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Research Article

EFFECTS OF BUSINESS DEVELOPMENT SERVICES ON THE GROWTH AND RESILIENCE OF YOUTH AGRIBUSINESSES IN GATSIBO DISTRICT, RWANDA

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Abstract

This study assessed the effects of Business Development Services (BDS) on the growth and resilience of youth-owned agribusinesses in Gatsibo District, Rwanda. The study examined capacity-building services, including business training and mentorship, and facilitation services, including financial advisory support, market linkages, and technical assistance. A mixed-methods research design combined quantitative and qualitative approaches. Data were collected from 300 youth agribusiness entrepreneurs through structured questionnaires and supplemented by key informant interviews and focus group discussions. Quantitative data were analysed using descriptive statistics, Pearson correlation analysis, and multiple regression analysis, while qualitative data were analysed using thematic analysis. The findings indicated that BDS significantly influenced both business growth and business resilience. Capacity-building services explained 10.6% of the variation in business growth and 16.1% of the variation in business resilience, while facilitation services explained 18.9% and 20.6%, respectively. Technical advisory services were associated with revenue growth, while market linkages were identified as the strongest predictor of business resilience. The study concludes that integrated BDS interventions can strengthen the performance, sustainability, and competitiveness of youth agribusinesses. It recommends stronger district-level BDS programmes, improved collaboration among public, financial, and private-sector actors, and youth-friendly financial products complemented by advisory services.

Keywords: Business Development Services, Youth Agribusinesses, Business Growth, Business Resilience, Capacity Building, Market Linkages.

INTRODUCTION

Agribusiness remains an important component of Rwanda's economy because of its contribution to employment creation, food security, rural income generation, and national economic growth. Agriculture continues to employ a substantial share of the labour force, while national policy increasingly promotes agribusiness entrepreneurship as a means of addressing youth unemployment and supporting rural development [1–3]. Young people have established enterprises across crop production, livestock farming, agro-processing, agricultural input supply, and agricultural marketing. The Strategic Plan for Agriculture Transformation (PSTA IV) emphasizes commercialization, private-sector participation, and youth engagement in agribusiness as important drivers of agricultural transformation [3]. Despite increasing youth participation in agribusiness, many youth-owned enterprises experience limited growth and vulnerability to economic and environmental shocks. Evidence from Gatsibo District points to operational and financial constraints affecting the sustainability and performance of youth-owned agro-dealerships [4,5]. Major challenges include inadequate managerial skills, limited access to finance, weak record-keeping, poor market connections, insufficient technical knowledge, and inadequate business planning. Similar constraints have been reported in East Africa, where limited entrepreneurial capacity, weak market integration, and financial-management challenges constrain small-business performance [12,13,16].

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Business Development Services (BDS) are used by governments, development organisations, financial institutions, and non-governmental organisations to strengthen entrepreneurial capacity and improve business performance. Typical BDS include business training, mentorship, financial advisory support, market-linkage facilitation, technical assistance, and coaching [17]. Evidence suggests that integrated support services can improve productivity, competitiveness, and resilience among small enterprises and agribusinesses [14,15]. Although BDS initiatives have been implemented in Rwanda, district-level evidence on their effectiveness among youth agribusiness entrepreneurs remains limited. Existing work often considers small and medium-sized enterprises broadly, with less attention to agribusiness-specific enterprises operated by young people and to the simultaneous outcomes of business growth and resilience. This study therefore assessed the effects of BDS on the growth and resilience of youth agribusinesses in Gatsibo District, Rwanda.

LITERATURE REVIEW AND THEORETICAL FOUNDATION

Human Capital Theory

Human Capital Theory holds that investments in education, training, and skills development can increase productivity and improve business performance. In agribusiness, training can strengthen entrepreneurs' ability to prepare business plans, manage finances, maintain records, and make informed production and marketing decisions. Mentorship can complement formal training through practical guidance, experience sharing, and continued support [3].

Resource-Based View Theory

The Resource-Based View (RBV) emphasizes that enterprises can achieve competitive advantage through valuable, rare, difficult-to-imitate, and non-substitutable resources. BDS can strengthen internal capabilities such as managerial competence, technical expertise, market intelligence, and strategic planning, thereby supporting enterprise performance and competitiveness [14].

Resilience Theory

Resilience Theory focuses on how enterprises absorb shocks, recover from disruptions, adapt to changing conditions, and maintain continuity. Youth agribusinesses may face climatic, financial, and market-related uncertainty. BDS can support resilience by improving risk management, diversification, financial planning, and access to market information [5].

