A Map of Businesses and Enterprises in Zanzibar

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Research Report 2023/16

Published by:

REPOA
157 Migombani/REPOA Streets, Regent Estate,
P.O. Box 33223
Dar es Salaam.

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Copy-editing & initial layout: Vincent Nalwendela | REPOA

Suggested citation:
Kweka, J. (2023). A Map of Businesses and Enterprises in Zanzibar. REPOA, Dar es Salaam.

Research Report 2023/16

Suggested Keywords:
Businesses, Enterprises, Zanzibar, Tanzania.

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1.0 INTRODUCTION

1.1 Background

Since the shift towards a more market-oriented economy in Tanzania, the private sector has played an increasingly important role in the country's development. Indeed, Tanzania has recently embarked on her 3rd phase of Long-Term Perspective Plan (2010-2025) with the launching of the third Five Year Development Plan (2021/22-2025/26) – FYDP III. The plan focuses on realizing competitiveness and industrialization for human development that aims to increase efficiency and productivity in manufacturing using the resources available in abundance within the country (URT, 2021). Clearly, the private sector is an important element of the plan in at least two ways: one, majority of the strategic interventions outlined in the plan are directly aimed towards the development of private sector - and two, the private sector is expected to play a role of providing some of the technical and financial resources needed to successfully implement the plan.

The private sector landscape in Tanzania includes many actors including small farmers; livestock herders; mini, micro, small and medium scale entrepreneurs; social entrepreneurs, commodity, and services brokers, and associations of various entrepreneur groups. Tanzania's private sector has been at the frontline of economic transformation - with its share of non-farm employment increasing to 30.2% from 21.9% in the period 2006-2016. This increase has translated to the decline in the share of agriculture sector in GDP from 28.4% in 2006 to 26.6% in 2019 (URT, 2021). The private sector recorded a 68% increase in capital formation in 2016 - 2019, creating some 716,624 jobs.

Notwithstanding such positive developments, the private sector/enterprise sector is constrained by several challenges including: pervasive informality, weak legal framework which confounds key functional features of private sector operations aimed at enhancing the registration of property, easing access to credit, protecting minority investors, paying taxes, trading across borders, and enforcing contracts; and weak productivity and competitiveness (URT, 2021). These challenges have been compounded by the lack of comprehensive data covering the enterprise sector in Tanzania – which to some degree has limited the ability to monitor and evaluate the impact of government interventions, examine the current situation of the enterprise sector in Tanzania and design appropriate and effective interventions to support sustainable private sector growth in the country.

In recognition of such challenges REPOA has recently conducted a more comprehensive survey of the enterprise sector in Tanzania. Unlike previous surveys, the REPOA survey covered more activities and collected more updated information of firms in the enterprise sector and addressed other gaps in the previous survey datasets. This paper is motivated by the availability of the new survey dataset known as Tanzania Enterprise Survey (TES) 2022 dataset and it aims to examine productivity and competitiveness of firms in the enterprise sector in Tanzania.

1.2 Objectives and Rationale

This paper is one of the deliverables of the wider study named "A Study on the Enterprise Sector of Tanzania". The study aims at examining the enterprise sector of Tanzania, to provide comprehensive baseline information for consistently analysing and mapping the productive part of the Tanzanian economy. Essentially, the project is based on a baseline nationally representative survey dataset of the enterprise sector in Tanzania, that comprehensively covers all the productive activities in the country – and which was collected in 2022. The study aims to provide input needed for policy analysis of key Government policies, strategies and programmes which requires comprehensive data capturing over the entire productive sector of the economy, and for supporting continuous monitoring and evaluation of the dynamic economy. The study is guided by the following objectives:

i) To analyse the current status of the productive sectors in Tanzania.

ii) To identify conditions that affect firm-level productivity and competitiveness.

iii) To secure inputs to be used by the government to develop/review policies, programmes and strategies that support sector-productivity growth.

iv) To provide the Private Sector with facts to support dialogue with government and other partners to enhance public-private sector partnership; and

v) To update existing production/sales data at the level of active establishments.

This paper addresses objective number ii of the study. Essentially, it aims to examine the level of productivity and competitiveness of firms in the enterprise sector in Tanzania. Specifically, the paper addresses two key objectives (a) assess/measure the level of productivity and competitiveness of firms in the enterprise sector in Tanzania and (b) identify conditions that affect firm-level productivity and competitiveness in the enterprise sector of Tanzania.

1.3 Organisation of the Report

This report is presented in six chapters. Following the introductory chapter one, chapter two presents the methodology, while chapter 3 focuses on the situational analysis of productivity and competitiveness in the enterprise sector in Tanzania. The empirical analysis of the drivers of firm productivity and competitiveness is detailed in chapter four while chapter five discusses a few issues identified from the empirical analysis. Finally, chapter six concludes by highlighting key messages and implications for policy.

2.0 METHODOLOGY

2.1 Overview

In this section we discuss the methodology used to address the objectives of this study. We begin by showing indicators used to measure firm productivity and competitiveness in Section 2.2. In Section 2.3 we show how we conducted situational analysis of productivity and competitiveness in Tanzania enterprise sector while in section 2.4 we present how empirical analysis was carried out including the post estimations tests. Finally, in Section 2.5, we conclude by introducing the Tanzania Enterprise Survey (TES) 2022 dataset which was main input in measuring productivity and competitiveness and empirical analysis.

2.2 Measuring Firm productivity and Competitiveness

Approaches to measuring productivity: Productivity is commonly defined as a ratio of a volume measure of output to a volume measure of input use. While there is no disagreement on this general notion, a look at the productivity literature reveals very quickly that there are many different productivity measures. The choice between them depends on the purpose of productivity measurement and, in many instances, on the availability of data. Broadly, productivity measures can be classified as single factor productivity measures i.e., relating a measure of output to a single measure of input - or multifactor productivity measures i.e., relating a measure of output to a bundle of inputs. Another distinction, of particular relevance at the industry or firm level is between productivity measures that relate some measure of gross output to one or several inputs and those which use a value-added concept to capture movements of output.

In line with such classification, empirical studies have used Single factor productivity measures such as output or value added per worker or capital (see OECD, 2001) and multiple factor productivity measures such as total factor productivity (see OECD, 2001). Indeed, each approach has its own strengths and weaknesses. For instance, while single factor productivity measures such as value added or capital per worker are easy to measure and read, they are only partial productivity measures. Conversely, Multiple factor indices provide a relatively more accurate estimates of productivity although their measurement are relatively more complex and may require a significant amount of data. This is why our analysis of productivity of the enterprise sector in Tanzania relies on more than one indicator.

