ASSETS OWNED AND LIVELIHOOD SUSTAINABILITY AMONG SELF-EMPLOYED VOCATIONAL AND NON-VOCATIONAL GRADUATES IN ARUSHA AND DAR ES SALAAM CITIES, TANZANIA

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ABSTRACT
Assets owned by self-employed graduates provide a basis for livelihoods sustainability and poverty reduction. However, access to such assets is a major challenge among majority of the graduates. Thus, this paper aimed to determine levels of such assets and compare assets owned and their contribution to livelihoods sustainability attainment between vocational (VET) and non-vocational (Non-VET) graduates. The study adopted a descriptive cross-sectional survey design with a sample of 384 respondents. Quantitative data were analysed using descriptive statistics, a livelihoods asset ownership index and a Mann-Whitney U-test, while qualitative data were analysed through constant comparison content analysis approach. Findings showed that both categories of graduates had low assets ownership level. Mann-Whitney U-test results indicated insignificant difference in assets ownership between the two groups. Provided that there are many graduates with lower levels livelihoods assets, it suggests that these graduates are not able to sustain their livelihoods due to limited assets. It is further concluded that both categories of graduates have narrow chances to make positive and sustainable livelihood outcomes to graduates. It is recommended that self-employed graduates with low assets level should consider diversifying their livelihood activities so as to improve their livelihoods assets levels. This can be done by formation of self-help microfinance institutions such as Savings and Credit Co-operative Societies from which they can access credit for financing acquisition of livelihoods assets. It is further recommended that graduates should leverage their strength on human capital and physical capital to improve other types of capital ownership. This is expected to promote productive self-employment activities for better sustainable livelihoods outcomes. They should also consider accessing available government and other local financing schemes for livelihoods assets acquisition. At the policy level, there is a need for the government authorities to enact youth-friendly policies on employment, finance, and training to emphasise entrepreneurship so as to open wide opportunities from which an increasing number of graduates could make a choice.

Keywords: Assets, Livelihood, Sustainability, Vocational Graduates, Non-Vocational Graduates.

1.0 INTRODUCTION

Livelihood assets provide a basis for livelihoods among self-employed graduates and play an important role in poverty reduction in both rural and urban areas (Cho *et al.,* 2016; Kibiria *et al.,* 2018; Yerrabati, 2022). Livelihood assets offer chances for creation of new jobs as alternative livelihood opportunities for the majority of the labour force in countries where significant and growing unemployment has become a major economic problem (Wakesa *et al.,* 2016; ILO, 2021).

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Globally, about 55% of workforce livelihoods depend on self-employment and nearly three-quarters of them are likely to be working for day-to-day survival in their livelihood endeavours (Gindling & Newhouse, 2014; ILO, 2018). A Large proportion of self-employed individuals live in poor or vulnerable households (Cho *et al.,* 2016).

In Sub-Saharan Africa (SSA), for instance, close to 80% of the self-employed live in poor or vulnerable households compared to only about 20% in either Europe and Central Asia or Latin America and the Caribbean (Gindling & Newhouse, 2014; ILO, 2019). East Africa follows a similar trend like the other SSA countries whereby more than 60% of the people's livelihoods depend on self-employment mainly, in the informal sector (AUC and OECD, 2018). In Tanzania, self-employment has a significant contribution to the Gross Domestic Product (GDP) growth, for example from 47.4% in 2014 to 54.3% in 2020/2021 (URT, 2021).

With the increasing number of anticipated workforces in vulnerable employment, livelihood assets ownership is crucial among self-employed VET and Non-VET graduates (Masud *et al.,* 2016; Mumuni and Oladele, 2016). Therefore, livelihood assets ownership is seemingly important among self-employed graduates for attainment of sustainable livelihoods, economic development and poverty reduction as provided in the Sustainable Development Goals [SDGs (ILO, 2017)].

Literature shows that livelihood assets have a significant impact on livelihood options and income in the framework of sustainable livelihoods (Perz, 2005; Su & Shang, 2012; Lindberg, 2012; Ma *et al.,* 2018; Guo *et al.,* 2022). The ability to generate income necessary for achieving sustainable livelihoods among self-employed graduates depends on access to assets or livelihood capital employed in their businesses (Sun *et al.*, 2016; Hua *et al.,* 2017; Xu, 2018; Li *et al.,* 2020, Yang *et al.,* 2021). It means that sustainable livelihoods are attained through access to an array of capital items (natural, economic, human, social and physical capital) which are combined in the pursuit of different livelihood strategies (Casaburi *et al.,* 2012; Chen *et al.,* 2013; Masud *et al.,*2016; Li *et al.,* 2020; Guo *et al.,* 2022). For example, Biggs *et al.* (2014) as well as Hidalgo (2019) argue that households with little livelihood assets and are living in poorly established environments are highly vulnerable to adverse effects of shocks and are less likely to achieve better livelihood outcomes. Thus, lack of livelihood assets is claimed to be both a symptom and a cause of poverty among vulnerable self-employed individuals (Dorward *et al.,* 2002, Chen *et al.,* 2013; Soma *et al.,* 2022). As a result, poor households which lack access to such assets fail to take up economic activities with higher returns (Ellis, 2000; Babulo *et al.,* 2008; Samsudin and Kamaruddin, 2013; Soma *et al.,* 2022, Bird *et al.,* 2022).

