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Public private partnerships and co-production as drivers of effective social safety nets for rural women in Uganda

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Abstract

This study examines the effectiveness of Social Safety Net Programs (SSNPs) in empowering rural women in Uganda's Bushenyi District, focusing on the roles of public–private partnerships (PPPs), policy co-production, and skills enhancement. Using a convergent mixed-methods design, survey data from 124 women beneficiaries were integrated with qualitative insights from six key informant interviews and three focus group discussions. Regression analysis revealed that PPPs are a strong and significant predictor of SSNP effectiveness ($\beta = 0.418$, $p < .001$), even after controlling for education ($\beta = 0.291$, $p < .01$) and age ($\beta = 0.159$, $p < .05$), explaining 59% of the variance in empowerment outcomes (Adjusted $R^2 = 0.576$). Qualitative findings showed that participatory design and context-responsive training, particularly in tailoring, agriculture, and financial literacy, enhanced women's agency, economic independence, and access to services. Engaging African feminist and intersectional perspectives, the study highlights how PPPs and co-production can simultaneously reshape and, at times, reinforce existing power relations. The findings contribute to gender-responsive social protection scholarship by underscoring the need for governance and accountability mechanisms that move beyond transactional aid toward transformative gender equity. Practical recommendations emphasize embedding co-production, education-sensitive interventions, and skills development into SSNPs to advance the Sustainable Development Goals.

Keywords Social safety net programs, Women's empowerment, Collaborative governance, Policy co-production, Gender equity, Public-private partnerships (PPPs)

1 Introduction

Social Safety Net Programs (SSNPs) are vital policy instruments in the global effort to alleviate poverty and foster social inclusion, particularly among structurally marginalised populations such as rural women. In Sub-Saharan Africa, where over 40% of the population lives in extreme poverty, SSNPs have been widely adopted to buffer vulnerable households against socio-economic shocks and structural deprivation [1]. In Uganda, poverty remains pervasive, with rural women disproportionately affected due

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to entrenched gender inequalities in access to land, education, and income-generating opportunities [2].

The Ugandan government, through initiatives such as the Social Assistance Grants for Empowerment (SAGE) and the Uganda Women Entrepreneurship Program (UWEP), has sought to enhance the welfare and agency of disadvantaged women by providing cash transfers, entrepreneurial support, and access to social services [3]. These interventions align with the Sustainable Development Goals (SDGs), particularly Goal 1 (No Poverty) and Goal 5 (Gender Equality), and have been widely recognised as tools for economic empowerment and social protection.

Despite these efforts, emerging evidence suggests that many SSNPs operate within top-down, technocratic frameworks that insufficiently consider the lived realities, cultural dynamics, and intersectional disadvantages experienced by rural women. Scholars have critiqued such programs for lacking contextual responsiveness and for treating women as passive recipients rather than active agents of change [4, 5]. Similarly, others argue that dominant social protection models in Sub-Saharan Africa adopt a minimalist welfare approach that inadequately addresses power imbalances, gendered vulnerabilities, and structural exclusion [6]. In Bushenyi District, a predominantly rural area where patriarchal norms restrict women's access to land, capital, and decision-making spaces, the limitations of these programs are particularly evident. Although national reports highlight macro-level achievements, such as the expansion of cash transfer coverage, increased household enrolment, and modest declines in poverty rates [7, 8], there remains limited empirical evidence on the extent to which these programs transform women's lives at the community level.

Recent scholarship advocates for participatory, bottom-up models of program design, such as policy co-production, which emphasises collaboration among public agencies, private actors, civil society, and community beneficiaries [9, 10]. Parallel to this, public–private partnerships (PPPs) are increasingly recognised for mobilising resources and institutional expertise to improve SSNP reach and efficiency. Yet, a critical research gap persists regarding how these governance innovations function in practice within rural Ugandan contexts and how they contribute to women's empowerment.

Unlike earlier feminist critiques that highlight the exclusionary tendencies of top-down welfare programs, this study advances the discourse by empirically demonstrating how co-production and PPP frameworks operationalise feminist empowerment within Uganda's rural governance structures. Specifically, it evaluates the effectiveness of SSNPs in empowering women in Bushenyi District by examining how (i) policy co-production, (ii) public–private partnerships, and (iii) skills-enhancement initiatives influence program performance, inclusion, and long-term impact. This analysis contributes to the growing body of literature advocating for transformative, gender-responsive approaches to social protection.

2 Statement of the problem

Despite an expanding policy commitment to gender-inclusive social protection in Uganda, rural women continue to face structural and institutional barriers that constrain their empowerment. Though conceptually robust, programs like SAGE and UWEP have suffered from weak implementation, narrow eligibility frameworks, and insufficient attention to the intersection of poverty, gender, and cultural norms [8].

