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SPILLOVER EFFECTS OF FOREIGN DIRECT INVESTMENT INFLOWS ON DOMESTIC INVESTMENT WITHIN ZIMBABWE'S MANUFACTURING SECTOR: TRUTH IS NOT TRUTH?

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Abstract

The spill over benefits of foreign direct investment in developing economies include; lowering production costs, increasing exports returns, improving human capital development, enhancing process efficiencies, creating new employment, facilitating technological progress and knowledge transfer. However, taking advantages of spill over benefits and ensure the growth of domestic investment in Zimbabwe's manufacturing sector have proven elusive. The study investigated foreign direct investment spill over benefits on domestic investment within Zimbabwe manufacturing firms for the period 1980 to 2012. The study was designed to use annual time series observations and adopted the flexible accelerator model of investment behaviour. Domestic investment, domestic savings, business uncertainties, lagged GDP and public investment were found to be statistically significant. Policies that strengthen domestic resource mobilization strategies in order to raise domestic savings growth rate; improve the productivity of public investments expenditures especially those that complement and attract FDI inflows into the economy, and reduce business uncertainties are recommended. The study contributes to literature by demonstrating the modification of the flexible accelerator investment model to include variables like foreign direct investment and business uncertainties, issues that are critical for domestic investment growth in most developing countries.

Keywords: FDI, Spill overs, domestic investment, manufacturing sector, Zimbabwe

INTRODUCTION

Foreign direct investment (FDI) may be defined as an investment that is made by a foreign firm or individual investor for the purposes of acquiring a lasting interest and management control in an enterprise or firm operating in an economy or country other than that of the investor. Having management control over the acquired interest or subsidiary implies that the foreign investor is able to manage the financial and operating policies of the host firm and also accrue positive returns from the employment of capital. In most developing economies, FDI inflows represent that best option for manufacturing firms to alleviate financing constraints and address foreign currency shortages often faced by host countries.

FDI inflows have both direct and indirect spill over effects on domestic investment, economic growth and development. Through the direct effect of FDI spill over benefits, manufacturing firms are able to rapidly build fixed capital stock to the desired level, hence contribute to national output growth and economic development. The presence of foreign firms in countries such as Zimbabwe a so directly enhances the access by domestic manufacturing sector to international export markets as well as global financial markets. This is largely because most foreign firms are well-connected globally in terms of their ability to access international capital markets and also in their ability to integrate their operations with global transportation and communication network systems. The indirect spill over effect is that FDI inflows are often accompanied by complementary externalities such as; facilitating technological progress, human capital development, knowledge and skills transfer, as well as aiding manufacturing firms to gain sustainable competitive advantages associated with backward and forward linkages with foreign firms.

Until recently in Zimbabwe, after a soft coup in 2017 that opportunely disposed Robert Mugabe from presidency, FDI inflows were often viewed with a dose of scepticism as an avenue for critically financing domestic investment, economic growth and development. This distrust of FDI inflows largely reflected suspicions espoused by the Marxism-Leninism socio-political ideology that was embraced by the government soon after the country's independence. Much of the Mugabe's regime distrust of FDI spill over benefits was deeply engrained in the country's tainted colonial history and the winner-take-all politics of the post-independence period. Before globalisation took foothold in Zimbabwe in the early 1990s, like in most developing countries it was generally believed by policy makers that attracting FDI inflows into a country could; lead to loss of political sovereignty, bring untoward scrutiny on issues of human rights violations, governance and also expose rampant political corruption. Other special interest indigenous groupings dreaded that FDI inflows could intensify competition in the domestic economy and hence, push ill-prepared local firms into insolvency and consequently escalating redundancies

and unemployment in the economy. Furthermore, it was also broadly feared by the Mugabe's regime that if entry of foreign firms in Zimbabwe's economy was predominantly motivated by resource-seeking behaviour, foreign firms would hasten environmental degradation, speed natural resource scarcity and subsequently disempower and crowd-out indigenous people from benefiting from local resources.