Despite the growing significance of livelihood assets ownership for income generation, poverty reduction and sustainable livelihoods, studies indicate that livelihood assets ownership and levels among the majority of the self-employed individuals have not improved (VETA, 2010; Scoones, 2015; Gugelev, 2018; VETA, 2019). For example, Ayuma (2009) and VETA (2019) argue that self-employment among majority of individuals is constrained by inadequate entrepreneurship skills, and shortage of financial capital and physical capital needed for self-employment activities. In addition, it has been claimed that almost half of all individuals in developing countries are still in vulnerable forms of self-employment, and almost four out of five individuals in developing countries are in this form of self-employment (Gugelev, 2018). Furthermore, the number of people in vulnerable employment globally, is expected to grow by 11 million per year from 2018 onwards and therefore, making it a challenge to realise high quality livelihood, goal of poverty eradication as spelt out in the (SDGs), particularly SDG 1. The SDG 1 envisages to end poverty in all of its forms by 2030 (URT, 2000; Kamaruddin & Shamsudin, 2014; ILO, 2017).

These conditions pose a challenge as to the specific dynamics that contribute to assets ownership and levels among self-employment graduates. Moreover, addressing the challenges faced by VET and non-VET graduates helps to inform various policies and legal frameworks established by the

government with the aim of improving self-employment situations. Such policies include Small and Medium Enterprise Policy (2003); National Employment Policy (2008); the Technical Education and Training Policy (1996); and the Vocational Education Training Authority Act (1994). Also, recently, Micro, Small and Medium Enterprises (MSMEs) have been integrated in the Industrial Development Strategy (IDS) for the years 2016/2017 through 2020/2021 and the Tanzania Vision 2021/2022 through 2025/2026 whereby they have been given a special role for Tanzania Industrialization Agenda (URT, 2016a; URT, 2021). In due regard, understanding how VET and non-VET graduates employ a range of livelihood assets and activities as they seek to sustain and improve their assets ownership levels and wellbeing was necessary.

In this paper, activities in which self-employment graduates were engaged include nine businesses, which, according to VETA (2010), were mostly preferred by graduates for self-employment. They include the following: carpentry, textile and clothing, motor vehicle mechanics, motor vehicle electrical wiring, electrical installation, secretarial services and computer application, construction, food preparation, and welding and fabrication. Based on the activities that graduates were engaged in, this paper aimed at comparing livelihood assets ownership among VET and non-VET graduates in Arusha and Dar es Salaam cities, Tanzania. Specific objectives of the study were i) to determine levels of livelihood assets possession among the two categories of graduates and, ii) to compare them as to determine whether they contribute to livelihood sustainability between the categories in the study areas. Accordingly, it was hypothesised that there was no significant difference in livelihoods assets ownership and thus livelihoods sustainability attainment between VET and non-VET graduates.

2.0 METHODOLOGY
2.1 The study area and location
The paper is based on a study conducted in Dar es Salaam and Arusha cities. Dar es Salaam is the major city where the first VET centre was established wheras Arusha city follows Dar es Salaam, among other cities, in terms of social services and public infrastructure as well as vocational institutions investments (VETA, 2010; Wenban-Smith, 2015 cited in Andreasen *et al.,* 2017). Dar es Salaam on one hand has the highest record of VET centres standing at 75 by 2015. Arusha, on the other hand had 52 VET centres by 2015, more than other major cities in Tanzania (URT, 2016b). The implication or assumption here is that the larger the number of VET institutions the more self-employed graduates in the cities in comparison to other places in Tanzania.

2.2 Research design and sample size
The study adapted a cross-sectional design because it facilitates collection of data more or less simultaneously and examination of variables once at a single point in time. Likewise, it enabled comparison of the levels of livelihood assets ownership among self-employed VET and non-VET graduates (Bryman & Bell, 2011). The study population included VET graduates and non-VET graduates with different skills who were self-employed in Arusha and Dar es Salaam cities. The unit of analysis was an individual owner of a business under self-employment. The VET graduates were vocational education alumni (treated), while non-VET graduates (control) were those without any formal vocational education training.

The choice of the two groups was justified in terms of fairly balanced characteristics such as age, types of business activities, business locations and formal education, which were determined during piloting of the study. The sample size was determined by using the formula by Cochran developed in 1977 as shown below:

$$n = \frac{z^2 p(1-p)}{\ell^2}$$ ....(1)

Where:
n = sample size

z = the abscissa of the normal curve
p = probability that the selected respondent in the population was a VET graduate
q = (1-p) probability that the selected respondent in the population was a non-VET graduate
ℓ = the acceptable sampling errors.

Therefore, using p = 0.5 (maximum variability), q = 1-0.5 = 0.5, z = 1.96, at the 95% confidence level and ±5% precision, the resulting sample was as follows:

$$n = \frac{(1.96)^2(0.5)(1-0.5)}{(0.05)^2} = 384$$ …………………………………………………………(2)

Therefore, 384 participants were involved in the study. The respondents were equally distributed into two based on maximum variability whereby p equals to 0.5 of the total respondents were VET graduates and q equals to 0.5 of the total respondents were non-VET graduates (Cochran,1977). Therefore, the one half (192) of the respondents were VET graduates and the other half (192) of the respondents were non-VET graduates. Cochran (1977) argues that the formula is appropriate in arriving at an adequate sample size if the population is infinite and its degree of variability is not known.

