

Drivers of Domestic Private Investment, Role of Foreign Direct Investment and Economic Growth in Frontier Markets

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Abstract

This paper examines the major constraints hindering domestic private investment, the nexus among domestic private investment, foreign direct investment and economic growth in frontier market nations. It employed the dynamic panel generalized methods of moments (System-GMM) approach. The paper finds that access to finance, infrastructure, corruption control and manageable inflation rates are the important drivers of domestic private investment. On the contrary, it observes that cost of finance and governance factors thwart domestic private investment participation and its smooth thrive. It further documents that foreign direct investment and domestic private investment have a one-way directional effect, and validates a bi-directional relationship between domestic private investment and economic growth. The findings of the study imply that domestic private investment thrives in the presence of ready access to finance, good infrastructure in the form of energy and telecommunication, well-managed inflation, and the ability to control corruption. However, it is obstructed by a high cost of finance, the inability of the government to formulate and implement sound policies and regulations, and ensure confidence in and acceptance of laws. Policy-makers of frontier markets should therefore, ensure FDI inflows are well-monitored to protect domestic private investors as they play an important spillover role in the process of economic growth.

Keywords: Domestic Private Investment, Key Constraints, FDI, Economic Growth, System_GMM, Frontier Markets

1. Introduction

Domestic investment is needed in frontier market economies in order to create employment, reduce poverty, create wealth, and thereby augment economic growth. The large share of investment in any prosperous economy is domestic investment. China, Malaysia and Thailand are good examples of economies with high participation in domestic investment. According to DFID (2001), for developing economies, sustained high levels of domestic private investment (DPI) is imperative to achieving the growth rates necessary for raising the incomes of their poor people above the poverty line. Also, empirical studies conducted on developing economies in Africa, Asia and Latin America have established a strong association between domestic investment and growth (Adam, 2009; Anyanwu, 2006; World Bank, 2003). According to the African Development Bank (2006), DFID (2002) and Mlambo and Oshikoya (2001), while the reasons for poor aggregate performance vary across African, Asian and Latin American countries, there is substantial evidence that in many of the developing economies which include frontier economies, poor domestic investment response in the medium-to-long term has delayed long-term growth. Hence, the authors conclude that low domestic investment

share is the major, although not the only, source of developing economies' lower than optimal growth performance. Besides, the desire for the growth and development of emerging and frontier economies brought up the issue of the role of the private sector. For private sector investment is noted as being directly related to economic growth in the newly industrialized economies (Eastern Economic Review, 1987).

Empirical evidence has documented that private investment has a stronger, more favorable effect on growth rather than public investment, probably because private investment is more efficient and less closely associated with corruption (Dupasquier and Osakwe, 2003; Everhart and Sumlinsk, 2002; Kinkyo, 2007; and Rousseau and Kim, 2007). Yet, the link from private investment to growth is almost unfelt in frontier economies and this perhaps is largely due to constraints beyond the control of investors amongst other factors impeding especially DPI thrive. Besides, Anyanwu (2006) indicates that the trends in regional domestic investment rates estimated between 1991 to 2000 show that Africa, and Latin America and the Caribbean had the lowest domestic investment rates compared to other developing and developed regions. Anyanwu (2006) advocates that the emphasis on advancing private investment should rather be on domestic private investment (DPI) as the engine of economic growth for developing nations, which include frontier economies.

Indeed, the proposition that facilitates or hinders DPI activities in frontier economies appear to rest more on theory than on empirical studies. Without such proven empirical studies, however, FMs will not find themselves in a good position when it comes to designing practicable policies intended to stimulate DPI and thereby spur economic growth. Against this backdrop, the main purpose of this study is to find out the key constraints inhibiting DPI participation in FMs, most particularly those beyond the control of domestic private entrepreneurs or investors. Additionally, it analyzes the critical linkages between DPI and foreign direct investment (FDI) as well as DPI and economic growth (EG). It argues that FDI and EG could either facilitate or inhibit DPI in frontier markets. Also, unlike Anyanwu (2006) and Adams (2009) that focused only on Africa, and considered domestic and foreign private investment segments, this study is conducted with fresh sample on twenty (20) frontier markets and it focus on only domestic investment. Similarly, even though the works of Akanbi (2010), Alfa and Garba (2010), and Matsheka (1998) examined only domestic investment, the first two studies were conducted on only one country: Nigeria, while the latter is on Botswana. Besides, they did not examine all the constraint indicators employed by this current study. Moreover, for the empirical analysis, this study employs the dynamic panel generalized methods of moments (GMM) which captures both the cross-sectional and time dimensions of the estimations, and mitigates endogeneity, potential measurement errors and variable bias issues. In this regard, the present study is original, innovative and different from previous studies and will contribute uniquely to the scant body of literature on domestic private investment in diverse ways.

The rest of the paper is organized as follows. The next section evaluates the literature, followed by a section that captures the methodology employed, then a section that presents the empirical findings and a discussion of the results. Conclusion and policy relevance are in the final section.

2. Literature Review

2.1. Theoretical Literature

Keynes (1936) was one of the pioneers of investment theories. A central feature of the Keynesian analysis is the observation that although savings and investment must be identical, ex-post savings and investment decisions are in general taken by different decision makers and there is no reason why ex-ante savings should equal ex-ante investment. He considers investment as a function of the prospective marginal efficiency of capital in relation to a given level of interest rate reflecting the opportunity cost of the invested capital. He argues that investment is worth undertaking if the present value of the future income stream from a given level of capital investment is equal to or greater than the initial cost of capital. Furthermore, he points out the intrinsic volatility of private investment as a consequence of the

underlying uncertainty associated with the expected returns on investment. Investment theory has been in rapid evolution after Keynes' original formulation.

The neo-classical approach to investment pioneered by Jorgenson (1963, 1967, 1971), theorize that desired capital stock (K^*) is proportional to output and the user cost of capital (which in turn depends on the price of capital goods, the real rate of interest, the rate of depreciation and the tax structure). Thus, the neoclassical theory of investment posits that output levels and user cost of capital are the key determinants of investment. In this approach, the desired or optimal capital stock is proportional to output and the user cost of capital. In the neoclassical theory, the firm is assumed to reach an equilibrium level of capital stock when the value of the marginal value product of capital equals its user cost. The neoclassical model of investment is based on the assumption of perfect capital market and with little or no government intervention.