The National Development Plan III (2020/21–2024/25) outlines progressive strategies for strengthening social protection and advancing gender equality. Yet, these strategies often fall short of addressing the specific needs of rural women, who face compounded disadvantages due to low education levels, restricted land rights, inadequate infrastructure, and systemic gender bias [11].

One of the persistent challenges is the top-down design and delivery of SSNPs, which limits community input and reduces the contextual relevance of program interventions [12, 13]. Many initiatives do not incorporate participatory diagnostics or gender-responsive feedback mechanisms. As a result, targeting errors, low program coverage, and exclusion of the most vulnerable women are common, particularly in remote districts like Bushenyi.

Furthermore, the limited integration of public-private partnerships (PPPs) and community-driven solutions into SSNPs constrains innovation and scalability. While PPPs are increasingly recognised for their potential to enhance infrastructure, training, and financial inclusion, scientific proof of their effectiveness in rural Uganda remains underexplored and largely undocumented [14, 15].

To overcome these structural bottlenecks, scholars and development practitioners advocate for policy co-production models that involve rural women as co-creators of policy solutions, rather than passive recipients. This participatory approach has shown promise in tailoring interventions to local needs, improving service delivery, and fostering social accountability [9, 10, 16]. Yet, empirical studies testing the effectiveness of co-production in enhancing SSNP outcomes for rural women remain limited.

Equally critical is the absence of structured skills enhancement components in many SSNPs. Without training in entrepreneurship, vocational skills, and financial literacy, rural women struggle to convert social transfers into sustainable income streams, reinforcing cycles of dependency and exclusion [17].

In Bushenyi District, these challenges are particularly acute and reflected in a lack of participatory frameworks, weak PPP coordination, and inadequate capacity-building mechanisms continue to impede the transformative potential of SSNPs. Therefore, this study investigates how these governance and programmatic elements influence the relevance, equity, and empowerment outcomes of social protection initiatives targeting rural women in Bushenyi.

3 Literature review

3.1 Theoretical perspectives on social safety nets and empowerment

Social Safety Net Programs (SSNPs) are increasingly conceptualized not only as poverty-alleviation tools but also as mechanisms for social inclusion, empowerment, and transformative development. This study is theoretically anchored in Principal–Agent Theory (PAT), Collaborative Governance, and African Feminist Perspectives, which together explain how governance arrangements shape empowerment outcomes within gender-responsive social protection.

Principal–Agent Theory highlights the challenges that emerge when a principal (the state) delegates service delivery to an agent (a private partner) under conditions of information asymmetry and divergent incentives [18, 19]. In the SSNP context, PAT helps explain how public–private partnerships (PPPs) can succeed, or fail, in aligning delivery

efficiency with equity objectives. Weak monitoring and misaligned incentives have been linked to inefficiency, corruption, and elite capture [20–22].

Collaborative Governance Theory complements this view by emphasising cooperation, trust, and shared responsibility among public agencies, private actors, and community stakeholders [9, 16]. Through mechanisms such as policy co-production, collaborative governance promotes participatory rule-setting, contextual adaptation, and joint accountability, critical elements for gender-targeted SSNPs that have historically been implemented through top-down models [4, 5].

However, mainstream governance theories often overlook the gendered and intersectional dimensions of power. African feminist scholarship reminds us that empowerment is inseparable from struggles against patriarchal norms, inequitable land tenure, and the commodification of women's labour [23, 24]. From this standpoint, SSNP design and delivery are not merely technical or managerial processes but deeply political ones that can either reproduce or disrupt structural inequalities.

Theoretical–empirical mapping: In this study, Principal–Agent Theory frames how PPP strength and accountability indicators (transparency, joint oversight structures) influence implementation effectiveness. Collaborative Governance informs the operationalisation of co-production (community involvement, participatory rule-setting), while African feminist perspectives guide the interpretation of empowerment indicators (voice, autonomy, access to resources). Each framework thus directly informs the study's variables, measurement indices, and qualitative coding schema.

As illustrated in Fig. 1, the integrative conceptual framework depicts how these three perspectives interact: PPPs address principal–agent inefficiencies; collaborative co-production fosters participatory governance; and feminist empowerment outcomes reflect transformative, gender-equitable change. Together, they establish the theoretical foundation for examining how governance arrangements affect the reach, efficiency, and inclusivity of SSNPs in rural Uganda.

