Economic Studies in Togo show that Private investment has a ripple effect on both foreign direct investment and public investment

Kossi AYENAGBO
Faculté des Sciences Economiques et Gestion/Université de Kara, BP: 43 Kara /Togo.

Received 2 February, 2015; Accepted 15 June, 2015

In view of a macroeconomic context characterized by the revival of economic growth and the vision of having a better Togo in 2030, we have witnessed in recent years a major campaign to promote both domestic and foreign direct investment. Given the theoretical ambiguity of the relationship between these different types of investments, we offer in this paper an empirical validation of the interactions within the triptych FDI - public investment - domestic private investment. Estimates using a VECM showed that long-run private investment has a ripple effect on both foreign direct investment and public investment, which conversely also have a positive influence on domestic private investment. In addition, there is no significant relationship between public investment and FDI. Regarding the short term, there is a training of public investment in the previous period effect on FDI while domestic private investment tends to oust. Finally, an increase in FDI stimulates in the short term, both public and domestic private investment.

Key words: Foreign direct investment, public investment, private investment, VECM, Togo.

INTRODUCTION

Achieving a rigorous and sustained economic growth is a central question of the number of economic policies. A primary design especially in developing countries shows that the improvement of the total well-being is human populations is beyond a simple goal of economic policy. Indeed, the studies on economic growth show an array of diverse and varied designs to reduce poverty and spur sustainable economic growth. However, it is clear that despite the different approaches, they many theories show an almost unanimous trend on the centrality of investment presented as the main engine, which nourishes and stimulates growth when a number of factors combine to offer an environment conducive to expansion. In the 90s, Asian countries experienced economic growth with other regions in the world and registered a rate of investment of the GDP of around 27%, but in the sub-Saharan Africa it was 17%. Despite unanimity on the role of investment and notwithstanding the herculean challenges ahead, it is clear that developing countries are characterized by low rates of

E-mail: ayenagbo@yahoo.fr, alexandreagbechi@yahoo.fr.

Author agree that this article remain permanently open access under the terms of the Creative Commons Attribution License 4.0 International License
investment, and insufficient productivity gains.

In Togo, after independence the nation utilized valuable experiences from industrialized countries. It set up an ambitious public investment campaign to develop a national economy capable of meeting development challenges of the country. Unfortunately, inefficient management of the funds borrowed led to debt and large fiscal imbalances. Furthermore, the pessimistic economic conditions were exacerbated by the internal breakdown in the 90s coupled with reduced international cooperation which greatly limited the financial resources of the state resulting in weak domestic investment.

Impact of both domestic and foreign private investment mobilization

Nowadays, after the failures of development policies and the economic difficulties of previous decades, the resumption of international cooperation strengthened by reaching the completion point of the HIPCs has revitalized the Togolese economy. A series of reforms and development strategies have emerged (like SCAPE). This consists of investment policies geared mainly towards improving the national infrastructure. Meanwhile, policymakers in Togo have recognized the role of the private sector in the fight against poverty and the importance of the mobilization of both domestic and foreign private investment in building a foundation and sustained growth. They emphasized on the promotion of the private sector and improving the business climate conducive to the emergence of private investment. The recent adoption of new investment code by which the State agrees to waive for a specified sum of its powers to allow domestic and foreign investors to settle and practice in economic conditions duration, their activities are clear evidence.

Foreign Direct Investment (FDI), they have long been considered as a factor threatening the sovereignty of the state, but recent trends see it in a more beneficial light. Regionally, and according to the World Investment Report (UNCTAD, 2013), the dynamics of reorientation of FDI to developing countries continues and this to such an extent that by 2012, developing countries accounted for the first time, more FDI than developed countries, 52% of global FDI countries. In this context in the promotion of foreign-investment triptych public-private domestic direct investment, it is reasonable to ask the question about the quality of the interactions between these three types of investment. Indeed, existing theoretical links between these investments are somewhat ambiguous and vary not only from one country to another, but also according to the type of investment.

