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Is Youth's Engagement in Agribusiness an Opportunity or a Necessity? A Closer Look at the Situation in South Kivu, Eastern Democratic Republic of the Congo

Cool Dady Mangole[1,2] | Paul Martin Dontsop Nguezet[3] | Shiferaw Feleke[4] | Victor Manyong[4] | Kamala Kaghoma Christian[2] | Zoumana Bamba[5] | Tahirou Abdoulaye[6]

[1]International Centre of Insect Physiology and Ecology (ICIPE), Kasarani, Nairobi, Kenya | [2]Université Catholique de Bukavu (UCB), Bukavu, South Kivu, DR, Congo | [3]International Institute of Tropical Agriculture, Mbujimayi, Kasai Oriental, DR, Congo | [4]International Institute of Tropical Agriculture, Michocheni B, Dar es Salaam, Tanzania | [5]International Institute of Tropical Agriculture, Gombe, Kinshasa, DR, Congo | [6]International Institute of Tropical Agriculture, Samanko, Bamako, Mali

Correspondence: Paul Martin Dontsop Nguezet (P.Dontsop@cgiar.org)

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ABSTRACT

Despite the broad focus on necessity- and opportunity-driven entrepreneurship in research and policy, the entrepreneurial dichotomy within the agribusiness context has not been adequately addressed. This study contributes to closing this knowledge gap by examining youth's perceptions of agribusiness through the lens of the push-pull motivation framework. Results reveal that 47% of youth are driven into agribusiness by both necessity and opportunity, while 41% by necessity alone and only 12% by opportunity alone. Key factors shaping youth's perceptions include gender, education, food processing participation, agribusiness-related training, land ownership, monthly income, and family farming background. The result further identifies significant heterogeneity in the drivers of perceptions—based on location, gender, and agribusiness roles, suggesting the need to tailor agricultural program interventions to ensure the best fit. Notably, enhancing access to formal education and agribusiness training, encouraging participation in food processing, and improving land access are critical to enhancing youth participation in agribusiness.

JEL Classification: Q12 Q13, L26

1 | Introduction

Youth unemployment is a significant challenge in Sub-Saharan Africa (SSA), exacerbated by the region's rapid population growth (Rocca and Schultes 2020). The region currently has the highest global rate of youth unemployment, estimated at 40% (Mulema et al. 2021). By 2100, it is projected that about one-half of the world's youth aged 15 to 24 will be from Africa (Rocca and Schultes 2020). The Democratic Republic of the Congo (DRC) is one of the countries in the region with the highest rates of unemployment, with more than 80% of youth unemployed (ILO and DRC 2018). Addressing this issue is a top policy priority for governments, the private sector, and international donors not only in DRC but across 39 African countries (Afrobarometer 2023). Because of their relative importance in the national economies in terms of employment opportunities, food security, and income generation compared to other domains, agriculture and agribusiness have been proposed as an entry point to create job opportunities for youth in the region (Adeyanju et al. 2024; Bello et al. 2021; Yami et al. 2019).

Engaging youth in agriculture is widely recognized as a vital strategy for reducing youth unemployment and ensuring a sustainable food system transformation in SSA (Tadele and

Summary

- This study contributes to a deeper understanding of entrepreneurial motivations within the agribusiness context.
- The study reveals the perceptions of young agribusiness entrepreneurs, moving beyond the traditional entrepreneurial dichotomy perspective.
- This study uses Aitken's generalized least squares to examine factors influencing young agribusiness entrepreneurs' perceptions.
- The results highlight the significance of assets and agribusiness experience in shaping young agribusiness entrepreneurs' perceptions.

Gella 2012). The agricultural sector employs about 80% of youth aged 24 and 35 in SSA (Filmer et al. 2014; Koira 2014). In DRC, the agricultural sector accounts for more than 60% of new job creation (Chipanda 2024). Despite its potential to absorb large numbers of unemployed youth, agriculture is viewed as a low-productivity, last-resort occupation in SSA (Chipfupa and Tagwi 2021; Filmer et al. 2014; Kibirige et al. 2017; Ninson and Brobbey 2023). ILO and DRC (2018) highlighted low agricultural productivity as one of the key factors reducing youth interest in agriculture and employment opportunities in the DRC. Similarly, a study conducted in eastern DRC found that youth generally have negative perceptions of agriculture, further discouraging their involvement in the sector (Cirhuza Mwolo and Martinez Espinosa 2024). To fully realize its potential and change perceptions, especially among youth, agriculture must transition from being seen as a last-resort option to a recognized business opportunity (Filmer et al. 2014). Agribusiness has been recommended as one of the key drivers through which perceptions of youth can change (Wossen and Ayele 2018). This is because agribusiness, beyond on-farming activities that increase yields, also includes off-farm activities that reduce postharvest losses, resulting in high production (Mariyono et al. 2020). Agribusiness is described as a wide range of activities from on-farm production, food processing, and distribution of farm by-products to associated services (King et al. 2010; Koira 2014). Allen et al. (2018) reported that off-farm activities related to food processing, food marketing (e.g., transport, logistics, retail, and wholesale), and food-away-from-home (e.g., street food, restaurants, etc.) account for 37% of total off-farm food economy employment in Cabo Verde, 32% in Nigeria, 28% in Ghana, 20% in Côte d'Ivoire, 18% in Senegal, and 15% in Chad. However, data on agribusiness employment in the DRC is unavailable (Minyangu et al. 2021).

Research has extensively examined youth's participation in agribusiness (Adeyanju et al. 2024; Ninson and Brobbey 2023; Mangole et al. 2022; Bello et al. 2021; Ephrem et al. 2021a, 2021b; Boye et al. 2024; Chipfupa and Tagwi 2021; Minyangu et al. 2021; Mulema et al. 2021). These studies showed that sociodemographic characteristics, start-up capital, access to land, technology, risk tolerance, parents' background, and peer effects are the key drivers of youth's participation in agribusiness. However, well-established studies assessing youth's perceptions of agribusiness as a necessity or an opportunity remain scarce. Existing literature on opportunity and necessity entrepreneurship has not fully addressed this aspect within agribusiness (Huang et al. 2023; Schjoedt and Shaver 2005). Recent studies highlight that youth in DRC regard agribusiness as a last resort rather than a primary choice (Cirhuza Mwolo and Martinez Espinosa 2024; Ephrem et al. 2021b). Conversely, Ikebuaku and Dinbabo (2023) indicate positive perceptions and intentions toward agribusiness among youth in Nigeria, suggesting a variation in the youth's perceptions across contexts. Ninson and Brobbey (2023) further report that youth perceive agribusiness as economically promising. While these studies provide valuable insights, they failed to distinguish between necessity-driven and opportunity–driven agribusiness entrepreneurs. Ephrem et al. (2021a) attempted to explore this distinction, but a limited sample of young agribusiness entrepreneurs and a lack of targeted analysis hindered their ability to provide meaningful insights into the entrepreneurial dichotomy within the agribusiness context. Understanding youth's perceptions of agribusiness beyond profitability and career choice—to know whether they consider agribusiness as a necessity or an opportunity—is crucial for policymakers to design context-specific policies that can shift youth's perceptions from necessity to opportunity-driven engagement. This study addresses this literature gap by evaluating young agribusiness entrepreneurs' perceptions using the push-pull motivations conceptual framework (Huang et al. 2023; Schjoedt and Shaver 2005). It also explores entrepreneurial motivations, expanding beyond the traditional entrepreneurial dichotomy perspective to provide valuable insights into entrepreneurs with mixed motivations and a thorough understanding of their driving factors (Williams and Williams 2014). Additionally, this study captures the heterogeneity in the drivers of perceptions of agribusiness among youth based on gender, location, and (Agri) business roles (e.g., entrepreneurs, families, regular employees), aiming to design best-fit programs that can enhance youth's perceptions, rather than relying on one-size-fits-all programs. This study addresses the following questions: (a) How do youth perceive agribusiness? (b) What factors influence their perceptions of agribusiness?