McKinnon (1973) and Shaw (1973) also formulates a neoliberal approach to investment which stresses the importance of financial deepening and high interest rates as drivers of economic growth. According to them, if economy were freed up from repressive conditions, this would induce savings, investment and economic growth. In their view, investment is positively related to the real rate of interest in contrast to the neoclassical theory. This is made possible because an increase in interest rates will lead to an increase in the volume of financial savings through financial intermediaries, and thereby increase investible funds, a phenomenon that McKinnon (1973) calls the "conduit effect".

Recent literature has introduced an element of uncertainty into investment theory due to irreversible investment (Pindyck, 1991). The argument is that since capital goods are often firm-specific and have a low resale value, disinvestment is more costly than positive investment. He argues that the net present value rule of investment, when the value of a unit of capital is at least as large as its cost must be modified when there is an irreversible investment because when an investment is made, the firm cannot disinvest should market conditions change adversely. This lost option value is an opportunity cost that must be included as part of the cost. Accordingly, "the value of the unit must exceed the purchase and installation cost by an amount equal to the value of keeping the investment option active". The theory of investment irreversibility suggests that the cost of investing in machinery and equipment is usually not recovered by a future resale. Three major sources of uncertainty were identified: unstable macroeconomic environment, unstable policy environment and external shocks.

2.2. Empirical Literature

Ndikumana (2000) examines the financial determinants of domestic investment in Sub-Saharan Africa. The study employs panel data for thirty countries over the period 1970-1995. The results indicate a positive relationship between total and private investment and three indicators of financial development. Domestic investment was positively related to per capita GDP growth and international trade flow, while credit to the private sector and inflation were negative and significantly related to investment. This is similar to Akanbi (2010), who investigated the pattern of domestic investment in Nigeria and employed the Johansen estimation techniques over the period 1970 to 2006. His findings show real output, user cost of capital, and the level of financial development and the governance indicators are the significant determinants of domestic investment in Nigeria.

Fietas and Sinha (2011) examining constraints on investment find that lower access to finance for start-ups and younger firms hinder business formation and therefore, productivity and growth. Also, market failures in serving the needs of SMEs led to inefficient financial intermediation whereby finance is not allocated to its most productive use. In addition, better access to finance enjoyed by foreign firms help them expand more quickly than their domestic rivals. Financial liberalization was found to facilitate the access of firms to credit, especially small firms, by reducing the institutional barriers and transaction costs in the market for credit. Moreover, a well-functioning commercial banking system plays a crucial role for the development of the private sector by providing finance for the investment that is needed to boost growth and hence reduce poverty.

The determinants of domestic investment in Africa were examined by Mlambo and Oshikoya (2001). They showed that macroeconomic factors such as fiscal deficit, domestic credit to the private

sector, the real exchange rate, and macroeconomic uncertainty explain a substantial part of the feeble investment performance in the region. They further argued that low domestic investment is a problem not only because investment matters for growth, but also because low investment levels further weaken an entire economy. However, Devarajan *et al.* (2001) have challenged the view that investment in Africa is too low. To them, it is the productivity of investment that is too low, being symptomatic of low capacity utilization and shortage of skills. The authors argued that public policies, insulation from market forces and weak technological capacity rendered manufacturing capital unproductive.

Exploring the promotion of investments in Africa, Anyanwu (2006) argues that the reasons for poor performance of domestic investment are attributed to the following: low domestic resource mobilization; high degree of uncertainty; poor governance, corruption and low human capital development; unfavorable regulatory environment and poor infrastructure; small individual country market sizes; high dependence on primary commodities exports and increased competition; poor image abroad; shortage of foreign exchange, the burden of huge domestic and external debt; and underdeveloped capital markets with high volatility and home bias by foreign investors.

Elboiashi *et al.*, (2009) examined the relationship between FDI inflows, DI and economic growth in Egypt, Morocco and Tunisia during the period 1970–2006 by using co-integration test and causality test. They find that FDI inflows had a short run negative effect and long run positive effect on both DI and economic growth. Additionally, they find that FDI inflows crowded-in DI in the long run. Their findings are at variance with Adams (2009), who examined the effect of FDI inflows and DI on economic growth in Sub-Saharan Africa during the period 1990-2003 by using panel analysis. He finds that DI was positive and significantly correlated with economic growth in both the OLS and fixed effects estimation, while FDI was positive and significant only in the OLS estimation and FDI inflows crowded-out. Exploring the literature, it is enlightening to note that domestic private investment has attracted limited attention, as it is empirically not exhaustive. But the role of domestic private investment in private sector decisions are important.

3. Methodology

3.1. Data

The data for the study were obtained from World Development Indicators (WDI) of the World Bank database (2015) and International Financial Statistics (IFS) of the IMF database (2015). Recent secondary data covering the period 2005 to 2014, for twenty (20) frontier markets (see appendix) were extracted and used for the analysis. The variables employed include: dependent variable- domestic private investment proxied by gross capital formation (gross outlays by the private sector on additions to its fixed domestic assets plus net changes in the level of inventories), and the predictor variables- the constraints indicators include: finance- access to finance (private credit from banks and other financial institutions (% of GDP)) and cost of finance (domestic lending interest rate (%)), while infrastructure- interacts energy use (electricity used kWh per capita) and telecommunication (telephone subscriptions- fixed and mobile per 100 people), and governance policy indicators- regulatory quality (the ability of the government to formulate and implement sound policies and regulations), corruption control (ability to curb the extent to which public power is exercised for private gain), and rule of law (the extent to which agents have confidence in and abide by the rules of society); and macroeconomic instability- inflation (annual growth rate of the GDP implicit deflator). Also, according to extant literature, the standard control variables adopted by this study include: economic growth (GDP growth per capita), market size (population size (% of total)- assumed to have purchasing power ability, remittance and consumption capacity), human capital development (secondary education completion), and financial development- financial depth (M2 (% of GDP) and market capitalization), savings measured (gross domestic savings (% of GDP)), economy size (real GDP per capita measured at GDP per capita PPP international US\$), FDI (FDI net inflow (% of GDP)), and trade openness (export and import of goods and services (% of GDP)). With exception of inflation positive relationship is expected for each.

3.2. Model Specification (s)

In line with Adams (2009), Agosin and Machado (2005), and Farla *et al.* (2014), the dynamic General Method of Moments (System-GMM) approach is used to examine the links between the key constraints factors and domestic private investment; and also among DPI, FDI and EG.