But how do we measure productivity in this study? Given data availability, our study uses Value Added Per Worker (VAPW) and Total Factor Productivity (TFP) to measure productivity of the enterprise sector in Tanzania. TFP was estimated based on the following Cobb Douglas production function.

$$Q = AL^{\alpha}K^{\beta} \quad \text{..... (1)}$$

Where Q is the total output, L is the number of workers (labour force) and A is the index of TFP. Applying logarithm on both sides of Equation 1, the following Equation 2 is also true.

$$lnQ = lnA + \alpha lnL + \beta lnK \quad \text{..... (2)}$$

Then we rearrange Equation 2 to make TFP the subject in the equation as follows (see Equation 3).

$$lnA = lnQ - \alpha lnL - \beta lnK \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

VAPW was calculated as the difference between total sales and costs of intermediate inputs divided by total number of employees of a firm.

Approaches to measuring competitiveness: Similar to productivity, there is no single agreed definition of **competitiveness** which implies there are multiple measures applied to the term and this creates confusion (Siudek and Zawojska, 2014). Nonetheless, the literature provides different approaches to measuring competitiveness including Macroeconomic Approach, Business Strategist Approach and Technology and Innovation Approach. **Macroeconomic perspective** is based on the fact that exchange rate is a necessary instrument for achieving international competitiveness. It defines international competitiveness "as the level of the real exchange rate which in combination with the requisite domestic economic policies achieve internal and external balance". An appreciation of the real exchange rate is associated with a loss in a country's international competitiveness, while a depreciation of the real exchange rate implies an improvement.

Unlike the first approach which is based on economic grounds, the **Business Strategy approach** hinges on a business studies perspective, mainly advocated by Porter (1990) in addressing the issues of rivalries between firms and the strategies adopted by firms as they compete with each other locally and internationally. Porter developed a "Diamond Model" in which he identified four interrelated factors necessary for sustaining competitiveness, these are: firm strategy, structure and rivalry, demand conditions, related supporting industries and factor conditions (key factors that are created e.g., skilled labour, capital and infrastructure). The government acts as facilitator in this model encouraging firms to become competitive and creating the environment that enables firms to increase productivity and become more competitive by improving the infrastructure and investing in education and engineering etc.

They defined competitiveness as "that collection of factors, policies and institutions which determine the level of productivity of a country and that therefore determine the level of prosperity that can be attained by an economy. However, productivity is also the key driver of the rates of return on investment, which in turn determine the aggregate growth rates of the economy. Thus, a more competitive economy is one that is likely to grow faster over the medium to long term". Given its broad nature, many countries use this definition to compile composite indices on competitiveness that shows microeconomic aspects of benchmarking competitiveness against each other. Such indicators include business competitiveness index (BCI) and the growth competitiveness index (GCI).

The Technology and Innovation approach is rooted in industrial competitiveness in that it emphasizes role of FDI, learning, R&D in fostering competitiveness. It accentuates the role that enterprises must play in importing technology and the ability to learn it. The innovation and learning process necessitate interactions among different institutions within the National innovative system (NIS). This theory defines competitiveness as "the capacity of firms to compete, to increase their profits and to grow. It is based on costs and prices, but more vitally on the capacity of firms to use technology and the quality and performance of products. At

the macroeconomic level it is the ability to make products that meet the test of international competitiveness while expanding domestic real income." (Durand et al, 1992). Examples of measures under this perspective include the market share indicators (e.g. country's exports to the World export, or region) and the Manufacturing Export Competitiveness Index (see Vignes and Smith, 2005).

In this case, we used Unit Labour Cost (ULC) to measure firm competitiveness. ULC is an index which measures the ratio of labour compensation to labour productivity. It measures the labour costs incurred for each unit of output. We calculate ULC as follows

$$ULC = \frac{W_n}{Q_i/_{H_i}} \quad \text{..... (4)}$$

Where W_n is the Nominal Wage per worker

Q_i is the Gross Value Added in industry i and

H_i is the number of hours worked or number of workers in industry i

2.3 Situational Analysis of Firm Productivity and Competitiveness in Tanzania

Our situational analysis of firm productivity and competitiveness in Tanzania aims to interpret the current measure of firm productivity and competitiveness including making sector and location comparisons. The aim is to identify which firm characteristics associate with high or low level of productivity and competitiveness which will partly inform empirical analysis. Following, we conduct simple descriptive analysis where we disaggregate productivity and competitiveness estimates of firms based on their individual characteristics. Finally, we estimate trends of firm productivity and competitiveness by comparing productivity and competitiveness estimates from Tanzania Enterprise Survey (TES) dataset 2022 with those from Annual Survey of Industrial Production (ASIP) dataset 2008-2016. Given that ASIP data covers the industrial sector only, we limit our comparison/trend estimate of productivity and competitiveness to only the Industrial sector.

2.4 Empirical Analysis of determinants of Firm Productivity and Competitiveness

To analyse the determinants of firm productivity and competitiveness, we have used the following model by Gehringer et al. (2013) (see Equation 5).

$$Ln\, Y_i = \gamma + \sum_{i=1}^{n} \alpha X_i + \varepsilon_i \quad \text{..... (5)}$$

Where LnY_i is an indicator of firm productivity i.e., TFP, VAPW and ULC; X_i is a vector of factors affecting firm productivity including individual firm characteristics such as firm age (age), firm size (size), location of the firm (region) and sector of operation (sector). Other factors that have been included in our empirical analysis include, firm participation in international trade (international trade), access to loan (loan), capital intensity (cap_int), firm participation in linkage with other firms (linkage), foreign owned firms (fdi), operating informally (informal), experiencing power outages or insufficient supply of water (outage), and technology transfer

(transfer) This equation is estimated using simple OLS technique. Table 1 provides a more elaborate explanation of the variables used in the analysis.

To conclude our empirical analysis, we have checked the reliability and consistency of our empirical results. Essentially, we have performed three tests namely Ramsey RESET test for model specification to check if our regression model is correctly specified; omitted variable test (see Ramsey 1969) to test for omitted variables in our regression and finally we calculated variable inflation factor (see Chatterjee and Hadi 2012) to check for correlation in our regression.

2.5 Introducing the Tanzania Enterprise Survey 2022 dataset

Our study uses Tanzania Enterprise Survey Data for 2022 from REPOA. The TES data is the first nationally representative dataset covering the universe of enterprises sector in Tanzania in that the survey is not limited to the manufacturing but includes much more different type of economic activities by size, sector, location and legal status. The dataset provides information on firm characteristics i.e., nature of ownership, location, size and sector among others, production and costs, business environment and firm linkages to mention a few. In addition, we also use the Annual Survey of Industrial Production (ASIP) data 2008-2016 to estimate firm productivity and competitiveness in previous years and compare with the current estimates from TES 2022. Similar to the TES 2022, ASIP data provides firm-level information including firm level characteristics, production, sales, nature of activities, and costs, among others.

