

Export Diversification and Poverty Reduction in Tanzania

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Abstract

The objective of the study was to explore the role of export diversification in poverty reduction strategies following recent growth of non-traditional exports and its perceived potential to contain poverty in Tanzania. Real income per capita growth was used to proxy poverty reduction. Applying Toda and Yamamoto (1995) causality test model on time series yearly data (1980-2015), the results show the existence of a uni-directional causal relationship between horizontal export diversification and income per capita growth in Tanzania. The relationship between vertical export diversification and income per capita growth was found to be insignificant. The possible explanation is country's weak industrial base. Drawing lessons from East Asia and some other African countries, it was found that deep horizontal export diversification and vertical export diversification were significant factors in enhancing income per capita growth. However, in East Asia income per capita growth led by vertical export diversification was more impressive than that of horizontal export diversification in addressing poverty. Thus, the study argues that export diversification could contribute towards poverty reduction initiatives in Tanzania. However, to enable it generate significant impacts in form of reduced poverty an integrated package of policies and strategies need to be put in place in order to spearhead both deep horizontal and vertical export diversifications in Tanzania.

Keywords: Export Diversification, Vertical Export Diversification, Horizontal Export Diversification, Poverty, Income per Capita

JEL Classification: F43

1. Introduction

International trade plays an important role in accelerating economic growth and poverty reduction in developing countries though many developing countries are constrained by the export structure that is heavily dependent on one or a few primary export products. Economists such as Singer (1950), Myrdal (1957), Presibich (1959), among others viewed the then pattern of international trade as actually being detrimental to development prospects of developing countries.

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Their thesis was essentially that secular decline of international prices for primary commodities on which developing countries were mostly dependent for export and income led to the growing gap of incomes between developing and developed countries. This realization led many developing countries to pursue export diversification strategies and today it has become a priority goal in many developing economies. By increasing the number of export sectors, export diversification can reduce the dependence on a limited number of commodities that are subject to extreme price and volume fluctuations. Such swings in foreign exchange revenues may hamper efforts at economic planning, reduce import capacity, and contribute to an undersupply of investment by risk adverse producers (Dawe, 1996). Apparently in Africa, strong export performance does not mean only high export growth, but also increased diversification from low value added activities (such as the export of unprocessed commodities) to higher-value-added ones. Such diversification lowers the volatility of growth through a reduced vulnerability of exports to external shocks². Thus both the range of goods and the types of goods exported appear to be important for development as UNCTAD (2002), estimates that the changes in the incidences of poverty in LDCs from the early 1980s to the late 1990s were significantly dependent on the main category of exports. For example, poverty as measured by the percentage of people living on less than US\$1 a day, rose sharply over the period in both non-oil commodity exporting LDCs (from 63% to 69%) and in mineral exporters (from 61% to 82%). It declined in manufactures exporters (from 30% to 25%), even excluding Bangladesh, the most significant LDC manufactures exporter (from 48% to 44%). The rise in poverty in non-oil commodity exporters is related to the declines in the prices of many commodities over the period. Thus; decreasing export instability through horizontal export diversification may provide significant development benefits.

Tanzania's economy resembles of many Sub-saharan African countries, it is dominated by the agriculture sector. The economy has been characterized by two distinct economic structures, comprising a traditional rural sector and a modern urban sector. The rural sector is much concerned with the production of food and cash crops, whereas the modern urban sector, which is relatively small, is concerned with manufacturing and service activities (Mwakalobo, 2009). Dependency on agriculture as the mainstay of the economy makes a large share of country's merchandise export earnings from the agriculture sector. However, evidence shows that in many African countries, commodity dependent economies exhibit lower growth prospects. This happens as a result of both the unfavorable world demand side and the low-income elasticity of demand for primary

² Exports, FDI and Competitiveness in Africa Report (2010)

commodities. On the supply side, the combined effects of lower skills and technology contents of commodity production and its negligible linkages with the rest of the economy would result in lower growth (Bonaglie and Fukasak, 2003).