After the introduction section, the next sections include the conceptual framework guiding the research, data collection, results and discussion, and a conclusion.

2 | Conceptual Framework, Measures, and Estimation Strategies

This study uses a push-pull motivations framework to understand the youth's perceptions of agribusiness. This framework describes pull-driving factors as positive motivations attracting individuals to start a new venture through their desire and push-driving factors as negative connotations forcing individuals to engage in entrepreneurship by necessity because it is their only option (van der Zwan et al. 2016; Kirkwood 2009). According to this framework, necessity-driven entrepreneurs are defined as individuals who are pushed into entrepreneurship by unemployment situations or dissatisfaction, while opportunity-driven entrepreneurs are viewed as individuals who start a business to achieve independence, wealth, recognition, and personal development (Huang et al. 2023; Liñán et al. 2013; Williams and Williams 2014). The push-pull motivations framework indicates that individuals are

either pulled or pushed to start a new venture (Martínez-Cañas et al. 2023), with satisfaction acting as a key factor in driving and shaping behavior (Georgellis et al. 2007; Rosse and Hulin 1985; Stoner and Fry 1982). Block and Koellinger (2009) highlight that directly asking individuals about the satisfaction they experience is a more effective approach to understanding the motives driving entrepreneurial behavior. Empirical research underpins that necessity-driven entrepreneurs generally report lower levels of satisfaction relative to their opportunity-driven counterparts (van der Zwan et al. 2016; Block and Koellinger 2009).

This study uses a job satisfaction scale to learn about the youth's perceptions of agribusiness that align with the literature. Job satisfaction is a combination of feelings and perceptions about people's current jobs (Aziri 2011). It reflects the extent to which people feel their current engagement aligns with their goals and expectations (Poggi 2010). The satisfaction scale comprised 19 items focusing on independence, flexibility in working hours, profitability, tax burden, creativity, and job security—indicators closely aligned with those identified by Block and Koellinger (2009). Respondents rated their satisfaction with agribusiness on a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). Four items were removed from the final scale due to negative correlations with others, which undermined the internal consistency of the measure (see Appendix A, Figure A1 for the correlation matrix of job satisfaction items). After this adjustment, the Cronbach's alpha indicator showed a good level of reliability for the revised scale used in the survey ($\alpha = 0.89$) (Tavakol and Dennick 2011).

The satisfaction index (γ_i), derived from the 15 selected items, was used to classify young people into three categories: (a) necessity-driven, (b) opportunity-driven, and (c) mixed-motivated or neutral entrepreneurs. The third category of entrepreneurs refers to individuals who start their business venture out of necessity and opportunity-based motives (Block et al. 2015; Williams and Williams 2014). Specifically, young agribusiness entrepreneurs' perception (ρ_i) is measured as follows:

$$\rho_i = \begin{cases} 1\text{if} \quad \gamma_\text{i} < 2.75 \\ 2\text{if} \quad 2.75 \leq \gamma_\text{i} < 3.75 \\ 3\text{if} \gamma_\text{i} \geq 3.75 \end{cases} \tag{1}$$

where 1 denotes necessity-driven entrepreneurs, 2 neutral entrepreneurs, and opportunity-driven entrepreneurs. To gain insights into young agribusiness entrepreneurs' perceptions, we relied on a continuous latent variable (satisfaction index, ranging from 1 to 5) and a categorical variable (young entrepreneurs' perceptions as described). We include both variables for two key reasons. First, while the satisfaction index provides the most accurate measure, it does not distinguish between necessity-driven and opportunity-driven entrepreneurs. Second, the categorical variable, which captures perception, offers insights into classifying young entrepreneurs, though its categorization lacks a strong theoretical foundation due to limited supporting evidence. Furthermore, converting the satisfaction index into a categorical variable resulted in a loss of information, reducing the precision of the data. It is also difficult to directly differentiate between motivations by dividing a series into two. To get around this limitation, we consider that the slice corresponding to category (2) is around the mean and possibly even the median, so that values close to this mean or median reflect a margin within which it is hard to decide on the type of motivation. Therefore, using both measures aligns with the need to balance precision and classification. An ordinary least squares (OLS) regression model is recommended to account for the continuous nature of the satisfaction variable. To ensure the reliability of the OLS estimators and avoid potential inefficiencies or misinterpretations due to heavy-tailed error distributions (Burton 2021), we conducted a normality test to verify the normality assumption for the residuals. The Shapiro-Wilk W test was employed, as it is recognized for its better power in assessing normality (Yap and Sim 2011).

The result reports that the normality assumption is violated, with a $W = 0.991$ significant at a 5% level. However, Figure 1 shows that the normality violation is not severe, suggesting that the impact on OLS estimators might be minimal (Kwak and Kim 2017). The Breusch-Pagan/Cook-Weisberg test for heteroskedasticity indicates that the variance of residuals is not constant, with $\chi^2 = 5.44$ significant at a 5% level. To address these issues, we employed Aitken's generalized least squares (GLS) model (Kariya and Kurata 2004; Virgantari et al. 2019). For a dependent variable ρ_i, we can specify the GLS regression model as in Equation (2):

$$\rho_i = \mathrm{x}_i\beta_j + \varepsilon_i \tag{2}$$

where ρ_i is the satisfaction score of the i-th young entrepreneur. x_i is the vector of explanatory variables for young entrepreneur i, β_j is the vector of coefficients to be estimated, and the ε_i is the error term. The GLS model improves the efficiency of OLS estimates by pre-multiplying the left-hand side and right-hand side of the Equation (2) by the inverse of the known covariance matrix of the error term, Ω^{-1}. This transformation accounts for violations of OLS assumptions, resulting in more efficient and unbiased estimates (Kariya and Kurata 2004).

