

A Review of Sustainable Trade Practices and Employment in Uganda

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Abstract

The intersection of sustainable trade governance and labour-market outcomes has become a central concern for low-income, agriculture-dependent economies, yet the evidence base linking specific sustainable trade practices to employment changes in Uganda remains fragmented. This narrative review synthesises the available literature across five dimensions: voluntary sustainability certification schemes, environmental provisions in trade agreements, gender-differentiated employment outcomes, Aid for Trade and green trade facilitation, and skills development for sustainable production. Drawing on household-survey-based empirical studies, computable general equilibrium simulations, systematic reviews, and programme evaluations, the review finds that the employment benefits of sustainable trade practices in Uganda are modest, conditional, and unevenly distributed. Certification schemes are associated with farm-gate price premiums and cooperative participation gains but have not consistently translated into sustained improvements in employment quality or quantity. Environmental provisions in the EU–Uganda Economic Partnership Agreement and regional trade frameworks have generated limited direct employment effects, concentrated among larger formal-sector firms. Gender-differentiated outcomes reveal persistent gaps in women's control over income and occupational mobility despite expanded cooperative membership. Aid for Trade flows are positively associated with export growth, but the employment elasticity of that growth remains low, and the emerging green trade facilitation agenda is insufficiently targeted toward labour-intensive sectors. The skills-development system is poorly aligned with the competencies required for sustainable export production, creating a low-equilibrium trap. The review identifies three systemic research gaps — weak causal identification, limited longitudinal tracking, and under-studied informal-sector transitions — and concludes with policy recommendations organised around the five dimensions of the SPGFS framework.

Keywords: *Sustainable Trade, Employment, Uganda, Certification, Trade Agreements, Gender, Aid for Trade, Skills Development*

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Introduction

Uganda presents a particularly instructive case for examining the relationship between sustainable trade practices and employment. As a low-income, agriculture-dependent economy in which coffee, cocoa, fish, and horticultural products account for a substantial share of export earnings, the country is deeply embedded in global value chains that are increasingly governed by sustainability standards, environmental conditionalities, and due-diligence requirements imposed by major importing jurisdictions. At the same time, Uganda's labour market is characterised by high informality, a predominance of smallholder agriculture, and significant gender disparities in access to productive resources and income (Evers & Walters, 2001; Medagbe et al., 2020). Understanding how sustainable trade governance interacts with these structural features to shape employment outcomes is therefore both an analytical challenge and a policy imperative.

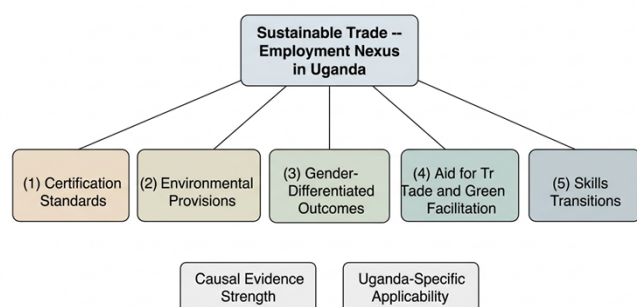
The existing literature on sustainable trade and employment in developing countries has grown substantially over the past decade, yet it remains dispersed across several disciplinary subfields. Studies of voluntary sustainability standards Fairtrade, Rainforest Alliance, organic, and UTZ have examined their effects on household income, poverty, and productivity in coffee and cocoa value chains (Akoyi & Maertens, 2017; Chiputwa et al., 2014; Oya et al., 2018). A parallel body of work has assessed the labour-market consequences of environmental provisions in preferential trade agreements, including the Economic Partnership Agreements between the European Union and African, Caribbean, and Pacific countries (Boysen & Matthews, 2016; Melo & Regolo, 2014). Gender scholars have documented the differentiated effects of certification and value-chain upgrading on women's economic participation and bargaining power (Kasente, 2012; Meemken et al., 2017). The Aid for Trade literature has evaluated the relationship between trade-related development assistance and export performance (Gnangnon, 2018; Ijjo & Shinyekwa, 2016), and a smaller but growing body of research has examined the skills-development requirements of sustainable production (Frija et al., 2020; Unnikrishnan et al., 2022). These literatures, however, have rarely been brought into sustained conversation with one another, and Uganda-specific evidence as opposed

to cross-country or regional studies — is unevenly distributed across them.

This narrative review addresses that gap by organising the available evidence within a unifying analytical framework: the standard–provision–gender–facilitation–skills (SPGFS) five-dimensional evaluation space. The SPGFS framework decomposes the trade–employment nexus into five distinct but interrelated dimensions: (1) certification standards, encompassing voluntary sustainability schemes and their effects on employment quantity, quality, and structure; (2) environmental provisions in trade agreements, covering the labour-market consequences of environmental conditionalities in preferential and regional trade arrangements; (3) gender-differentiated outcomes, examining how sustainable trade practices affect women's and men's employment differently across value chains; (4) Aid for Trade and green trade facilitation, assessing the employment effects of trade-related development assistance and the emerging green trade facilitation agenda; and (5) skills transitions, mapping the alignment between Uganda's skills-development system and the competencies required for sustainable export production. Each dimension is assessed against two criteria: the strength of causal evidence linking sustainable trade practices to employment changes, and the Uganda-specific applicability of findings drawn from cross-country or regional studies.

The review draws on empirical studies, computable general equilibrium (CGE) simulations, systematic reviews, gravity-model estimates, programme evaluations, and qualitative case studies published between 2015 and 2024, with selected earlier foundational studies included where they provide essential context. The paper is organised around the five dimensions of the SPGFS framework: Section 2 examines certification schemes and employment in Uganda's export agriculture; Section 3 analyses environmental provisions in trade agreements; Section 4 addresses gender-differentiated employment effects; Section 5 evaluates Aid for Trade and green trade facilitation; and Section 6 investigates employment transitions and skills development. Section 7 concludes with a synthesis of findings, identification of research gaps, and policy recommendations. Figure 1 illustrates the architecture of the SPGFS framework, showing the five evaluation dimensions and the two assessment criteria that structure the review.

Figure 1. SPGFS five-dimensional framework for evaluating sustainable trade practices and employment in Uganda



Sustainability Certification Schemes and Employment Outcomes in Uganda's Export Agriculture

Voluntary sustainability standards like Fairtrade, Rainforest Alliance, organic, and UTZ have become a defining feature of Uganda's coffee and cocoa export value chains. The promise of certification is that it delivers price premiums, market access, and technical support to smallholder farmers, thereby improving livelihoods and, by extension, the quantity and quality of agricultural employment. The empirical evidence, however, suggests a more complex picture in which certification's employment effects are mediated by cooperative membership, price stabilisation,

and the structural dominance of household labour, with outcomes varying significantly across schemes, commodities, and regions.

Empirical Literature on Sustainable Trade Practices and Employment

Uganda-specific evidence on certification and employment is concentrated in the coffee sector, where household-survey-based studies have sought to identify the causal effects of standard adoption on income, labour productivity, and welfare. (Akoyi & Maertens, 2017) used cross-sectional household survey data and an instrumental variable approach to investigate the welfare and productivity implications of private sustainability standards in the Ugandan coffee sector. The study found that triple certification — combining UTZ, Rainforest Alliance, and 4C — was associated with increases in income, land productivity, and labour productivity. These findings suggest that the employment effects of certification operate primarily through productivity enhancements rather than through direct labour demand expansion. Higher productivity per unit of land and labour means that certified farmers can generate higher incomes without necessarily hiring additional workers, a pattern consistent with the smallholder household-labour model that dominates Ugandan coffee production.

The cooperative membership channel is central to understanding these results. In Uganda's coffee-growing regions, including the Rwenzori and Mount Elgon areas, certification is typically accessed through primary cooperatives that aggregate the production of hundreds or thousands of smallholder members. Cooperative membership provides farmers with access to training, inputs, and the certification infrastructure itself, but it also introduces selection effects that complicate causal identification. Farmers who join cooperatives and subsequently obtain certification may differ systematically from non-members in terms of farm size, education, access to credit, and market orientation. The instrumental variable strategy employed by (Akoyi & Maertens, 2017) addresses some of these concerns, but the generalisability of the findings to non-cooperative certification pathways remains uncertain.

The price stabilisation mechanism is equally important. (Chiputwa et al., 2014) examined the relationship between food standards, certification, and poverty among coffee farmers in Uganda and found that certification was associated with higher farm-gate prices, but that the poverty-reducing effects were contingent on the scale of certified production and the reliability of premium payments. When certification premiums are volatile or captured by intermediaries, the employment benefits for hired labourers who are typically paid at or near the local market wage are likely to be minimal. This finding aligns with the broader systematic review evidence. (Oya et al., 2018) conducted a systematic review of the effectiveness of agricultural certification in developing countries and concluded that while certification is generally associated with positive effects on prices and income, the evidence for employment outcomes including wage levels, labour conditions, and employment security — is considerably weaker and more heterogeneous.