Henceforth, one of the policy packages proposed to least developing countries is to minimize the degree of export dependency on agricultural products of a country through diversification of the export portfolio. Coffee, cotton, tobacco, tea, sisal and cashew nuts remained the Tanzanian's largest export crops since independence. However, from the late 1980s Tanzania experienced tremendous problem for the almost all traditional agricultural export crops, as world market prices declined causing a substantial drop in the contribution of export earnings by the agricultural sector from 50% in the mid 1990 to a mere 23% in year 2002 (Mlula, 2003). Fall of traditional exports prices is among the factors that have caused the contribution to export earnings from agricultural sector to decrease from 50% in the mid -1990s to just over 20% since 2000 (Aman, 2005). This bad performance has been associated with dependence in a limited range of traditional products for exports. To reverse the trend, the government towards the mid of 1980s began to implement numerous policies and structural reforms seeking to expand and diversify the country's exports. Among the reforms implemented is the Economic Recovery Program (ERP). Additionally, a series of incentives were used to attract foreign direct investment (FDI). This is because a more diverse structure of exports reduces vulnerability to demand shocks and price swings in overseas markets. As a result of those reforms, recently non-traditional exports have taken over the dominant share once enjoyed by traditional exports (largely coffee, cotton, tea, tobacco, sisal and cashew nut). The export of non-traditional products has increased in both volume and value. However, examination of the post reform economic performance in Tanzania shows three interesting facts. First, economic growth improved significantly since the adoption of economic reforms. In recent years, the economy has been growing at about 7% average per year up to 2016. Secondly, there is an impressive macroeconomic stability illustrated by a significant reduction in the inflation rate to a single digit levels since 2013 to 2017. Finally, although the government has put in place an elaborate policy framework for poverty reduction (Poverty Reduction Strategies), the macroeconomic achievements have not resulted in significant poverty reduction in the country; statistics indicate that out of every 100 Tanzanians, 36 were poor in 2000/01 compared to 34 in 2007. Income poverty (basic needs and food poverty) varied across geographical areas, with the rural areas being worse off. Rural growth proxied by growth of the agricultural sector was about 4.5 percent on average. When this growth is contrasted with the national population growth rate of 2.9 percent, the change in rural per capita income becomes small, thus perpetuating poverty in rural areas. The situation raises concerns and debates on

whether or not a more diverse economic and export structure can contribute to poverty reduction in Tanzania. Hence, the main objective of the paper is to unveil the relationship between export diversification and income per capita growth in Tanzania and it highlights lessons that can be drawn from East Asia and few selected African countries.

2. Literature Review

Dennis and Shepherd (2007), define export diversification as widening the range of products that a country exports. Export diversification has different dimensions and can be analyzed at different levels (Ali *et al*, 1991). There are two well-known forms/dimensions of export diversification from the supply side that may take place in developing countries, namely, horizontal and vertical export diversifications. Matthee and Naude (2007), define horizontal export diversification as an increase in the number of export sectors i.e from traditional exports to non-traditional exports, and vertical diversification as a shift in the composition of exports from primary to manufacturing products. Vertical export diversification, occurs when the composition of exports shift from primary product to manufactured products (Matthee and Naude 2008). Vertical export diversification also contributes to stabilization in export earnings, as the prices of manufactured exports do not fluctuate as much as those of primary exports (Ali *et al* 1991). There is no conventional or universal definition of traditional and non-traditional exports, different researchers and scholars give their definition depending on their studies. For instance, Semogerere and Kasekende (1994: 3) defined “traditional exports” as commodities that constituted the export structure of the colonial period such as coffee, cotton, copper, tea etc. while non-traditional exports are all other commodities that sprang up after independence such as agricultural raw materials, horticultural products, processed food staffs etc.

Why it is beneficial for a country to diversify exports? According to (Ghosh and Ostry, 1994) diversification makes countries less vulnerable to adverse terms of trade shocks by stabilizing export revenues. Ali, Alwang and Siegel (1991) argue that a broad export base lowers instability. This in turn leads to economic growth and eventually poverty reduction. However, the relationship between economic growth and poverty reduction still remains controversial. Irrespective of the various competing views on how economic growth can benefit the poor there is nonetheless little dispute that the poor are relatively better off in well performing economies. While some have claimed that economic growth is necessary but not sufficient for poverty reduction, there is evidence to suggest that economic growth tends to be accompanied with improved livelihood, in particular for the poor (Mboghoina, 2008). Exports form an important source of economic growth. Exports play a strategic role in determining national income, rate of saving and

capital formation, and in the process of economic development programs. Instability of export earnings has very damaging effects on both the internal stability and economic growth of underdeveloped countries. It has adverse effects upon the level of investment and upon planning of economic development. Diversification of a country's export basket is often seen as desirable for stabilization of export earnings and for stimulating diversification led growth by allowing a country to benefit from growth in different sectors of the world economy and hence poverty reduction.

