



## **Foreign Direct Investment (FDI), Trade and Its Contribution to the Proposed Logistics Hub in Jamaica**

Kimberly Racquel Elizabeth Chin

School of Management, Wuhan University of Technology, Wuhan, P.R. China, 430070

Email (corresponding author): [kymchyn@hotmail.com](mailto:kymchyn@hotmail.com)

**Abstract:** In order to objectively analyze contribution of logistic operations to Jamaica's Foreign Direct Investment (FDI), we perform the Granger causality test. This test was used to determine the relationship among Gross Domestic Product (as a dependent variable) and Government Income, Trade, FDI inflow and the Exchange rate (as independent variables). The Granger causality test produced evidence of a bidirectional causality relationship which suggests that FDI's influence on efficiency lies in the government relaxing its dependency on the mining industry for economic growth.

**Keywords:** FDI, Economic growth, Logistics performance, Trade volume, GDP, Government income, Exchange rate, Transportation systems, Employment

### **1. Introduction**

Jamaica has been proposed as one of the most strategic locations to host the prospected Logistics hub of the western hemisphere. Since the most recent expansion of the Panama Canal, Jamaica is expected to accommodate and transport larger shipping vessels with larger volumes of goods from the Far East, thus, there emerged a need for a logistic hub. This venture is projected to be a significant economic boast for Jamaica through creation of employment and attraction of Foreign Direct Investment (FDI).

In general, the country experienced negative growth for the past few decades. Severe problems in the financial sector and market deterioration in manufacturing declined by 2% were some of the many underlying reasons for such performance. Export earnings showed significant decline through the industries.

According to the Index Mundi (2014), the Jamaican economy is heavily dependent on services, which accounts for nearly 80% of GDP. The country continues to derive most of its foreign exchange from tourism, remittances, and export. Remittances and tourism each account for 30% of GDP, while exports make up roughly 5% of GDP. The export sector was most affected by the global downturn while the tourism industry and remittance flow remained resilient. Jamaica's economy faces many challenges to growth: high crime and corruption, large-scale unemployment and underemployment. In such situation, Jamaican debt-to-GDP ratio reached to 140%. The attendant debt servicing cost a large portion of the government's budget, limiting its ability to fund the critical infrastructure and social programs required to drive growth. Jamaica's economic growth rate in the recent past has been stagnant, averaging less than 1% per year for over 20 years. Jamaica's onerous public debt burden is largely the result of government bailouts to ailing sectors of the economy, most notably to the financial sector. In early 2010, the Jamaican Government initiated the Jamaica Debt Exchange to retire high-priced domestic bonds and reduce annual debt servicing. Despite these efforts, debt continued to be a serious concern, forcing the government to negotiate and sign a new IMF agreement in May 2013 to gain access to approximately \$1 billion additional funds. As a precursor, the government instigated a second National Debt Exchange in 2012. The IMF deal requires the government to reform its tax system, eliminate discretionary tax exemptions and waivers, and achieve an annual surplus of 7.5%, excluding debt payments, to reduce its debt below 100% of GDP by 2020. The government now faces difficult prospect of having fiscal discipline to

maintain debt payments; the foreign direct investment from the proposed logistics hub initiative is expected to facilitate the achievement of this task.

## **2. Overview of the Logistics Hub Project**

The logistics hub venture is a USD\$15 Billion endeavor, which is approximately the entire GDP of the country. It is estimated that the financial gains from this venture will significantly assist in consistent debt payments. Currently Jamaica lacks the infrastructure, public/private partnerships and legislative and regulatory framework. Jamaica Chamber of Commerce had proposed to the government and the world that there is a need for the preparation and implementation of a 20-year master development plan for in-island transportation systems, Special economic zones, skilled workforce and International trade agreements. The World Bank has agreed to this and has allocated grant funding to undertake the master development plans.