2.3 Sampling procedures and data collection methods

Snowball sampling was employed to collect data from individual graduates in Arusha and Dar es Salaam cities for interview. The snowball sampling technique was used in finding and recruiting "hidden populations." Thus, respondents who were not easily accessible to the researcher through other sampling strategies were selected based on sampling procedure (Babbie and Mouton, 2001). However, snowball sampling method suffers from some criticism such as the claim that it may lead one to get nongeneralizable results due to lack of sampling frame (Morgan, 2008 cited by Kirchherr and Charles, 2018), lack of sample diversity and under-representation of respondents in the population (Shaghaghi *et al.,* 2011). However, several studies refute those criticisms. For instance, Creswell (2005) and Noy (2009) argue that the intent of research is not only to generalise results to a population but also to develop an in-depth investigation of a central phenomenon, thereby produce a unique type of social knowledge.

In overcoming some of the weaknesses already identified, the study used three key methodological approaches recommended to reduce the weaknesses (Creswell, 2005; Kirchherr & Charles, 2018). Among the methods, a list of key respondents was obtained from the Directorate of Labour Market Planning and Development (DLMPD), Colleges and Schools which served as the seeds for snowball sampling method. The seeds sample were sufficiently varied in terms of business categories whereby nine different businesses were included in the pool of seeds obtained from the respective institutions to solve the diversity and under representation problem. In addition, a face-to-face interview was conducted because it is claimed by several scholars that it generates trust required to gain referrals and reduce sampling bias (Noy, 2009; Sadler *et al.,* 2010; Shaghaghi *et al.,* 2011).

Quantitative data to capture amounts and values of livelihoods assets on each categories of graduates were collected by using a survey approach with a structured questionnaire for each business. The first respondents from each of the two cities was obtained through referral and recommendations provided by a representative of the DLMPD at VETA, Chang'ombe Dar es Salaam, colleges and schools. Qualitative data were collected using Key Informant Interviews (KIIs) whereby a total of four KIIs were held. The key informants were selected based on their knowledge of vocational education and graduates' employment status. For the VET institutions that were involved, retired VETA Director General, College Principals, Heads of Academic Departments and representatives of the DLMPD at VETA Head Office in Dar es Salaam, were interviewed. Qualitative and quantitative methods of data collection complemented each other.

Thus, they increased the overall validity of the study findings through verification of respondents' answers, checking responses uniformity of one method against the other and within methods triangulation as recommended by Casey and Murphy (2009). Qualitative research approach allowed for an in-depth probing and yielded detailed information (Saunders *et al.,* 2009).

2.4 Data processing and analysis
Data analysis was based on both quantitative and qualitative livelihood information on assets ownership indicators customised from DFID (2001) Sustainable Livelihoods Framework (Table 1).

Table 1: List of indicators for livelihood assets

Human assets	Financial assets	Natural assets	Social assets	Physical assets
Access to education Working experience Skills training attended	Cash earned from business activities Cash earned from non-business Cash (grant) received Savings amount	Ownership of land Ownership livestock Food items	Position in the society Community activities Involvement in political activities Group economic activities	Communication equipment's Housing characteristics Access to water sources Transport facility Household assets

Source: Customised and modified from DFID (2001) and Ibrahim *et al.,* (2018)

Qualitative data were recorded in notebooks then transcribed, coded, categorised and thereafter grouped into themes in relation to the objectives of the study. The data were analysed using a constant comparison technique by comparing occurrences of the asset's ownership livelihood information applicable to each category and restricted data to the theory as proposed by Kolb (2012).

Quantitative data were analysed using descriptive statistics of livelihoods assets indicators to get a better understanding of categories and levels of livelihoods assets owned by self-employed graduates. The indicators were weighted then summated into total scores to determine the maximum and minimum scores. Thereafter, grouping of scores in the index was centred on the computed median of 0.55 and 0.48 from ordinal data for VET and non-VET respectively, as cut-off points.

For ordinal data, median is recommended as the best measure of central tendency compared to other measures (Manikandan, 2011). The indices were categorised into levels (Table 2) to disentangle different assets endowment among self-employed graduates, which gives rise to disparities in livelihoods asset ownership among them and thus, affects their ability to endure livelihoods shocks and sustain their livelihoods divergently (Rapsomanikis, 2015). Similarly, Fratkin (2013) observed that self-employed graduates with different wealth levels may have a different understanding with regard to livelihood vulnerability and risks, which have a consequence on livelihood sustenance.