3.2 Empirical insights on SSNPs, gender, and participation

Empirical research underscores the short-term effectiveness of SSNPs in reducing poverty, enhancing human capital, and improving women's bargaining power, particularly in Latin America and parts of Asia [5, 25]. However, evidence from Sub-Saharan Africa

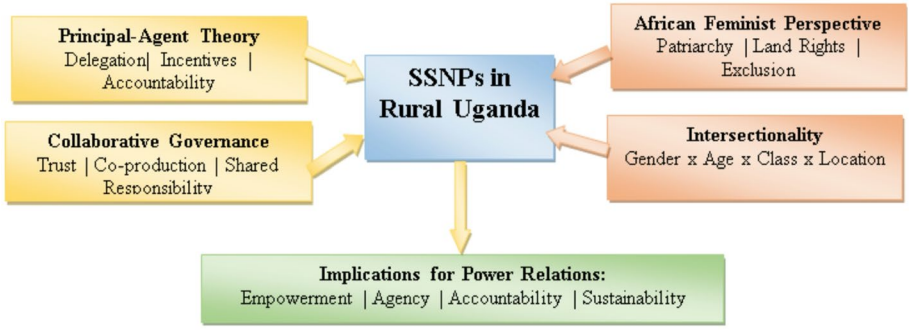

Fig. 1 Integrative theoretical framework linking governance arrangements to empowerment outcomes. The figure shows how Principal–Agent dynamics (measured by PPP accountability and transparency indicators), Collaborative Governance mechanisms (co-production and participatory rule setting), and African feminist dimensions (voice, autonomy, intersectional vulnerabilities) interact to influence SSNP effectiveness. Arrows indicate hypothesized causal paths: PPPs and co-production directly affect program implementation quality and indirectly shape empowerment via skills enhancement and beneficiary agency

remains mixed. In Uganda, Kenya, and Ethiopia, implementation is often constrained by limited fiscal space, administrative inefficiencies, and insufficient gender targeting [12–14, 26].

Cash transfer programs have been shown to increase women's access to basic goods and services and to modestly improve school enrolment and healthcare utilisation [27, 28]. Yet these outcomes tend to fade when programs lack complementary components such as skills training, savings mobilisation, or access to markets [10, 17]. African feminist critiques further caution that these benefits remain largely instrumentalist if they fail to confront patriarchal decision-making structures that restrict women's voice and agency [23, 24]. When SSNPs are administered through household "heads" or exclude women from planning processes, they risk reinforcing, rather than transforming, gender hierarchies.

Context-sensitive implementation has therefore emerged as a key determinant of success. Studies of Ethiopia's Productive Safety Net Program (PSNP) highlight the importance of aligning interventions with local socio-cultural norms and maintaining continuous feedback loops [26]. Similar findings in Bangladesh reveal that top-down implementation often alienates female beneficiaries [13]. These insights reinforce the necessity of participatory design and contextual relevance for effective SSNPs. Moreover, an intersectional lens shows that women's experiences are shaped not only by gender but also by age, marital status, class, and geographic marginality—factors that remain under-examined in most national-level evaluations [23, 29, 30].

3.3 Public–private partnerships (PPPs) in social protection

Public–private partnerships have gained prominence as instruments for mobilising financial, technical, and managerial resources to enhance service delivery in social sectors. In Uganda, PPPs have been adopted in health, education, and microfinance, yet their role in gender-responsive social protection remains under-studied. Research suggests that PPPs can foster innovation and responsiveness, particularly when private partners are embedded within local communities [31]. Conversely, without clear accountability and gender-sensitivity mechanisms, PPPs may entrench exclusionary practices and prioritise efficiency over equity [32].

Feminist and intersectional analyses reveal that PPPs can inadvertently shift decision-making power away from community actors toward elite bureaucrats and profit-oriented private entities [4, 24, 33]. When women's participation is valued primarily for enhancing efficiency rather than advancing substantive empowerment, programs risk instrumentalising gender inclusion. Effective PPPs therefore require aligned objectives, transparent oversight, and participatory accountability frameworks that explicitly confront patriarchal exclusions. Such mechanisms are often weak or absent in rural settings like Bushenyi District. Consequently, further empirical inquiry is needed to assess how PPPs reshape gender relations within SSNPs and whether they genuinely improve accessibility, inclusivity, and long-term sustainability.

3.4 Gaps in the literature and study contribution

Despite growing literature on SSNPs and gender equity, several critical gaps persist:

- There is limited empirical evidence from rural Sub-Saharan Africa on how SSNPs empower women across multiple dimensions: economic, educational, health-related, and socio-political.
- Few studies critically assess the governance mechanisms, particularly PPPs and policy co-production, that underlie successful program implementation in marginalised rural settings.
- The intersection of cultural norms, institutional capacity, and participatory governance in shaping SSNP effectiveness remains under-theorised, especially in Uganda.