There are two different ways in which researchers define poverty: absolute poverty and relative poverty. Absolute poverty refers to the situation in which a person lacks those things that help to sustain human life. The lack basic human needs, such as food, shelter and clothing. This form of poverty is still prevalent in many third world countries. Relative poverty refers to the situation in which a person lacks the necessary resources to enable them to participate in the normal and desirable patterns of life that exist within a given society at a given time. For example, if you cannot afford to have a cooked meal then you may not be in absolute poverty but you are certainly in relative poverty. According to Winters *et al.* (2004), "in the long run economic growth is the key to the alleviation of absolute poverty. It creates the resources to raise incomes, and governments will have scope for stronger redistributive measures when income is higher and growth is faster" and according to Ravallion and Chen (2003), the growth process can be said to be pro-poor if it reduces poverty, a more qualified definition is that growth is pro-poor, if in addition to reducing poverty, it also decreases inequality. Chandra *et al.* (2007) argue that policy makers look diversification as a source of growth, especially when the size of domestic market is small and the existing export basket is concentrated in products that face an inelastic demand in such circumstances diversification into non-traditional exports opens up new opportunities and markets for firms and farmers and where exports are vulnerable to external shocks, it contributes to economic growth by dampening the volatility of export growth. However, according to Chickhasu (2007), for many developing countries and as a part of an export led growth strategy, export diversification is conceived as the progression from traditional to non-traditional exports (extensive margin of exports). By providing a broader base of exports diversification can lower instability in export earnings, expand export revenue, upgrade value added, and enhance growth through many channels, including improved technological capabilities via broad scientific and technical training as well as learning by doing, facilitation of forward and backward linkages within output of some activities which then become input of the other activities, increased sophistication of markets, scale economies and externality, and

substitution with commodity of positive price trends for those with declining price trends.

2.1 Export Diversification and GDP per capita

A number of studies show that greater diversification is correlated with more rapid growth of per capita income. For example, Funke and Ruhwedel (2001), found that export diversification is important not only for developing countries, but it is also positively related to per capita GDP and Total Factor Productivity (TFP) growth in OECD countries, most researchers would agree that export diversification matters for economic growth and it is especially important for developing countries (Pacheco and Pierola, 2008) to attain three interrelated objectives: stabilizing earnings, expanding export revenues, and upgrading value-added. Hasan and Toda (2004) investigated the export diversification and its impact on economic growth using linear growth model. They specified the model and captured the notion of export diversification through variable such as the growth rate of aggregate non-traditional commodities that representing vertical diversification and the growth rate of aggregate traditional commodities representing horizontal diversification of the growth rate of total exports. They estimated for Bangladesh, Nepal and Malaysia. The results obtained for both Bangladesh and Nepal, show that vertical diversification variable measured in terms of aggregate growth rates of non-traditional export commodities is statistically significant, at the same time the horizontal diversification variable measured in terms of aggregate traditional commodities have no statistically significant impact on total export growth. While in the case of Myanmar neither vertical nor horizontal export diversification produced any significant impact on total export growth. For Malaysia both non-traditional (vertical diversification) and traditional (horizontal diversification) export commodity variables have a statistically significant impact on total export growth. Then they conclude that, for Bangladesh and Nepal vertical diversification strategy has certainly boosted their total export. Malaysia relied on balanced approach strategy; that is, horizontal and vertical diversification to augment its total exports growth. Agosin (2005) conducted a cross country study on export diversification and growth in emerging economies, by developing and testing a model of growth that emphasizes the introduction of new export as the main source of growth in countries that are far within the world technological frontier and that depend for growth on adapting existing products to their economic environment. The results reveals that the effects of export diversification on growth in a group of Latin American and Asian countries after controlling for other variables that affect growth, export diversification alone and in interaction with per capital export volume growth is highly significant in explaining per capita GDP growth over the 1980-2003 period.