Throughout much of the post-independent Zimbabwe, the flow of FDI into the manufacturing sector have been detained by numerous headwinds that include dogged economic and political uncertainties, fragility of inter-sectoral linkages, low absorptive manufacturing capacity, elevated global volatilities associated with the opening of Eastern Europe, low export prices of primary commodity, declining inter-trade flows in the Sub-Saharan region, rising volatility in exchange rates and capital flows and diminishing aggregate domestic demand of pure manufacturers. Whilst the average GDP growth rates in most African countries rose from just above 2% during the 1980-90s to above 5% in 2001 to 2016, Zimbabwe's economic growth regressed into negative territory in the same period. UNCTAD (2004) classified Zimbabwe as one of the countries in Southern Africa with lowest FDI inflows potential and performance.

For instance, out of the total inward stock of announced greenfield investment to Southern Africa of US$12.9 billion in 2016, Zimbabwe only attracted a meagre US $50.6 million. The total FDI inflows into Zimbabwe diminishes into insignificance when compared to trading peers such as South African which attracted (US$3.6 billion), Mozambique ($4.9 billion), Zambia ($2.5 billion), Tanzania ($2.3 billion), the Democratic Republic of the Congo (US $2.1 billion), and Equatorial Guinea (US $1.9 billion). Significantly, of the total FDI inflows into Southern Africa, some 38 per cent of announced greenfield FDI projects and 33 per cent of related capital expenditure were in manufacturing activities in 2014 (UNCTAD, 2015). FDI inflows have become one of the drivers of the growth of many African economies due to associative positive externalities such as enabling the expansion of communication networks, facilitating improvements in financial innovations and enhancing the liberalization of capital and trade markets. The FDI flows into Sun-Saharan Africa is mainly directed at resource-rich countries, notably Angola (oil), DRC (timber and diamonds), South Africa (minerals), Nigeria (oil), and Zambia (copper) as well as Mozambique (natural gas and timber). Zimbabwe does not attract much FDI inflows, yet the country is endowed with immense natural resources such as gold, diamonds and platinum. Compared to most Sub-Saharan countries, the country also has expansive fertile agricultural land, wide and diverse manufacturing industry, clement climatic and weather conditions and huge qualified human capital base. The paper argues that such

endowments should represent a major attraction to resource, cost and market seeking foreign investors.

The inability to attract huge FDI inflows is indeed discombulating an even perplexing given the rich natural endowments. Of significance a number of recent studies associate the growth of FDI inflows with improved economic growth (Bjorvatn *et al.,* 2016). Cleeve *et al* (2015) say that FDI inflows are less vulnerable to liquidity crises and other contagion effects that often beset developing economies. FDI spill over benefits help to increase domestic savings, a major catalyst for domestic investment and economic growth. According to UNCTAD (2016), FDI inflows enhance employment generation, alleviate poverty and enables the growth of human capital development through skills diffusion and technological progress. The paper argues that FDI inflows have a strong potential to improve export competitiveness of developing countries particularly those countries like Zimbabwe with low research and development expenditure budgets. In addition, FDI inflows insure local manufacturing firms against domestic market imperfections and other structural rigidities that limit credit creation and credit availability in times of financial and cash crises. Despite an impressive array of empirical literature which glamorise FDI spill over benefits on domestic investment and economic growth, the paper argues that some of the spill over benefits might be exaggerated, and not really true in the context of some developing economies. Most studies ignore practical realities in developing economies that moderates the spill over benefits. Our arguments are pivoted on the following premises: FDI inflows unlike foreign bank lending and portfolio investments are more susceptible to herd behaviour and contagion influences especially in times of financial and cash crises. FDI inflows are prone to sudden-stop tendencies in global recessionary periods and the impact is more severe on developing economies with low export capacity. This exacerbates balance of payment and liquidity crises in developing economies that rely on primary exports and also depend on foreign donations. FDI inflows can be likened to someone lending you an umbrella when it is not raining only to demand it when it starts raining. Whilst FDI inflows are largely motivated by long-term prospects for making huge investment returns in host countries, the actual reality on the ground is that most foreign firms adopt a centre-periphery relationship with local firms. This is caused by transfer pricing and other unethical trading terms that foreign firms enter with host firms. Having significant controlling interests over production and distribution logistics of domestic firms enables many foreign firms to significantly dilute some of the positive externalities associated with FDI inflows. This is more apparent in extractive industries that drives revenue from non-renewable resources such as minerals.

