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**IN THIS ISSUE:**

**East Africa Journal of Social and Applied Sciences (EAJ-SAS)**
**Vol.4, No.1 Publication Date:** December 30, 2022
*ISSN: (Online) 2714-2051, (Print) 0856-9681*
*Full articles of this journal are available at: https://journals.mocu.ac.tz/index.php/eaj-sas*

Cite this article as: Nzilano, K. L., Ndyetabula, D. W. & Tundui, H. P. (2022). Business start-up intentions among technical graduates in Tanzania: The moderating effect of entrepreneurship education. *East Africa Journal of Social and Applied Sciences,* 4(1), 1-18

# BUSINESS START-UP INTENTIONS AMONG TECHNICAL GRADUATES IN TANZANIA: THE MODERATING EFFECT OF ENTREPRENEURSHIP EDUCATION

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**ABSTRACT**
This paper examines the influence of entrepreneurship education on technical graduates' business start-up intentions. Specifically, it assesses the antecedents of business start-up intentions and how entrepreneurship education moderates the effect of attitudes towards business start-ups, societal-subjective norms, and perceived behavioural control on business start-up intentions. Data for this study were collected from 391 technical graduates who graduated between 2012 and 2017 from technical colleges and universities who lived in Dar es Salaam during data collection. The collected data were analysed using descriptive statistics and Partial Least Squares Path Modelling (PLS-PM). The findings indicate that perceived behavioural control (52.1%) was the strongest predictor of business start-up intentions, followed by attitude towards business start-up (28.9%), and societal-subjective norms (11.5%). Moreover, entrepreneurship education moderated the effect of attitudes towards business start-ups and perceived behaviour on business start-up intentions but not subjective norms. Only 30.2% of technical graduates' intentions translated into actual business start-ups. Limited start-up funds, perceived high taxes, unfriendly regulatory frameworks, and little awareness of business support services constrained the potential of graduates' intentions to translate into actual business start-ups. Alongside government efforts to improve the business start-up ecosystem, technical colleges and universities should align entrepreneurship courses with experiential pedagogies to enhance the attitudes of students towards business start-ups and perceived behavioural control as critical antecedents for business start-ups upon graduation.

**Keywords:** Business start-up intentions, Moderating effect, Entrepreneurship Education, Business Start-ups, Antecedents
**Paper type**: Research paper
**Type of Review:** Peer Review

## 1. Introduction

In the world over, business start-ups are renowned for their potential to spearhead economic development through enhancing innovation, technological changes, and employment creation (Ashari *et al*., 2022; Barba-Sanchez *et al*., 2022). Policymakers and scholars are urged to understand the antecedents of

Business Start-up Intentions (BSI) among graduates to nurture their potential to venture into business start-ups (Malebana and Mothibi, 2022; Maheshwari *et al*., 2022). Previous studies such as García-Uceda and Murillo-Luna (2022), Cui and Bell, 2022; and Otach *et al*. (2019) advocate that graduates' BSI is primarily determined by personal-level factors such as personality and background factors. In recognizing that the potential of graduates to venture into business start-ups stem from intentions, scholars such as Hoang (2021), Otach *et al*. (2019) and Maresch *et al*. (2016) urge university management and policymakers to consider entrepreneurship education as a strategic tool for enhancing students' intentions to venture into business start-up upon graduation. Therefore, the entrepreneurship courses should be integrated across programmes.

Traditionally, entrepreneurship courses were offered in universities and colleges with business and economics majors. However, recent trend analysis shows that entrepreneurship courses are offered to students outside business colleges and universities, particularly those majoring in Science, Technology, Engineering, and Mathematics (STEM) (Adelaja, 2021; Maresch *et al*., 2016). These developments are not exception in Tanzania, whereas nearly all technical colleges and universities presently teach their students at least one standalone entrepreneurship course (Fulgence, 2015; Mwasalwiba, 2012). However, Maheresi (2022), Maheshwari *et al*. (2022) and Doang (2021) believe that graduates majoring in business and economics stand a better chance to benefit from entrepreneurship courses than their non-business counterparts. In addition, the entrepreneurial activities of scientific and technical graduates have a higher potential to create new and high-quality technology-oriented business ventures (Soomro and Shah, 2021; Åstebro *et al*., 2012). Specifically, evidence shows that 71% of modern-day top 21st-century entrepreneurs do technology-related businesses, 9% do retail, 3% do entertainment, and 17% do other businesses (Legas, 2016).

Besides the high potential of technical graduates to venture into business start-ups, previous studies on entrepreneurial intentions overlooked the heterogeneity of graduates' educational backgrounds. Teixeira and Forte (2015) noted that 52%% of studies addressed the entrepreneurial intentions of business students compared to only 3% of scientific and technical students. In Tanzania, existing empirical studies sampled respondents in folk development colleges (Nade, 2021), social works (Nyello *et al*., 2015), business universities (Mangasini, 2015; Mwasalwiba, 2012), higher educational schools (Fulgence, 2015), and vocational schools (Rwamtoga, 2011). These studies mainly focused on assessing the teaching contexts, students' profiles, expectations, and outcomes of entrepreneurship education (Mwasalwiba, 2012), the status of entrepreneurship courses in higher educational schools (Fulgence, 2015) and the influence of entrepreneurship education on graduates' entrepreneurial tendencies (Mangasini, 2015), entrepreneurial behaviours (Nyello *et al*., 2015), entrepreneurial intentions (Nade, 2021), and entrepreneurial development (Rwamtoga, 2011).

The preceding discussion confirms the dominance of entrepreneurial intentions of graduates in fields other than STEM. Given the narrow focus on the entrepreneurial intentions of STEM graduates in Tanzania, this paper empirically examines the intentions of technical graduates to venture into business start-ups. The motivation for this study stems from the fact that training programmes of technical colleges and universities are perceived to be potential attributable to positive BSI more than programmes at other training institutions (Legas, 2016; Åstebro *et al.,* 2012). In addition, since Fayolle's (2013) call on the need to employ research designs that include potential moderators on the relationship between entrepreneurship education and its learning outcomes, few empirical studies, if any, have responded to this call in the Tanzanian settings. Entrepreneurship research biased towards technical graduates' business start-up intentions is less prominent in Tanzania, where technical universities and colleges have steadfastly introduced entrepreneurship courses.

Consistent with Fayolle's (2013), this paper is set to examine the effectiveness of entrepreneurship courses considering that the effect of entrepreneurship education is contingent on contextual factors that vary significantly across regions (Ferreira *et al*., 2016) and graduates' educational backgrounds (Teixeira and Forte, 2015). In addition, this paper partly responds to the recently meta-analysis studies by Maheshwari

*et al*. (2022) and Nabi *et al*. (2017) that call for context-specific studies in under-researched regions such as sub-Saharan Africa, particularly in Tanzania. Against this background, this study is an empirical attempt to address three key research questions: (i) Which antecedents determine the business start-up intentions of technical graduates? (ii) Does exposure to entrepreneurship courses moderate the effect of attitudes towards business start-ups, societal-subjective norms, and perceived behaviour on business start-up intentions? (iii) Do graduates' entrepreneurial intentions translate to business start-ups? Which are possible factors hindering such a transition?

The structure of this article is based on the orientation that: after the introduction, the second section presents theoretical foundations and an empirical literature review from which research hypotheses are derived. The third section presents the study methodology, where research design, sample size, measurement scales, common bias methods, and data analysis are specified. The fourth section presents and discusses the research findings, followed by the conclusion and implications of the study findings to the theory, practice and teaching.

## 2. Theoretical Grounding and Research Hypotheses

### 2.1 Antecedents of business start-up intentions

In order to enhance the potential of graduates in venturing into business start-ups, it was deemed important to explore the antecedents of BSI, particularly among technical graduates (Soomro and Shah, 2021; Maresch *et al.,* 2016). Although entrepreneurship education has often been treated as one of the external antecedents of BSI, internal factors play an equally important role (Cui and Bell, 2022; Maheshwari, 2021; Bae *et al*., 2017). Drawing on Ajzen's (1991) Theory of Planned Behaviour (TPB) and the recent meta-analysis study by Maheshwari *et al*. (2022), the intentions to perform a given behaviour are frequently determined by three antecedents, namely: attitudes towards the behaviour, subjective norms, and perceived behavioural control. The internal antecedents of business start-up intentions are often grouped into personal-level and background factors (García-Uceda and Murillo-Luna, 2022; Liñan and Fayolle, 2015; Liñán *et al*., 2011).

Attitudes towards Business Start-Ups (ATS) explain how individuals positively or negatively evaluate business start-ups (Malebana and Mothibi, 2022). Societal-Subjective Norms (SSN) measure the individual perception of the support received from society and significant-close people when starting business ventures (Entrialgo and Iglesias, 2016). Perceived Behavioural Control (PBC) is the belief about the ease or difficulty of a given task. It reflects how they believe to possess the required knowledge, skills and resources to start business ventures (Duong, 2021). Although these antecedents adequately predict BSI, their usefulness varies in different contexts (Entrialgo and Iglesias, 2016). As a deliberate and planned activity, business start-ups require personal preparedness, preceded by intentions (Kowang *et al*., 2021; Shah *et al*., 2020). Based on the TPB, it is assumed that BSI increases when graduates positively perceive that business start-ups conform to the norms and values of the public and that they fall within their ability and control.

Despite the importance of TPB antecedents, their influence on entrepreneurial intentions varies in different contexts (Ferreira *et al*., 2016). Maheshwari (2021) concluded that TPB components exerted a substantial effect on entrepreneurial intentions that accounted for 30% to 45% of the variance than individual-level factors. The study by Kowang *et al*. (2021) reports that TPB antecedents had strong and more significant correlations with the entrepreneurial intentions of graduates than personality traits. Furthermore, entrepreneurial attitudes and perceived behavioural control are significantly associated with students' entrepreneurial intentions (Duong, 2021; Vuong, 2021; Mwasalwiba, 2012). However, these studies discovered that subjective norms did not significantly associate with the students' entrepreneurial intentions. In light of the inconsistent findings about the influence of these antecedents on entrepreneurial intentions, the study hypothesizes that:

*H1. The attitude of technical graduates towards business start-up significantly influences their intentions to venture into business start-ups.*

*H2. The societal-subjective norms of technical graduates significantly influence their intentions to venture into business start-ups.*

*H3. Technical graduates perceived behavioural control significantly influences their intentions to venture into business start-ups.*

**2.2 Moderating effect of exposure to entrepreneurship courses**

Exposure to entrepreneurship courses supposedly influences BSI through TPB antecedents by equipping students with the required entrepreneurial knowledge and skills useful in identifying and exploiting business opportunities (Maheshwari *et al*., 2022). Despite their role, certain theoretical and empirical variations occur as it is not well established whether entrepreneurship courses affect BSI through TPB antecedents (Maheshwari, 2021; Otach *et al*., 2019; Nabi *et al*., 2017). Previous empirical studies assessing the direct and indirect effects of entrepreneurship courses on entrepreneurial intentions produced varying results, both significant and non-significant. A study by Odia and Odia (2019) confirmed that exposure to entrepreneurship courses had significant moderating effects on students' entrepreneurial intentions but adversely interacted with entrepreneurial attitudes, subjective norms, and perceived behavioural control.

Moreover, Longva and Strand (2020) reported a significant decrease in entrepreneurial intentions among students who studied entrepreneurship courses compared to those who did not. The findings support Adelaja and Minai's (2018) and Bouhalleb's (2020) findings that entrepreneurship courses did not significantly influence students' entrepreneurial intentions. Interestingly, their effect on entrepreneurial intentions varied based on the educational backgrounds of graduates (Teixeira and Forte, 2015). The study by Adelaja (2021) confirmed a significantly weak relationship between exposure to entrepreneurship courses and entrepreneurial intentions of non-technical students but no significant relationship among technical students after entrepreneurship courses. The combined sample showed no significant relationship between entrepreneurship education and entrepreneurial intentions. Entrialgo and Iglesias (2016) found weak subjective norms and perceived behavioural control among graduates who studied entrepreneurship courses than those who did not.

Moreover, Duong (2021) opines that the influences of entrepreneurship courses on entrepreneurial intentions through entrepreneurial attitudes and perceived behavioural control were much more substantial on students majoring in economics and business management compared to students majoring in science and engineering. Maresch *et al. (*2016) confirm that entrepreneurship courses significantly influenced the entrepreneurial intentions of business students but negatively affected the entrepreneurial intentions of non-business students. Furthermore, Barba-Sanchez *et al*. (2022) affirm that exposure to entrepreneurship courses had a moderate effect onentrepreneurial attitudes and perceived behavioural control on entrepreneurial intentions but not subjective norms of students. This implies that graduates' perceptions of the opinions of significant-close people such as parents, friends and society had a minor role in entrepreneurial intentions. The study by García-Uceda and Murillo-Luna (2022) reports that although exposure to entrepreneurship courses moderated the effect of entrepreneurial attitude, subjective norms, and perceived behavioural control on entrepreneurial intentions; however, their effects were partial and not positive.