The dynamisms of FDI

Thus, through the political construction, rehabilitation and maintenance of infrastructure, education and health, public investment could enhance the effectiveness of private investment by creating a favorable environment for their profitability and their development. For example, investment in transport and communication could reduce transport costs, save time and increase profitability. Public investment can theoretically be an obstacle to private investment in terms of its financing mechanism, if bond issues or tax increases reduce the funds available to the private sector by hoarding of a part of domestic savings. The increase in public investment (IPU) could therefore lead to the collapse and paralysis of private investment. FDI, on one hand can stimulate a domestic investment through the introduction of new technologies and different skills, on the other hand, crowd out domestic investment both through the strong competition imposed by the use of scarce domestic resources (Helpman et al., 2004).

Given the ambiguity of the relationship between these three types of investment and the prospect of the new growth dynamic, it is important to explore the interactions between these three types of investment. There is a need to provide an empirical validation of the relationship between these three types of investment. In Togo for instance, studies on the relationship between public investment and private domestic investment, have had little work on foreign direct investment. This relationship could therefore contribute to a better understanding of the Togolese economic environment.

Analysis of the evolution of domestic and foreign direct investment in Togo

In the early 80s, Togo acquired a worldwide reputation as a hub of business through its sales momentum and its export potential outstanding at that time. Unfortunately, the next decade was marked by numerous political and social tensions that led the major development partners to suspend their financial cooperation with the country, causing the deterioration of the economic and social situation. Because of the international situation in the first half of the 1970s and the implementation of a program of economic and social development based primarily on the creation of infrastructure and public companies, the growth in investment spending was pronounced. Investment financed by massive foreign borrowing has reached high proportions. Thus, the share of capital expenditure in GDP increased from 12.6% in 1970 to 24.8% in 1975 and to nearly 50% of GDP in the late 70s (46.66% in 1978; 47.17% in 1979).

Unfortunately the increase in export earnings was only short-lived and the Togolese government was forced to resort to external borrowing to support the policy. Also, during the 1980s, due to inefficient management of the public investment program, the low profitability of most public enterprises and deteriorating terms of trade, the
Togolese government faced significant fiscal imbalances requiring it to reduce its expenditures. Despite the implementation of structural adjustment policies to redress the adverse market conditions, the ratio of investment to GDP, which was 28% in 1980, dropped to 20% in 1983 and 16% in 1989. The suspension of aid donors in the early 90s, following a serious socio-political crisis exacerbated the downward trend in public investment. Thus, the level of public investment decreased from 13.8% of GDP in 1990 to 3.3% in 2003. Since 1991, the investment rate has varied between 7% and 17%.

A recent resumption of international cooperation and the completion of the IMF’s Heavily Indebted Poor Countries (HIPC) initiative, has led to a revival of public investment. For example, from 2011 to 2012, capital expenditures increased from 230.1 billion CFA to 281.7 billion¹ representing an increase of 22.4%.

**Foreign direct investment (FDI)**

In general, FDI in Togo is see-saw. From $23 million in 1997, FDI rose to a peak of nearly 70 million in 1999. It then decreased to $ 57.2 million in 2000, to return to $ 67 million in 2001. As a percentage of GDP, FDI inflows increased by 11.3% in 1997 to nearly 35% in 1999, with an average of about 30% in 2000 and 2001. Although FDI inflows seem to have slightly improved in recent years, they remain still relatively low. Factors explaining the weakness of FDI are among others: the unstable electricity supply, high costs and poor quality of communications services, dilapidated infrastructure especially roads, and the weight of bureaucracy. Moreover, according to the Doing Business² index of investor protection in Togo is below the average for sub-Saharan Africa (3.7 against 4.4). Nevertheless, it is estimated that with the improvement of the business climate, the construction projects of power plants, the development work of road infrastructure, communications and the Autonomous Port of Lomé, the attractiveness of the country vis-à-vis FDI will be greatly improved.