## **3. Literature review**

In Jamaica, tourism and remittance are still the most important contributors of the economy. FDI is a major booster in foreign exchange acquisition for Jamaica. FDI strategies have to capitalize on targeting, obtaining and developing investment attraction, and the logistics hub is the latest venture with the highest potential in this turn. FDI poses to provide the following benefits for the Jamaican economy:

- Foreign currency circulation;
- Growth of private sector such as SMEs;
- Development of public sector infrastructure and increased government income;
- Increased Trade Volume;
- Expansion of Gross Domestic Product (GDP). 9722437

FDI setting contribution to the economic growth will be through foreign currency circulation. This, in conjunction with tourism and remittances will maximize foreign currency circulation and boasts Jamaica's international purchasing power. Improved logistics performance increases government income that can be directed at helping infrastructural and public sector debilities such as transport systems. According to Guasch and Kogan (2006), poor logistics performance has also led to higher transport costs for the Latin American and Caribbean regions relative to their counterparts. Currently, logistics costs in Latin America and the Caribbean range between 18 and 34 percent of product value, while the OECD benchmark is 9 percent. Therefore, the foundation of infrastructural development is essential in improving the logistics sector. Lowering transportation costs as well as modernizing transportation must be examined. The logistic hub has the potential to be the industrial and economic catalyst from which the country's development can take off.

Currently, the private sector such as small and medium enterprises (SME) has struggled to survive in the wake of the constantly devaluation of dollar and high inflation. Unemployed professionals have left the island in search for opportunities in entrepreneurship and financial areas that the country has failed to provide or facilitate the creation. The prospect of FDI not only generates foreign currency circulation but also provides employment opportunities for professionals and skilled and unskilled workers. Additionally, value added activities through the logistics hub increases GDP and paves an avenue for local industries to develop domestic products and services to trade. If trade volumes turn to be high enough, then, the economy becomes more fluid and industrial operations maintain financial inflows boasting the overall economy. The 2009 Enabling Trade Index (ETI) shows Latin America and the Caribbean achieving an overall score of 3.76 out of 6, with the global average being 4.27. Similarly, the Logistics Performance Index overall ranking positions Latin American and Caribbean countries in customs performance and infrastructure within 2.37 and 2.38 respectively out of 5.

## **4. Research methodology**

### **4.1 Research design**

The econometric model used to examine treats Gross Domestic Product (GDP) as a dependent variable and Foreign Direct Investment (FDI), Government Income (GOVI), Trade volume (TRV), Exchange Rate(ER) as independent variables.

### 4.2 Granger Causality Test

Granger causality test was conducted to identify causal relationship between Gross Domestic Product, Government Income, Trade, FDI inflow into Guinea mining sector, Exchange rate. The analysis was done to identify whether the current lagged values affect one another. The Granger test may be explained with the help of the following equations.

$$X_t = a_0 + \sum_{j=1}^m a_j x_{t-j} + \sum_{j=1}^n b_j y_{t-j} + e_t \dots\dots\dots (1)$$

$$Y_t = c_0 + \sum_{j=1}^m c_j x_{t-j} + \sum_{j=1}^n d_j y_{t-j} + w_t \dots\dots\dots (2)$$

Bidirectional causality is claimed to exist if the null hypothesis is accepted, that  $X_t$  does not strictly Granger-cause;  $Y_t$  is also rejected.

### 4.3 Model specification

The model estimation will be done through the use of the ordinary method of estimation.

$$GDP_t = f(GOVI, FDI, TRV, ER_t) \dots\dots\dots (1)$$

Where  $GDP_t$  is Gross Domestic Product;  $GOVI_t$  is Government Income;  $FDI_t$  is Foreign Direct Investment inflows;  $TRV_t$  is Trade volume;  $ER_t$  is Exchange rate;  $\mu_t$  is stochastic random term;

In a more explicit and econometric form, equation (1) can be stated as

$$GDP_t = \alpha_0 + \alpha_1 GOVI_t + \alpha_2 FDI_t + \alpha_3 TV_t + \alpha_4 ER_t + \mu_t \dots\dots\dots (2)$$

## 5. Data Analysis

### 5.1 Correlation test result

We want to examine the negative and positive relationship between all the variables and to determine if the p-values or significance values are more or less than 5% to make a decision.