Table 1: Description of Variables used in Empirical Analysis

Type	Variable name (label)	Measurement
Dependent Variables	Unit Labour Costs (ULC)	ULC is the ratio of WPW to VAPW.
	Value Added Per Worker (VAPW)	VAPW is the difference between total sales and costs of intermediate inputs divided by total number of employees of a firm
	Total Factor Productivity (TFP)	TFP is the measure of how much output can be produced from a certain quantity of inputs. In this study TFP is estimated on the basis of Cobb Douglas production function.
Independent Variables	Firm age (age)	The number of years a firm has been operating
	Firm size (large)	This is a dummy variable with values 1 if a firm is large and 0 if a firm is MSME.
	Location of the firm (region)	This is the region the firm is located
	Sector (sector)	This refers to the sector the firm is operating
	Participation in international trade (international trade)	This is a dummy variable with values 0 if a firm does not participate in international trade (imports or exports or both) and 1 if a firm participates in international trade
	Access to loan (loan)	This is a dummy variable with values 0 if a firm has not obtained a loan and 1 if a firm obtained a loan
	Capital intensity (cap_int)	This is the ratio of capital to total number of employees
	Participation in Linkage with other firms (linkage)	This is a dummy variable with values 0 if a firm does not participate in linkage with other firms and 1 if a firm participates in linkage with other firms
	Foreign ownership (fdi)	This is a dummy variable with values 0 if a firm is not owned by foreign investor and 1 if a firm is owned by a foreign investor
	Operating informally (informal)	This is a dummy variable with values 1 if a firm operates informally i.e., does not have or did not process formal business documentation and 0 if a firm does not operate informally
	Experiencing power outages or insufficient supply of water (outage)	This is a categorical variable with values 0 if a firm has experienced neither power outages nor insufficient supply of water, 1 if a firm has experienced only power outages, 2 if a firm has experienced only water shortages, and 3 if a firm has experienced both power outages and water shortages during 2021/22.
	Technology transfer (transfer)	This is a categorical variable with values 0 if a firm has never experienced technology transfer, 1 if a firm has experienced technology transfer from suppliers, 2 from FDI firms operating locally, 3 from hiring employees who previously worked in FDI firms, 4 from hiring foreign expatriates and 5 from main customers visiting firm's production facilities.

Source: Author compilation 2022.

3.0 SITUATIONAL ANALYSIS OF FIRM LEVEL PRODUCTIVITY/COMPETITIVENESS IN TANZANIA

In this chapter we use We begin with presenting estimates of Wage per Worker (WPW), Value Added per Worker (VAPW) and Unit Labour Costs (ULC) for firms in the enterprise sector in Tanzania (see Table 2). Note that we have used the estimates to sort sectors from the sector with the highest average estimate to the sector with the lowest estimate across each variable.

Table 2: ULC, WPW and VAPW for Enterprise subsectors 2021

Sector	WPW (Millions)	Sector	VAPW (Millions)	Sector	ULC
Construction	46.60	Construction	772.90	Information and communication	1.252
Electricity, gas, A/C supply and Water supply	7.23	Manufacturing	136.00	Electricity, gas, A/C supply and Water supply	0.874
Transportation and storage	5.46	Transportation and storage	130.10	Education and Human health	0.676
Wholesale and retail and repairs	3.60	Agriculture, Foresty and Fishing	118.60	Public administration and Public services	0.353
Manufacturing	3.36	Financial and insurance activities	64.18	Professional, scientific and technical activities	0.197
Financial and insurance activities	3.11	Wholesale and retail and repairs	50.20	Arts, Entertainment and Recreation	0.194
Education and Human health	3.03	Electricity, gas, A/C supply and Water supply	25.38	Manufacturing	0.194
Professional, scientific and technical activities	1.34	Tourism	21.47	Agriculture, Foresty and Fishing	0.160
Tourism	1.00	Education and Human health	15.41	Tourism	0.145
Agriculture, Foresty and Fishing	0.88	Mining and Quarrying	14.59	Transportation and storage	0.139
Mining and Quarrying	0.72	Professional, scientific and technical activities	10.97	Other sectors	0.130
Public administration and Public services	0.45	Other sectors	4.62	Construction	0.123
Information and communication	0.40	Arts, Entertainment and Recreation	2.86	Financial and insurance activities	0.112
Other sectors	0.33	Public administration and Public services	1.70	Wholesale and retail and repairs	0.111
Arts, Entertainment and Recreation	0.27	Information and communication	1.31	Mining and Quarrying	0.055

Source: Author analysis of Tanzania Enterprise Survey Dataset 2022

Table 2 shows sector level average WPW, VAPW and ULC for year 2021. Construction sector recorded the highest WPW at approximately 47 million TZS followed by electricity, gas, A/C supply and water supply at 7.2 million TZS and transportation and storage at 5.4 million TZS. On the other end, Arts and entertainment, ICT and Public administration both recorded WPW figures of less than half a million TZS each. Although we can quickly interpret the top three highest paying sectors as the least productive ones, the picture becomes less so once we observe their respective VAPW. For instance, while construction sector pays the highest average WPW, the sector also generates the highest VAPW. This is also true for transport and storage and wholesale and retail traders and repairs[1] sectors. Further, the low paying sectors such as mining and quarrying, arts and entertainment, ICT, public administration and services also generated the lowest VAPW (see Table 2). Generally, there seems to be a positive correlation between WPW and VAPW. Indeed, the correlation between WPW and VAPW was found to be positive and significant and was estimated at 65.4%. This is why developing countries emphasize on enhancing value addition and fostering high value addition activities to increase worker incomes and reduce poverty.

In terms of ULC, mining and quarrying, wholesale and retail traders and repairs, financial and insurance activities, construction and transport and storage sectors have the lowest ULC while ICT, electricity, education and human health and public administration and public activities had the highest ULC. Reasons for observed ULC performance seem to come from either VAPW

[1] Wholesale and retail trade; repair of motor vehicles and motorcycles.

or WPW or both. For instance, two of the five sectors that recorded below one million WPW also had the lowest ULC i.e., mining and quarrying and other sectors. On the other hand, one of the top three high paying sector was also among the top 3 highest ULC sectors i.e., electricity, gas, A/C supply and water supply. The lowest ULC for mining seem to come from very low WPW i.e., less than a million and relatively high VAPW which makes labour costs of producing one unit of value added to be very low. ICT sector recorded low estimate in both VAPW and WPW but had the highest ULC than any other sector in the dataset. Construction sector recorded the highest WPW but was among the five sectors with the lowest ULC. This is because the sector created the highest VAPW which was relatively larger than its high WPW.

