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Successful Transitions from Public to Private-Sector Led Growth: Lessons for Benin

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Abstract

Many Sub-Saharan African (SSA) countries, like Benin, have scaled up public investment during the last decade. Such a strategy contributed to the improvement of infrastructure, but also to a build-up of debt vulnerabilities. Looking forward, the planned fiscal consolidation will result in some restraint of public spending, and, in particular, public investment. In this context, maintaining or even raising the region's economic growth will require an offset by the private sector. The analysis draws lessons from countries that have successfully transitioned from public investment to private investment-led growth using a global sample starting in the mid-1980s. These lessons highlight policies that have been crucial in fostering a rebound of private investment in the wake of a contraction of public investment. The analytical framework proposed by Hausman, Rodrik and Velasco (2005) is used to identify and classify such policies. Finally, the paper analyses how the identified policies could help Benin achieving a smooth transition from public to private sector-led growth.

JEL Classification Numbers: E2, E4, E6, F4, H2, H3, H5,H6

Keywords: Private and public investment, growth, transition, fiscal consolidation, lessons

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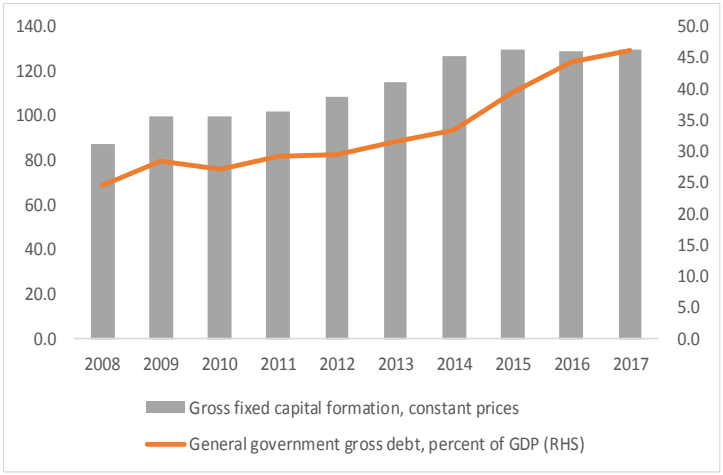
CONTENTS

I. INTRODUCTION

Many SSA countries have engaged during the last decade in a public investment scaling-up program with the aim of closing the large infrastructure gap (REO, 2017). In Rwanda, public investments contributed to gross capital formation through government-funded construction and large-scale purchases of machines, devices, and tools (World Bank, 2019). The Beninese government announced in 2014 a major increase in public investment, that would focus on energy and transportation infrastructure, considered as the main bottlenecks to growth (Qiang Cui and others, 2016). Furthermore, Senegal has enjoyed a period of strong growth since 2014, supported by significant public investment in a new airport, railway and highways (IMF, 2019).

Figure 1. SSA: Evolution of debt and public investment 2008-2017 (in percent of GDP)



Source: AFR REO database

The investment scaling-up has resulted in a sharp increase in public debt (Figure 1), and some countries plan or are in the process of reversing it. About half of the SSA countries that witnessed a debt increase since 2013, have recorded a higher level of public investment spending during the period 2013–18 relative to the period 2008–12. In Côte d'Ivoire, public borrowing accelerated since 2012 and was used to a large extent to bolster infrastructure investments; while the Rwanda's public debt rose sharply over 2013–18 with the implementation of an anticipated scaling up of public investment (IMF, 2019). In order to reverse such a trend, many countries are committed to implementing a fiscal consolidation plan.

The medium-term challenge is therefore to maintain or even elevate the region's economic growth path, in a context of a scaling-down of the public investment. Given the modest progress in revenue mobilization, the fiscal consolidation will require a sharp rationalization of public spending. Therefore, to sustain or generate high growth, greater participation of the private sector is essential.

The literature on the transition from public to private investment-led growth is rare or inexistent. Our field of research is close to the literature on expansionary fiscal consolidation, but is still different from it, because the latter examines the contraction of the total budget (both spending and revenue) and its effect on overall GDP growth, while our paper focuses on the contraction of the public investment and the offset of such a tightening by an increase in private investment. Inspired by the literature on expansionary fiscal consolidation, the paper uses three ad hoc criteria to define and select the episodes of successful transitions from public to private sector-led growth.

The paper draws, subsequently, lessons from experiences of countries that transitioned successfully from public to private investment-led growth. The lessons highlight policies that

have been crucial in fostering a rebound of private investment in the wake of a contraction of public investment. The analytical framework proposed by Hausman, Rodrik and Velasco (2005) is used to identify and classify such policies. This issue is particularly topical in African countries, and in Benin in particular, where growth prospects are heavily reliant on the ability of the private sector to become the main engine of growth after a decade or so of public investment scaling up. Hence, we also discuss how Benin could apply the lessons drawn from country experiences in order to achieve a smooth transition. The analysis of country experiences on how they managed the transition from public to private sector-led growth has identified three main messages: (i) the improvement of the business environment to boost private returns is key; (ii) a better access to finance to lower the cost of investment is important and (iii) the implementation of policies to support agriculture and avoid deindustrialization is efficient. These policies are consistent with the main objectives of Benin's Government Action Plan (a five-year development plan elaborated by the Beninese authorities).

II. THE CONTEXT OF BENIN

Benin's investment scaling-up program has stimulated growth. However, such a program has also resulted in a sharp increase in public debt, bringing authorities to adhere to a fiscal consolidation plan aiming at reversing the trend.

A growth, reliant on public investment.

In 2016, a newly elected government committed to a medium-term macroeconomic stability and to an ambitious reform agenda of which objective is to transform the economy structurally through investment scaling up in infrastructure. Growth was about 4 percent in 2016, but a recovery occurred in 2017-18 (a real GDP growth of 5.7 and 6.7 was recorded in 2017 and 2018 respectively), owing to an increase in public investment, and a strong agricultural production.

Steady increase in domestic public debt, driven by the public investment scaling-up.

Starting in 2017, the authorities have undertaken an investment scaling-up plan with the aim of addressing infrastructure bottlenecks and accelerating growth. The government adopted a public investment envelope of CFAF 1,400 billion, to be spent over a period of three years. The investment started off high in 2017 at CFAF 500 billion and was expected to decrease gradually to CFAF 450 billion in 2019. Over 2015-17, the authorities have increasingly relied on the domestic and regional financial market to finance public investment projects at non-concessional terms. Such strategy has resulted in a sharp increase in domestic public debt, which tripled over three years, growing from 7.8 percent of GDP in 2014 to 23.7 percent of GDP in 2017. Total public debt increased from 22.3 percent of GDP in 2014 to 30.9 percent in 2015 and, at a slower pace subsequently, to 41.2 percent in 2019.

III. LITERATURE REVIEW ON EXPANSIONARY FISCAL CONSOLIDATION

The literature on the transition from public to private investment-led growth is rare or inexistent. The papers which are closest to our field of research belong to the literature on expansionary fiscal consolidation

Effect of consolidation based on public investment

The literature on expansionary fiscal consolidation shows that some aspects of fiscal consolidation may lessen the contractionary effects and enhance potential output. In other words, it illustrates that, under certain conditions, fiscal consolidation can be growth-friendly and result in economic expansion. Giavazzi and Pagano (1990, 1996), Alesina and Perotti (1995), Alesina and Ardagna (1998, 2009 and 2012), Alesina, Favero and Giavazzi (2014) and Alesina, Azzalini, Favero, Giavazzi and Miano (2017) contributed significantly to the literature on expansionary fiscal consolidation. The main result of their studies states the following :

Fiscal consolidation may stimulate growth through both demand and supply channels. Indeed, fiscal stabilizations are expansionary if agents believe that the fiscal tightening eliminates the need for a larger adjustment in the future. Such a mechanism is called the "expectation view". This confidence effect is stronger when the initial debt-to-GDP ratio is high and when the fiscal contraction is large. Moreover, reducing public spending, in particular wages and unemployment benefits may lower unit labor costs (which is known as the "labor market view"). Finally, fiscal consolidation may also eliminate rents, helping reduce corruption and improve private sector incentives. That private consumption should boom when government spending falls would come as no surprise to believers in a standard neoclassical model with forward looking agents. The basic idea is straightforward; lower government spending means lower taxes and higher households' wealth, hence higher consumption. Lower taxes also mean less distortions, hence they can lead to higher output and investment. More generally, a large fiscal consolidation may signal a change in regime in a country that is in the midst of a recession, and may boost investment through this channel.