Subsequently, the domestic private investment model to be estimated is modelled as follows:

$$\text{LogDPI}_{it} = \sigma_i + \alpha_1 \text{LogDPI}_{it-1} + \beta_2 \text{Constrain}_{it} + \gamma' K_{it} + \mu_{it} \quad (1)$$

where

DPI_{it} is gross capital formation for country i at time t; $i = 1 \dots 20$; and $t = 1 \dots 10$,

σ_i is unobserved individual country specific effect; it captures the heterogeneity of the cross sectional dimension in the specification,

DPI_{it-1} is the lag of DPI- a control for potential endogeneity bias associated with the regressors in the specification; it also reflects the previous investment environment for country i at time t,

Constrain_{it} is vector containing the key constraints indicators- *finance, governance policy, infrastructure, and macroeconomic instability* for country i at time t,

K_{it} is vector of control variables for country i at time t,

μ_{it} is the error term; the remainder disturbance term, it varies with both cross-sectional and time dimensions.

Further, to investigate the relation between domestic private investment and foreign direct investment (FDI), equation (2) is stated below:

$$\text{LogFDI}_{it} = \Phi_i + \varphi_1 \text{LogFDI}_{it-1} + \varphi_2 \text{DPI}_{it} + \delta' X_{it} + \mu_{it} \quad (2)$$

where

FDI_{it} is foreign direct investment net inflows (% of GDP) for country i at time t,

Φ_i is unobserved individual country specific effect,

FDI_{it-1} is lag of FDI inflows: previous FDI performance for country i at time t,

X_{it} is vector of control variables for country i at time t,

μ_{it} is the error term; the remainder disturbance term.

Similarly, to examine the relation between domestic private investment and economic growth (GDP growth), equation (3) is specified below:

$$\text{LogGDPgrowth}_{it} = \theta_i + \omega_1 \text{LogGDPgrowth}_{it-1} + \omega_2 \text{GCF}_{it} + \rho' Z_{it} + \mu_{it}'' \quad (3)$$

where

GDPgrowth_{it} is GDP growth per capita increases in economic growth per the population for country i at time t,

θ_i is unobserved individual country specific effect,

GDPgrowth_{it-1} is lag of GDP growth per capita : increases in past growth performance per the population for country i at time t,

Z_{it} is vector of control variables for country i at time t,

μ_{it}'' is the error term; the remainder disturbance term.

3.3. Dynamic Generalized Method of Moments (System-GMM) and Estimation of Empirical Model

The dynamic panel method has been proposed as a superior econometric technique for use in cross-country regressions, because it allows for the inclusion of country-specific effects, and it also exploits the time series dimension of the data, thereby giving greater degrees of freedom. Earlier empirical studies made use of the fixed effects estimator, which allows the modelling of the unobserved country specific effects as well as fixed parameters to be estimated. Yet to control for potential endogeneity and heteroskedasticity bias, the dynamic GMM estimator proposed by Blundell & Bond (1998) is used by recent studies. In this respect, the study adopted GMM in which lags of the dependent variables are included in the model as a valid instrument and tested for reverse causalities to control for potential measurement errors, omitted variable and simultaneous causality bias.

The empirical model specified in equation (1) is characterized by endogeneity and collinearity of some of the regressors. For instance, in equation (1), FDI and real GDP are highly endogenous as they are also determined by the dependent variable: DPI (Zhang, 2012; Asici, 2011). Both are tested to further validate the robustness of the model. Moreover, in equation (1), private credit is highly correlated with the regressor financial depth (Jawaid and Raza, 2012). In this regard, GMM is applied to curb such problems. Besides, it enable one to perform vital diagnostic tests such as first- and second-order autocorrelation test and a Sargan test statistics of over-identification of instruments (Baltagi, 2008; Arrelano and Bond, 1991) which ensure the outcomes are consistent and reliable.

4. Empirical Results and Discussions

4.1. Summary Statistics

This section presents the summary statistics of the variables employed for the study.

Table 1: Summary Statistics

	Observation	Mean	Standard Deviation	Minimum	Maximum
Domest_privinvest	192	0.229804	0.061124	0.05459	0.460166
Crdt_priv	200	0.541814	0.540375	0.087661	3.050869
Interest_charge	147	0.117362	0.04448	0.045613	0.218742
Mobile_usage	200	4.16906	0.773479	0.677757	5.270496
Fixed_telephone	200	94.05693	48.9347	2.5578	211.2014
Rule_of_law	200	0.483306	0.225058	0.066986	0.870192
Regul_qual~y	200	0.511706	0.202362	0.066986	0.909091
Corrupt_ctrl	200	0.480385	0.23603	0.029268	0.923445
Inflation	200	0.089536	0.111882	-0.24218	1.038228
FDI inflows	200	0.037787	0.035919	-0.04377	0.171343
GDPgrowth	200	8.322667	1.331436	-6.137297	11.03712
Trade	196	0.830103	0.303012	0.268582	1.583469
Popn	200	16.04055	1.657125	13.50367	19.01507
M2	192	0.624074	0.512972	0.177322	2.580331
Market_cap	137	0.306117	0.265442	0.009344	1.283699
GDPC_ppp	190	9.367049	1.082701	7.520135	11.80647
Domestic_savings	196	0.231513	0.179118	-0.05341	0.746132
Grossenrollment	153	76.53629	23.32975575	24.0981	122.899

Source: computed from data collected for the study

Table 1 captures the summary statistics of the variables employed for the study. From table 1, the mean of domestic private investment is 22. 98%, with a minimum of 5.46% and a maximum of 46.02%. The mean of the inquiry variable suggests that domestic private investment is indeed very low

in frontier markets. Also, the result implies that frontier countries that drift towards the lower range have very low domestic private investment whilst frontier countries skewed towards the upper range have moderate levels of domestic private investment.

Over the study period access to finance (private credit) and cost of finance (lending interest rate) reported mean of 54.18 and 11.4% respectively. Also, it reported minimum values of 8.77% and 4.56; and maximum values 305.87% and 21.87% respectively. This result shows that bank credit to the private sector is the main source of finance for domestic investment activity in frontier markets, but it is associated with somewhat high cost. The mean of mobile telephony and fixed telephone lines are 4.17 and 94.06 respectively over the period. This shows that the frontier countries sampled enjoy high fixed lines services. However, a lot more need to be done to improve mobile telephony usage in frontier economies. The governance factors reported mean of 48.33%, 51.17% and 48.03% for rule of law, regulatory quality and corrupt control respectively, suggesting that the governance outcomes in frontier nations are quite weak. Inflation reports a mean of 8.95%, indicating that most frontier economies experience high economic volatilities hence unfavourable for investors and their businesses to thrive smoothly. The mean levels of GDPgrowth and FDI inflows scaled by GDP are 8.32 and 3.77% respectively, reflecting low income levels for most countries in the sample. Surprisingly, the result imply that the level of GCF (domestic private investment) outweighs the level of FDI for frontier markets.

