External Debt and Economic Growth

Case of Lao PDR

Vileth KINNAVONG
Visiting Scholar
Policy Research Institute, Ministry of Finance, Japan
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Abstract

This study investigated the external debt and economic growth case of Laos PDR, the objective of this was to establish a relationship between external debt and economic growth in Laos for the period of 1996-2015. To achieve with this objective, this paper used three methods. Firstly, this paper presented the relationship between external debt and the economic growth of Laos, second and third was explained by simple equations using econometric techniques to estimate the relationship between external debt and economic growth. This research found that there is a negative relationship between external debt and GDP by 0.030%. This implies that when external debt to GDP goes up by 1%, on average, will lead to GDP growth rate decline by 0.030% holding other variables constant. In addition, the coefficient of debt service (DS) shows that there is a negative relationship of 0.233248% with economic growth. This implies that when debt service to GDP increases by 1%, on average, the GDP growth rate will decrease by 0.233248% holding other variables constant.

These results show that over the period of 1996-2015 the external debt and debt service are key factors negative effect to GDP growth in Laos PDR, the accumulation of external debt mainly consisted of multilateral and bilateral loans, which have long maturity of 20 to 40 years. Thus, over the period of 1996 to 2015 the debt services of Laos mainly considered the principle payments that lead to crowd out of public investment and impact the economic growth of Laos PDR. Other reasons behind this could be that as the debt servicing of external debt has to be paid in foreign currency and the value of the Lao kip is weak as compared to the creditor countries’ currency.
1. Introduction

Sustainable economic growth has crucial importance for all economies, especially for the developing economies like Lao PDR, which faces many different challenges as compared to developed countries in boosting up its economic growth in order to lower its debt burden. Debt burden can be domestic, external or both. Sustainability of economic growth is the key issue for every developing country and they want to control their fiscal deficit. To meet this goal the developing countries have to tackle many challenges. They use various ways to reduce and sustain the current account deficit like to cut back the unimportant public expenditures, increasing revenues and expanding the opportunities for new investments. Therefore, the loans from overseas are one of the main components of modern public finance. It is considered a temporary but complex resource to finance the budget deficit. In developing countries, there is a lack of resources to develop their countries; therefore, borrowing externally is one of the options to support their investment. As a matter of fact, the accumulation of debt helped to finance many unprofitable, unrealistic and low efficiency projects that induced a negative impact on economic growth. Gohar et al. (2012) suggested that countries borrow from external sources because their income is low with budget deficit. Moreover, Kumar and Woo, (2010) concluding that based on a panel of advanced and emerging economies over almost four decades and based on a range of econometric techniques, suggest an inverse relationship between initial debt and subsequent growth, controlling for other determinants of growth: on average, a 10 percentage point increase in the initial debt-to-GDP ratio is associated with a slowdown in annual real per capita GDP growth of around 0.2 percentage points per year. This adverse effect largely reflects a slowdown in labor productivity growth, mainly due to reduced investment and slower growth of the capital stock per worker.

Rodlauer et al., (2014) concluded that even though Lao P.D.R. external debt distress remains moderate, it’s on the direction of a transition to high risk, with heightened vulnerabilities for public debt. While debt service ratios remain within the policy-dependent indicative thresholds, primarily because of the still high concessional of official borrowing, the PV of external debt to GDP ratio breaches the indicative threshold for some years. The authors conclude that the debt distress probability remains below the threshold in the baseline for all indicators, except the external debt to GDP ratio, which breaches the threshold for a brief period. Also, given the considerable share of foreign currency denominated debt, large sudden exchange rate
depreciation could significantly raise debt-to-GDP and the debt service to revenue trajectories for external and public debt.

This research examines the effect of external debt on the economic growth of Lao PDR. Thus, the problem looks as follows: what is the effect of the high external debt and debt services on economic growth in Lao PDR? The methodology to answer this problem has developed into two sections. The first is devoted to the empirical literature on the relationship between external debt and economic growth, while the second will focus on definition variables, the sources and the interpretations of the results of the econometric study.

1.1 The purpose of the study

This research aims at measuring the impact of external debt on economic stability in Lao PDR. As we know that Lao PDR is a developing country which has a lack of resources to develop the country; therefore, borrowing from external sources to finance development is a main source. However, the borrowing should be to finance profitable and highly efficient projects. If the accumulation of debt helped to finance many unprofitable, unrealistic and low efficiency projects that would induce a negative impact on economic growth. The main ideas were to research the impact of external public debt on economic growth in the short-run and in the long-run by looking at the budget deficits that a cause of borrowing to finance government expenditure, to finance the budget deficits, the Government of Lao PDR has to borrow from domestic and external sources by issuing short-term and long-term bonds.

1.2 Research questions

This research wants to answer questions which are related to the impact of external debt on economic growth in Lao PDR. More specifically, the research addresses the following questions:

- Does external borrowing affect the economic growth in Lao PDR?
- How do debt services have an influence on economic growth in Lao PDR?
2. Literature Review

This paper reviews both theoretical and empirical literature on the impact of the external debt on economic growth. This section emphasizes the external debt burden, debt sustainability framework and debt services capacity.

2.1 The empirical literature on external debt and economic growth

Many economists have tried to investigate the effect of external debt on economic growth. The researchers used different data sets, methods and techniques to check the nature of the relationship between external debt and economic growth. Some research concluded that there is a positive effect of external debt on economic growth as the external debt gives a boost to the economy. On the other hand, some concluded a negative relationship between external debt and economic growth because of the inefficient allocation of resources.

There are several channels through which high debt could adversely impact medium- and long-term growth which have received attention in literature: high public debt can negatively affect capital accumulation and growth via higher long-term interest rates (Gale and Orzag, 2003; Baldacci and Kumar, 2010). In more extreme cases of a debt crisis, by triggering a banking or currency crisis, these effects can be magnified (Burnside et al., 2001; Hemming et al., 2003). High debt is also likely to constrain the scope for countercyclical fiscal policies, which may result in higher volatility and further lower growth (see Aghion and Kharroubi (2007) on the effects of countercyclical fiscal policy on growth, and Woo (2009) on the effects of pro-cyclical and volatility of fiscal policy on growth).