Although, our present analysis present similarities with the literature on expansionary fiscal consolidation, the two topics remain different. Indeed, our paper focuses on public investment-driven consolidation episodes, while the literature on expansionary fiscal consolidations deals with the contraction of the total budget (both spending and revenue) and its effect on overall GDP growth.

IV. SELECTION OF SUCCESSFUL INVESTMENT TRANSITIONS

The present step of our analysis consists of defining and then selecting episodes of successful transitions[1] from public to private sector led growth. In subsequent steps of the paper, such episodes are used to identify and classify policies that have been at play during the successful transitions.

A. Definition and Selection of ''Successful Transition'' Episodes

This paper characterizes an episode of "successful transition" from public to private investment according to three main conditions. In our baseline analysis, a successful episode is defined as follows: i) public investment declines by, at least, 2 percent of GDP over the first

[1] Like many LICs, Benin's private sector is underdeveloped and needs to be boosted through the implementation of adequate policies. Therefore, such countries are much interested in policies that fostered a rebound of private investment during the successful episodes.

two years of the transition[2]; ii) such a decline is (more than) compensated by an increase in the private investment ratio over the five years; and (iii) the average real GDP growth during the transition period should be superior to the average growth rate recorded during the 2 years prior to the successful transition.

These three conditions of ‘’successful transition’’ are broadly in line with the criteria used in the literature on expansionary fiscal consolidation. This literature focuses on episodes where a lasting and significant contraction in the cyclically-adjusted primary balance (CAPB) is followed by an acceleration of the GDP growth rate. In this literature, episodes of “successful” consolidations are generally identified by using ad hoc criteria. As shown in Table 1, the three conditions, adopted in our analysis, are broadly consistent with the thresholds used in the literature on successful fiscal consolidation. Table 1 shows that most papers define a fiscal tightening as an improvement in the CAPB of 1.5 to 3 percent of GDP over a period of 1-3 years leading to an economic recovery over 2-3 years. Our conditions of ‘’successful transition’’ are inspired by the criteria used in the literature on successful fiscal consolidation insofar as they are ad hoc and broadly in line with the latter. However, we use a less restrictive change in private investment (5 years) to include more low-income developing countries and frontier economies into the sample.

Table 1. Summary of Criteria Used in the Expansionary Fiscal Consolidation Literature

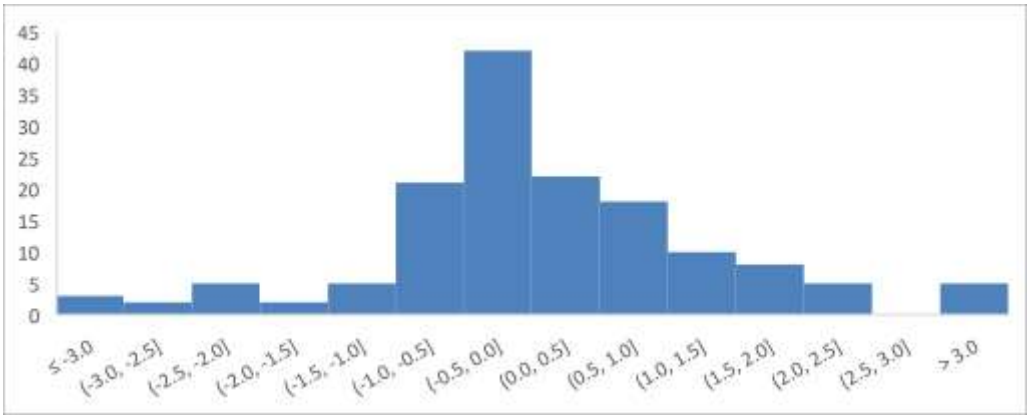
References	Magnitude of the Consolidation	Duration of the Consolidation	Test Period to Assess Success [1]
‘‘Budgetary Consolidation in Europe: Quality, Economic Conditions, and Persistence’’ (Von Hagen, Hallett and Strauch, 2002)	2.5 percent	2 years	2 years
‘‘Tales of Fiscal Adjustments’’ (Alesina and Ardagna, 1998)	3 percent	2 years	2 years
‘‘European Commission Directorate-General for Economic and Financial Affairs’’ No 195 December, 2003	3 percent	3 years	2 years
‘‘Public finances in European Monetary Union report in 2007’’ European Economy Series N_0 3/ 2007	1.5 percent	3 years	3 years
‘‘Fiscal Adjustments in OECD countries : Composition and Macroeconomic Effects’’ (Alesina and Perotti, 1998)	2.5 percent	2 years	3 years
‘‘Large Changes in Fiscal Policy: Taxes vs Spending’’ (Alesina and Ardagna, 2009)	1.5 percent	1 year	3 years

Source: IMF staff calculations
1/ Success is defined as stronger economic growth

In addition to the literature on expansionary fiscal consolidation, our choice of criteria is also supported by a descriptive analysis of global public investment trends. Indeed, a two percent of GDP decline in public investment over two years characterizes large but not extreme cases of capital expenditure consolidation. Figure 2 and Figure A1 (in Annex I) illustrate this point with some histograms. It shows that an adjustment of the public investment ratio of 1 percent of GDP per year (corresponding, on a cumulative basis, to two percent of GDP over two years) is in the second bottom decile of the distribution of all public investment adjustments.

[2] Transition refers to the 5 years period through which the drop in public investment is compensated by an increase in private investment.

Figure 2. Distribution of Annual Changes in Public Investment
(In percent of GDP; global sample; 1987-2017)



Source: IMF Staff Calculations.

B. Results of the Episodes' Selection

Using the criteria presented above, this section identifies the relevant episodes, using data, extracted from the World Economic Outlook database, covering a sample of 162 countries over the period 1987-2017.

The three conditions select nine episodes of successful transition. Table 2 presents the results of the selection. The episodes of countries that transitioned from public investment to private investment-led growth, appear to be spread all over the world, including Asia, Africa and the Middle East. One occurred in the 1980s, two in the 1990s, and the rest since the 2000s.

Table 2. Episodes of Successful Transitions from Public to Private Investment-Led Growth

	Change in Public Investment in percent of GDP	Change in Private Investment in percent of GDP	Change in Total Investment in percent of GDP	Change in real GDP growth
Bahrain 2003-04	-3.0	7.7	4.7	4.0
Botswana 2003-04	-2.3	3.9	1.6	2.5
China 2004-05	-2.5	7.2	4.8	2.0
Ethiopia 2013-15	-2.0	5.6	3.5	0.4
India 1995-96	-2.1	3.4	1.3	1.1
Jordan 1990-91	-2.4	5.0	2.5	9.0
Kosovo 2005-06	-3.8	5.9	2.0	0.4
Rwanda 2000-01	-4.5	7.3	2.8	2.1
Thailand 1987-88	-2.3	6.5	4.2	5.9

Sources: IMF Staff Calculations

C. Robustness Checks with Alternative Selection Criteria

The selection of the episodes does not change materially when the three criteria are modified at the margin**.** We conducted a robustness analysis to ensure that the selection of the episodes

is not too sensitive to the calibration of the thresholds. In addition to the baseline, we ran four scenarios using alternative criteria (see Table 3 and Table A2-in Annex II). Table 3 provides one of the alternative selections and relies on a longer period of adjustment (3 instead of 2 years) and the same scale of consolidation of 2 percent of GDP. Table A2 summarizes the robustness analysis and provides the results of the four alternative selections. The main outcome of the robustness analysis is that the 9 episodes identified in the baseline analysis hold with alternative criteria (although these may include additional episodes as well).