Since the categorical nature of the variable represents young agribusiness entrepreneurs' perceptions, a multinomial logistic regression model was employed. The Independence of Irrelevant Alternatives (IIA) assumption is crucial for this model (Long and Freese 2001). To test this assumption, we conducted the Hausman-McFadden test (Hausman and McFadden 1984). The result shows that the IIA assumption holds, as the test produced a $\chi^2 = 9.62$, not statistically significant at any conventional significance level (Table B1 in Appendix B details the Hausman-McFadden result). Therefore, the multinomial logistic regression model is appropriate for this analysis. Formally, for a dependent variable γ_i with j categories, the multinomial model can be specified as follows (3):

$$\ln \quad \Omega_{\mathrm{s/k}}(\mathrm{x}) = \ln \frac{\Pr(\gamma_\text{i} = s|\mathrm{x})}{\Pr(\gamma_\text{i} = k|\mathrm{x})} = \mathrm{x}_i\beta_{s|k} \text{for} \quad s = 1\text{to} \quad J \tag{3}$$

where $\Pr(\gamma_\text{i} = s)$ is the probability that the perception (γ_i) of the young entrepreneur i is in category s. x_i is the vector of covariates for the i-th young entrepreneur and β_j is the vector of coefficients to be estimated for the category s, relative to the baseline category k. $\ln \quad \Omega_{\mathrm{s/k}} \quad (\mathrm{x})$ is the natural logarithm of

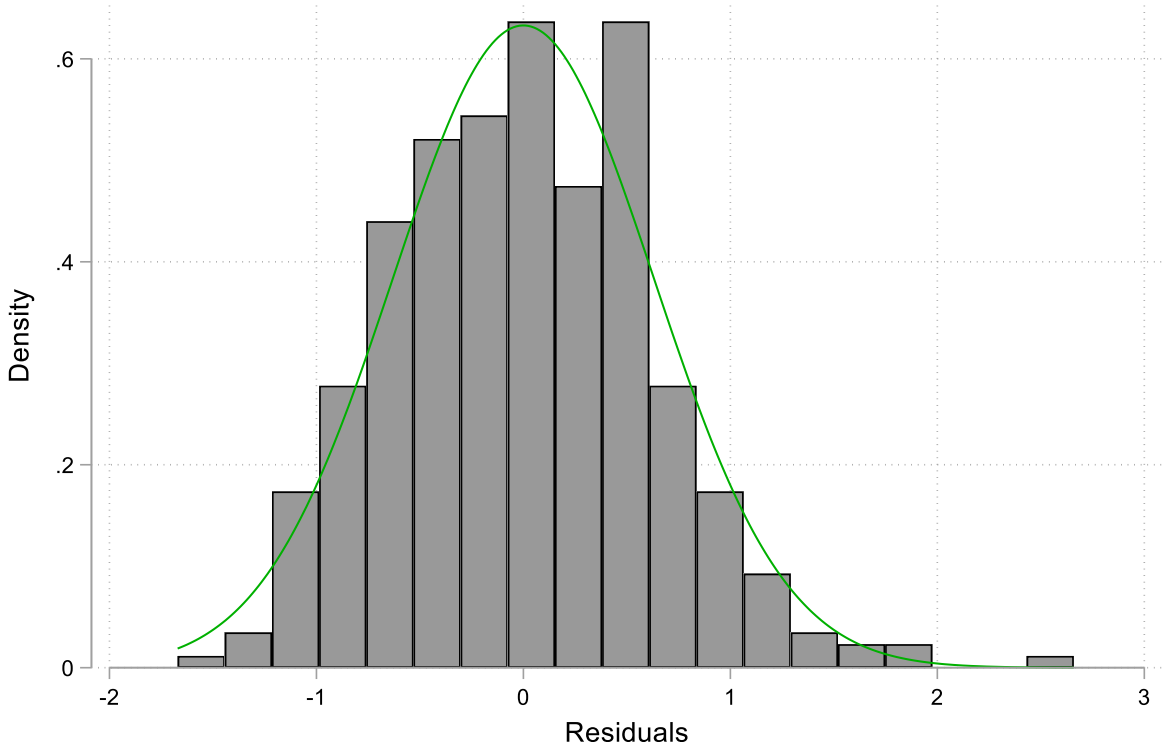

FIGURE 1 | Distribution of residuals.

the odds of outcome s relative to outcome k given the covariates x. Given that $\ln \quad \Omega_{k/k} = \ln 1 = 0$, the probability equations can be written as follows (Long and Freese 2001):

$$\Pr(\gamma_i = s|x) = \frac{\exp(x_i \beta_{s|k})}{\sum_{j=1}^{J} \exp(x_i \beta_{j|k})} \quad (4)$$

The explanatory variables were selected based on a review of existing studies on young agribusiness entrepreneurs' perceptions (Cirhuza Mwolo and Martinez Espinosa 2024; Ikebuaku and Dinbabo 2023; Ninson and Brobbey 2023; Zidana et al. 2020).

3 | Data and Sampling Design

The study used cross-sectional data collected from South Kivu in the eastern DR Congo as part of the International Institute of Tropical Agriculture (IITA) program. The target population is the youth in South Kivu, one of the 26 provinces in the DR Congo, further divided into Territories and Wards, with Bukavu as the capital city.

Due to the absence of a complete list of young entrepreneurs in the region, we used a multi-stage sampling approach (Chauvet 2015). This approach enhances sample representativeness while reducing the cost and time involved for data collection.

In the first stage, we purposively selected Bukavu and Katana (a rural area located in Kabare territory) due to their intensive involvement of youths in agri-business programs through programs such as IKYA (IITA Kalambo Youth Agripreneurs), PICAGL (Integrated Project on Agricultural Growth in the Great Lakes Region), and RIKOLTO programs. Bukavu has a population of approximately 1,308,4701, of which the majority is primarily engaged in trade and services, whereas Katana has a population of 222,491 people depending heavily on agriculture, with over 70% of households considering cassava as their main source of income (Masimango et al. 2020; USAID and MERCYCORPS 2018). In Katana, the processing industry is dominated by micro- and small-scale processing units focusing on cassava. About 70 small milling machines in the area process cassava, sorghum, maize, and soybeans, though most are in Bukavu. In contrast, the processing activities in Bukavu extend beyond cassava flour, maize flour, and soybean milk and flour, with centers such as Centre Olame and IKYA producing a variety of by-products, including mixed flours, biscuits, tofu, bread, and yogurt (USAID and MERCYCORPS 2018).

In the second stage, we stratified the Wards in Bukavu into two strata–urban and peri-urban. Katana was not stratified as it is uniformly rural.

In the third stage, we purposively selected two wards (Ibanda and Urban Kadutu) from the urban strata and two from the peri-urban strata (Kasihe and Kahasha) of Bukavu based on the availability of agribusiness units, the level of processing and trading activities, and accessibility to roads. Similarly, Katana Centre was purposely selected from Katana based on the higher population density and the concentration of economic activities.

In the final stage, using Glenn (2013) framework, we constructed the sampling framework of agribusiness units in each of the four Wards of Bukavu and one accessible Ward of Katana using systematic random sampling. Within each Ward, we started with a randomly selected agribusiness unit serving as

the starting point and selected agribusiness units at a regular interval (skipping five agribusiness units and choosing the sixth). We repeated this procedure until the target sample size for each Ward was reached (see Appendix C, Figure C1 for sampling procedure). In total, we selected 398 youth (114 urban respondents and 150 peri-urban respondents from Bukavu; 134 rural respondents from Katana). The sample included primarily agribusiness entrepreneurs, with a few families and regular employees. Participation in the survey was entirely voluntary, with confidentiality guaranteed. Verbally informed consent was secured from all participants before their involvement.