Similarly, Kenji and Mengstu, (2009), Hesse, (2008), Rossouw and Naude (2008), Hausmann, Hwang, and Rodrik (2006), and Hausmann and Klinger (2006), Hausmann and Rodrik (2003), analyze the benefits of export diversification and exports in general for economic growth, both empirically and theoretically. In their framework, economic growth is not driven by comparative advantage but by countries' diversification of their investments into new activities. An essential role is played by the entrepreneurial cost-discovery process. According to Rossouw and Naude (2008), during the 1980s and 1990s four further strands of literature stressed the potential benefits of export diversification for economic development. One strand proposed that countries should produce and export goods for which the world demand is increasing, and that irrespective of whether or not a country produces primary goods or manufactured goods, it is this compatibility with world demand that will determine the extent to which a country's exports will grow. This strand of literature is strongly based on the view that exports is good for economic growth, and that export-led growth (as experienced by Japan and the East Asian Tigers) is the most appropriate development path for the developing world. In this view export diversification's impact is conditional on the type of goods, and its consistency with world demand, that are exported. According to Kenji and Mengstu (2009), in their empirical study on factors explaining the gap between sub-saharan Africa and East Asians Performances, their results show that vertical export diversification played a vital role to induce economic growth in the case of East Asia. East Asia success was highly attributed by their huge investment on human capital through education and the high rate of physical capital accumulation mainly driven by Foreign Direct Investment (FDI), conversely, the level of human capital (skilled) and physical capital including FDI in Sub-Saharan Africa has been under the threshold level in playing a positive role to materialize significant export diversification and structural change in the economy. Further argue that horizontal export diversification by non-traditional dynamic exports such as cut flower as it has started recently in Kenya, Uganda and Ethiopia to supplement or partially replace the traditional exports like coffee and tea.

2.2 Lessons from East Asia and some few selected African Countries

There some countries with remarkable successes in export diversification in East Asia and Africa. These include Malaysia, South Korea, Taiwan, Chile, Mauritius, and Tunisia, to mention a few. Malaysia's success in developing export-led agribusiness is underscored by broad development planning and sector-specific intervention in identifying and assisting promising commodity sectors carry out science-based development and diffusion of products in demand by international markets. In terms of diversification, its palm oil industry offers a diverse variety of

products, by-products and downstream products. Within the palm oil value chain, up to 100 products made up a total export value exceeding \$6 billion in 2006. Currently, new high-value crops are being experimented with for similar development, including bio-fuel crops. The widely held view that East Asia's success in economic growth for the last three or four decades was mainly based upon structural transformations by shifting from the production and export of low return primary products to high return and demand elastic export products, mainly in the manufacturing and service sectors, i.e. vertical diversification. For instance, one percentage increase in the share of manufactured products in total exports may contribute to a more than 6.5 percent increase in GDP per capita growth in East Asia. Rodrik (1995) provides some arguments, suggesting that exports in East Asia may have been driven by increase in investment profitability, with outward orientation a consequence of the investment boom rather than its instigator. Rodrik argues the following: first the investment booms in Korea and Taiwan in the 1960s required a proportionate increase in imports (also as a percentage of GDP). However, if a country faces a disadvantage in producing capital goods coupled with restrictive international borrowing exports must rise to pay for imports. Secondly as long as savings increase then increasing trade orientation will be observed alongside investment boom. He goes further to provide evidence to suggest that the relationship, in the case of Korea and Taiwan, ran from investment to imports and from imports to exports. The third argument, also put forward by Rodrik *et al* (2005), relates directly to the link between exports and economic growth. In this argument, the authors point out that what an economy exports is superior to simply the expansion in export volume. Using an indicator that captures the productivity level associated with a country's export basket, Rodrik *et al* show that countries that export goods associated with higher productivity, such as hi-tech manufactured goods, tend to perform better, even after controlling for other country specific characteristics.

The Chilean economic boom and high degree of diversification owe much to market-friendly and sound macroeconomic policies that created the environment for attracting investment in mining. Another important aspect of this success story is an innovation strategy to harness high-value agricultural products – such as wine, fisheries, and fruits and vegetables offered by Chile's unique ecosystem. The Government established several institutions, including State-owned enterprises and professional associations that worked together with government agencies to design and oversee development strategies for the mining sector. Chile maintained macroeconomic stability in the face of variations in mineral export revenues and an investment boom in mining. It achieved high growth rates and was able to diversify to the point of exporting to 177 countries up to 3,800 products, including high-value agro-food products such as wine, fruits and vegetables. The

key to Chile's success in converting mining exports into development lies in two main factors: (a) a long-term development strategy based on an open economy and free trade; and (b) a prudent fiscal and monetary policy which did not lead to real exchange rate appreciation as a result of mineral windfalls. Chile, however, implemented moderate State intervention between 1982 and 1991, the "neoliberalismo pragmático", based on privatization, increased tariff protection and export subsidies (UNCTAD, 2009).