Cross-Commodity and Cross-Country Comparative Evidence

Placing the Uganda-specific findings in comparative perspective reveals important commodity-specific patterns. (Jena & Grote, 2022) presented empirical findings from identical household surveys conducted among 738 smallholder coffee farmers organised in primary cooperatives in Ethiopia, India, and Nicaragua. Their comparative analysis found that certification's effects on coffee yields and household income varied significantly across countries, with the strongest benefits observed where cooperative governance was most effective and where certification premiums were reliably transmitted to farmers. This cross-country evidence reinforces the conclusion that certification's employment effects are highly context-dependent and that Uganda's institutional environment — characterised by relatively weak cooperative

governance in some regions — may limit the translation of certification into sustained employment improvements.

The contrast between coffee and cocoa is particularly instructive. Uganda's cocoa sector, while smaller than its coffee sector, has experienced growing certification uptake, driven in part by demand from European chocolate manufacturers. The social life cycle assessment of cocoa production conducted by (Vinci et al., 2024) in Ivory Coast and Ghana provides relevant comparative evidence, though its applicability to Uganda is limited by differences in farm structure and value-chain governance. The assessment found that certification schemes in West African cocoa were associated with improvements in some social indicators, including child labour prevention, but that the effects on adult employment and wages were less clear. In Uganda's cocoa sector, the evidence base is thinner, and the available studies suggest that certification's employment effects are weaker than in coffee, partly because cocoa is more often produced on larger farms with hired labour rather than on smallholder plots with household labour.

Horticulture presents yet another pattern. The systematic review by (Jones et al., 2024) assessed the impact of voluntary certification schemes including Fairtrade, Rainforest Alliance, and organic — on the sustainability of coffee production. While the review focused on environmental and economic sustainability rather than employment per se, its findings suggest that certification schemes in horticulture, which tend to involve larger-scale production units and more formal employment relationships, generate more measurable employment effects than in smallholder-dominated coffee and cocoa. This pattern is consistent with the broader value-chain governance literature: where certification is embedded in buyer-driven chains with tight quality specifications and regular auditing, the pressure to comply with labour standards creates incentives for formalisation and wage improvements. Where certification is layered onto fragmented smallholder production, as in much of Uganda's coffee sector, these incentives are weaker.

Regulatory Drivers and the Future of Voluntary Standards

The landscape of sustainability governance is shifting from voluntary to mandatory compliance, with significant implications for Uganda's export agriculture. The European Union Deforestation Regulation (EUDR), which entered into force in 2023, requires companies placing coffee, cocoa, and other forest-risk commodities on the EU market to conduct due diligence demonstrating that their products are deforestation-free and produced in compliance with relevant legislation. The German Supply Chain Act imposes similar obligations on companies with respect to human rights and environmental standards in their supply chains. These regulatory developments are reshaping the incentive structure for certified Ugandan exports.

The interaction between voluntary certification and mandatory due diligence creates both opportunities and risks. Certified producers who already meet the documentation and traceability requirements of voluntary standards may be better positioned to comply with mandatory regulations, potentially securing a competitive advantage in EU markets. At the same time, the additional compliance costs associated with mandatory due diligence may disproportionately affect the smallest producers, who lack the administrative capacity and financial resources to meet the new requirements. The risk of exclusion is particularly acute for women farmers and producers in remote areas with limited access to digital infrastructure for traceability. The broader sustainability transitions literature (Santika et al., 2023) suggests that market-based measures, including certification and due-diligence requirements, are insufficient to drive transformative change in global value chains without complementary public investment in capacity-building and infrastructure. For Uganda, this implies that the employment benefits of the shift from voluntary to mandatory sustainability compliance will depend critically on the extent to which the government and development partners invest in the enabling conditions — including cooperative strengthening, digital traceability systems, and farmer training — that allow smallholders to participate in regulated markets.

Table 1. Certification schemes and employment outcomes in Uganda's export agriculture

Scheme	Price effect	Employment channel	Uganda evidence strength
Fairtrade	Moderate premium, cooperative-mediated	Household labour intensification	Moderate (Kasente, 2012)
Rainforest Alliance	Small premium, productivity-enhancing	Labour productivity gains	Weak (Kasente, 2012)
Organic	Moderate premium, compliance cost high	Limited hired labour expansion	Moderate (Schader et al., 2021)
UTZ (merged with Rainforest Alliance)	Small premium, scale-dependent	Cooperative membership effects	Moderate (Akoyi & Maertens, 2017)

Source: Secondary data

The evidence reviewed in Table 1 illustrates the heterogeneity of certification effects across schemes. Fairtrade, with its explicit social premium and cooperative governance requirements, shows the most consistent association with household labour intensification and cooperative participation, though the translation into hired employment is limited. Organic certification, while associated with moderate price premiums, imposes higher compliance costs that may offset the employment benefits for smallholders. The evidence for Rainforest Alliance and UTZ is weaker, partly because these schemes have been less extensively studied in the Ugandan context and partly because their effects are more difficult to isolate from those of cooperative membership and other confounding factors.

Table 1. Summary of pertinent Literature on Sustainable Trade Practices and Employment in Uganda

S/N	Author(s)	Journal / Publisher	Year	Theoretical Framework(s)	Variables	Methods Used	Key Findings
1	Alinda, D. & Navrud, S.	Journal of Sustainable Development / Wiley	2024	Institutional Theory (DiMaggio & Powell); TBL	Institutional pressures (coercive, mimetic, normative) sustainability practices Moderators: Firm size	Quantitative Cross-sectional survey; manufacturing firms, Uganda)	All three dimensions of institutional pressure significantly drive sustainability practices in Ugandan medium and large manufacturing firms. Normative pressures had the strongest effect.
2	Oya, C., Mueller, B. & Sender, J.	Journal of Development Studies / Routledge (Taylor & Francis Group)	2016	Fairtrade theory & Labour Market theory Framework;	Fairtrade certification Wages, working conditions, employment quality Moderators: Crop type (coffee, flowers)	Four years of fieldwork; statistical survey analysis; qualitative research (Ethiopia & Uganda)	Fairtrade-certified producer organisations showed relatively poor payment and non-pay working conditions for workers compared to non-certified counterparts. Benefits largely accrued to cooperatives, not workers.

3	Cramer, C., Johnston, D., Mueller, B., Oya, C. & Sender, J.	SOAS University of London Research Report	2014	Poverty Reduction via Trade Certification; Labour Market Theory	Fairtrade participationEmployment, poverty, income Moderators: Gender, region	Mixed methods; large-scale survey; qualitative fieldwork across Uganda and Ethiopia coffee & flower sectors	Fairtrade participation did not consistently reduce poverty or improve employment for the poorest workers. Benefits were unevenly distributed, with casual workers largely excluded.
4	Abainenamar, Y. K.	Journal of Fair Trade [JSTOR]	2021	Sustainable Agricultural Trade; Value Chain Analysis	Fair trade practices & cotton value chain structure Farmer income, employment sustainability	Qualitative case study; interviews with Rwenzori cotton farmers, Uganda	Significant gaps exist between the expectations of cotton producers and the actual benefits derived from fair trade schemes. Structural inequalities in the value chain limit income and employment outcomes.
5	Shinyekwa, I. & Ntale, A.	EPRC Research Series. EPRC Uganda Research Portal	2020	Trade Facilitation Framework; New Trade Theory	Economic infrastructure (roads, energy, ICT) Export volume of manufactured goods Moderator: EAC regional integration	Quantitative; regression analysis; panel data from EAC member states including Uganda	Economic infrastructure significantly promotes exports of manufactured products. Trade facilitation measures reduce transaction costs and boost industrialization and employment in Uganda and the EAC.
6	Shinyekwa, I. & Katunze, M.	EPRC Research Reports [EPRC Uganda Research Portal]	2016	Trade Policy Analysis; Welfare Economics	EAC CET sensitive products list Domestic industry performance, trade volume, employment, revenue	Quantitative trade analysis; computable general equilibrium modelling; Uganda data	Tariff policy under EAC's sensitive products list had mixed effects on domestic industries. Some employment gains in protected sectors, but overall welfare costs were significant.
7	African Development Bank (ANRC)	AfDB Research Publication [AfDB Research Portal]	2022	Green Economy Framework; Gender and Labour Economics	Green trade and economy transition Green job creation, women's employment Moderators: Sector, region	Country-level quantitative and qualitative analysis; secondary data from UBOS, NPA Uganda, national strategies	Uganda's transition to a service economy faces challenges of low productivity and slow job creation. Significant green job potential exists for women in agriculture, tourism, and clean energy. 600,000 young people enter the labour market annually.
8	African Development Bank Group	AfDB Press Release / Policy Document [AfDB Research Portal]	2024	Circular Economy Framework; Sustainable Development Goals (SDGs)	: Circular economy policy adoption DV: Job creation, green industrialisation, trade sustainability Moderators: Government policy, civil society engagement	Policy analysis; stakeholder engagement; programme documentation	Uganda launched its National Circular Economy Roadmap in 2024, aligning with Vision 2040 and AfDB Country Strategy Paper 2022–2026. The process targets higher value-added jobs, poverty reduction, and sustainable trade through circular practices.
9	Blattman, C., Fiala, N. & Martinez, S.	The Quarterly Journal of Economics	2014	Human Capital Theory; Credit constraints theory; Occupational Choice Model; and Livelihood and Post conflict development framework	Vocational training grants Self-employment, skilled trade practice, income Moderators: Region (northern Uganda conflict-affected areas)	RCT longitudinal follow-up; quantitative survey (Uganda Youth Opportunities Programme)	After four years, half of grant recipients practised a skilled trade, with significant income gains. Grants invested in tools and skills training outperformed control groups on employment and income outcomes.
10	Ahaibwe, G. & Kasirye, I.	EPRC Research Series [EPRC Uganda Research Portal]	2015	Entrepreneurship Finance Theory; Youth Employment Policy	YVCF financing Youth enterprise creation, employment, income Moderators: Skills, gender	Policy evaluation; quantitative analysis; programme review; Uganda national data	The Uganda Youth Venture Capital Fund contributed to youth self-employment and enterprise creation. Access to finance, complemented by skills training, was key to sustainable employment outcomes.
11	Namagembe, S., & Sridharan, S.	World Journal of Science, Technology and Sustainable Development	2016	Enviropreneurial Orientation (EO) as an internal organizational driver of GSCM adoption.	EO and green supply chain practice adoption.	Cross-sectional survey design was employed to collect data from owners/managers of SME manufacturing firms in Uganda. SEM was used to analyse results on the influence of each of nine EO on green supply chain practice adoption and the influence of EO dimensions on green supply chain practice adoption	Findings show that EO positively influences green supply chain practice adoption. Two of nine dimensions of EO are significant predictors of green supply chain practice adoption. Competitive aggressiveness and perceived pressure from environmental regulations are not significant predictors for green supply chain practice adoption.