Table 2: Levels of livelihood assets owned by VET and non-VET graduates

Index value VET	Index value non-VET	Index category	Level of livelihood asset ownership
0.10 – 0.54	0.10-0.47	Low	Low livelihood assets ownership
0.55	0.48	Moderate	Moderate livelihood assets ownership
0.56 – 1.0	0.49-1.0	High	High livelihood assets ownership

Source: Customised from Li *et al.* (2020)

In comparing the five livelihood assets ownership between the two groups, the study employed a Livelihood Assets Ownership Index (LAOI) adapted from Li *et al.* (2020) whereby an individual assets livelihood index was computed using the following formula:

$$f = \sum_{j=1}^{n} \omega_j \chi_j \quad \dots \dots (3)$$

Where: f represents individual livelihood assets index value (0 < f < 1); n represents the nth indicator of criteria on j (j = 1, 2, 3…); ω_j represents the weight of each indicator; and χ_j represents the mean value of each indicator. Subsequently, the composite livelihood assets ownership index was derived as follows:

$$S = \omega_1 x_{pa} + \omega_2 x_{na} + \omega_3 x_{fa} + \omega_4 x_{sa} + \omega_5 x_{ha} \quad \dots \dots (4)$$

Where: S represents the livelihood assets ownership index; $\omega_{1, 2\dots5}$ represent the weights for the five livelihood assets categories; x_{pa}, x_{na}, x_{fa}, x_{sa} and x_{ha} represent combined indicators values for physical, natural, financial, social and human assets respectively. Moreover, a Mann-Whitney U-test was conducted to test the hypothesis that possession of livelihood assets (natural, physical, financial, human and social) between VET and Non-VET graduates does not differ significantly. The test was appropriate since the measured variables were ordinal and recorded arbitrary without a very precise scale (Nachar, 2008). Use of the Mann-Whitney U-test was justified as the distribution for the two categories were non-normal with fairly balanced characteristics between the two groups such as age, types of activities, business locations and formal education level, among others. However, the two groups were different in terms of one having VET qualification (treated group) while the non-VET (control group), did not possess such qualifications prior to getting into self-employment.

3.0 FINDINGS AND DISCUSSION
3.1 Categories and levels of livelihood assets owned by graduates
Livelihoods among self-employed VET and non-VET graduates are dependent on strength in terms of assets or capital assets holdings, which they endeavour to convert into positive livelihood outcomes. The findings as shown in Table 3 present five categories of assets or capital items upon which livelihoods among both categories of graduates are built, namely human capital, social capital, natural capital, physical capital and financial capital. Table 4 are shows levels of livelihood assets ownership among VET and non-VET graduates.

Table 3: Livelihood assets categories owned by Vet and Non-vet graduates

Livelihood Assets	VET Graduates					Non-VET Graduates				
	Frequency		%		Index value	Frequency		%		Index value
	Yes	No	Yes	No		Yes	No	Yes	No	
Human assets										
Attendance of formal education	192	0	100.0	0.0	1.00	192	0	100.0	0.0	1.00
Working experience	192	0	100.0	0.0	1.00	192	0	100.0	0.0	1.00
Skills training attended	192	0	100.0	0.0	1.00	34	158	17.7	82.3	0.18
Financial assets										
Business income	192	0	100.0	0.0	1.00	192	0	100.0	0.0	1.00
Income from non-business activities	30	162	15.6	84.4	0.16	23	169	12.0	88.0	0.12
Grant beneficiary	11	181	5.7	84.3	0.06	8	184	4.2	95.8	0.04
Savings amount	180	12	93.8	6.3	0.94	175	17	91.1	8.9	0.91
Physical assets										
Housing characteristics	65	127	33.9	66.1	0.34	54	138	28.1	71.9	0.28
Access to tap water sources	149	43	77.6	22.4	0.78	138	54	71.9	28.1	0.72
Household assets	192	0	100.0	0.0	0.52	192	0	100.0	0.0	0.48
Ownership of means of transport	81	111	42.2	57.8	0.13	63	129	32.8	67.2	0.09
Communication equipment's	192	0	100.0	0.0	0.76	190	2	99.0	1.0	0.64
Natural assets										
Land ownership	84	108	43.8	56.3	0.44	69	123	35.9	64.1	0.36
Livestock ownership	82	110	42.7	57.3	0.43	86	106	44.8	55.2	0.46
Food resources items	60	132	31.3	68.8	0.31	89	103	46.4	53.6	0.45
Social assets										
Position in the society or organisation	30	162	15.6	84.4	0.16	27	165	14.1	85.9	0.14
Involvement in community activities	62	130	32.3	67.7	0.32	56	136	29.2	70.8	0.29
Involvement in political activities	117	75	60.9	39.1	0.61	109	83	56.8	43.2	0.57
Involvement in economic groups	25	167	13.0	87.0	0.13	16	176	8.3	91.7	0.08

3.1.1 Human assets

The findings on human assets revealed that both categories of graduates had at least attended formal education ranging from primary education to college or university level (Table 3). Among the VET graduates, 36.5% had primary education only; 59.9% had secondary education; and only 3.6% had University or College education. The findings for non-VET graduates indicated that 50% had primary education; 44.3% had secondary education; and only 5.7% had either college or university education. The findings for skills training showed that all of VET graduates were better in business related skills training compared with 18% for non-VET graduates who had such skills.

The implication from the findings is that both categories of graduates were literate enough to properly manage their businesses to attain positive livelihood outcomes expected from education levels they had. In addition, it was expected that more educated graduates would be at a higher level of livelihood outcomes than graduates with low formal education level. A study by Casaburi *et al.* (2012) established that education level has positive association with livelihood outcomes.