Furthermore, table 1 indicates trade, population, M2, market capitalization, GDPppp, domestic savings and gross enrollment variables reported mean values of 83.01%, 16, 62.40%, 30.61%, 9.37, 23.15% and 76. 54 respectively. This result suggests that openness to international trade, the presence of steady market for goods and services produced locally, deep financial system with the banking sector exhibiting more depth than the capital market, economic activity and enrollment in secondary education reported appreciable degrees, whilst domestic savings shows the low level of saving in frontier markets. This result suggests that in particular the level of secondary education has greatly improved. This shows that more efforts should be put in by governments and policymakers of frontier countries to achieve greater or full literacy.

Table 2: Pearson's Correlation Matrix of Dependent (DPI) and Independent Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 grosscapital_form (DPI)	1																		
2 private_credit	0.2106	1																	
3 lending_interest	-0.2532	-0.3312	1																
4 fixedtelephone	0.0945	0.3252	-0.1019	1															
5 mobile_phone	0.159	0.207	-0.2964	0.2776	1														
6 electricity_use	0.0562	0.1296	0.2485	0.4318	0.3448	1													
7 regul_quality	0.1102	0.3191	-0.2381	0.5509	0.3091	0.3322	1												
8 rule_of_law	0.2213	0.4092	-0.3247	0.4665	0.3075	0.381	0.8251	1											
9 corrupt_ctrl	0.141	0.3344	-0.1982	0.4546	0.2623	0.4286	0.8164	0.8996	1										
10 inflation	-0.0802	0.2672	0.2453	-0.0768	-0.1512	-0.0187	-0.2101	-0.2038	-0.1753	1									
11 foreigndirect	0.1816	0.2068	-0.1008	0.2636	0.1351	0.0504	0.2628	0.1821	0.1661	-0.0386	1								
12 gdpgrowth	0.0726	0.2159	-0.2482	0.4509	0.3041	0.8212	0.3719	0.4455	0.5074	-0.0592	0.0345	1							
13 trade_gdp	0.1484	0.44	-0.424	0.2635	0.3294	0.2998	0.4497	0.4894	0.4188	-0.1615	0.2966	0.2643	1						
14 population	0.414	0.1274	-0.029	-0.1257	-0.1729	-0.1607	-0.2581	-0.1524	-0.2316	-0.0199	-0.1038	-0.1937	-0.3173	1					
15 M2	0.2605	0.8856	-0.2708	0.258	0.1457	0.0875	0.236	0.3321	0.2368	-0.2547	0.2059	0.1335	0.3733	0.2041	1				
16 market_capitaliz	0.1027	0.3108	-0.1511	0.0478	0.1888	0.3611	0.2471	0.2652	0.3057	-0.063	0.1343	0.2572	0.1813	0.0556	0.3573	1			
17 gdp_ppp	0.0685	0.1274	-0.2581	0.3985	0.3269	0.8538	0.324	0.4138	0.4695	-0.0368	-0.0036	0.9769	0.2583	-0.1861	0.0668	0.2881	1		
18 grossdom_saving	0.2906	0.0991	-0.2512	0.189	0.2335	0.6076	0.1292	0.2354	0.2563	-0.014	-0.0978	0.6087	0.1988	0.1809	0.0197	0.257	0.6622	1	
19 grossenrollment	0.1323	0.1679	-0.2519	0.6822	0.5436	0.4894	0.6258	0.5639	0.5963	-0.1842	0.1674	0.4677	0.29	-0.2603	0.0912	0.2148	0.4655	0.1739	1

Source: computed from data collected; significance at 5%

The pearson correlation matrix (table 2) indicates that for frontier markets, the relationship between domestic private investment (DPI) and few of its driver variables are strong. Also, the positive coefficients show direct correlation with the domestic private investment variable, whilst those with the negative coefficients show inverse correlation. Accordingly, the study applied dynamic GMM to mitigate or eliminate the possibility of multi-correlation challenges.

4.2. Diagnostic Test Results

The Diagnostic tests (AR-1, AR-2 and Sargan test) results suggest that the specification is correct, the results are consistent and reliable. Thus, the statistical properties of the GMM model conform to standard and therefore render the results reliable. In addition, the tests results show that there are no autocorrelation, no heteroscedasticity and the errors are normally distributed. Thus, the index of each of the independent variables influence frontier markets' long-term domestic private investment functioning over the study period.

4.3. Dynamic GMM Results

A number of trials were conducted for each equation, and five had been reported. As indicated in Tables 3, 4 and 5 most of the estimated regressors had their expected theoretical or empirical signs and were statistically significant after performing all the required diagnostic tests.

4.4. Empirical Results of Key Constraints to Domestic Private Investment (DPI)

Table 3 presents the results of the key constraint to domestic private investment.

Table 3: Key Constraints to Domestic Private Investment (DPI)