Empirical Evidence

Evidence from African contexts indicates that business training can improve entrepreneurial knowledge and decision-making, financial advisory services can strengthen budgeting and cash-flow management, and market linkages can improve access to buyers, suppliers, and new market opportunities [11,12]. Technical support has also been associated with improved productivity and product quality [10,17]. Rwanda's policy and survey evidence further indicates that youth agribusiness development requires integrated support systems combining skills development, financial inclusion, market access, and institutional support [2,3,6]. The variation in BDS effects across contexts reinforces the relevance of district-level studies such as the present study.

MATERIALS AND METHODS

Research Design

The study employed a mixed-methods research design, combining quantitative and qualitative approaches. The quantitative component was used to examine relationships between BDS and business outcomes, while qualitative evidence from key informant interviews and focus group discussions was used to supplement and contextualise the quantitative findings.

Study Population and Sample

The study target population comprised 1,200 youth-owned agribusinesses (aged 18–35) operating across agricultural value chains including input supply, production, processing, marketing, distribution, and aggregation in Gatsibo District, Rwanda, alongside 71 institutional stakeholders (local administrative leaders, BDS providers, financial institutions, and agricultural officers). A sample size of 300 youth agripreneurs was determined using Slovin's formula at a 95% confidence level and a 5% margin of error.

A stratified random sampling technique was employed to select youth participants across three primary administrative sectors Kabarore (n = 100) which is (33.3%) of the sample size, Gitoki (n = 100) which is (33.3%) of the sample size and Kiziguro (n = 100) which is (33.3%) of the sample size ensuring balanced geographic representation and reducing selection bias. In parallel, purposive sampling was applied to engage the 71 institutional stakeholders based on their technical expertise and direct role in Business Development Services (BDS) delivery and oversight.

Youth respondents were required to: (i) be aged between 18 and 35 years; (ii) operate an active agribusiness within Kabarore, Gitoki, or Kiziguro sectors; and (iii) have received or currently be participating in BDS interventions (such as business training, mentorship, financial advisory, or market linkages). Demographically, the final sample of 300 youth agribusiness respondents comprised 174 male entrepreneurs (58.0%) and 126 female entrepreneurs (42.0%).

DATA COLLECTION

Quantitative data were collected using structured questionnaires administered to youth agribusiness owners, while qualitative insights were gathered through key informant interviews (KIIs) and focus group discussions (FGDs) to triangulate findings.

Primary Data Collection Instruments

Structured Questionnaires: Administered to n = 300 youth agripreneurs across Kabarore, Gitoki, and Kiziguro sectors. The questionnaire was structured into five key sections: (i) Socio-demographic characteristics; (ii) Access to Business Development Services (training, financial advisory, mentorship, market linkages); (iii) Agribusiness growth indicators; (iv) Enterprise resilience metrics; and (v) Operational challenges. Responses were captured using a 5-point Likert scale (ranging from 1 = Strongly Disagree to 5 = Strongly Agree) alongside categorical and close-ended options. Key Informant Interviews (KIIs): Semi-structured interview guides were conducted with 71 key informants to gather institutional perspectives. Key informants included Sector Business Development Officers (n = 3), Sector Agronomists (n = 3), Cell Agriculture Development Officers (n = 30), District Youth Representatives (n = 3), institutional policy officers (MINAGRI, RDB, Local Agriculture Offices; n = 3), NGO/private BDS providers (n = 10), financial institution managers (n = 12), cooperative leaders (n = 2), business incubator managers (n = 3), and academic/training personnel (n = 1).

Focus Group Discussions (FGDs): A total of 6 focus group discussions (2 FGDs per sector, comprising 8–10 youth agripreneurs per session) were conducted using a semi-structured topic guide to capture qualitative nuances regarding BDS accessibility, practical benefits, and systemic barriers.

Fieldwork Timeline

Primary data collection was executed over a three-month period from February 2026 to April 2026. Field enumeration was conducted by trained research assistants fluent in Kinyarwanda under the direct supervision of the lead researcher.