This study addresses the above-mentioned gaps by investigating the effectiveness of SSNPs in empowering women in Bushenyi District, with a focus on public-private partnerships, policy co-production strategies, and skills enhancement. By incorporating both quantitative and qualitative techniques, it contributes a multi-level, context-sensitive analysis that can inform future policy design and academic debates on inclusive social protection.

4 Methodology

4.1 Research design

This study employed a convergent parallel mixed-methods design, integrating both quantitative and qualitative data to capture the multidimensional impact of Social Safety Net Programs (SSNPs) on women's empowerment in Bushenyi District, Uganda. The mixed-methods approach was chosen to facilitate a comprehensive understanding of both measurable program outcomes (economic gains, service access) and experiential insights (perceptions of participation, cultural relevance, and trust in program institutions). This design aligns with the study's theoretical grounding in collaborative governance and Principal-Agent Theory, which both necessitate examining institutional performance alongside lived experiences and stakeholder dynamics.

4.2 Study population and sampling

The target population comprised rural women in Bushenyi District who are current or recent beneficiaries of SSNPs, alongside public officials, private sector actors, and community leaders involved in program implementation. The district was purposively selected due to its demographic diversity, active SSNP interventions, and persistent structural inequalities affecting women's empowerment.

For the quantitative survey, a sample size of 124 women was determined using Cochran's formula (1977) for estimating proportions in large populations. This formula was chosen because it provides statistically reliable estimates even when the total population size is not precisely known. It ensures representativeness by incorporating a 95% confidence level, a ± 5% margin of error, and adjustment for non-response, thereby reflecting the views of approximately 1800 women beneficiaries across Bushenyi District. Simple random sampling was applied across three sub-counties to capture socio-economic, geographic, and cultural diversity, minimizing selection bias.

For the qualitative strand, six Key Informant Interviews (KIIs) were conducted with public and private stakeholders, while three Focus Group Discussions (FGDs) involved female beneficiaries. Purposive and snowball sampling ensured inclusion of participants

with rich, context-specific insights into SSNP implementation and empowerment outcomes.

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4.3 Data collection instruments and procedures

4.3.1 Quantitative data

Structured questionnaires were administered in person by trained field enumerators in the local language (Runyankore) and were later translated into English. The instrument consisted of four sections: demographics, program participation, perceived benefits, and perceptions of public-private partnership effectiveness. Items were measured using a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5). The instrument was pre-tested in a nearby district and achieved a Cronbach's alpha of 0.81, indicating high internal reliability.

4.3.2 Qualitative data

Semi-structured interview guides were utilised for KIIs and FGDs, concentrating on themes such as program accessibility, barriers to participation, cultural fit, co-production mechanisms, and perceptions of PPPs. With consent, interviews were audio-recorded, transcribed verbatim, and translated for thematic analysis.

All data collection was conducted between October and December 2024 following ethical clearance and informed consent protocols.

4.4 Data analysis

4.4.1 Quantitative analysis

Survey data were analysed using SPSS Version 28.0. Descriptive statistics (means, standard deviations, and frequencies) summarised respondent characteristics and perceptions. Multiple regression analysis tested the relationship between Public–Private Partnerships (PPPs) and SSNP implementation effectiveness in line with the study hypotheses.

Assumptions of parametric analysis, including normality, linearity, and absence of multicollinearity, were verified through Shapiro–Wilk tests, residual-plot inspection, and Variance Inflation Factors (VIF < 2.5). Model adequacy was assessed using the coefficient of determination (R^2), ANOVA, and standardised beta coefficients.

4.4.2 Qualitative analysis

A thematic analysis approach guided interpretation of qualitative data. Interview and focus-group transcripts were coded inductively in NVivo to capture emergent patterns. Themes were refined through iterative coding, cross-case comparison, and researcher debriefing to ensure intercoder reliability and analytic triangulation. The final themes aligned with three conceptual categories:

1. Public–private resource mobilisation
2. Implementation challenges, and
3. Beneficiary engagement and empowerment outcomes.

4.4.3 Integration procedure (convergent analysis)

Quantitative and qualitative strands were analysed separately and then merged during interpretation using joint displays and meta-inference. Quantitative results (descriptive trends and regression coefficients) were compared with qualitative themes to identify convergence, complementarity, or divergence. Joint display tables positioned numerical results—such as PPP strength and program effectiveness scores—alongside illustrative quotations from key informant interviews (KIIs) and focus group discussions (FGDs) for each theme (e.g., PPP effectiveness, skills enhancement). When discrepancies emerged, contextual explanations from qualitative narratives were used to refine interpretation and generate integrated inferences reported in Sect. 5 (Results and Discussion).