**Table 1:** Correlation test results

Variables	GDP	FDI	GOVI	TRV	EXR
GDP	1	0.70278	0.90593	0.71944	0.8249
FDI	0.70278	1	0.70082	0.69055	0.75538
GOVI	0.90593	0.70082	1	0.74221	0.76783
TRV	0.71944	0.69055	0.74221	1	0.77631
EXR	0.8249	0.75538	0.76783	0.77631	1

The result of the table 1 shows that the observation correlation relationship of each pair is positive, it can be concluded that each of the variables in this corresponding analysis testing has a positive significant correlation meaning our variables have a strong linear relationship with each other by +1.

### 5.2 Unit root test for order of integration

ADF and Philips Pearson at first difference with intercept and trend at 0.05 level of significance

From the result of table 2, the null hypothesis of the unit root shows all the variables are not stationary at conventional level since their p-value both ADF and PP test are not significant at all conventional levels of significance. We can therefore reject the null hypothesis and accept the alternative hypothesis.

**Table 2:** Unit Root Test

Null Hypothesis: D(GDP) has a unit root  
 Exogenous: Constant  
 Lag Length: 3 (Automatic - based on SIC, maxlag=6)  
 Lag Length: 3 (Automatic - Lag Length: 3 Lag Length: 3 based on SIC, maxlag=6 (Automatic - based on SIC, maxlag=6 (Automatic - based on SIC, maxlag=6

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-73.86446	0.0001
Test critical values:		
1% level	-8.033476	
5% level	-4.541245	
10% level	-3.380555	

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(GDP,2)  
 Method: Least Squares  
 Date: 03/16/15 Time: 23:40  
 Sample (adjusted): 3 5  
 Included observations: 3 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-1.770991	0.023976	-73.86446	0.0086
C	-0.031396	0.005613	-5.593854	0.1126

**Table 3:** Granger causality results

Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause GDP	25	1.44655	0.2590
GDP does not Granger Cause FDI		3.66212	0.0441
GOVI does not Granger Cause GDP	25	0.99521	0.3872
GDP does not Granger Cause GOVI		0.50656	0.6101
EXR does not Granger Cause GDP	25	12.7336	0.0003
GDP does not Granger Cause EXR		5.45199	0.0129
TRV does not Granger Cause GDP	25	5.12698	0.0159
GDP does not Granger Cause TRV		0.96879	0.3967
GOVI does not Granger Cause FDI	25	1.26060	0.3051
FDI does not Granger Cause GOVI		1.78824	0.1930
EXR does not Granger Cause FDI	25	21.5382	1.E-05
FDI does not Granger Cause EXR		3.35995	0.0552
TRV does not Granger Cause FDI	25	7.25881	0.0043
FDI does not Granger Cause TRV		0.11011	0.8963
EXR does not Granger Cause GOVI	25	19.9202	2.E-05
GOVI does not Granger Cause EXR		2.30919	0.1252
TRV does not Granger Cause GOVI	25	1.56940	0.2328
GOVI does not Granger Cause TRV		0.53805	0.5921
TRV does not Granger Cause EXR	25	2.38872	0.1174
EXR does not Granger Cause TRV		7.94733	0.0029

FDI does not have Granger Cause on GDP and interchangeably GDP does not show Granger Cause on FDI. However, there is a unidirectional relationship between these two variables which means the causal relationship between them (FDI>GDP) signifies FDI has improved the country's productivity and affected rapid GDP growth.

Furthermore, the results indicate that the variable trade volume (TRV) does not have Granger Cause on FDI. However, FDI Granger Cause (TRV) which means that there is unidirectional relationship between these two variables meaning that there is an improvement of logistics and trade to attract more foreign direct investment to the sector. However,

with inefficient policies and political instability, private investment and investment in research and development are struggling in the sector. Boosting local economic growth in logistics and other sectors will only be profitable if the government is able to access new technologies to assist in attracting FDI and improving R&D investment.