The study by Duong (2021) underlined that exposure to entrepreneurship courses moderated the effect of entrepreneurial attitudes and perceived behavioural control on entrepreneurial intentions but did not directly influence entrepreneurial intentions. In other words, entrepreneurship courses indirectly influenced entrepreneurial intentions through entrepreneurial attitudes and perceived behavioural control. Contrary to that, the study by Ashari *et al*. (2022) affirmed that exposure to entrepreneurship courses did not increase the strength of entrepreneurial attitudes, subjective norms, and perceived behavioural control on entrepreneurial intentions. Specifically, students who did not study entrepreneurship courses had more positive entrepreneurial attitudes and intentions than those who studied. Given the contradicting findings, this paper extends this discussion by innovatively incorporating exposure to entrepreneurship courses as a moderator of the antecedents of BSI, drawing the experience of technical graduates in Tanzania to hypothesize that:

*H4. Exposure to entrepreneurship courses significantly moderates the effect of technical graduates' attitudes towards business start-ups on business start-up intentions.*

*H5. Exposure to entrepreneurship courses significantly moderates the effect of technical graduates' societal-subjective norms on business start-up intentions.*

*H6. Exposure to entrepreneurship courses significantly moderates the effect of technical graduates' perceived behavioural control to venture into business start-up intentions.*

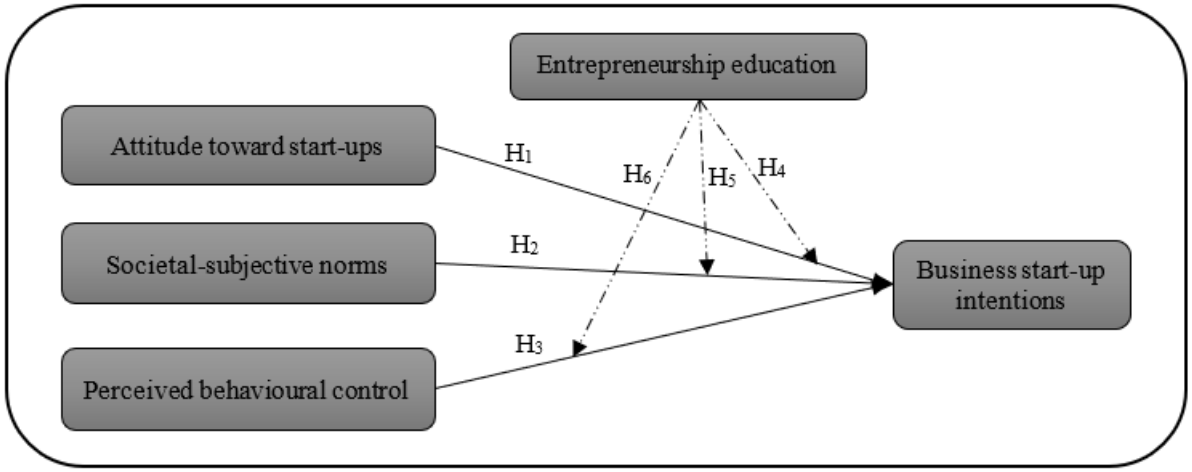


**Figure 1: Theoretical framework and hypotheses**

**Key:** ——→ Direct effect —··—··—··→ Moderating effect

### 2.3 Potentials for intentions to translate into business start-ups

Despite the increase in entrepreneurship literature, previous studies have not adequately explored the potential of graduates' business start-up intention to translate into business start-ups (Cui and Bell, 2022). Considerable body of evidence shows that many graduates in the Least Developing Countries (LDCs) hold higher entrepreneurial intentions than those in developed countries (Iakovleva et al., 2014). However, empirical evidence to substantiate whether such intentions translate into business start-ups remains scanty (González-López et al., 2020). In addition, few studies examined what hinders the potential of such intentions to translate into business start-ups, especially in LDCs (Sharma, 2018; Iakovleva *et al*., 2014). The review of previous empirical studies shows that the potential of graduates' intentions to translate into business start-ups can be constrained by various obstacles that take different facets (Katundu and Gabagambi, 2016), and the definition of such barriers is context-specific (Sharma, 2018). This calls for country-specific studies, given the limited number of empirical studies on entrepreneurial intention obstacles in LDCs (Iakovleva *et al*., 2014).

In Tanzania, previous studies explored business start-up obstacles among graduates. Specifically, Mwantimwa *et al*. (2022) found that personal, sectoral, and macro-obstacles weaken students' intentions despite their firm intention to venture into entrepreneurial activities. Limited access to start-up capital, negative attitude toward business start-ups, bureaucratic and corrupt systems, lack of entrepreneurial skills, poor marketing, and taxation hindered quantity surveyors' business start-up potentials (Emmanuel *et al*., 2020). Wrong pedagogical methods, extended families, poor university programmes, limited business experience, and administrative systems hinder graduates' business start-ups (Katundu and Gabagambi, 2016). Mwasalwiba *et al*. (2012) reported that inhibitive banking and taxation, inadequate access to start-up capital and trusts, poor technology, corruption, and cheaply imported Chinese products discourage business start-ups. However, none of these studies examined the potential of BSI to translate into business start-ups and what hinders such potential, drawing the experience of technical graduates. This paper, therefore, examines the potential of BSI to translate into business start-ups and the obstacles hindering such potential.

## 3. Methodology

### 3.1 Study area, design and sampling

The study area on which this article is based was Dar es Salaam, Tanzania. Dar es Salaam was chosen because it is one of the fastest-growing cities in Africa, a country's commercial centre and an economic hub in Tanzania expected to acquire a megacity status by 2030 (Todd *et al*., 2019). As a commercial hub, Dar es Salaam implements several technical projects that attract many technical graduates. Being the headquarter of official business registration through Business Registration and Licensing Agency (BRELA), Dar es Salaam accounts for 89.8% of all collections in the country (URT, 2017). In addition, several technical colleges and universities producing STEM professionals are in Dar es Salaam. These include the Dar es Salaam Institute of Technology (DIT), National Institute of Transport (NIT), St. Joseph University in Tanzania (SJUIT), College of Engineering and Technology (CoICT), Ardhi University (ARU), College of Engineering and Technology (CoET), and International Medical and Technological University (IMTU). In that regard, and given the business opportunities in the city, many technical graduates were living in Dar es Salaam.

The paper employed a cross-sectional survey design where technical graduates' perceptions of the antecedents of BSI were collected once (Ragab and Arisha, 2018). Guided by the quantitative approach, it was possible to establish the relationship between the studied variables. The study involved technical graduates from CoET, DIT, and SJUIT who graduated between 2012 and 2017 and living in Dar es Salaam during data collection. The time frame was chosen based on Mwasalwiba's (2012) observation that many graduates are likely to start their first business venture five to ten years after graduation. Since SJUIT graduates had no exposure to entrepreneurship courses, their perceptions of BSI antecedents were compared against those exposed to it as an essential requirement for impact assessment studies (Fayolle, 2013). Technical graduates were chosen due to high potential to venture into high-quality business start-ups more than graduates in other professions (Åstebro *et al*., 2012). This paper involved 384 technical graduates estimated through Cochran's formula at 95% confidence and ± 5% precision level (Cochran, 1977):

**Sample size (n)**$=\frac{z^2pq}{e^2}$……..……...…….....(1)

Where n= sample size; z = confidence level at 95% (a standard value of 1.96); p = target population (since graduates living in Dar es Salaam were not known, a standard value of 0.5 was used); q = (1.0 – p); and e = Margin of error at 5% (standard value of 0.05).

Therefore, $\mathbf{n} = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} = \frac{3.8416 \times 0.25}{0.0025} = \mathbf{384.16} \approx \mathbf{384}$

Since the formula estimates a minimum sample size, 15% of the sample was spared to compensate for non-response potentials following Israel's (1992) recommendation, making the sample size 442. Fisher's *et al*. (1991) proportionate formula estimated the sub-sample for each university:

$\textbf{Sample Size per University} = \frac{\text{Estimated Sample Size (n)}}{\text{Total Population (N)}}$ **x Population per University (N)** ……..……(2)

From equation (2), the sub-sample was computed as follows:

$\text{CoET} = \frac{384}{10981}$ x 2103 = **73**, $\text{DIT} = \frac{384}{10981}$ x 3818 = **134**, $\text{SJUIT} = \frac{384}{10981}$ x 5060 = **177**

**Table 1: Sub-sample size per technical university**

| University | Population | Sub-sample | Sub-sample with 15% | Percent (%) |
|---|---|---|---|---|
| CoET | 2,103 | 73 | 84 | 19.2 |
| DIT | 3,818 | 134 | 154 | 34.7 |
| SJUIT | 5,060 | 177 | 204 | 46.1 |
| **Total** | **10,981** | **384** | **442** | **100** |

In Tanzania, it is mandatory for technical graduates to register in professional associations based on their fields of study, such as the Engineers' Registration Board (ERB), Contractors Registration Board (CRB), and the Architects and Quantity Surveyors Registration Board (AQRB). As a result, the contact information and location of the selected respondents were obtained from the respective registered

professional association. Unregistered respondents were identified through snowballing technique. A simple random sampling method using a random number Table was used to select respondents to avoid potential selection bias. The Structured Engineering Apprenticeship Programme (SEAP) recruits engineering graduates for three years to acquire hands-on professional experience (URT, 2005). Since many respondents were still working under SEAP, the data collection exercise was made simple as it was easy to access and confine them to this study. With the assistance of enumerators, 391 copies of the questionnaire were successfully collected out of 442 printed questionnaires. The returned questionnaires correspond to 88.5% of completion rate, which is above the threshold level of 70% for a survey paper (Nulty, 2008).

### 3.2 Measurement scale

A survey questionnaire was used to solicit responses from respondents whose items were adopted from previous literature with proven reliability (For details see Table 6). To confirm the questionnaire in the study context, a survey questionnaire was piloted to gain responses from 20 technical graduates in Moshi District that were excluded from the analysis. The strength of agreements or disagreements was measured through a five-point Likert scale using generic continuum responses ranging from Strongly Agree (=5) to Strongly Disagree (=1) due to inherent advantages over other scales (Johns, 2010). The Likert scale reduces respondents' frustration, enhances completion rate and response quality, and improves reliabilities (Babakus and Mangold, 1992; Jenkins and Taber, 1977).

### 3.3 Common method bias

Common Method Bias (CMB) is inherent in behavioural studies, mainly when the same survey questionnaire is used to collect data from similar respondents in the same location (Kock *et al*., 2021). In addition to other techniques, Harman's one-factor test was used to test the potential bias by entering all the studied items as one factor in the Principal Component Analysis (PCA). Harman's one-test result produced 34.7% below the recommended threshold level of 50% (Kock *et al*., 2021). This result entails that CMB was not challenging and had minimal implications on the empirical results.

### 3.4 Data analysis approaches

A second-generation technique known as Partial Least Squares Path Modelling (PLS-PM) was used to test the relationship between studied antecedents and BSI. PLS-PM was further used to examine the moderating effect of exposure to entrepreneurship courses on the relationship between the antecedents and BSI. PLS-PM was chosen since it examined both direct and indirect relationships of the constructs measured through multiple items (Hair *et al.,* 2021; Henseler *et al.,* 2016). In entrepreneurship, over 90% of published manuscripts in the past four years employed the PLS-PM technique (Manley *et al.,* 2020). The significance of path coefficients was estimated using Smart PLS software version 3.6 (Ringle *et al*., 2015). Besides PLS-PM, descriptive statistics examined graduates' business start-up attempts and the potential obstacles drawing back technical graduates' efforts to translate their intentions into actual business start-ups.

## 4. Findings and Discussions

### 4.1 The measurement models

The evaluation of the reflective outer model involved the use of Cronbach's Alpha ($\alpha$), Composite Reliability (CR), Jöreskog's Rho_A, and Factor Loading (FL) to determine the reliability and validity of the constructs. Table 2 shows that all the constructs were reliable with $\alpha$, CR, Rho_A, and FL (≥ .70) (Hair *et al*., 2019, 2021; Chin, 1998; Cronbach, 1951). Both items and constructs reflected adequate internal consistency reliability for further analysis. Average Variance Extracted (AVE) and individual indicator reliability was used to assess the convergent validity of the constructs. The AVE values for all the constructs attained the threshold level (≥ 0.50) (Hair *et al*., 2019, 2021). This entails that the constructs interpret over 50% of the variance of its items, confirming the constructs' convergent validity (Hair *et al*., 2019, 2021; Manley *et al.,* 2020).

**Table 2: Construct reliability and validity**

| Construct | Items | Loadings | VIF | CR | Rho_A | $\alpha$ | AVE |
|---|---|---|---|---|---|---|---|
| ATS | ATS_1 | 0.866 | 2.225 | 0.899 | 0.862 | 0.850 | 0.691 |
| | ATS_2 | 0.734 | 1.518 | | | | |
| | ATS_3 | 0.849 | 2.133 | | | | |
| | ATS_4 | 0.869 | 2.279 | | | | |
| SSN | SSN_1 | 0.912 | 2.559 | 0.929 | 0.898 | 0.886 | 0.813 |
| | SSN_2 | 0.871 | 2.288 | | | | |
| | SSN_3 | 0.922 | 3.077 | | | | |
| PBC | PBC_1 | 0.836 | 2.149 | 0.920 | 0.894 | 0.892 | 0.698 |
| | PBC_2 | 0.845 | 2.454 | | | | |
| | PBC_3 | 0.870 | 3.091 | | | | |
| | PBC_4 | 0.834 | 2.565 | | | | |
| | PBC_5 | 0.790 | 1.810 | | | | |
| BSI | BSI_1 | 0.738 | 1.726 | 0.920 | 0.896 | 0.895 | 0.658 |
| | BSI_2 | 0.858 | 2.675 | | | | |
| | BSI_3 | 0.814 | 2.181 | | | | |
| | BSI_4 | 0.780 | 1.974 | | | | |
| | BSI_5 | 0.819 | 2.239 | | | | |
| | BSI_6 | 0.852 | 2.607 | | | | |

Variance Inflation Factor (VIF), Composite Reliability (CR), Jöreskog's Coefficient (Rho_A), Cronbach's Alpha ($\alpha$), and Average Variance Extracted (AVE).