4 | Results and Discussion

4.1 | Descriptive Statistics

The results indicate that many young entrepreneurs were either pulled or pushed into agribusiness by necessity and opportunity motivations, with fewer driven by opportunity. Specifically, about 47% were driven by mixed motivations, 41% were necessity-driven, and only 12% were opportunity-driven. The relatively low satisfaction score of 2.9, as shown in Figure A1 in Appendix A, suggests that necessity-driven motivations outweigh opportunity-driven ones among young entrepreneurs. This indicates that youth are more likely to engage in agribusiness out of necessity rather than perceiving it as a promising opportunity. The result is consistent with previous studies, showing that youth tend to negatively perceive agribusiness (Cirhuza Mwolo and Martinez Espinosa 2024; Ninson and Brobbey 2023; Geza et al. 2021). However, the result of this study does not align with the study by Ikebuaku and Dinbabo (2023) in Nigeria, which, for instance, reported positive perceptions towards agribusiness among youth, attributed to the growing number of youth agricultural programs in the country. Similarly, Nyabam et al. (2018) found that young participants in Nigeria's IITA Youth Agripreneurs program had positive views towards agribusiness. As shown in Figure 2, many youths who were pushed into agribusiness by necessity lived in rural areas. Specifically, 52% of rural youth, compared to 38% of peri-urban and 32% of urban youth, were necessity-driven. In terms of gender, a higher percentage of young females compared to young males were driven into agribusiness out of necessity. Figure 2 further shows that youth driven by opportunity were significantly more educated than those driven by necessity, with their confidence intervals not overlapping. However, the education levels of those driven by opportunity and those driven by a combination of both motivations do not differ significantly. On average, respondents in this study are 25 years old and have completed 8 years of schooling, a local equivalent of lower-level secondary education.

As illustrated in Figure 3, there is no significant difference in the average number of years of agribusiness experience between youth-driven by necessity and their opportunity-driven and mixed counterparts. In contrast, youth-driven by opportunity had a significantly higher average monthly income than those driven by necessity. However, there is no significant income difference

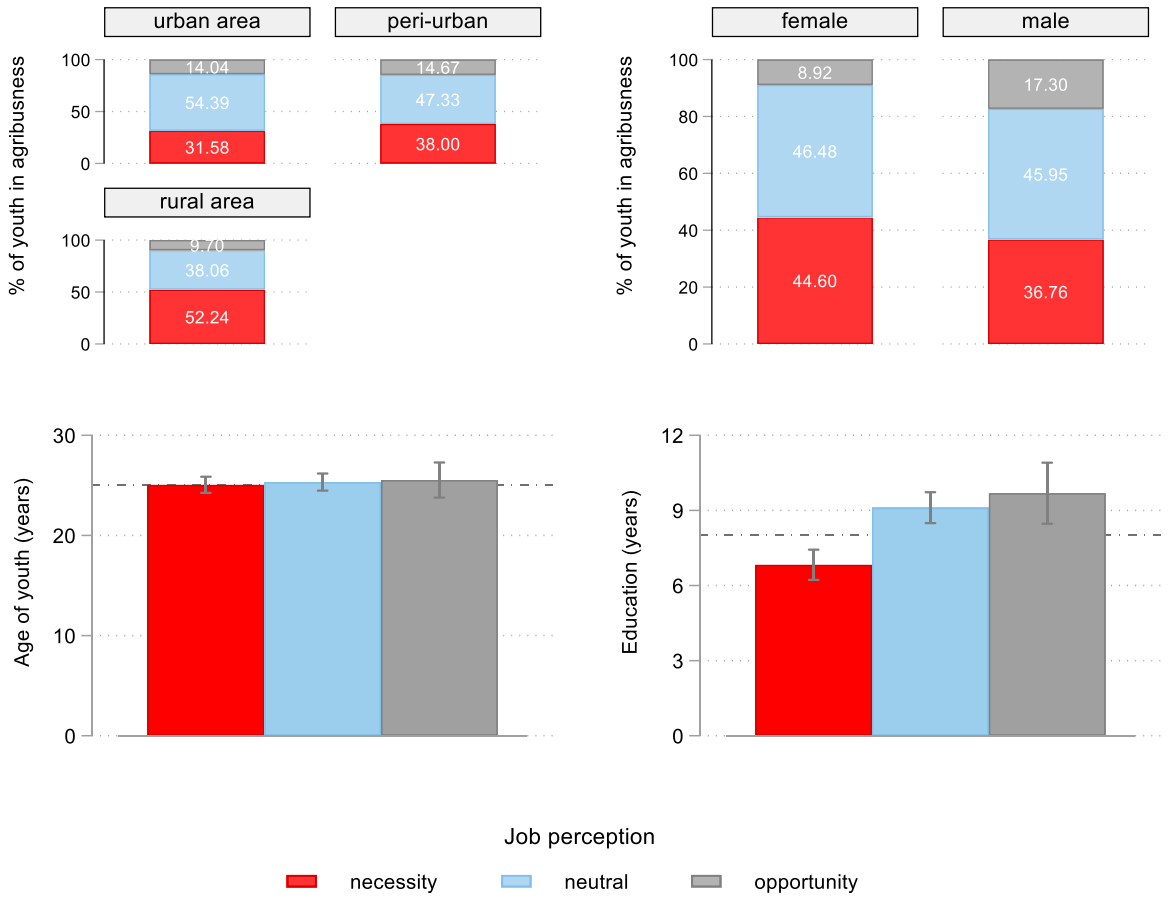

FIGURE 2 | Socioeconomic characteristics and youth job perceptions in agribusiness. *Note:* The horizontal dashdotted line represents the mean.