12	Cramer, C., Johnston, D., Oya, C., & Sender, J.	Journal of Development Studies, 53(6), 841–856.	2017	political economy of labour markets framework, specifically challenging mainstream fair trade impact evaluation approaches.	pay and non-pay dimensions of working conditions.	mixed-methods approach combining quantitative and qualitative tools over four years of intensive fieldwork	Fairtrade does not improve worker welfare. Poor working conditions persist. Unequal distribution of benefits. Wage employment is central but overlooked. Broader critique of Fairtrade claims
13	Alinda, K., Tumwine, S., Kaawaase, T., Navrud, S., Nalukenge, I., & Sserwanga, A.	Advances in Research, Science Domain International	2022	TBL Framework which views sustainability through 3 dimensions of economic, environmental & social sustainability.	Sustainable Practices. Environmental regulations; Customer awareness; Technological innovation; Organizational culture; & Governance structures.	Qualitative research involving thematic review and synthesis. The study did not collect primary survey data. Instead, it synthesized existing literature and policy documents related to sustainability in Uganda's manufacturing sector.	Sustainability is adoption is driven mainly through: strong environmental regulations; increased customer awareness; technological innovation; supportive organizational culture; & effective governance structures.
14	John Herbert Ainembabazi & Francis H. Kemeze.	African Development Bank	July, 2022	The paper is based upon mainly the labour supply and migration remittance framework drawing upon the income effect theory, the substitution effect theory and the NELM	Employment outcomes in family-owned firms, Remittances as a share of household income and household and enterprise characteristics.	Nationally representative panel household datasets from Uganda & Nigeria. Econometric Approach	Small Remittance Shares Encourage Family Labor. Large Remittance Shares Reduce Family Labor Supply. Increased Hiring of Non-Family Workers. Remittances Can Promote Local Job Creation.
15	Mawejje, J., & Lakuma, C. P.	Economic Policy Research Centre (EPRC),	2015	Based on the Business Confidence/Business Climate Theory, which argues that firms' perceptions and expectations regarding macroeconomic conditions influence investment, production, employment, and overall economic performance.	Uganda Business Climate Index (UBCI) e.g business activity & turnover; Factors Affecting Perceptions e.g interest rates, tax policy, exchange rate depreciation	Quarterly business perception survey. Structured questionnaire based on business perceptions. Descriptive statistical analysis. Construction and interpretation of UBCI and sectoral comparison of business sentiment.	Significant decline in business climate. Business climate hurt by macroeconomic instability. Constraints due to tax policy and substandard products.
16	Taako, E. G., Kiemo, K., Andama, E.	Elsevier Ltd.	2020	Sustainable Development, which views Environmental Impact Assessment (EIA) as a decision-making tool for balancing environmental protection, social well-being, and economic development to ensure sustainable development	ENGOS in EIA and the role of ENGOS	The research used a mixed methods (both quantitative and qualitative) Data was analyzed using descriptive statistics particularly frequencies, percentage scores, and mean scores	There was gap between law and practice arising from inadequate and ineffective public participation, weak follow-up, low key stakeholder's capacity, political interference, lack of SEA practice and not embracing EIA in a transboundary context. However, there is fairly good and comprehensive institutional, legislative and regulatory framework for EIA,
17	Monica, K, K, Caroline, A, Christine A, Harrison R, et al.	CABI Agriculture and Bioscience - Springer Nature	2025	Development Pathways Framework and Sustainable Business Model Framework	Independent Factors, Business Model Elements and Outcome Variables	Mixed qualitative approach	Youth can be ably employed in agriculture sustainably through agricultural service provision, market facilitation, value addition and processing.
18	Eyaa, S., Ntayi, J. M., & Namagembe, S.	World Journal of Entrepreneurship, Management and Sustainable Development - Emerald Publishing	2010	Supply Chain Collaboration Theory and Relational Exchange Theory.	Collaborative Relationships (Information Sharing, Decision Synchronization, Incentive Alignment) SME Supply Chain Performance (responsiveness, efficiency, performance, & effectiveness)	cross-sectional survey design with a quantitative research approach. Data was collected mainly using structured questionnaires. It involved a correlation analysis & multiple regression analysis.	Collaborative relationships influence SME supply chain performance. Information sharing impacts supply chain performance. Incentives to impact on performance.

19	Austin, K. F.	Journal of World-Systems Research	2017	World-Systems Theory, Dependency Theory, Unequal Exchange Theory, and Ecologically Unequal Exchange Theory. The study explicitly used a world-systems perspective to explain how coffee production in peripheral countries such as Uganda benefits consumers and firms in core countries while imposing social and environmental costs on producers.	Coffee export production, integration into global coffee commodity chains, participation in international coffee markets. Household economic well-being, gender relations, community health, environmental degradation (e.g., deforestation). Position in the global economy (core-periphery relations), household characteristics, local socio-economic conditions.	qualitative case study exclusively conducted in Bududa District, Eastern Uganda; over 20 in-depth interviews with coffee cultivators; thematic analysis informed by grounded qualitative methods.	Income benefits though no long-term economic security. Lack of long-term economic stability for households and the consequences for the status of women, the health of the community, and the local government calls in to question the efficacy of coffee production as a viable development scheme.
20	Kabbera, S., Mugarura, J. T., Tibaingana, A., & Kiwala, Y	Cleaner and Circular Bioeconomy (Elsevier)	2026 online Dec. 2025)	The paper was grounded in the Institutional Theory; Sustainability/ Tripple Bottom Line (TBL) Perspective; Sustainability – Policy Nexus Model	Policy Regulations (fiscal incentives, certification standards, infrastructure support, monetary incentives); Sustainability of agro-processing SMEs (environmental, economic & social) policy regulations influence on the relationship.	Qualitative methodology involving in-depth interviews. The study also involved in-depth interviews with 30 SME owners and a thematic analysis.	Policies are not streamlined to meet the needs of SMEs. Certification costs, unfair competition, & weak enforcement coupled with limited incentives hinder sustainability adoption.
21	Samuel Kabbera et al.	Cleaner and Circular Bioeconomy	2024	Natural Resource – Based View & Sustainability Theory	Environmental Practices (energy conservation, waste reduction, water conservation); SME Growth	It involved Quantitative survey; 367 respondents; and statistical analysis	Environmental sustainability practices positively and significantly influence SME growth.
22	Kasimu Sendawula, Peter Turyakira, Grace Akileng, Vincent B.	Journal of Innovation and Entrepreneurship	2024	Institutional Theory; Regulatory Compliance Perspective	Environmental Knowledge; Environmental Sustainability Practices; Regulatory Compliance Mechanisms	It involved a cross – sectional survey; 254 manufacturing SMEs.	Regulatory compliance mechanisms mediate the relationship between environmental knowledge and sustainability practices
23	Samuel Kabbera et al.	Cleaner and Circular Bioeconomy	2024	TBL Theory - underscores the necessity of a balanced interplay among an organization's interests, societal well-being, and environmental considerations	Economic, Social, and Environmental Practices; SME Growth	The study adopted a positivist philosophy and used a quantitative research approach, which was descriptive and cross-sectional	The findings suggest that there is a positive and significant relationship between the triple bottom practices (Economic, social and environment practices) and agro-processing SME growth.
24	Sendawula, Bagire, Mbidde & Turyakira	Journal of Enterprising Communities: People and Places in the Global Economy. Emerald Publishing	2021	The study was grounded in Stakeholder Theory. The theory argues that organizations should create value for all stakeholders not just shareholders.	Environmental commitment. Environmental sustainability practices.	It was a quantitative study, using a cross-sectional survey design. Data was analyzed using Structural Equation Modeling (SEM).	There is a significant positive effect of environmental commitment on environmental sustainability practices. Firms with stronger commitment to environmental protection were more likely to adopt sustainable production processes, waste management, pollution prevention, and resource conservation practices.
25	Tukamuhabwa, B. R.	Journal of African Business,	2023	Resource-based view and dynamic capabilities theoretical perspectives. Thus, it is suggested that SCO influences both SCRM capabilities and SCP. Further, it is proposed that SCRM capabilities mediate in the relationship between SCO and SCP	SCO SCRM Capabilities Supply Chain Performance (SCP)	This study is a cross-sectional and quantitative, adopting a deductive approach of testing specific pre-defined hypotheses derived from the extant literature	From the analysis of the findings, it was revealed that the baseline relationship between SCO and SCP is positive and significant. The results also revealed the existence of a positive and significant relationship between SCO and SCRM capabilities.

