

The Relationship between Foreign Direct Investment, Exports and Economic Growth in SIDS: Evidence from Saint Lucia

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Presented by: Kimbert Evans

Supervised by: Dr. Roger Hosein and Dr. Regan Deonanan



Order of Presentation

- ▶ Research objective and hypothesis of the study
- ▶ Description of the data used in this study
- ▶ Model Specification
- ▶ Methodology
- ▶ Results
- ▶ Conclusion and Policy recommendations



Research Objective and Hypothesis

- ▶ The main objective of this study is to investigate the relationship between FDI, exports and economic growth in Saint Lucia for the period 1980 to 2015.
- ▶ We hypothesize that FDI and exports have impacted economic growth positively during the period 1980 to 2015 in the Saint Lucian Economy.



The Data

- ▶ All data was obtained from World Development Indicators (WDI).
- ▶ The model uses annual time series data for the period 1980 to 2015.
- ▶ We express all data in Local Currency Units (LCU) using the nominal exchange rate of 2.70.
- ▶ The data was converted to real terms using the US CPI for exports, Saint Lucian CPI for FDI and GDP deflator for GDP.
- ▶ 2010 was used as the base year for all deflators.
- ▶ Data was then divided by population to express in per capita terms.



Model Specification

- Following Acaravci and Ozturk (2012), Paul (2014), Keho (2015), Iheanacho (2016) and Nguyen (2017) and specify the regression models as follows:

- $$\text{GDP}_t = \beta_1 + \pi_1 \text{EXP}_t + \pi_2 \text{FDI}_t + \mu_{1t} \quad (1)$$

- $$\text{EXP}_t = \beta_2 + \alpha_1 \text{GDP}_t + \alpha_2 \text{FDI}_t + \mu_{2t} \quad (2)$$

- $$\text{FDI}_t = \beta_3 + \square_1 \text{GDP}_t + \square_2 \text{FDI}_t + \mu_{3t} \quad (3)$$

- Where GDP_t signifies real gross domestic product per capita, EXP_t denotes real exports per capita, FDI_t represents real foreign direct investment per capita, β represents the intercept terms, π , α and \square represent the coefficients on the respective variables, and, μ represents the residuals.



Methodology

Step 1

- Unit root analysis
- ADF and PP tests

Step 2

- Cointegration
- ARDL bounds test

Step 3

- Causality
- Toda and Yamamoto (T-Y) approach to Granger non-Causality



Unit Root analysis

ADF and PP unit Root tests

Level					
Variables	ADF test Statistic		PP Adj. test statistic		Conclusion
	Intercept	Trend and Intercept	Intercept	Trend and Intercept	
GDP	-1.49	-0.88	-1.53	-0.88	Not Stationary
	(0.53)	(0.95)	(0.51)	(0.95)	
EXP	-1.76	-1.79	-1.70	-1.82	Not Stationary
	(0.39)	(0.69)	(0.42)	(0.67)	
FDI	-2.52	-2.80	-2.68	-2.97	Not Stationary
	(0.12)	(0.21)	(0.09)*	(0.16)	

ADF and PP unit Root tests

First difference					
Variables	ADF test Statistic		PP Adj. test statistic		Conclusion
	Intercept	Trend and Intercept	Intercept	Trend and Intercept	
GDP	-6.41	-6.73	-6.38	-6.73	Stationary
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	
EXP	-5.79	-5.85	-5.80	-6.00	Stationary
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	
FDI	-5.99	-5.89	-5.66	-5.51	Stationary
	(0.00)***	(0.00)***	(0.00)***	(0.00)***	

Note: p-values are shown in parentheses under the test statistic. The null hypothesis for both ADF and PP is variable has a unit root (non-stationary). ***,* denotes significance at 1% and 10% respectively.



