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# Impact of Tax on Foreign Direct Investment in Tanzania

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***Abstract*—** This study examines the impact of Tax on Foreign Direct Investment in Tanzania by using time series data from 1988 to 2019. The data were collected from Central Bank of Tanzania, National Bureau of Statistics, World Bank, and IMF. The data were analyzed by using Autoregressive Distributive Lag (ARDL) technique. The results show that tax has negative and insignificant impact on foreign direct investment and the impact runs from tax to Foreign Direct Investment with no long run relationship. Insignificant impact of tax on Foreign Direct Investment might be due to infancy of FDI and policy changes in a country. Therefore, it is recommended that the government should continue to improve infrastructures that smooth investment in a country, improve and maintain stable investment environments and fiscal policy as well as ensuring prevalence of factors that attract foreign investment in a country in relation to neighboring countries which eventually will spur sustainable economic growth.

***Keywords***— Foreign Direct Investment, Tax Revenue, ARDL, Tanzania

## I. INTRODUCTION

Most of the countries in the world have been striving to expand foreign direct investment due to its important in the economy such generation of new jobs, importation of new technologies which promote their economic growth and employment creation [1] [2]. Generally, the average of foreign direct investment in the World has been decreasing since 2001 due to weak economic growth and tumbling stocks market [3]. Foreign Direct Investment can be either in form of direct net transfers from parent company in form of equity as well as debt to affiliates or reinvested earnings by affiliates and it can be in real investment and financial flows [4]. The size of foreign direct investment in a country depends on various factors including tax system and policy which guide foreign investors to decide to invest in a country [4][5]. Taxation on FDI's earnings plays essential role in attracting multinational company to invest since it determines costs and profitability of investment [2]. Therefore, Countries differ on tax policy on FDI depending on the degree of dependence on FDI as the result of variations on domestic savings and eventually the impacts are variably across the countries [6] [7].

Like other developing countries in the world, most of African countries have been trying to adjust their fiscal policies through tax policy aimed to encourage and attract both domestic investment and foreign investment. Some of important tax policies are tax holiday, tax incentives and tax relief to investors. Also in East African countries, investment has been attracted through tax policies change and adjustment. Although the intention of these changes has been common, the impact of the changes have not been homogeneous across the region.

Like other African countries Tanzania has been trying to create attractive environment for foreign direct investment through fiscal policies. It is argued that Foreign Direct Investment has been an infant type of investment due to persisted socialism economic system after Arusha declaration in 1967 [8]. Foreign Direct Investment (FDI) started to be among of prominent form of investments after economic liberation in 1980s whereby various policies were adopted to ensure its sustainable growth [8]. The results of changing some economic policy resulted to increase of FDI received from US$283 million for the period from 1980 to 1995 to US$ 12 billion for the period from 1995 to 2012 [9]. Some of the tax policies that were adopted to attract foreign investment at the same time encouraging domestic investments were tax incentives, tax holiday and tax harmonization [9]. Furthermore, Tanzania has been changing taxation system on FDI ranging from overall to sectorial to widen tax base at the same time reducing revenue foregone [1]. Moreover, Tanzania has been adopting other nontax policies that seemed to attract foreign direct investment such as financial deregulation that called for establishment of foreign financial institutions, adoption of democratic system and other related policies that seemed to attract Foreign Investors [9].

 

This paper is organized as follow as, section I contains introduction of the relationship between tax and foreign direct investment. Section II presents the related works on tax and foreign direct investment. Section III describes the methodology that are to be employed on analyzing the impact of Tax on foreign direct investment. Section IV presents the results and discussion, and section V concludes the study and suggestion for future study in Tanzania.