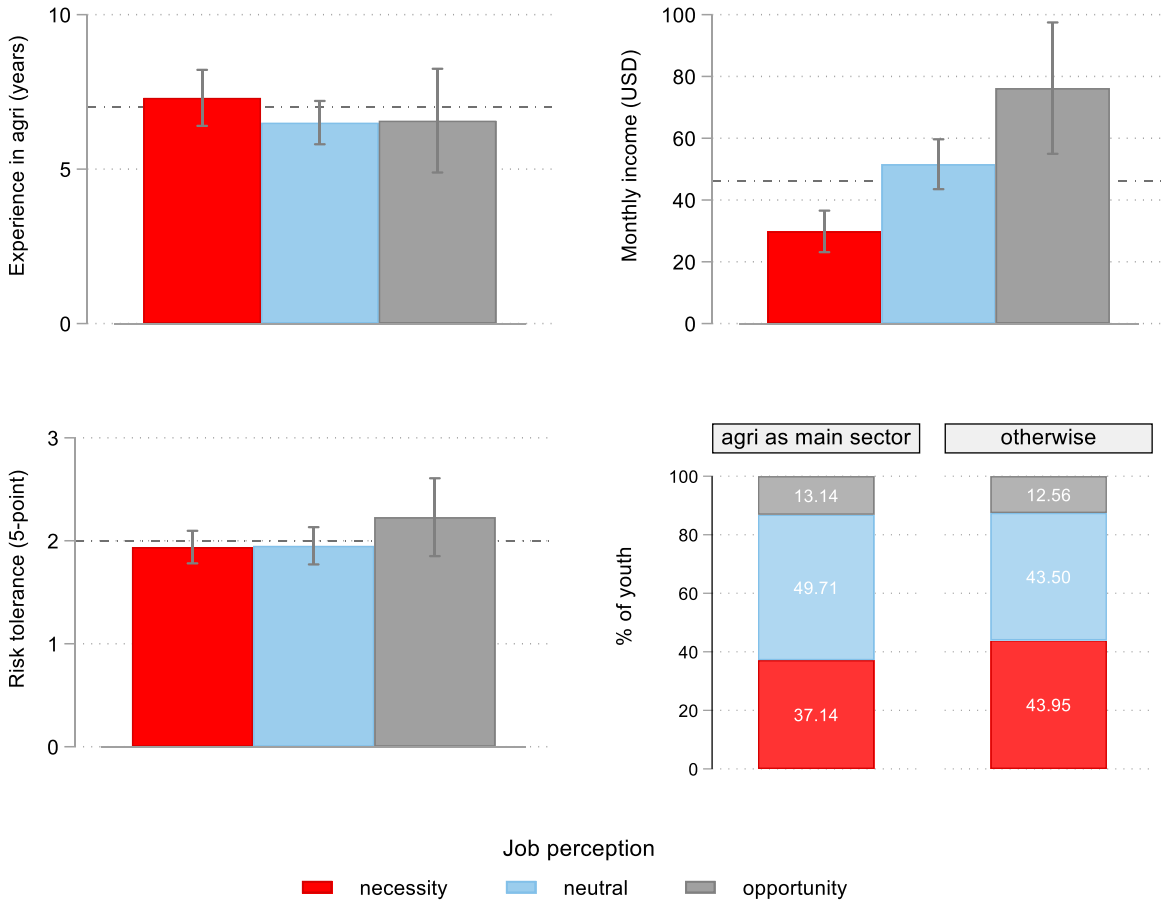

FIGURE 3 | Experience in agribusiness, income, and risk profile and youth job perceptions in agribusiness. *Note:* The horizontal dashdotted line represents the mean.

between those driven by opportunity and those who were neutral, as shown by the confidence interval bars. On average, young entrepreneurs earn around USD 50 per month. Regarding risk profile, youth driven by necessity showed slightly lower risk tolerance than those driven by opportunity and those who are neutral. Additionally, while the neutral profile is predominant among youth, a significant percentage of those driven by necessity did not view agriculture as their primary sector.

Regarding food processing, Figure 4 shows that a higher percentage of youth engaged in food processing was driven by opportunity. A lower percentage was driven by necessity than their peers who did not participate in food processing. This confirms that food processing positively influences youth's views on agribusiness by adding value to farm products (Mariyono et al. 2020). Similarly, business owners had a higher percentage of youth-driven by opportunity and a lower percentage driven by necessity, encouraging entrepreneurship over (low)-wage employment. Using data from Malaysia, Kamaruddin et al. (2018) found that young workers in the oil palm plantation sector had a negative perception of the agriculture sector. Figure 4 also highlights similar results among youth who attended agribusiness training programs and those who owned plots, underscoring the significance of training programs and asset ownership in redefining youth's perceptions of agribusiness. The result is consistent with the empirical studies, which reported that land ownership is positively correlated with agripreneurs' satisfaction (Yoganandan et al. 2022). However, compared to those without parental involvement in agriculture, youth from an agricultural family background had a lower percentage driven by necessity and a higher percentage driven by opportunity.

4.2 | Determinants of Youth's Job Satisfaction in Agribusiness

In this section, we discuss the factors influencing job satisfaction among youth engaged in agribusiness using the econometric specification outlined in Section 2. As shown in Figure 5, OLS estimates are closely aligned with those from the GLM. This study primarily relies on OLS estimations because OLS coefficients offer a straightforward interpretation (Stock and Watson 2019). Figure 5 reports the results from the pooled (controlling for the location-fixed effects), urban, peri-urban, and rural OLS models. The results show that age negatively correlates with job satisfaction in the peri-urban model, suggesting that job expectations among youth change as they grow older. Specifically, youth in underdeveloped areas are more likely to relocate to urban centers for better employment opportunities (Mangole et al. 2022; Tadele and Gella 2012). The positive influence of education on job satisfaction suggests that more educated youth are more likely to be pulled into agribusiness by opportunity. This result is inconsistent with the empirical studies of Cirhuza Mwolo and Martinez Espinosa (2024) and Ninson and Brobbey (2023), which reported

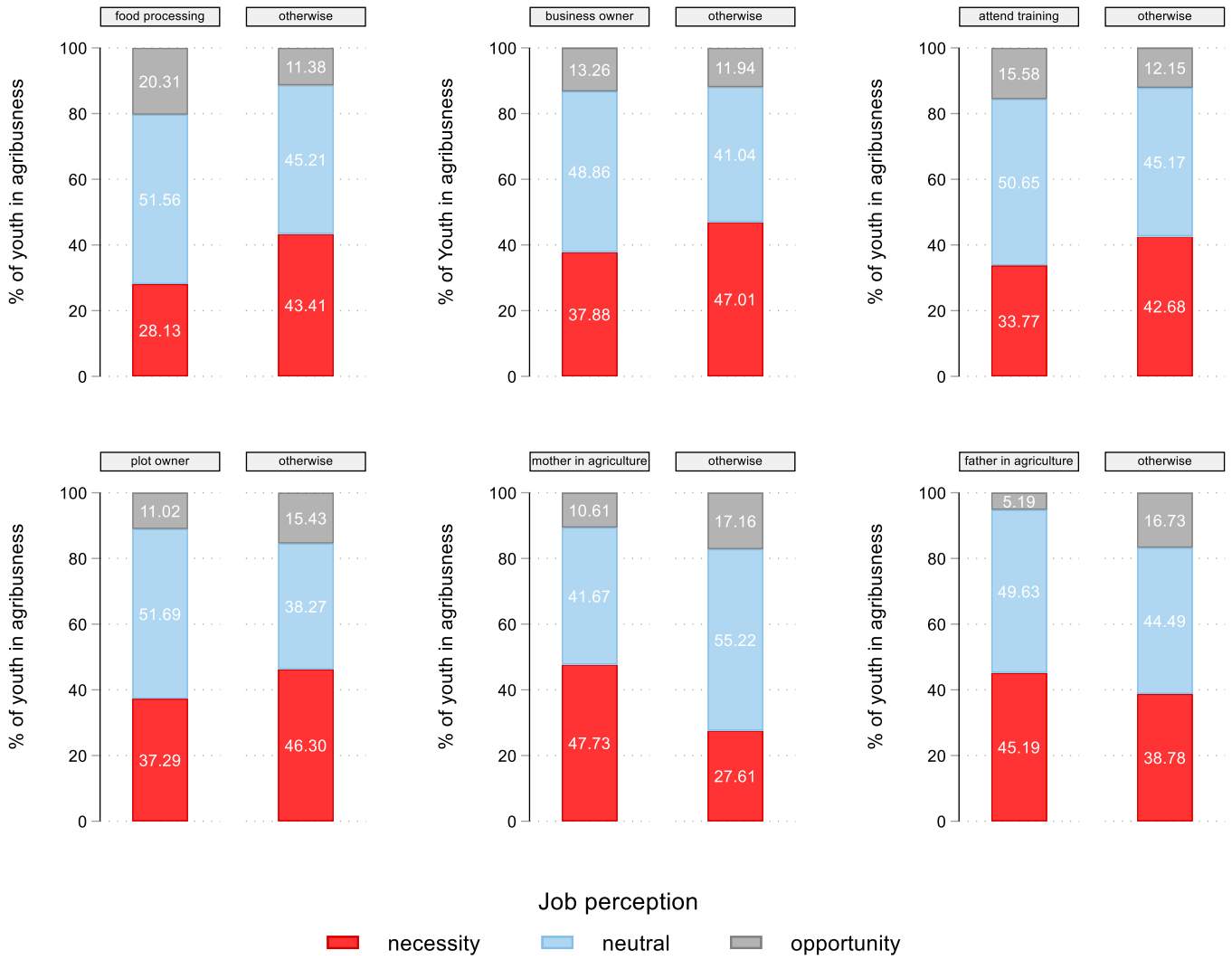

FIGURE 4 | Assets ownership, processing, training program, and parents' background and youth's perceptions of agribusiness.