Although recent literature have provided some evidence of positive FDI spill-overs on both firm and industry levels in both developed and developing economies (Tanaka and

Hashiguchi, 2015; Merlevede *et al.,* 2014; Damijan *et al.,* 2013; Xu and Sheng, 2012; Monastiriotis and Jordaan, 2010; Lin *et al.,* 2009), little is known about the extent to which FDI inflows spill over benefits have an effect on domestic investment especially within Zimbabwe's manufacturing sector. Whereas most developing countries have utilised FDI inflows to fill in the weak domestic savings-gap, the paper argues that inconsistent government policies, lack of clarity on indigenisation laws, business uncertainties, weak property rights and high country risk could be diluting the spill over effects of FDI inflows.

The study is significant for a number of reasons. First, attracting adequate FDI inflows in the manufacturing sector could be an equilibrium solution for arresting the country's persistently declining domestic investment and economic growth. Increase in FDI spill over benefits inflows could allow Zimbabwe to increasing the competitiveness and productivity of domestic firms and thus contribute to poverty reduction, employment generation and economic development. Second, adequate FDI inflows boosts manufacturing efficiencies through technological progress, skills transfer, and this is likely to ease the country's assimilation into the global economy after a long period of splendid isolation.Hence, increased FDI spill over benefits in the manufacturing sector might offer realistic opportunities to capital-deficient countries like Zimbabwe, to grow domestic investment and economic development. Furthermore, the paper posits that FDI spill overs might enable the manufacturing sector to develop robust and modern fixed productive capacity, create more employment opportunities and enhance skills of local labour through transfer of managerial know-how. This is because Zimbabwe's manufacturing sector has several fundamental qualities that are not shared by other sectors, such as the ability to create value-chain addition and amelioration of the negative externalities related to increased FDI inflows.

Third, FDI inflows could be crucial for closing cavities in domestic savings, foreign exchange earnings, export receipts and tax revenue that exist in the country. The diminishing complementarity between FDI inflows and domestic investment in the manufacturing sector could be the main reason for; the ongoing cash and liquidity crisis, weak manufacturing capacity utilisation and low export revenues. Against this background, the objectives of the paper is to examine the extent to which FDIspill over benefits boosts Zimbabwe's domestic investment and economic growth and to determine what can be done to mitigate the effects of negative externalities associated with FDI inflows. Empirical studies suggest that whilst FDI spill over benefits have a major impact on domestic investment behaviour, we aver that this may depend on conditional host's country absorptive capacity that includes the level of financial deepening and technology lacuna that exists with foreign competition. The period of study is from 1980 when the country attained its independence to 2012. Within this period the country experienced

severe economic turbulence which led to record hyperinflation. Due to unavailability of sectoral primary data, the study is limited to using secondary data only. The paper is organised as follows; the first section covers the introduction and background, the second section covers literature review. The third section covers methods and materials whilst the last sections deals with discussions on findings, conclusions and recommendations.

LITERATURE REVIEW

Iršová and Havránek (2013) review the evidence on horizontal spill-overs and conclude that horizontal spill-overs are on average zero, but their sign and magnitude depend systematically on the characteristics of domestic and foreign firms. Fafchamps and Soderborn (2014) show that the size of the technological gap and ownership structure playing major roles in horizontal spill-overs. Chen *et al* (2013) investigated the horizontal and vertical export spill-overs of FDI inflows on China's manufacturing domestic firms using firm-level census data over the period 2000-2003. They found that FDI inflows have had a positive impact on the export value of domestic firms mainly through backward technology spill-overs, and a positive effect on the export-to-sales ratio of domestic firms through horizontal export-related information spill-overs.

Shawa and Amoro (2014) used the Granger Causality test to investigate how FDI inflows relates to the host country's GDP growth, domestic investment and export growth in Kenya for the period 1980 to 2013. Their findings showa close link between FDI inflows and domestic investment behaviour. FDI inflows bring positive externalities in the form of capital inflows and modern technology in the recipient country (Anwar and Sun, 2014; Demijan *et al.,* 2013; Chakraborty and Mukherjee, 2012). FDI inflows close the technology gap between domestic and foreign firms and the ownership structure in investment projects (Crespo *et al.,* 2010; Clarke, 2012; Benhabib *et al.,* 2014 Atif and Ahmed, 2014). According to Hassani and Tucci (2010), FDI inflows promote technological upgrading in the case of start-ups, marketing, and licensing arrangements.