Fornell-Larcker criterion, cross-loadings, and the heterotrait-monotrait ratio (HTMT) were used to assess the discriminant validity of the measurement model. Cross-loadings explain how strongly each indicator loads on the other constructs. As a rule of thumb, the outer loadings should be above all its loadings on different constructs. Table 3 show that the outer loadings were more significant than their loadings on other constructs, indicating no discriminant validity challenge. Fornell–Larcker criterion was used to assess discriminant validity by comparing the square root of the AVE values with the latent variable correlations. The rule of thumb requires that the square root of each construct's AVE value be above its highest correlation with other constructs (Fornell and Larcker, 1981). The results indicate that all the constructs attained the discriminant validity criterion.

In addition, the square root of each construct's AVE value was above the correlation that the construct had with other constructs (Fornell and Larcker, 1981). Lastly, Heterotrait-Monotrait (HTMT) was used to assess discriminant validity. The validity is attained when HTMT meets the threshold level (≤0.850) (Hair *et al.*, 2019; Henseler *et al.*, 2016). All HTMT values in Table 3 attained the correlation strength of (≤0.850). The reflective measurement outer model generally indicates that the scales display acceptable psychometric properties suitable for further analysis.

**Table 3: Discriminant validity**

| Constructs | ATS | BSI | PBC | SSN |
|---|---|---|---|---|
| ***Fornell and Larcker Criteria*** | | | | |
| ATS | ***0.831*** | | | |
| BSI | 0.638 | ***0.811*** | | |
| PBC | 0.575 | 0.744 | ***0.835*** | |
| SSN | 0.426 | 0.495 | 0.494 | ***0.902*** |
| ***Cross-loading*** | | | | |
| ATS_1 | ***0.866*** | 0.579 | 0.486 | 0.371 |
| ATS_2 | ***0.734*** | 0.445 | 0.381 | 0.282 |
| ATS_3 | ***0.849*** | 0.503 | 0.487 | 0.312 |
| ATS_4 | ***0.869*** | 0.578 | 0.545 | 0.437 |
| BSI_1 | 0.497 | ***0.738*** | 0.619 | 0.375 |
| BSI_2 | 0.525 | ***0.858*** | 0.646 | 0.461 |
| BSI_3 | 0.560 | ***0.814*** | 0.585 | 0.450 |
| BSI_4 | 0.487 | ***0.780*** | 0.575 | 0.342 |
| BSI_5 | 0.506 | ***0.819*** | 0.606 | 0.381 |
| BSI_6 | 0.525 | ***0.852*** | 0.587 | 0.394 |
| PBC_1 | 0.542 | 0.671 | ***0.836*** | 0.438 |
| PBC_2 | 0.454 | 0.588 | ***0.845*** | 0.395 |
| PBC_3 | 0.429 | 0.628 | ***0.870*** | 0.354 |
| PBC_4 | 0.420 | 0.551 | ***0.834*** | 0.462 |
| PBC_5 | 0.542 | 0.652 | ***0.790*** | 0.415 |
| SSN_1 | 0.393 | 0.500 | 0.439 | ***0.912*** |
| SSN_2 | 0.326 | 0.395 | 0.442 | ***0.871*** |
| SSN_3 | 0.430 | 0.435 | 0.457 | ***0.922*** |
| ***Heterotrait – Monotrait Ratio (HTMT)*** | | | | |
| ATS | | | | |
| BSI | ***0.727*** | | | |
| PBC | 0.652 | ***0.828*** | | |
| SSN | 0.484 | 0.550 | ***0.557*** | |

### 4.2 Structural model assessment

The model explained variance (R2) advocates a sufficient explanatory power of antecedents on a structural model assessment is used to evaluate the relationship between latent constructs and validate the conceptual framework (Hair et al., 2021). The inner model evaluation involved path analysis based on the relationship between latent exogenous and endogenous construct. The model explained variance (R2) show a sufficient explanatory power of antecedents on BSI with R2 = 0.629(ATS = 0.289, SSN = 0.115, PBC = 0.521). Impliedly, PBC (52.1%), ATS (28.9%), and SSN (11.5%) account for 62.9% of the variance in BSI. The remaining 37.1% of the variance in BSI is perhaps accounted for by other factors not covered in this paper. The 62.9% variance is fairly above the 30% reported by Mwasalwiba (2012) in Tanzania, 39% by Ndofirepi and Rambe (2017) in Zimbabwe, and 53% by Shah *et al.* (2020) in Oman. Maheshwari (2021) emphasizes that TPB antecedents account for 30 to 45% of the variance in entrepreneurial intentions.

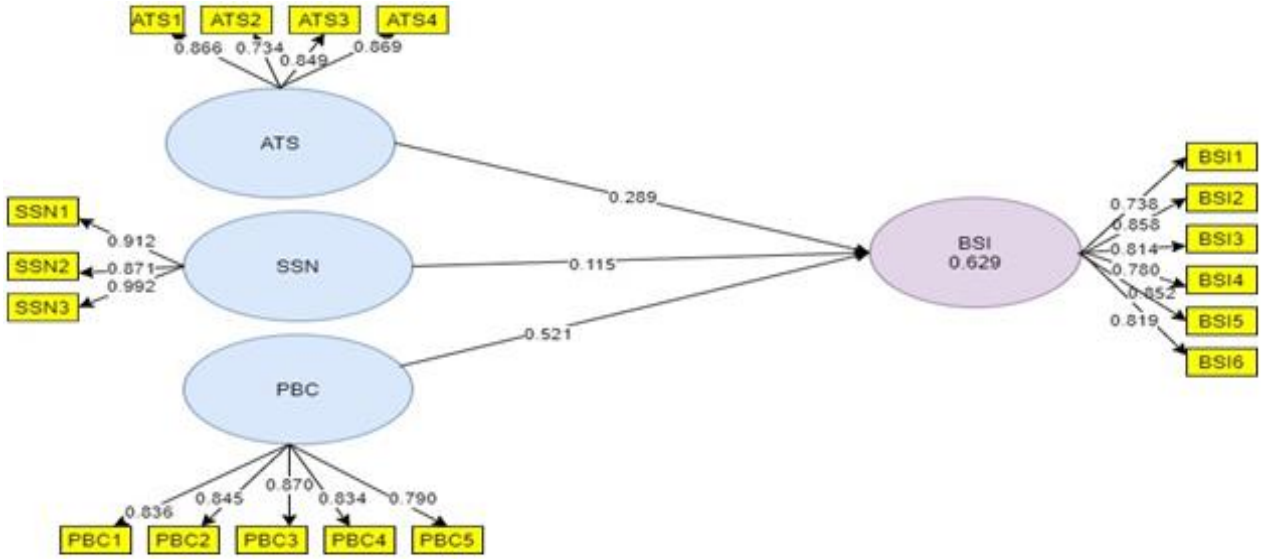


**Figure 2: A path analysis**

For direct effect, the path values shown in Table 4 uphold that ATS ($\beta$ = 0.289, $p$< 0.05), SSN ($\beta$ = 0.115, $p$< 0.05), and PBC ($\beta$ = 0.521, $p$< 0.001) directly and significantly influence BSI, supporting hypotheses*H1*, *H2*, and *H3*. Attitudes towards business start-ups, societal-subjective norms, and perceived behavioural control substantially affect graduates' BSI. Indeed, graduates with positive attitudes towards business start-ups, subjective norms and perceived behavioural control are more likely to venture into business start-ups than those with negative perceptions. Entrepreneurship courses should foster positive attitudes towards business start-ups, societal-subjective norms and perceived behavioural control. Unlike Kowang *et al*. (2021), who reported that entrepreneurial attitude was the primary predictor of entrepreneurial intentions among Malaysian undergraduates, within the context of technical graduates in Tanzania, perceived behavioural control (52.1%) is the strongest predictor of BSI followed by attitudes (28.9%) and subjective norms (11.5%).

**Table 4. Direct paths of the antecedents on business start-up intentions**

| Hypotheses | Path | Path coefficient | t-statistics | p-value | Supported |
|---|---|---|---|---|---|
| ***H1*** | ATS → BSI | 0.289 | 3.017 | 0.003** | Yes |
| ***H2*** | SSN → BSI | 0.115 | 2.002 | 0.046* | Yes |
| ***H3*** | PBC → BSI | 0.521 | 7.215 | *** | Yes |

**Legend:** ** $p$< 0.01, ***p < 0.001

Consistent with TPB and previous empirical studies, this study confirms that the intentions of technical graduates to venture into business start-ups were predicted by the attitudes towards business start-ups, social pressure about business start-ups, and perceived behavioural control (Malebana and Mothibi, 2022; Maheshwari, 2021; Vuong, 2021; Ajzen, 1991). Besides perceived behavioural control, graduates with a positive attitude towards business start-ups have a higher potential to venture into business start-ups than those with negative perceptions. However, some empirical studies, including the study by Longva and Strand (2020) and Bouhalleb (2020), reported a non-significant and significant decrease in entrepreneurial attitudes and perceived behavioural control on graduates' entrepreneurial intentions. Although several empirical studies reported that subjective norms did not significantly influence entrepreneurial intentions (Malebana and Mothibi, 2022; Duong, 2021; Vuong, 2021; Odia and Odia, 2019; Mwasalwiba, 2012), in this study, subjective norms are significant though it contributes marginal effect on business start-up intentions.

Furthermore, the moderating effect of exposure to entrepreneurship courses was captured by running two models comprising graduates with exposure (Figure 3) and those without entrepreneurship (Figure 4) to compare their path coefficients and *p*-values.

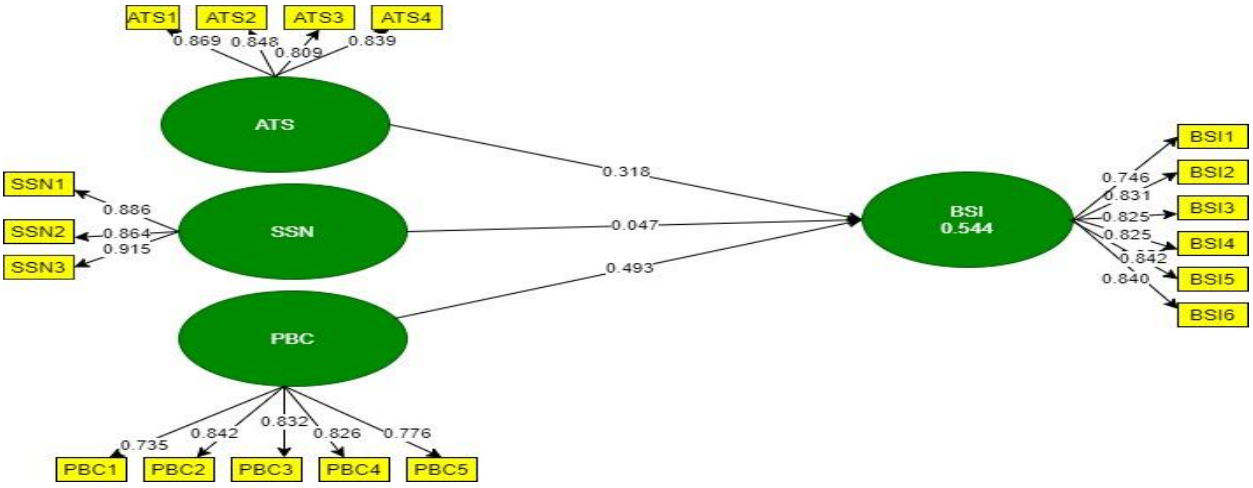


**Figure 3: A path model with exposure**

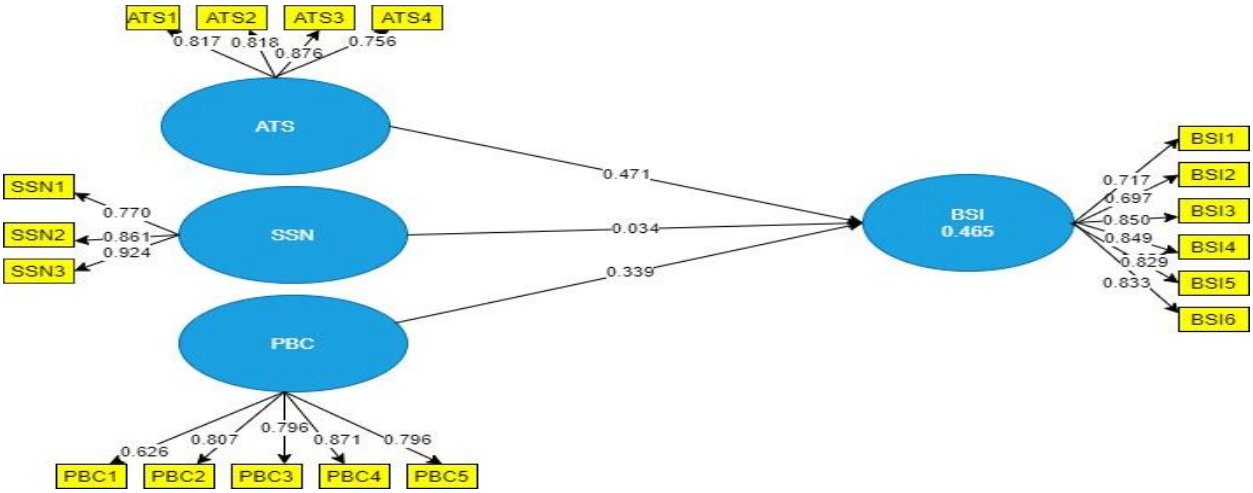


**Figure 4: A path model without exposure**

Figure 3 shows that the model with exposure to entrepreneurship courses as moderator predicted $R^2$ = 54.4% (ATS=31.8%, SSN=4.5%, PBC=49.3%). However, in a model without a moderator, the predictive model ability changed from 54.4% to $R^2$ = 46.5% (ATS = 47.1%, SSN = 3.4%, PBC = 33.9%). The changes imply that entrepreneurship courses moderate the predictive ability of attitudes towards business start-ups, societal-subjective norms, and perceived behavioural control to jointly predict 54.4% of the variance in business start-up intentions (Figure 3). Without moderating the effect of exposure to entrepreneurship courses, the model could predict only 46.5% of the variance in BSI (Figure 4).