a negative correlation between education and youth's perceptions of agribusiness in SSA. This is because more educated youth are more likely to queue in unemployment while searching for higher-paying jobs that better match their skills rather than engaging in farming activities (Cirhuza Mwolo and Martinez Espinosa 2024; Martinson et al. 2019; Wamalwa 2009). Similarly, Mmbengwa et al. (2021) argued that higher-educated youth in South Africa seek public sector employment relative to starting their agricultural businesses. The result of this study might be attributed to the opportunities education creates for selecting better-paying and more suitable jobs in agribusiness. Moreover, educated young entrepreneurs often have good digital literacy, enabling them to effectively use digital tools (e.g., WhatsApp, YouTube, Google search, mobile apps, etc.) to access agricultural extension services (e.g., price, market, food-processing knowledge, farming information, marketing, etc.), leading to better decision-making, better earnings, lower costs, and risk minimization (Howard 2023; Kudama et al. 2021; Ward et al. 2011). Additionally, education enables youth to participate in agribusiness programs, enhancing their technical efficiency (Adesina and Favour 2016).

The results indicate that perceiving agriculture as their main sector increases agribusiness job satisfaction in pooled and urban models. This is probably because youth who identify agriculture as their primary occupation will likely invest more resources—such as time, knowledge, effort, and capital—into it, resulting in higher earnings. However, viewing agriculture as the main sector is not significantly correlated with job satisfaction in peri-urban and rural models, probably because agriculture is already the dominant sector in peri-urban and rural settings. However, the results reveal that participating in food processing positively correlates with job satisfaction in the rural model, an additional justification for locating value-adding food processing industries in rural areas. This can be ascribed to the value added to farm products through food processing, leading to higher income. For instance, Anderson and Hanselka (2009) point out that agricultural producers earn a much smaller portion of the consumer's dollar than food processors. The positive correlation between training programs and job satisfaction in the peri-urban model is consistent with that of Nyabam et al. (2018) in Nigeria. Similarly, plot ownership positively correlates with job satisfaction, as young landowners are more likely to invest in agribusiness to enhance their earnings. Using a structural equation modeling, Mariyono et al. (2020) found that land ownership increases participation in intensive farming in Indonesia. Likewise, Mmbengwa et al. (2021) argued that limited access to land restricts young

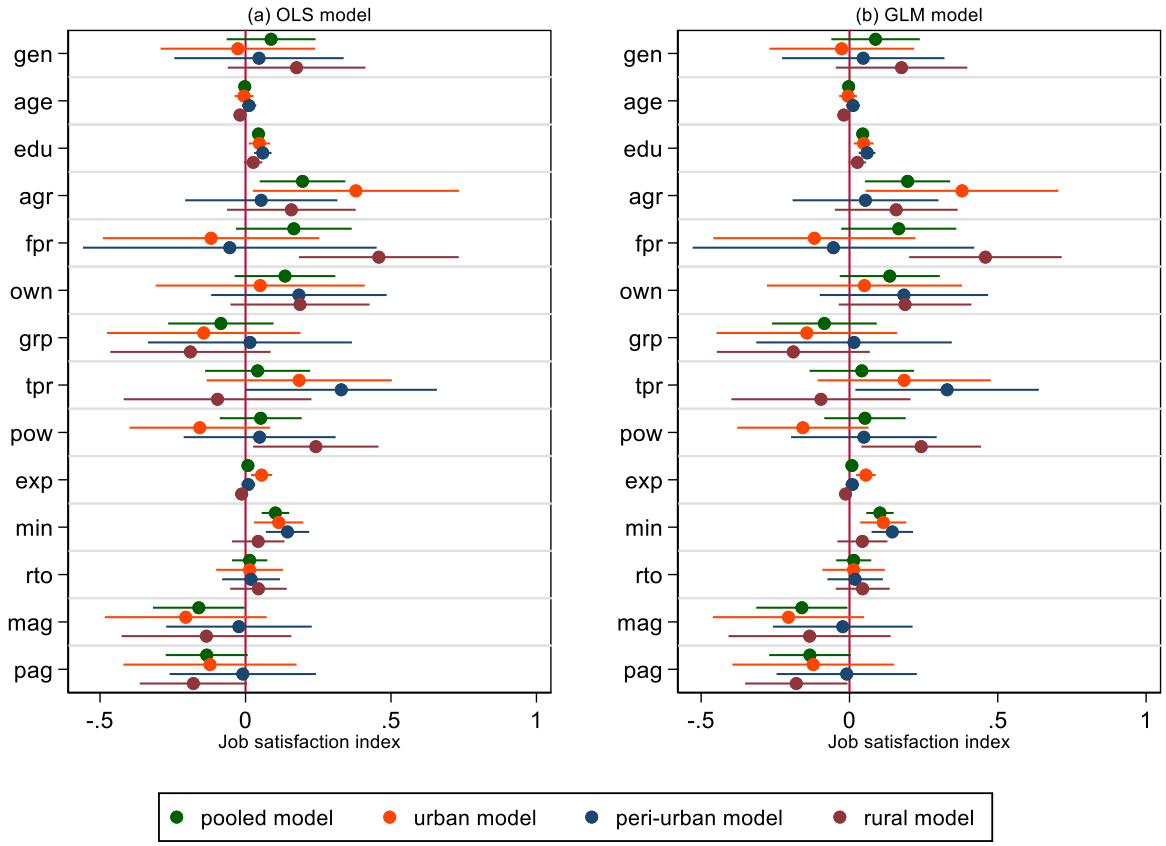

FIGURE 5 | Estimated coefficients of OLS and GLM regressions on young agribusiness entrepreneurs' satisfaction. *Note:* gen = gender, age = age, edu = education, agr = perceiving agriculture as the main sector, fpr = food processing, own = business owner, grp = group membership, tpr = attended training program, pow = plot owner, exp = experience in agribusiness, min = monthly income, rto = risk tolerance, mag = mother involved in agriculture, pag = father involved in agriculture.

agribusiness entrepreneurs from scaling up their activities. The results further indicate that years of experience in agribusiness is positively associated with job satisfaction in the urban model. This can be explained by acquiring knowledge and skills, developing social capital, cooperation opportunities, and improved sales- all work experience benefits that enhance business performance (Othman et al. 2016). In alignment with Kibirige et al. (2017), monthly income positively correlates with job satisfaction in the pooled, urban, and rural models. Kibirige et al. (2017) reported that youth are motivated by more income from farm activities. The involvement of both father and mother in farm activities shows a negative correlation with job satisfaction in both the pooled and rural models. This is probably due to the tedious nature of agricultural work that parents face, which shapes their children's attitudes toward agriculture as a career, thereby decreasing their job satisfaction in agribusiness (Tadele and Gella 2012).