Griffith *et al.,* (2003) investigate both the dynamics of productivity growth in manufacturing firms in the U. K. focusing on the role on the mechanisms through which inward FDI inflows affect either the level or the growth rate of domestic investment. They establish that MFNs introduce new technologies and secondly foreign presence increase competition in the domestic market, as well as broaden the market by opening up to foreign markets. Feeny *et al* (2014) concur, foreign firms do indeed play a role in the convergence process by stimulating competition and increasing incentives for technology adoption. Howard *et al* (2012) show that technological and knowledge spill-overs have a stronger role in a developing country context, especially in high-tech industries in Vietnam. Arısoy (2012) finds a positive impact of FDI on

total factor productivity and growth through capital accumulation and technological spill overs in Turkey, while Haskel *et al (*2007) estimate that a higher share of FDI is significantly and positively correlated with domestic plant total factor productivity in the same industry in the UK. Kugler (2006) argues that intra-industry spill over may be small. Similarly, Girma *et al* (2008) in a study of UK manufacturing firms using panel firm-level data found no evidence on the positive productivity vertical or horizontal spill-overs from MNCs. Girma and Gong (2008) also did not find benefits for local firms of high-technology manufacturing FDI in China. Aitken and Harrison (1999) for Venezuelan firms and Djankov and Hoekman (2000) for Czech Republic firms report negative and insignificant spill-overs. However, Kokko *et al* (1996) studied Uruguayan manufacturing plants to explore the existence of technology spill-overs and found a positive spill-over effect only in the sub-sample of locally-owned plants with moderate technological gap vis-à-vis foreign firms.

RESEARCH METHOD

Theoretical Model Framework

Following the conventionalrun-through in most studies on spill over benefits of FDI inflows the paper similarly adopts a multiple variate model (see Bazzi et al, 2013, Agrawal, 2015; Anwar and Sun, 2014; Crespo and Fontoura, 2007). In order to close the lacuna in most existing studies, especially their failure to link FDI spill over benefits on an investment theory, the paper modifies the Clark (1917; 1941) and Hicks(1951) flexible accelerator theories as the basis of our model. Starting from the simple accelerator model where output is represented by *Q* and increase in time $t_m$of stock of current fixed capital is given by*K*:

$$K = \gamma Q_{tm} \quad (1)$$

We transform equation 1.1 to take the form:

$$K = (1 - \gamma) Q_{tm} \quad (2)$$

Equation (1.2) assumes that domestic investment (DI) in Zimbabwe's manufacturing firms in each period is a fraction $(1 - \gamma)$ of the gap between the existing level of DI and the future desired level of investment. Using aGeometric Distributed Lag Model rather than a polynomial or arithmetic progression reduce multicollinearity among variables. Hence, equation (2) is written as follows;

$$K_{tm} = \emptyset + \gamma_{0_{tm}} + \gamma_1 Q_{tm} + \gamma_2 Q_{tm-1} + \gamma_2 Q_{tm-2} + \cdots + \mu_{tm} \quad (3)$$

The assumption is that all coefficients have the same sign. Following Koyck transformation, the DIdecay rate or the speed of capital stock adjustment process is given by $1 - \gamma$and since the decay rate is declining geometrically as time t_m increases we obtain;

$K_{tm} = \emptyset + (1-\gamma)(Q_{tm} + \gamma Q_{tm-1} + \gamma^2 Q_{tm-2} + \cdots \gamma^n Q_{tm-n})$, where0<$\gamma$<1 (4)

Equation (4) shows that a firm's DI at time t_m is a result of current and past firm's output *Q*. The paper also assumes that like in most developing countries variations in *Q* are caused by changes in interest rates, inflation, domestic savings rates, business uncertainties, investment timing decisions, adjustment costs and changes in government policies. However, we argue that in the context of Zimbabwe's manufacturing sector it is unlikely that there has been a significant change in total manufacturing output since the economic reforms. Therefore, we take the total output*Q* to be constant and equal to $\overleftarrow{Q}$.Computing$\overleftarrow{Q}$by multiplying one period lag of equation (4) by $1-\gamma$ and subtracting the result from the same equation (1.4) we obtain.