## II. RELATED WORK

Tanzania has been investing some efforts to create favorable environment for foreign direct investment to be enhanced and expand [9]. Despite of its Tax initiatives effort made by Tanzania toward foreign investment yet there is a couple of uncleared empirical issues that should be addressed on the tax and foreign direct investment nexus. Therefore, this study intends to investigate of whether there is a relationship between tax and foreign direct investment by employing Autoregressive Distributive Lag (ARDL) to investigate the relationship. Previous studies have found the mix evidence on FDI and tax nexus [10][11][12]. To address the uncleared empirical issue, the study examines the impact and the causal relationship of tax on foreign direct investment in Tanzania.

## III. METHODOLOGY

All data collected for the study were critically evaluated and analyzed to ensure its correctness. The relationship between tax revenue and foreign direct investment are gauged under open economy where the internal policies can impact on the flows of capital from other countries.
The functional relationship between the variables and proxies are often expressed as follows,
Foreign Direct Investment = F (Tax Revenue)
FDI = F(TR) ……. (1)
The model employed during this study is specified as

$$Y = \beta_0 + \beta_1 X_1 + U \dots\dots (2)$$

Thus,

$$FDI = \beta_0 + \beta_1 TR + U \dots (3)$$

Where,
FDI = Foreign Direct Investment
TR = Tax revenue
β0 = Constant coefficient
β1 = Coefficient of Tax Revenue

The study utilizes the time series secondary data collected from World Bank, IMF, National Bureau of Statistics, Tanzania Revenue Authority and Bank of Tanzania for the period between 1988 to 2019. The data are to be analyzed by using ARDL in form of equation 3 above. ARDL is efficient in a small and finite time series whose variables are integrated at different orders and it does not necessarily require stationarity test, although it should be conducted to avoid crush on I(2) [10][12]. Since the data includes lags augmented dickey fuller is to be used and the maximum lags will be determined by SBIC. Also, the bound test is to be conducted to check the possibility of conducting error correction term in presence of cointegration before conducting diagnostic tests and causality and final estimation.

## IV. RESULTS AND DISCUSSION

*Summary of the Data.*
The characteristics of time series data used in the analysis is presented in table 1.

Table 1 Summary Statistics of the variable employed.

| Variables | Obs | Mean | Std. Dev. | Min | Max | Skew. | Kurt. |
|---|---|---|---|---|---|---|---|
| Year | 32 | 2003.5 | 9.381 | 1988 | 2019 | 0 | 1.798 |
| ForeinDirectInvest~t | 32 | 6.64E+08 | 6.13E+08 | 10000 | 2.09E+09 | 0.711 | 2.436 |
| TaxRevenue | 32 | 3820000 | 4910000 | 42557 | 1.6E+07 | 1.303 | 3.372 |

***Source;*** Authors' Computation.
Table 1 shows that the variables are normally distributed.

*Maximum Lag for the Variables.*
Since the ARDL requires specification of lags during estimation, the lags for Foreign Direct Investment and Tax Revenue are determined and the results are presented in table 2 and 3 below.

Table 2 Selection order Criteria for Foreign Direct Investment.

| Lag | L-limit | L-Ratio | Df | Probability | Akaike-IC | Hanan Quin-IC | Schwarz Bayesian-IC |
|---|---|---|---|---|---|---|---|
| 0 | -605.05 | | | | 43.289 | 43.304 | 43.3367 |
| 1 | -590.57 | 28.97 | 1 | 0 | 42.326 | 42.355 | 42.4212 |
| 2 | -587.4 | 6.328 | 1 | 0.012 | 42.1715* | 42.2151* | 42.3142* |
| 3 | -587.39 | 0.031 | 1 | 0.86 | 42.242 | 42.3 | 42.4321 |
| 4 | -586.11 | 2.544 | 1 | 0.111 | 42.222 | 42.295 | 42.4602 |

***Source***; Authors' computation.
Table 2 shows that the lag length of Foreign direct investment is 2.

Table 3 Selection order Criteria for Tax Revenue.