Table 3. Selection of Episodes Using Alternative Criteria (2 percent, 3 years, 5 years)

	Change in Public Investment in percent of GDP	Change in Private Investment in percent of GDP	Change in Total Investment in percent of GDP	Change in real GDP growth
Bahrain 2003-05	-3.4	7.7	4.2	4.0
China 2004-06	-4.7	7.2	2.5	2.0
Ethiopia 2013-15	-2.6	5.6	3.0	0.4
India 1995-97	-2.6	3.4	0.8	1.1
Jordan 1990-92	-2.5	5.0	2.4	9.0
Kosovo 2005-07	-4.5	5.9	1.3	0.4
New-Zealand 1991-93	-2.1	2.9	0.8	1.6
Rwanda 2000-02	-4.9	7.3	2.3	2.1
Thailand 1987-89	-2.3	6.5	4.2	5.9
United Kingdom 1986-88	-3.9	6.5	2.6	0.3
Uzbekistan 2003-05	-2.4	6.0	3.6	3.0

Sources: IMF Staff Calculations

D. Comparison Between Benin and Countries with ''Successful Transition'' Episodes

Benin's average ratio of private investment over GDP was estimated to about 18 percent between 2015-17. Except from China, such a ratio is similar or superior to the ratios of private investment recorded in selected countries during the period preceding their transitions (see table A3 in Annex III). Moreover, it is interesting to see from the private investment's statistics that Benin had a higher ratio of private investment to GDP than several countries in the period preceding their successful transitions, however, Benin's ratio of private investment to GDP declined during the following period, while countries with successful episodes recorded a significant increase in private investment in the same period. Some examples are Bahrain, Botswana, Kosovo, Ethiopia. In 2002, the ratio of private investment to GDP in Bahrain was estimated to 15 percent, while Benin recorded a ratio of 16.5 percent of GDP. Between 2003-07, Bahrain's private investment ratio reached an average of 21.1 percent of GDP while Benin's ratio dropped to 15.2 percent of GDP. The same trend was observed in the other countries. Such an evolution suggests that Benin did not apply the same strategies as countries that recorded episodes of successful transitions. Therefore, it would be interesting to analyse policies that have been at play during these successful episodes. Finally, the private investment statistics highlight that transitions were not temporary. Indeed, countries have maintained a high level of private investment, significantly superior to the pre-transition's levels, 5 years after the successful episodes (see table A3 in Annex III).

E. Estimation of Benin's Potential Gains in the Case of a Successful Transition

In order to estimate the potential gains which would derive from a successful transition, the paper uses a Generalized Method of Moments (GMM) model to measure the coefficient of the public versus private investment in the specific cases where (i) there is fiscal consolidation and (ii) it is successful (see Annex IV). The results of such an estimation are applied to Benin in order to quantify the potential changes of the country's main macroeconomic indicators in the case of a successful transition. The application of the econometric results to Benin leads to some interesting conclusions. Indeed, a decrease in public investment by 1 percent of GDP, associated with an increase in private investment by 0.45 percent of GDP (or a drop in public investment by 2 percent of GDP in 2 years along with an improvement in private investment by 2.25 percent of GDP in 5 years) would entail: (i) a reduction in primary deficit to GDP ratio by 1.5 percent; (ii) a diminution in public debt to GDP ratio by 1.8 percent; and (iii) an increase in real GDP growth by 0.24 percent (see table A.4.2 in Annex IV). Such results suggest that a transition from public to private sector-led growth would improve Benin's main macroeconomic indicators. Therefore, it might be interesting to identify the main policies at play during the successful transitions and draw some lessons from it.

V. POLICIES IMPLEMENTED IN SUCCESSFUL TRANSITIONS

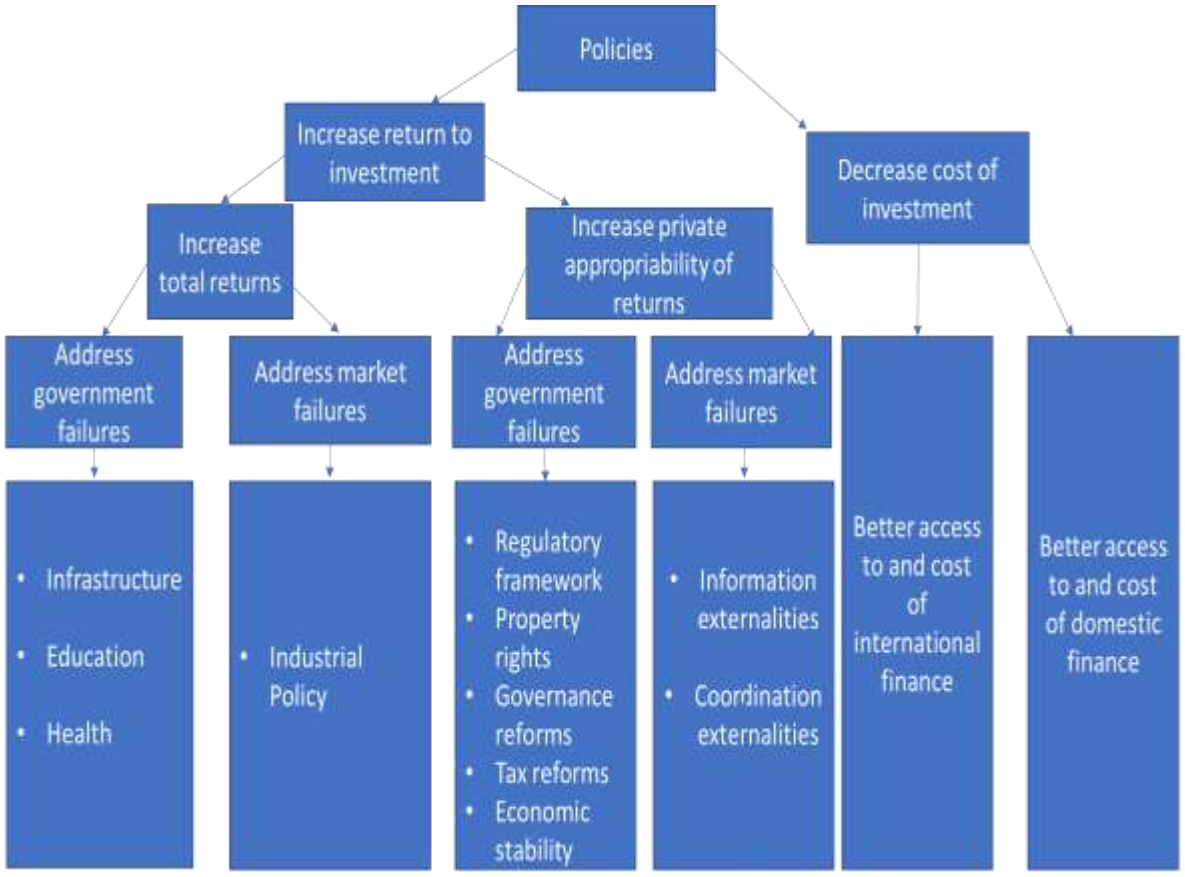
The section describes firstly the analytical framework used to classify the main policies at play during the successful transitions. Then, it draws some lessons from these episodes.