$K_{tm} - (1-\gamma)K_{tm-1} = \alpha + \gamma_0(Q_{tm} + (1-\gamma)Q_{tm-1} + (1-\gamma)^2 Q_{tm-2} + (1-\gamma)^3 Q_{tm-3} + ..$

$K - (1-\gamma)K_{tm-1} = +\varepsilon_{tm} - (1-\gamma)\{\alpha + \gamma_{tm}(Q_{tm-1} + 1 - \gamma Q_{tm-2} + (1-\gamma)^2 Q_{tm-3} \ldots + \mu_{tm-1}$

(5)

Reorganizing equation (5) takes the following form;

$K_{tm} - (1-\gamma)K_{tm-1} = \alpha(1-(1-\gamma) + \gamma_0 Q_{tm} + (\varepsilon_{tm} - (1-y)\mu_{tm-1})$ (6)

To get a solution of K_{tm} we take the geometric lag to the other side of the equation as illustrated below;

$K_{tm} = \emptyset(1-(1-\gamma) + (1-\gamma)C_{tm-1} + \gamma_0 Y_{tm} + \mu_{tm}$,where

$\mu_{tm} = \varepsilon_{tm} - (1-\gamma)\mu_{tm-1})$ (7)

Since the expected volume of manufacturing sector Q has been held constant the equation becomes;

$\overleftarrow{K} = \emptyset(1-\gamma)(+\gamma^2 + \gamma^2\overleftarrow{Q} + \cdots \gamma^n \overleftarrow{Q}) = \alpha(1-\gamma)(\overleftarrow{Q})(1+\gamma+\gamma^2+\cdots\gamma^n)$, (8)

Where $1+\gamma+\gamma^2+\cdots\gamma^n$= 1/1 + $\gamma$are DI weights which are increasing in geometric series. Thus, equation (8) can be simplified as follows:

$\overleftarrow{K} = \alpha\,\overleftarrow{Q}(1-\gamma) * 1/(1+\gamma)$ or $\overleftarrow{K} = \mu\overleftarrow{Q}_{tm}$ (9)

Where $\overleftarrow{K}$ represents desired capital stock,$\overleftarrow{Q}_{tm}$ current output, ∅ accelerator constant and t_m time where the long-run flexible accelerator is given as follows:

$\mu_0(1+(1-\gamma)+(1-\gamma)^2+(1-\gamma)^3 \ldots = \frac{\mu_0}{1-(1-\gamma)}$ (10)

Due to domestic financial constraints besetting the country, FDI inflows are likely to augment domestic savings (DS_{tm}), in creating additional fixed productive capacity and also bring in other ancillary benefits in the form of positive externalities (see Sikwila, 2015), we modify the flexible accelerator model by adding changes in FDI inflows to growth of fixed capital stock.

$FDI_{tm-1} - FDI_{tm} + K_{tm} - K_{tm-1} + \{1-\vartheta\}K_{tm-1} = DS_{tm}$

(11)Whereϑ shows depreciation rates in the manufacturing sector. However, like in most

developing economies, micro industry data on depreciation rates and other micro variables is unreliable. We therefore postulated DI as a function of lagged GDP, lagged FDI, trade openness, public investment, private investment, manufacturing value annual growth value added and business uncertainty as in (12):

$$FDI_{t-1} = \alpha_0 + \alpha_1 \Delta GDP_{t-1} + \alpha_2 PUI_t + \alpha_3 TOP_t + \alpha_4 MVA + \alpha_5 \emptyset_t + \alpha_6 PDI_{t-1} + \alpha_7 DSavings_t + \mu \quad (12)$$

Where, FDI_{t-1} is lagged foreign direct investment inflows; ΔGDP_{t-1} is changes in lagged GDP; PUI_t is public investment; TOP_t is trade openness; MVAis manufacturing value added; ∅t represents economic uncertainties; PDI_{t-1} is lagged private domestic investment; $Dsavings_t$ is domestic savings and μ_t represents error term. The study is limited to the period 1980 to 2012. The country gained its independence from the British rule in 1980 whilst, 2012 marks the beginning of both political and economic uncertainty.