**Table 5: Comparison of moderated and non-moderated paths**

| Hypotheses | Path | With exposure $R^2$ = 0.544 | | | Without exposure $R^2$ = 0.465 | | | Supported |
|---|---|---|---|---|---|---|---|---|
| | | **β** | **t-values** | **p-values** | **β** | **t-values** | **p-values** | |
| **H4** | ATS → BSI | 0.318 | 2.970 | 0.003** | 0.471 | 6.209 | *** | Yes |
| **H5** | SSN → BSI | 0.047 | 0.185 | 0.853 | 0.034 | 0.437 | 0.662 | No |
| **H6** | PBC → BSI | 0.493 | 5.750 | *** | 0.339 | 3.863 | *** | Yes |

**Legend:** ** $p < 0.01$, *** $p < 0.001$

Consistent with previous empirical studies, the findings confirm that entrepreneurship courses equip graduates with entrepreneurial knowledge and skills critical to enhancing their attitudes towards business start-ups (Maheshwari, 2021; Kowang *et al*., 2021; Doang, 2019). The findings imply that entrepreneurship courses significantly moderate the effect of attitude towards business start-ups on business start-up intentions. Table 5 shows the impact of ATS on BSI in the model with exposure ($\beta$ = 0.318, $p$< 0.01) and without exposure ($\beta$ = 0.471, $p$<0.001). Although the $p$-values in both models were significant, thus supporting hypothesis H4, the path coefficient of the model with exposure (31.8%) is lower than that without exposure (47.1%). The difference implies that besides entrepreneurship education, informal exposure such as entrepreneurial parents, previous employment experience, business ownership experience, business start-up experiences, and entrepreneurial role models in family and friends are critically important in shaping the attitudes of graduates towards business start-ups.

Moreover, the effect of SSN on BSI was not significant in both models with and without exposure (p>0.05); consequently, hypothesis H5 was not supported. This imply that entrepreneurship courses do not strengthen the perceptions of technical graduates on the opinions of significant-close people such as parents, friends, business associates, and the general society in predicting their intentions to venture into business start-ups. The effect of PBC on BSI was significant in both models with exposure ($\beta$ = 0.493, $p$< 0.001) and without exposure ($\beta$ = 0.339, $p$<0.001). Since the path coefficient of PBC in the model with exposure (49.3%) was fairly higher than that in the model without exposure (33.9%), and the $p$-values are significant on both sides, it is evident that hypothesis H6 is supported. Impliedly, entrepreneurship courses significantly moderated the effect of perceived behavioural control on business start-up intentions. The study findings contradict Kowang *et al*. (2021), who reported that entrepreneurship courses scored lower correlation coefficients with entrepreneurial intentions than other antecedents among the studied antecedents. The findings further contradict studies by Malebana and Mothibi (2022), Maheshwari (2021) and Doang (2019), who reported that exposure to entrepreneurship courses did not moderate the effect of entrepreneurial attitudes on entrepreneurial intentions but positively moderated the effect of perceived behavioural control on entrepreneurial intentions.

In addition to measuring the intentions of technical graduates to venture into business start-ups, the study further measured the extent to which such intentions translate into business ventures and the factors hindering such transition. To make it clearer, the study measured graduates' intention to start business ventures but without success because they ended up with just a dream and gave-up before the venture was materialised. Descriptive statistics were used to examine technical graduates' attempts to translate business start-up intentions into the reality and the associated obstacles. This was done for the group of technical graduates who started the business venture but the venture did not last longer (business failure) that means business start-ups dreams were realised but the owners failed to maintain the venture as most of which failed within a year of operation. The findings show that 10% of graduates had never thought of business start-ups, 9.1% thought of it but never acted, and 10.5% tried to start a business venture but gave-up. Moreover, 9.2% tried to start business ventures but failed, 18.7% were in the start-up process, and 30.2% had established business ventures that were still operating. Although the business start-up rate of 30.2% for technical graduates is low relative to the level of investment, which is much higher than the 22.7% business start-up rate for business-related graduates reported by Mangasini (2015). The findings could perhaps imply that many technical graduates still depend on ready-made job opportunities in private and public sector organizations during this study. These results partly support Legas's (2016) and Åstebro's *et al*. (2012) assertion that technical graduates have higher business start-up potential than graduates of other fields. The findings partly contribute to the knowledge-base on whether students' intentions translate to actual business start-ups (González-López *et al*., 2020).

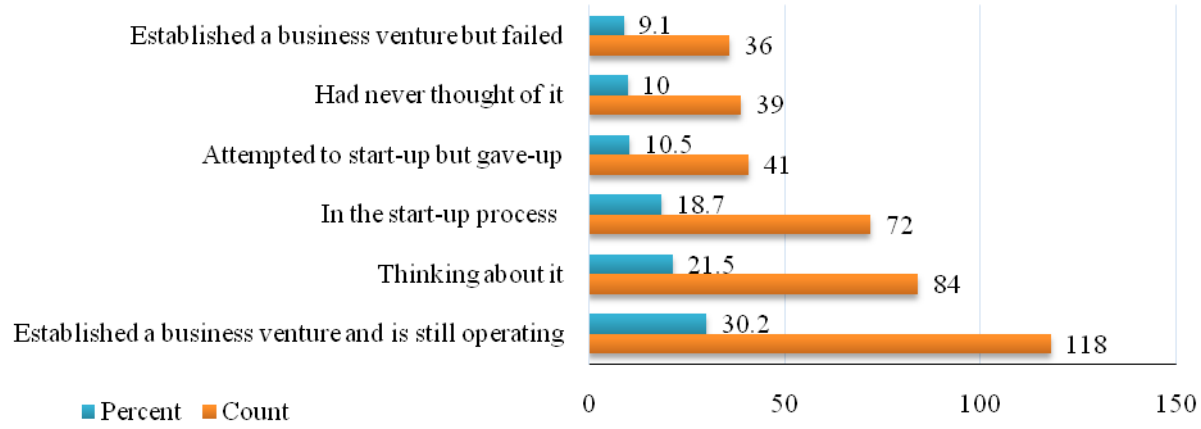


**Figure 5: Status of business start-ups**

Lastly, the study examined factors drawing back technical graduates' attempts to translate start-up intentions into business start-ups. The findings shown in Figure 6 confirm that although technical graduates were interested in the start-ups, their attempts to transform business start-up intentions into business start-ups were obstructed by limited access to start-up capital (86.2%), perceived high taxes (69.1%), unfavourable regulatory frameworks (62.7%), unfriendly business environment (61.1%), and limited awareness of where and how to access business support services (60.1%) among others. These obstacles seem to dominate entrepreneurship studies in Tanzania (Mwantimwa *et al*., 2022; Emmanuel *et al*., 2020; Mangasini, 2015; Mwasalwiba *et al*., 2012).

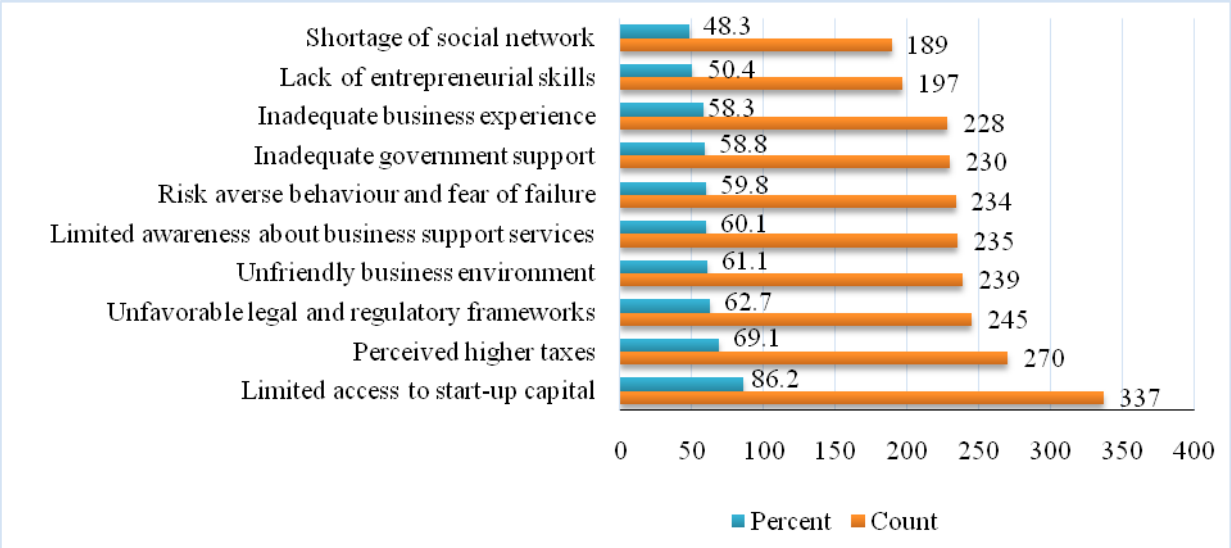


**Figure 6: Business start-up obstacles**

## 5. Conclusions and recommendations

This empirical paper attempted to examine the antecedents of business start-up intentions and how exposure to entrepreneurship courses moderated the effect of attitudes towards business start-ups, subjective norms, and perceived behaviour on business start-up intentions. Consistent with previous theoretical and empirical studies from different contexts, this study concludes that attitudes towards start-ups, societal-subjective norms, and perceived behavioural control significantly influence business start-up intentions. Within the context of technical graduates in Tanzania, perceived behavioural control (52.1%) was the strongest predictor of business start-up intentions, followed by attitudes towards business start-ups (28.9%) and subjective norms (11.5%). It is concluded that technical colleges and universities should employ experiential pedagogies that capitalize on developing perceived behavioural control and attitudes towards business start-ups to enhance technical graduates' potential to venture into business start-ups.

The study concludes that exposure to entrepreneurship courses moderated the effect of attitudes towards business start-ups and perceived behaviour on business start-up intentions. However, they did not moderate the impact of subjective norms on business start-up intentions. This evidence indicates the strength of the influence of social contexts (social norms) and the role of entrepreneurship courses on entrepreneurial intentions. Based on the study findings, it is concluded that graduates' perceptions on opinions of significant-close people such as parents, friends and members of society played a minor role in predicting their business start-up intentions. Otherwise, limited access to start-up capital, unfavourable regulatory frameworks and business environment, perceived high taxes, and little awareness of business support services constrained technical graduates' intentions to translate their intentions into business start-ups. Local Government Authorities (LGAs) should improve the existing start-up environment for university graduates to exploit the abundant untapped entrepreneurial opportunities to establish a business venture to create self-employment and employment opportunities for others.

### 5.1 Theoretical and practical implications

The study findings present theoretical and practical implications to entrepreneurship scholars and policymakers in Tanzania. *First,* perceived behavioural control was the most significant antecedent of technical graduates' business start-up intentions, followed by attitudes towards start-ups and societal-subjective norms. Curriculum designers in technical colleges and universities should design courses that enhance students' perceived behavioural control and attitude towards start-ups. Second, since entrepreneurship courses did not moderate the effect of subjective norms on business start-up intentions, colleges and universities should design solid entrepreneurship courses around social and cultural norms while aligning them with experiential teaching methods to improve students' entrepreneurial skills to venture into business start-ups. LGAs should broadcast success stories of successful entrepreneurs through media to entice youths to follow them as role models.

Societal members appraise individuals employed in the formal sector while disregarding self-employed individuals in the informal sector through small business ventures. Publicising success stories of self-employed individuals in the informal sector could dispel this behaviour and improve graduates' subjective norms critical in business start-ups. This paper contributes to the body of entrepreneurship knowledge in two ways. *First,* it explores the antecedents of business start-up intentions drawing the experience of graduates from relatively untapped degrees in STEM. Second, it shows entrepreneurship courses moderate the effect of attitudes towards start-ups, subjective norms, and perceived behavioural control on business start-up intentions following Fayolle's (2013) call on research designs that include moderators with treatment and control groups. Therefore, the paper confirms TPB's applicability as a theoretical framework helpful in assessing the potential of technical graduates to venture into business start-ups in Tanzania.

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**Acknowledgements**

The corresponding author acknowledges the financial support received from the Federal Government of Germany through *Deutscher Academischer Austauschdienst* (DAAD) for the In-country Scholarship Programme (No: 91602573) and the research training by the Commission for Science and Technology (COSTEC) that speeded-up the accomplishment of this work.

**Appendix**

**Table 6. Measurement scales**

| Construct | Measurement items | Source |
|---|---|---|
| ATS | 1. A career as an entrepreneur is attractive to me.<br>2. If I had the resources, I would choose to start my business venture.<br>3. I would be satisfied if I became an entrepreneur.<br>4. Among the options, I would instead choose to be an entrepreneur. | Doang, 2021; Liñán *et al.,* 2009 |
| SSN | 1. My closest family would approve if I decided to start a business venture.<br>2. My closest friends would approve if I decided to start a business venture.<br>3. If I decided to start a business venture, people who are important to me would approve of that decision. | Doang, 2021; Liñán *et al.,* 2011 |
| PBC | 1. To start a new business and keep it working would be easy for me.<br>2. I can control the creation process of a new business venture.<br>3. I understand the practical details of starting a business venture.<br>4. I know how to develop an entrepreneurship project.<br>5. If I tried to start a business, I would have a high chance of succeeding. | Doang, 2021; Liñán*et al.,* 2011 |
| BSI | 1. I have seriously thought of becoming an entrepreneur.<br>2. My professional goal is to become an entrepreneur.<br>3. I am ready to do anything to become an entrepreneur.<br>4. I have a serious intention to start a business some days in future.<br>5. The probability of becoming an entrepreneur is high.<br>6. If I had the opportunity and resources, I would start my own business. | Doang, 2021; Liñán *et al.,* 2011 |

**East Africa Journal of Social and Applied Sciences (EAJ-SAS)**
**Vol.4, No.1 Publication Date:** December 30, 2022
*ISSN: (Online) 2714-2051, (Print) 0856-9681*
*Full articles of this journal are available at: https://journals.mocu.ac.tz/index.php/eaj-sas*

Cite this article as: Nkunda, R. M. & Mchopa, A. D. (2022). The influence of awareness creation campaigns on special groups' participation in public procurement opportunities in Tabora region, Tanzania. *East Africa Journal of Social and Applied Sciences,* 4(1), 19-29.