The findings for business experience for both categories of graduates indicated that each graduate had experience in business for at least one year or more since the establishment of their businesses. The findings for VET graduates with one to five years' experience comprised 55.7% while those with more than five years constituted 44.3% with a mean of 6.27 years in business. The findings for non-VET graduates indicated that respondents who had one to five years' experience comprised 60.9% while those with more than five years' experience constituted 39.1% with a mean of 6.06 years in business. Self-employed graduates' experience in business is an essential factor in determining firms' profitability and the levels of livelihood outcomes because it may lead to better decision-making skills attained over time. On this observation, one male self-employed non-VET graduate from Majengo Arusha said that:

> *"I have been in self-employment for 8 years now (2018). I will continue with this business because it provides the only means that gives me a living and my family … I am a form four leaver but through long-term practice in welding and metal fabrication business, I am able to produce quality products that satisfy my customers' needs"* (Interview, Majengo Arusha, April, 2018).

The observation indicates that despite the fact the non-VET graduates had no formal training skills related to the businesses, it was evident that through long-term experience and practices, they were able to well manage well their businesses and achieve good livelihood outcomes from self-employment activities. However, it was important for self-employed non-VET graduates to further sharpen their knowledge and skills. All can be possible through the Recognition of Prior Learning Assessment (RPLA) organised by VETA in order to knowledge and skills gaps and acquire recognised certification. Such measures would improve business image and qualify their businesses for quality certification from institutions such as Tanzania Bureau of Standards (TBS). Findings on skills training related to business activities indicated that only 18% of non-VET graduates had acquired formal knowledge and skills in the course of operating their businesses, which is relatively on the low side. This was probably one among causes of numerically lower livelihood assets ownership among non-VET graduates in comparison to VET graduates.

3.1.2 Financial assets
Findings on financial assets indicated that the main source of livelihoods among graduates was income from business, which accounted for all respondents among both VET and non-VET graduates, followed by income from non-business activities that accounted for 15.6% and 12% of the income among VET and non-VET graduates, respectively (Table 3). The average gross income from business per annum among VET graduates stood at Tanzania shilling 5 382 916.67 (USD 2 316.15),[1] while the total expenditure averaged at Tshs. 2 374 016.80 (USD 1 021.49) per annum with mean net earnings of Tshs. 3 008 899.87 (USD 1 294.66) per annum. The findings for non-VET graduates indicated gross income from business of Tshs. 4 499 882.81 (USD 1 936.20) per annum and the total expenditure was TZS 2 206 494.79 (USD 949.41) per annum with mean net earnings of Tshs. 2 293 388.02 (USD 986.80) per annum. Also, it was found that the savings level among VET graduates stood at 93.8%, slightly higher than the observed savings level of 91.1% for non-VET graduates (Table 3).

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[1]The exchange rate for one United States Dollar was equivalent to Tanzanian Shillings (TZS) 2,324.08 as at 13th August, 2020

Generally, financial assets ownership levels among VET graduates were higher than those among non-VET graduates. As seen in the human assets' ownership, VET graduates possessed more skills and experiences related to business activities being operated than non-VET graduates, which probably is one among factors for their slightly better financial asset ownership level than their counterparts. Previous studies (Sun *et al.,* 2018; Xu, 2016) argue, that among all livelihood assets, financial assets provide the most important of all stimuli in facilitating improvement of other livelihood assets and thus, sustainability of livelihoods among vulnerable groups ensues. However, the high dependence on a single source of income from business for both groups reduced the ability to increase levels of other livelihood assets ownership, and thus leading to inability to withstand livelihood shocks as well as stresses due to limited financial assets. The reason provided by one female VET graduate at Mwenge in Dar es Salaam was as follows:

> *"I do not have other sources of income apart from my food vending business because the current business keeps me busy when I wake up in the morning to purchase the day food items requirements for breakfast, lunch and dinner. Then the cycle continues like that. This poses a challenge to operate other activities and I cannot leave the management of the business to someone else because I may lose the capital invested in the business"* (Interviewee, Mwenge Dar es Salaam, March, 2018).

The above observation from the respondent shows concern of some self-employed graduates that diversification into other business ventures was limited due to the fact that they have to concentrate on a single activity in order to control and manage their businesses to avoid losing their investments. Moreover, inadequate capital among self-employed graduates limits the possibility of diversification into other business ventures. Thus, such situation inhibits assets ownership levels among self-employed graduates in the study areas. This is demonstrated by the composite index scores (Table 5), which are slightly below the median of 0.55 for (VET) and 0.48 for (non-VET) on most of the livelihood assets among VET and non-VET graduates.

3.1.3 Physical assets
Physical assets are facilities needed by VET and non-VET graduates like transportation facilities, good housing, safe drinking water, household assets, communication equipment, medical facilities, schools, and market places, among others, in accomplishment of their day-to-day activities (Samsudin and Kamaruddin, 2013). Findings indicated that both categories of graduates at least owned one or more of the household assets such as beds, cooking facilities and communication facilities such as television set and mobile phones, among others (Table 3). However, VET graduates had slightly higher physical assets ownership in terms of owning houses (33.9%), access to clean and safe water (77.6%), ownership of communication equipment (100%) and means of transport (42.2%). For non-VET graduates, those who owned those assets were similarly distributed as follows: 28.1%, 71.9%, 99%, and 32.8% respectively (Table 3).