26	Kimuli, Saadat Nakyejwe, Sendawula, Kasimu, & Sabi, Humphrey M..	African Journal of Business Management	2021	There is no single theory explicitly presented as the study's guiding theoretical framework. The study is grounded in the broader literature on sustainable entrepreneurship and sustainability	validation study using Confirmatory Factor Analysis (CFA). The primary objective is to validate the measurement model of sustainable entrepreneurship rather than test causal relationships.	The study's research design was cross-sectional and correlational. The study population is made up of 108,534 small businesses in Kampala (UBOS, 2016). Using Krejcie and Morgan (1970) sampling table, 384 small businesses were selected	The study revealed that the constructs for sustainable entrepreneurship as perceived in the Ugandan context are production management, people and skills, ecosystem management, stakeholder, finance, strategy, marketing and sales.
27	Alinda, K., Tumwine, S., & Kaawaase, T. K.	Asia Pacific Journal of Innovation and Entrepreneurship,	2024	Dynamic capability, serves as the lens through which the correlation was examined. It explains that firms achieve sustained competitive advantage by developing the capability to integrate, build, and reconfigure internal and external resources in response to changing environments.	Environmental Innovation (EI), measured using two dimensions: Eco-product innovation; Eco-process innovation. Sustainability Practices (SPs), measured across the three pillars of sustainability: Environmental sustainability practices; Social sustainability practices; Economic sustainability practices	Used a cross-sectional and quantitative methodology, data were collected through a questionnaire survey involving 208 manufacturing companies. The smart partial least squares path modelling technique was used for the analysis.	The analysis shows a significant and positive associations. Specifically, product innovation exhibits a robust and affirmative relationship with sustainability practices. Also, the correlation between process innovation and sustainability practices emerges as statistically significant.
28	Muhammad, K., Salawu, R. O., Masibo, S., & Sikuku, I.	TWIST	2024	This paper is based on the GEM model, which provides a framework for understanding and measuring entrepreneurship at the national level.	Government Support / Government Role. Sustainability Management Practices in SMEs	Quantitative research design using survey data collected from SMEs in Uganda. Descriptive and inferential statistical analyses were employed.	The government's support through policies, regulations, training, incentives, and institutional frameworks significantly encourages SMEs to adopt sustainable management practices.
29	Turyakira, P., Sendawula, K., Nanyanzi, M., Nantale, H., & Tamale, J. N.	Journal of Work-Applied Management,	2025	The study was based on a multi-theoretical framework, combining a Stakeholder Theory (Freeman, 1984); Institutional Theory; and (RBV)	Social Entrepreneurship This is the main predictor variable in the study. Realization of SDGs	A qualitative approach and a multiple-case design to engage 20 participants. Specifically, semi-structured interviews were conducted to gather the perceptions and views of the participants regarding the study phenomenon.	findings indicate that social entrepreneurs support a number of people and undertake activities that solve social, environmental and economic problems. However, environmental issues receive less focus when compared to other sustainability aspects. It is also evident that social entrepreneurs are financially constrained with limited managerial skills, undermining their potential to fulfill their social mission
30	Namagembe, S., Ryan, S., & Sridharan, R.	Management of Environmental Quality: An International Journal,	2019	IT, RBV, Theory; Stakeholder Theory; NRBV	Green procurement, green manufacturing, green distribution, reverse logistics Firm performance (environmental, operational, and financial performance)	Quantitative cross-sectional survey of owner/managers of 200 manufacturing SME firms in Uganda, Africa. SPSS was used to find descriptive means and test relationships between green practices and performance outcomes.	Different green practices affect different performance dimensions in different ways across different industries. Overall internal environmental management is the key to positive outcomes across the three performance criteria.

Explanation of notations

GEM- Global Entrepreneurship Mentor, GSCM-green supply chain management IT- Institutional Theory; RBV- Resource-Based View, Theory; NRBC-Natural Resource-Based View SCO- Supply Chain Orientation, SDG- Sustainable Development Goals, SEM- Structural Equation modelling, TBL- Triple Bottom Line, YVCF- Youth Venture Capital Fund

Environmental Provisions in Trade Agreements and Labor Market Effects

Environmental provisions in trade agreements have proliferated over the past two decades, reflecting a growing recognition that trade liberalisation and environmental protection are interdependent policy objectives. For Uganda, the most consequential trade agreements with environmental provisions are the EU–Uganda Economic Partnership Agreement (EPA), the African Continental Free Trade Area (AfCFTA) with its environmental protocol, and the East African Community (EAC) sustainability commitments. This section examines the labour-market effects of these provisions through three channels: direct employment effects in compliance-intensive export sectors, indirect effects through trade diversion and preference erosion, and structural effects on the composition of employment across sectors.

The EU–Uganda EPA and Environmental Conditionality

The EU–Uganda EPA, signed as part of the broader EU–East African Community EPA framework, includes sustainable development chapters that commit the parties to upholding environmental standards, promoting sustainable management of natural resources, and ensuring that trade does not undermine environmental protection. The agreement also includes provisions on fisheries and forestry governance that are directly relevant to Uganda's export-oriented sectors.

The empirical evidence on the employment effects of these provisions is limited, but the available studies suggest that the direct employment impact has been modest. (Boysen & Matthews, 2016) employed an integrated CGE-microsimulation model to assess the consequences of the East African Community EPA for Uganda, finding that the agreement's overall effects on poverty and employment were small and varied across household types. The study's primary focus was on the trade-liberalisation effects of the EPA rather than its environmental provisions specifically, but the findings are relevant insofar as they suggest that the EPA's macroeconomic effects on Uganda's labour market are limited in magnitude. The environmental provisions, which operate primarily through conditionality and technical cooperation rather than through tariff preferences, are unlikely to have employment effects that exceed those of the trade-liberalisation components of the agreement.

The threat of preference withdrawal under non-compliance has created a regulatory incentive for labour formalisation in export sectors. The EU's Generalised Scheme of Preferences (GSP), including the Everything But Arms (EBA) arrangement, grants Uganda duty-free and quota-free access to the EU market, but this access is conditional on compliance with core human rights and labour standards, as well as environmental conventions. The potential loss of preferential access creates a compliance incentive that, in theory, should encourage improvements in labour standards and environmental practices in export-oriented sectors. In practice, the evidence for this mechanism is stronger for labour standards than for environmental provisions, and the Uganda-specific evidence is largely anecdotal.

The broader African trade preference literature provides relevant context. (Fernandes et al., 2022) examined the export impact of the African Growth and Opportunity Act (AGOA) and found that trade preferences can have significant effects on export volumes, but that the employment

effects depend on the labour intensity of the expanding sectors and the extent to which export growth is driven by increases in production capacity rather than by reallocation from domestic to export markets. For Uganda, the implication is that the employment effects of the EU EPA's environmental provisions are likely to be concentrated in sectors where compliance with environmental standards requires investments in production capacity that also create employment — for example, in sustainable fisheries management or organic agriculture — rather than in sectors where compliance is achieved through documentation and certification alone.

Regional Integration, AfCFTA, and Employment Implications

The African Continental Free Trade Area, which entered into force in 2019 and began operational trading in 2021, represents a potentially transformative development for Uganda's trade and employment prospects. The AfCFTA's environmental protocol, still under negotiation, is expected to address the relationship between trade liberalisation and environmental protection within the African continent, with implications for Uganda's employment structure.

The analysis of revealed comparative advantage suggests that Uganda's export strengths lie in agricultural commodities — coffee, tea, fish, and horticultural products — and in some light manufactured goods (Katunze & Kuteesa, 2016). The AfCFTA's environmental provisions could affect the competitiveness of these sectors in several ways. First, regulatory harmonisation across African countries could reduce the compliance costs faced by Ugandan exporters, particularly if common environmental standards replace the patchwork of national regulations that currently governs intra-African trade. Second, the AfCFTA's rules of origin, which determine whether goods qualify for preferential treatment, could incentivise the development of regional value chains for sustainably produced goods, creating employment opportunities in processing, packaging, and logistics. Third, the liberalisation of trade in services under the AfCFTA could facilitate the growth of environmental services — including certification, auditing, and sustainability consulting — that support Uganda's sustainable export sectors.