Ethical Considerations and Consent Procedures

Ethical clearance for this study was granted by the Institutional Review Board / Research Ethics Committee of the University of Lay Adventists of Kigali (UNILAK). Permission to conduct

fieldwork within Gatsibo District was officially obtained from local administrative authorities. Prior to administering questionnaires and conducting interviews/FGDs, all participants were provided with an Informed Consent Form explaining the research purpose, voluntary nature of participation, and option to withdraw at any point without penalty. Written or verbal informed consent was obtained from each respondent prior to data collection. To ensure participant confidentiality and data privacy, all instruments were anonymized using unique identification codes, and raw data were stored in encrypted, password-protected digital files accessible only to the research team.

Data Analysis

Quantitative Data Analysis & Software

Quantitative survey data were processed, cleaned, and analyzed using IBM SPSS Statistics (Version 28.0). Descriptive statistics including frequencies, percentages, means, and standard deviations were computed to summarize demographic profiles and baseline survey variables. Inferential statistics, specifically Pearson correlation analysis (r), were used to examine bivariate relationships, while Multiple Linear Regressionanalysis was executed in SPSS to evaluate the effect of Business Development Services (BDS) on agribusiness growth and resilience.

Model Specification & Variable Coding

To estimate the impact of BDS components on agribusiness performance, the multiple linear regression model was specified as follows:

$$Y=\beta0+\beta1X1+\beta2X2+\beta3X3+\beta4X4+\beta5X5+\varepsilon$$

Where:

Dependent Variables (Y):

- Y1 = Business Growth
- Y2 = Business Resilience

Independent Variables (BDS Components):

- X1 = Business Training
- X2 = Financial Advisory Services
- X3 = Mentorship
- X4 = Market Linkages
- X5 = Technical Support

Parameters:

- β0 = Intercept (constant term)
- β1–β5 = Regression coefficients of the independent variables
- ε = Error term

The model generated:

- **R^2 (Coefficient of Determination):** to measure how much variation in business growth and resilience is explained by BDS
- **p-values:** to test statistical significance
- **F-statistic:** to assess overall model fitness

Diagnostic Tests

Prior to running the regression analysis in SPSS, key assumptions of the Classical Linear Regression Model (CLRM) were verified:

Normality: Assessed via SPSS visual inspection of standardized residual histograms and Normal P-P plots, supplemented by the Shapiro-Wilk test ($p > 0.05$).

Multicollinearity: Evaluated using the Variance Inflation Factor (VIF) and Tolerance metrics generated in the SPSS regression output. Multicollinearity was ruled out as all VIF values were well below 5.0 (range: 1.24 - 2.85) and Tolerance levels exceeded 0.20.

Heteroscedasticity: Examined through scatter plots of standardized residuals against standardized predicted values in SPSS, confirming homoscedasticity.

Autocorrelation: Evaluated using the Durbin-Watson statistic generated in SPSS, which yielded a value within the acceptable range ($1.85 < d < 2.15$), confirming the independence of residuals.

Scale Reliability: Internal consistency of questionnaire constructs was confirmed using Cronbach's Alpha (alpha) in SPSS, where all subscales met or exceeded the standard threshold of 0.70.

Significance Thresholds & Data Hygiene

- **Significance Level:** Statistical significance for correlation coefficients (r) and regression coefficients (beta) was set at alpha = 0.05 (95% confidence interval), with p-values reported at $p < 0.05$, $p < 0.01$, and $p < 0.001$.
- **Treatment of Missing Data:** Questionnaires were screened for completeness during field entry. Missing or incomplete responses (< 2% of overall data) were handled via listwise deletion during multivariate modeling to maintain data integrity.

Qualitative Data Analysis

Qualitative transcripts from Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) were analyzed using Thematic Analysis. Following Braun and Clarke's framework, qualitative data were systematically coded, categorized into core themes (e.g., BDS access barriers, institutional bottlenecks, operational impact), and integrated alongside SPSS quantitative outputs to triangulate findings.

Study Variables

The main explanatory variables were BDS dimensions, particularly capacity-building services and facilitation services. Capacity-building services included business training and mentorship, while facilitation services included financial advisory support, market linkages, and technical assistance. The main outcomes were business growth and business resilience.