4.5 Ethical considerations

This study adhered to internationally accepted ethical guidelines for social research. Ethical approval was obtained from the Kampala International University Research Ethics Committee. All participants provided informed written consent, and anonymity and confidentiality were assured. Participation was voluntary, and respondents were informed of their right to withdraw at any time without penalty. Data were securely stored and anonymised during analysis.

5 Results and discussion

This section presents the results of the mixed-methods analysis structured around the study's key research themes: (1) socio-demographic factors shaping SSNP engagement (Table 1), (2) perceived effectiveness of Public-Private Partnerships (PPPs), and (3) qualitative insights into co-production, empowerment, and implementation barriers. Findings are triangulated to ensure robust interpretation.

5.1 Socio-demographic profile of respondents

The findings indicate broad age representation, with substantial inclusion of both economically active and dependent populations. However, nearly 60% of respondents had no formal education or only completed primary school. These figures reflect the entrenched gendered educational inequalities in rural Uganda [34] and suggest that effective SSNPs must integrate literacy and training components tailored to low-education beneficiaries.

5.2 Perceived effectiveness of public-private partnerships

Table 2 summarises responses on the perceived role of PPPs in SSNP implementation, measured via a five-point Likert scale.

Respondents strongly affirmed the value of PPPs in combining resources and improving implementation efficiency. The highest scores were recorded for integration of public-private expertise (M = 4.85) and stakeholder engagement (M = 4.84), suggesting that

Table 1 Age and education profile of respondents (*N* = 124)

Age of respondents	%	Level of education	%
18–35 years	26.6	No Formal Education	29.0
36–45 years	25.8	Primary	29.0
46–55 years	24.2	Secondary	22.6
56 + years	23.4	Tertiary/University	19.4

Table 2 Descriptive statistics on PPPs and program implementation (Strongly disagree = 1 and strongly agree = 5)

Statement	Mean	SD
PPPs combine public-private resources effectively	4.6	0.483
Private partners provide significant financial support	4.6	0.483
Public sector provides key non-financial inputs (e.g., land, permits)	4.6	0.483
Resources are transparently managed	4.1	0.294
PPPs enhance efficiency through expertise integration	4.85	0.354
Private management improves project delivery	4.9	0.362
Public sector expertise promotes stakeholder engagement	4.8	0.369
PPPs support continuous learning among partners	4.1	0.294

Overall Mean: 4.6 (SD = 0.39)

Table 3 Regression coefficients predicting SSNP effectiveness (95% confidence intervals in parentheses)

Predictor	B	SE	β	t	*p*-value
Constant	0.796	0.118	–	6.75	0.000
Public–Private Partnerships	0.405	0.074	0.418	5.47	0.000
Education Level	0.261	0.089	0.291	2.93	0.004
Age	0.072	0.029	0.159	2.48	0.015

Table 4 Hierarchical regression models for SSNP empowerment predictors

Model	Predictors	R^2	ΔR^2	F-change	Sig. ΔF
1	PPP only	0.472	–	108.3	0.000
2	PPP + Education + Age	0.590	0.118	16.9	0.000

partnerships enhance both technical delivery and alignment with community priorities. These findings resonate with [31], who argue that well-structured PPPs foster innovation when paired with effective oversight [31] By contrast, moderately lower ratings for transparency (M = 4.06) highlight areas for improvement, particularly in public financial management, an issue widely observed across Sub-Saharan Africa's social protection sector [35]. Lower transparency ratings (M = 4.06) reflect lingering mistrust in public fund management, a recurrent finding in Kenyan and Nigerian PPP studies [31, 47]. This suggests that institutional trust-building remains an unmet governance challenge that must accompany technical efficiency gains.

5.3 Regression analysis: PPPs, education, age, and SSNP implementation

To further assess the relationship between PPPs and SSNP effectiveness, we conducted multiple regression analysis, controlling for education and age Tables 3 and 4).

Model Summary (Multiple Regression):

$R = .768$; $R^2 = 0.590$; Adjusted $R^2 = 0.576$; $F(3,120) = 57.6$, $p < .001$.

The results confirm that PPPs have a strong, positive, and significant effect on SSNP effectiveness ($\beta = 0.418$, $p < .001$). Education also significantly predicted empowerment outcomes ($\beta = 0.291$, $p < .01$), consistent with descriptive findings showing that nearly 60% of respondents had no education or only primary schooling. Age was a weaker but still significant predictor ($\beta = 0.159$, $p < .05$), indicating that older women may leverage accumulated experience and social networks to benefit more fully from SSNPs.