The empirical evidence on these channels is largely prospective. (Umulisa, 2020) estimated the East African Community's trade benefits from promoting intra-regional trade using an augmented gravity model and found significant potential for trade expansion, but the study did not disaggregate the employment effects by sector or by the presence of environmental provisions. The broader labour-provisions literature (Yang & Luo, 2023) suggests that labour provisions in free trade agreements have evolved from broad aspirational statements to more specific and enforceable commitments, but that their effectiveness in improving labour-market outcomes depends on complementary domestic policies, including labour-market institutions, social protection systems, and enforcement capacity.

The comparative experience of other developing countries provides additional insight. The evolution of labour provisions in free trade agreements involving China, the United States, and the European Union (Yang & Luo, 2023) reveals a pattern in which the inclusion of environmental and labour provisions in trade agreements is associated with improvements in de jure labour standards but not necessarily with improvements in de facto employment conditions. For Uganda, this suggests that the AfCFTA's environmental provisions offer an opportunity to expand employment in regional value chains for sustainably produced goods, but that the realisation of this opportunity depends on complementary investments in quality infrastructure, trade facilitation, and labour-market institutions.

Table 2. Environmental provisions in trade agreements affecting Uganda and their employment channels

Agreement	Environmental provisions	Employment channel	Evidence type
EU–Uganda EPA	Sustainable development chapters, fisheries and forestry governance	Preference-based compliance incentive	CGE simulation (Boysen & Matthews, 2016)
AfCFTA	Environmental protocol (under negotiation)	Regulatory harmonisation, regional value chains	Trade-flow analysis (Umulisa, 2020)
EAC	Sustainability commitments	Intra-regional trade facilitation	Gravity-model estimates (Katunze & Kuteesa, 2016)
EU GSP/EBA	Environmental convention compliance	Conditional market access	Review-based assessment

Table 2 summarises the key trade agreements, their environmental provisions, and the employment channels through which they are expected to affect Uganda's labour market. The evidence base is dominated by simulation-based and trade-flow analyses rather than by direct empirical studies of employment outcomes, reflecting the methodological challenge of isolating the labour-market effects of environmental provisions from the broader effects of trade liberalisation.

Gender-Differentiated Employment Effects of Sustainable Agricultural Export Value Chains

The gender dimension of sustainable trade in Uganda is both analytically central and empirically under-studied. Women constitute a majority of the agricultural labour force in Uganda, yet they face systematic disadvantages in access to land, credit, extension services, and markets (Evers & Walters, 2001; (PhD), 2020). Sustainability standards and value-chain upgrading initiatives have the potential to either exacerbate or mitigate these gender disparities, depending on how they are designed, implemented, and governed. This section examines the gender-disaggregated employment outcomes of Uganda's sustainable agricultural export sectors, focusing on coffee, cocoa, rice, and horticulture.

Women's Participation in Certified Value Chains: Coffee and Cocoa

The evidence on women's participation in certified coffee and cocoa value chains in Uganda reveals a pattern of expanded formal membership without commensurate gains in economic control or occupational mobility. (Kasente, 2012) conducted a gender analysis of Fair Trade and organic certification in Uganda's coffee sector and found that while certification schemes had increased women's visibility in cooperative structures, the benefits were unevenly distributed. Women's participation in cooperative decision-making remained limited, and the control over certification premiums — which are typically paid to the household head, who is usually male — did not shift significantly toward women. The study's finding that "Fair Trade and organic certification production of coffee and other commodities is popularly seen as beneficial to producers in many ways" but that gender analysis reveals specific "gains and losses for women and men" (Kasente, 2012) captures the central tension in the gender-certification literature: aggregate benefits do not necessarily translate into gender-equitable outcomes.

The gendered analysis of sustainability standards conducted by (Meemken et al., 2017) provides a more granular understanding of the mechanisms through which certification affects women's employment. Using a choice experiment with coffee farmers in Uganda, the study found that women farmers had systematically different preferences for standard design features compared to men, with women placing greater value on provisions related to food security, child labour prevention, and gender equality. The implication is that sustainability standards designed without explicit attention to gender differences in preferences and constraints may fail to address the specific barriers that women face in certified value chains. This finding is consistent with the broader feminist economics literature, which emphasises that gender-neutral policies can have gender-differentiated effects when they are implemented in contexts characterised by structural gender inequalities (Kabeer, 2015).

The cross-country comparative evidence further illuminates the Uganda-specific patterns. (Medagbe et al., 2020) conducted a cross-country investigation of men and women in rice farming in Africa and found that while women make significant contributions to rice farming, processing, and marketing, they have only limited access to technical knowledge and technologies that can reduce their drudgery and labour bottlenecks. The study also found that women's reproductive responsibilities — including childcare, food preparation, and water and fuel collection — constrain their ability to participate in the more remunerative stages of value chains, including processing and marketing. This finding is directly relevant to Uganda, where rice is an increasingly important export crop and where women's time poverty is a well-documented barrier to economic participation.

The cooperative model, which is central to Uganda's certification landscape, has ambivalent gender effects. (Theeuwes et al., 2021) investigated how women overcome gender inequality by forming small-scale cooperatives in Uganda's agricultural sector and found that women-only cooperatives can provide a platform for collective action, skill development, and market access that is not available to women in mixed-gender cooperatives. However, the study also found that women-only cooperatives tend to be smaller, less well-capitalised, and less connected to export markets than mixed-gender cooperatives, limiting their ability to capture the full benefits of certification and value-chain upgrading. The entrepreneurial training interventions evaluated by (Lourenço et al., 2014) showed some positive effects on female farmers' business skills and confidence, but the study's small sample size and short follow-up period limit the generalisability of the findings.

Gender-Sensitive Interventions and Institutional Barriers

The effectiveness of gender-targeted interventions within Uganda's sustainable trade landscape has been mixed. Programmes that combine certification with gender-awareness training, women's leadership development, and targeted financial services have shown more promise than certification alone, but the evidence base is limited and the durability of the observed effects is uncertain.

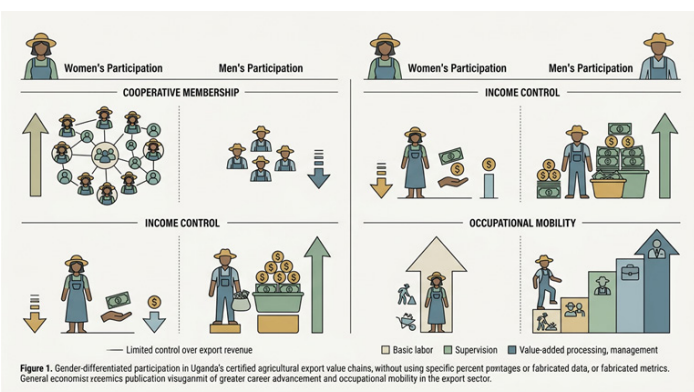
The structural barriers that limit women's ability to benefit from sustainable trade practices are well-documented in the Ugandan context. Land tenure is the most fundamental constraint. Customary land tenure systems in much of Uganda grant men primary rights to land, with women's access mediated through their relationships with male relatives or husbands. This limits women's ability to make the long-term investments in soil conservation, agroforestry, and perennial crops that are often required for certification and sustainable production. Credit constraints compound the land-tenure problem: without collateralisable land rights, women farmers have limited access to the formal credit that would enable them to invest in certification, quality improvement, and value-chain upgrading.

Time poverty is a third barrier that is often overlooked in the certification literature. Women's disproportionate responsibility for domestic work and caregiving limits the time they can devote to cooperative meetings, training sessions, and the administrative tasks associated with certification

compliance. The reproductive responsibilities that (Medagbe et al., 2020) identified as constraining women's participation in rice value chains apply with equal force to coffee, cocoa, and horticulture. Gender-sensitive interventions that do not address these underlying time constraints are unlikely to produce durable improvements in women's employment outcomes.

The broader economic context is also relevant. (Evers & Walters, 2000) examined extra-household factors and women farmers' supply response in sub-Saharan Africa and found that women's agricultural production decisions are shaped not only by household-level factors but also by the structure of markets, the availability of extension services, and the functioning of input and output markets. The implication for sustainable trade is that certification and value-chain interventions that focus exclusively on the farm level, without addressing the broader market and institutional environment, are unlikely to close the gender gap in employment outcomes.

Figure 2. Gender-differentiated participation in Uganda's certified agricultural export value chains



Source: Secondary data

Figure 2 illustrates the central finding of the gender literature: women's formal participation in certified value chains has increased, but the gender gap in control over income, access to premium markets, and occupational segregation persists. The three dimensions of economic empowerment — cooperative membership, income control, and occupational mobility — interact in ways that certification alone cannot address without complementary interventions in land tenure, credit markets, and the redistribution of domestic labour.