Notwithstanding the observed success in ownership of communication facilities, access to safe and clean water among both categories of graduates, the average index for accumulation of physical capital among both self-employed graduates was still below the expected median levels (Table 2 and Table 5). However, the observed differences in physical capital accumulation and ownership between the two groups was relatively small. The findings imply that since the majority of both categories of self-employed graduates were unable to own basic livelihood assets such as house and ownership of means of transport facilities, they were categorised into low physical assets ownership level. Findings from this study contradict what was observed by Kamaruddin and Shamsudin, (2014) in Malaysia who reported that despite the respondents having low incomes with some of them even below the poverty line, the majority were able to meet most of the basic needs. Such needs included houses, household furniture, transport means possession, access to water and electrical energy.

3.1.4 Natural assets

Natural assets, as indicated in Table 3, constitute various natural resources from intangible public goods such as atmosphere and biodiversity to divisible assets used in production of goods such as trees and land, among other assets, which are used to derive livelihoods among individuals (Yang *et al.,* 2018). It was found out that 43.8% of the VET graduates owned plots or land for house construction or agricultural activities compared to 35.9% observed among non-VET graduates. In terms of livestock ownership and consumption of food resources in their surroundings, non-VET graduates had better ownership and use of these resources at 44.8% and 46.4% compared to 42.7% and 31.3% respectively which was observed among VET graduates.

Findings indicated that, on average, the natural capital items for both categories of self-employed graduates were the lowest, ranging from 31.3% to 44.9% as compared to other livelihood assets. However, the results with regard to natural capital ownership among non-VET were slightly better than those among VET graduates. Natural capital ownership was relatively low probably due to the fact that the study was conducted in two cities where natural capital is less abundant due to competitive demand for such resources as a result of high population compared to rural areas where such resources are less competitive while they are abundantly available. A study by Kamaruddin & Shamsudin (2014) in Malaysia noted similar results whereby the average natural assets ownership among household groups was found to be the lowest compared to other livelihood assets. Thus, the study recommended that any entrepreneurial activities that ought to be established by the groups should not to be based on natural assets, rather on activities such as food vending, electronic/digital gadgets, retailing, sewing and crafts, which did not need such resources. However, self-employed graduates with access to natural resources in the two cities may employ such resources to improve the levels of their livelihood outcomes to cope with livelihood shocks and stress.

3.1.5 Social assets

To increase individuals' capability among VET and non-VET graduates, social assets represent social resources which provide prospects to the self-employed graduates through social relations and interactions like personal ties, links and connections that provide equal shared benefits to both parties in social relations. The findings indicate that VET graduates' involvement in political activities (60.9%), participation in community activities (32.3%), holding various positions in society (15.6%) and participation in various group economic activities (13%) were slightly higher than involvement in political activities (56.8%), community activities (29.2%), position holding in the society (14.1%) and participation in group economic activities (8.3%) observed among non-VET graduates (Table 3). The findings showed that both categories of graduates were aware and more participating in political activities than in other social related activities. The findings imply that political activities, among other activities, provide bonds and social cohesion among different supporters of various political parties in the study areas.

3.1.6 Levels of livelihood assets ownership among self-employed graduates

Based on the five types of assets as presented in Table 3, the levels of assets ownership among self-employed VET and non-VET graduates were categorised in terms of low, moderate and high as presented in Table 4.

Table 4: Levels of livelihood assets owned by Vet and Non-vet graduates

Levels of livelihood assets ownership	VET graduates		Non-VET graduates		Combined	
	Frequency	%	Frequency	%	Frequency	%
Low livelihood assets ownership	93	48.4	98	51.0	191	49.7
Moderates' livelihood assets ownership	8	4.2	5	2.6	13	3.4
High livelihood assets ownership	91	47.4	89	46.4	180	46.9

Findings revealed that low assets ownership category for both VET and non-VET had slightly more respondents than those in the high category with 48.4% and 51% for VET and non-VET respectively (Table 4). It implies that self-employed graduates in this category did not make sufficient incomes from their businesses to enable them tolerate unforeseen livelihood shocks and stresses in future. As observed by Li *et al.* (2020), low incomes generation from businesses constrain individuals from increasing production scales and acquisition of other livelihood assets necessary for livelihood diversification required to cover up livelihood shocks and stresses in future.

Furthermore, it was found out that some self-employed graduates were categorised into high levels of assets ownership (47.4% and 46.4% VET and non-VET, respectively). This shows that self-employed graduates with high levels of assets ownership had better chances to endure livelihood shocks and stresses. Thus, they were able to address household needs since they had better abilities from self-employment activities. However, the findings also indicated that VET graduates were better in terms of assets ownership than non-VET graduates and thus, they had better chances to sustain livelihood shocks and stresses. On this matter, one of the key informants at Kitunda in Dar es Salaam said that,

> *"As long as most of the small business income sources are sporadic, it is important for self-employed graduates to diversify into other income generating activities such as financial services (M-Pesa, Tigo-Pesa) and motorcycle business to smoothen income in situations when main business activities are not generating adequate income"* (Key Informant, Kitunda Dar es Salaam, March, 2018).

The above quotation is in line with the Sustainable Livelihood Approach (SLA), which requires that broadening of livelihood strategies would guarantee better livelihood outcomes (DFID, 2001; Krantz, 2001; GLOPP, 2008) thereby increase chances for livelihood sustainability among self-employed graduates.