A number of other studies have looked at the impact of external debt on economic growth in developing economies. Most of these studies were motivated by the “debt overhang” hypothesis, a situation where a country’s debt service burden is so heavy that a large portion of output accrues to foreign lenders and consequently creates disincentives to invest (Krugman, 1988, and Sachs, 1989). Imbs and Ranciere (2009) and Pattillo, Poirson, and Ricci (2002, 2004) find a nonlinear effect of external debt on growth. They conclude that external debt has negative and significant impact on growth at high debt levels. In contrast, Cordella, Ricci, and Arranz (2005) find evidence of debt overhang for intermediate debt levels, but an insignificant debt-growth relationship at very low and very high levels of debt. Malik and Hayat (2010) studied the result
of external debt on economic performance of Pakistan. They concluded that high amounts of foreign debt does not add value to economic development in Pakistan. Moreover, Hameed et al., (2008) suggested that debt services will depress Gross Domestic Product, whereas capital and labor affect it optimistically in the long term. This means that increased debt service liabilities reduces economic growth as large portion of government revenues is allocated to pay interest payments.

Some studies have investigated the impact of external debt on economic growth in developing economies through investment tools. Iyoha (1999) examined the impact of external debt on growth in the south of Sahara countries in Africa from 1970-1994 by using an econometric simulation model. He found that external debt has a negative impact on investment that is the main factor of growth in south Sahara countries. The study suggested that the accumulation of outstanding debt discourages investment through two effects: discouragement and eviction. The result of simulation of debt relief policies concluded that if the debt is reduced by 20%, the investment will grow by 18% over the study period. This implies that GDP will grow by 1%. In search of the link between debt and growth, Zouhaier and Fatma (2014) have produced a very interesting study on this issue by using a dynamic panel data model on a sample of 19 developing countries during the period of 1999-2011. They found that the ratio of external debt as a percentage of GDP and the debt ratio as a percentage of GNI have negative effects on economic performance in developing countries.

2.2 Theoretical framework

The economic theories suggest that if the country borrowed money to utilize effective and efficient in the productive investment purposes then it can support to economic growth of the country. On the other hand economic development may effect by the large amount of external borrowing. This statement is explained by debt overhang theory. When the accumulated debt amount higher than the threshold level of a country’s repayment capacity, people will expect default that may cause to investors to withdraw their money, this will have negative affect to economic growth of the country. In this section is based on “debt sustainability framework” theory that was done by jointly IMF and World Bank staff in 2013 to explain thresholds of external debt ratio to GDP, the present value of debt, external debt to revenue, debt services ratio to GDP and debt services to revenue collection in case of Lao PDR.
2.2.1 The conceptual of present value of debt

Mathematically, the PV of debt is equal to the sum of all future debt service (DS) payments (principal and interest), discounted to the present using a given discount rate (β):

$$PV_t = \frac{DS_{t+1}}{(1 + \beta)^1} + \frac{DS_{t+2}}{(1 + \beta)^2} + \frac{DS_{t+3}}{(1 + \beta)^3} + \frac{DS_{t+4}}{(1 + \beta)^4} + \cdots$$

- If the discount rate and the contractual interest rate of a loan are the same, then the PV is equal to (or close to) the face value.
- If the contractual interest rate of the loan is less than the discount rate, then the PV of the debt is less than the face value, or concessionality.
- According to the Debt Sustainability Framework that was produced jointly between IMF and the World Bank, they used a single discount rate at 5% for analysis of debt in low income countries.

2.2.2 Debt Sustainability Framework

The analyses of external debt sustainability are controversial for economists. The basic reason of external debt in developing countries is a lack of “saving investment” where the developing country faced with a current account deficit was encouraged to borrow from developed countries as well as international organizations to boost their economic growth. This paper based on IMF staff guidance noted the debt sustainability framework for Low Income Countries to investigate the external debt and economic growth “case for Lao PDR”. The IMF and World Bank staff developed the debt sustainability framework (DSF) to apply only to low-income countries (LICs). It mentions that the debt sustainability framework is a standardized framework for conducting debt sustainability analysis (DSA) in low-income countries (LICs). The main objectives of the DSF is to help guide the borrowing decisions of LICs, provide guidance for creditors’ lending and grant allocation decisions, and inform IMF and World Bank analyses and policy advice.
Debt Sustainability Analysis

The IMF guidance in 2013 mentioned that if the present value of income in the country is at least large enough compared to present value of the expenditure plus any initial debt of the country, it means the country is solvent. If this condition is met, the country is meeting its intertemporal budget constraint. Therefore, the PV of future primary balances must be greater than or equal to the public debt stock that the government will be solvent. However, the PV of future non-interest current account balances must be greater than or equal to its external debt. In the long run, if the ratio of the debt to GDP is stable or declining, the solvency condition is automatically met, and this provides a strong rationale for evaluating solvency by looking at the projected behavior of debt ratios.

However, beyond these conditions, the country may face liquidity risk, a situation where available financing and liquid assets are insufficient to meet maturing obligations. The key determinants of the vulnerability of an economy to liquidity crises are the currency composition of debt, its maturity structure, its interest rate structure, and the availability of liquid assets. As liquidity problems happen in circumstances that may give rise to insolvency, it may be difficult to distinguish between solvency and liquidity situations.

The DSF includes indicative thresholds that facilitate the assessment of solvency and liquidity risk. The thresholds are not uniform across all countries. Instead, they are depending on the quality of a country’s policies and institutions, reflecting the empirical observation that LICs with weaker policies and institutions are more likely to face repayment problems at lower debt ratios.

The IMF guidance in 2013 also clarifies the DSF in two components: an external DSA and a public DSA (Figure 1). The external DSA consists of total external debt in the economy which includes public and publicly guaranteed external debt and private external debt (non-guaranteed) owed by both the public sector and the private sector. The public DSA (sometimes referred to the fiscal DSA) covers total debt of the public sector, both external and domestic. Therefore, to produce the DSAs for public external debt we have to include both external debt owed by the public sector and external debt guaranteed by the public sector. The DSF lumps these two elements together into what is referred to as public and publicly guaranteed (PPG) external debt. However, the guidance for the DSF does not capture private domestic debt. The template of DSA
under the DSF was very important for the LIC authorities to produce their own DSAs for their own internal purposes.

**Figure 1: External and public DSA**

![Diagram showing external and public DSAs]

**External risk rating**

All debt sustainability analyses produced under the debt sustainability framework include a risk rating which is an explicit assessment from the risk of external debt distress. To do the rating, IMF guidance noted in 2013 the analysis of Public and Publicly Guarantee external debt in the external DSA (Figure 2). Although the external DSA captures all external debt in the economy, the risk rating is looking for PPG external debt only. The central role of PPG external debt in the DSF is based on the fact of history because in Low Income Countries the PPG external debt has been the largest component and largest source of risk.
The overall risk of debt distress

The overall risk of debt distress is considering the vulnerabilities of private external debt and public domestic debt which are reflected in the assessment of the overall risk of debt distress (Figure 3). The assessment is not only looking for external risk ratings but is seeking the sources of risk that the external risk rating does not capture. The result of the assessment can inform the macroeconomic and structural policy dialogue in the country.