Justification of variables

FDI_{t-1} is the dependent variable and was used as a proxy variable for total FDI spill over benefits. It was measured as the ratio of FDI inflows to GDP.

ΔGDPt-1 is the expected change in GDP and reflects the accelerator element in domestic investment behaviour. The expected change in GDP has been lagged because DI is associated with economic growth through the accelerator effect which makes private investment a liner proportion of changes in GDP. The current values of the real GDP growth rate may be affected by the DI rate, and therefore, lagging values of GDP reduces the possibility of simultaneous-equations bias in the coefficient estimates. Assuming an accelerator effect, priori expectation sign of changes in GDP is positive, implying that both resource-seeking foreign and domestic firms associate a large market size with high FDI inflows.

PUIt-1 was measured by gross fixed government expenditure as a percentage of rGDP. A priori sign of government expenditure is indeterminate because government expenditure can be both productive and unproductive. Government expenditure on public investment is productive if it positively induces the private sector to raise productivity and effective aggregate demand. In addition, if government expenditure is channelled toward investment in productive infrastructure (roads, rail energy systems) it can help relax existing firm operating constraints thereby, raising expected profitability and increasing FDI inflows.

TOPt was measured as the ratio of imports plus exports to GDP. A number of studies in developing countries suggests that trade openness is an important determinant of FDI (see Aisedu, 2002; Gastanga *et al.,* 1998; Quattara, 2000; Sawyer and Sprinkler, 2006; Mulambo and Oshikoya, 1999). Empirical literature has reported different results of the impact of trade

openness on FDI (see Edwards, 1990, Gastanga *et al.,* 1998; Hausmann and Fernandez-Arius, 2000; Anyanwu, 2012; Asiedu, 2002). Therefore the expected sign of *TOPt* cannot be determined a priori.

MVAt has rarely been tested in empirical literature in FDI studies in Zimbabwe. However, recent studies in other developing economies have started incorporating this variable (see Mensah *et al.,* 2016; Haraguchi, 2016; Anyanwu, 2016; Wess, 2011). (1) Manufacturing goods supplied to the domestic market has a positive impact on the structure of the trade balance and improving external accounts and hence, FDI inflows (2). The manufacturing sector offers special opportunities for economies of scale and linkage and spill over effects are stronger for manufacturing than for agriculture or mining. MVA sign is expected to have a positive coefficient sign indicating that a high MVA increases FDI inflows in the manufacturing sector.

Uncertainty (∅) –business uncertainties raise the transaction and adjustment costs associated with the demand for FDI by the manufacturing sector. Given that business fixed investment is highly irreversible, uncertainty about future interest rates, profitability, expected cash flows, inflation rate, exchange rates, wages, changes in technology, policy reversals, future productivity, demand, price, investment irreversibility and timing, political stability and duration of shocks in monetary and fiscal policies have significant influence on FDI inflows. Various measures of business uncertainty have been used in literature. For instance, Bulan (2000) used realized volatility of the firm's equity returns as a measure of business uncertainty. Bloom *et al* (2003) employed the variance of stock returns to the volatility of unpredictable sales shocks to construct measures of output uncertainty. Whilst these measures are appealing in their simplicity, the study postulates that major business uncertainties in Zimbabwe are better captured by using a broad macroeconomic indicator that is both forwarding looking and also matches the forward looking nature of domestic investment behaviour. We therefore used inflation as a broad measure to proxy **(∅)**and is expected to have a negative and significant relationship with DI.

dSavings- domestic savings was measured as a percentage of GDP. The growth of domestic investment can be financed through both domestic savings and FDI inflows. Domestic saving plays a critical role in financing domestic investment, especially in Zimbabwe where firms have very limited access to external capital markets. A positive coefficient sign was anticipated.

$\boldsymbol{PDI_{t-1}}$- was measured as a percentage of private investment in the private sector to GDP. FDI increases capital stock into the economy through the importation of business equipment. Like most developing countries, Zimbabwe's manufacturing sector imports a significant number of business equipment. We thus expect a positive relationship between FDI inflows and the growth of domestic investment.

RESULTS AND DISCUSSIONS

As shown in Table 1, there was no multicollinearity among variables.