A. Typology of Policies Used in the Paper

To identify and classify the policies that have supported the boost of private investment, we use the analytical framework proposed by Hausman, Rodrik and Velasco (2005). This framework distinguishes between policies that lower the *cost* of financing of investment and those that increase its *return*, both total and private (see Figure 3). Another important distinction is between policies that address government failures that penalize entrepreneurship (e.g., doing business reforms; economic stability; governance improvement) and those that address market failures[3] (e.g., creation of new sophisticated economic activities through the creation of clusters).

[3] Market failures hinder private investment, even when the government does not distort private incentives.

Figure 3. Typology of Policies Supporting Private Investment



Sources: IMF Staff. Adapted from Hausmann, Rodrik, and Velasco (2005).

Using the analytical framework proposed by Hausman, Rodrik and Velasco (2005), Table 4 summarizes the policies at play in each episode. It shows a mix of exogenous policies in effect.

Table 4. Policies Implemented During the Episodes

	Bahrain 2003-04	Botswana 2003-04	China 2004-05	Ethiopia 2013-15	India 1995-96	Jordan 1990-91	Kosovo 2005-06	Rwanda 2000-01	Thailand 1987-88
A. POLICIES THAT INCREASE RETURN TO INVESTMENT									
1. Policies that increase total returns									
1.1 Policies that address government failures									
1.1.1 Infrastructure	X	X	X	X	X	X	X	X	X
1.1.2 Education	X	X	X		X		X		
1.1.3 Health	X	X						X	
1.2 Policies that address market failures									
1.2.1 Sectoral policies that develop new activities	X		X						X
1.2.2 Sectoral policies that develop existing activities			X	X					
2. Policies that improve private appropriation of total returns									
2.1 Policies that address government failures									
2.1.1 Regulatory framework, property rights, governance reforms	X		X	X	X			X	X
2.1.2 Decrease in taxes on capital					X				X
2.1.3 Economic stability	X	X	X	X	X		X	X	X
2.2 Policies that address market failures									
2.2.1 Information externalities									
B. POLICIES THAT REDUCE THE COST OF INVESTMENT									
1. Better access to and cost of domestic finance									
1.1 Creation of new financial markets	X		X		X				
1.2 Deepening of existing markets	X	X	X	X	X	X	X	X	X
1.4 Better transmission of monetary policy		X	X		X				
1.5 Microfinance			X					X	
2. Better access to and cost of international finance									
2.1 Liberilisation of capital flows					X				

Sources: IMF Staff Calculations

B. Main Lessons

Six main lessons can be drawn from the analysis of the policies that have been crucial in fostering the rebound of private investment following a drop in public investment.

Lessons 1: Improve the Quality of Infrastructure

In cases reviewed in the paper, successful transitions from public to private investment are often preceded by infrastructure improvement plans. Transportation, communication, sewage, water and electric systems tend to be high-cost investments; however, they are vital to businesses because they impact significantly the return to private investment.

International experiences. During the early 2000s, China has made significant efforts to improve its infrastructure in the interior provinces, and also the urban environment, including water supply/wastewater treatment, air pollution. Such strategy participated in attracting FDIs and boosting private sector investment (IMF, 2004). In the early 2010s, Ethiopia increased investment in various infrastructure development projects in power generation, telecom, transportation, especially the Ethio-Djibouti railways and other logistical services which helped reduce production costs for the private sector and enhance overall productivity and competitiveness (IMF, 2016). Also, in Rwanda the Transport Sector Project implemented in early 2000s helped improve road maintenance ability and promote private sector activity. Finally, Botswana's non-mining sectors success, is in part a product of the country's market-friendly environment, sound macroeconomic policies, and investments in education and physical infrastructure (IMF, 2002). Botswana has made significant infrastructure progress, spanning the transport, water and sanitation, power, and mobile telephony sectors, such development has improved the business environment (World Bank, 2011).

Application to Benin. Inadequate supply of infrastructure, in particular regarding access to electricity, is often cited as one of the most problematic factors for doing business in Benin (World Bank, 2018). Thus, improving the quality of electric systems, transportation and communication is key to attracting private investment. Also, Benin performs below its peers (WAEMU and SSA countries) in terms of efficiency of capital expenditure. According to the IMF database of investment efficiency, Benin recorded a score of 0.5 in 2015 against 0.65 for WAEMU countries and 0.64 for SSA countries (IMF, 2020). By improving the efficiency of its capital expenditure, Benin could improve significantly its quality without increasing substantially the amount devoted. The IMF Country Report No. 20/28 prepared by Bruno Imbert et al. provides a set of measures and a concrete action plan for improving public investment efficiency in Benin. Finally, about 60 percent of the Government Action Plan projects are expected to be financed by the private sector, mainly in the forms of PPPs (IMF, 2017b). If PPPs are properly reflected in fiscal accounts, and their fiscal risks assessed, authorities could improve the quality and access to infrastructure without jeopardizing public finance sustainability.

Lesson 2: Implement Reforms of the Regulatory and Governance Framework

Regulatory and governance reforms that simplify business procedures and improve transparency in the public sector—in particular the judiciary system and audit bodies—tend to encourage private investment. First, burdensome procedures reduce the attractiveness of a

country in terms of doing business, because it increases significantly the time and cost necessary to set up a start-up or run an already-established business. Second, the perception of weak governance and corruption in the public sector can repel private investors' appetite, since it represents a threat on the appropriability of their profits. Hence, it is often warranted to implement governance reforms in the public sector. Businesses do not get started, thrive and expand where the state does not provide sound regulation, market-supporting laws that are implemented fairly by honest and well-trained judges and a transparent procurement system (EBRD, 2019).

International experiences. In Ethiopia, the Industrial Park Development Corporation was set up in 2014 with the responsibility of facilitating and removing bureaucratic bottlenecks that hinder production and capacity of both export and import substitution industries. It has played a role in the improvement of the competitiveness of the country (WEF, 2014 and 2015). Likewise, the implementation by Bahrain, in 2003 of reforms aiming at easing access to capital for Small and Medium Enterprises and simplifying procedures for setting up new businesses has contributed to the continuous improvement of the country's performance in terms of doing business (World Bank, 2018). Finally, in Botswana, sustained effort on structural reforms geared toward reducing the regulatory burden on firms and reducing the costs of doing business has also helped to boost competitiveness (IMF, 2013). Country experiences related to governance reforms are just as diverse. In 2002, Bahrain established an independent Public Audit Office, outside the jurisdiction of the ministry of finance and national economy, with the aim of sending a signal in the fight against poor governance (IMF, 2002). Such policy has been efficient in attracting private investors, as it reduced the risk to private appropriability of returns. Likewise, in Rwanda, the Office of the Auditor General was strengthened in 2001 (IMF, 2002). This measure enhanced the private investors' perception of good public governance and gave a stronger sense of security regarding to their investments.

Application to Benin. When it comes to the business environment, the 2017-18 World Economic Forum's *Global Competitiveness Report* ranks Benin in the bottom 20 percent countries. Burdensome procedures are listed as an impediment to setting-up businesses in the country. Reducing bureaucratic inefficiencies could help spur private sector activity. The Beninese authorities are committed to addressing these bottlenecks to growth. Two private investment facilitation bills are currently discussed at Parliament: the first one revises the code of investment and the second one deals with the promotion and development of micro, small and medium enterprises. In terms of governance framework, Benin has recorded improvement in recent years, although gaps remain between the framework and its effective implementation (IMF Country Report Nº 19/203). Benin scored 40 points out of 100, on Transparency International's 2018 Corruption Perception Index, which is an improvement compared to 2016 and 2017. Further reforms, such as the strengthening of internal and external audit institutions and the follow-up of their findings and recommendations could foster transparency in the public sector and decrease the risk of low appropriability of returns.