Cointegration

ARDL bounds Cointegration Tests

LHS Variable	Independent Variable	F - Statistic	95% Critical Bounds		Conclusion
			I(0)	I(1)	
ΔGDP_t	EXP_t , FDI_t	7.21	3.79	4.85	Cointegration
ΔEXP_t	GDP_t , FDI_t	1.64	3.79	4.85	No Cointegration
ΔFDI_t	GDP_t , EXP_t	6.17	3.79	4.85	Cointegration

Note: Δ denotes the first differenced operator.



Cointegrating Long run equation

Dependent Variable	Cointegrating equation	μ_1
GDP _t	$\text{GDP}_t = 3600.85 + 137.18\text{EXP}_t + 225.04\text{FDI}_t$ <p style="text-align: center;"> (0.21) (0.00***) (0.00***) </p>	-0.27***
	JB = 1.39 SC = 2.74 Hetero. = 11.68 (0.50) (0.25) (0.31)	

Note: *** represent 1% level of significance. Figures in parentheses are the p-values. JB represents Jarque-Bera for the normality test; SC represents Serial Correlation and Hetero. represents Heteroskedasticity.

Elasticities: 1% change in real EXP per capita resulting in a 0.66% increase in real GDP per capita and a 1% change in real FDI per capita resulting in a 0.15% increase in real GDP per capita.



Stability Results

Figure 1a: Cumulative Sum (CUSUM) stability test

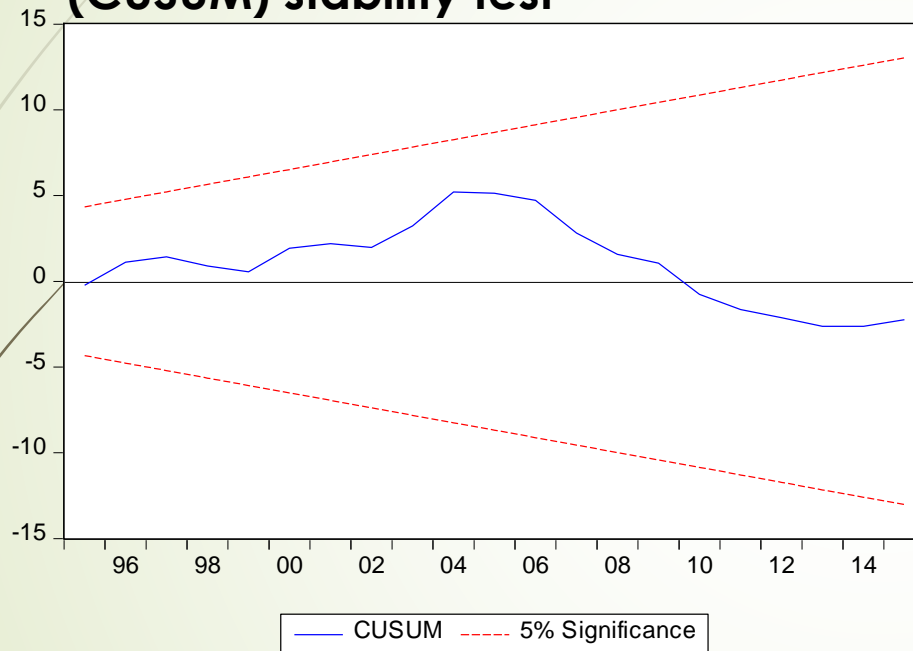
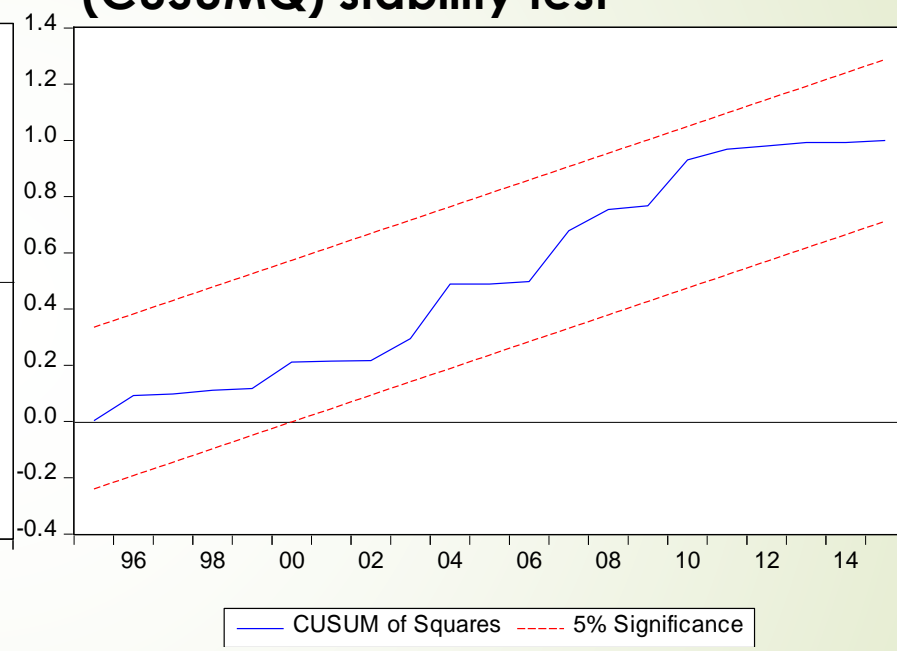