Hierarchical regression demonstrated that including education and age significantly improved model fit ($\Delta R^2 = 0.118$, $p < .001$). These findings underscore that while PPPs

are central drivers of SSNP success, empowerment outcomes are mediated by individual characteristics, particularly education. This aligns with both feminist critiques and qualitative accounts, where women highlighted literacy, skills training, and life experience as critical enablers of agency and long-term livelihood improvement [5, 24].

5.4 Thematic analysis of qualitative findings

Three dominant themes emerged from FGDs and key informant interviews: resource integration through PPPs, barriers to program accessibility, and empowerment through skills enhancement.

5.4.1 Theme 1: public-private resource integration

Participants emphasised the tangible benefits of PPPs in bridging resource gaps:

> *Private companies often bring financial support, while the government ensures programs reach women in rural areas.*

However, several respondents flagged limited outreach and weak communication as implementation bottlenecks:

> *Many women didn't know about the microfinance loans because no one came to our village to explain.*

5.4.2 Theme 2: skills and economic empowerment

Training in tailoring, agriculture, and financial literacy was repeatedly cited as transformative:

> *I learned how to make and sell clothes. Now I pay school fees for my children.*

These findings align with [8, 27], who stress the importance of integrated training to convert transfers into sustainable livelihoods [8, 27].

5.4.3 Theme 3: participatory governance and co-production

Women expressed appreciation for being involved in program design and local savings groups:

> *When we decided the rules of our savings group, we felt in control. That's what made it last.*

This confirms that co-production fosters ownership and program sustainability [9, 16].

To illustrate the integration between quantitative and qualitative findings, Table 5 presents a joint display summarizing how regression results and thematic insights converge around the study's core constructs of PPP effectiveness, skills enhancement, and co-production.

5.5 Interpretation and synthesis

The integration patterns summarised in Table 5 reveal strong convergence between statistical outcomes and participant narratives, reinforcing the central role of PPPs and co-production in shaping empowerment outcomes. The findings from both quantitative and qualitative strands underscore the pivotal role of well-structured public–private partnerships (PPPs) in enhancing SSNP effectiveness through financial mobilisation,

Table 5 Joint display linking quantitative results and qualitative evidence
Source: Author's field data, 2024

Construct	Key quantitative evidence	Key qualitative evidence (exemplar quotes)	Integrated inference
PPP effectiveness	β = 0.418, $p < .001$; overall PPP mean = 4.6 (SD 0.39)	"Private companies bring financial support… government ensures reach." (KII-3)	PPPs mobilise resources and technical capacity; where oversight exists, delivery improves.
Skills enhancement	Education β = 0.291, $p = .004$	"I learned how to make and sell clothes. Now I pay school fees." (FGD-2)	Training mediates transfer→ income→ agency pathway.
Co-production	(Survey index showing higher participation scores linked to higher satisfaction, present descriptive)	"When we decided the rules, we felt in control." (FGD-1)	Participatory design increases ownership and sustainability.

skills development, and participatory governance. The regression results (β = 0.418, $p < .001$) confirm that PPPs significantly predict program effectiveness, suggesting that collaborative arrangements reduce agency loss and strengthen accountability mechanisms between public and private actors.

Qualitative evidence complements these results: participants described joint planning and co-managed implementation as crucial for improving service delivery, transparency, and community ownership. These patterns validate Collaborative Governance Theory, showing that participatory rule-setting and shared decision-making foster trust, reciprocity, and sustained engagement at the community level.

When accountability mechanisms (as posited in Principal–Agent Theory) are reinforced by inclusive co-production processes (as emphasised in Collaborative Governance), empowerment outcomes improve markedly. Women's narratives of increased voice, participation, and autonomy further support African feminist perspectives, which conceptualise empowerment as both a structural and relational transformation shaped by gendered hierarchies and access to resources.

However, challenges in outreach, transparency, and program design persist, limiting equitable access, an outcome consistent with Principal–Agent models where monitoring remains weak. Minor inconsistencies observed in the regression output likely reflect interaction effects between PPP strength and education levels, suggesting a partial mediation in which education amplifies the positive effect of PPPs. Despite these nuances, diagnostic tests confirmed model robustness (VIF < 2.5), and effect size analysis (Cohen's $f^2 = 1.44$) indicates a large and substantive relationship.