# THE INFLUENCE OF AWARENESS CREATION CAMPAIGNS ON SPECIAL GROUPS' PARTICIPATION IN PUBLIC PROCUREMENT OPPORTUNITIES IN TABORA REGION, TANZANIA

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**ABSTRACT**
Making public procurement a tool for encouraging special groups' participation is an interesting agenda from developmental and economic perspectives. The initiative provides a ground for the groups to excel socio-economically. This is after realising there is inadequate participation of special groups in up-taking public procurement opportunities. This study documents the influence of awareness creation on the involvement of special groups in harnessing opportunities in public procurement. A cross-sectional research design was adopted while a sample of 224 respondents was selected using stratified and proportional random sampling techniques. Data was collected through a survey questionnaire and key informant interviews, while descriptive statistics and multiple regression models were used for data analysis. The findings revealed that training of special groups (p=0.015), availability of mentorship forums (p=0.000), and dissemination of information about preference schemes given to special groups (p=0.000) had a significant influence on special groups' participation in procurement opportunities. The study concludes that awareness creation, mentoring and training had a significant relationship with special groups' participation in public procurement opportunities. The study recommends that the Local Government Authorities should put more initiatives into creating awareness and enforcing the applicability of preference schemes to the special groups towards harnessing public procurement opportunities.

**Keywords:** Special groups, Public procurement, Opportunities, Participation, Mentorship forum
**Paper Type**: Research paper
**Type of Review:** Peer Review

## 1. Introduction

Public procurement as a process of acquiring goods, services and works by public sector for the welfare and interests of the public has recently been emphasised by governments for the purpose of properly functioning and delivery of services to its citizens. The process encompasses the purchase of office paper, contracting for the regular maintenance of roads, construction of schools, purchase of hospital supplies, renewal of the fleet of city buses or secure computer services in public buildings (World Bank, 2018; Komakech, 2016). Thus, public procurement has recently been considered an important tool to encourage participation of special groups-owned entreprises in developmental economic activities. The Organisation for Economic Co-operation and Development (OECD) opines that involving companies owned by special

groups in developmental economic activities seems to be an exciting fairground and forum from a developmental and economic perspective (OECD, 2018).

According to the Public Procurement Regulatory Authority (PPRA), special groups in the public procurement perspective included the registered enterprises established by youth, women, elders and people with disabilities for the purpose of harnessing procurement opportunities, among other objectives (PPRA, 2020). Literature on issues related to people with disabilities, women, and youths, include the study by Karani (2017), United Nations (2019), and Hoekman and Tas (2019) indicate that inclusive growth is vital for achieving many Sustainable Development Goals. The engagement of special groups in harnessing opportunities in public procurement is a very important government function towards promoting inclusivity and development of local firms and enterprises through preferential schemes (Loader, 2013). Thus, access to procurement opportunities and the subsequent participation in public procurement is essential towards enhancing inclusivity. Participation is measured in terms of how many special groups have access to public procurement opportunities in the supply of goods, services and works through special groups' preferential scheme.

Around 2000s, governments in the world started struggling with practises of empowering youths, women, and people with disabilities (United Nations, 2000). As a mechanism to address the challenges, governments have been urged to ensure that adequate attention is provided in solving challenges associated with economic empowerment of special groups in the country (Wamoto, 2017). Such efforts among others are meant to address the issues of inadequate participation of special groups in various national development and economic issues, including their access to public procurement opportunities (Nicholas and Fruhmann, 2014). Public procurement being the largest consumer of government development budgets and the source of opportunities for business entities is considered to be among the avenue for hedging the challenge. In Tanzania for example, all procuring entities are required to set a mandatory thirty percent (30%) of their annual procurement volume for special groups to participate in public procurement (Regulation 30 C, PPR Amendments 2013). In Kenya, the findings by Karani and Moronge (2017) indicate that special groups constitute a significant portion of the entire population. However, despite the existence of preferential schemes their participation and access to public procurement opportunities was still less than 10%.

Mexico, one of the prominent North American countries, since 2008 instituted several policy reforms on the procurement system. Such efforts by Mexican government aimed at increasing the participation of people with disabilities, women and youths in accessing public procurement opportunities (Silva and Scott, 2014). The policies included but not limited to the establishment of law that pushes all procuring entities to procure at least 35% of all annual services, works, and goods from businesses owned by special groups, establishing Small and Medium Enterprises (SME) online support portal and SME training, and increase of financial support options (OECD, 2013). Additionally, such efforts have resulted in the increase of contracts awarded to companies owned by people with disabilities, women and youth from 17,660 to 110,017 million pesos between 2009 and 2016 (DCED, 2017).

The Republic of Korea, on the other hand provides another good example of the countries that have made commendable efforts in empowering and improving special groups' participation in developmental economic activities. According to Jones (2011), the Republic of Korea has established procurement policies that empower special groups to participate in procurement opportunities. The efforts include increased access to financial services, waiver of various bidding procedure fees, capacity building through training and advance payments to special groups (WTO, 2016; OECD, 2016; ADB, 2012; and Jones, 2011). Asian Development Bank (2012) reports that, after implementing the aforementioned policies, almost 99.5% of the registered bidders on the electronic procurement system were from small and medium enterprises, and some of them were owned by special groups. However, challenges facing companies owned by special groups remained. Such challenges included bid-riggings, corruption, lack of securities for large contracts, and late payments for completed contracts (Jones, 2011).

The same situation has been observed in India, where the Ministry of Finance issued basic guidelines on procurement policies and regulations to encourage special groups' participation in government procurement opportunities (DCED, 2017). These include the formation of Consortia, where groups of companies owned by special groups were allowed to join efforts and hedge their chances of winning larger contracts which would otherwise have not been possible for them to succeed on their own based on capabilities (Garcia, 2009). The special groups were exempted from paying security deposits and earned money and penalties for payment delay (beyond 90 days) where procuring entities are liable to pay interest at a rate of 5% higher than the prevailing bank rate to the companies owned by special groups (WTO, 2015 and Varhad Group, 2013).

Besides Mexico, the Republic of Korea and India, the government of Ghana also made great efforts in reforming the public procurement system towards capacity-building initiatives to enhance the participation of special groups (International Trade Centre, 2015). The reforms provided an opportunity to sensitise procurement officials to unique issues pertaining to the special group businesses, including the benefits of preferential policies. In East Africa, the Kenyan government has also made initiatives to establish a policy requirement for allocating at least 30% of all public procurement opportunities to special groups. The requirements have hardly been realised due to some challenges faced by companies owned by the special groups, including shortage of funds, limited access to information, lack of training and poor tendering process (Ngure and Simba, 2015).

In Tanzania, the government has enacted laws and put in place regulations requiring every procuring entity to include specific procurement opportunities for special groups in their annual procurement plans (URT, 2016). Nevertheless, despite the effort, the annual procurement performance evaluation reports by the Public Procurement Regulatory Authority (PPRA) indicate that there is inadequate participation of special groups in public procurement opportunities (PPRA, 2018, 2019). Moreover, the PPRA annual performance evaluation report for the 2017/2018 financial year documented that only 13 firms were accepted for registration in the preference scheme. Furthermore, out of 103 audited Procuring Entities (PE), 70 Procuring Entities were penalised for not granting an exclusive preference of 30 percent in their annual procurement plans to special groups in the financial year 2018/2019. Other challenges include limited adherence to the established regulations by the procuring entities, lack of access to information about procurement opportunities lack of financial capacity and inadequate awareness creation on preference scheme given to special groups (Kimambo, 2019; PPRA, 2019; Wamoto, 2017; Karani and Makori, 2017).

In a nutshell, the literature including Hivos (2018), International Growth Centre (IGC) (2019) and PPRA (2020) show that successful engagement of special groups in public procurement opportunities require rising general awareness about special groups and providing training that would give proper skills in preparing tenders, procurement procedures, project execution, managing financial issues and dispute resolution. Additionally, the provision of training and mentorships on information and communication technology (ICT) skills such as searching procurement opportunities through the internet (tender portal) can help transform their perception towards undertaking investments and engaging in public procurement opportunities (International Growth Centre, 2019). This implies that the increase in creating awareness to special groups is likely to increase their participation in public procurement opportunities. Thus, the study is hypothesised that:

***$H_1$**: There is no significant relationship between the provision of training and special groups' participation in public procurement opportunities;*

***$H_2$**: There is no significant relationship between conducting mentorship forums and special groups' participation in public procurement opportunities; and*

***$H_3$**: There is no significant relationship between awareness creation through media and special groups' participation in public procurement opportunities.*

## 2. Theoretical Underpinnings of the Study

The theory of inclusive development guided the study as it emphasises equity and empowerment of special groups as the means of reducing poverty among them (Asian Development Bank, 2007). Also, it deals with human resource development (education, health care), ensuring special groups' participation in economic and social decision-making. Moreover, the theory focuses on gender equality by ensuring the involvement of women in societal and economic development to reduce vulnerabilities as well as risks associated with age and disability (Rauniyar and Kanbur, 2010).

In many developing countries, economic growth has increased inequality (Sen, 2010). Thus, the inclusion theory addresses the arising structural inequalities faced by the disabled, women, youths and indigenous people (UNRISD, 2013). The theory provides that the economic gap that exists could not be bridged without dealing with the governance system as not only a continuous process but also an interactive and adaptive process. Comprehensive growth is likely to occur in a context where there is good governance system such as the rule of law, equity, accountability, respect for human rights, strategic vision, and coherence (Sachs, 2004; Gupta, 2015).

Furthermore, the theory focuses on the poorest, most vulnerable groups (in terms of location, age and sex) and disadvantaged people as well as a gender-sensitive focus on unemployment, income and assets (World Bank, 2009). Inclusiveness also comprises the creation of awareness and ambitions of disabled people, youths, local people, and women in the development practice and enhances their participation in developmental activities (Borel-Saladin and Turok, 2013). Lastly, inclusive growth calls for participatory methodology in capacity building and governance so as to empower special groups excluded in economic activities (Gupta, 2015). Thus, based on the advantages mentioned above, the study applied the theory to analyse awareness and access to procurement opportunities as well as the rising challenges among the special groups.

## 3. Methodology

A cross-sectional research design was adopted in the study with a mixed methods approach used for the collection of data. The study took place in the Tabora Region. Specifically, it was conducted in three districts, namely, Tabora Municipal, Uyui District, and Nzega Town whereby data were gathered between March and May 2021. The region was chosen because it had registered special groups that were accessible to the researcher.

The study population consisted of 505 special groups registered in the region. The unit of analysis was the special groups, where the company manager of each selected group was approached for the interview as a representative. The study used a sample size of 224 respondents estimated by using Yamane's formula as the study population was less than 10,000 respondents; finite and well-known as shown below;

$$n = \frac{N}{1+N*(e)2}$$

Where

N = Population (505 groups)

e = 95% confidence level with +/- 05% i.e. (0.05)

n = sample size

$$n = \frac{505}{1+505*(0.05)2} = 224 \text{ respondents}$$

The population was divided into three groups (stratum), namely groups of women, youths, and people with a disability based on their similarities. In order to ensure that the sample size was evenly distributed in the geographical study area, the computation of sample size for each group and each district was based on stratified and proportional random sampling. Respondents in each stratum (women, youths, and disabled people) were selected using simple random sampling techniques to avoid bias. A total of 12 key informants were interviewed, including seven procurement staff and five social welfare staff in the study area, which provided basic needed information to get meaningful details for the interpretation of findings.

A survey questionnaire and structured interview guide were used in data collection. The researcher administered the questionnaire containing both open-ended and closed-ended questions to 224 managers of special groups as representatives. To ensure data validity, the study consulted advise and comments from various experts in procurement and social groups on designed instruments for data collections. Later on, some questions were modified and other themes were added before being provided to the respondents. The study also used internal consistency reliability to measure the degree to which instruments were measured the same way each time they were used under the same condition with the same subjects.

Data analysis was done using descriptive statistics and a multiple regression model. Descriptive statistics applied were percentages, mean, and standard deviation analysis for demographic characteristics of respondents, while a multiple regression model was used to test the developed study hypotheses. Multiple regression analysis was used because the dependent variable was numerical data (the number of special groups that participated in the procuring entities offered by the procuring entity). The model assumptions were tested before data analysis. Normality of variables was tested using Kolmogorov and Shapiro-Wilk and the results were both above 0.05, implying that collected data were normally distributed. To test the presence of multicollinearity, the study calculated both the tolerance test and variance inflation factors. The results were >0.01 and <10, respectively, in all predictor variables, implying no presence of multicollinearity.