Table 1. Regression Model Output for Business Development Services on Growth and Resilience (N = 300)

Predictor Variable	Dependent Variable	R2	Adj. R2	Unstandardized β	SE	t-stat	p-value	95% Confidence Interval
Capacity-Building	Business Growth	0.106	0.103	0.326	0.055	5.945	< 0.001$	$[0.218, 0.434]
	Business Resilience	0.161	0.158	0.401	0.053	7.562	< 0.001	[0.297, 0.505]
Facilitation Services	Business Growth	0.189	0.186	0.435	0.052	8.331	< 0.001	[0.332, 0.538]
	Business Resilience	0.206	0.203	0.454	0.052	8.793	< 0.001	[0.352, 0.556]
Technical Advisory	Revenue Growth	—	—	0.284	0.058	4.897	< 0.001	[0.170, 0.398]
Market Linkages	Business Resilience	—	—	0.482	0.051	9.451	< 0.001	[0.382, 0.582]

RESULTS

Sample Characteristics and Descriptive Statistics

The final quantitative sample comprised 300 youth agribusiness entrepreneurs across Kabarore (n = 100, 33.3%), Gitoki (n = 100, 33.3%), and Kiziguro (n = 100, 33.3%) sectors in Gatsibo District. Demographically, 58.0% (n = 174) of respondents were male and 42.0% (n = 126) were female. On a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), respondents reported strong overall engagement across Business Development Services (BDS) dimensionsCapacity-building services recorded a composite mean score of M = 3.84 (SD = 0.62), while facilitation services recorded M = 3.91 (SD = 0.58)Business growth indicators yielded an average score of M = 3.76 (SD = 0.65), and business resilience scored M = 3.82 (SD = 0.59). Internal consistency across all constructs was confirmed prior to modeling via Cronbach's alpha (alpha => 0.81)

Effects of Capacity-Building Services

Linear regression analysis executed in IBM SPSS Statistics evaluated the effect of capacity-building services (business management training, skills development, and mentorship) on enterprise growth and resilience[1, 2]:

Business Growth: Capacity-building services accounted for 10.6% of the variance in business growth ($R^2 = 0.106$, Adjusted $R^2 = 0.103$, $F(1, 298) = 35.34$, $p < 0.001$)[cite: 1, 2]. The unstandardized regression coefficient was beta = 0.326 (SE = 0.055, t = 5.945, p < 0.001$, 95% CI [0.218, 0.434])[1, 2].

Business Resilience: Capacity-building services explained 16.1% of the total variance in business resilience ($R^2 = 0.161$, Adjusted $R^2 = 0.158$, $F(1, 298) = 57.18$, $p < 0.001$)[cite: 1, 2]. The unstandardized coefficient was beta = 0.401 (SE = 0.053, t = 7.562, p < 0.001, 95% CI [0.297, 0.505])[1, 2].

Qualitative insights from Focus Group Discussions (FGDs) triangulated these findings. Youth agripreneurs noted that capacity-building training directly improved cash-flow tracking and risk mitigation during economic shocks[1, 3].

Effects of Facilitation Services

Facilitation services encompassing financial advisory, institutional networking, technical support, and market linkages demonstrated stronger predictive capacity on business outcomes than capacity-building inputs alone[1, 2]:

Business Growth: Facilitation services explained 18.9% of the variation in business growth ($R^2 = 0.189$, Adjusted $R^2 = 0.186$, $F(1, 298) = 69.41$, $p < 0.001$)[cite: 1, 2]. The unstandardized coefficient was beta = 0.435 (SE = 0.052, t = 8.331, p < 0.001, 95% CI [0.332, 0.538])[1, 2].

Business Resilience: Facilitation services accounted for 20.6% of the variance in business resilience ($R^2 = 0.206$, Adjusted $R^2 = 0.203$, $F(1, 298) = 77.32$, $p < 0.001$)[cite: 1, 2]. The unstandardized coefficient was beta = 0.454 (SE = 0.052, t = 8.793, p < 0.001, 95% CI [0.352, 0.556])[1, 2].

Technical Advisory Services and Market Linkages

In multivariate modeling, technical advisory services significantly predicted annual revenue growth (beta = 0.284, SE = 0.058, t = 4.897, p < 0.001, 95% CI [0.170, 0.398])[1, 2]. Among all individual BDS dimensions, market linkages emerged as the single strongest predictor of long-term enterprise resilience (beta = 0.482, SE = 0.051, t = 9.451, p < 0.001, 95% CI [0.382, 0.582])[1, 2, 3]. Key Informant Interviews (KIIs) with BDS providers and local agricultural officers affirmed these results. Key informants emphasized that while classroom-based training builds foundational knowledge, direct linkages to commercial off-takers, buyers, and financial institutions are essential for long-term survival and revenue expansion in competitive agricultural value chains[1, 3].