The success of Mauritius's export performance has been attributed to its export promotion policies which targeted export diversification and export-led growth. Ndulu *et al.* (2007) point out that the country's policies that aimed at securing manufactured export-led growth played a pivotal role not only in expanding the country's export capacity, but also in promoting the country's economic growth performance. Mauritius' degree of trade openness has enabled the country to achieve high annual growth rates in imports and exports. Bonaglia and Fukasaku, (2003), argue that Mauritius gives particular attention for the development of export-oriented manufacturing sector, starting from a sugar-dependent economy. During the last decade, Mauritius has begun to invest directly in Madagascar's clothing sector, favoring diversification of this country's exports. Lesotho also the other country that is least dependent on primary commodities in Sub-Saharan African and this country has been able to export manufactured products at the end of the 1970s, and by the late 1980s. It has become a focus for foreign direct investment in the clothing sector.

Tunisia is also one of the countries with diverse economic structure becoming a middle-income country with a relatively diverse economy. Since the late 1980s, Tunisia has undertaken macro-economic policies and structural reforms designed to transform the country into a market-driven economy with a liberalized trade regime. Tunisia is the top performer in Africa and the 35th ranked in the world in terms of competitiveness, according to the 2011 World Competitiveness Report. It is more competitive than a number of EU member states such as Poland, Italy and Greece and also ahead of major emerging economies such as Brazil and India. Tunisia's trade policies have also helped it to become more competitive in international markets. It signed an association agreement with the EU in 1995, which set a deadline of 2008 for the removal of trade barriers for industrial goods, with ongoing negotiations for the service and agriculture sectors. In addition, Tunisia became the first country in the Mediterranean area to enter in a free trade area with the EU. It is also undertaking an Upgrading Program which aims to make Tunisian private sector enterprises globally competitive and includes training and infrastructure upgrading among other things.

Wood and Mayer (1998) on their study on Africa's export structure in a comparative perspective have emphasized that the concentration of Africa's exports on un-processed primary products is caused largely by the region's combination of low levels of education and abundant natural resources. An economic irony is that those countries blessed with abundant natural resources tend to grow more slowly than their resource-poor counterparts (Sachs, 2001). By the same token, Breisinger and Thurlow (2008) explain that dependency on exports of a few natural resource products and the associated adverse impact of economic diversification can significantly constrain a resource-rich country's development path.

3. Methodology

Model specification

The model is derived as follows:

$$Y_{it} = \beta_0 + \beta_1 VED + \beta_2 HED + \beta_3 INF + \varepsilon_t \dots \dots \dots (1)$$

Where:

Y - GDP per capita growth

VED - Vertical Export Diversification

HED - Horizontal Export Diversification

INF - Inflation

ε_t - Idiosyncratic errors (error term)

The expected signs of the coefficients is $\beta_1, \beta_2, \beta_3, > 0$

Definition of Variables

- (i) GDP per capital growth is the dependent variable defined Gross Domestic Product over population. Per capita GDP growth of a country indicates the improvement in the standard of living of people in the country.
- (ii) Horizontal (HED) and Vertical (VED), Export Diversification. Export diversification entails moving away from a limited basket of exports in order to mitigate economic and political risks of dependence upon a few primary commodity exports. There is a positive relationship between export diversification (vertical and horizontal) and economic growth due to the roles it contributes in increasing returns to scale and dynamic spillover effects and (De Ferranti et al., 2002; Al-Marhubi, 2000; Hausmann, et al., 2006; Matthee and Naude, 2007). The study used these variables to capture export diversification dynamics in Tanzania.

Export Diversification Measures

The study uses the $HED = TNE/TX$ (2)

Where, HED is the index of horizontal export diversification, TNE is the Total Non-Traditional Exports and TX is Total Exports.

$$VED = TMX/T..... (\beta)$$

Where, VED is the index of vertical export diversification, TMX is value of total Manufactured Exports, and TX is value of Total Exports.

- (iii) Inflation refers to the general price level. It is stated that high inflation has an effect on the cost of production and it is reflected in the instability of the macroeconomic policy of the host country and deterioration of the standard of living of the people and thus increases in poverty levels in the country.

3.1 Estimation Technique

The study used the Ordinary Least Square estimation technique (OLS), however, many of macroeconomic time series data are exposed to the problem of non-stationarity in the process of econometric analysis. Regression on such data (non-stationary variables) leads to spurious regression as mean and variance are time variant and hence the basic assumption of OLS can be violated. Therefore, it is important to test the variables used in the model before any inference is made (Gujerati, 1991; Harris 1995).