Figure 3: The overall risk of debt distress
Debt burden indicators

The projection of debt burden indicators is to evaluate debt sustainability in the long run. However, debt burden indicators in the DSF consist of ratios of debt stock or debt service relative to measuring the capacity of repayment (GDP, export proceeds, or fiscal revenue). There are a total of eight debt burden indicators: five in the external DSA and three in the public DSA as shown in the Figure 4.

Figure 4: Debt burden indicators

![Debt burden indicators](image)

Ratios of debt stock relative to repayment capacity measures are indicators of the burden represented by future obligations of a country and thus reflect long-term risks to solvency, whereas the evolution of debt-service ratios provides an indication of the likelihood and possible timing of liquidity problems. The table below describes the debt burden indicators used in the DSF in more detail.
**Table 1: Debt Burden indicators in the DSF**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solvency</strong></td>
<td></td>
</tr>
<tr>
<td>Present value of PPG external or public debt to GDP</td>
<td>Compares the debt burden with the resource base. This indicator is commonly used, but may be misleading. For example, a low debt-to-GDP ratio could coexist with a high debt-to-exports ratio if exports make up a very small proportion of GDP.</td>
</tr>
<tr>
<td>Present value of PPG external debt to exports of goods and services</td>
<td>Compares the debt burden with the country’s capacity to generate foreign exchange receipts. A debt-to-exports ratio that is increasing over time, for a given interest rate, implies that total debt is growing faster than the economy’s basic source of external income. This ratio is more precise than the debt-to-GDP ratio but may be volatile (given the price volatility of exports) and incomplete (because countries may have other important sources of external income, such as remittances).</td>
</tr>
<tr>
<td>Present value of PPG external or public debt to fiscal revenue</td>
<td>Compares the debt burden with public resources available for repayment. This is a critical ratio for relatively open economies facing a heavy debt-service burden. An increase in this indicator over time suggests that the country may have budgetary problems in servicing the debt.</td>
</tr>
<tr>
<td><strong>Liquidity</strong></td>
<td></td>
</tr>
<tr>
<td>PPG external debt service to exports</td>
<td>Indicates how much of a country’s export revenue is used to service the debt, and how vulnerable the payment of debt service is to an unexpected fall in export proceeds. This ratio tends to highlight vulnerabilities in countries with significant short-term debt. The higher the share of short-term debt to overall debt, the larger and more vulnerable is the annual flow of debt-service payments.</td>
</tr>
<tr>
<td>PPG external or public debt service to fiscal revenue</td>
<td>Indicates how much of a country’s fiscal revenue are used for debt-service payments, and captures the associated vulnerability of debt service to variations in fiscal revenue.</td>
</tr>
</tbody>
</table>
Thresholds for PPG external debt

The thresholds for PPG external debt are the danger zones of the debt which is the ceiling of the risk of debt distress. However, to compare the projection evolution of the five PPG external debt indicators to their respective thresholds we need to do an external risk rating. The thresholds are depending on the quality of the country’s policies and institutions. However, the quality of a country’s policies and institutions is evaluated by its Country Policy and Institutional Assessment (CPIA) score. Countries with higher CPIA scores face higher thresholds. However, the IMF and World Bank staff were re-estimated econometrically the thresholds in 2012 as in Table 2.

Table 2: PPG external debt thresholds

<table>
<thead>
<tr>
<th>Quality of policies and institutions (CPIA)</th>
<th>PV of PPG external debt in percent of</th>
<th>PPG external debt service in percent of</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GDP</td>
<td>Exports</td>
</tr>
<tr>
<td>Weak</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>Medium</td>
<td>40</td>
<td>150</td>
</tr>
<tr>
<td>Strong</td>
<td>50</td>
<td>200</td>
</tr>
</tbody>
</table>

Benchmarks for total public debt

Based on the paper prepared by IMF and World Bank staff in 2012, the IMF guidance in 2013 on the DSF has included the benchmarks of the public DSA to help guide the analysis of total public debt. Therefore, public DSAs have been conducted without the benefit of any benchmarks or thresholds. For the 2012 review, IMF and WB staff derived benchmarks for the PV of public debt to GDP (Table 3). Similar to the thresholds for PPG external debt, the benchmarks for total public debt vary depending on a country’s CPIA score and designate levels above which the risk of public debt distress is heightened.

Table 3: Public debt benchmarks

<table>
<thead>
<tr>
<th>Quality of policies and institutions (CPIA)</th>
<th>PV of total public debt in percent of</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GDP</td>
</tr>
<tr>
<td>Weak</td>
<td>38</td>
</tr>
<tr>
<td>Medium</td>
<td>56</td>
</tr>
<tr>
<td>Strong</td>
<td>74</td>
</tr>
</tbody>
</table>
3. The Overview of Laos Economy

3.1 Recent economic development

The economy of Lao PDR continued to grow strongly along with development in the mining sector and hydro-electric power sector in the early 2010s. In spite of a weak and uneven global economy, sluggish international mining market, and the world oil price decline, the economic growth of Lao PDR in FY2014-15 achieved a 7.6% gain under the government’s prudential macro-economic policy towards sustainable economic growth and social development.

3.1.1 GDP growth

Lao’s real GDP growth rate was at 7.6% in FY2014-15, which was slightly slower than 7.8% of the previous year. However, the growth was mainly supported by increases in household consumption, investment spending especially in the fields of hydropower and construction. The nominal GDP amounted to 100.250 billion kip, and steady economic growth also contributed to the increase in GDP per capita, which rose from 1,671 USD in FY2013-14 to 1,970 USD in FY2014-15.

Lao’s economic growth was highest in the region compared to neighboring countries in the Mekong region, Cambodia, Myanmar, Thailand and Vietnam, on the date of World Economic Outlook of the International Monetary Fund (IMF WEO) in October 2015.

Figure 5: GDP growth (%) and GDP per capita (USD)

Source: Ministry of Planning and Investment
3.1.2 Monetary policy

The goals of monetary policy continued to achieve long-term price stability and sustainable economic growth. To achieve these goals, the Bank of Lao (Central bank of Lao) adapted monetary instruments such as: (1) BOL’s short-term lending interest rate with maturity less than 14 days at 5.625% per annum and less than 1 year at 11.25% per annum; (2) reserve requirement ratio maintained to be 5% for kip deposits and 10% for foreign currency deposits; (3) open market operation by issuing BOL securities to absorb excessive liquidity (BOL: annual economic report 2015).