DISCUSSION

The empirical findings confirm that Business Development Services (BDS) are critical drivers of both business growth and operational resilience among youth-led agribusinesses in Gatsibo District. While both capacity-building and facilitation services yielded statistically significant positive impacts (p < 0.001), facilitation services consistently demonstrated stronger predictive power across all evaluated models. Specifically, facilitation services explained 18.9% of the variation in business growth (beta = 0.435) and 20.6% in resilience (beta = 0.454), compared to 10.6% (beta = 0.326) and 16.1% (beta = 0.401) for capacity-building services. This discrepancy suggests that while internal knowledge and skills are necessary, their economic return is magnified when paired with external enabling mechanisms such as financial access, market integration, and technical support.

The strong contribution of capacity-building services encompassing managerial training, financial literacy, and mentorship aligns directly with Human Capital Theory. Human Capital Theory posits that investments in individual knowledge, skills, and cognitive capabilities enhance worker productivity and enterprise decision-making. Training equips youth agripreneurs with essential competencies in cash-flow management, inventory tracking, and risk assessment. Mentorship further reinforces these capabilities by providing tailored guidance, helping entrepreneurs translate theoretical knowledge into daily operational strategies. However, the lower variance explained by capacity-building alone highlights the "know-how gap": managerial competence without working capital, machinery, or reliable buyers yields limited structural enterprise growth.

Conversely, the pronounced impact of facilitation services and market linkages supports the Resource-Based View (RBV). Under RBV, an enterprise achieves sustained competitive performance and resilience by accumulating and deploying strategic, valuable, rare, inimitable, and non-substitutable resources. In rural agricultural ecosystems, direct market linkages (beta = 0.482, $p < 0.001$) and technical advisory services (beta = 0.284, $p < 0.001$) function as critical external resources. Access to off-take contracts, buyer networks, and real-time pricing information reduces market friction, buffers against price shocks, and stabilizes revenue streams during climate or economic disruptions. As qualitative interviews with local agricultural officers and BDS providers highlighted, formal market linkages provide the operational security needed for youth entrepreneurs to reinvest capital, transition from subsistence operations to commercialized agribusiness, and absorb supply chain shocks.

Conclusion

The study concludes that Business Development Services have an important role in strengthening the growth and resilience of youth agribusinesses in Gatsibo District. Capacity-building services contributed to business growth and resilience, while facilitation services showed stronger reported contributions. Technical advisory services were associated with revenue growth, and market linkages were identified as the strongest predictor of business resilience. An integrated BDS approach that combines skills development, financial advisory support, technical assistance, and market access therefore provides a practical basis for strengthening the sustainability and competitiveness of youth agribusinesses.

Recommendations

Policy Recommendations

Government institutions should strengthen district-level BDS programmes targeting youth agribusinesses. Policies should also promote stronger collaboration among public institutions, financial institutions, and private-sector actors.

Practice Recommendations

BDS providers should adopt integrated service-delivery models that combine training, mentorship, financial advisory support, technical assistance, and market-linkage facilitation. Greater emphasis should be placed on market-linkage interventions because of their reported influence on business resilience.

Financial Sector Recommendations

Financial institutions should design youth-friendly financing products tailored to agribusiness entrepreneurs. Credit programmes should be complemented by financial-literacy training and advisory services.

Future Research Recommendations

Future studies should undertake longitudinal assessments of BDS impacts, explore digital BDS delivery models, and examine sector-specific agribusiness interventions among youth entrepreneurs in different districts of Rwanda.

Abbreviations

BDS: Business Development Services
EAC: East African Community
FAO: Food and Agriculture Organization
GDP: Gross Domestic Product
AGRA: Alliance for a Green Revolution in Africa
OECD: Organisation for Economic Co-operation and Development
NISR: National Institute of Statistics of Rwanda
MINAGRI: Ministry of Agriculture and Animal Resources
RBV: Resource-Based View
SMEs: Small and Medium-sized Enterprises
FGD: Focus Group Discussion
SPSS: Statistical Package for the Social Sciences
PSTA: Strategic Plan for the Transformation of Agriculture
UNILAK: University of Lay Adventists of Kigali

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Author Contributions

Byiringiro Justin: Conceptualization, Methodology, Investigation, Data Curation, Formal Analysis, Visualization, Project Administration, Writing Original Draft, Writing – Review & Editing.

Albert O. Maake: Supervision, Validation , Writing – Review & Editing.

Conflicts of Interest

The authors declare no conflicts of interest.

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