4.3 | Determinants of Youth Job Perception in Agribusiness

The results in Table 1 reveal that young males are more likely to engage in agribusiness driven by opportunity and necessity motivations than solely by necessity in the rural model. This can be attributed to their higher levels of education and better access to resources compared to young females, which are crucial for enhancing business outcomes (Khan 2020; Zidana et al. 2020). However, in the rural model, age is negatively correlated with the combination of opportunity and necessity rather than necessity alone, confirming the earlier discussion (Mangole et al. 2022; Tadele and Gella 2012). The pooled, urban, and peri-urban models show that educated youth are more likely to engage in agribusiness driven by opportunity or a combination of opportunity and necessity rather than solely by necessity. This result has been attributed to the crucial role of education in enhancing agribusiness outcomes. Similarly, youth viewing agriculture as their main sector are more likely to engage in agribusiness by opportunity or a combination of opportunity and necessity rather than out of necessity alone; this is probably due to potential returns from their investment of time and effort relative to those who regard agriculture as their secondary occupation. Furthermore, in the rural model, youth engaged in food processing are likely pulled into agribusiness by opportunity or a combination of opportunity and necessity rather than solely by necessity, attributed to the value added through processing (Anderson and Hanselka 2009). Results also indicate that young people who participated in agribusiness training programs are more likely to engage in agribusiness driven by opportunity rather than necessity-driven in the peri-urban model. In contrast, those in rural areas are less likely to pursue agribusiness out of opportunity rather than necessity. This highlights the necessity for best-fit agribusiness training programs that better meet the needs of rural youth. As shown in Table 1, young landowners are more likely to engage in agribusiness out of opportunity rather than necessity in the

TABLE 1 | Estimated coefficients of multinomial logit regression on youth perception of agribusiness (base category=necessity).

	Pooled model		Urban		Peri-urban		Rural	
VARIABLES	(1) Neutral	(2) Opportunity	(3) Neutral	(4) Opportunity	(5) Neutral	(6) Opportunity	(7) Neutral	(8) Opportunity
Gender (male = 1)	0.100	0.556	−1.093	−0.531	−0.445	0.212	1.498***	1.496
	(0.268)	(0.424)	(0.666)	(0.933)	(0.524)	(0.754)	(0.576)	(1.116)
Age (#)	−0.014	−0.017	0.022	0.021	0.056	0.068	−0.19***	-0.245
	(0.025)	(0.039)	(0.069)	(0.100)	(0.046)	(0.071)	(0.069)	(0.209)
Education level	0.143***	0.169***	0.235**	0.280**	0.228***	0.221**	0.074	0.178
	(0.034)	(0.053)	(0.102)	(0.142)	(0.080)	(0.096)	(0.063)	(0.145)
Agriculture as the main sector (yes =1)	0.799***	0.810*	1.704***	1.996**	0.966*	-0.559	0.531	2.250
	(0.275)	(0.441)	(0.622)	(1.015)	(0.578)	(0.887)	(0.502)	(1.939)
Food processing (yes =1)	0.311	0.569	−0.827	−1.768	−0.547	−0.645	1.345**	2.903**
	(0.386)	(0.537)	(0.753)	(1.390)	(0.743)	(1.214)	(0.617)	(1.129)
Business owner (yes =1)	0.272	0.597	−0.919	−0.642	0.782	0.874	0.542	0.978
	(0.297)	(0.498)	(0.649)	(1.067)	(0.649)	(0.811)	(0.525)	(2.004)
Group membership (yes =1)	−0.263	0.123	−0.346	0.242	0.023	−0.410	−1.063	2.576
	(0.308)	(0.433)	(0.596)	(0.930)	(0.664)	(0.992)	(0.709)	(2.000)
Received technical training (yes =1)	−0.008	0.072	0.336	1.013	0.216	2.102**	0.262	−19.794***
	(0.324)	(0.506)	(0.690)	(1.216)	(0.661)	(0.989)	(0.642)	(3.557)
Plot owner (yes =1)	0.547**	−0.190	−0.036	−1.180	0.430	−0.156	1.474**	0.796
	(0.277)	(0.367)	(0.567)	(0.811)	(0.532)	(0.799)	(0.631)	(1.152)
Experience in agribusiness (#)	−0.017	0.034	0.047	0.250**	−0.034	0.054	−0.013	−0.820**
	(0.026)	(0.046)	(0.069)	(0.102)	(0.046)	(0.074)	(0.058)	(0.397)
Ln (monthly income)	0.242***	0.355**	0.353	0.754*	0.267*	0.677***	0.361**	−0.498
	(0.081)	(0.150)	(0.241)	(0.390)	(0.141)	(0.203)	(0.183)	(0.372)
Risk tolerance (5-point Likert scale)	−0.100	0.073	0.031	0.026	−0.241	0.199	0.004	0.597
	(0.109)	(0.154)	(0.326)	(0.364)	(0.210)	(0.331)	(0.210)	(0.399)
Mother involved in agriculture (yes=1)	−0.575**	−0.508	−0.551	−0.550	−0.492	0.369	−0.527	−1.738
	(0.292)	(0.413)	(0.696)	(0.938)	(0.505)	(0.681)	(0.601)	(1.557)
Father involved in agriculture (yes=1)	−0.070	−1.754***	−0.107	−1.683	0.367	−0.525	−0.465	−4.613***
	(0.274)	(0.577)	(0.573)	(1.345)	(0.518)	(0.885)	(0.504)	(1.508)
Constant	−1.016	−3.593***	−1.963	−6.591**	−3.742**	−8.309***	0.795	3.693
	(0.798)	(1.161)	(1.627)	(2.688)	(1.640)	(2.318)	(1.368)	(4.646)
Location fixed effects	Yes	Yes	No	No	No	No	No	No
Wald test Chi2	72.81***		41.31***		59.73***		283.56***	

(Continues)

TABLE 1 | (Continued)

VARIABLES	Pooled model (1) Neutral	Pooled model (2) Opportunity	Urban (3) Neutral	Urban (4) Opportunity	Peri-urban (5) Neutral	Peri-urban (6) Opportunity	Rural (7) Neutral	Rural (8) Opportunity
Hausman-McFadden test	9.62 ($p = 0.8859$)							
Observations	379	379	103	103	143	143	133	133

Note: Robust standard errors in parentheses.
***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