We further estimate ULC, VAPW and WPW based on different characteristics of firms in the enterprise sector including employment size, nature of operation, gender of the main owner and by exporting status. (Results are shown in Table 3). Exporting firms are found to have a slightly higher ULC compared to non-exporting firms. This is partly because they pay approximately six times more than the average wage of non-exporting firms while they create approximately four times more VAPW compared to non-exporting firms. In other words, although exporting firms create more value addition than non-exporting firms, they pay more than the number of times their value added is larger than that of non-exporting firms i.e., six times vs four times.

Table 3: Estimated ULC, WPW and VAPW based on firm characteristics

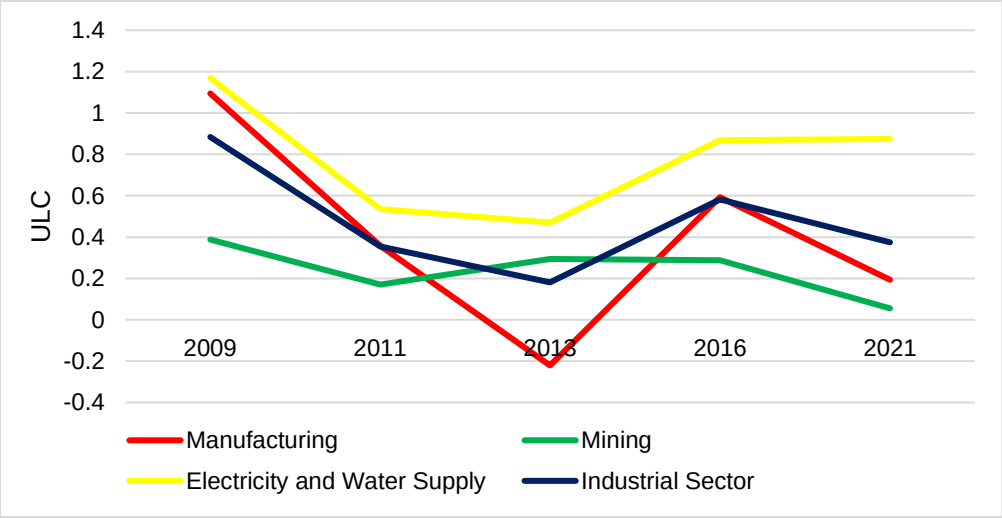
Firm characteristic		ULC	WPW (Million TZS)	VAPW (Million TZS)
Exporting status	Non-exporting	0.17	2.54	62.00
	Exporting	0.18	12.30	244.40
Employment size	Small	0.18	1.38	23.33
	Medium	0.29	1.27	10.72
	Large	0.20	11.59	321.10
Nature of Operation	Formal	0.19	3.80	91.80
	Informal	0.11	0.94	10.80
Gender of the owner	Male	0.18	3.40	86.40
	Female	0.16	2.80	39.60

Source: Author analysis of Tanzania Enterprise Survey Dataset 2022

In terms of firm size, medium firms were found to have the highest ULC followed by large firms and finally small firms. This means small firms are more cost competitive than large and medium firms although once we combine small firms with medium sized firms, we find the new group (SMEs) has slightly higher ULC (0.23) compared to large firms (0.2). On the other hand, large firms have approximately 10 times higher WPW compared to both small and medium sized firms and they create at least more than 10 times the value addition created by either of small or medium sized firms. Firms operating formally have higher ULC compared to those that operate informally although the former has higher WPW and VAPW than the latter. The relatively low ULC for informal firms is partly because the category is picking up a lot of small firms who constitute 77% of all informal firms in the TES dataset – and as already noted, small firms have lowest ULC compared to medium and large firm. Firms owned by women have slightly lower ULC compared to firms owned by men although they pay less wage and create less value addition than the latter (see Table 3).

So far, we have used the TES dataset to measure productivity and competitiveness. This has provided us with the estimate of the level of competitiveness and productivity of Tanzanian firms at one point in time. We now leverage previous dataset particularly the Annual Survey of Industrial Production (ASIP) data 2008-2016 to estimate productivity and competitiveness in the previous years and combine resulting estimates with the current ones (from TES 2022) – and construct a trend of firm competitiveness and productivity and see how the situation has changed between then and now. Note that unlike the TES 2022 dataset, the ASIP data covers only the Industrial sector and thus our trends will only refer to the industrial sector. In addition, to ensure consistency with the Industrial sectors in the TES dataset, we have combined the electricity and water sectors in the ASIP dataset into one sector[2] (see Figure 1).

Figure 1: Trends of ULC among Firms in the Industrial Sector 2009-2021



Source: Author construction based on TES dataset 2022 and ASIP dataset 2008-2016

Figure 1 shows that ULC for firms in the Industrial sector in Tanzania has been declining gradually since 2009 which implies the competitiveness of Tanzania industrial sector has been improving slowly. In between 2016 and 2022, we observe that ULC has declined for all industrial subsectors except for the Electricity and water supply subsector whose ULC has remained relatively the same (see Figure 1). The negative ULC value for the manufacturing sector in 2013 was caused by very high fuel costs in 2013 which increased by four times the fuel costs of the previous year. This increased intermediate costs significantly and ultimately caused value addition to turn negative. The problem of high fuel cost is consistent with the energy shortages experienced in Tanzania in 2013 and its effect went on from negative ULC to very low GCI score in 2013.

[2] The electricity and water activities are in one sector in the TES dataset but are different sectors in the ASIP dataset.

4.0 EMPIRICAL ANALYSIS OF DRIVERS OF FIRM PRODUCTIVITY/COMPETITIVENESS

In this section we identify the drivers of firm level productivity and competitiveness in Tanzania. These were identified from OLS regression of selected productivity indicators against their determinants (see list of dependent and independent variables in Table 1). Table 4 shows the regression results of determinants of firm productivity and competitiveness in Tanzania. Given that our regression has a lot of variables (see Table 4), we present results for only significant variables throughout the analysis for convenience of the reader.