The inflation rate in the early 2000s had been over 10% before declining to about 7% in 2005. An annual inflation rate in the recent years was relatively contained at a single digit, such as 4.26% in 2012, 6.37% in 2013, 4.13% in 2014 and 1.28% in 2015. The reason for lower rates in the last 5 years was mainly due to declining oil prices, which offset rising food prices. In recent years, the inflation rate has been lower than economic growth. Compared to the inflation rates of other Mekong countries on the IMF date, Lao PDR is one of the highest, reflecting strong demand for goods and services on higher economic growth (BOL: annual economic report 2015).

**Figure 6: Inflation rate in the Mekong region (%)**

Source: IMF (World Economic Outlook October 2015)

On exchange policy, the Bank of the Lao PDR has implemented a floating exchange rate policy based on market mechanisms, which is managed by the Government of Lao with a view of
aiming to maintain stable monetary policy. It moderately appreciated by 4.05% in 2015 against the Thai baht but depreciated by 1.14% in 2015 against the USD (BOL: annual economic report 2015).

Broad money (M₂) continued to increase since 2010 and achieved 59.8% of GDP in 2015 compared to 2014 which increased by 14.7%. The reasons for the increase of M₂ was due to foreign direct investment (FDI) inflow into the mining and hydropower sectors and the increase of government spending on public investment in recent years (BOL: annual economic report 2015).

3.1.3 Balance of payments

In 2015, the balance of payments surplus of 171 million USD compared to 2014 was increased by 11.21%. The main sectors that make the balance of payments surplus comes from a capital and financial account surplus of 2.816 billion USD while the current account balance was a deficit of 2.265 billion USD. However, foreign exchange reserves at the end of 2015 accounted at 986.8 million USD, which covered 6.37 months of imports of goods and services, increased by 20.9% from 815.7 million USD or 4.65 months of imports of goods and services at the same time in 2014 (BOL: annual economic report 2015).

The current account in 2015 recorded a deficit of 2.265 million USD, remarkably widening from a deficit of 1.178 billion USD in 2014, with its GDP ratios deteriorating from -10.1% in 2014 to -18.3% in 2015. The current account deficit in Lao PDR has been driven by a large deficit in trade accounts, while it was partly offset by surplus in service accounts and transfer accounts (BOL: annual economic report 2015).

The trade balance increased by 53.1% to a deficit of 2.464 billion USD in 2015 compared to a deficit of 1.609 billion USD in 2014. The widening trade gap reflected that the increasing value of imports outpaced the increasing value of exports (BOL: annual economic report 2015).

The service balance (net) in 2015 decreased by 24.7% to a surplus of 214 million USD compared to the last year, reflecting a decrease in the tourism sector, which has been lower in the number of foreign tourist arrivals to Lao PDR and its relating revenue decrease in recent years (BOL: annual economic report 2015).
The financial and capital account in 2015 recorded a surplus of 2.816 billion USD, up from a surplus of 1.720 billion USD in 2014, increased by 63.7%. Of which, FDI (foreign direct investment) capital inflows constituted 38.3% of surplus of the financial and capital account in 2015 (BOL: annual economic report 2015).

**Figure 7: Current Account Balance (in million USD)**

![Current Account Balance Chart]

Source: Bank of Lao

**Figure 8: Capital and Financial Account Balance (in million USD)**

![Capital and Financial Account Balance Chart]

Source: Bank of Lao

### 3.1.4 External debt

Since 2013 the external debt-to-GDP ratio was rise and near-term threshold breaches; therefore, the government needed to strengthen its debt management capacity to ensure that debt
sustainability was considered when contracting new debt, particularly because the country is expected to shift from concessional to more market-based terms as it graduates from Least Developed Country (LDC) status. Additional near-term external borrowing, for example to finance mega-projects, could push the debt-to-GDP ratio over the indicative thresholds. However, in 2015 the external debt stock was calculated at 5.627 billion USD, an increase from last year by 3.8% accounting for 45.56% of GDP. In addition, the bilateral borrowing covers 69.7% and multilateral borrowing covers 30.3% of total PPG external debt in 2015.

Figure 9: External debt and debt service to GDP

Since 2013 the structure of PPG external debt was changed, the bilateral creditors have taken a larger share than multilateral creditors, and this trend continues to increase in 2015. Bilateral creditors, mainly China, Russia, Thailand, Japan, and Korea, account for 69.7% of total PPG external debt at the end of 2015. Multilateral creditors consist mainly of the Asian Development Bank and the International Development Association accounting for 30.3% of total PPG external debt as show in the figure below.
3.1.5 Fiscal policy

Since the global financial crisis in 2012, the fiscal sector was affected, revenue has decreased due to the global price of oil and mining being affected, while expenditure had relatively increased. Inconsequently, the overall fiscal deficit had increased during the same period. However, in FY2012-13, the fiscal deficit in percent of GDP reached 6.3%, which considerably exceeded the 5% government target of fiscal deficit (“fiscal deficit shall not be more than 5% of GDP”), due to a rapid increase in expenditure.

In recent years, the government put more effort into improving revenue by strengthening revenue administration, revising some fiscal regulations to support revenue collection. In FY 2014-15 budget revenue grew by 13-14% over the previous year’s outturn, based on higher effective excise and value-added taxes, luxury goods, and vehicles, and stricter enforcement of customs rules. Nevertheless, due to the weak mining revenue to offset the gains from overall administrative efforts, resulting in an expansionary revenue stance.

On the other hand, tightening fiscal policy is a main target of the government, and in FY 2012-13 government expenditure increased sharply to 30.8% from 25.6% in FY 2011-12 due to increases in wage, salary and debt repayment. However, expenditure declined to 26.9% in FY 2014-15.
Consequently, the fiscal deficit was down to 4.7% of GDP, which showed less than 5% of the threshold and improved the fiscal balance.

**Figure 11: Recent budget implementation**

![Graph showing recent budget implementation]

Source: Ministry of Finance, Lao PDR

### 3.2 Medium Term Budget Framework for Laos

The Medium Term Budget Framework (MTBF) is a multiyear fiscal policy to support fiscal discipline, policymaker formulation and implementation (J. Lunbrack 2008). The author mentions that MTBFs are designed to support sustainable economic growth of a country by addressing fiscal vulnerabilities, and to promote efficient use of public resources. However, to support that objective the MTBFs address it in two ways: through (i) fiscal responsibility principles guiding policy formulation, objectives, reporting, and analysis; and (ii) numerical fiscal policy rules for key variables, such as total expenditures and the overall medium-term budget balance. The numerical fiscal policy rules in MTBFs are often a key reflection of the principles of fiscal responsibility.

Lao PDR has developed the Medium Term Budget Framework by the Ministry of Finance to support the 8th National Socio-Economic Development Plan (NSEDP). However, the MTBF has to be aligned with the NSED and the main multiyear fiscal policy objectives are to ensure
sustainable economic growth in Lao for the next five years, to ensure that sources of revenue are enough to stimulate growth and reduce budget deficits.