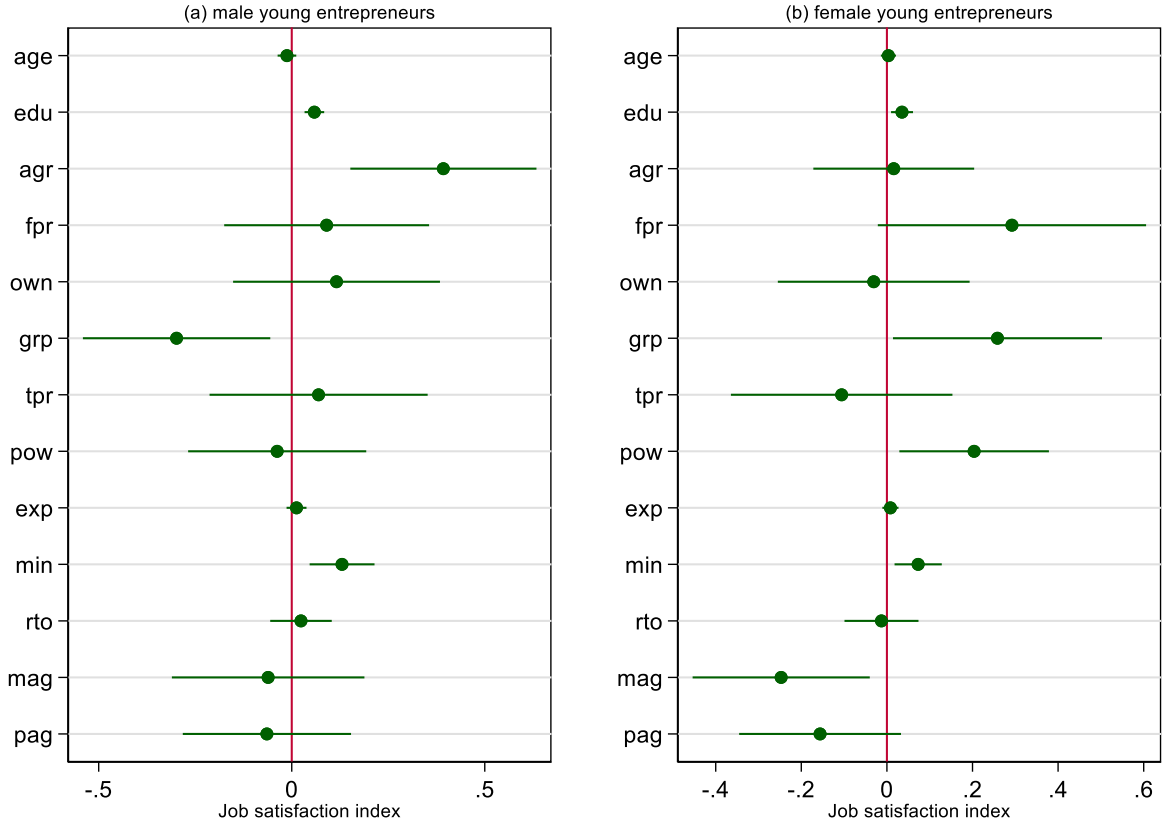

FIGURE 6 | Heterogeneity in gender differences in the drivers of job satisfaction using OLS estimates. *Note:* gen =gender, age =age, edu = education, agr =perceiving agriculture as the main sector, fpr =food processing, own =business owner, grp =group membership, tpr =attended training program, pow =plot owner, exp =experience in agribusiness, min =monthly income, rto =risk tolerance, mag =mother involved in agriculture, pag =father involved in agriculture.

pooled and rural models, attributable to the critical role of land in scaling up agribusiness activities and agribusiness performance (Mariyono et al. 2020; Mmbengwa et al. 2021). For instance, land can serve as an incentive for adopting advanced agricultural technologies to enhance farm production, thereby increasing agribusiness profitability. Additionally, it can act as collateral, facilitating access to credit for funding agribusiness activities.

Increased work experience enhances youth's likelihood of engaging in agribusiness driven by opportunity rather than necessity in the urban model. Conversely, in the rural model, more work experience reduces the likelihood of pursuing agribusiness for opportunity. This might be attributed to the prolonged experience of rural youth in low-paying agribusiness or inadequate earning employment (Baysan et al. 2024) or low education levels and low management capabilities of youth in rural areas (Kibirige et al. 2017).

As shown in Table 1, youth earning a higher income are likely to engage in agribusiness driven by opportunity or a combination of opportunity and necessity rather than by necessity alone. Similar results have been reported in Swaziland (Kibirige et al. 2017). In line with the job satisfaction model, having an agricultural family background is negatively associated with the likelihood of pursuing agribusiness out of opportunity rather than necessity in the pooled and rural perception models.

The results reported in Figure 6 reveal significant heterogeneity in gender differences in the drivers of job satisfaction among youth. Education exerts a more significant influence on job satisfaction for young males than young females, probably due to the latter's

limited access to education (Khan 2020). Similarly, perceiving agriculture as the main sector increases job satisfaction in agribusiness, but only for young males. Young females' lack of resources can explain this. Group membership, on the other hand, reduces job satisfaction for young males yet enhances it for young females, highlighting the need to conduct a study to understand young males' participation in youth groups. Land ownership exerts a more pronounced effect on young females, underscoring the critical role of land in shaping agribusiness outcomes. A key policy implication is that expanding land access for young females could further enhance the positive influence of land ownership on job satisfaction among youth. Income shows a stronger influence on job satisfaction for young males, while having a mother involved in agriculture positively affects young females more than young males. As shown in Figure C2 in Appendix C, the determinants of job satisfaction affect young agribusiness entrepreneurs, families, and regular employees differently. For instance, education level, participation in food processing, and monthly income significantly enhance job satisfaction among young business owners but have no significant influence on job satisfaction for other groups (e.g., families and regular employees). This suggests that policy interventions should be tailored to address the distinct needs of each group involved in agribusiness.

5 | Conclusion

This study examines the perceptions of youth engaged in agribusiness in Eastern DR Congo, specifically exploring whether their involvement is driven by opportunity, necessity, or a combination of both. Utilizing the push-pull motivations framework, the study emphasizes job satisfaction as a critical factor influencing behavior. Based on job satisfaction scores, the study classifies entrepreneurs into three categories: opportunity-driven, necessity-driven, and mixed entrepreneurs. The study applies Aitken's generalized least squares and multinomial logit models to analyze the factors driving youth's perceptions. The first model regresses job satisfaction scores, while the second model focuses on categorical outcomes representing diverse entrepreneur groups.

Leveraging primary data from 398 youth selected based on a systematic stratified sampling frame, the results reveal that many youths (47%) are driven by necessity and opportunity, with only a minority (12%) driven solely by opportunity. However, the overall job satisfaction score suggests relatively low satisfaction levels, indicating that necessity-driven motivations predominate among youth in South Kivu. The estimation models identify several key factors influencing youth's motivations, including gender, education, food processing, agricultural training, land ownership, monthly income, and family agricultural background. Notably, young females tend to engage in agribusiness primarily out of necessity, while those with higher education levels are more likely to be opportunity-driven. Similarly, youth involved in food processing and landowners are predominantly driven by opportunity. In contrast, the effects of agricultural training and family farming background vary across urban, peri-urban, and rural contexts. The results further reveal significant gender and location heterogeneities in factors driving perceptions, highlighting the need for tailored agricultural programs to shift youth's motivations from necessity-driven to opportunity-driven approaches. The key policy implications of this study suggest that enhancing education, designing context-specific agricultural training, encouraging youth participation in food processing, and improving land access could effectively attract youth to agribusiness driven by opportunity. Changing the perceptions of agribusiness from necessity to opportunity could further attract youth, thereby enhancing agrifood systems and employment sustainability. While the study provides invaluable insights into young agribusiness entrepreneurs' perceptions, it relies on cross-sectional data, which limits its ability to capture the dynamic shift in entrepreneurs' perceptions from necessity-driven to opportunity-driven and vice versa.

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Ethics Statement

Verbally informed consent was obtained from each participating youth before involvement. We strictly adhere to ethical guidelines and fully assure confidentiality.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data will be made available upon request.

Endnotes

[1] https://worldpopulationreview.com/cities/dr-congo/bukavu

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.