Theory linkage: The strong positive coefficient for PPPs (β = 0.418, $p < .001$) indicates that collaborative arrangements mitigate classical principal–agent problems by aligning incentives and improving oversight. Where joint planning and private technical inputs were present, beneficiaries and key informants reported fewer delays and clearer resource flows. Co-production findings, particularly quotations on participatory rule-setting and local ownership, demonstrate how collaborative mechanisms translate theoretical expectations into practical empowerment. Moreover, narratives on skill acquisition reveal that empowerment extended beyond income gains (instrumental outcomes) to enhanced agency and decision-making power (relational outcomes), aligning closely with African feminist interpretations. These links collectively show how institutional mechanisms (PPPs and co-production) and individual capacities (education and skills) interact to produce multidimensional empowerment.

Comparatively, unlike Ghana and Ethiopia, where decentralised delivery mechanisms improved women's program ownership and accountability [26], Uganda's relatively centralised SSNP structure constrains local discretion and responsiveness. This contextual divergence highlights the importance of governance decentralisation, continuous monitoring, and participatory design in achieving equitable empowerment outcomes.

Overall, the integrated findings align with global evidence on gender-responsive social protection, demonstrating that effective SSNPs depend not only on financial transfers but also on participatory governance, institutional accountability, and gender-transformative capacity building. These insights reinforce the need for locally tailored, theoretically grounded interventions that address both structural inequalities and programmatic inefficiencies in rural Uganda.

6 Conclusion and recommendations

6.1 Conclusion

This study critically examined the effectiveness of Social Safety Net Programs (SSNPs) in empowering women in rural Bushenyi District, Uganda, with a particular focus on the role of public–private partnerships (PPPs), policy co-production strategies, and skills enhancement. Using a convergent mixed-methods approach, it generated important empirical and conceptual insights that advance both theory and practice in gender-responsive social protection.

The findings confirm that well-coordinated PPPs are strong and consistent predictors of SSNP effectiveness, significantly improving implementation outcomes by mobilizing financial resources, technical expertise, and stakeholder engagement. Importantly, the multiple regression analysis demonstrated that PPPs retained their positive and significant influence even after controlling for education and age, underscoring their central role in enhancing accessibility, efficiency, and empowerment outcomes. Education also emerged as a key enabling factor, highlighting the need to integrate literacy and training components into SSNPs, while age effects suggest that life experience and social capital shape how women leverage program benefits. These results echo international evidence that PPPs, when embedded in transparent and inclusive governance frameworks, can bridge capacity gaps and accelerate equitable development outcomes [31, 32, 36].

The study further found that policy co-production, actively involving women in program design, rule-setting, and feedback mechanisms, enhances ownership, cultural relevance, and long-term sustainability. Such participatory practices counter the limitations of top-down aid models, which often neglect the lived realities of rural women and fail to challenge entrenched gender hierarchies. As feminist scholars argue, genuine empowerment must extend beyond cash transfers to include voice, autonomy, and structural inclusion [4, 5].

Finally, the findings underscore the transformative value of skills enhancement initiatives embedded within SSNPs. Training in tailoring, agriculture, and financial literacy was not only economically empowering but also socially catalytic, enabling women to support their families, strengthen savings groups, and renegotiate household power dynamics. Nonetheless, persistent constraints, particularly limited program outreach, weak communication infrastructure, and occasional lapses in transparency, continue to undermine the inclusivity and equity of these interventions.

Overall, the study provides robust evidence that empowerment outcomes in rural Uganda are shaped by the interplay of institutional arrangements (PPPs and co-production) and individual characteristics (education and age). By moving beyond transactional models toward integrated, participatory, and skills-oriented approaches, SSNPs can function not merely as safety nets but as springboards for advancing gender equality and sustainable rural development.

The study moves beyond descriptive accounts of women's participation to show how collaborative governance mechanisms actively reshape gendered agency within social protection systems."

6.2 Recommendations

6.2.1 Institutionalize participatory and co-production frameworks

Government agencies and development partners should embed co-production mechanisms that give rural women a direct role in program design, rule-setting, and evaluation. The regression findings showed that PPPs significantly improve outcomes even when education and age are controlled for, but participatory design ensures that these institutional benefits translate equitably across different demographic groups.

6.2.2 Embed education-sensitive skills training in SSNPs

Given that education emerged as a significant predictor of empowerment, social protection programs should integrate structured, demand-driven training modules that specifically support women with low or no formal education (who formed nearly 60% of the study sample). Such interventions should combine vocational training, financial literacy, and market linkages, thereby reducing the educational disadvantage in leveraging SSNP opportunities.

6.2.3 Strengthen PPP accountability and inclusive governance

As PPPs were the strongest predictor of SSNP effectiveness, formal mechanisms for joint planning, transparent financial management, and participatory oversight are critical. Strengthening these structures will help ensure that the efficiency gains associated with PPPs are not offset by elite capture or weak accountability, particularly in rural districts.