Lesson 3: Foster Health and Resilience of Bank and Nonbank Sectors

The implementation of banking reforms, including those pertaining to corporate governance and resolution of Non-Performing Loans (NPLs), seem to have made a big difference in the reviewed cases. A sound banking system is vital to the development of the private sector, because, it lowers the financing cost of projects, while facilitating innovation and new ventures. However, country experiences have also shown that developing just the banking sector might not be sufficient, as the emergence of the non-banking sector helps deepen existing financial markets, increase their liquidity, and allows better mutualization of risks. Therefore, the introduction of new financial players, including pension funds, financial advisory groups, and money brokers, can contribute to unlock financing for the private sector.

International experiences. In the mid-2000s, the Chinese authorities made substantial efforts in creating sound domestic banks that are able to adequately compete in the global financial system[4] (IMF, 2004). Following the recapitalization of some large ailing state banks, and resolution of NPLs, the authorities set up time-bound action plans and held bank management strictly accountable for the timely implementation of these plans. They promoted the use external auditors to assess the true underlying financial position of the banks; and enhanced external oversight of the banks' operations, including taking prompt action in the event that the capital base is threatened. In Rwanda, to improve recovery on NPLs collateralized by real estate guarantees, the Ministry of Justice initiated in 2001 an accelerated loan recovery procedure. As stated earlier, country experiences have also shown that reforms related to the development of the non-banking sector have been crucial in fostering the development of financial sector and the rebound of the private investment. Despite the small size of its economy, Bahrain undertook in early 2000s adequate reforms that develop the financial system. In addition to the key players in the sector, such as commercial and Islamic banks, offshore banking units, and insurance companies, the country succeeded in introducing a large group of smaller players, including pension funds, financial advisory groups, and money brokers. Rwanda made significant advances as regards to financial inclusion in the mid-2010s. The country recorded the emergence of new savings and deposit products for historically excluded clients; mobile money transfers (MMT), mobile and internet banking, agent banking, micro insurance and micro leasing. Much of the innovation has come from non-traditional players such as mobile phone operators, or new entrants to the Rwandan banking market rolling out agency banking models. The authorities have revamped their supervisory framework to adjust to the new environment and ensure the push for greater financial access does not lead to higher risk undertakings and remains consistent with safeguarding financial stability (IMF, 2015c).

Application to Benin. Benin's banking sector is shallow and under-developed. Low profitability, exposure to the sovereign as well as high NPLs limit banks' ability to finance the private sector's projects. In close coordination with the regional supervisors, the Beninese authorities should keep addressing the main weaknesses of the sector, (including high level of

[4] The China Banking Regulatory Commission established in 2003 a number of performance assessment indicators against which the banks' performance are monitored. Such measures strengthened the financial performances of banks and participated in the significant growth of the credit to the private sector.

NPLs, loan concentration and low profitability) and promote financial inclusion. See further discussion in the IMF Country Report Nº 12/99. Also, the domestic financial market would benefit from the development of the non-banking sector. Some mutual funds (FCPs) and unit trusts (SICAVs) are operating within the regional financial market; however, their number is still small and their size narrow. The development and diversification of such institutions could help foster the liquidity of the financial market and mutualize risks. Also, these institutions could dynamize the secondary market of the regional government securities market, in which the investor base is narrow and dominated by local banks (IMF, 2019).

Lesson 4: Promote Actively Financial Market Development

Country experiences have also shown that opening the domestic financial sector to foreign investors has generally been beneficial to its growth. The (IMF, 2014) shows that the development of the capital markets of emerging countries, which has taken place over the last fifteen years, has gone hand in hand with diversification of the local investor base and the increased presence of international investors. The increase in foreign ownership of banks, which has the potential to improve governance and accelerate the transfer of technology and management practices, can contribute to boosting the financing pool for private sector projects.

International experiences. To enhance financial development, Bahrain's authorities fostered since the early 2000s the opening of the financial sector to foreign investors, and most financial institutions are now privately owned. Some leading international banks (including Citibank and BNP Paribas) have opened Islamic subsidiaries in Bahrain to tap the growing market. China has increased in the last two decades foreign ownership of banks, which has the potential to improve governance and accelerate the transfer of technology and management practices.

Application to Benin. Foreign investors could be a lever for deepening the WAEMU government securities market. The implementation of an integrated market supervision and a single Central Securities Depositor would help attracting more foreign investors (IMF, 2019), which could enhance the attractiveness of the region.

Lesson 5: Nurture High Potential Activities

To make agriculture a central driver of investment and economic growth, countries have made efforts to raise the productivity of the sector and climb the quality ladder. In many developing and emerging economies, agriculture, which employs the major part of the population, plays an important role in the economy. However, the lack of diversification combined with the prevalence of subsistence and informal farming often lead to low productivity and low contribution to overall growth. On another register, the support to the manufacturing sector has also often been conducive to growth and private investment. In many developing economies, manufacturing is a key growth driver due to its high productivity growth, tradability, low skill requirements, and ease of absorbing new technology (Cherif and Hasanov, 2019). Countries that succeeded in bolstering manufacturing offered favorable

conditions for the development of the sector, including competitive wages[5], quality infrastructure, and a well-functioning financial system. Also, export of manufactured goods plays a resilient role to external shocks and has a greater potential of generating a large number of jobs (Rodrik, 2011 and AfDB and others, 2013).

International experiences. In Thailand the agricultural sector, in particular the production and export of rice recovered strongly in 1987 supported by rising world prices and reforms related to the sophistication of the agricultural techniques (IMF, 1989). Government policies boosting productivity in agriculture, such as the mechanization strategy, have played a major role in sustaining equitable growth in Ethiopia, given that poverty is primarily in rural areas (IMF, 2015a). Finally, in Rwanda the investments in crops cultivation and animal husbandry translated into a strong growth in agriculture (IMF, 2015c). On another register, country experiences have also shown that the implementation of reforms related to the manufacturing sector, have been efficient in the boost in private investment. Since the early 2000s, the Ethiopian authorities have placed a key emphasis on private sector development and FDI, particularly in building an export-oriented manufacturing sector, comprising mainly of textiles and leather manufacturing. The government has also developed industrial parks and clusters to boost FDI and private investment in key sectors. Competitive wages allowed Ethiopia to become an attractive destination for light manufacturing investors (IMF, 2015a). Another example is China. Building on its low-cost labor force, China has had higher sustained growth and employment generation by focusing on manufacturing. Many companies from developed economies have extensive operations there in order to take advantage of the low-cost labor for export-oriented manufacturing and sell their products in the booming Chinese market (Morrison, 2014).

Application to Benin. The authorities' strategy consists of promoting nascent productions such as cashew nuts and pineapple and develop the cotton sector. Further reforms to boost productivity could focus on land tenure security, irrigation, extension services, development of high-value crops, expansion of good quality of fertilizer and better storage in warehouses. Also, policies aiming at strengthening protection against erosion and dealing with environmental problems could help increase the crop yields. With regard to the secondary sector, it is worth noticing that Benin's manufacturing sector has been declining over the last years. The share of the manufacturing sector decreased from 21 percent in 1999 to 14 percent in 2018 (preliminary data). In particular, textile and food processing industries have experienced a decline due to foreign competition and lack of past investment. Beninese authorities could further investigate factors that led to the deindustrialization of the country and implement policies that would counterbalance the current trend. They are already taking steps to develop the food processing industry. Some textile industries could also be built around cotton activity in order to increase the added value of the product and diversify exports.