Figure 1b: Cumulative Sum of Squares (CUSUMQ) stability test



Coefficients

Table 7: Long run coefficients

Authors		Sami and Kreishan (2012)	Haseeb et al. (2014)	Nguyen (2017)	This Study
Coefficients	Exports	0.49	0.50	-0.25	0.66
	FDI	0.15	0.18	0.15	0.15



Causality test

T-Y causality test		
Null Hypothesis	Wald Statistic	P-Value
EXPt does not Granger cause GDPt	5.62	0.13
FDIt does not Granger cause GDPt	6.70	0.08*
GDPt does not Granger cause EXPt	2.31	0.50
FDIt does not Granger cause EXPt	2.10	0.55
GDPt does not Granger cause FDIt	6.33	0.09*
EXPt does not Granger cause FDIt	1.13	0.76

Note: * represent 10% level of significance.



Conclusion

- ▶ FDI-led growth hypothesis does hold in the case of Saint Lucia.
- ▶ There is a bi-directional relationship between FDI and GDP.
- ▶ We did not find evidence that EXP is promoting GDP, nor did we find evidence that FDI is having an impact on EXP in the long-run.



Policy Recommendations

- ▶ Policy makers should continue policies promoting real FDI per capita as a means of development, but at the same time, these policies may be more effective if they encapsulate other factors that also affect real GDP per capita.
- ▶ Policy makers should also improve the absorptive capacities of the economy by promoting better financial development, better human capital development, and better technological development to better absorb the technology that comes with FDI which in turn will enhance growth.
- ▶ We did not find any links to EXP therefore the Government should diversify the types of FDI that they are attracting to try to promote EXP for development. For example, attracting more manufacturing FDI will help develop Saint Lucia's manufacturing sector as well as promote exports for development. This manufacturing FDI can be used to encourage the production of banana products and by-products for export.



Thank You!

Any Questions?

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Calculations

Year	GDP per Capita	Exports per Capita	FDI per Capita
2015	19231.1395	92.80016795	13.00346924

Coefficient on FDI is ~ \$225. Which means a \$1 increase in FDI per capita is associated with a \$225 increase in GDP per capita.

A \$1 increase in FDI per capita at 2015 values, expressed in % terms: $(1/13.00346924)*100 = 7.69\%$.

A \$225 increase in GDP per capita at 2015 values, expressed in % terms: $(225/19231.1395)*100 = 1.17\%$.

Therefore, a 7.69% increase in FDI pc is associated with 1.17% increase in GDP pc.

Normalizing, a 1% increase in FDI pc is associated with $(1.17/7.69)\% = 0.15\%$ increase in GDP pc.