VARIABLES	(1)	(2)	(3)	(4)	(5)
	DPI	DPI	DPI	DPI	DPI
Cost of Finance	-0.0158 (0.150)	-0.317** (0.154)	0.314 (0.212)	-0.566*** (0.199)	-0.0644 (0.137)
Access to Finance	0.0216 (0.0229)		0.0656*** (0.0230)		0.234** (0.0953)
Infrastructure	0.00300 (0.00972)	0.0137*** (0.00468)	0.0198* (0.0116)	0.0125 (0.00802)	0.0194* (0.0103)
Regulatory Quality	-0.0893 (0.0763)		0.0816 (0.0895)		-0.0759 (0.0587)
Rule of Law	-0.173** (0.0767)	0.0168 (0.0655)	-0.180** (0.0847)	-0.00548 (0.0928)	
Corruption Control	0.185** (0.0734)	0.283*** (0.100)	0.292*** (0.0728)	0.234** (0.0953)	
Inflation	0.0189 (0.0215)	0.0348* (0.0182)	0.0210 (0.0240)	0.0388* (0.0230)	0.0603*** (0.0221)
Human Capital Developt.	0.0514** (0.0217)	0.00629*** (0.00156)	0.0781*** (0.0223)	0.0119*** (0.00376)	
Foreign Investment (FDI)	0.293** (0.123)	0.382*** (0.0886)	0.119 (0.145)	0.769*** (0.186)	0.0672 (0.0988)
Trade Openness	0.0147 (0.0228)			-0.0942* (0.0502)	0.0196 (0.0173)
Market Size	-0.0455* (0.0241)		-0.0632*** (0.0235)		-0.00892* (0.00500)
Economic Growth (EG)	0.0151 (0.0143)		0.0261*** (0.00666)		0.0295*** (0.00894)
Bank Development	-0.00827 (0.0136)	0.0150** (0.00625)		0.0347*** (0.0134)	
Stock Mkt. Development	-0.0118 (0.0144)	-0.0139 (0.0110)	0.0366** (0.0166)		0.0205* (0.0115)
Domestic Investm Environ	0.635*** (0.155)	0.0362 (0.154)	0.160 (0.199)	0.319* (0.171)	0.457*** (0.132)
Observations	66	98	75	101	82
Number of Countries	13	15	14	16	14
Number of Instruments	22	19	16	15	16
AR-1 (Prob.)	0.054	0.684	0.064	0.405	0.576
AR-2 (Prob.)	0.400	0.125	0.971	0.266	0.284
Sargan test (P-Value)	0.123	0.186	0.119	0.118	0.660

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Consistent with the prediction of the neoclassical theory, the paper finds the cost of finance (the user cost of capital) to be negative and statistically significant for the trials in columns 2 and 4. This result implies that the sign of the cost of finance (interest rate) does not support the McKinnon-Shaw (1973) hypothesis. This result confirms the empirical works of (Frimpong and Marbuah, 2010; Jongwanich and Kohpaiboon, 2008). However, it is contrary to the finding of (Asante, 2000) which establishes a robust positive relationship between interest rate and private investment.

Similarly, access to finance has a positive and statistically significant values for the trials in columns 3 and 5. This suggests that many private enterprises in frontier economies depend on credit to carry out their investment projects or activities. Access to finance as far as investors are concerned is an important factor since it provides external finance to investors. This finding is consistent with (Adam 2009; Anyanwu, 2006; Matsheka, 1998). Notwithstanding its imperative role, lack of access to finance is often cited in surveys as the dominant constraint to private investment activities. There are also empirical evidence of demand for external finance by enterprises that want to expand beyond the limits of self-finance but have historically lacked access to credit (Asante, 2000; Anyanwu, 2006). Moreover, the result submits that DPI activities favour frontier economies that have good infrastructure in terms of good telecommunication (telephone) and electric energy. It finds a positive and statistically significant values for the trials in columns 2, 3 and 5. The result validates the notion that lack of creation and maintenance of basic infrastructure particularly telecommunication and electricity for private investors to operate efficiently and profitably hinder domestic private investment thrive and initiatives by potential private investors.

Amazingly, for all the trials the paper documents that regulatory quality is unresponsive to domestic private investment in frontier markets. It also establishes a negative and statistically significant values for rule of law in columns 1 and 3. This result is not surprising as it confirms that laws governing investment indeed lack effective application. Yet, corruption control has a positive and statistically significant values for all the trials. This result attests that corruption control is very crucial to domestic private investment activities. This is because the inability of governments to put forward pragmatic and effective mechanisms to control corruption is a canker to investment thrive particularly investment owned by private domestic investors. Corruption should therefore, be frowned upon, and renamed as “public theft, public stealing or public robbery” and stiffer punishment must be meted out to culprits who steal public funds for their private gains to deter potential perpetrators. Furthermore, even though the results of the regulatory control and rule of law are contrary to theoretical intuitions, investors prefer economies with sound, prudent and effective regulations, laws and policies which protect investors' interest and wealth. The results obtained support Vergara (2004), Mbanga (2002) and Asante (2000), but disagree with Islam and Wetzel (1991).

A rather astounding result is the positive inflation obtained. Inflation is significantly positive for most of the trials as in columns 2, 4 and 5, and this result is contrary to the theoretical proposition that high inflation rates create an environment of macroeconomic instability and therefore deter investment participation in any economy. This result contradicts empirical findings of Were (2001) for Sub Sahara Africa. It, however, confirms the empirical works of Frimpong and Marbuah (2010) for Ghana; and Acosta and Loza (2005) for private investment in Argentina that maintain that inflation stimulates private investment. Besides, this result may not be strange as some entrepreneurs or investors in frontier market economies respond to higher prices by increasing their production or supply of goods and services to take advantage of the spiraling prices to boost their profitability. Notwithstanding, inflation should be kept within manageable rates. Furthermore, this result is inconsistent with theoretical literature and cannot be explained in totality.

For the controls, aside the human capital, all the indicators are proxies for the criteria for qualification as a frontier market. Human capital development is positive and statistically significant for all the trials. This implies that the level of human development is a decisive factor for stimulating private domestic investment participation, particularly so as persons with high level of expertise, skills, and competences are needed to undertake and manage investment activities. The result for FDI was positive and highly statistically significant for most of the trials as in columns 1, 2, and 3. This result

indicates that FDI inflow complements DPI activities in frontier markets and this finding is similar to numerous studies in the extant literature, such as (Ndikumana & Verick, 2008; Elboishi et al. 2009; and Farla et al, 2014). Trade openness is negative and significant in column 4, this result implies that high degree of trade openness hampers domestic private investment thrive in frontier markets. This claim is not surprising because opening an economy to all sorts of importation of goods will surely expose domestic investors to severe competition and eventual exit. Additionally, market size is negative and statistically significant in all the trials in columns 1, 3, and 5, contrary to the widely held belief that market size proxied by population size epitomizes ready market for goods and services produced or supplied in any economy. The paper establishes that a surging population rather inhibits DPI in frontier markets, probably due to most economic agents lacking purchasing power ability.

Economic growth is positive and statistically significant for some of the trials as in columns 2 and 5. This signifies that as economic activities in frontier markets increase, they do augment domestic investment activities. This result is endorsed by most empirical studies in the growing empirical literature such as (Akpalu, 2002; Asante, 2000; Outtarra, 2005), among a few other studies. Bank development in columns 2 and 4; and capital market development in columns 3 and 5 have positive and statistically significant values for financial development for the trials conducted. This finding is supported by literature that a well-developed financial system is a requisite for investment thrive. Domestic investment environment is positive and significant for the trials in columns 1, 4 and 5. This shows that previous domestic investment performances are important to facilitating further promotion of domestic private investment participation and thrive in frontier market economies.