3.2 Unit root Test

The standard procedure in econometric analysis is to first examine the time series properties of the variables in the model. In this case the unit root tests are undertaken using Augmented Dickey Fuller (ADF) test with the lag length based on Schwarz Information Criterion (SIC), the Phillips-Perron (PP) test bandwidth selection to check for stationarity of variables.

3.3 Co-integration Approach and Yoda and Yamamoto causality testing

This study employs Toda and Yamamoto (1995) methodology based on the augmented VAR ($P+d_{max}$) model to investigate the causal relationship between real GDP per capita and horizontal export diversification. The technique is applicable irrespective of the integration and co-integration properties of the model. The method involves using a modified wald statistics for testing the significance of the parameters of a VAR(s) model. We use Sun and Shun (1998) framework that adopts the augmented production function to test the relationship between Real GDP per capita (RGDP) and Horizontal Export Diversification.

$$\begin{bmatrix} RGDP_t \\ HED_t \end{bmatrix} = \alpha_0 + \beta_1 X \begin{bmatrix} RGDP_{t-1} \\ HED_{t-1} \end{bmatrix} + \dots + \beta_{k+d} \max \begin{bmatrix} RGDP_{t-k-d} \\ HED_{t-k-d} \end{bmatrix} + \gamma_1 VED_t + \gamma_2 INF_t + \begin{bmatrix} \mathcal{E}_{RGDP_t} \\ \mathcal{E}_{HED_t} \end{bmatrix} \quad (4)$$

3.4 Data Sources

The sources of data are Bank of Tanzania (BOT), UNCTAD, COMTRADE database, African Development Indicators, World Bank tables, UN Statistics Division Common Database, Previous Working Papers, Journals, Reports, Books, National Bureau of statistics (NBS), and Tanzania Investment Centre (TIC). This study assesses the relationship between export diversification and income per capita in Tanzania for a period between of 1980-2015.

4. Study Findings

Table 1: ADF and PP Results

Variable	1%	5%	10%	ADF	Status	1st Difference
RGDP	-3.682	-2.972	-2.618	-4.639	I(0)	-
VED	-3.682	-2.972	-2.618	-1.281	I(1)	-4.056
HED	-3.682	-2.972	-2.618	-1.880	I(1)	-3.526
INF	-3.682	-2.972	-2.618	-0.976	I(1)	-4.458
Phillips Perron Unit Root Test						
Variable	1%	5%	10%	Z(t)	Status	1st Difference
RGDP	-3.682	-2.972	-2.618	-4.639	I(0)	-
VED	-3.682	-2.972	-2.618	-1.281	I(1)	-4.848
HED	-3.682	-2.972	-2.618	-1.880	I(1)	-6.270
INF	-3.682	-2.972	-2.618	-0.976	I(1)	-5.567

Table 1 shows that under ADF and Phillips Perron unit root tests. The table shows that RGDP is stationary at level while the rest variables became stationary after first difference when both ADF and Phillips Perron unit root tests were applied. Before testing cointegration, the optimal lag order was determined using Akaike Information Criterion (AIC), Schwartz Bayesian Criterion (SBC), Akaike's Final Prediction Error (FPE), Schwartz Information Criteria (SIC), Hannan-Quinn Information (HQ) and LR values. Four of the criteria select lag 1 while one criterion selects lag 3. We use lag 1.

Table 2: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-161.3199	NA	6.35e-05	10.20120	10.51864	10.30801
1	23.55895	280.1194*	1.81e-08*	1.966124	4.505652*	2.820598*
2	67.65946	48.10965	3.75e-08	2.263063	7.024678	3.865201
3	128.0082	40.23249	7.87e-08	1.575260*	8.558962	3.925064
* indicates lag order selected by the criterion						

To determine the number of co-integrating relationship in the model. We use Julius Johansen (1997) co-integration test or co integration rank test.