**Public investment can crowd out private investment**

In the literature, theoretical and empirical work has been done on investment in general. In the 1950s and 1960s as inflation picked up, the monetarists developed the theory of the predatory interest rate effect, showing that public investment can crowd out private investment because of the weight of public borrowing on financial markets. In general, the IPU has theoretically ambiguous effect on IPR due to three different effects: (i) the effect of neutrality when in search of a balanced budget state there may be numbness of IPR relative to the IPU; (ii) The IPU can promote IPR insofar as it has a complementary nature to IPR and (iii) in contrast, the IPU may evict the IPR in the sense that it occupies areas (carriers) where the private feels able to invest.

FDI³ has been the subject of several studies from which we note that their effects particularly emphasis on international trade, growth and employment, conditions of work, environment, balance of payments, human capital and domestic investment (ID). FDI may have effects on the stimulation of ID promoting increased productivity through several channels: competition (Desai et al., 2005.), and the creation of a new domestic demand and catalysis exports (Chen et al., 2004). The meeting between domestic investment and FDI is likely to create foreclosure effects through two mechanisms: (i) the mechanisms of competition on both the product market and the market factors (Ailken and Harrison, 1999; Markussen and Venable, 1999; Brainard, 1997; Helpman et al., 2004); and (ii) the mechanisms of the “Dutch disease” including a spending effect (Gregory, 1976; Cordon and Neary, 1982). Indeed, the increase in exports of these multinational companies (MNCs) implies an increase in the rate of real effective exchange rate and reduces the competitiveness of other tradable sectors (Bourdet and Falck, 2006).

The effect of FDI on trade is of two kinds, on one hand we have the IDE as a substitute for trade and on the other the complementarily between FDI and trade. Mundell (1957),⁵ in the framework of the theory of international trade, explained more the Heckscher-Ohlin trade-related differences in relative to the abundance of factors and conditions of the horizontal⁶. FDI shows that FDI appears as substitutes for trade in goods. For Dunning, in the case of horizontal FDI, it may be a considerable foreign exchange earner for developing countries.

In the case of vertical⁷ FDI, where FMN split their activities between countries according to different comparative advantages, FDI and international trade can

---

¹Are international movements of capital made to create, develop or maintain an overseas subsidiary and / or exercise control(or significant influence) on the management of a foreign company says OECD
³Horizontal FDI is to establish subsidiaries all of which produce identical goods in order to facilitate access for the investor to foreign market in the hope of future development. While some factors(or non-tariff barriers to trade, transport costs) affect export competitiveness, the investor prefers to expand abroad reproducing entities, as in his country of origin, all stages of the production process to serve the local market
⁴With vertical FDI, the investor breaks the various stages of design, production and marketing of products in different countries implanting subsidiaries that produce finished goods or semi -finishes. This is for the investor to take advantage of differences in factor costs across countries. In this case, the

---

¹Finance law management 2012 in Togo
²The Doing Business index measuring business regulation and its effective implementation in 189 economies
³The higher the index is, the more protection is high
be complementary, with increased intra-firm transactions. Fontagné (2010) distinguished two effects of FDI for the investor country, a substitution effect which shows that if the IDE is not invested in domestic activity (horizontal FDI); this leads to a decrease in growth and employment in the country and an investor income effect resulting from the access to new market shares or new factors. This will lead to increased sales of the FMN.

Apart from these effects, it is also offshoring which can lead to negative effects as positive as the country of origin and the host country. The interplay between public investment, private investment and FDI is theoretically ambiguous and indeterminate. This effect may well be not significant (effect of neutrality), negative (substitution effect or crowding) or positive (complementarily effect through training). The analysis of the effect of public investment on private investment yields different results depending on the authors and countries. Many authors have found a positive effect. So, Antonio and Miguel (2010) from an estimate with a VAR modeling shows that public investment crowds out private investment in many countries in their sample. Blejer and Khan (1984) found the same results when used in public investment in infrastructure.