4.5. Estimation Results of Domestic Private Investment and FDI Inflows

Table 4 presents the results of the reverse linkage between domestic private investment and Foreign Direct Investment (FDI).

Table 4: Domestic Private Investment (DPI) and Foreign Direct Investment (FDI)

VARIABLES	(1)	(2)	(3)	(4)	(5)
	FDI	FDI	FDI	FDI	FDI
DPI	-0.328*** (0.113)	-0.390*** (0.115)	-0.328*** (0.112)	-0.517*** (0.121)	-0.563*** (0.117)
Infrastructure	0.00876*** (0.00303)		0.00857*** (0.00301)	0.00173 (0.00235)	0.00368 (0.00255)
Economy size	-0.00665** (0.00338)	-0.00194 (0.00306)	-0.00642* (0.00337)	0.00514 (0.00338)	-0.0516* (0.0275)
Trade Openness	0.0885*** (0.0121)	0.0954*** (0.0124)	0.0853*** (0.0118)	0.0934*** (0.0105)	0.113*** (0.0138)
Market Size	0.00476*** (0.00151)	0.00296** (0.00127)	0.00487*** (0.00151)	0.00180** (0.000736)	
Bank Development	0.0210*** (0.00495)	0.0228*** (0.00506)	0.0198*** (0.00484)	0.0137*** (0.00470)	
Stock Mkt. Development	-0.00491 (0.00966)	-0.00768 (0.00969)	-0.00556 (0.00963)		0.0170* (0.00925)
Rule of Law	0.0255 (0.0225)	0.0197 (0.0222)	0.0276 (0.0225)		-0.0218 (0.0159)
Inflation	0.0184 (0.0182)	0.0236 (0.0186)		0.00700 (0.0167)	0.0175 (0.0189)
Previous FDI Performance	-0.222 (0.138)	-0.290** (0.141)	-0.208 (0.136)	-0.233** (0.106)	-0.264* (0.137)
Observations	117	117	117	175	123
Number of Countries	17	17	17	19	17
Number of Instruments	14	13	13	12	12
AR-1 (Prob.)	0.350	0.878	0.319	0.484	0.610
AR-2 (Prob.)	0.286	0.549	0.326	0.627	0.709
Sargan test (P-Value)	0.110	0.137	0.114	0.137	0.112

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

For all of the trials, the results of DPI and FDI are negative and highly significant at 1 percent significance level. This result suggests that DPI is seriously inhibited by high levels of FDI inflows and that they are substitutes, which signify that high FDI inflows ultimately crowd-out DPI in Frontier Markets' context. The estimation results confirm some empirical studies (Adam 2009; Anyanwu, 2006) that maintain that FDI inflows do not supplement domestic investment activities. Instead, they substitute or compete with each other, more so, as foreign investors repatriate their profits to their home countries.

The paper finds that the control indicators have positive and statistically significant values at different significant levels for the trials conducted as follows: infrastructure in columns 1 and 3; trade openness, market size, and bank development for all the columns; and stock market development for only column 5; while it finds negative and statistically significant values at different levels for economy size in columns 1 and 3; and previous FDI performance in columns 2, 4 and 5. The result suggests that FDI are attracted to frontier economies that have good infrastructure developed in terms of both electric energy and telecommunication (telephone). It also validates that the lack of creation and maintenance of basic infrastructure for private investors and businesses to operate efficiently and profitably hinder domestic private investment activities in frontier markets. Moreover, the implication of the findings are that the degree of trade openness, level of market size and financial development do really matter to attract FDI to frontier market nations. But it portrays the underdeveloped nature of stock markets in frontier markets. But, a well-developed financial system is desirable because foreign investors may like to access or raise funds from the local capital markets and/ or banks after investing in a local economy. The rather puzzle result is the negative results obtained for economy size. As this is contrary to the theoretical institutions that high level of economic activities facilitates FDI inflows to an economy. The reaction of the economy size, although a puzzle, cannot be explained.

4.6. Estimation Results of Domestic Private Investment and Economic Growth

Table 5 presents the results of the reverse link between domestic private investment and economic growth.

Table 5: Domestic Private Investment (DPI) and Economic Growth (EG)

VARIABLES	(1) EG	(2) EG	(3) EG	(4) EG	(5) EG
DPI	0.779*** (0.165)	0.881*** (0.142)	0.567*** (0.175)	0.753*** (0.136)	0.774*** (0.186)
Population Growth Rate	-1.287*** (0.238)		-0.607*** (0.169)	0.153 (0.268)	-1.932*** (0.328)
Savings	0.125* (0.0711)	0.184*** (0.0596)			0.689*** (0.200)
Investment _FDI	0.437*** (0.129)		0.615*** (0.137)	0.193* (0.107)	
Infrastructure	-0.01000 (0.0102)	0.0459*** (0.00996)			
Human Capital Developt.	-0.00587 (0.00846)	0.0331*** (0.00818)	0.0178*** (0.00408)	0.0216*** (0.00615)	0.0391*** (0.0134)
Bank Development	-0.0171 (0.0186)	0.0614*** (0.0171)		0.0471*** (0.0174)	0.148*** (0.0535)
Stock Mkt. Development	0.0311* (0.0170)		0.0933*** (0.0183)		0.0712*** (0.0244)
Inflation	-0.0530** (0.0257)	-0.0572** (0.0243)	0.0285 (0.0254)	0.0361 (0.0225)	
Corruption Control	0.110* (0.0656)	0.163*** (0.0593)	0.234*** (0.0676)	0.330*** (0.0952)	0.376** (0.162)
Lag Economic Growth	0.996*** (0.0189)	0.906*** (0.0175)	0.940*** (0.00923)	0.923*** (0.0156)	0.868*** (0.0382)
Observations	83	121	94	129	89
Number of Countries	18	20	18	20	18
Number of Instruments	15	12	12	12	12
AR-1 (Prob.)	0.921	0.513	0.084	0.657	0.346
AR-2 (Prob.)	0.202	0.797	0.572	0.541	0.376
Sargan test (P-Value)	0.117	0.120	0.119	0.118	0.348

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

DPI is positive and highly significant with EG for all the trials conducted. The result establishes that domestic private investment augments economic growth in frontier markets, and the reverse applies. This finding suggests that DPI drives increased economic activities, and likewise high economic activity levels do foster high DPI participation and thrive. Thus, it documents a bi-directional relation between DPI and EG in frontier markets context. The highly significant positive relation of economic growth- real GDP growth - and domestic private investment- gross capital formation- is consistent with the accelerator theory. Theoretically, it shows that firms in frontier markets operate at full capacity, thereby increasing growth in real output which necessitates an expansion of private capital stock. Nevertheless, this result disagrees with that of Agosin and Machado (2005), Akpalu (2002) and Farla et al (2014). This finding reinforces the belief that domestic private investment is more instrumental to economic growth progression.