Table 1: Correlation Matrix

	TO	PUB	MVA	INF	DSAVINGS	FDI	GDP_{t-1}
TO	1						
PUB	0.046	1					
MVA	0.069	0.249	1				
INF	0.786	0.260	0.253	1			
DSAVINGS	-0.728	0.086	0.114	-0.580	1		
FDI	0.535	-0.014	0.001	0.440	-0.247	1	
GDPt-1	-0.065	0.246	0.296	0.196	0.328	0.083	1

Unit Roots Tests

The Augmented Dickey and Fuller (1981) was used to confirm that the error terms ($u_{tm)}$ were independently and identically distributed. All the probability value of ADF test statistic were compared to 0.01, 0.05 and 0.1^2.Any probability value of a variable below these three values was considered to be stationary.

Table 2: Unit Root Test

Variables	t-ADF	Critical-1%	Critical-5%	Conclusion
$DFDI_{t-1}$	-8.465	-3.662	-2.960	I(1)
PUB_{t-1}	-4.034	-3.654	-2.957	I(0)
MVA	-4.464	-3.654	-2.957	I(0)
DINF	-6.529	-3.662	-2.960	I(1)
DdSAVINGS	-8.346	-3.662	-2.960	I(1)
DI_{t-1}	-3.148	-3.654	-2.957	I(0)
GDP_{t-1}	-3.400	-3.654	-2.957	I(0)
DDTO	-11.124	-3.679	-2.968	I(2)

As shown above, all variables except DI_{t-1}, FD1, and DGP_{t-1} were stationery at 1% level of significance level. $FD1_{t-1}$, DI_{t-1} and PUB_{t-1} were stationery at 5 % level of significance. After first differencing, DI, INF and Ddsavings became stationery at 1 % level of significance and integrated of order 1.PUB, FDI, MVA and GDP_{t-1} were found to be stationary at levels and

significant at 5% level. TO was differenced twice and became stationery at 1 % level of significance and integrated of order 2.

Table 3: Regression Output

Dependent Variable: FDI
Method: Least Squares
Date: 06/14/17 Time: 12:12
Sample (adjusted): 1981 2012
Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DDSAVINGS	0.373564	0.138101	2.705010	0.0124
DINF	0.054819	0.014916	3.675092	0.0012
GDPT_1	0.251398	0.112689	2.230896	0.0353
PUB	-2.351096	0.666898	-3.525419	0.0017
DI	-1.846097	0.529664	-3.485411	0.0019
DED	-0.025495	0.088288	-0.288767	0.7752
MVA	-0.130751	0.115707	-1.130020	0.2696
C	7.810763	2.025815	3.855615	0.0008

R-squared	0.564871	Mean dependent var	0.232148
Adjusted R-squared	0.437958	S.D. dependent var	5.444311
S.E. of regression	4.081570	Akaike info criterion	5.863158
Log likelihood	-85.81053	Hannan-Quinn criter.	5.984621
F-statistic	4.450864	Durbin-Watson stat	1.602633
Prob(F-statistic)	0.002697		

Business uncertainty was found to be positive and statistically significant at 1 percent level of confidence. The findings indicate that a unit increase in business uncertainty is expected to increase FDI spill over benefits by 5 percent. The likely explanations for a positive relation between business uncertainty and FDI within Zimbabwe's manufacturing sector are premised on the following postulations: (1) it is likely that Zimbabwe's manufacturing firms are risk neutral and are likely to use FDI inflows on domestic investment with high returns to fixed capital stock in order to compensate for high business uncertainty. Manufacturing firms are likely to maximise expected average marginal profits from short-term business fixed spending rather than long term projects that tend to be negatively correlated to macro uncertainties. (2) Given that the coefficient of business uncertainty proxied is only 0.05, it is realistic to assume that huge profit-

maximising manufacturing firms, have set their DI decisions in the short run in view of long-term business uncertainties associated with declining FDI inflows. (3) Another reason for the positive relationship may be related to issues of timing and the irreversibility of long term investment decisions that are funded by FDI inflows. In order to obviate considerable sunk costs in the future, the manufacturing sector could be managing the "value of waiting" to undertake long term fixed business spending, by opting for short term fixed investments that have higher marginal profitability. Similar observations were reported by several studies in some developing countries (see Fosu 1996; Serven, 1997; Elmendorf and Mankiw, 1999).