[5] It is important to underline that although competitive wages may attract foreign investors, associated working conditions have sometimes been decried by labor organizations. Also, policies that aim to foster private investment could as well have the unintended consequence of promoting foreign competition at the expense of nascent local industries.

Lesson 6: Use Tax Incentives Sparingly

Some countries used actively targeted tax incentives during successful transitions. Tax incentives have been effective in attracting FDIs in some countries such as China and Jordan. However, it will be challenging to replicate such experiences in Low Income Countries because tax incentives cannot overcome some bottlenecks such as weak physical infrastructure, poor governance and underdeveloped financial systems (IMF 2015b, and Andersen and others 2018).

International experiences. China and Jordan have resorted to tax incentives to stimulate private investment, respectively in early 2000s and 1990s. In Jordan, tax concessions and other incentives were offered to private investors, while China reduced agricultural taxes and the business tax on financial institutions to support the private sector.

Application to Benin. In low-income countries, tax incentives do not tend to weigh significantly on the private investors' decision. For example, tax incentives cannot offset some characteristics such as poor infrastructure, under-developed financial system or weak governance and judicial system. Given such a situation, Benin should use tax incentives with caution and ensure that they are well designed, bearing in mind their potentially large budgetary cost.[6]

VI. CONCLUSION

The analysis of country experiences on how they managed the transition from public to private sector-led growth has identified three main messages, which relate essentially to policies that have been implemented during the successful transitions. These policies are consistent with the main objectives of Benin's Government Action Plan (a five-year development plan elaborated by the Beninese authorities) and can be stated as follow:

- *Improve the business environment to boost private returns*. Countries that increased significantly private investment in times of fiscal consolidation focused on: (i) improving the quality of physical infrastructure in the years preceding the public investment consolidation; and (ii) advancing deep reforms of their regulatory and governance framework. Also, LICs should use tax incentives with caution and ensure that they are well designed, bearing in mind their potentially large budgetary cost.

- *Facilitate access to finance to lower the cost of investment*. Financial development has been key in numerous episodes of successful transitions. It contributed to unlock sources of financing for the private sector.

- *Conduct policies to support agriculture and avoid deindustrialization*. In particular, this will require raising the productivity and quality ladder in cotton and other crops (particularly for Benin), and create a competitive environment to attract investors towards manufacturing.

[6] The effective use of tax incentives requires that they be carefully designed. "Good" tax incentives are generally (i) targeted towards exporting firms; (ii) not limited to large investments; (iii) temporary; and (iv) cost-based rather than profit-based (see IMF, 2015b).

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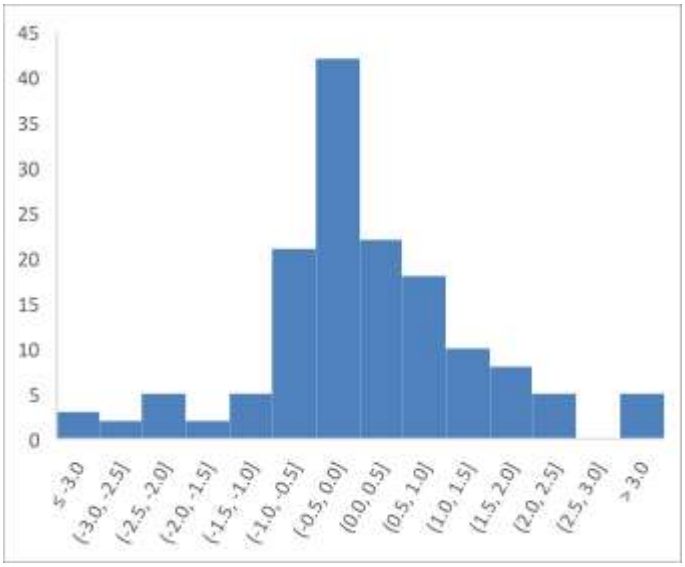
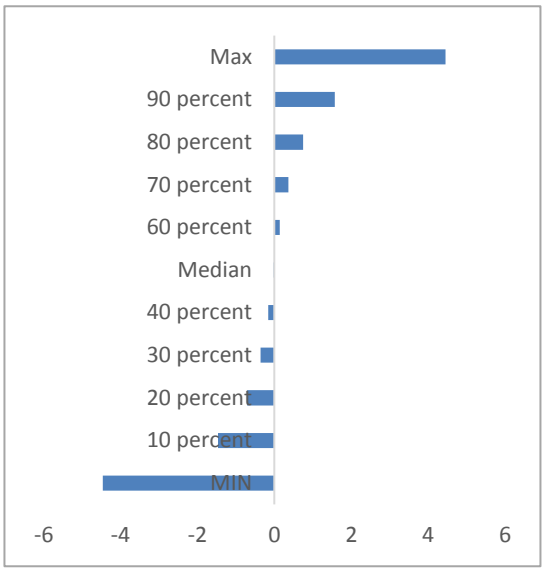
Annex I. Distribution of Annual Changes in Public and Private Investment

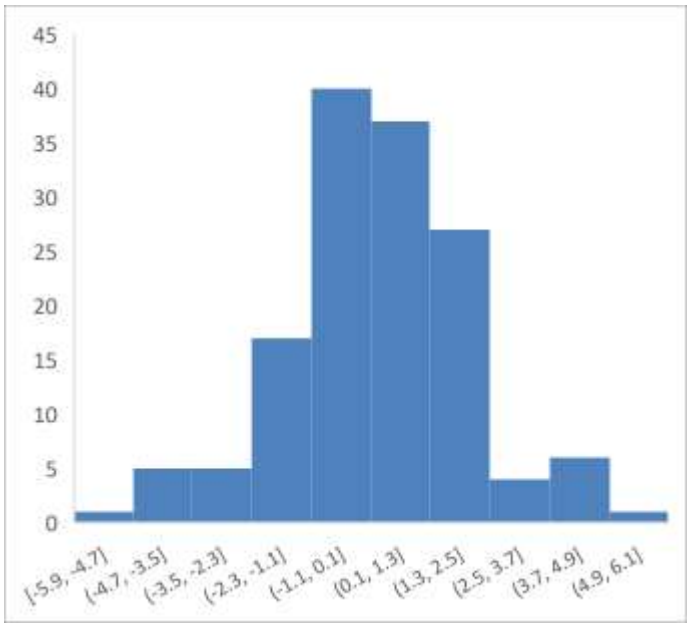
Figure A1.1. Distribution of Annual Changes in Public and Private Investment
(In percent of GDP; global sample; 1987-2017)

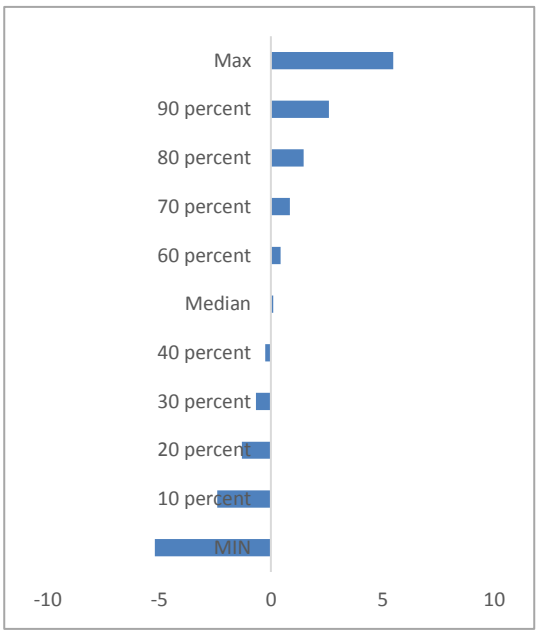
Change in Public Investment Ratio: Histogram and Deciles





Change in Private Investment Ratio: Histogram and Deciles





Sources: IMF Staff Calculations.