The MTBFs stipulates that the public sector spend 174.3 trillion kip (USD 21.8 billion) over the next five years or an average of 34.8 trillion kip per year (USD 4.36 billion). This is in addition to what the government already spends for ongoing development projects and recurrent expenditures. Projected government expenditures are expected to increase from 27.03 trillion kip (USD 3.38 billion) in 2016 to 40.5 trillion kip (USD 5.06 billion) by 2020.1 Yearly expenditures were projected to be split between recurrent and capital, the ratio of total expenditure to GDP, and the rate of growth the total expenditures are shown in. On average, on an annual basis, public sector expenditure flows of about roughly 23-25% of GDP will be injected into the Lao economy over the next five years. There is a noticeable upward drift in the ratio of total expenditures to GDP.

In fact, total public sector expenditures are projected to be about 174.3 trillion kip (USD 21.8 billion) over this whole period: an increase of more than 170% when compared to total public spending from 2011 to 2015. These expenditures will be split between capital and current expenditures nearly evenly, marking a significant change in the structure of public sector spending with future spending being more evenly split between current and capital expenditures.2 This expansion can be largely explained due to the scale-up applied in the 7th NSEDP to meet MDG goals but also lays down the infrastructure and capital-intensive investments required to thrust Lao PDR towards a trajectory of inclusive and industrial growth at 7.5% per year.

Averaging over the years 2016-2020, recurrent expenditures per year will be approximately 21.3 trillion kip (USD 2.7 billion) and will be spent on: wages and salaries, (54.3%), government purchases of goods and services (16.1%), transfers and payments to the economy (19.4%), and debt servicing payments (7-10%). Remaining expenditures, roughly 13.5 trillion kip (USD 1.7 billion), will be capital investments including the investment from domestic sources for the 8th NSEDP (USD 623 million), and ODA (USD 1.07 billion).

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1 A simple medium term expenditure framework is being deployed in the MOF to look at these options.
2 In the past, public sector spending had been skewed in favor of recurrent expenditures.
The public sector has been financing its expenditures from a combination of domestic revenues, grants and loans. During the 7th plan period, between 65-75% of total expenditures were financed from domestic revenues (excluding grants). Grants financed about 9-11% of government expenditures. The financing gap of about 29-35% of total expenditures had to be financed from external and domestic loans. Looking ahead, in the 8th plan there is a visible decline in the share of grants. The sum of domestic revenues and grants are projected to increase over the next five-year plan thereby obviating the need for increased deficit financing (debt).

Medium Term Budget Framework (MTBF) provides a summary of the public sector’s fiscal framework over the next five years. Domestic revenues, averaging nearly USD 3.23 billion per year, are projected to be robust enough to cover the government’s recurrent expenditures of USD 2.66 billion. The 8th NSEDP expects that the resulting public sector ‘savings’ would be put aside into a reserve fund for future development and used to meet the public sector’s share of the 8th NSEDP investments. Remaining expenditures, nearly USD 1.7 billion including those related to MDGs, have to be financed from grants and loans.

Table 4: Summary of fiscal framework for 8th NSEDP

<table>
<thead>
<tr>
<th></th>
<th>Total (US$ billion)</th>
<th>Average (US$ billion)</th>
<th>% annual GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Expenditure</strong></td>
<td>21.79</td>
<td>4.36</td>
<td>23.3</td>
</tr>
<tr>
<td>o/w current</td>
<td>13.32</td>
<td>2.66</td>
<td>14.26</td>
</tr>
<tr>
<td>o/w capital</td>
<td>8.47</td>
<td>1.7</td>
<td>9.04</td>
</tr>
<tr>
<td><strong>Domestic Revenues</strong></td>
<td>16.14</td>
<td>3.23</td>
<td>17.3</td>
</tr>
<tr>
<td>Grants</td>
<td>2.21</td>
<td>0.44</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Deficits/Loans</strong></td>
<td>3.44</td>
<td>0.69</td>
<td>3.6</td>
</tr>
</tbody>
</table>

In the MTBF the domestic revenues are projected to grow around 13-14%. They are expected to increase from just less than 21.49 trillion kip (USD 2.69 billion) in 2016 to 32.37 trillion kip (USD 4.05 billion) by 2020. On an annual basis, these figures translate to an average revenue inflow from tax and non-tax sources to a little more than 25.82 trillion kip (USD 3.23 billion) – approximately 17.3% of GDP. This is a phased or progressive increase in tax and non-tax revenues when compared to the previous plan period when domestic revenues as a share of GDP averaged only about 15.5%. Historically, tax revenues, comprising direct and indirect tax revenues, have contributed nearly 90% of domestic revenues: direct taxes on profits, income and land contributed about 20-25%; indirect taxes such as on turnover, excise, imports and exports and VAT comprise another 55-65% of tax revenues; revenues from taxes on natural resources (hydropower, copper, timber) account for between 6-8% of tax revenues.

Over the 8th NSEDP, total domestic revenues (excluding grants) are expected to be in the range of 128-129 trillion kip (USD 16.14 billion). This is a significant increase when compared to domestic revenues collected during the 7th plan which was summarized to only 69.3 trillion kip over the previous five years. Although more than sufficient to cover recurrent expenditures, domestic revenues can finance only about 70-75% of planned total public sector expenditures (174.3 trillion kip or USD 21.79 billion).

However, the primary financing gap, the difference between estimated domestic revenues and total expenditures must be financed from grants and debt. The forecasts suggest a primary financing gap of about 45 trillion kip (USD 5.5-6 billion) for the plan; roughly 9.04 trillion kip (USD 1.1-1.4 billion) per year or 6.1-6.5% of GDP. This financing gap must be plugged through grants and deficit financing (debt).

The government’s deficit financing, or, loan/GDP ceiling, is 1.2% of GDP each year for the 8th NSEDP. Therefore, loans are expected to finance no more than USD 220-230 million of total expenditures per year, or, in total, USD 1.12 billion over the next five years. In other words, incurring further debt can finance no more than 19-20% of the primary financing gap. This falls within the government’s tolerance levels of a sustainable debt-burden for its fiscal framework.

Grant financing is expected to provide a balance of 2.2-2.4% of GDP each. This translates to USD 2.21 billion over the plan period, or equivalently USD 443 million per year, as grant inflows. In terms of current trends, this is just less than the previous 7th NSEDP plan. It can be
explained due to Lao PDR graduating from being a least developed country by 2020; therefore, all ODA from donors will inflow by non-concessional loans in the near future.