IDE can have two effects: positive and negative on private domestic investment. On one hand, it can stimulate domestic investment by providing new investment opportunities for local firms (Sun, 1998). For Noorzoy (1979) local firms can imitate new technologies introduced by foreign firms, which could stimulate domestic investment. In addition, Jansen (1995) shows that an increase in domestic investment is likely accompanied by an increase in FDI inflows when there is much more risky joint activities between local and foreign firms. According to James (2009), who examined the long-run relationship between domestic private investment, public investment and FDI indicate a fairly robust cointegration relationship between these variables during 1960 to 2003. Foreign direct investment and public investment were found to be complementary rather than competing with private domestic investment.

On the other hand, FDI according to Jansen (1995) may crowd out domestic investment if foreign firms compete with local firms in the use of scarce domestic resources such as: skilled labor, financial resources etc. Moreover FDI can be a substitute for domestic investment if foreign firms have advanced technology or managerial expertise or profits Tax provided by the host country (Noorzoy, 1979).

Some studies of the effects of MNCs on local firms remains inconclusive. Indeed, Agosin and Mayer (2000) by controlling for endogeneity and heterogeneity of their panel, find that FDI is conducive to the stimulation of investments in Asia, foreclosure neutral in Latin America and in African countries 1970-1995. Hejazi and Pauly (2003) and Barrios et al. (2005) show that the introduction of an FMN has two opposite effects. Stimulation is only when positive externalities (offsetting effects) can compensate and exceed the substitution effect and the effect of compensation exists only in the case of manufacturing FDI. However, the results of Barrios et al. (2005) show that FMN affects local firms in a nonlinear way, in a curved "U". These results are consistent with the assumption of creative destruction.

More generally, empirical studies find that the effects of FDI on domestic investment depend positively on the supervision of public authorities (Agosin and Mayer, 2000); the absorptive capacity of local firms (Borensztein et al., 1998; Barrios et al., 2005); and the bargaining power of FMN (Görg and Greenaway, 2003).

ECONOMETRIC METHODOLOGY AND DATA

The study had the assumptions that, FDI and public investment contribute positively to the increase in private investment in the long-run; and that in the short term, there is a crowding out between private investment – public investment and foreign direct investment.

This methodological approach was thought reasonable in analyzing the relationship between public investment
(IPB), Foreign Direct Investment (FDI) and private domestic investment (IDP). We also used a modified version of work of Antonio and Miguel (2010) and James (2009) in which the VAR process was introduced by Sims (1980) as an alternative to Keynesian macroeconomic models. The VAR model is as follows:

\[ X_t = \mu + \sum_{j=1}^{\infty} \Phi_j X_{t-j} + c_0 + \epsilon_t \]

Where: \( X_t = [IDP \ IPB \ IDE] \) represents the vector of constant terms; \( \Phi_j \) is the parameter matrix of the delay for a VAR \( j \). \( \epsilon_t = [\epsilon_{IDP} \epsilon_{IPB} \epsilon_{IDE}]' \sim \text{IN} (0, \Omega), \sim \text{IN} (0, \Omega) \), the vector error terms or \( \Omega \) is the covariance matrix of residuals.

The choice of these control variables is made on the basis of the literature on the topic and the economic and political history of Togo. The economic literature agrees on certain variables explaining significantly the level and structure of investment in a given country or group of countries. These include: investment in prior periods, variables related to the country’s income; and the financial situation of report variables of the national economy. Institutional quality and political stability of a country are the determinants of investment. Given the fixed nature of exchange rates in the WAEMU\(^3\) and the unavailability of data for some variables on behalf of Togo, we use as control variables: investment periods earlier, real GDP per capita and the degree of openness.