3.2 Livelihood assets ownership comparison among graduates
Based on selected livelihood assets indicators presented on Table1, scores for each category of indicators were computed. Thereafter, a composite index for each category of livelihood assets was developed. Table 5 presents livelihood assets owned by VET and non-VET graduates based on composite index values.

Table 5: Livelihood assets owned by Self-employed graduates

Asset category	VET graduates Assets Composite Indices	Non-VET graduates Assets Composite Indices
Human assets	1.00	0.73
Financial assets	0.53	0.52
Physical assets	0.51	0.44
Natural assets	0.39	0.42
Social assets	0.39	0.27

Among the five livelihood assets as presented in Table 5, human capital provided the highest index value of 1.0 for VET graduates compared to an index value of 0.73 observed from non-VET graduates. This implies that VET graduates were better-off in terms of human capital achievement in comparison to their non-VET counterparts. Thus, human capital in terms of formal education, experience in self-employment and skills training related to the business being operated supports other livelihood assets ownership among both categories of graduates. Similarly, a slightly higher index value was observed in respect of financial assets at 0.54, physical assets at 0.51 among VET graduates compared to financial assets index value of 0.52 and physical assets index value of 0.44 observed from non-VET graduates (Table 5).

Social assets indicated the lowest index value for both graduate categories with a slightly higher index value of 0.30 among VET graduates than an index value of 0.27 observed among non-VET graduates. However, scores on livelihood assets ownership index were slightly higher for natural assets at 0.42 among non-VET graduates in comparison with 0.39 observed for VET graduates indicating that non-VET graduates were better-off in utilization of natural assets at their disposal than VET graduates (Table 5).

Based on the findings, it is evident that self-employment in business has clearly promoted livelihood forms of capital and livelihood assets portfolio allocation among VET and non-VET graduates. In this regard, human capital, financial capital and physical capital indicated the highest livelihood assets ownership levels among both categories of graduates. Human assets ownership levels showed that both categories of graduates had at least attended formal education. The majority of them had completed primary, secondary, and college or university education before engaging in self-employment. Moreover, majority of the graduates had gained considerable business experience after being self-employed. However, lower training on skills was observed among non-VET than VET graduates.

The findings on financial capital indicated promising prospects for both categories of graduates as their livelihoods mainly depended on income derived from their businesses. With the majority of the graduates having some amount of savings at home, microfinance institutions or bank, it implies that the graduates' ability to sustain their livelihoods and thus, ability to adequately respond to harmful shocks or threats as they emerge is high. The observed promising financial assets ownership among graduates is expected to increase production scales, and develop infrastructures that would further help them in achieving livelihood diversification. This was reflected in the level of physical assets owned mainly, acquired as a result of income derived from business activities.

Moreover, since the majority of the graduates were able to access safe and clean water, acquire communication equipment such as television sets, mobile phones, among others, it is evident that the level of financial assets was adequate to achieve livelihood outcomes and higher chances of livelihood sustainability. Also, they were able to acquire household assets such as beds, refrigerators, kitchen assets and construct their own houses as a result of being in self-employment. A study by Su and Shang (2012) indicate that financial assets enable and motivate

improvement of other assets and thus, contribute to the general improvement of livelihood level among vulnerable groups.

For further comparison of livelihood assets owned by VET and non-VET graduates a Mann-Whitney U-test was done using a Mann-Whitney U test to test hypothesis that possession of livelihood assets (natural, physical, financial, human and social) among VET and Non-VET graduates does not differ significantly. As shown in Table 6, VET graduates reported numerically higher means ranks for all livelihood assets except natural assets in comparison with non-VET graduates. Table 6 presents Mann-Whitney U-test results between the two groups.

Table 6: Mann-Whitney u-test on livelihood assets

Asset	Group	N	Mean Rank	Sum of Ranks	Median (Md)	Mann-Whitney U	Sig. (p-value)	Z-Score	Cohen's D
Natural	VET	192	185.88	35 688	1.00	17 160	0.219	-1.229	
	Non-VET	192	199.13	38 232	1.00				
Physical	VET	192	215.70	41 415	13.00	13 977	0.000*	-4.110	0.044
	Non-VET	192	169.30	32 505	11.00				
Financial	VET	192	198.86	38 182	2.00	17 210	0.132	-1.508	
	Non-VET	192	186.14	35 738	2.00				
Human	VET	192	271.50	52 128	3.00	3 264	0.000*	-16.363	0.697
	Non-VET	192	113.50	21 792	2.00				
Social	VET	192	200.59	38 513	1.00	16 879	0.123	-1.540	
	Non-VET	192	184.41	35 407	1.00				

*significant at p = 0.001

The findings of Mann-Whitney U-test were associated with a significant effect on human and physical assets (U = 13 977, Z = -4.110, p = 000) and (U = 3 264, Z = -16.363, p = 0.000) respectively (Table 6). Thus, VET graduates were better endowed with human related assets (Md = 13.00, n = 192) and physical assets (Md = 3.00, n = 192) in comparison to human and physical assets owned by non-VET graduates (Md = 11.00, n = 192) and (Md = 2.0, n = 192), respectively (Table 6). Subsequently, effect size statistics (Eta squared and Cohen's D) were calculated to give a clue on the extent of differences between the compared groups (VET and non-VET graduates). Eta squared ranged from 0 to 1 and represented the proportion of variance (Pallant, 2011). The interpretation of eta squared value was made using guidelines proposed by Cohen (1992) that 0.01 = small; 0.06 = moderate; 0.14 = large effect.