Aid for Trade, Green Trade Facilitation, and Employment in Uganda's Export Sectors

Aid for Trade (AfT) has been a prominent feature of the international development architecture since the 2005 WTO Hong Kong Ministerial Conference, which launched the AfT initiative to help developing countries build the supply-side capacity and trade-related infrastructure needed to benefit from trade liberalisation. Uganda has been a significant recipient of AfT flows, particularly in the categories of productive capacity building, trade infrastructure, and trade policy development. This section examines the relationship between AfT, green trade facilitation, and employment outcomes in Uganda's key export sectors.

Aid for Trade and Sectoral Employment in Uganda

The empirical evidence on the relationship between AfT and employment in Uganda is limited but suggestive. (Ijjo & Shinyekwa, 2016) examined foreign aid and trade capacity development in Uganda and found that AfT flows had been positively associated with improvements in trade-related infrastructure and institutional capacity, but that the translation of these improvements into export growth and employment had been constrained by persistent supply-side bottlenecks, including fluctuating output levels, deficient trade infrastructure, and non-tariff barriers. The study's finding that "endemic supply side constraints including

fluctuating output levels, deficient trade infrastructure, rampant non-tariff barriers and incapacity to ensure international quality standards continue to thwart the gainful participation of many Least Developed Countries" (Ijjo & Shinyekwa, 2016) in global trade applies directly to Uganda's experience.

The sectoral allocation of AfT is an important determinant of its employment effects. (Atukunda et al., 2019) evaluated the relationship between sectoral AfT and sectoral exports within the East African Community using a Seemingly Unrelated Regression Equation (SURE) model and found a positive significant relationship between AfT and export performance in agriculture and manufacturing. The study's findings suggest that AfT targeted at productive capacity in agriculture — including support for quality improvement, certification, and value addition — has stronger effects on export growth than AfT targeted at trade infrastructure. However, the study did not directly estimate the employment effects of this export growth, and the employment elasticity of exports in Uganda's agricultural and manufacturing sectors is likely to be modest given the capital-intensive nature of some export-oriented investments and the structural constraints on labour absorption in the formal sector.

The cross-country evidence provides a broader perspective. (Gnangnon, 2018) examined the effect of AfT inflows on sectoral employment diversification in a sample of 112 countries and found that AfT programmes are conducive to employment diversification across the agriculture, industry, and services sectors. However, the study also found that the employment effects of AfT are mediated by domestic policy environments and absorptive capacity, suggesting that the translation of AfT into employment gains depends on complementary investments in education, infrastructure, and institutional reform. The binding-constraints analysis conducted by (Hallaert et al., 2011) further underscores the importance of targeting AfT at the most binding constraints to trade expansion, which in Uganda's case include trade infrastructure, quality infrastructure, and productive capacity in agriculture and light manufacturing.

The distinction between productive-capacity AfT and infrastructure AfT is important for understanding the employment effects. Productive-capacity AfT, which includes support for agricultural development, industrial development, and trade-related services, has a more direct link to employment creation than infrastructure AfT, which includes support for transport, energy, and communications. However, infrastructure AfT can have indirect employment effects by reducing trade costs, improving market access, and enabling the development of value chains that create employment in processing, logistics, and services. The Uganda-specific evidence suggests that the employment effects of both types of AfT have been limited by absorptive capacity constraints, including weaknesses in project implementation, monitoring, and evaluation.

Green Trade Facilitation and the Future of Export-Led Employment

The green trade facilitation agenda encompassing digital trade facilitation, sustainable logistics, carbon-border adjustment preparedness, and the greening of trade-related infrastructure — represents a new frontier in the trade–employment nexus. For Uganda, this agenda presents both opportunities and risks. The opportunity lies in the potential for green trade facilitation to reduce the trade costs faced by Ugandan exporters, improve the efficiency and sustainability of trade-related logistics, and create employment in green logistics, digital trade services, and sustainability compliance. The risk lies in the potential for green trade facilitation measures to become new non-tariff barriers that disproportionately affect developing countries with limited administrative and technical capacity.

The digital trade facilitation dimension is particularly relevant. Uganda's digital infrastructure, while improving, remains limited relative to that

of its trading partners (Kituyi, 2024). The adoption of digital trade facilitation measures — including electronic single windows, digital certificates of origin, and blockchain-based traceability systems — could reduce the time and cost of trading across borders, but only if Uganda's digital infrastructure and regulatory framework are sufficiently developed. The employment effects of digital trade facilitation are likely to be concentrated in the ICT and logistics sectors, with limited direct effects on agricultural employment unless digital tools are integrated into agricultural extension, market information, and quality management systems.

The carbon-border adjustment dimension is equally important. The European Union's Carbon Border Adjustment Mechanism (CBAM), while currently focused on carbon-intensive industrial goods, signals a broader trend toward the incorporation of carbon considerations into trade policy. For Uganda, whose exports are predominantly agricultural and whose carbon footprint is among the lowest in the world, the direct impact of CBAM is likely to be limited. However, the indirect effects — through the potential for carbon-related requirements to be extended to agricultural products, through the reputational effects of carbon-intensity labelling, and through the opportunity for Uganda to position itself as a low-carbon supplier — could be significant. The green trade literature (Liu et al., 2024) suggests that green trade and technology-oriented trade can affect economic cycles, but the mechanisms through which these effects operate in low-income, agriculture-dependent economies remain poorly understood.

The broader trade-facilitation literature provides relevant context. (Hallaert & Munro, 2009) examined binding constraints to trade expansion and Aid for Trade diagnostic tools and found that trade facilitation — including customs modernisation, port efficiency, and logistics performance — is among the most binding constraints to trade expansion in developing countries. For Uganda, the implication is that green trade facilitation, if it builds on and strengthens existing trade facilitation efforts, could contribute to employment growth by reducing trade costs and improving market access. However, if green trade facilitation introduces new requirements that are not accompanied by adequate technical and financial support, it could exacerbate the constraints that already limit Uganda's trade performance.

Employment Transitions and Skills Development for Sustainable Production is marked by the shift toward sustainable production methods in Uganda's export sectors requires not only changes in agricultural practices and manufacturing processes but also changes in the skills and competencies of the workforce. This section examines the employment transition and skills-development challenges facing Uganda as its export sectors adapt to sustainability requirements in international markets.

Skill Requirements of Sustainable Export Production in Uganda.

The skill requirements of sustainable production in Uganda's key export sectors coffee, cocoa, horticulture, and fish are both technical and managerial. Technical skills include organic farming practices, integrated pest management, agroforestry, soil and water conservation, and post-harvest handling. Managerial skills include quality management, certification compliance, record-keeping, financial management, and market analysis. The gap between these requirements and the existing skill base among smallholders and small and medium enterprises (SMEs) is substantial.

The evidence on the magnitude and distribution of this skill gap is limited, but the available studies suggest that the gap is widest in quality management, certification compliance, and post-harvest handling. (Frija et al., 2020) assessed the medium and long-term effects of alternative agricultural research and development investment scenarios on male and female employment in 14 African countries and found that public agricultural investments can help reduce the impact of future

challenges such as climate change and population pressure on national economies. However, the study also found that the employment effects of these investments depend on the skill composition of the workforce and the alignment between skills supply and the demands of sustainable production systems.

The skill gap is most acute among smallholder farmers and women-led enterprises. Smallholders, who typically have limited formal education and limited access to extension services, face particular challenges in acquiring the technical and managerial skills required for certification and sustainable production. Women-led enterprises face additional barriers related to time poverty, limited mobility, and gender biases in extension delivery. The entrepreneurial training programmes evaluated by (Lourenço et al., 2014) showed some positive effects on female farmers' skills and confidence, but the study's limitations — small sample size, short follow-up period, and focus on entrepreneurship rather than on sustainable production skills — limit the generalisability of the findings to the broader skills-development challenge.

The skills-development system in Uganda is poorly aligned with the demands of sustainable export markets. Vocational training institutions, universities, and agricultural extension services have been slow to incorporate sustainability competencies into their curricula and training programmes. The university–community interactions documented by (Gastrow et al., 2016) in ecologically fragile locations suggest that innovation in marginalised settings is often localised, incremental, informal, and social, and that formal education and training systems are poorly equipped to support this type of innovation. The implication for sustainable trade is that the skills required for sustainable production are likely to be acquired through informal channels — peer learning, on-farm experimentation, and cooperative training — rather than through formal education and training systems, and that policies to support skills development should recognise and strengthen these informal channels.

Youth Employment and Skills-Development Programs

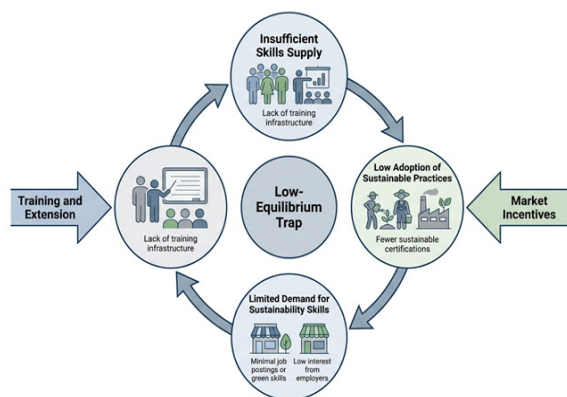
Youth employment is a central concern in Uganda, where a large and growing youth population faces limited opportunities in formal labour markets. The potential for sustainable trade to create employment opportunities for youth is significant, but the evidence on whether youth-targeted skills programmes are effective in preparing young people for sustainable trade-related employment is limited.