$Y= \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \ldots\ldots\ldots\ldots\ldots + \beta_n x_n + \varepsilon$

Where;

| | | |
|---|---|---|
| Y | = | Participation of Special groups (number of participating groups) |
| $\alpha$ | = | Intercept of the equation |
| B1to $\beta$n | = | Regression coefficients. |
| $X_1$ to $X_n$ | = | Predictor variable |
| $\varepsilon$ | = | error term |

**Table 1: Variable Matrix**

| Variable | Definition and units of measurement | Expected Sign |
|---|---|---|
| Y Participation in Special Groups | A number of Special Groups participated in procuring opportunities | |
| $X_1$Training (are conducted) | Likert Scale: 5-Point (1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5=Strongly Agree) | + |
| $X_2$Mentorship forums (are existing and working) | Likert Scale: 5-Point (1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5=Strongly Agree) | + |
| $X_3$Advertisements (done on TV, Radio, and Social Media) | Likert Scale: 5-Point (1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5=Strongly Agree) | + |

## 4. Findings and Discussion

### 4.1 Demographic characteristics of respondents

The characteristics of respondents were categorised in terms of sex, the age, level of education, working experience, and group category of special groups. With regard to sex, findings show that males were 54 (25.5%) while females were 158 (74.5%). This shows clearly that women dominate many special groups which is against other general business areas. Likewise, the demographic statistics of respondents in term of age indicates that 41 (19.3%) of respondents were between 18 and 25 years, 117 (55.2%) between 26 and 35 years old, 50 (23.6%) between 36 and 45 years, and 4 (1.9%) between 46 and 55 years old. These feature reveals that 167 (78.8%) of the respondents in the special group were between 26 and 45 years old, implying that the special groups were dominated by matured youths. The findings agree with Chepkangor and Lubale's (2017) study that majority of people upon reaching the age of 46 to 55 leave this business category. In terms of education level, the highest level of education of the respondents was categorised into five levels which include; secondary school level, basic certificate and ordinary diploma level, bachelor degree level, master degree level, and any other level of education.

Findings reveal that 84 (39.6%) attained secondary education, 52 (24.5%) had certificate or ordinary diploma, 67 (31.6%) had bachelor degree, and 9 (4.2%) had primary education. Also, in understanding working experience of members in special groups, the working experience was classified into three groups showing experience of less than one year, between two to four years, and above five years.

**Table 2: Demographic Characteristics**

| Demographic Characteristics of Respondents | Frequency | Percentage |
|---|---|---|
| **Sex of Respondents** | | |
| Male | 54 | 24.5 |
| Female | 158 | 74.5 |
| **Age of Respondents** | | |
| Between 18 and 25 years | 41 | 19.3 |
| Between 26 and 35 years | 117 | 55.2 |
| Between 36 and 45 years | 50 | 23.6 |
| Between 46 and 55 years | 4 | 1.9 |
| **Education level of Respondents** | | |
| Primary education level | 9 | 4.2 |
| Basic Certificate/ diploma education level | 52 | 24.5 |
| Bachelor degree education level | 67 | 31.5 |
| Bachelor degree education level | 11 | 17.5 |
| **Working experience** | | |
| Less than 1 year | 37 | 17.5 |
| Between 2 and 4 years | 123 | 58.0 |
| Above 5 years | 52 | 24.5 |
| **Categories of the Respondents** | | |
| Women group | 144 | 67.9 |
| Youth group | 65 | 30.7 |
| People with disability group | 3 | 1.4 |

As shown in Table 2, the findings show that 175 of respondents 2.5% had substantial experience of at least two years in this business area. This implies that respondents had sufficient information about their business operations and participation in accessing opportunities in public procurement. The findings support those by Ngaga and Jeckoniah's (2019) with observation that business experience has a significant influence on the success of a business.

The category of respondents in special groups was another important part that was included to understand the background information of the respondent in the study. Findings reveal that 144 of respondents 67.9% were from the women special groups, 65 (30.7%) were from the youths' special group and only 3 (1.4%) of respondents were from people with disability as detailed in Table 2. Thus, large portion of special groups were dominated by the women group. Such findings imply that most women are willing and able to establish as well as conduct the business in the form of groups compared to other categories.

**4.2 Relationship between awareness creation and participation of special groups**

In this study, multiple regressions were performed to predict as to whether awareness creation among special groups significantly influenced their participation in up-taking public procurement opportunities or not. Three independent variables, namely, conducting training, mentorship forums, and strong advertisements through televisions, radios, newspapers, and socio-media were used. Since data were collected through Likert scale, the study combined Likert-type items of a dependent variable into a single composite score during data analysis to provide a quantitative measure for a character.

The preliminary summary of the results of the multiple regression model shows that R Square was 0.594 and the adjusted R square was 0.589. The computed coefficient of determination (R2 = 0.589) implies that

the three predictor variables under the study, explain only 58.9% influence of awareness creation on the participation of special groups in public procurement opportunities. Furthermore, the study tested the fitness of the applied model where the analysis of variance indicated that F=18.405 at p=0.000 was statistically significant. The findings suggest that the applied model had enough explanatory power to predict the influence of awareness creation on special groups' participation in public procurement opportunities as shown in Table 3.

**Table 3: Summary of ANOVA**

| Model | Sum of square | df | Mean square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 7.335 | 3 | 2.445 | 18.405 | 0.000[b] |
| Residual | 27.632 | 208 | 0.133 | | |
| **Total** | **34.967** | **211** | | | |

The influence of training programmes on the participation of special groups in taking opportunities of public procurement was tested at $p < 0.05$ and produced statistically significant results with $p = 0.015$ and $\beta$-value = 0.168, as provided in Table 4. The $p = 0.015$, which is less than 0.05, indicated a significant statistical relationship between conducting training programmes and special groups participation in procurement opportunities. The $\beta$-value = 0.168 implies that, with every increase of one more training programme, the involvement of special groups increases by 0.168 more in up-taking public procurement opportunities. The study rejected the null hypothesis that there is no significant relationship between the provision of training and special groups' participation in procurement opportunities. Thus, training provisions to special groups, in turn, influence the groups to participate in up-taking opportunities arising from public procurement activities.

**Table 4: Influence of awareness creation on special groups participation in procurement opportunities**

| Variables | Unstd. Coefficients | | Stand. Coefficients | |
|---|---|---|---|---|
| | β | S.E | B | Sig. |
| (Constants) | 2.920 | 0.236 | | 0.000 |
| Training programs | 0.100 | 0.041 | 0.168 | 0.015 |
| Mentorships forums | 0.219 | 0.034 | 0.414 | 0.000 |
| Social-media advertisement | 0.735 | 0.042 | 0.854 | 0.000 |

These findings concur with Shadrack and Warsanga's (2020) findings that one of the motivating factors for women to engage in micro enterprise is acquiring skills for business operations. Also, Munene (2018) noted that training strongly impacted vulnerable groups' participation in procurement opportunities arising out of government procurement activities. Nevertheless, the study findings are inconsistent with the theory of Inclusive Development, which emphasises much on equity and empowerment of special groups, through training with the aim of ensuring their participation in developmental economic activities (Rauniyar and Kanbur, 2010).

The mentorship forum was another strong predictor of awareness of special groups' participation in opportunities arising from public procurement activities. The findings from multiple regression indicate a statistically significant relationship at $\beta$-value = 0.414, $p$-value = 0.000, as shown in Table 4. The $p$-value = 0.000, which is less than 0.05 implies that the relationship was statistically significant between the predictor variable (mentorship forum) and the dependent variable (participation of special groups). Also, findings $\beta = 0.414$ show that a unit increase in mentorship forum had an influence by 0.414 on the participation of special groups. Based on the findings, the study rejected the null hypothesis that there is no significant relationship between conducting mentorship forums and special groups' participation in opportunities of public procurement. The findings correspond with Kimambo's (2019) observation that a significant positive relationship between mentorship forums and the participation of youth groups in tender opportunities advertised by the government. Similarly, PPRA (2019) recommended that the National Economic Empowerment Council conduct mentorship forums for capacity building for special groups to enhance their participation in up-taking public procurement opportunities.

Awareness creation through effective advertisements also had a statistically significant influence at $\beta$-value = 0.854, $p$-value = 0.000 (see in Table 4). Thus, conducting effective advertisements about a given preference scheme (a maximum of 30% of the annual procurement volume) to special groups significantly influence groups' participation in procurement opportunities. Furthermore, the findings reveal that holding other independent variables to zero, and an additional of one unit of advertisement of preference scheme given to special groups would increase their participation in public procurement opportunities by 0.854s. Also, a positive significant level of $p$-value = 0.000 indicates that advertisements were significantly positive for special groups' participation in public procurement opportunities undertakings.

The findings correspond with Tritama's (2016) study findings that social media positively influenced awareness creation to special groups particularly youths and women. Also, the findings are in line to Kumburu's (2021) observation that effective communication is positively allied with SMEs' performance. Thus, social media can create more awareness among special groups, such as youths and women as they are interested in the advertisement displayed. This was supported by a comment of one of the respondents who said that:

> "…….if there are effective disseminations of information through social media, televisions, radios and other means of communication about special preference schemes given to special groups in the country, there will be a huge number of special groups registered and participating in public procurement opportunities….." (Tabora, 12 April 2021).

Therefore, the null hypothesis that "there is no significant relationship between awareness creations through media and participation of special groups" is rejected.

**5. Conclusion and Recommendations**

Awareness creation through training, mentorship and dissemination of information through televisions, radios, and social media, greatly influences special groups' participation in utilising public procurement opportunities. Thus, the study rejected the null hypothesis and concludes that there is a significant contribution of awareness creation, mentoring and training on the special groups' participation towards harnessing opportunities in public procurement. The study contributed to what should be done in order to ensure special groups fully participate in public procurement opportunities. The findings on awareness creation generate useful information for policymakers and stakeholders involved in planning and implementing empowering strategies for special groups.

Based on the findings, the study recommends that the Local Government Authorities (LGAs) should continue to sensitise and create awareness to the special groups about the given preference scheme in public procurement opportunities. This can be done through training, provision of mentorship forums, and dissemination of information through media about the registration of special groups and the applicability of preference schemes given in public procurement. Also, special groups should be courageous and upscale their operations to utilise the opportunities given rather than having misconceptions that public procurement opportunities are for large companies only.

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**East Africa Journal of Social and Applied Sciences (EAJ-SAS)**
**Vol.4, No.1 Publication Date:** December 30, 2022
*ISSN: (Online) 2714-2051, (Print) 0856-9681*
*Full articles of this journal are available at: https://journals.mocu.ac.tz/index.php/eaj-sas*

Cite this article as: Chacky, Z. S. & Pande, V. S. (2022). Benefits associated with smallholder farmers' participation in grapes value addition: a case of Dodoma City jurisdiction, Tanzania. *East Africa Journal of Social and Applied Sciences,* 4(1), 30-40.

# BENEFITS ASSOCIATED WITH SMALLHOLDER FARMERS' PARTICIPATION IN GRAPES VALUE ADDITION: A CASE OF DODOMA CITY JURISDICTION, TANZANIA

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**ABSTRACT**
This study intended to establish benefits associated with smallholder farmers' participation in grapes value addition in Dodoma, Tanzania. The study used a cross-sectional research design to get information from respondents. Slovin's sampling technique was used to get a sample size of 180 respondents. Questionnaire and checklists were the main data collection tools. A gross margin analysis was used to analyse benefits associated with smallholder farmers' participation in adding value to grapes. Results revealed that profitability differs with the type of value addition practices among smallholder farmers. Raisins were found to have more profit (40%) followed by input usage (16.7%) and the rest were found to have small profit, (10%) for bulk wine and (9% for packing and grading). It was concluded that smallholder farmers who add value to grapes get more profit compared to their counterpart who did not do that. This implies that, there were benefits associated with adding value to grapes. It is recommended that extension services should be provided to smallholder farmers participating in value addition in order to enable them applies adequate value addition methods which will provide them with maximum profit.

**Keywords:** Grapes, Grape production, Grape value addition, Smallholder farmers, Value addition
**Paper type**: Research paper
**Type of Review:** Peer Review

## 1. Introduction and Background to the Study

Globally, grape production mostly known as viticulture is considered as an ever-evolving sector due to the enormously growing wine industry which depends mostly on grapes (Creasy, 2018). Grapes (vitis vinifera) are one of the most important and widely grown economic crops in the world and have been used to make wine (Senthil *et al.,* 2011). Among the major grapes growing countries in the World is China, holding the top position with 14.5% of all world grapes produce followed by Italy which produces 7.9% of the World grapes; USA produces 7.1% while France, 6.4%. Other countries leading in the production of grapes include Spain, Turkey, India, Chile, Iran, South Africa, Australia, Argentina, Egypt, German, and Brazil. These countries all together account for about 75.8% of the total World's production (International Organisation of Vine and Wine, 2017). Tanzania holds the 77$^{th}$ position in grapes production where the top ten grapes producing countries produces approximately 70% of the world's grapes production (Creasy, 2018).

Market liberalisation and globalisation led to the transformation in agriculture and agri-food markets all over the globe. Such changes are due to high-value food products including fruits, vegetables and animal

products. However, the transformation has brought challenges to farmers who are supposed to participate in high-value commodities that have a strong potential for higher returns to land, labour and capital (Birthal *et al*., 2007). Value-added grape farming is fundamentally market-driven where farmers are urged to cope with the demand of the changing markets (Roy *et al.,* 2013). In Minnesota, farm wineries enable farmers practice value addition by processing bulk wine that generates revenue beyond raw crop production from the farm (Sullivan, 2012).

In Africa, value addition is worthwhile for farmers as it can transform unprofitable agriculture into a profitable venture (Fleming, 2005). Despite agricultural challenges facing many developing countries in Africa, some of them are trying to perform value addition for agricultural improvements (Gashaw, 2018). This indeed reveals the importance of agricultural value addition was due to integration of value chains among farmers. South Africa enabled farmers to produce bulk wine that helps the country to continue being one among the African countries exporting bulk wine at high rate, exporting nearly 350 million litres per year (Vink, 2019).