However, the overall deficit for the next five years (the total revenues including grants minute total expenditures) will be financed by external borrowing and domestic borrowing (issue Treasury bills in the short term and issue government bonds in the long term). This is in addition to public sector debt each year (as share of GDP). The tightening fiscal policy that begun in 2014 is expected to continue another five years. Growing domestic revenues are expected to finance development investments. A large part of the ‘deficit reduction’ is from the stabilizing impact of increasing domestic revenues and grants: total revenues (including grants) are forecast to keep pace with total expenditures (as a share of GDP). Total expenditures (as % of GDP) are forecast to decline from 24-26% of GDP during the implementation in the 7th year plan to about 21.6% of GDP by 2020 or average for the next five years is about 23.3% of GDP. Total revenues (including grants) are forecast to rise from about 19% of GDP to nearly 21% of GDP by 2020. Consequently, the fiscal deficit is expected to remain stable between 3-5% of GDP during the next five years.

3.3 Financing source for the 8th NSEDP

Lao PDR economy continued to grow steadily with GDP growth rate of about 7.8% per year since FY 2012/13 and the recent economic growth was driven by the continued growth in the mining and hydropower sectors and supported by an accommodative policy stance. However, to achieve the national goal, the Government of Laos has continued to build the National Socio-Economic Development Plan for 2015-2020 (8th NSEDP). It aims to achieve sustainable economic growth and reduce poverty (and inequality), and guide the country graduating from its Least Developed Country status by 2020. For achieving this, the strategic targets underlying the 8th NSEDP can be broken down into four components:

- Achieve sustainable economic growth, the average of real GDP growth rate of 7.5% per annum and ensure that GDP per capita (at current prices) have to be over $3,190 by 2020.
- Achieve all MDGs, support human resource development and reduce poverty to 10% in 2020 to favorable conditions for graduation from LDC status by 2020.
- Ensure inclusive and sustainable development by promoting industrialization and services, preserving natural resources, and protecting the environment.
• Ensure political stability, peace and an orderly society.

However, to support the plan for growth at 7.5% there must be a total investment of about 30% of the GDP\(^3\) each year over the plan period from 2015-2020. The total of investments to be financed are including government financed public sector investments in addition to investments financed by foreign and domestic private sectors and other development partners.

The plan would depend on a diverse financing structure. Given the current limits of resources and revenue, major portions of the plan’s financing is based on FDI and external support. For predictability of development funding, the government has a new mechanism that is expected to work similarly to a donor trust fund operating through a single-treasury account in the Ministry of Finance.

In broad terms, the financing plans of the 8\(^{th}\) NSEDP investments have been defined along the following lines:

**Foreign direct investment (FDI),** traditionally targeted toward capital-intensive resources sectors (mining and hydropower sectors), is also investing in the growing retail, commerce and service sectors. It would be expected to finance about 54-57% of total investments in the 8\(^{th}\) NSEDP. Nearly 120-127 trillion kip (USD 15.0-15.9 billion) is expected to flow in as FDI over the plan period. On average this suggests an annualized FDI inflow of approximately 24.4 trillion kip (USD 3-3.17 billion), approximately 16-17% of projected GDP each year. Investment will be directed towards commercial projects in which the country has a comparative advantage. It is expected that these would help modernize the economy, create jobs and strengthen basic infrastructure.

**Public sector** revenues are explicitly committed to finance about 9-11% of the overall investment target (budgetary fiscal financing). Government revenues would provide about 20-24.5 trillion kip (USD 3.06 billion) over the next five years and this would constitute the public sector’s incremental share of the Public Investment Program (PIP). The *incremental* capital expenditure or investment would be roughly 4.9-5 trillion kip (USD 625 million) per year for this plan.

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\(^3\)These numbers are based on existing data and technically derived capital-output ratios. The output target is set at a 7.5% growth rate in real terms. The ICOR value is estimated to be 4. Thus the required investment to reach the growth target is 30% of GDP.
**Domestic credit** is expected to finance another 42.4-46.8 trillion kip (USD 5.8 billion), or about 19-21% of total investment, via credit provision through the domestic banking system. This credit stimulus is to be directed mainly towards inclusive financing and the growth of small and medium scale enterprises and would imply credit expansion at a rate of about 8.5-9.4 trillion kip (USD 752 million) per year. It is also expected that the stock market, once developed and implemented with international standards, could be instrumental in generating domestic credit and capital for development.

**Grants and loans (ODA)** from development partners would be expected to finance about 12-16% of total investment or about 26.7-35.7 trillion kip (USD 4.5 billion). The government expects that this donor assistance would be targeted to support MDGs that have remained elusive in Lao PDR and assist in consolidating gains where progress has been positive. At the same time, ODA would also be supporting critical development infrastructure that would assist future generations well into the future. These would cost approximately 8.5 trillion kip per year (USD 1.066 billion).

As a matter of fact, the non-fiscal financing for this plan includes FDI and bank credits that provide more than 75% of the 8th Plan’s investment funds. From a public sector perspective the overall fiscal responsibilities include fiscal financing and ODA that would be financed by donors, a total of about 51-55 trillion kip (USD 6.9 billion). In addition, the government’s non-fiscal obligations include banking to provide credit to the private sector of roughly 8.5-9.4 trillion kip (USD 752 million) per year. However, the government’s financial responsibilities must also take into account the possibility that any shortfall in the non-fiscal components (such as FDI) would imply a direct increase in fiscal costs to this plan either in the form of sharply increased deficits or emergency concessionary financing. Therefore, various authorities within the government using basic medium-term fiscal forecasts are examining these options and risks.

### 4. Methodology of Analysis

The main source of data used in this study is secondary data. The use of secondary data was valid for this study for the purpose of gathering background information and comparing the past experience with the current. The data was received from reports of the Ministry of Finance, annual economic reports from the Bank of Laos, World Bank and IMF publications, books,
papers, journals, articles, and related literature on external debt and economic growth. The key data was collected by annual reports.

The sample size of the study covered 20 years from 1996 to 2015, where the annual data available consists of GDP growth rates, external debt ratios to GDP and debt service ratios to GDP. However, this study used systematic sample techniques to interpret the results of the econometric methodology to estimate statistically the dynamic interactions between a set of variables for the time series data to draw a solid conclusion with reference to a specific period of time. It also adopted this technique as the study could be used for further investigation with reference to time.

In order to observe the overall impact of external debt on economic growth of Lao PDR the equation estimated growth model was suggested by Malik et al. (2010).