With regard to the control variables, savings, FDI, infrastructure, human capital development, bank development, stock market development, corruption control and previous performance have positive and statistically significant values for most of the trials conducted. The results show that these indicators boost economic growth. Indeed, the findings confirm that especially the level of development of human capital, openness of the economy in terms of FDI inflows, the degree of control of corruption and the level of development of financial system are very crucial to stimulating the growth process. Conversely, population growth rate has negative and highly significant values for most of the trials, depicting that rapid population growth rate is deleterious to economic progression in frontier markets. The latter result is inconsistent with Solow theoretical intuitions and hence cannot be explained wholly. Also Inflation is negative and statistically significant at 5% significance level. This result supports the assertion that high inflation rates are often considered an indicator of macroeconomic instability and a country's inability to control macroeconomic policy, which contribute to an adverse investment climate. Moreover, inflation discourages long-term lending by financial intermediaries, which further reduces the investment rate. Fischer (1993) puts it as follows: "In essence, the inflation rate serves as an indicator of the overall ability of the government to manage the economy. Since there are no good arguments for very high rates of inflation, a government that is producing high inflation is a government that has lost control". Evidently, there is little incentive to invest in a country where the government has lost control over the macroeconomic environment. Inflation therefore, is deleterious to economic growth, and this result corroborates the findings of (Adams, 2009; Asante, 2000; Ndikumana, 2000).

5. Conclusion and Policy Relevance

The study analyzed the major constraints to domestic private investment in frontier markets, over the period 2005-2014 and it employed the dynamic panel method. The key constrained indicators explored are finance, governance policy, infrastructure and macroeconomic instability. The results show that access to finance, infrastructure, corruption control and manageable rate of inflation facilitate domestic private investment. This is because entrepreneurs and potential investors prefer economies with readily available finance, provision and upgrade of basic infrastructural framework, and prudent governance policies, particularly effective rules and laws that deter public officials from stealing state funds for their private gains, which impedes domestic private investment involvement as it takes away monies and resources for supporting investment activities. Also the results indicate that ineffective application of rule of law, lack of demand or ready market for goods and services produced or supplied, and lack of reasonable restrictions on importations of goods and services that compete with those produced or supplied by domestic private investors inhibit domestic private investment participation and thrive.

Moreover, the second estimations find a uni-directional link between DPI and FDI, while the third estimations establish a bi-directional relation between DPI and economic growth in frontier markets. Therefore, the paper affirms and concludes that DPI and FDI are substitutes, while promoting DPI is very crucial to the economic growth processes of frontier market nations as they are

complements. The study lends empirical support to Augmented Solow Growth theories, which highlight the significance of physical capital, human capital, technology, savings, and population growth rate as the key growth factors in any economic system. Additionally, it provides a framework for understanding the major constraints to domestic private investment participation and thrive in the economies of frontier markets. It utilizes the criteria for frontier markets namely the degree of the economy size, trade openness, FDI inflows, and population size- as control variables. Therefore, the study empirically reinforces with evidence that major constraints beyond the control of private investors and/ or potential entrepreneurs facilitate or inhibit investment participation by domestic private investors.

The study has significant theoretical, policy and real-world implications. It implies that lack of access to affordable finance, good governance policies, basic infrastructure provision and upgrade, presence of a well-functioning financial system, quality human resource with high acumen, skills and competences, and effective inflation control are critical bedrocks hampering domestic private investment participation in frontier market nations. Moreover, lack of clear laws, punitive or stiffer punishment meted-out to offenders of public financial malfeasance is detrimental to domestic private investment in frontier market nations. Besides, it implies FDI inflows may initially facilitate DPI, but it may inhibit it in due course. Furthermore, it suggests DPI plays an important spillover role in the process of economic growth, and the reverse is the case in frontier markets.

Appendix

Note.

Frontier markets are developing markets which are smaller than emerging markets and they meet unique criteria requirements.

Selected list of frontier markets.

Table 6: Twenty (20) Frontier Markets employed by the study per Geographical Region:

Latin America-Caribbean	Europe-Mediterranean	Asia-Pacific	Africa	Middle East
Argentina ² Jamaica Panama	Cyprus Latvia	Bangladesh Pakistan ² Sri Lanka	Botswana Ghana Kenya Mauritius Namibia Nigeria ² Tunisia	Ecuador Kuwait Lebanon Qatar Saudi Arabia ¹

Source: Authors' compilation based on Standard and Poor's (S&P) July 1, 2014 Indices.

Note: 1. superscripts 1 and 2 indicate top five and bottom five ranking respectively by Bloomberg 2015.

References

- [1] Acosta, P., and Loza, A. (2005). Short and long run determinants of private investment in Argentina. *Journal of Applied Economics*, 8(2), 389-406.
- [2] Adams, S. (2009). Foreign direct investment, domestic investment, and economic growth in Sub-Saharan Africa. *Journal of Policy Modeling*, 31(6), 939–949.
- [3] Agosin, M. and Machado, R. (2005). Foreign Investment in Developing Countries: Does It Crowd in Domestic Investment? *Oxford Development Studies*, 33, 149-162.
- [4] Akanbi, O. A. (2010). Role of Governance in Explaining Domestic Investment in Nigeria. Working Paper Number 168. Department of Economics, University of Pretoria, South Africa.
- [5] Akpalu, W. (2002). Modelling Private Investment in Ghana: An Empirical Time Series Econometrics Investigation (1970-1994)," The *Oguaa Journal of Social Sciences*, Vol. 4, Faculty of Social Sciences, University of Cape Coast.