In Tanzania, large vineyards are located in Dodoma. Thus, Dodoma is the major grape growing region (Mpore, 2013). The most common grape variety grown in Dodoma are Chenin Blanc, Syrah, Cabernet Sauvignon and indigenous variety locally known as *Makutupora* in Dodoma (Kalimang`asi *et al.,* 2014). Statistics indicate that there has been an increase in grapes production over years on an average, the region produces about 10 000 tons of grapes per year (Dodoma Municipal council, 2016). There has however been consistent complains by grape farmers in Dodoma about lack of market for their produce despite the increased production. Due to the increased production and lack of market, sometimes grapes are left to rot in farms as a means to resist buyers' dictation on pricing which is usually perceived to be low and does not give profit to farmers (Mbugi 2020). Evidence suggests that promoting value-added practices among farmers typically improves their productivity and profitability. This is because the practice enables farmers and other actors to enhance the systems for transportation, storage, and processing while also increasing farmers' access to markets. Turning grapes into other forms has developed huge returns and marketing channels. Regarding grape production, value addition has been successful in many countries through wine processing and raisin production (Chervin et al., 2012).

In understanding the importance of value addition, the government of Tanzania, through Agricultural Sector Development Strategy II of 2015–2024 and 2025, has emphasised value addition by highlighting initiatives and strategies to enhance infrastructure and offer technical assistance to farmers. Subsequently, attention has been paid on promoting agro-processing for value addition such as grading, milling, canning, juice making, and promoting improvement on packaging, handling, and transporting agricultural products (URT, 2015). Despite the adoption and emphasis on value addition practices in Tanzania, value addition is not a common practice to all smallholders including grape farmers. There was no evidence on whether there were benefits associated with smallholder farmer's participation in adding value to grapes or not.

Several studies including the study by Kulwijila *et al.* (2018), Donkor (2018), Makindar *et al*. (2018), Patrick and Michael (2016), Tadesse *et al*. (2016), Lwelamira *et al*. (2015), Kalimang`asi *et al.* (2014) and Tara (2011), have been carried out on grape value chains and economic analysis of the smallholder's production and marketing of grapes. However, there were limited studies on benefits associated with value addition to grapes among smallholder grape growers in Dodoma Region. Therefore, the findings of this study contribute to the understanding of whether farmers' participation in the grapes value addition translates into tangible benefits. Specifically, the study examined the awareness and engagement of smallholder grape farmers in value addition, and the identification of benefits associated with smallholder grape growers' involvement in value addition. The study is thought to be significant in enlightening all the key players in grape production and value addition to the produce as well as determining forms of value addition that were more profitable to smallholder grape growers.

## 2. Theoretical Framework

The study used social exchange theory to explain the benefits associated with adoption of value addition practices on grape farming. The theory emanated from the work of sociologists, Blau (1964), Homans (1961) Thibaut and Kelley (1959) who focused on the rational assessment of self-interest in human social relationships. The theory's fundamental principle is that humans in social situations choose behaviours that maximise their likelihood of meeting self-interests. Social exchange theory operates on the assumption that individuals are generally rational and engage in calculations of costs and benefits in social exchanges. Also, social exchange theory builds on the assumption that those engaged in interactions are rationally seeking to maximise the profits or benefits to be gained from those situations. That individuals are driven by this question 'what is in it for me? According to Blau's (1964) observation, individuals participate in an activity or maintain a relationship if they can satisfy their self-interests and at the same time ensure that the benefits outweigh the costs. Supporting theoretical discourse on determinants of participation, Lwelamira (2015) reveals that peoples' motivation to participate in collective action is a result of their expectations such as access to services and maximisation of self-interest. Therefore, in this context farmers' attitude and willingness to participate in grape value addition depends on several motivating factors as their expectation, better prices for their produce, market access, increase in production and increase in income.

## 3. Literature Review

Different scholars including Kirimi *et al.* (2011) have discussed value addition on agricultural products. However, many studies have concentrated on value chain; forgetting about how farmers can participate in value addition of their products for the purpose of strengthening market of their produce. Thippanna *et al.* (2016), for example, conducted a study on economics of processing and marketing of different value-added products of grapes in north Karnataka. The study findings revealed that the total cost incurred in processing grapes into one quintal of raisin and hundreds litre of wine worth Indian Rupees (Rs). 5 835 and Rs. 5 856, respectively. Consequently, the degree of value addition in the case of grape raisins and wine was found to be 56.22% and 56.88% respectively. Then, it was also found that, there were great opportunity to integrate and strengthen value chain in processing and marketing of value-added products.

On the other hand, Tasevska (2012) affirmed that substantial efficiency improvements were possible on grape; with the potential for cost decrease of 29% (20% and 36% with parametric and bootstrapping applied). If farmers manage inputs more efficiently at a time, farmer revenue can be improved by 47% (61% when bootstrapping applied) and manage to increase the value of outputs (value addition). In addition, Tara (2012) conducted a study on value chain analysis of grapes in Nandi valley in Karnataka. The study findings revealed that the process of value addition starts at the stage of trading, because farmers in the chain do not add any value to grapes at the farm level. Also, it was found that harvesting, preliminary sorting, grading, storage and standardisation of the produce were done by traders who earn net profit of 15 per cent. Therefore, creation of a mechanism for forward contract was suggested to allow farmers to add value and sell grapes directly to consumers.

The study by Lei Deng *et al.* (2016) assessed table grape supply chain performance in China. The findings for that study revealed that despite receiving the highest proportion of total net profit and making the highest value creation, vine growers are facing fluctuating and uncertain commercial returns due to production and market risks, fluctuation of farm-gate price and the buyer dominant relationship with wholesalers. Although the model is profitable to all key actors, but table grape supply chain still faces several challenges including unorganised and dispersed production systems, power asymmetry and lack of information sharing. All these are the barriers to the improvement of the whole chain performance and the long-term sustainability of this important industry. Ntale's *et al.* (2014) study on indicators of value-added agri-businesses on small farms in Kenya viewed that Kenya's agrarian economy is suffering from limited value addition as the statistics show that 6% of small farmers add value to their agricultural produce. It was discovered that farm sizes negatively correlated with value addition. Instead, the distance to the market and accessibility to loan facilities were found to be the major determinants of value addition

in Kenya. The study recommended that the government should create rural markets for the farmers and facilitate financial institutions to lend money to small farmers at reasonable interest rates.

A survey by Kulwijila *et al*. (2018) on grape value chain mapping in Dodoma Region, Tanzania indicated that the key actors in grape value chain were input suppliers, producers, processors, wholesalers, retailers and consumers. However, the relationship among actors was very weak because no farmers and traders' associations were identified. Constraints along the value chain that contribute to grape losses were high production and transport costs, poor extension services, limited access to marketing information, inadequate market access, lack of credit, poor knowledge on postharvest handling, poor roads, inappropriate post-harvest technologies and spoilage of the commodity. The study recommended on the provision of extension services, credit facilities and establishment of grape board which could oversee marketing of grapes to reduce problems associated with low grape selling price to growers.

Mlay (2021) examined marketing challenges along grapes value chain in central areas of Tanzania. The study findings revealed that grape grower farmers had limited knowledge and skills to tap the market opportunities. The study recommended on collective action among grapes growers to enable them to dictate the market. The empirical reviewed studies show that studies on grapes value chain have been conducted. However, scant attention has been given to participation of smallholder farmer on grapes value addition. Furthermore, scholars rarely moderate uncertain determinants and benefits of smallholder farmers' participation in value chain. Unfortunately, most of the aforementioned studies used qualitative descriptive statistics which is weak in establishing causal effect relationship. And most of which based on sample size of less than 150 respondents, thus, generalization of the findings becomes deficient. These demanded for broad study with the intention of establishing empirical evidence to inform all stakeholders in grapes production. This study is an important step to filling this gap on participation of smallholder farmers on grape value addition in Dodoma Tanzania.

## 4. Research Methodology

The study was conducted in the Dodoma City jurisdiction because it is the major grape production city in Tanzania. The presence of many grape farmers in the city makes it an interesting area to examine the existence of value addition activities done among smallholder farmers. Both qualitative and quantitative data were collected and analysed to get a wider insight of research. Shah and Al-Bargi (2013) asserted that critical research needs adoption of qualitative and quantitative study to get different perspectives of research. A Cross-sectional Research Design was used whereby respondents were interviewed only once (Draugalis, *et al*. 2008). The design was chosen to allow collection and analysis of data in a relatively short time with consideration of time limitations and the available resources for carrying out the study.

The population of this study was the smallholder grape farmers in Dodoma, Tanzania specifically in Mpunguzi and Hombolo wards. These two wards were chosen because they are leading grapes cultivating areas in Dodoma. The sample size of 229 respondents to be involved in this study was drawn through Slovin's formula (Stephanie, 2003). The formula states that $n=N/(1+Ne^2)$ whereby n stands for sample size, N stands for population of respondents and e is the level of precision (0.0025). The formula is used when population is known and not exceeding 100 000. Therefore, this study adopted this formula since the population of the study is known and was less than 100 000. Smallholder grape farmers were selected using simple random sampling technique whereas purposive sampling technique was used in selecting extension officers who believed to have specific information concerning the topics of this study. Primary data for this study were collected through survey, interview and focus group discussion (FGD) methods. The survey method was done by administering structured questionnaire to smallholder farmers in the study area whereas interview method was used to gather information from two extension officers. Additionally, Focus Group Discussion (FGD) with ten (10) smallholder farmers who engaged in cultivation of grapes was conducted. The FGD was conducted to complement information gathered through questionnaire and interview on farmers' participation in grapes value addition. Secondary data were collected from documents such as grapes farmers' records available in Dodoma municipal office, web-based information related to the study and various literatures.

The collected quantitative and qualitative data were analysed using profitability analysis. A Gross Margin Analysis was used to analyse the benefits associated with smallholder farmers' participation in adding value to grapes basing on the following profitability equation.

Profit = Revenue – Total Costs or $\pi = YiPi - VCi - FCi$

Where,

$Y_i$ = Quantity of outputs

$P_i$ = Price of a commodity

VCi= Variable cost

FCi = Fixed Cost

## 5. Findings and Discussion

Questionnaire was administered to 180 out of 229 respondents. The 49 respondents failed to fill questionnaire due to many factors including timing. This resulted in a response rate of 79% and only 21% did not. Draugalis *et al*. (2008) stated that a study with response rate of 50% and above does not face a response bias challenge unlike a study that achieves 30% or 20% response rate. Similarly, Saldivar (2012) declared that a response rate is considered good if is at least 50%, 60% above good, and 70% very good.

### 5.1 Awareness of value addition

Findings in Table 1 show that 171 respondents (95%) were aware of grape value addition and only 5% were not aware of grape value addition. This indicates that the majority of grape farmers in the study area were aware of value addition practices. This finding implies that most farmers were in the position to practice value addition because they had idea of what it means. It was assumed that farmers who were knowledgeable of the technology expected to adopt faster than those who were not.

**Table 1: Awareness of value addition**

| Category | Frequency | Percent (%) |
|---|---|---|
| Aware of value addition | 171 | 95.0 |
| Not aware of value addition | 9 | 5.0 |
| **Total** | **180** | **100.0** |

### 5.2 Engagement and experience of farmers in value addition

Out of 180 farmers who participated in this study, 43.3% were engaged in value addition at different levels. Table 2 shows that the majority of farmers (55%) participated in value addition had experience of less than 5 years, while only 45% had experience of above 5 years. This implies that grape value addition practice was still evolving. Thus, more extension service support to help farmers adopt value addition practices was highly required. This might be due to the fact that value addition practice was a new phenomenon and most farmers exerted their effort on selling raw produce and leave non-farmers to engage in value addition practices.

**Table 2: Engagement and experience of grape farmers in value addition**

| Category | Frequency | Percent (%) |
|---|---|---|
| Not engage in value addition | 102 | 56.7 |
| Engage in value addition | 78 | 43.3 |
| **Total** | **180** | **100.0** |
| **Experience in value addition** | | |
| < 5 years | 99 | 55.0 |
| > 5 years | 81 | 45.0 |
| **Total** | **180** | **100.0** |

### 5.3 Forms of value addition

In order to assess forms of value addition practiced among grape smallholder farmers in the study area, a 5-point Likert scale was used. 5 points for strongly Agree, 4 points for agree 3 points for neutral, 2 points for Disagree and 1 point for strongly disagree. A decision rule of thumb was that, mean rated of 3.0 and

above be accepted as forms of value addition used, while a mean rated below 3.0 regarded as not significant and not a form value addition used. In this regard, different types of value addition practices were used including preparation of raisins, wine, bulk wine, juice, packaging and sorting. Table 3 gives the details of this observation.

From Table 3 the results indicate that raisins, wines and bulk wine scored above the mean score. Mean score for raisins was higher (4.0) compared to other forms of value addition followed by preparation of wine (3.9) and preparation of bulk wine (3.2). This implies that raisins, wine, and bulk wine are the major value addition forms practiced by farmers in the study area. The reason was to avoid the risk of grapes rotting but furthermore for storage purposes. Wine produced by smallholder farmers can be mainly for local consumption and to some extent for sale. Farmers who produce bulk wine normally do so to sale to beverage industries that use it as raw materials for production of wine (MRA, 2017). The results in Table 3 further indicate that grading, production of vinegar/syrup; packaging and use of quality input scored less than the minimum score of 3.0. This indicates that these forms of value addition were not much practiced among smallholder grape farmers, which could be due to low technology used by farmers or expenses associated with the process that hinder participation in these forms of value addition. This is contrary to Mohite, (2017) findings who studied marketing management of grapes in Dhule District in India. The study revealed that farmers are facing the problem of marketing their grapes due to costly packing materials that hinder higher returns hence less participation in value addition activities.