| Lag | L-Limit | L-Ratio | Df | Probability | Akaike- IC | Hanan Quin-IC | Schwarz Bayesian- IC |
|---|---|---|---|---|---|---|---|
| 0 | -471.3 | | | | 33.7335 | 33.748 | 33.781 |
| 1 | 402.2 | 138.13* | 1 | 0 | 28.8715* | 28.9006* | 28.9667* |
| 2 | -401.9 | 0.67151 | 1 | 0.413 | 28.919 | 28.9626 | 29.062 |
| 3 | -401.7 | 0.37889 | 1 | 0.538 | 28.9769 | 29.0351 | 29.167 |
| 4 | -401.7 | 4.10E-05 | 1 | 0.995 | 29.0483 | 29.121 | 29.286 |

***Source***; Authors' Computation

 

Table 3 shows that the maximum lag for Tax Revenue is 1.

*Correlation Analysis.*

The correlation analysis is conducted to determine the correlation between Tax and Foreign Direct Investment and the results are presented in table 4 below.

Table 4 Correlation Matrix.

| *Variables* | *ForeinDirectInvestment* | *TaxRevenue* |
|---|---|---|
| *ForeinDirectInvestment* | *1* | |
| *TaxRevenue* | *0.629* | *1* |

***Source***; Authors' Computation.

Table 4 shows that the variables are correlated.

*Stationarity Test.*

Although, ARDL does not necessarily require unit root test, the test was conducted to avoid a crush in existence of stochastic trend in I(2). The results for the test are presented in table 5.

Table 5 The Unit Root Test Results for the Variables.

| Variable | Level | Probability(z) | Conclusion |
|---|---|---|---|
| Foreign direct investment | At level | 0.6728 | I(1) |
| | 1st Difference | 0.0000 | |
| Tax revenue | At level | 0.9877 | I(2) |
| | 1st Difference | 0.1727 | |
| | 2nd Difference | 0.0000 | |

***Source***; Authors' Computation.

Table 5 shows that FDI becomes stationary after first difference while Tax becomes stationary after second difference. Therefore, both variables are not stationary at level but at differences.

*Tests for Cointegration*

The cointegration test is conducted to determine the relationship between the variables. Since the variables become stationary at different level the Johansen test for cointegration is no longer valid rather the bound test is conducted. The bound test is conducted to determine the need of conducting Error Correction Model that analyzes the existence of long run relationship between Foreign direct investment and Tax revenue. The ECT will be conducted if the value of F is greater than the critical value of for the upper bound or otherwise if it is less than critical value of the lower bound and it is inconclusive if the value of F follows in between upper and lower bound of the critical values. The bound test is conducted, and the results are presented in table 6 below.

Table 6 ARDL Bound Test.

H0: no levels relationship F = 0.008

t = 0.036

| f-cv | [I_0] | [I_1] | [I_0] | [I_1] | [I_0] | [I_1] | [I_0] | [I_1] |
|---|---|---|---|---|---|---|---|---|
| 0.1-0.01 | L_1 | L_1 | L_05 | L_05 | L_025 | L_025 | L_01 | L_01 |
| k_1 | 4 | 4.8 | 4.94 | 5.73 | 5.77 | 6.68 | 6.84 | 7.84 |
| t-cv | [I_0] | [I_1] | [I_0] | [I_1] | [I_0] | [I_1] | [I_0] | [I_1] |
| 0.1-0.01 | L_1 | L_1 | L_05 | L_05 | L_025 | L_025 | L_01 | L_01 |
| k_1 | -2.6 | -2.9 | -2.9 | -3.2 | -3.13 | -3.5 | -3.43 | -3.8 |

***Source***; Authors' Computation.

Table 6 shows that the null hypotheses of no long run relationship between Foreign Direct Investment and Tax revenue is accepted which means there is no cointegration and therefore there is no need of conducting ECM whereby only short run model is to be estimated.

*Diagnostic Tests.*

The test for serial correlation and heteroscedasticity were conducted and the results are presented in table 7 and 8 below.