Table 4: Regression results of determinants of Firm Productivity and Competitiveness

Variables	(1) lnvapw	(2) lnTFP	(3) lnulc
lncap_int	0.0531***	0.00476	-0.0131*
	(0.00653)	(0.00655)	(0.00690)
lnage	0.104**	0.101*	-0.0272
	(0.0526)	(0.0528)	(0.0568)
international_trade	0.254*	0.247*	-0.0926
	(0.140)	(0.140)	(0.138)
large	0.485***	0.461***	0.0981
	(0.165)	(0.166)	(0.137)
docc	0.501***	0.493***	-0.241**
	(0.104)	(0.104)	(0.112)
ITU	0.174	0.178	-0.355***
	(0.141)	(0.142)	(0.124)
train	-0.181	-0.189	0.215*
	(0.123)	(0.124)	(0.121)
informal	-0.437***	-0.430***	-0.213
	(0.138)	(0.138)	(0.156)
linkage	0.353***	0.350***	0.125
	(0.105)	(0.105)	(0.110)
loan	0.209**	0.208**	0.0543
	(0.0896)	(0.0900)	(0.0898)
tech transf			
FDI tech_transf	0.304*	0.306*	0.0231
	(0.179)	(0.180)	(0.170)
utility			
insuf_wat_sup	-0.667**	-0.676**	0.201
	(0.291)	(0.293)	(0.329)
sector			
wholesale and retail	0.392***	0.407***	-0.401***
	(0.110)	(0.110)	(0.116)
agri, fores & fish	-0.795***	-0.804***	-0.126
	(0.221)	(0.223)	(0.218)
edu & hum healt	-0.328	-0.333	0.571***
	(0.206)	(0.206)	(0.203)
Region variable added			
Constant	4.42***	-1.069***	-1.768***

	(0.361)	(0.362)	(0.347)
Observations	1,321	1,321	1,155
R-squared	0.325	0.283	0.117
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Source: Author analysis of Tanzania Enterprise Survey Dataset 2022

Table 4 shows that, some variables are significant in both the productivity and competitiveness regressions (VAPW or TFP and ULC), while others are significant in either of the two regressions. For instance, capital intensity (lncap_int), having a business and strategic plan (docc), and operating in certain sectors are significant drivers of both productivity and competitiveness. A 1% increase in capital intensity is associated with 5.3% increase in VAPW and 1.3% fall in ULC. Indeed, higher capital intensity means higher capital to labour ratio which will help to increase productivity and competitiveness. Firms that have a business and strategic plan have 50% and 49% higher VAPW and TFP and 24.1% lower ULC compared to those that do not. Indeed, a business strategy plays a crucial role in the performance of a firm because it identifies where the firm aims to reach and how the firm will get there (Gibus and Kemp, 2003). Firms operating in wholesale and retail trade and repair of motorcycles and motor vehicles sector have 39.2% and 40.7% higher VAPW and TFP and have 40.1% lower ULC compared to firms in manufacturing sector. This shows that the wholesale and retail trade and repair of motorcycles and motor vehicles sector has higher productivity and is more competitive compared to manufacturing sector.

The remaining variables are significant in either productivity regression or competitiveness regression. A 1% increase in firm age is associated with 10.4% and 10.1% increase in VAPW and TFP of a firm which may imply that a firm tends to learn and converge to a more efficient way of operating as time goes on. Firm participating in international trade have 25.4% and 24.7% higher VAPW and TFP compared to those that do not participate in international trade. This is because international trade participation exposes firms to greater competitive pressure, while giving them access to more and better inputs and providing an opportunity to learn from overseas customers. Indeed, similar results have also been observed in Mengistae and Pattillo (2004) and McGregor et al (2013). Large size firms have 48.5% and 46.1% higher VAPW and TFP compared to MSMEs. This is because majority of large firms have characteristics that are highly associated with higher productivity including participation in international trade and high capital intensity among others. Similarly, Van Biesebroeck (2005) concludes that the TFP distributions of large and small African manufacturing firms are significantly different, although he does not indicate by how much large firms are more productive.

Firms operating informally have 43.7% and 43% less VAPW and TFP compared to the that operate formally. This is because the informal firm category mainly picks firms which are small, do not have business and strategic plan and those that do not participate in international trade which makes the category highly associated with lower productivity. Indeed, Diao et al (2018) identified similar features among firms operating in the informal sector in Tanzania and does find low productivity level among firms operating in the sector. Loan and utility accessibility (water) are also observed to be significant drivers of productivity. Firms accessing loans have 20.9% and 20.8% higher VAPW and TFP respectively compared to those that did not access loan while firms facing water shortage have 66.7% and 67.6% lower VAPW and TFP compared to those that do not face water shortage problems respectively. This generally shows the role

of business environment in enhancing firm productivity. Empirical studies on the topic have highlighted that good business environment in the form of good physical infrastructure, favourable and stable business policies to mention a few are important conditions for higher firm productivity (see Rahma et al 2014 and Ezenekwe 2020).

Firms experiencing technology transfer from FDI firms operating in Tanzania have 30.4% and 30.6% higher VAPW and TFP compared to those that did not experience any form of technology transfer. Indeed, technology has gradually become the fundamental factor in determining the long-term development of a firm. The technological development level has a significant impact on a firm's productivity and competitiveness. For enterprises lacking R&D ability and with low technology, technology transfer is an important factor for enhancing firm technology and ultimately productivity. Similar to our results, Zhong (2022) found that technology transfer is an important driver of productivity particularly for firms in developing countries. Firms operating in agriculture, forestry and fishing sector have 79.5% and 80.4% lower VAPW and TFP compared to firms operating in manufacturing sector. It is well known that low productivity is a significant challenge in Tanzania agriculture sector that has originated from low application of good technology or good agricultural practices and low investment in the sector among other factors (see URT 2021). Firms operating in education, human health and social work activities have 57.1% higher ULC compared to firms operating in manufacturing sector.

Tanzania has been putting more effort on the development of industrial sector as a way to promote sustainable development and reach middle income status (see TDV 2025 and URT, 2021). Recognizing such importance and considering that the industrial sector covers a major share of firms in the Tanzania Enterprise Survey Dataset 2022, we examined the determinants of productivity of firms in the industrial sector and provided the results in Table 5.

Table 5: Determinants of Productivity and Competitiveness of Firms in the Industrial Sector

	(1)	(2)	(3)
Variables	lnvapw	lnTFP	lnulc
lncap_int	0.0431***	-0.00517	-0.0101
	(0.0152)	(0.0152)	(0.0126)
female	-0.452	-0.446	0.490*
	(0.283)	(0.283)	(0.252)
large	0.639*	0.611*	0.0532
	(0.344)	(0.346)	(0.271)
docc	0.356	0.348	-0.412*
	(0.247)	(0.247)	(0.243)
fdi	0.657*	0.644*	-0.280
	(0.359)	(0.360)	(0.463)
informal	-0.512*	-0.503*	-0.831**
	(0.302)	(0.302)	(0.348)
loan	0.467**	0.468**	0.0398
	(0.185)	(0.186)	(0.177)
FDI tech_transf	1.119**	1.120**	-0.173
	(0.474)	(0.477)	(0.283)
Constant	4.48***	-1.009	-2.010***
	(0.722)	(0.724)	(0.767)

Observations	301	301	281
R-squared	0.364	0.340	0.257
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Source: Author analysis of Tanzania Enterprise Survey Dataset 2022

Similar to the results of the entire enterprise sector (see Table 5), Table 5 shows that, capital intensity is a significant determinant of firm productivity in the industrial sector. Large firms have higher productivity compared to MSMEs while having a business or strategic plan is associated with lower ULC and being able to access loan is associated with lower higher productivity. Firms experiencing technology transfer from FDI firms have higher productivity compared to those that do not experience technology transfer of any form.