(Unnikrishnan et al., 2022) evaluated the impact of an integrated youth skill training programme on youth livelihoods in Ghana's cocoa belt and found positive short-term effects on self-employment and agricultural productivity. The study's findings are relevant to Uganda, where similar youth training programmes have been implemented in coffee-growing regions, but the evidence base for Uganda is thinner. The study's finding that the programme's effects on sustained employment in agricultural value chains were modest suggests that skills training alone, without complementary investments in market access, credit, and land, is insufficient to generate durable employment outcomes.

The digital skills dimension is increasingly important. Uganda's digital economy, while still nascent, is growing, and the demand for digital skills in trade-related services — including e-commerce, digital marketing, and logistics management — is increasing (Kituyi, 2024). Youth-targeted digital skills programmes have shown some positive effects on employment in the ICT sector, but the evidence for spillover effects into sustainable trade sectors is limited. The challenge is to integrate digital skills training with sector-specific skills training in agriculture, manufacturing, and services, so that young people are equipped with the combination of technical, managerial, and digital skills required for sustainable export production. The broader employment transition challenge is captured by the concept of a low-equilibrium skills trap. Insufficient skills supply constrains the adoption of sustainable practices, which in turn limits the demand for sustainability-specific skills, creating a self-reinforcing cycle in which

neither the supply of nor the demand for sustainability skills develops. Breaking this trap requires coordinated interventions on both the supply side — through education, training, and extension — and the demand side — through the enforcement of sustainability standards, the provision of incentives for sustainable production, and the development of markets for sustainably produced goods. The evidence reviewed in this section suggests that Uganda's current policy mix is insufficient to break this trap and that more ambitious and better-coordinated interventions are needed.

Figure 3. The low-equilibrium skills trap in Uganda's sustainable export sectors



Source: Secondary data

Figure 3 illustrates the circular relationship between skills supply, sustainable practice adoption, and skills demand that characterizes the low-equilibrium trap. Breaking this cycle requires external interventions that simultaneously increase the supply of sustainability-relevant skills — through training, extension, and education reform — and the demand for those skills — through market incentives, regulatory enforcement, and value-chain governance.

Conclusion and recommendation

This narrative review has examined the relationship between sustainable trade practices and employment in Uganda through the lens of the SPGFS five-dimensional framework. The evidence synthesised across certification standards, environmental provisions in trade agreements, gender-differentiated outcomes, Aid for Trade and green trade facilitation, and skills transitions yields three broad conclusions.

First, the employment benefits of sustainable trade practices in Uganda are modest, conditional, and unevenly distributed. Voluntary sustainability certification is associated with farm-gate price premiums and cooperative participation gains, but the translation of these benefits into sustained improvements in employment quality and quantity is constrained by compliance costs, market access volatility, and the structural dominance of smallholder household labour. Environmental provisions in trade agreements have generated limited direct employment effects, concentrated among larger formal-sector firms, while the net employment impact at the economy-wide level remains ambiguous. Gender-differentiated outcomes reveal a persistent gap between women's formal participation in certified value chains and their control over income and occupational mobility. Aid for Trade flows are positively associated with export growth, but the employment elasticity of that growth is low, and the emerging green trade facilitation agenda is insufficiently targeted toward labour-intensive sectors. The skills-development system is poorly aligned with the competencies required for sustainable export production, creating a low-equilibrium trap.

Second, the evidence base is characterised by three systemic gaps that limit the ability to draw robust policy conclusions. The first is weak causal identification: the majority of studies reviewed rely on cross-sectional or

simulation-based methods that cannot credibly isolate the causal effect of sustainable trade practices on employment outcomes from the effects of confounding factors. The second is limited longitudinal tracking: there are few studies that follow the same households, firms, or workers over time to assess how the employment effects of sustainability standards, trade agreements, and skills programmes evolve. The third is understudied informal-sector transitions: the evidence on how workers and enterprises in Uganda's large informal sector are affected by the shift toward sustainable production and trade is extremely limited.

Third, the policy implications of the review are organised around the five dimensions of the SPGFS framework. For certification standards, the priority is to strengthen the cooperative governance structures through which certification benefits are transmitted to smallholders and to ensure that certification premiums are reliably and transparently distributed. For environmental provisions in trade agreements, the priority is to invest in the complementary domestic policies — including labour-market institutions, quality infrastructure, and enforcement capacity — that determine whether environmental conditionalities translate into improved employment outcomes. For gender-differentiated outcomes, the priority is to address the structural barriers — land tenure, credit markets, and time poverty — that limit women's ability to benefit from sustainable trade practices, and to ensure that gender-targeted interventions are integrated into the design of certification schemes and value-chain programmes. For Aid for Trade and green trade facilitation, the priority is to target Aft flows more explicitly toward labour-intensive sectors and to ensure that the emerging green trade facilitation agenda is accompanied by adequate technical and financial support for developing-country exporters. For skills transitions, the priority is to align the skills-development system with the technical and managerial competencies required for sustainable export production, and to break the low-equilibrium skills trap through coordinated supply-side and demand-side interventions.

Future research should prioritise three directions. First, Uganda-specific experimental and quasi-experimental studies that can credibly identify the causal effects of sustainable trade practices on employment outcomes are urgently needed. Second, better integration of labour-market data with trade and certification data — including through the linking of household surveys, enterprise surveys, and trade statistics — would enable more granular analysis of the employment effects of sustainable trade. Third, analysis of the employment implications of the EU Deforestation Regulation and other emerging due-diligence requirements, including through the tracking of smallholder market access and compliance costs, would provide timely evidence for policy-makers navigating the transition from voluntary to mandatory sustainability governance.