- [6] Alfa, A. B. and Garba, T. (2010). The relationship between domestic investment and economic growth in Nigeria
- [7] Anyanwu, J. C. (2006). Promoting of Investment in Africa. *African Development Review*, 18(1), 42-71.
- [8] Blundell, R., and Bond S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87, 115–143.
- [9] Asante, Y. (2000). Determinants of Private Investment Behaviour. AERC Research Paper No. 100, Nairobi: AERC.
- [10] Chang, S. C. (2010). Estimating relationships among FDI inflow, domestic capital, and economic growth using the threshold error correction approach. *Emerging Markets Finance & Trade*, 46(1), 6–15.
- [11] Chenery, H. B. (1952). Overcapacity and Acceleration principle. *Econometrica*, 20:1-28.
- [12] Deverajan, S., Easterly W. R., and Pack H. (2001). Is Investment in Africa Too Low or Too High? Macro and Micro Evidence. Washington DC, World Bank.
- [13] DFID (2001). Investment and developing countries, Background Briefing, September, London.
- [14] Elboiashi, H., Noorbakhsh, F., Paloni, A. and Azemar, C. (2009). The causal relationships between foreign direct investment (FDI), domestic investment (DI) and economic growth (GDP) in North African non-oil producing countries: empirical evidence from cointegration analysis”, *Advances in Management*, 2(11), 19-25.
- [15] Everhart, S. S. and M. A. Sumlinsk. (2002). *Trends in Private Investment in Developing Countries Statistics for 1970–2000 and the Impact on Private Investment of Corruption and the Quality of Public Investment*. Washington DC, World Bank.
- [16] Fiestas, I. and Sinha, S. Constraints to private investment in the poorest developing countries - A review of the literature, Nathan Association Ltd, UK, 2011.
- [17] Frimpong, J. M., & Marbuah, G. (2010). The determinants of private sector investment in Ghana: An ARDL approach. *European Journal of Social Sciences*, 15(2), 250-261.
- [18] Fry, M.J. (1993). *FDI in a macroeconomic framework: Finance, efficiency, incentives, and distortions*. Policy Research Working papers No. 1141. Washington, DC: World Bank.
- [19] Göçer, İ., Mercan, M., & Peker, O. (2014). Effect of Foreign Direct Investments on the Domestic Investments of Developing Countries: A Dynamic Panel Data Analysis. *Journal of Economic and Social Studies*, 4(1), 69-87.
- [20] Greene, J.E. & Villanueva D. (1991). Private Investment in Developing Countries. An Empirical Analysis. IMF Staff papers, 38(1), 33 – 58.
- [21] Hermes, N. and Lensink, R. (2003) Foreign direct investment, financial development and economic growth, *Journal of Development Studies*, 40, 142–63.
- [22] Hoeffler, A. (2002), “Openness, Investment and Growth,” *Journal of African Economies*, 10(4), 470-497.
- [23] Hsiao, C. (1981). Autoregressive Modelling and Money Income Causality Detection. *Oxford Bulletin of Economics and Statistics*. 7:85-106.
- [24] Islam, R., and Wetzel, D.L. (1991): “The Macroeconomics of Public Sector Deficits: The Caseof Ghana,” Country Economics Department Working Papers, No. 672, World Bank.
- [25] Jorgenson, D. W. (1963). Capital Theory and Investment Behavior. *American Economic Review Papers and Proceedings*. 53, 247–59.
- [26] Jorgenson, D.W. (1967). The Theory of Investment Behavior. In Ferber, R. (ed.), *Determinants of Investment Behavior*. pp. 129-55. New York: National Bureau of Economic Research.
- [27] Jorgenson, D. W. (1971). Econometric Studies of Investment Behavior: A Survey. *Journal of Economic Literature (Nashville, Tennessee)*. Vol. 9, pp. 1111-47.
- [28] Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. London, UK: Macmillan
- [29] Koyck, L.M. (1954). Distributed Lags and Investment Analysis. *North Holland*, Amsterdam

- [30] Mbanga, G.N., (2002): "External Debt and Private Investment in Cameroon," AJEP, 109-124.
- [31] McKinnon, R. (1973) *Money and Capital in Economic Development*, Washington, Brookings Institution.
- [32] Mlambo, K., & Oshikoya, T. W. (2001). Macroeconomic factors and investment in Africa. *Journal of African Economies*, 10 (suppl 2), 12-47.
- [33] Pindyck, R. S. (1991). Irreversibility, Uncertainty and Investment. *Journal of Economic Literature*. 29, 1110-1148.
- [34] Pesaran, M. Hashem & Yongcheol Shin (1999). An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis. In Strom S. (ed.), *Econometrics and Economic theory in the 20th century: The Ragnar Frisch*. Cambridge, UK, Cambridge University Press.
- [35] Pesaran, M. H., Shin, Y., & Smith, R. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16, 289–326.
- [36] Ram, R., & Zhang, K. (2002). Foreign direct investment and economic growth: Evidence from cross-country data for the 1990s. *Economic Development and Cultural Change*, 51(1), 205–215.
- [37] Ribeiro, Marcio, and Joaquin Teixeira (2001), "Análisis econométrico de la inversión privada en Brasil", *Revista de la CEPAL* 74: 159-73.
- [38] Roodman, D. (2009a). A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics*, 71(1), 135–158.
- [39] Roodman, D. (2009b). How to do xtabond2: An introduction to difference and system GMM in Stata. *Stata Journal*, 9(1), 86–136.
- [40] Serven, L., and Solimano A. (1992). Private Investment and Macroeconomic Adjustment: A Survey. *World Bank Research Observer* 7(1), 95-114
- [41] Serven, L. and Solimano, A. (1993) Economic adjustment and investment performance in developing countries: the experience of the 1980s, in Striving for Growth after Adjustment: The Role of Capital Formation (Eds) L. Serven and A. Solimano, Washington, DC, World Bank , pp. 147–79.
- [42] Tang, S., Selvanathan, E. A., & Selvanathan, S. (2008). Foreign direct investment, domestic investment and economic growth in China: A time series analysis. *World Economy*, 31(10), 1292–1309.
- [43] Toda, H. Y., & Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of econometrics*, 66(1), 225-250.
- [44] Vergara, R., (2004): "Taxation and Private Investment Evidence for Chile". First draft, Economics Department, Universidad Católica de Chile. *European Journal of Social Sciences – Vol.15, No. 2 (2010)261*
- [45] Wai, U. T. and Wong, C.-H. (1982) Determinants of private investment in developing countries, *Journal of Development Studies*, 19, 19 - 36.
- [46] Xu, G., & Wang, R. (2007). The effect of foreign direct investment on domestic capital formation, trade, and economic growth in a transition economy: Evidence from China. *Global Economy Journal*, 7(2), 1-21.