Sone variables were not significant in the enterprise sector regression but became significant in the industrial sector regression and vice versa. For instance, foreign ownership (fdi) is not a significant driver of productivity in the enterprise sector but is a significant driver of productivity in the industrial sector. This may be caused by the difference in the degree of presence of FDI between the two sectors/categories i.e., foreign owned firms constitute 6.7% of all firms in the industrial sector and only 3.1% (approximately two times less) of all firms in the entire dataset. This may also be partly why the productivity incremental effect of technology transfer from FDI firms is greater in the manufacturing sector (more than 100%) than for the entire enterprise sector (approximately 30%). Contrary to expectation firms operating informally have lower ULC compared to those that operate formally. Although VAPW and WPW are significantly higher for formal firms compared to informal ones, VAPW for the former is 8 times larger than the latter while WPW is 9 times larger for the former than the latter. Such wage difference is the reason why ULC for informal firms is significantly lower than that of formal firms.

Women owned enterprises are associated with higher ULC compared to male owned enterprises. This implies that such enterprises are relatively less competitive and this is because women owned firms are relatively more present in the MSME category compared to male owned firms i.e., 92% against 74% respectively; the proportion of women owned firms operating informally is higher than that of male i.e., 28.2% against 17.1%; and the proportion of women owned firms with business and strategic plan is lower compared to that of men owned firms i.e., 41.2% against 56.7% respectively. Indeed, studies (see Hallward-Driemeier, 2013 and Campos and Gasier, 2017) show that women owned firms in SSA have lower performance and lower productivity compared to male owned firm. Such differences can be attributed to differences in size, sector and the level of investment on areas that can improve productivity and competitiveness such as ITU (see Barasa, 2020).

5.0 ANALYSIS OF SELECTED POLICY ISSUES

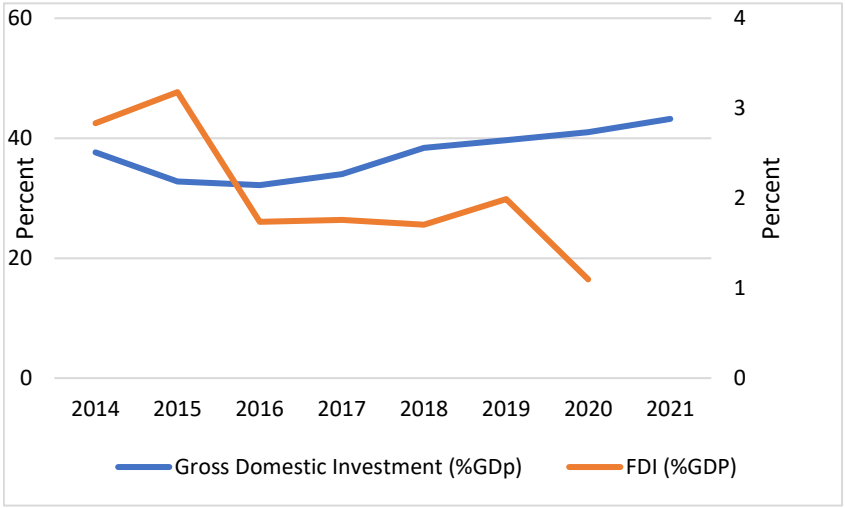
5.1 Overview

From preceding analysis, we have selected several policy issues for further discussion/analysis. Our selection of the issues is both random and based on importance/significance of the issue/factor in the regression analysis. Following, we have selected two key issues for further discussion/analysis including investment and business environment. We discuss each of these in the next sections as follows.

5.2 Investment

Our analysis has shown us the various ways investment can contribute to productivity and competitiveness of firms in the enterprise sector including investment in capital goods for production, investment owned by foreigners (FDI) and through knowledge transfer from FDI firms. Indeed, investment is an important driver of firm productivity and competitiveness as it helps firms improve production processes through buying new machines and tools, train workers – while spending on R&D can spur innovation and help firms find new markets. Public investment schemes such as construction and improvement of transport and communication infrastructure and production and improvement of utility services can enhance connectivity between markets and improve access to utility services and ultimately improve firm productivity and competitiveness. FDI can have positive benefits in terms of increasing the contestability of host markets, improving the performance of local industry and lowering prices. It may contribute directly to the competitiveness of local firms by being the vehicle by which they penetrate international production and marketing networks. Furthermore, technology transfer from FDI reduces the X-inefficiency of the domestic firms and improves productivity of the local firms (See Gorg and Greenway 2004; Smeets 2008).

Figure 2: Annual Gross Domestic Investment and FDI Inflows for Tanzania



Source: World Bank Development Indicators 2022.

Recognizing the importance of investment, the GoT has been implementing various reforms to attract investments including joining Free Trade Agreements (FTA)/ Regional Trade

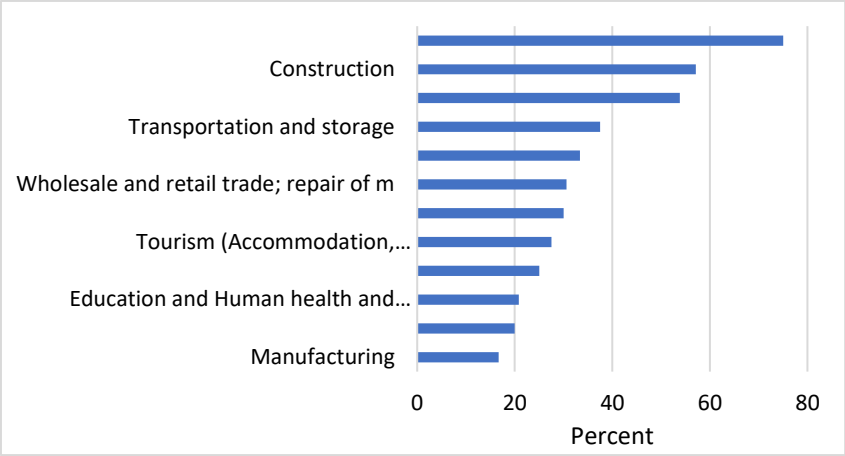
Agreements (RTA) such as Economic Partnership Agreement and African Continental Free Trade Area (AfCFTA), formulation of Special Economic Zones, creating regional investment guides, improving transport and communication infrastructure and implementing Blueprint of economic reforms to create an attractive business environment in Tanzania. Figure 2 shows the trend of gross domestic investment and FDI inflows in Tanzania between 2014 and 2021.