Lagged GDP was found to be positive and statistically significant at 5% level of confidence. A one per cent increase in the country's GDP is associated with a 28 percent increase in FDI inflows. The findings suggest that as the level of current economic growth increases, it induces manufacturing firms to seek cheaper FDI inflows so as to increase fixed business spending in anticipation of growth of future aggregate demand. The higher the level of past economic growth the larger the firms' desired fixed capital stock and the more firms seek forward and backward linkages with foreign firms. The positive findings of lagged GDP is also proof for the applicability of the flexible accelerator model in Zimbabwe's manufacturing firms. The coefficient of public investment was established to be negative indicating that a percentage increase in the level of public investment reduces FDI inflows by 237 percent. The plausible explanations for the negative relationship between FDI inflows and public investment could be attributed to a number of reasons. First, it is likely that most public investment that has been carried out in Zimbabwe has been non-productive expenditures and wasteful in the eyes of foreign donors who normally fund public investment in developing countries. The findings suggest that few resources from FDI inflows are being directed to developments of roads, rail, communication and energy investments which are essential for enhancing productivity of the manufacturing sector. Second, FDI inflows are related to the country's absorptive capacity which also influences the investment decisions of foreign investors.Domestic Investmentwas found to be positive and statistically significant at 1% level of confidence indicating that an increase in DI affect the growth of FDI in the same direction. A number of recent studies also confirm a positive relationship between FDI inflows and domestic investment in the host country (Xaypanya *et al.,* 2015; Sikwila, 2015; Cleeve *et al.,* 2015; Lin *et al.,* 2015;Tang; 2015; Pazienza, 2015; Agrawal; 2015; Seyoum *et al.,* 2014; Kinuthia and Murshed, 2014; Lenaerts and Merlevede 2014; Masron and Nor, 2013). The level of domestic investment signals to foreign investors about the state of the economy and hence, can be used to attract more FDI inflows.

Domestic savings was found to be positive and significant at 5% level. The coefficient of domestic savings is 0.35 indicating that a unit increase in domestic savings will result in 36.8% increase in the level of FDI inflows. Our findings are also supported by recent studies which find the relationship robust and significant (Sakyi *et al.,* 2016; Kanu and Ozurumba, 2014; Nasiru and Haruna, 2013; Obi *et al.,* 2012; Bakare, 2011; Frimpong and Marbuah, 2010).The results suggest that since most Zimbabwean private firms have major constraints in accessing external credit lines due to high country risk, the ability to mobilise FDI inflows could be a panacea for enhancing increasing national saving rates. Our findings do not confirm trade openness and manufacturing value added as important variables.

CONCLUSION AND RECOMMENDATIONS

Attracting adequate FDI inflows could be a remedy for arresting declining business equipment spending within Zimbabwe's manufacturing sector. Increasing domestic investment by the manufacturing sector helps to attract FDI inflows and consequently lead to high economic growth and development. FDI inflows bring in many positive externalities to domestic manufacturing firms. Strengthening the country's absorptive capacity of the host economy could be beneficial for lowering the technological gap between foreign firms and local firms and establishing sound competition policies. More specifically industrial agglomeration of local firms near foreign firms in the form of industrial parks could mitigate barriers that hinder the consumption of positive spill over benefits. Sound competition polices that strike a balance between avoiding crowding-out of local firms and policies that restrict foreign entry into certain industries could help to reduce business uncertainty. Likewise, policies that protect private property rights, strengthen intellectual property rights in a host country has an impact on the quality of foreign direct investment that can be attracted, and therefore the potential for FDI spill over benefits. Increasing domestic investment expenditure in key public infrastructure such as roads, rail and energy supply systems might overcome constraints for manufacturing activities to develop and benefit from FDI spill over benefits.The spill over benefits are also likely to be in the form of improvements in value-chain linkages, supporting human capital formation, enhancement of technology and innovation diffusion, as well as promoting knowledge transfer within an economy. However, the spill over benefits can only be accrued if the country continues to improve on its absorptive capacity. Domestic savings, public investment, quality human capital development, lower technology gap, well developed financial markets, and low business uncertainties are some of the factors that enable the FDI spill over gains to be realised. Due to unavailability of firm-level data, the paper relied only on secondary data, hence a major limitation.

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