In light of the above, the following specifications were used in order to evaluate the impact of external debt on economic growth and mathematical models were constructed for analysis:

\[ GDP = f(ED, DS) \]  \hspace{1cm} (1)

The econometric equations are as follows:

\[ GDP = \alpha + \beta ED + \varepsilon \]  \hspace{1cm} (2)
\[ GDP = \alpha + \beta DS + \varepsilon \]  \hspace{1cm} (3)
\[ GDP = \alpha + \beta_1 ED + \beta_2 DS + \varepsilon \]  \hspace{1cm} (4)

Where:
\[ \alpha = \text{Constant term}; \]
\[ \beta = \text{Responsiveness coefficient of the independent variable to the dependent variable}, \]
GDP = Gross Domestic Product growth rate (Percentage of economic growth);
ED = External Debt ratio to GDP;
DS = Debt Servicing to GDP;
\[ \varepsilon = \text{Random error term}. \]
5. Data Analysis and Discussion of the Results

The study presented and analyzed the findings quantitatively to fulfill research objectives. Ordinary Least Squares (OLS) techniques were applied to establish a relationship between external debt and economic growth.

5.1 The relationship between external debt and economic growth of Laos

The objective of this section is to explain the relationship between external debt and economic growth in Laos for the period of 1996-2015. To achieve this objective, this section used three methods. Firstly, this section will present the relationship between external debt and the economic growth of Laos graphically, and second and third will explain by simple equations using econometric techniques to estimate the relationship between external debt and the economic growth of Laos from model (2) and (3) as below:

\[
GDPP = \alpha + \beta ED + \epsilon \\
GDPP = \alpha + \beta DS + \epsilon
\]

Where:

GDP is a percentage of economic growth;
\(\alpha\) is a constant term;
\(\beta\) is the responsiveness coefficient of independent variables to dependent variables;
ED is external debt to GDP;
DS is debt services to GDP; and,
\(\epsilon\) is a random error term.

5.1.1 The recent economic growth and external debt of Laos

External debt has slightly increased over time since 1996 to 2012 and sharply increased in the previous three years. On the other hand, the economy of Lao PDR continued to grow steadily driven by the continued growth in the mining and hydropower sectors and supported by an accommodative policy stance. Recently, the increases in external debt was directly and indirectly affecting the Lao economy and growth rates slightly went down (Figure 12).
The figure shows the relationship between external debt and economic growth where by the GDP growth rate and external debts (ED), the figure illustrated GDP is in percentages and external debts is in millions of USD.

The trend indicated that at the end of the 1990s, GDP was not stable due to the Asian financial crisis in 1997-98 that affected the Lao economy and the growth rate sharply declined from 6.91% in 1997 to 4.0% in 1998. However, the Lao economy recovered and the growth rate sharply increased to 7.28% in 1999. After that, it went down again to 5.81% in 2000 and continued to be stable at that level until 2003. After that, the growth rate sharply increased from 5.79% in 2003 to 8.3% in 2006 due to the government archived 5th NSEDP goals. As a matter of fact, the growth rate slowed down again during the global financial crisis in 2008, and GDP declined to 7.5% in 2009. Recently, economic growth has been stable from 2010 to 2015 and the growth rate moves around 7.8% in each given year.

On the other hand, the external debt has slightly increased over time in the real term from 769.6 million USD in 1996 to 1.3836 billion USD in 2003 even though the Asian financial crisis hit the Laos economy. After that, it was raised to 2.852 billion USD in 2007. The reason is that the government has increased borrowing from external sources to boost the economy during the global financial crisis in 2007. In addition, external debt had been gradually increasing to 3.036
billion USD in 2012. However, due to the government expansion of fiscal policy to support the goals of economic development in recent years, government expenditure has been increasing dramatically, especially capital expenditure and wages and salary that lead to high fiscal deficit. The external debt has increased dramatically to reach 5.627 billion USD in 2015.

5.1.2 External debt and economic growth of Laos

This section using time series data of GDP growth rate and external debt to GDP from 1996-2015 to estimate a regression model (2) for the relationship between external debt and economic growth of Lao holding other factors was residual. The results of the regression model is shown in the table below:

Table 5: Estimation result of model (2)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED</td>
<td>-0.041014</td>
<td>0.011026</td>
<td>-3.719687</td>
<td>0.0018</td>
</tr>
<tr>
<td>C</td>
<td>9.513908</td>
<td>0.685097</td>
<td>13.88695</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: Research study (2016)

From regression model (2), the coefficient of the dependent variable that is GDP_GROWTH at zero level of the explanatory independent variable of external debt (ED) is 9.513908 and standard error is 0.685097 whereas the t-statistic is 13.88695. This indicates that there is a positive relationship between the constant parameter (residual) and economic growth even though the constant has no significant meaning in the model rather than reflecting the value of economic growth when a variable is holding constant.

The coefficient of external debt (ED) shows that there is a negative relationship of 0.041010 with economic growth. This means that for each increase of 1% in external debt (ED), the economic growth of Lao would decrease by 0.041014%, regardless of change in other independent
variables. This concludes that external debt has a negative effect on the economic growth of Lao PDR.

5.1.3 Debt service and economic growth of Laos

Debt service refers to all payments made against a loan including amortization and interest payments. This estimation result of economic growth on debt service to GDP is summarized in the table below:

Table 6: Estimation result of model (3)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS</td>
<td>-0.423133</td>
<td>0.140435</td>
<td>-3.013015</td>
<td>0.0075</td>
</tr>
<tr>
<td>C</td>
<td>9.742949</td>
<td>0.912131</td>
<td>10.68152</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: Research study (2016)

From regression model (3), the coefficient of the dependent variable that is GDP_GROWTH at zero level of the explanatory independent variable of debt service (DS) is 9.742949 and standard error is 0.912131 whereas the t-statistic is 10.68152. This indicates that there is a positive relationship between the constant parameter (residual) and economic growth even though the constant has no significant meaning in the model rather than reflecting the value of economic growth when a variable is holding constant.

The coefficient of debt service (DS) shows that there is a negative relationship of 0.423133 with economic growth. This means that for each increase of 1% in debt service (DS), the economic growth of Lao would decrease by 0.0.423133%, regardless of change in other independent variables. This concludes that debt servicing has a negative effect on the economic growth of Lao PDR.
5.2 The impact of ED and DS on Laos economic growth

External debt and debt services have a significant impact on the Laos economy. This section integrated model (2) and (3) to estimate the impact of ED and DS on Laos Economic Growth in the period of 1996-2015. To achieve this objective, two methods were used, debt sustainability analysis (DSA) and the simple equations using econometric techniques to estimate the impact of external debt and debt services on Laos’ economic growth from model (4) as below:

\[ GDP = \alpha + \beta_1 ED + \beta_2 DS + \varepsilon \] (4)

Where:

GDP is percentage of economic growth;
\[ \alpha = \text{Constant term}; \]
\[ \beta \text{ is Responsiveness coefficient of the independent variable to the dependent variable}; \]
ED = External Debt ratio to GDP;
DS = Debt Servicing to GDP;
\[ \varepsilon = \text{Random error term}. \]