As one can observe, the share of gross domestic investment (currently known as gross capital formation) in total GDP has been increasing reaching 43% in 2021 from 37.6% in 2014. This improvement has been attributed to implementation of private sector friendly policies by the GoT which have then created a good investment environment and subsequently attracted domestic investment. Figure 2 shows that Tanzania net FDI inflows (%GDP) generally declined during 2014-2015 period followed by gradual recovery post 2016 then fell in 2019. In line with this trend, the 2019 World Investment Report reported that while FDI flows to Tanzania increased from USD 938 million in 2017 to USD 1.1 billion in 2018, they have not recovered to pre-2015 levels.

The declining trend post 2015 was consistent with the general global FDI inflow trend exacerbated by large repayment of loans by investors to the related parties and losses retained particularly in the telecommunications as well as electricity and gas sectors (URT 2018). Investors and potential investors note the biggest challenges to investment in Tanzania include difficulty in hiring foreign workers, reduced profits due to unfriendly and opaque tax policies, increased local content requirements, regulatory/policy instability, lack of trust between the GoT and the private sector, and mandatory initial public offerings (IPOs) in key industries. For instance, in 2017, Tanzania approved new regulations in the mining sector that allows the government to tear up and renegotiate mining contracts, partially nationalise mining companies, introduce higher royalties, enforce local beneficiation of minerals and bring in strict local-content requirements, which undermined investor confidence. In 2016, a large deposit of helium gas was discovered in Tanzania, but its exploration work was postponed (WTO, 2019). This is why the annual survey of mining and exploration companies conducted by Fraser Institute in 2017 found that Tanzania's investment attractiveness ranking dropped from 59th in 2016 to 78th in 2017 (Stedman and Green, 2018).

However, the current Government administration has resolved to address these hurdles in lieu of the new Investment policy. Indeed, the GoT is keen to improve business environment and attract more investors both domestic and foreign. In May 2018, the government adopted the Blueprint for Regulatory Reforms to improve the business environment and attract more investors. The reforms, which were developed as a collaborative effort between the Ministry of Industry, Trade and Investment and the private sector, seek to improve the country's ease of doing business through regulatory reforms and to increase efficiency in dealing with the government and its regulatory authorities. The official implementation of the Business Environment Improvement Blueprint started on 2019, though there has been little tangible changes or advancements. A new Business Facilitation Act aimed at implementing key actions from the Blueprint is pending adoption by Parliament.

Figure 3: Proportion of firms that have learned from FDIs



Source: Author analysis of Tanzania Enterprise Survey Dataset 2022

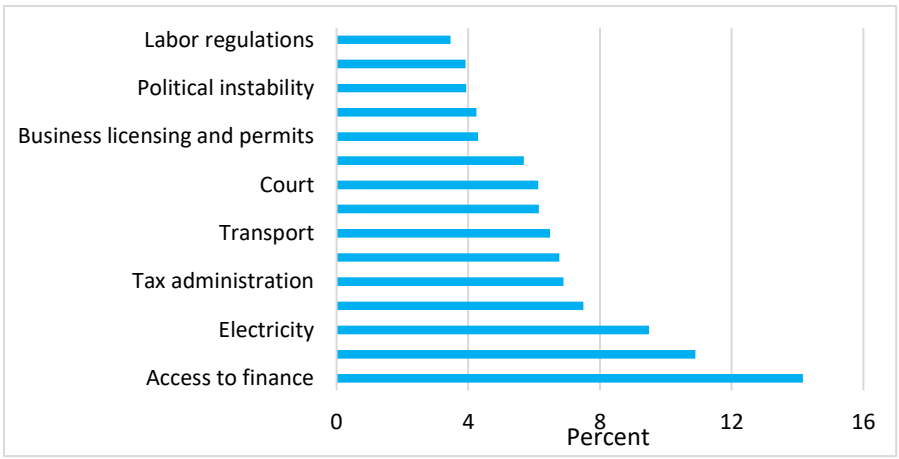
Clearly the extent to which the FDI benefits local enterprises depends on factors internal or external to the firm. However, for technological upgrading to happen, the FDI firm has to have sufficient technological capacity, and that strong linkages have to exist between local firms and FDI (e.g. forward and backward linkages through buying and selling). Such linkages would promote technology transfer and innovation to local firms through learning by seeing and imitating, and through the labor movement. Indeed, our empirical analysis showed that there are significant productivity gains from learning from FDI firms in both the overall enterprise sector and the manufacturing sector. Zooming in the TES 2022 dataset, we find that firms that have experienced knowledge transfer from FDI firms are more present in professional, construction, transportation and storage sectors while manufacturing sector, public administration and education and human health sector had the least presence of firms that have learned from other FDI firms (see Figure 3).

5.3 Business Environment

The literature has identified business environment as one of the key factors that contribute to firm performance and overall country development (Stern 2002, World Bank 2005, World Bank 2010). This is because business environment provides the framework where firms interact, trade, and compete. It includes not only the basic legal structure, but also other city characteristics that can affect firms' performance, such as human capital or agglomeration economies. The same firm in a different environment will probably experience different challenges that can affect its productivity levels and outcomes. Similarly, our results have shown that business environment factors particularly access to utility and finance/loans are important drivers of firm productivity in the enterprise sector. Indeed, the TES 2022 enquired about the various business environment challenges faced by firms in their operations. As it can be observed in Figure 4, access to finance, tax rates and electricity were the top 3 challenges faced by Tanzanian firms in the enterprise sector in 2021 while political instability, inadequately educated workforce and labour regulations were the least severe challenges.

In addition, we sourced another enterprise dataset (for Tanzania) from the World Bank[3] to identify business environment challenges faced by Tanzanian firms in the enterprise sector in

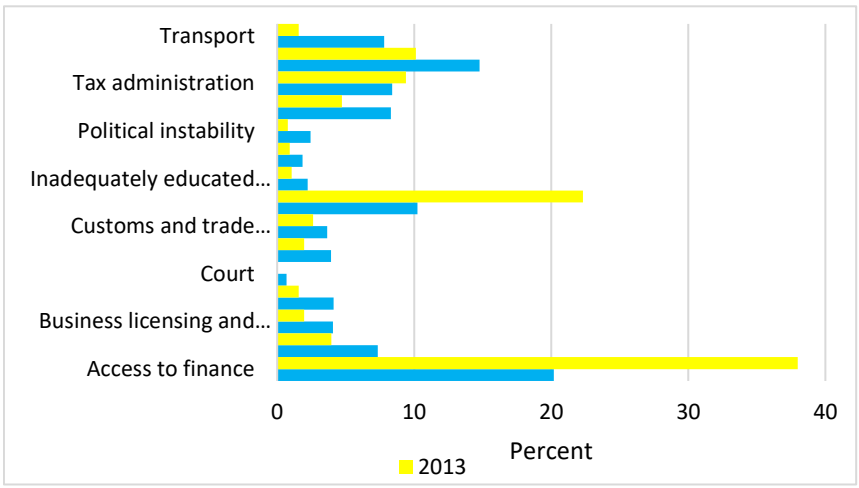
Figure 5: Business Environment Challenges facing firms in Enterprise Sector in Tanzania 2021



Source: Author analysis of Tanzania Enterprise Survey Dataset 2022

previous years and identify any changes that have occurred between previous years and now. However, the World Bank Enterprise Survey dataset covers only the manufacturing and services sectors – such that our comparison will only cover those particular sectors. Essentially, we want to compare the proportion of firms identifying different business environment challenges in 2013 and in 2021 and identify areas where there have been improvement and those without improvement.