We will incorporate three dummy variables to take into account the effect of the structural adjustment program in the 1980s, the socio-politico-economic crisis that had known Togo from 1991 to 1992, and soaring global food prices which affected Togo in 2007-2008 as follows:

\[ D_{80}= \begin{cases} 1 & \text{if } t = 1980 \\ 0 & \text{if not} \end{cases} \]

\[ D_{91-92}= \begin{cases} 1 & \text{if } t = 1991 - 1992 \\ 0 & \text{if not} \end{cases} \]

\[ D_{07-08}= \begin{cases} 1 & \text{if } t = 2007 - 2008 \\ 0 & \text{if not} \end{cases} \]

Data and choice of variables

All data used for the model estimation are annual and cover the period 1975 to 2011. WDI (World Development Indicators) of 2013 is the main data source of this study.

We retain as variables: IDP: Domestic Private Investment; measured by the difference between private investment and foreign direct investment. IPB: Public Investment; measured by gross fixed capital formation of the public. FDI: Foreign Direct Investment; represents the net inflows of investment to acquire a lasting interest in an enterprise that is operating in the Togolese economy. We used the logarithm of all investment series to normalize the data.

The estimation of the model parameters

The estimation of the model parameters of the VAR representation was made using the STATA 12 software. This estimation was performed through several tests and in a fixed order. 1. Unit root test: Test of Augmented Dickey-Fuller (ADF) for the investigation of properties of stochastic series considered in the model by analyzing their order of integration; 2. Johansen cointegration test to detect existing between the variables in the model cointegration relationships. In the absence of cointegration, we estimate the VAR model, if one is obliged to determine an autoregressive error correction model (VECM).

Determining the optimal number of delay for the selected model Estimated VAR or VECM

Two unit root tests were used, namely the Dickey-Fuller (ADF) and the Phillips-Perron (PP). We use in this study the Augmented Dickey-Fuller. The test results of the presence of unit root are presented in Table 1.

It appears from this test that all series (in level) of the model are non-stationary. This led us to the application of the ADF test on the first difference series. Based on these results, we can conclude that our series are all stationary in first differences since the ADF test statistic is well below the critical values at the 1; 5 and 10%. All series are integrated of order 1. Equal levels of integration are required to make a cointegration test to see if you must use a VAR or VECM modeling.

Cointegration tests

We test the number of cointegrating relationships using the tests proposed by Johansen and Juselius (1990). The results are reported in Table 2. These tests analyze the possibility that one or more cointegrating relationships between public investments, foreign direct investment and private domestic investment in Togo. The trace test indicates the existence of a cointegration relationship with a threshold of 5%.

This result led us to the next step of estimating solutions of long and short-run equation in the context of a vector error correction model (VECM).

Estimation of the VECM

The first step is to determine the order “p” VECM process to remember. To this end, we considered various VECM
The objective of this study was to shed light on the implications of the relationship between foreign direct investment, public and private investments. In light of the estimates, it appears that Togo domestic private investment exerts a long-run ripple effect on foreign direct investment and public investment. Conversely, the increase in public investment and FDI also stimulates long-run domestic private investment. In addition, in their long-run, there is no significant relationship between public investment and foreign direct investment.

Regarding the short term, while public investment in the previous period seems to boost foreign direct investment, private domestic investment tends to reduce it. Moreover, the previous values of FDI seem to have a positive influence on its current value. Domestic investment,
Table 3. Estimated long run relationships.

<table>
<thead>
<tr>
<th>Variable explained</th>
<th>Foreign Direct Investment</th>
<th>Public Investment</th>
<th>Private domestic investment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lipb (-1)</td>
<td>lide (-1)</td>
<td>lipb (-1)</td>
</tr>
<tr>
<td>Explanatory variables</td>
<td>0.503</td>
<td>0.106</td>
<td>0.430</td>
</tr>
<tr>
<td></td>
<td>0.802</td>
<td>0.237</td>
<td>0.602</td>
</tr>
<tr>
<td></td>
<td>-12.76</td>
<td>11.603</td>
<td>6.014</td>
</tr>
<tr>
<td>b (l)</td>
<td>0.219</td>
<td>0.219</td>
<td>0.001</td>
</tr>
<tr>
<td>lide (-1)</td>
<td>0.219</td>
<td>0.040</td>
<td>0.040</td>
</tr>
<tr>
<td>lide (-1)</td>
<td>0.430</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>lide (-1)</td>
<td>0.602</td>
<td>0.040</td>
<td>0.040</td>
</tr>
<tr>
<td>Constant</td>
<td>0.038</td>
<td>0.000</td>
<td>0.192</td>
</tr>
</tbody>
</table>