REFERENCES

- African Development Bank Group. (2022). *Green jobs for women in Africa: Uganda country report*. African Natural Resources Management and Investment Centre (ANRC), AfDB. <https://www.afdb.org/en/documents/green-jobs-women-africa-uganda-country-report>
- African Development Bank Group. (2024, January 31). *With African Development Bank support, Uganda takes first step to embedding circular economy model into national strategy* (Press release). <https://www.afdb.org/en/news-and-events/press-releases/african-development-bank-support-uganda-takes-first-step-embedding-circular-economy-model-national-strategy-68536>
- Ahaibwe, G., & Kasirye, I. (2015). *Creating youth employment through entrepreneurship financing: The Uganda Youth Venture Capital Fund (EPRC Research Series No. 206130)*. Economic Policy Research Centre. <https://doi.org/10.22004/ag.econ.206130>
- Akoyi, K. T., & Maertens, M. (2017). Walk the Talk: Private Sustainability Standards in the Ugandan Coffee Sector. *The Journal of Development Studies*, 54(10), 1792–1818. <https://doi.org/10.1080/00220388.2017.1327663>.
- Alinda, K., Tumwine, S., Nalukenge, I., Kaawaase, T. K., Sserwanga, A., & Navrud, S. (2024). Institutional pressures and sustainability practices of manufacturing firms in Uganda. *Sustainable Development*, 32(1), 940–958. <https://doi.org/10.1002/sd.2704>
- Alinda, K., Tumwine, S., Kaawaase, T., Navrud, S., Nalukenge, I., & Sserwanga, A. (2022). *Sustainability Practices among Manufacturing Firms in Uganda: An Overview of Challenges and Opportunities*. *Advances in Research*, 23(1), 1–21. DOI: 10.9734/AIR/2022/v23i130320.
- Atukunda, R., Leyaro, V., Rudaheranwa, N., Ronett, A., Vincent, L., & Nichodemus, R. (2019). Sectoral Aid for Trade and sectoral export performance in East Africa. *Journal of Economics and International Finance*, 11(4), 38–51. <https://doi.org/10.5897/jeif2019.0968>.
- Blattman, C., Fiala, N., & Martinez, S. (2014). Generating skilled self-employment in developing countries: Experimental evidence from Uganda. *The Quarterly Journal of Economics*, 129(2), 697–752. <https://doi.org/10.1093/qje/qjt057>
- Boysen, O., & Matthews, A. (2016). Will Economic Partnership Agreements Increase Poverty? The Case of Uganda. *Review of Development Economics*, 21(2), 353–382. <https://doi.org/10.1111/rode.12272>.
- Chiputwa, B., Spielman, D. J., & Qaim, M. (2014). Food Standards, Certification, and Poverty among Coffee Farmers in Uganda. *World Development*, 66, 400–412. <https://doi.org/10.1016/j.worlddev.2014.09.006>.
- Cramer, C., Johnston, D., Mueller, B., Oya, C. and Sender, J., 2017. Fairtrade and labour markets in Ethiopia and Uganda. *The Journal of Development Studies*, 53(6), pp. 841–856. <https://doi.org/10.1080/00220388.2016.1208175>
- Cramer, C., Johnston, D., Oya, C. and Sender, J., 2014. *Fairtrade, employment and poverty reduction in Ethiopia and Uganda: Final report to DFID*. London: SOAS, University of London.
- Evers, B., & Walters, B. (2000). Extra-Household Factors and Women Farmers' Supply Response in Sub-Saharan Africa. *World Development*, 28(7), 1341–1345. [https://doi.org/10.1016/s0305-750x\(00\)00022-x](https://doi.org/10.1016/s0305-750x(00)00022-x).
- Evers, B., & Walters, B. (2001). The Model of a Gender-Segregated Low-Income Economy Reconsidered: Evidence from Uganda. *Review of Development Economics*, 5(1), 76–88. <https://doi.org/10.1111/1467-9361.00108>.
- Fernandes, A. M., Forero, A., Maemir, H., & Mattoo, A. (2022). Are trade preferences a Panacea? The export impact of the African growth and Opportunity Act. *World Development*, 162, 106114–106114. <https://doi.org/10.1016/j.worlddev.2022.106114>.
- Frija, A., Chebil, A., Mottaleb, K. A., Mason-D'Croz, D., & Dhehibi, B. (2020). Agricultural growth and sex-disaggregated employment in Africa: Future perspectives under different investment scenarios. *Global Food Security*, 24, 100353–100353. <https://doi.org/10.1016/j.gfs.2020.100353>.
- Gastrow, M., Kruss, G., Bolaane, M., & Esemu, T. (2016). Borderline innovation, marginalized communities: universities and inclusive development in ecologically fragile locations. *Innovation and Development*, 7(2), 211–226. <https://doi.org/10.1080/2157930x.2016.1200970>.
- Gnangnon, S. K. (2018). Impact of multilateral trade liberalization and aid for trade for productive capacity building on export revenue instability. *Economic Analysis and Policy*, 58, 141–152. <https://doi.org/10.1016/j.eap.2018.02.002>.
- Hallaert, J.-J., Cavazos-Cepeda, R. H., & Kang, G. (2011). Estimating the Constraints to Developing Countries Trade - A Taxonomy of the Binding Constraints to Trade Expansion of Landlocked Countries, Small and Vulnerable Economies, and Commodity Exporters. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1798543>.
- Hallaert, J.-J., & Munro, L. (2009). Binding Constraints to Trade Expansion: Aid for Trade Objectives and Diagnostics Tools. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1521409>.
- Ijjo, A. T., & Shinyekwa, I. M. B. (2016). Foreign Aid and Trade Capacity Development Recent Evidence from Uganda. *Journal of Sustainable Development*, 9(3), 39–39. <https://doi.org/10.5539/jsd.v9n3p39>.
- Jena, P. R., & Grote, U. (2022). Do Certification Schemes Enhance Coffee Yields and Household Income? Lessons Learned Across Continents. *Frontiers in Sustainable Food Systems*, 5. <https://doi.org/10.3389/fsufs.2021.716904>.
- John Herbert Ainembabazi & Francis H. Kemeze. (2023). Remittances and Employment in Family-Owned Firms: Evidence from Nigeria and Uganda. *African Development Bank Working Paper No. 366*. Published by the African Development Bank
- Maweje, J., & Lakuma, C. P. (2015). Elevated macroeconomic risks hurt business environment perceptions. Uganda Business Climate Index (UBCI), Issue 11, July–September 2015. Kampala: *Economic Policy Research Centre (EPRC)*. DOI: 10.22004/ag.econ.243926.
- Blattman, C., Fiala, N., & Martinez, S. (2014). Generating Skilled Self-Employment in Developing Countries: Experimental Evidence from Uganda. *The Quarterly Journal of Economics*, 129(2), 697–752. Published by Oxford University Press on behalf of Harvard University. DOI: 10.1093/qje/qjt057.
- Taako Edema George, Kiemo Karatu, & Andama Edward. (2020). An

evaluation of the environmental impact assessment practice in Uganda: Challenges and opportunities for achieving sustainable development. *Heliyon*, 6(9), e04758. <https://doi.org/10.1016/j.heliyon.2020.e04758>

Monica Kagorora Kansiime, Caroline Aliamo, Christine Alokit, Harrison Rware, et al. (2025). Pathways and business models for sustainable youth employment in agriculture: A review of research and practice in Africa. *CABI Agriculture and Bioscience*, 6(1), 0045. DOI: 10.1079/ab.2025.0045. Published by Springer Nature.

Eyaa, S., Ntayi, J. M., & Namagembe, S. (2010). Collaborative relationships and SME supply chain performance. *World Journal of Entrepreneurship, Management and Sustainable Development*, 6(3), 233–245. <https://doi.org/10.1108/20425961201000018>

Austin, K. F. (2017). Brewing Unequal Exchanges in Coffee: A Qualitative Investigation into the Consequences of the Java Trade in Rural Uganda. *Journal of World-Systems Research*, 23(2), 326–352. DOI: <https://doi.org/10.5195/jwsr.2017.668>

Kabbera, S., Mugarura, J. T., Tibaingana, A., & Kiwala, Y. (2026). Sustainability and the Role of Policy Regulations in Agro-Processing Small and Medium Enterprises in Uganda. *Cleaner and Circular Bioeconomy*, 13, 100203. DOI: <https://doi.org/10.1016/j.clcb.2025.100203>; https://doi.org/10.1016/elsevier_cm_policy

Kabbera, S., Tibaingana, A., Kiwala, Y., & Mugarura, J. T. (2024). Environmental practices and the growth of small and medium agro-processing enterprises in Uganda. *Cleaner and Circular Bioeconomy*, 8, 100090. <https://doi.org/10.1016/j.clcb.2024.100090>

Kasimu Sendawula & Peter Turyakira & Godfrey Akileng & Bagire Vincent, 2024. "Environmental knowledge, regulatory compliance mechanisms, and environmental sustainability practices of manufacturing small and medium enterprises (SMEs) in Uganda," *Journal of Innovation and Entrepreneurship, Springer*, vol. 13(1), pages 1-19, December.

Kabbera, S., Tibaingana, A., Kiwala, Y., & Mugarura, J. T. (2024). Triple bottom line practices and the growth agro-processing enterprises in Uganda. *Cleaner and Circular Bioeconomy*, 8, 100081. <https://doi.org/10.1016/j.clcb.2024.100081>

Sendawula, K., Bagire, V., Mbidde, C. I., & Turyakira, P. (2021). Environmental commitment and environmental sustainability practices of manufacturing small and medium enterprises in Uganda. *Journal of Enterprising Communities: People and Places in the Global Economy*, 15(4), 588–607. <https://doi.org/10.1108/JEC-07-2020-0132>

Tukamuhabwa, B. R. (2023). Supply chain orientation and supply chain risk management capabilities: Mechanisms for supply chain performance of agro-food processing firms in Uganda. *Journal of African Business*, 24(4), 649–672. <https://doi.org/10.1080/15228916.2023.2165894>

Kimuli, Saadat Nakyejwe, Sendawula, Kasimu, & Sabi, Humphrey M. (2021). Sustainable entrepreneurship of small businesses in Uganda: A confirmatory factor analysis. *African Journal of Business Management*, 15(5), 139–151. <https://doi.org/10.5897/AJBM2021.9207>

Alinda, K., Tumwine, S., & Kaawaase, T. K. (2024). Environmental innovations and sustainability practices of manufacturing firms in Uganda. *Asia Pacific Journal of Innovation and Entrepreneurship*, 18(2), 102–129. <https://doi.org/10.1108/APJIE-08-2023-0164>

Muhammad, K., Salawu, R. O., Masibo, S., & Sikuku, I. (2024). The

government's role in nurturing management for sustainability practices among small and medium enterprises in Uganda. *TWIST*, 19(1), 409–416. <https://doi.org/10.5281/zenodo.10049652>

Namagembe, S., Ryan, S., & Sridharan, R. (2019). Green supply chain practice adoption and firm performance: Manufacturing SMEs in Uganda. *Management of Environmental Quality: An International Journal*, 30(1), 5–35. <https://doi.org/10.1108/MEQ-10-2017-0119>

Namagembe, S., Sridharan, R., & Ryan, S. (2016). Green supply chain management practice adoption in Ugandan SME manufacturing firms: The role of enviropreneurial orientation. *World Journal of Science, Technology and Sustainable Development*, 13(3), 154–173. <https://doi.org/10.1108/WJSTSD-01-2016-0003>

Shinyekwa, I. M. B., & Ntale, A. (2020). The role of economic infrastructure in promoting exports of manufactured products: Trade facilitation and industrialization in the EAC. *Economic Policy Research Centre (EPRC)*. <https://doi.org/10.22004/ag.econ.265773>

Shinyekwa, I. & Katunze, M. (2016), Assessment of the Effect of the EAC Common External Tariff Sensitive Products List on Domestic Industries, Welfare, Trade and Revenue. EPRC Research Report No. 253555. *Economic Policy Research Centre, Kampala*.