



## Analysis of the Influence of High Technology Export to the Industry in Tanzania (2011-2017)

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### Abstract

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Recent studies in Tanzania explore that high - tech manufactured exports in total manufactured exports, have deteriorated when measured by the CIP index. Regarding that fact, the present study is undertaken to assess the influence of High Technology exports to the industry from 2011 to 2017 in Tanzania. The study considers a simple regression method to assess and answer whether the High technology exports have influence on the industry or not. Because the other studies have been done in the period from 1966 to 2011, the World bank data for the period from 2011 to 2017 were applied by the study to assess the influence of high technology export to industry in Tanzania. During the process of evaluating the influence of high technology export to the industry in Tanzania, the study assumes high technology export to be the independent variable while the industry to be a dependent variable of the study. The findings of the study were quite interesting. The findings of the study revealed that there is a significant positive relationship between High technology export and industry GDP during the period from 2011 to 2017 in Tanzania. The results indicate that high technology exports have significant influence on the overall industry during the period from 2011 to 2017 in Tanzania.

#### Key Words

High Technology export  
Industry  
Influence

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### 1. Introduction

The Tanzania manufacturing sector performance and its contribution to the country's Gross domestic productivity is considered to be very low and less productive in comparison to the greatness of the sector towards transforming the of the entire economy. It was insisted that, “In Tanzania the performance of industry, and manufacturing in particular, is still perceived as weak compared with its potential growth and contributions to GDP, exports and employment creation” [1].

Tanzania manufacturing sector had gone through several challenges, mostly the challenge of infrastructure stand as the serious obstacle towards the transformation of the sector since Tanzania obtained its independence. It clearly identifies these challenges of the manufacturing sector to Tanzania, stating that, “The main factors restraining the manufacturing export performance and hence regional competitiveness are comparatively poor infrastructure. Tanzania is behind Kenya and, to some extent, Uganda when it comes to development of infrastructure factors such as roads, railways, air transport and telecommunications” [2].

The Tanzania manufacturing sector contribution to the country's gross domestic product is recorded to be

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behind the contribution of the agriculture and tourism sector in the country, which believed to be very poor and insignificant to transform the country to industrialization. It was clarified that, “The contribution of the manufacturing sector to the overall GDP of the country has averaged 8% over the last decade, however activities within the sector have been registering an annual growth of over 4% and the sector is currently the third most important to the Tanzania economy behind agriculture and tourism”[3].

Despite the Tanzania manufacturing sector contribution to the country Gross domestic product is low; the most interesting matter is the high-tech products contribution to the manufacturing sector which seems to decline continuously. Having these poor trends of high-tech products to contribute to the decline of manufacturing in Tanzania, in Tanzania no studies have been done to investigate the influence of the high-technology exports to the manufacturing sector.

### 1.1 Motivation and Objective of the Study

Recent studies in Tanzania explore that high-tech manufactured exports in total manufactured exports, have deteriorated when measured by the Comparative Industrial Performances (CIP) Index. “Tanzania needs to promote manufacturing of medium- and high-tech products. The shares of medium and high-tech MVA in total manufacturing, and medium- and high-tech manufactured exports in total manufactured exports, have deteriorated when measured by the CIP index” [1]. The deterioration of the high-tech manufactured exports pushed the study to investigate the influence of the high technology exports to the industry during the period from 2011 to 2017 in Tanzania.

### 2.0 Literature Review

The Tanzania manufacturing sector performance and its contribution to the country’s gross domestic productivity is considered to be very low and less productive in comparison to the greatness of the sector towards transforming the entire economy. In Tanzania the performance of industry and manufacturing in particular, is still perceived as weak compared with its potential growth and contributions to GDP, exports and employment creation [1].

The Tanzania manufacturing sector contribution to the country's gross domestic product is recorded to be behind the contribution of the agriculture and tourism sector in the country, which was believed to be very poor and insignificant to transform the country to industrialization. The contribution of the manufacturing sector to the overall GDP of the country has averaged 8% over the last decade, however

activities within the sector have been registering an annual growth of over 4% and the sector is currently the third most important to the Tanzania economy behind agriculture and tourism [3].

Literature pointed out the serious weakness of the Tanzania manufacturing sector as the sector is completely out to the Tanzania development history which believed to be the abnormal situation towards the industrialization agenda of the country. Tanzania ranks among the leading stars of the ‘African growth miracle’, but a sector that has been largely absent from the Tanzania success story is industry [4].

Tanzania's manufacturing sector has gone through several challenges, mostly the challenge of infrastructure stands as the serious obstacle towards the transformation of the sector since Tanzania obtained its independence. It clearly identifies these challenges of the manufacturing sector to Tanzania, stating that, “The main factors restraining the manufacturing export performance and hence regional competitiveness are: Comparatively poor infrastructure. Tanzania is behind Kenya and, to some extent, Uganda when it comes to development of infrastructure factors such as roads, railways, air transport and telecommunications [2]

The Tanzania manufacturing sector despite facing difficult obstacles including the long term challenges of the infrastructure the sector also has the fruitful side story where in the last decade the sector share of the manufactured goods doubled, As far as Tanzania’s export structure is concerned, a positive story is starting to emerge. Tanzania has more than doubled the share of manufactured goods within exports in the last decade [5].

In order to pilot the recent Tanzania development activities, it has suggested that the role of the policies is inevitable and of top priority. It was insisted that the current development agenda, however, has brought industrial development back to be one of the policy priorities [6].