Table 7 Autocorrelation test.

| lags (p) | Chi Square | df | Probability of Chi Square |
|---|---|---|---|
| 2 | 2.132 | 2 | 0.3444 |

***Source***; Authors' Computation.

Table 7 shows that the data are not suffering from the serial correlation problem.

Table. 8. Heteroscedasticity test.

| Source | Chi Square | df | Probability of Chi square |
|---|---|---|---|
| Heteroskedasticity | 25.56 | 9 | 0.0024 |
| Skewness | . | 3 | . |
| Kurtosis | . | 1 | . |
| Total | . | 13 | . |

***Source*;** Authors' Computation.

Table 8 shows that the data are suffering from heteroscedasticity. Then, the model is to be estimated by using robust.

*Granger Causality.*

To test the direction of relationship the granger causality is conducted, and the results are presented in table 9 below.

Table 9 Granger Causality Test.

| Equation | Excluded | Chi square | df | Probability of Chi square |
|---|---|---|---|---|
| Foreign Direct Inv | Tax Revenue | 1.513 | 2 | 0.469 |
| Foreign Direct Inv | ALL | 1.513 | 2 | 0.469 |
| Tax Revenue | Foreign Direct Inv | 13.304 | 2 | 0.001 |
| Tax Revenue | ALL | 13.304 | 2 | 0.001 |

***Source***; Author's Computation

From table 9 the null hypotheses of no bi direction causality is accepted indicating the presence of unidirectional causality running from tax to foreign direct investment in Tanzania.

*Estimated Results of ARDL Model.*

The results of estimation of the model are presented in table 10 below.

Table 10 Estimated Results of the ARDL Model.

ARDL(2,0) regression

Sample: 1992 - 2019 Number of obs = 28

F( 3, 24) = 20.57

Prob > F = 0.0000

R-squared = 0.7200

Adj R-squared = 0.6850

| Foreign Direct Investment | Coef. | Std.Err. | t | P>t | [95%Conf. | Interval] |
|---|---|---|---|---|---|---|
| L1. | 0.436 | 0.183 | 2.39 | 0.025 | 0.059 | 0.814 |

 

| | | | | | | |
|---|---|---|---|---|---|---|
| L2. | 0.488 | 0.198 | 2.46 | 0.021 | 0.079 | 0.897 |
| Tax Revenue | -10.569 | 19.224 | -0.55 | 0.588 | -50.245 | 29.106 |
| _cons | 1.53E+08 | 1.00E+08 | 1.52 | 0.141 | -5.42E+07 | 3.60E+08 |

***Source***: Authors' Computation.

Table 10 shows the model is significant and well specified since the coefficient of adjusted R squared indicates that 68.5 percent of the variations of FDI are captured by tax revenues in the model. The coefficient of the F -statistic ARDL model suggests that the model is statistically significant.

*Findings.*

Findings indicate negative and insignificant impact of tax revenue on Foreign Direct Investment in Tanzania. This means, in general the nature of taxes that have been imposing by government have not been significantly affecting Foreign Direct Investment inflows. Therefore, the decision of foreign Investors to invest in Tanzania are influenced much by other factors apart from taxes charged. This might align with the theory that taxes potentially affect the international location of investment by influencing its relative net profitability in different locations [13].

## V. Conclusion and Future Scope

This study examined the impact of tax revenue on Foreign Direct Investment in Tanzania using time series data for the period 1988 to 2019. The data were analyzed by using the Autoregressive Distributive Lag technique. The results of the estimates indicate that Tax revenue has negative and insignificant with no long run impact on Foreign Direct Investment in Tanzania. The study recommends that the country should continue to formulate imperative and attractive fiscal policies that aim to stimulate Foreign Direct Investment in Tanzania at the same time improving other factors. The limitation of this study is the use of the tax revenue as the aggregate from different types of taxes which might be having different individual impact on FDI. Therefore, other studies should investigate the impact of different types of taxes on FDI in Tanzania.

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