Table 4. Short run error correction representation.

<table>
<thead>
<tr>
<th></th>
<th>D. LIDE</th>
<th>D.LIPB</th>
<th>D.LIDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coef. cointégration</td>
<td>-1.486</td>
<td>-0.920</td>
<td>-0.386</td>
</tr>
<tr>
<td>Lide</td>
<td>0.878</td>
<td>0.552</td>
<td>0.059</td>
</tr>
<tr>
<td>LD.</td>
<td>0.855</td>
<td>0.549</td>
<td>0.001</td>
</tr>
<tr>
<td>L2D.</td>
<td>0.496</td>
<td>0.440</td>
<td>0.015</td>
</tr>
<tr>
<td>L3D.</td>
<td>0.799</td>
<td>0.914</td>
<td>0.507</td>
</tr>
<tr>
<td>Lipb</td>
<td>0.001</td>
<td>0.006</td>
<td>0.015</td>
</tr>
<tr>
<td>LD.</td>
<td>0.371</td>
<td>0.474</td>
<td>0.474</td>
</tr>
<tr>
<td>L2D.</td>
<td>0.016</td>
<td>0.074</td>
<td>0.793</td>
</tr>
<tr>
<td>L3D.</td>
<td>0.340</td>
<td>0.389</td>
<td>0.894</td>
</tr>
<tr>
<td>LIPB par tête</td>
<td>-0.430</td>
<td>-0.494</td>
<td>-0.214</td>
</tr>
<tr>
<td>LD.</td>
<td>-0.004</td>
<td>-0.005</td>
<td>-0.0002</td>
</tr>
<tr>
<td>L2D.</td>
<td>-0.005</td>
<td>-0.005</td>
<td>-0.0002</td>
</tr>
<tr>
<td>L3D.</td>
<td>-0.001</td>
<td>-0.005</td>
<td>-0.0002</td>
</tr>
<tr>
<td>Opnness trading</td>
<td>-0.001</td>
<td>-0.001</td>
<td>-0.001</td>
</tr>
<tr>
<td>LD.</td>
<td>-0.199</td>
<td>-0.389</td>
<td>-0.357</td>
</tr>
<tr>
<td>L2D.</td>
<td>-0.189</td>
<td>-0.238</td>
<td>-0.596</td>
</tr>
<tr>
<td>L3D.</td>
<td>-0.744</td>
<td>-0.427</td>
<td>-0.272</td>
</tr>
<tr>
<td>Constant</td>
<td>0.0923</td>
<td>0.018</td>
<td>0.018</td>
</tr>
<tr>
<td>Constant</td>
<td>0.038</td>
<td>0.000</td>
<td>0.192</td>
</tr>
<tr>
<td>Constant</td>
<td>0.000</td>
<td>0.192</td>
<td>0.789</td>
</tr>
</tbody>
</table>

whether public or private, is not influenced by short-run direct investment. Indeed, an increase in FDI in the short-run would be beneficial for both the public and domestic private investment. Finally, none of the dummy variables used in the model seems to significantly affect the estimates.

**Conflict of Interests**

The author has not declared any conflict of interests.

**ACKNOWLEDGEMENTS**

We thank all those who contributed to the improvement of this paper.

**REFERENCES**


James BA (2009). "Do public investment and FDI crowd in or crowd out private domestic investment in Malaysia?" Appl. Econ. 41, 913-919.