Annex II. Robustness Analysis

The tables below show alternative lists of episodes by changing the two criteria, namely by conducing sensitivity analysis on: (i) the size of the public investment tightening; (ii) the length of this tightening; and (iii) the period over which success (defined as a compensation by private investment) is tested. The episodes identified in the baseline analysis are shown in green in the tables below.

Table A2.1. Summary of the Robustness Analysis

Scenario 1 (2 percent, 3 years, 5 years)

	Change in Public Investment in percent of GDP	Change in Private Investment in percent of GDP	Change in Total Investment in percent of GDP	Change in real GDP growth
Bahrain 2003-05	-3.4	7.7	4.2	4.0
China 2004-06	-4.7	7.2	2.5	2.0
Ethiopia 2013-15	-2.6	5.6	3.0	0.4
India 1995-97	-2.6	3.4	0.8	1.1
Jordan 1990-92	-2.5	5.0	2.4	9.0
Kosovo 2005-07	-4.5	5.9	1.3	0.4
New-Zealand 1991-93	-2.1	2.9	0.8	1.6
Rwanda 2000-02	-4.9	7.3	2.3	2.1
Thailand 1987-89	-2.3	6.5	4.2	5.9
United Kingdom 1986-88	-3.9	6.5	2.6	0.3
Uzbekistan 2003-05	-2.4	6.0	3.6	3.0

Scenario 2 (1.5 percent, 2 years, 2 years)

	Change in Public Investment in percent of GDP	Change in Private Investment in percent of GDP	Change in Total Investment in percent of GDP	Change in real GDP growth
Bahrain 2004-05	-1.8	3.9	2.1	2.1
Botswana 2003-04	-2.3	2.7	0.4	0.6
China 2004-05	-2.5	3.5	1.1	1.1
China 2010-11	-3.7	4.1	0.4	0.7
Ethiopia 2014-15	-1.9	7.3	5.3	1.1
India 1995-96	-2.1	3.6	1.5	1.9
Jordan 1990-91	-2.4	2.5	0.1	5.3
Rwanda 2000-01	-4.5	5.0	0.6	2.6
Thailand 1987-88	-2.3	7.2	4.9	6.3
Turkey 1987-88	-3.3	7.6	4.3	0.5
United-Kingdom 1987-88	-3.6	6.7	3.0	1.8

Scenario 3 (2 percent, 3 years, 3 years)

	Change in Public Investment in percent of GDP	Change in Private Investment in percent of GDP	Change in Total Investment in percent of GDP	Change in real GDP growth
Bahrain 2003-05	-3.4	6.0	2.6	3.8
China 2004-06	-4.7	5.2	0.4	1.8
Ethiopia 2013-15	-2.6	4.9	2.3	0.1
India 1995-97	-2.6	4.0	1.4	0.7
Jordan 1990-92	-2.5	2.5	0.0	9.8
Kosovo 2005-07	-4.5	6.2	1.7	1.2
Rwanda 2001-03	-3.6	4.1	0.6	2.1
Thailand 1987-89	-2.3	7.2	4.9	6.6
United Kingdom 1986-88	-3.9	6.8	2.9	1.5
Zambia 2002-04	-2.3	3.1	0.8	1.6

Scenario 4 (2 percent, 2 years, 3 years)

	Change in Public Investment in percent of GDP	Change in Private Investment in percent of GDP	Change in Total Investment in percent of GDP	Change in real GDP growth
Bahrain 2003-04	-3.0	6.0	3.1	3.8
Cabo-Verde 2014-15	-5.2	14.5	9.2	1.2
China 2004-05	-2.5	5.2	2.7	1.8
Ethiopia 2014-15	-2.0	4.4	2.4	0.1
India 1994-96	-2.1	4.0	1.9	0.7
Jordan 1990-91	-2.4	2.5	0.1	9.8
Kosovo 2005-06	-3.8	6.2	2.4	1.2
Rwanda 2000-01	-4.5	5.3	0.8	2.1
United-Kingdom 1987-88	-3.6	7.6	3.9	0.8

Sources: IMF Staff Calculations

Annex III. Ratios of Private Investment to GDP Before, During and After the Episodes of Successful Transitions

Table A3.1. Ratios of private investment to GDP before, during and after the episodes of successful transitions

	Private investment to GDP before the transition[1]	Private investment to GDP during the transition[2]	Private investment to GDP after the transition[3]
Bahrain 2003-04	13.1	21.1	19.0
Botswana 2003-04	15.9	18.1	23.0
China 2004-05	17.9	23.6	28.2
Ethiopia 2013-15[4]	14.2	21.4	
India 1995-96	13.2	16.7	18.1
Jordan 1990-91	12.6	22.5	19.7
Kosovo 2005-06	15.0	21.1	19.7
Rwanda 2000-01	1.0	6.8	10.5
Thailand 1987-88	17.9	29.2	31.4

1/ This column refers to the average ratios of private investment to GDP during the 3 years that precede the transitions.
2/ This column refers to the average ratios of private investment to GDP during the 5 years of the transitions.
3/ This column refers to the average ratios of private investment to GDP during the 5 years that follow the transitions.
4/ Data are as of 2017, therefore not available 5 years after the transitions.

Sources: IMF Staff Calculations

Annex IV. Econometric Estimate of the Public versus Private Investment Coefficient

The present annex estimates the amplitude of the private investment response to public investment in the specific cases where (i) there is fiscal consolidation and (ii) it is successful. We evaluate the effect of public investment on private investment, correcting for other determinants of private investment.

Empirical framework

The coefficient between private and public investment will be estimated by incorporating the public investment variable in a traditional private investment equation. Such an approach has already been adopted in the literature. Bahal and others (2015) estimated the relationship between public and private investment in India by estimating a Structural Vector Error Correction Model (SVECM) with three variables (public investment, private investment, and output) over the period 1950-2012. Also, Mendoza Lugo (2008) estimated the private investment in Venezuela by using as observable variables (variables representing factors affecting private investment in country i in year t) the real interest rates, the bank lending, the public investment and output.

Accordingly, the empirical framework used in our estimation of the coefficient between the public and private investment variables involves the regression of the ratio of private investment to GDP on relevant explanatory variables such as real interest rates, real GDP growth, domestic credit to private sector as a percentage of GDP, domestic credit to public sector as a percentage of GDP. The direct impact of the government's fiscal action on the private investment is captured by the ratio of public investment to GDP and domestic credit to public sector to GDP.

The empirical relationship can be expressed as :

$$Y_{it} = \sum_{j=1}^{p} \rho_j Y_{it-j} + X_{it}^{'}\beta + \delta_i + \varepsilon_{it} \qquad (1)$$

Y_{it} is the ratio of private investment to GDP, β are parameters to be estimated and ε_{it} is a random error term, representing the measure of error as well as unconsidered factors that affect the private investment. X_{it} is defined as the observable variables having an impact on private investment in country i in year t. X_{it} include: (i) real GDP growth, (ii) real interest rates, (iii) government investment as a percentage of GDP, (iv) domestic credit to private sector as a percentage of GDP, (v) domestic credit to public sector as a percentage of GDP. Y_{it-j} represents the lagged dependent variable. There is a fundamental advantage of using the lagged dependent variable in our case, because the private investment variable presents some persistence. According to Eberly and others (2012) the best predictor of current investment at the firm level is lagged investment. This lagged-investment effect is empirically more important than the cash-flow and Q effects combined.

