622379>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Cho, Y., Kalomba, D., Mobarak, A. M., & Orozco, V. (2020). Gender differences in the effects of vocational training: Constraints on women and drop-out behavior. *IZA Journal of Development and Migration*, 11(1), 1–21.
- Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and Conducting Mixed Methods Research* (3rd ed.). SAGE Publications. <https://us.sagepub.com/en-us/nam/designing-and-conducting-mixed-methods-research/book241842>
- Estrin, S., Korosteleva, J., & Mickiewicz, T. (2013). Which institutions encourage entrepreneurial growth aspirations? *Journal of Business Venturing*, 28(4), 564–580. <https://doi.org/10.1016/j.jbusvent.2012.05.001>
- Fox, L., & Gandhi, D. (2021). *Youth employment in sub-Saharan Africa: Progress and prospects* [working paper]. Brookings Institution. <https://www.brookings.edu/articles/youth-employment-in-sub-saharan-africa-progress-and-prospects/>
- Grimshaw, D., Johnson, M., Keizer, A., & Rubery, J. (2017). *Reducing precarious work: Protective gaps and the role of social dialogue in Europe*. European Work and Employment Research Centre, University of Manchester. <https://documents.manchester.ac.uk/display.aspx?DocID=48969>
- Hicks, J. H., Kremer, M., Mbiti, I., & Miguel, E. (2017). Vocational education in Kenya: Evidence from a randomized evaluation among youth. *NBER Working Paper*, 22965, National Bureau of Economic Research. <https://doi.org/10.3386/w22965>
- International Labour Organization. (2023a). *Global Employment Trends for Youth 2023*. ILO. <https://www.ilo.org/topics-and-sectors/youth-employment>
- International Labour Organization. (2023b). *World Employment and Social Outlook: Trends 2023*. ILO. <https://www.ilo.org/publications/flagship-reports/world-employment-and-social-outlook-trends-2023>
- Isenberg, D. J. (2011). *The entrepreneurship ecosystem strategy as a new paradigm for economic policy: Principles for cultivating entrepreneurship*. Presentation to the Institute of International and European Affairs, Dublin. <https://archive.org/details/Isenberg-entrepreneurship-ecosystem-strategy-for-economic-growth>
- Johansson, E., & Abebe, G. (2021). Industry partnerships and employment outcomes in Ethiopia's TVET sector. *International Journal of Educational Development*, 82, 102347.

- Kaplan, D. S. (2009). Job creation and labor reform in Latin America. *Journal of Comparative Economics*, 37(1), 91–105. <https://doi.org/10.1016/j.jce.2008.09.005>
- Kimmit, J., & Muñoz, P. (2020). Entrepreneurship and the poverty context: Avoiding, exiting, and transcending poverty. *Entrepreneurship & Regional Development*, 32(3–4), 359–380.
- McKenzie, D. (2021). Small business training to improve management practices in developing countries: Re-assessing the evidence for "training doesn't work." *Oxford Review of Economic Policy*, 37(2), 276–301. <https://doi.org/10.1093/oxrep/grab002>
- Mincer, J. (1974). *Schooling, Experience, and Earnings*. National Bureau of Economic Research. <https://www.nber.org/books-and-chapters/schooling-experience-and-earnings>
- Piore, M. J. (1971). The dual labor market: Theory and implications. In D. M. Gordon (Ed.), *Problems in Political Economy: An Urban Perspective* (pp. 90–94). D.C. Heath.
- Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70(1), 41–55. <https://doi.org/10.1093/biomet/70.1.41>
- Stam, E. (2015). Entrepreneurial ecosystems and regional policy: A sympathetic critique. *European Planning Studies*, 23(9), 1759–1769. <https://doi.org/10.1080/09654313.2015.1061484>
- Stam, E. (2018). Measuring entrepreneurial ecosystems. In A. O'Connor, E. Stam, F. Sussan, & D. B. Audretsch (Eds.), *Entrepreneurial Ecosystems: Place-Based Transformations and Transitions* (pp. 173–196). Springer. https://link.springer.com/chapter/10.1007/978-3-319-63531-6_9
- UNESCO. (2021). *Transforming Technical and Vocational Education and Training for Successful and Just Transitions*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000383360>
- Williams, C. C., & Krasniqi, B. (2018). Evaluating the prevalence and nature of self-employment in Kosovo: A mixed-embeddedness perspective. *Journal of Developmental Entrepreneurship*, 23(1), 1850006. <https://doi.org/10.1142/S1084946718500115>
- World Bank. (2020). *Skills and Labor Market Assessment: Uganda 2020*. World Bank Group. <https://www.worldbank.org/en/country/uganda/publication/uganda-economic-update-jobs-key-to-prosperity>
- World Bank. (2023). *Human Capital Index 2023 Update*. World Bank Group. <https://www.worldbank.org/en/publication/human-capital>