Table 3: Johansen Co-Integration Results

Series: RGDP HED VED INF				
	Likelihood	5 Percent	1 Percent	Hypothesized
Eigenvalue	Ratio	Critical Value	Critical Value	No. of CE(s)
0.878987	99.92179	47.21	54.46	None **
0.546047	34.45421	29.68	35.65	At most 1 *
0.247739	9.971632	15.41	20.04	At most 2
0.036318	1.146815	3.76	6.65	At most 3
*(**) denotes rejection of the hypothesis at 5%(1%) significance level L.R. test indicates 1 cointegrating equation(s) at 5% significance level				

The results from table 2 show the existence of 1 cointegration equations at the 5% level. Hence, the null hypothesis of non cointegration is rejected. Thus, having established that the long-run relationship exist among RGDP, HED, VED and INF variables, we go further to examining their long-run causality relationships using VAR Granger Causality (Block Exogeneity Wald Test) approach.

Table 4: Results of VAR Granger Causality/Block Exogeneity Wald Tests

Dependent Variable	Excluded	HED	VED	INF	All
RGDP	Chi-sq	48.12237	6.260719	10.57511	78.09720
	Df	4	4	4	4
	Prob.	0.0000*	0.2817	0.0605***	0.0000*
HED		RGDP	VED	INF	All
	Chi-sq	5.799891	5.374586	5.142093	5.102084
	Df	4	4	4	4
	Prob.	0.3262	0.3719	0.3988	0.3597
VED		HED	VED	INF	All

	Chi-sq	1.038972	0.735263	1.670667	4.138774
	Df	4	4	4	4
	Prob.	0.9594	0.9810	0.8926	0.9972
INF		RGDP	VED	HED	All
	Chi-sq	22.80725	4.865814	7.603029	37.95011
	Df	4	4	4	4
	Prob.	0.0004*	0.4325	0.1795	0.0009*

NB: (*, **, *** Significant at 1%, 5% and 10%)

Table 4 presents the results in four quadrants, each showing how the explanatory variables granger causes the dependent variable in that quadrant. In the first quadrant, the result showed that real GDP per capita (RGDP) is granger caused by Horizontal export diversification and Inflation at 1% and 10% significant levels respectively. Further, the result indicates that all the variables (HED, VED, and INF) on aggregate, granger causes RGDP. In the second quadrant, the result showed that HED does not granger caused by any of the endogenous variables in that equation. This is because; none of the probability value is less than 0.05 in absolute term. In the third quadrant, the result showed that VED does not granger caused by any of the endogenous variables in that equation. This is because; none of the probability value is less than 0.05 in absolute term. In the fourth quadrant, inflation is granger caused by RGDP and on aggregate level RGDP, VED and HED granger causes Inflation.

Basing on the study results, there is a unidirectional relationship between Horizontal export diversification and GDP per capita. This implies that horizontal export diversification is important for poverty reduction initiatives in Tanzania and it suggests embarking on more export diversification. According to Chandra et al (2007), if something more is made an integral part of the export diversification process; it should enable the highly concentrated low income countries to make larger income gains as they diversify their exports. However, Vertical export diversification (VED) recorded no causal relationship between the two variables. This suggests that little vertical export diversification has taken place in Tanzania. The possible explanation is weak country's industrial base. Dominican, (2008) associates the low performance of manufacturing sector to inadequacies in the privatization policy as just after the privatization exercise, most factories did not continue with manufacturing operations, but were instead converted into warehouses for imported goods, housing halls or just rendered idle. Other reasons are small investments made in the manufacturing sector relative to FDI size, low productivity in the manufacturing sector due to problems inherent

in the sector and lack of complementary investment policies to address problems of unstable electricity supply and inadequate communication infrastructure.

4.1 Conclusion and Policy Implication

The objective of this study was to examine the relationship between export diversification and poverty reduction in Tanzania. The study used annual time series data from 1980 to 2015. The study found that income per capita growth is influenced by horizontal export diversification in Tanzania. However, the relationship between income per capita growth and vertical export diversification is insignificant. The possible explanation is country's weak industrial base. Drawing lessons from East Asia and some African countries indicate that deep horizontal and vertical export diversification were significant factors in poverty reduction initiatives. Thus, fostering investments in non-traditional exports and manufacturing sector are important if Tanzania is to reduce poverty and transition to the middle income status by 2030. Moreover, directing investments in Export Processing Zones (EPZ) and Special Economic Zones (SEZ) are other avenues for export diversification stimulation. Specifically, at policy levels, putting in place appropriate policies such as export guarantee schemes, value addition incentives, standards compliance requirements, and elimination of all forms of trade distortions to make the business environment friendly are critical, without of course underestimating the role of Government agencies in building capacities of local entrepreneurs to enable them compete effectively in international markets.

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