The result shows that Exchange rate (EXR) Granger causes GDP while GDP does not cause Exchange rate EXR. This indicates there is a bidirectional causality relationship meaning that they are statistically significant in explaining changes in the economic growth of the country due to the fact that exchange rate plays a significant role in determining the import and export in the country.

### 5.3 Conclusion and policy recommendation

In this research we focused on Foreign Direct Investment (FDI) contribution to the Jamaica's economy through the implementation of the proposed logistics hub. Our investigation indicates there is a bidirectional causality relationship which means that there is statistically significant relationship in explaining changes in the economic growth of the country due to the fact that exchange rate plays a significant role in determining the import and export in the country.

Therefore, in order to attract FDI that improves efficiency in the logistics sector, the government should prioritize the sector and reduce its dependence to grow the economy. Macroeconomic stability must be ensured and it should also be predictable and have an "easy-to-access" policy environment inclusive of incentives. There is also a need to improve infrastructure, especially, in primary and secondary infrastructures and this investment will lead to higher productivity which in turn improves efficiency in all sectors of the economy. This creates a multiplier effect which stimulates job creation, economic growth, and productivity of national welfare, investment and functional development.

Thus, we conclude that if Jamaica wants to boast its economy from the proposed logistics venture, it's imperative to develop effective FDI policies. There are several features that Jamaica is lacking, but FDI can serve as a channel to supply such inputs.

- Government should seek additional FDI for the private sector since the success of the sector is essential to the attainment of true economic stability;
- Factors such as foreign ownership restrictions and multiple corporate taxes that discourage foreign investors should be reviewed and addressed;
- Government should not just focus on attracting FDI to the sector but also focus on attracting the type of FDI that seeks to enhance the capacity of investment;
- The Government of Jamaica must further target specific types of FDI that are able to generate spillover effects in the entire value chain of the logistics sector and contribute to the extension of the overall economy.

### References

- Andreas, J. (2006). The Effect of FID Inflows on host Country Economic Growth. CESIS Electronic UK, [J]. Journal Working paper series No.58
- Akinkugbe, O. (2003). "Flow of Foreign Direct Investment to hither to neglected developing countries", discussion paper [J] no.2003/02, Word institute for development economic reach, Helsinki.
- Alfaro, L., Chanda, A., Kalemli-Ozcan, S. and Sayek, S. (2004). "FDI and economic growth: the role of local financial markets" [J].Journal of International Economics, 64, 89-112. [CrossRef](#)
- Alsan et al. (2006)."The effect of population hath on foreign direct investment inflows to low and middle countries", [J]. World development 34(4), 613-630. [CrossRef](#)
- Bellak, C., Albrecht, M. and Riedl, A. (2008)."Labor cost and FDI flows into Central and Eastern European Countries": A survey of the literature and endogenous growth: Multiplier effects from a small dynamic model for Taiwan 1959-1995". [J] World Development 26(7): 1315-30.
- Bitzenisa, A., Tsitouras, A., Vasileios, A. and Vlachos. (2009) "Decisive FDI obstacles as an explanatory reason for limited FDI inflows in EMU member state": The case of Greece. [J]The Journal of socio-Economics, 38,691-704. [CrossRef](#)
- Guasch, J.L., and J. Kogan. (2006). "Inventories and Logistic Costs in Developing Countries: Levels and Determinants – A Red Flag for Competitiveness and Growth." Revista de la Competencia y de la PropiedadIntelectual. Lima, Perú.

- Pinnock, F., and I. Ajagunna. (2012). "Expansion of Panama Canal and Challenges for Caribbean Ports." *Caribbean Maritime* 16, May– September.
- WTO. 2009. *Export Promotion and the WTO: A Brief Guide*. International Trade Centre.