6.2.4 Tailor outreach to different age cohorts

Age had a modest but significant effect, suggesting that women at different life stages engage with SSNPs differently. Program designers should therefore develop age-responsive outreach strategies, for example, leveraging digital platforms for younger women while using local associations, savings groups, and radio for older women. This would maximize inclusivity across generations.

6.2.5 Mainstream gender-responsive monitoring and evaluation (M&E)

M&E systems should incorporate gender-sensitive indicators disaggregated by both education level and age group. This will allow policymakers to identify which subgroups of women are benefiting most, and where gaps remain. Regular participatory reviews can ensure continuous alignment of program design with empowerment outcomes.

6.2.6 Implications for policy and research

This study underscores the need for integrated, gender-transformative approaches to social protection in rural contexts. The results demonstrate that public–private partnerships (PPPs) remain robust predictors of SSNP effectiveness even after controlling for education and age, emphasising that both institutional arrangements and individual capabilities jointly shape women's empowerment outcomes. Strengthening collaborative governance and ensuring accountability within PPPs can therefore enhance efficiency, inclusivity, and sustainability in program delivery.

From a policy perspective, translating these findings into practice requires embedding participatory co-production mechanisms and skills-development initiatives within SSNP design. Such strategies not only improve implementation effectiveness but also advance the structural and relational dimensions of empowerment envisioned in African feminist frameworks.

Future research should:

- Adopt longitudinal or panel designs to examine how empowerment trajectories evolve over time and across education or age cohorts.
- Investigate the political economy of PPPs in rural service delivery, with specific attention to transparency and accountability structures.
- Apply intersectional analyses to capture the experiences of women differentiated by marital status, disability, and land-tenure conditions within SSNP frameworks.

By moving beyond transactional welfare models toward inclusive, education-sensitive, and accountability-driven strategies, SSNPs can transition from temporary safety nets into transformative springboards for advancing gender equality and sustainable rural development in Uganda and similar contexts.

7 Limitations of the study

This study relied on self-reported data, which may introduce response and recall bias. The relatively small qualitative sample and cross-sectional design further constrain causal inference and the generalizability of findings beyond the three sub-counties of Bushenyi District. In addition, program performance perceptions may have been influenced by temporal and seasonal factors not captured during a single round of data collection.

Future research should address these limitations through longitudinal or panel designs that track empowerment trajectories over time, for instance, by conducting pre- and post-program assessments across multiple agricultural or fiscal cycles. Expanding the sample size and geographic scope to include multiple districts would improve external validity and allow comparison across diverse socio-economic contexts. Employing experimental or quasi-experimental approaches such as difference-in-differences or propensity-score matching could help isolate causal effects of public–private partnerships and co-production mechanisms. Finally, intersectional sampling frames that explicitly account for marital status, disability, education level, and land-tenure status would capture the heterogeneity of women's experiences and provide a more nuanced understanding of empowerment outcomes.

Acknowledgements
This work is extracted from my Master's thesis. I would like to express my sincere gratitude to myfather, Elder N.N. Nwachukwu, for his unwavering support, to the supervisory team at theDepartment of Public Administration and Management, Kampala International University, and toall other supporting team members.

Author contributions
CIB: ** Conceptualization, methodology, data collection, Visualization, Writing-original draft, Writing-review & editing.OFS: ** Supervision, Methodology, Validation, review & editing.**TGO: ** Supervision, Methodology, Validation, review & editing.**TON: ** Visualization, review & editing.**OOB: ** Software, Investigation, statistical analysis, Visualization, Validation, review & editing. All authors have read and agreed to publish the manuscript.

Funding
No external funding was received for this study. The research was conducted with personal funds and family support.

Data availability
The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval
The study protocol was reviewed and approved by the Kampala International University Research Ethics Committee (KIU-2024-554) in accordance with the Kampala International University Research Ethics Policy. The committee waived the need for additional formal ethical approval because the research was classified as low risk and involved the use of anonymous survey instruments. Written and verbal informed consent was obtained from all participants prior to data collection. Participation was entirely voluntary, and participants were informed of their right to withdraw at any stage without any form of penalty. Confidentiality and anonymity were rigorously maintained throughout the study. All participant responses were coded using unique identifiers, and no personally identifying information was recorded. Data were securely stored on encrypted, password-protected devices accessible only to the research team, in compliance with institutional data protection standards.

Consent to participate
Informed consent was obtained from all individual participants involved in this study, all of whom were aged 18 years and above. Each participant was fully informed of the study's objectives, procedures, potential risks, and benefits prior to participation. Consent for the use of anonymized data and direct quotations in publications arising from this research was also obtained.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Received: 11 June 2025 / Accepted: 27 November 2025
Published online: 03 December 2025

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