For the sustainable growth of the Tanzania manufacturing sector it has been suggested that measures should be undertaken to diversify the export from not depending on the few products with low value addition and having the serious price fluctuation in the market. Tanzania Industry Competitive Report reported that, “In fact, the current reliance of industrial growth on a few products that have low value addition and high price fluctuation calls for measures to diversify the export basket to lower the economy’s vulnerability and to sustain growth [7].

The Tanzania manufacturing sector showed a good upward trend of growth and contribution in the year from 1961 to the year of 2014. It was revealed that the overall performance of export of Manufacturing shows an upward trend in nominal terms from USD 13.24 million in 1961 to USD 1,239.6 million in 2014 [8].

The Tanzania manufacturing sector counted to be the least developed among the African nations; however, recent sector performance shows the sector has gradually started to show the good direction [9]. The manufacturing sector in Tanzania is one of the least developed in Africa. However, strong and positive signs of recovery and growth have been observed over the last decade. The continued globalization of the world economy has been accompanied by generally rapid growth in international trade over much of the past few decades. [10].

Despite having the poor contribution to the national gross product the Tanzania manufacturing sector benefited from adopting the new technological capabilities from the foreign firms in Tanzania. It was described that, “Specifically, the study attempted to determine the extent to which the Tanzanian manufacturing sector has acquired technological capabilities as a result of the presence of foreign firms [11].

### 3. Methodology

The present study was undertaken to assess the influence of high technology exports to the industry from 2011 to 2017 in Tanzania. The study used Simple Regression method to assess and answer whether high technology exports have influence on the industry or not. Since, other studies have been done in the period of 1966 to 2010; the World Bank time series data from 2011 to 2017 were applied by the study to assess the influence of high technology exports to industry in Tanzania. During the process of evaluating the influence of high technology export to the industry in Tanzania the study assumed high technology export to be the independent variable while the industry to be a dependent variable of the study.

To assess the Influence of high technology exports to Industry GDP from 2011 to 2017 in Tanzania, the study formulated the following equation:

$$\ln Y_t = \alpha_0 + \beta_1 \text{H.T.E}_t + \dots \dots \dots (1)$$

Where,  $\ln Y$  is the natural log of Dependent Variable, H.T.E is High Technology Export. The  $\alpha_0$  is constant, and  $\beta_1$ , is the coefficient parameter.

The Influence of High Technology Export to Industry GDP is estimated by:

$$\text{INGDP}_t = \alpha_0 + \beta_1 \text{H.T.E}_t + e_{2t} \dots \dots \dots (2)$$

Where,  $\text{INGDP}_t$  is the natural log of Industry GDP.

### 4. Empirical Results and Discussion

To assess the Influence of high technology export to Industry GDP, the Study considered Descriptive and Analytical Quantitative Techniques to achieve the desired results.

The Influence of the High Technology Export to the Industry the results of the regression analysis show that there is a significant positive relationship between high technology export and Industry GDP from 2011 to 2017 in Tanzania. The Results are statistically significant with R-Squared 0.3542 having significant at the 1 percent critical value. The coefficient for high technology export is 0.09 ( $t=1.97, p<.001$ ). This Implies that for each additional increase in high technology export, Industry GDP increases by 0.09 points. The results indicate that high technology exports have significant influence on the overall Industry during the period of 2011 to 2017 in Tanzania (Table 1).

Table 1. Regression Results Between High Technology Export, and Industry GDP during from 2011 to 2017.

Variables	C	SD	t- value	P
H.T.exp	0.09	0.04573	1.97	0
C	24.83			0
R-squared	0.3542			
Adjusted r-square	0.28			
S.E.of regression	0.4			
Number of observation =7				

C-Co-efficient; SD-Standard Deviation; P-Probability  
Source: Appendix 2

### Appendix 01: Tanzania’ High technology export, and Industry GDP for the period from 2011 to 2017 in Tanzania (Source: World Bank)

Year	H.T.Exp-X	Ind Gdp-Y
2011	5.904	26.382
2012	11.35	25.399
2013	6.722	25.447
2014	3.387	25.142
2015	0.853	24.487
2016	2.32	24.858
2017	2.565	25.1
Sum	33.101	176.815

### 4. Summary of the Findings

The findings of the study revealed that there is a significant positive relationship between high technology export and Industry GDP from 2011 to

Appendix 02: Regression Calculations between High Technology Exports, and Industry GDP from 2011 to 2017 in Tanzania.

Year	H.T.Exp-X	Ind Gdp-Y	X <sup>2</sup>	Y <sup>2</sup>	XY
2011	5.904	26.382	34.857216	696.009924	155.759328
2012	11.35	25.399	128.8225	645.109201	288.27865
2013	6.722	25.447	45.185284	647.549809	171.054734
2014	3.387	25.142	11.47179	632.120164	85.155954
2015	0.853	24.487	0.727609	599.613169	20.887411
2016	2.32	24.858	5.3824	617.920164	57.67056
2017	2.565	25.1	6.579225	630.01	64.3815
Sum	33.101	176.815	233.026024	4468.332431	843.188137

(Source: Calculated by Author from Appendix 01).

2017 in Tanzania. The results indicated high technology exports have significant influence on the overall Industry during the period 2011 to 2017 in Tanzania.

**5. Conclusions**

The present study was undertaken to assess the influence of high technology exports to the Industry from 2011 to 2017 in Tanzania. The findings of the study revealed that there is a significant positive relationship between high technology export and Industry GDP during the period 2011 to 2017 in Tanzania. The results indicated high technology exports have significant influence on the overall Industry during the period 2011 to 2017 in Tanzania.

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