It is known that lagged dependent variable models cannot be estimated with simple fixed effect estimators. Indeed, including the lagged dependent variable as a regressor violates strict exogeneity, because such a variable is necessarily correlated with the idiosyncratic error. The dynamic panel data regression described in equation (1) is characterized by two sources of persistence over time : autocorrelation due to the presence of a lagged dependent variable among the regressors, and individual effects characterizing the heterogeneity among the

individuals, this renders the OLS estimator biased and inconsistent (Baltagi, 2013). Several suggestions to correct for the bias of the popular FE estimator have been proposed. Baltagi, Arellano–Bond (1991) proposed a Generalized Method of Moments (GMM) procedure that is more efficient than the Anderson and Hsiao (1992) estimator. Hence, we will use the GMM as it has become standard practice nowadays and produces consistent parameter estimates for a finite number of time periods, T, and a large cross-sectional dimension, N (see, e.g., Arellano and Bond 1991; Arellano and Bover 1995; Blundell and Bond 1998). To further expand our analysis, we will introduce an interaction term, which aims at estimating the coefficient of public investment in cases of successful fiscal consolidation.

The first difference is applied in the original model (expressed in equation 1) to remove the fixed effects. The first differences of the regression equation are taken to eliminate the individual effects, subsequently, deeper lags of the dependent variable are used as instruments for differenced lags of the dependent variable (which are endogenous).

The original model is expressed in equation (1). To remove the fixed effect δ_i , we take the first difference:

$$\Delta Y_{it} = \sum_{j=1}^{p} \rho_j \Delta Y_{it-j} + \Delta X'_{it}\beta + \Delta \varepsilon_{it} \qquad (2)$$

Note that $\Delta \varepsilon_{it} = \varepsilon_{it} - \varepsilon_{it-1}$ and $\Delta Y_{it} = Y_{it-1} - Y_{it-2}$ are correlated as ε_{it-1} and Y_{it-1} are correlated. Thus, OLS does not apply to the regression in difference.

One lag has been used in the model to avoid the issue of proliferation of the number of instruments.

In the present study, the predetermined variables correspond to the lagged values of private investment and the private investment represents the endogenous variable.

Data

Real GDP growth, private and government investment data for 162 countries were collected for the period of 1987-2017 from the WEO database. Domestic credit to public and private sectors was obtained from the World Development Indicators (WDI) database. As well, real interest rates data were collected from the Financial Soundness Indicators (FSI) database. In some cases, data were missing for individual years. Therefore, the panel of observations for the 162 countries observed over 30 years is unbalanced, consisting of 2244 observations.

Empirical results

The reliability and consistency of the instruments used in the GMM estimators discussed previously are diagnosed using the test of overidentifying restrictions Hansen (1982) J-test statistics. The validity of the instruments used in the GMM estimators can be examined from the degree of serial correlation of idiosyncratic disturbances of the error term, ε_{it}. Based on such a test, it exists two orders of correlation which are named AR(1) and AR(2) respectively. The null hypothesis for both AR(1) and AR(2) serial correlation test is that the disturbances are not serially correlated. In practice, AR(2) is closely monitored and the hypothesis should not be rejected. Meanwhile, AR(1) should be rejected as the disturbances are serially correlated based on AR(1) test.

Our estimation results presented in Table 4, provide the outcome of the Hansen J-test statistics, which validates the GMM estimation. Under the null hypothesis, the instruments are correctly excluded from the model. Also, the AR(1) and AR(2) values confirm that the instruments used in the dynamic model are appropriate.

Table A4.1 presents 4 equations which vary according to the variables of controls used. The main result of our empirical estimation relates to the relationship between public and private investment, in specific cases where (i) there is fiscal consolidation and (ii) it is successful. Such an estimation can be performed through the use of an interaction term. To do so, we first construct a dummy that is equal to 1 in the case of successful episodes and 0 otherwise. Then, we simply multiply the successful episodes dummy variable and the public investment variable to make a new variable called an interaction term. The coefficient of the interaction term is negative and statistically significant, telling us we can accept the hypothesis that the decrease in public investment ratio has a negative relationship to private investment during successful transition episodes. Specifically, a decrease in public investment ratio by 1 percent of GDP is associated with an increase in private investment by 0.3 + 0.15 = 0.45 percent of GDP in the short run. An approximation of the long-term effect can be obtained with the ratio $1/(1-\beta)$. Such an approximation is amounted to 1.8 in the present case.

Table A4.1. Parameter Estimates and Summary Statistics of Private Investment

Eq Name:	EQ1	EQ2	EQ3	EQ4
Dep. Var:	PRIVATE INVESTMENT	PRIVATE INVESTMENT	PRIVATE INVESTMENT	PRIVATE INVESTMENT
PRIVATE INVESTMENT (-1)	0.642514 (0.0004)**	0.646283 (0.0002)**	0.649748 (0.0013)**	0.652387 (0.0010)**
PUBLIC INVESTMENT	-0.279417 (0.0025)**	-0.320778 (0.0006)**	-0.423437 (0.0045)**	-0.400297 (0.0049)**
PUBLIC INVESTMENT*D1	-0.153355 (0.0519)**	-0.140980 (0.0373)**	-0.155394 (0.0548)**	-0.082602 (0.0403)*
REAL INTEREST RATES	-0.002978 (0.0001)**	-0.008032 (0.0002)**	-0.000300 (0.0001)**	
DOMESTIC CREDIT TO PRIVATE SECTOR			0.095450 (0.0022)**	0.090725 (0.0016)**
REAL GDP	0.110087 (0.0004)**		0.113670 (0.0023)**	0.121197 (0.0015)**
DOMESTIC CREDIT TO PUBLIC SECTOR	0.015789 (0.0003)**	0.013205 (0.0000)**		
J-statistic	107.87	104.50	102.06	107.76
Prob(J-statistic)	0.4583	0.5503	0.5356	0.4071
AR(1)	0.0000	0.0000	0.0000	0.0000
AR(2)	0.1647	0.1648	0.1577	0.1572

* = Significant at 10 percent level
** = Significant at 5 percent level
*** = Significant at 1 percent level

The estimation results indicate that the decline in real interest rates as well as the improvement in the credit to the private sector were helpful in boosting private investment. The empirical study also shows that the real GDP growth is a key determinant of private investment, confirming a similar result found by Greene and Villanueva (1991) as well as Ghura and Goodwin (2010). Given that investment itself is a main contributor to real GDP growth, countries can benefit from the virtuous cycle that links increased private investment and real GDP growth and vis-versa.

The application of such results to Benin leads to some interesting conclusions. Indeed, a decrease in public investment by 1 percent of GDP, associated with an increase in private investment by 0.45 percent of GDP (or a drop in public investment by 2 percent of GDP in 2 years along with an improvement in private investment by 2.25 percent of GDP in 5 years) would entail: (i) a reduction primary deficit to GDP ratio by 1.5 percent; (ii) an diminution of the public debt to GDP ratio by 1.8 percent; and (iii) an increase in real GDP growth by 0.24 percent.

Table A4.2. BENIN'S MACROECONOMIC INDICATORS

	Before applying the change[1]	After applying the change[1]
	2021	2021
Primary Deficit	-0.7	0.8
Public Debt	37.8	36.0
Real GDP Growth	6.7	7.0

1/ We applied a decrease in public investment by 2 percent of GDP over 2 years (from 2017 to 2018) and an increase in private investment by 2.25 percent over 5 years (from 2017 to 2021). The projections ''before applying the change'' are as of November 2019.

Sources: IMF Staff Calculations

The column ''Before applying the change'' provides the projections of the macroeconomic indicators as of November 2019. From that point, we applied a decrease in public investment of 2 percent of GDP over 2 years (from 2017 to 2018) and an increase in private investment of 2.25 percent over 5 years (from 2017 to 2021) to get the column ''After applying the change''.