Figure 4: Business Environment Challenges among firms in Manufacturing and Services Sectors



Source: Author analysis of WBES 2013 and TES 2022 Datasets

Figure 5 shows improvement in only three areas of business environment i.e., electricity, access to finance and tax administration i.e., these areas have been identified by a lower proportion

[3] The World Bank Enterprise Survey data is a firm-level survey data of a representative sample of an economy's private sector. The surveys cover a broad range of business environment topics including access to finance, corruption, infrastructure, crime, competition, and performance measures. The surveys have been conducted since 2002 by different units within the World Bank. Since 2005- 06, most data collection efforts have been centralized within the Enterprise Analysis Unit.

of firms in 2021 than in 2013 (as business environment challenges). This is not surprising given that the GoT has made improvements in corresponding areas including the introduction of online systems for tax payments and implementation of financial inclusion frameworks. For instance, electricity access in Tanzania increased from 7% in 2011 to 37.7% in 2020 over the past decade, one of the fastest access expansion rates in Sub-Saharan Africa (World Bank, 2022). This rapid increase in access has been attributed to several factors, including a strong political commitment and support for the rural electrification expansion programs, the introduction of a petroleum levy to finance the NREP; and reductions in connection fees and service charges that were first introduced in 2013 (World Bank, 2022).

To enhance access to finance, Tanzania came up with the first financial inclusion framework in 2013 (NFIF 2014-2016). The first NFIF focused on addressing the fundamental broad barriers that constrain financial inclusion in Tanzania by establishing a broad and robust infrastructure to support growth of appropriate financial services and use of technologically driven delivery channels. The Framework targeted access to formal financial services for 50% of adults by 2016. As a result of implementing the NFIF, the adult population using formal financial services improved from 16.7% in 2009 to 65.3% in 2017 while population that is financially excluded declined from 56% in 2009 to 27.9 in 2017. Tanzania is currently implementing the second NFIF (2018-2022) which essentially builds on the first framework. The spirit of the second framework is to advance the vision of NFIF1 so that financial products and services meet the needs of individuals and businesses consistent with supporting livelihood improvement, household resilience and creation of jobs. Given the remarkable progress the country has made in expanding the opportunities for people to access financial service, the second Framework focused on usage of financial services as the next phase of Tanzania's financial inclusion journey (URT, 2017).

On the other hand, transportation, access to land, corruption, crime, theft and disorder, political instability, tax rates, business licensing and permits, labour regulations and inadequately educated work force challenges have all worsened. Surprisingly, transportation has worsened despite the government's efforts to improve both road and railway infrastructures across the country. We believe this is more to do with the recent global fuel price rise which translated to high transportation costs.

6.0 CONCLUSION AND POLICY IMPLICATIONS

This study examined the level of productivity and competitiveness of enterprise sector in Tanzania and analysed firm level drivers of the same. The following findings emerged from the analysis:

One, different enterprise sectors have different level of productivity and competitiveness. We find that sectors which pay relatively high wages such as for transport and storage and wholesale and retail traders and repairs sectors also create the highest value added – while those that pay low wages such as mining and quarrying, arts and entertainment, ICT, public administration and services also generated relatively low value addition. This is why governments and other development actors in developing countries emphasize on moving towards high value addition activities to help increase individual incomes and reduce poverty. Based on ULC indicator, mining and quarrying, wholesale and retail traders and repairs, financial and insurance activities, construction and transport and storage sectors were found to be cost competitive while ICT, electricity, education and human health and public administration and public activities were found to not be cost competitive.

Two, some firm level characteristics (aside from sector) such as exporting, operating formally and male owned businesses have higher ULC compared to firms in the opposite categories i.e., non-exporting, informal and women owned businesses. Part of the reason for high ULC for exporting firms is the very high wages paid although they also create more value addition than non-exporting firm. Informal firms are found to have relatively low ULC because their category is picking up a lot of small firms the latter of which has the lowest ULC compared to medium and large sized firms, majority of which are formal. Although women owned firms are relatively more cost competitive, they are found to pay lower wages and create lower value added than men owned enterprises.

Three, our regression analysis found that higher capital intensity and having a business and strategic plan is associated with higher productivity and competitiveness in the enterprise sector. Furthermore, firms operating in wholesale and retail sector have significantly higher productivity and are more competitive compared to those operating in the manufacturing sector. Having access to loans and participating in linkages were associated with higher productivity while operating informally and insufficient supply of utility were associated with lower productivity. Firms operating in agriculture and education sectors had lower productivity compared to those in manufacturing sector. When we focus our analysis on the industrial sector, we some variables that were insignificant initially (enterprise sector regression) such as foreign ownership (FDI), became significant. This shows that FDI is especially important for productivity growth in the industrial sector, a finding common in many literatures. Similar to many other studies, women owned enterprises in the industrial sector are found to be less cost competitive compared to male owned enterprises.

Following our findings, we propose the following recommendations: one, address business environment challenges particularly relating to utility and access to loans. This will help to enhance productivity of the enterprise sector in Tanzania. Furthermore, the government should continue and strengthen implementation of blueprint action plan and increase participation in Regional Trade Agreements/Free Trade Agreements such as AfCFTA and EPA

to address the declining trends to FDI in Tanzania. Ultimately, this will increase investment and thus enhance productivity and competitiveness in Tanzania. Two, the government should encourage creation of business linkages and knowledge transfer. This can be done by increasing investment public technology intermediaries which can help firms in the enterprise sector find opportunities for creating linkages. Furthermore, the government should encourage and strengthen the role of sector associations in finding opportunities for members to create beneficial business linkages. Our findings imply the need to improving the quality of education and skills by increasing investment in the capacity of TVETs to help improve the skills of graduates and firms acquire high quality labour and enhance the ability to receive and adopt knowledge. Three, implement measures to strengthen the capacity of firms and their opportunities to participate in international trade and increase. This includes enhancing awareness of firms on potential export markets and requirements, participating in different trade agreements and continuing to address non-trade barriers.

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