During FGD with smallholder farmers it was discovered that grading is practiced mostly by grape wholesalers who sort and sell grapes at higher price and earn maximum profit compared to farmers. Grading is also practiced by traders mostly from other parts of Tanzania and from other countries like Kenya as they did that on their own after purchasing at farm gate. As the mean score was very close to minimum score to be considered as significant value addition practiced, the researcher may qualify this as one among the value addition practices but at small or moderate extent. Similarly, Bayani (2011) in the study of post-harvest factors influencing quality of table grapes in Afghanistan found out that customers/traders were responsible for sourcing the labour for sorting and packing grapes, where the labourers were paid by the exporters who buy grapes.

**Table 3: Forms of grape value addition**

| **Forms of value addition** | **Score percentage on Likert scale** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4 | | 5 | | Mean |
| | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | **Score** |
| Grape drying | 8 | 5.0 | 14 | 8.0 | 4 | 6.0 | 97 | 54.4 | 54 | 30 | 4.0 |
| Wine production | 36 | 20 | 33 | 18.3 | 18 | 10 | 47 | 26.1 | 46 | 25.6 | 3.2 |
| vinegar/syrup | 98 | 54.4 | 56 | 31.1 | 19 | 14.5 | -- | -- | -- | -- | 1.7 |
| Packaging | 09 | 05 | 91 | 50.6 | 19 | 10.6 | 43 | 23.8 | 18 | 10 | 2.8 |
| Grading | 32 | 17.7 | 37 | 36.7 | 28 | 15.6 | 66 | 20.6 | 17 | 9.4 | 2.9 |
| Quality inputs | 31 | 17.2 | 40 | 22.2 | 22 | 12.2 | 73 | 40.6 | 14 | 7.8 | 2.9 |
| Juice making | 51 | 28.3 | 99 | 55 | 18 | 10 | 12 | 6.7 | -- | -- | 1.9 |
| Bulk wine production | -- | -- | 22 | 12.2 | 27 | 15 | 76 | 42.2 | 55 | 30.6 | 3.9 |

### 5.4 Benefits of value addition

#### 5.4.1 Profitability analysis of grape farming

It was deemed important to know the profit margin without any form of value addition and profit margin in each form of value addition. The initial costs for grape vine production was excluded from the analysis due to nature of grape reaping, because after planting grape vine tree, it is reaped many times for a period of more than 10 years. Thus, the current researcher used subsequent expenses incurred by smallholder farmers such as subsequent fertilizers, pesticides expenses and weeding expenses. The profit margin was calculated from the equation that, Profit ($\pi$) = Revenue (sales) – Total variable costs (VC). After realising the profit margin before value addition, the researcher ascertained profit margin for each form of value addition.

### 5.4.2 Profit margin without any form of value addition

The findings shown in Table 4 indicate that, the subsequent costs for one year per 1 acre were as follows: weeding expenses, TZS 480 000, manure TZS. 120 000, pesticides expenses TZS. 450 000, cutting expenses TZS. 110 000, trailing expenses TZS. 210 000 and harvesting expenses TZS. 160 000, making a total of TZS. 2 010 000. Initial farm cost preparation was TZS. 3 560 000 where the grand total cost for grape farming was TZS. 5 570 000.The grape gestation period was 3 years but for the sake of this study, the researcher assumed cost for one year in order to ascertain estimate of total cost per one year and compare it with the total revenue per one year.

**Table 4: Grape cost analysis**

| Activity | Description | Unit | Quantity | Unit costs TZS | Amount (TZS) |
|---|---|---|---|---|---|
| **Weeding** | 4 times per year | Acre | 1 | 120000 | 480000 |
| **Manure** | 0nce per year | Acre | 1 | 120000 | 120000 |
| **Pesticides** | 4 times per season | Acre | 1 | 112500 | 450000 |
| **Cutting** | 2 times per year | Acre | 1 | 55000 | 110000 |
| **Trailing** | Continuous | Acre | 1 | 210000 | 210000 |
| **Harvesting** | Two times per year | Acre | 2 | 80000 | 160000 |
| **Add: Contingent costs and own labour** | 30% of variable cost | Acre | 1 | 480000 | 480000 |
| Total average cost | | | | | **2 010 000** |
| **Add: Initial cost** | Farm preparation | Acre | 1 | 3 560 000 | 3 560 000 |
| Total cost with initial cost | | | | | **5 570 000** |

Smallholder grape producers incur different costs during production process. The majority of smallholder producers incurred cost of land clearing which is above TZS. 100 000 as shown in Table 4. Similarly, more than a half (60%) of respondents incurred the cultivation cost which was above TZS. 250 000 and planting cost which was above TZS. 201 000. Moreover, the fertilizer application cost, the majority of respondents incurred the cost above TZS.150 000 per acre and in case of pruning, the majority incurred the cost below TZS. 60 000.

### 5.4.3 Grapes profitability analysis

The study made profitability analysis by finding the differences between the total revenue (annual sales) and total costs. However, the year 3 total cost includes subsequent costs for year 1, 2 and 3. The results in Table 5 shows that, the total average yielding per year was 5.5 tons each sold at average price of TZS. 1 000 per kilogram which make a total revenue of TZS. 5 500 000. The total cost including initial cost for farm preparation was TZS. 9 590 000 and total cost excluding initial cost was TZS. 6 030 000 in year 3. The results show that, in year 3 which was the first harvesting year, the total net loss including initial cost was TZS. 4 090 000 which was equivalent to margin of 74.4% and net loss excluding total initial cost was TZS. 530 000, equivalent to 9.6% margin. This means that, the smallholder grape farmers do not earn profit in year 1, 2 and 3 even after excluding initial costs for farm preparation. This was because the average subsequent cost of TZS. 2 010 000 from first year to third year were included in net profit computation. This implies that smallholder grape farmers do not earn profit for the first three years of growing grape vine consecutively.

Moreover, in year 4 the findings show that, net loss including initial cost was TZS. 600 000 loss margin and net profit excluding initial costs was TZS. 2 960 000 equivalent to a profit margin of 53.8% as shown in Table 5. This means that smallholder grape farmers start earning profit by excluding initial cost in fourth year while if they include initial cost, they still incur net loss of TZS. 600 000 equivalent to 10.9%. This implies that smallholder framers may make breakeven point after four years since commencement of grape farming.

Furthermore, the findings in year 5 revealed that, the net profit including initial cost was TZS. 2 890 000 and net profit excluding initial cost was TZS. 3 490 000. This means that, smallholder grape farmers meet breakeven point at year five (ability to meet both total fixed cost and total variable cost). The initial cost of TZS. 600 000 was completed in this year and remains enough profit margins for smallholder grape farmers. Lastly, in year 5, there was no initial cost due, only subsequent cost of TZS. 2 010 000 was deducted from total sales of TZS. 5 500 000 which made a net profit of TZS. 3 490 000 the profit margin of 63.5% is expected to be constant profit margin fetched by smallholder grape farmers for next 5 years before replanting existing grape trees with new ones.

**Table 5: Profitability analysis**

| Activity | Year 3 | Margin | Year 4 | Margin | Year 5 | Margin | Year 6 | Margin |
|---|---|---|---|---|---|---|---|---|
| **Revenue (sales)** | 5 500 000 | | 5 500 000 | | 5 500 000 | | 5 500 000 | |
| **Total cost after 3 years (including initial cost** | (9 590 000) | | (6 100 000) | | (2 610 000) | | ---- | |
| **Net Profit/loss** | (4 090 000) | 74.4% | (600 000) | 10.9% | 2 890 000 | 52.5% | ---- | ---- |
| **Total cost (excluding initial cost)** | 6 030 000 | | 2 540 000 | | 2 010 000 | | 2 010 000 | |
| **Net profit/loss** | (530 000) | 9.6% | 2 960 000 | 53.8% | 3 490 000 | 63.5% | 3 490 000 | 63.5% |

***Year 3 costs include 1, 2 and 3 year costs***

These findings were similar to those by MRA (2017) who analysed the trend of price of grapes in Dodoma and discovered that the price of grapes in Dodoma tend to vary between TZS.500 and TZS. 1000 per one kilogram. The findings indicated that more than a half (54.3%) of respondents sold their grape on price ranging between TZS. 501 and 800 with an average of 1,470 kilograms sold. Furthermore, it was noted that, the price of grapes was fluctuating from season to season depending on harvest and availability of buyers.

### 5.4.4 Profitability associated with value addition

The researcher aimed to ascertain the profit margin in each form of grape value addition and findings is presented in Table 6. Starting with raisin, the results show that, it adds average cost of TZS. 6 000, average market price is TZS. 10 000 ranging from maximum of TZS. 12 000 to the minimum price of TZS. 8 000 and profit margin of TZS. 4 000. This means that raisins form of value addition fetches profit margin of 40% more than a farmer could fetch if he sells grapes at farm gate price of TZS. 1 200 per kilogram. This implies that the raisin form of grape value addition adds profit margin to a great extent compared to farm gate price. However, most of smallholder farmers who participated in value addition undertake this form of value addition compared to any other form due to its high profitability margin and provide option for them timing of high price season.

Bulk wine results show that, it added an average cost of 1 800 per kg, average market price of TZS 2 000 per litre ranging from TZS 2 500 to TZS 1 600 with profit margin of TZS 200. This means that bulky wine fetches profit margin of 10% more than the farm gate profit margin. This means that if smallholder farmers could get involved in bulky wine form of value addition, they could earn extra profit of 10% of the profit margin. Some smallholder farmers seemed to involve in this kind of value addition probably due to low cost associated with it and readily available market for bulk wine. The implication of this is that bulk wine adds about 10% more than the farm gate profit margin.

Furthermore, the results about packaging as detailed indicated in Table 6 show that average cost per kilogram was TZS 2 000, market price TZS 2 200 ranging from TZS 2 500 to TZS 1 650 and profit margin of TZS 200. This means that, if smallholder grape farmers could involve in packing form of value addition, they could add 9% of profit margin than the farm gate profit margin. Therefore, implication of this result

is that packing and packaging add more profit margins. Thus, smallholder farmers should be encouraged to practice packaging.

Concerning grading/sorting of grapes, the findings shown in Table 6 indicate that grading adds an average cost of TZS 1 000, fetching average market price of TZS 1 100 ranging from 800 to 1 200 and adds profit margin of 100. This means that, smallholder grape farmers could earn more profit margins of 9% after sorting grapes into different quality grades i.e., grade 1, 2 and 3. This implies that, sorting of grapes also adds more profit margin than selling grapes which are not sorted.

**Table 6: Value addition margin**

| Type of cost | Mean cost | Mean market price | Maximum price | Minimum price | Margin |
|---|---|---|---|---|---|
| **Raisins/kg** | 6000 | 10000 | 12,000 | 8000 | 4000 |
| **Bulky wine** | 1800 | 2000 | 2500 | 1600 | 200 |
| **Packaging** | 2000 | 2200 | 2500 | 1650 | 200 |
| **Grading** | 1000 | 1100 | 1200 | 800 | 100 |
| **Quality inputs** | 1000 | 1200 | 1500 | 800 | 200 |
| **Juicy** | --- | --- | --- | --- | --- |
| **Vinegar/syrup** | --- | --- | --- | --- | --- |

Furthermore, about use of quality inputs, the findings provided in Table 6 revealed that, quality inputs add average costs of TZS 1 000 per kg, fetching average market price of TZS 1 200 ranging from TZS 800 to TZS 1 500 and earn profit margin of TZS 200. This means that smallholder grape farmers could earn highest profit margin of 16.7% more than farm gate profit margin. Hence, if the smallholder grape farmers could use quality seed, right pesticides, sufficient fertilizers and more grape tree care, they could add more 16.7% profit margin than the farm gate profit margin. This is true due to the fact that, smallholder grape farmers were unable to use modern inputs for grape vine production due to low capital as these modern inputs are very costly. During interview, one grape farmer said:

> … If farmers can use modern and quality inputs such as fertilizer and pesticides, they can earn more than 8 tons per 1 acre. They fail to use quality inputs due to lack of sufficient capital as it needs more than TZS 10 million to produce one acre through using quality inputs…(21$^{st}$April,2019, Dodoma City).

This statement means that, if smallholder grape farmers had support with enough capital to use quality inputs in the production process including quality seeds, fertilizers and pesticides, they would have received maxim profit at high extent.

## 6. Conclusions and Recommendations

This study found that the most common forms of value addition practiced were processing of grapes into raisins and the processing of bulk wine. However, farmers also participated to small extent in processing wines for local use, packing, grading and quality input form of value addition. Yet farmers did not participate in processing grapes into juice and vinegar/syrup. The study revealed that there were benefits associated with smallholder farmers' participation in adding value to grapes. All forms of value addition were found to add more profit to smallholder farmers when practiced. The most profitable form was found to be raisins, followed by bulk wine, and the least was grading and packing. It is therefore concluded that small holder farmers who participated in any form of grape value addition could generate profit compared to selling at the farm with the farm gate price. It is therefore necessary for smallholder grape farmers to be given extension service support and emphasised on value addition activities in order to generate more profit and enhance their capabilities.

Since drying of grapes, production of bulk wine and local wine were found to be the most forms of value addition that were practised by smallholder farmers, it is recommended that smallholder grape farmers should also extend their practice to other forms of value addition including grading, packing, processing

of vinegar/syrup, juice, and usage of quality inputs. Diversification of value addition practices can help farmers enhance the level of value addition and eventually win the grape market. In addition, extension service for farmers should be improved. The extension officers should be trained to help farmers on how to handle grapes from farm level to value addition activities in order to upgrade their knowledge and skills to provide adequate extension services. Nevertheless, value addition technology and knowledge development required farmers' involvement. Farmers should be encouraged to participate in order to perfect scientific and informal approaches in respective forms of value addition. This would have facilitated attaining more profiting grape cultivation.

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