The Cohen's D for human assets was estimated at 0.697 (Table 6), indicating that the group means ranks differed by 0.697 standard deviations, which is considered a large effect size based on Cohen's (1992) guidelines while the Cohen's D for physical assets was estimated at 0.044 indicating a small effect size (Table 6). The results provide more information that, among the livelihood assets, human and physical assets owned by self-employed graduates differed

significantly while the observed differences among other livelihood assets were insignificant. Based on these findings, the null hypothesis cannot be accepted in respect of human and physical capital as there is enough evidence that means between the two livelihood assets differed significantly between VET and non-VET graduates.

3.3 Theoretical contribution

The study findings as provided in Table 6 showed that out of the five livelihoods assets analysed, physical assets and human assets were found to be significantly different ($p < 0.001$) and thus contributing to the observed difference in such asset's ownership between the two groups of respondents. The plausible reason is the fact that VET graduates had better skills and knowledge related to human assets. Therefore, activities being operated acquired through vocational training in comparison to non-VET without such skills and knowledge. However, since more than half of the livelihoods assets were not significant, the null hypothesis that possession of livelihood assets (natural, physical, financial, human and social) and thus, livelihoods outcomes attainment between VET and non-VET graduates do not differ, cannot be rejected. This is due to the fact that more than half of livelihoods assets indicated insignificant difference between the two categories of self-employed graduates. Consequently, the theoretical claim that people with more capital assets ownership have better chances to convert their strengths at their disposal into positive livelihood outcomes than those without such assets (DFID, 2001; GLOPP, 2008), as drawn from the SLA, do not hold true for VET and non-VET graduates in the study areas. It means that there are no big differences in livelihoods assets owned by VET and non-VET graduates. Therefore, there was no much difference in livelihood outcomes attainment between self-employed VET and non-VET graduates in the study areas.

4.0 CONCLUSIONS AND RECOMMENDATIONS
4.1 Conclusions

Access to livelihood assets among self-employed graduates is one among the most important factors that induce graduates into self-employment, and for many, the only alternative, which provides the basis for their livelihoods. As long as the majority of the self-employed graduates were categorised into low assets ownership level, it is concluded that the majority of the self-employed graduates are unable to endure livelihood shocks and stresses due to limited assets level. It is recommended that self-employed graduates with low assets level should consider more diversified assets portfolio holding in order to improve their livelihood assets levels. That can be done by formation of self-help microfinance institutions such as Savings and Credit Cooperative Societies from which they can access credits for financing acquisition of livelihood assets to employ in the business activities. As a complementary intervention, local government authorities and other development partners advocating for self-employment should prioritize in their development agendas, to support VET and non-VET graduates on capital assets necessary for improving their livelihood assets base. Thus, such measures would increase chances for sustainable livelihoods among self-employed individuals. On the basis of the finding that there was no difference in livelihoods capital assets ownership between VET and non-VET graduates, it is concluded that both categories of graduates have few opportunities to make positive and sustainable livelihood outcomes.

4.2 Recommendations

Based on the findings, it is therefore recommended that both categories' graduates should leverage their strengths observed on human and physical capitals in order to improve other types of capital that would promote productive self-employment activities for better livelihood outcomes in future. Also, they should consider accessing available government and other local financing schemes to fund livelihoods assets acquisition for self-employment activities. Moreover, the government should establish seed capital for financing both self-employed VET and non-VET in terms of physical assets such as plant and machinery as a means for improving productivity among graduates' businesses.

Mwakilema, N. (2023). Assets owned and livelihood sustainability among self-employed vocational and non-vocational graduates in Arusha and Dar-es-Salaam cities, Tanzania.

4.3 Limitations and areas for further study

The study suffered a methodological limitation as a result of snowball sampling approach that was used in data collection. The method is claimed to suffer a number of critiques such as non-generalisable results due to lack of sampling frame, lack of sample diversity and under representation of respondents in the population. However, the researcher dealt with some of the weaknesses identified above, by using three key methodological approach recommended to reduce such weaknesses. Among the methods, a key contact list of respondents was obtained from the Directorate of Labour Market Planning and Development (DLMPD), four colleges and four schools which served as the seeds for snowball sampling method. The seeds sample were sufficiently varied in terms of business categories whereby nine different businesses were included in the pool of seeds obtained from the respective institutions to solve the diversity and under representation problem. Moreover, a face-to-face interview was conducted as it is claimed by many scholars, it generates the trust required to gain referrals and reduce sampling bias.

Area for further study is based on the role livelihoods assets play in reducing unemployment and poverty through self-employment activities among individuals in both urban and rural areas in many of the developing nations. Ownership and levels of livelihoods assets among graduates depends on many factors. The factors that make graduates own such assets were not explored in this study. The study recommends a study to be conducted on factors influencing asset ownership and levels among self-employed graduates in the study areas and other cities in Tanzania.

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