5.2.1 Debt sustainability analysis (DSA) for Laos PDR.

The IMF article IV consultation report on December 15, 2014, concluded that Lao PDR external debt distress still remains moderate but it is on a transition to high risk with heightened vulnerabilities for public debt. The external debt distress indicators are higher than previous years due to the higher external PPG debt stock which is projected debt that flows to finance public investment with less concessional borrowing terms over time. In addition, the large and sudden exchange rate depreciation could significantly affect the share of foreign currency denominated debt, raising the debt to GDP and the debt service to revenue trajectories for external and public debt in Lao PDR. The following table (7) below was estimated by IMF and World Bank staff for the external PPG debt indicators at the end of 2016. The baseline scenarios were based on key variables at their historical averages, and the result shows that Lao PDR external debt still remains moderate but is on a transition to high risk.
Table 7: External PPG debt indicators

<table>
<thead>
<tr>
<th></th>
<th>Indicative thresholds</th>
<th>End-2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present value of debt, in percent of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>40</td>
<td>42</td>
</tr>
<tr>
<td>Exports</td>
<td>150</td>
<td>96</td>
</tr>
<tr>
<td>Revenue</td>
<td>250</td>
<td>236</td>
</tr>
<tr>
<td>Debt service, in percent of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exports</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>Revenue</td>
<td>20</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: Lao PDR authorities, IMF and World Bank estimates

5.2.2 The estimation of impact of ED and DS on Laos’ economic growth

This section analyzes the impact of external debt and debt service on the economic growth of Lao by using regression analysis in Ordinary Least Square (OLS) methodology. The model has integrated model (2) and model (3) together and the results of estimations are reported in Table 8 below. The regression result shows that there is significant impact from external debt and debt service on economic growth. Both external debt and debt service variables have negative effects on Laos’ economic growth. The evidence suggests that increases in external debt and debt service will lead to declines in economic growth.

Table 8: Estimation results of model (4)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED</td>
<td>-0.030484</td>
<td>0.012485</td>
<td>-2.441665</td>
<td>0.0258</td>
</tr>
<tr>
<td>DS</td>
<td>-0.233284</td>
<td>0.146649</td>
<td>-1.590763</td>
<td>0.1301</td>
</tr>
<tr>
<td>C</td>
<td>10.36129</td>
<td>0.84367</td>
<td>12.24208</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Source: Research study (2016)

Table 8 above shows the impact of external debt and debt service on the Laos economy. From the estimation results, the coefficient of the dependent variable GDP at zero level of all independent variables are 10.36129. This indicates a positive relationship between the constant parameter (residual) and economic growth even though the constant parameter has no meaning.
in the model rather than reflecting the value of GDP growth rate when a variable is holding constant.

The coefficient of external debt (ED) shows that there is a negative relationship of 0.030484 with economic growth. This implies that when external debt to GDP goes up by 1%, on average, it will lead to GDP growth rate decline by 0.030484% holding other variables constant. In addition, the coefficient of debt service (DS) shows that there is a negative relationship of 0.233248 with economic growth. This implies that when debt service to GDP increases by 1%, on average, the GDP growth rate will decrease by 0.233248% holding other variables constant.

However, the coefficient of multiple determinations ($R^2$) is 0.507852 equivalents to 50.78%. This indicates that about 50.78% of the total systematic variations in the economic growth are jointly explained by the variation in all the explanatory variables of ED and DS and the remaining 49.22% could be other parameters that are not included in the model.

### 5.3. Discussion of the results

The results show the relationship of external debt and economic growth in Lao PDR from 1996-2015 in a graphical analysis that suggests that there was some relationship between external debt and economic growth typically. The trend indicated that the economic growth of Laos was stable since 2010 to 2015 and the growth rate has been moving around 7.8% in each year. On the other hand, the external debt has slightly increased over time. The reason is that the government had increased borrowing from external sources to boost the economy during the global financial crisis in 2007. Moreover, the external debt gradually increased to 3.036 billion USD in 2012. However, due to the government’s expansion of fiscal policy to support the goals of economic development in recent years, government expenditure has been increasing dramatically, especially capital expenditure and wages and salary that lead to high fiscal deficits. The external debt has been increasing dramatically to reach 5.627 billion USD in 2015.

Furthermore, regression analysis model (2) indicated that there is a negative relationship between ED and GDP by 0.04%. This means that for each increase of 1% in external debt (ED), the economic growth of Lao would decrease by 0.04%. In addition, regression analysis model (3) suggests that there is a negative relationship between DS and GDP by 0.42%. This means that for each increase of 1% in debt service (DS), the economic growth of Lao would decrease by 0.42%.
The impact of external debt and debt services on Laos’ economy has been estimated by debt sustainability analysis (DSA) and integrated model (2) and (3) in the period of 1996-2015 using econometric techniques to estimate the impact of external debt and debt services on Laos’ economic growth. The results based on the DSA that was estimated by IMF and World Bank staff during the IMF article IV consultation report on December 15, 2014, conclude that Lao PDR’s external debt distress still remains moderate but is on a transition to high risk with heightened vulnerabilities for public debt due to the higher external PPG debt stock which projects debt flows to finance public investment with less concessional borrowing terms over time. In addition, the large and sudden exchange rate depreciation could significantly affect the share of foreign currency denominated debt raising the debt to GDP and the debt service to revenue trajectories for external and public debt in Lao PDR. If looking at integrated model (2) and (3) in the period of 1996-2015 using econometric techniques to estimate the impact of external debt and debt services on Laos’ economic growth “model (4)” shows the result that there is a negative relationship between external debt and GDP by 0.030. This implies that when external debt to GDP goes up by 1%, on average, it will lead to GDP growth rate decline by 0.030% holding other variables constant. In addition, the coefficient of debt service (DS) shows that there is a negative relationship of 0.233248 with economic growth. This implies that when debt service to GDP increases by 1%, on average, the GDP growth rate will decrease by 0.233248% holding other variables constant.

6. Conclusion and Policy Implications

The external debt and debt service has significant effects on economic growth of Lao PDR. Many empirical studies concluded that external debt and debt service had negative effects on economic growth. On the other hand, some studies suggested that external debt and debt service had positive effects on economic growth. However, this paper concludes that there is significant impact from external debt and debt service on the economic growth of Laos. Both external debt and debt service payments have a negative effect on GDP. Firstly, according to the past data of external debt and debt service of Laos from 1996-2015, it indicates that there is some relationship between external debt and economic growth in figure 11, which shows that the external debt to GDP increases over time, which affects the GDP growth of Laos that was slightly declining in 2015. Secondly, based on the IMF article IV consultation report on
December 15, 2014, it concluded that Lao PDR external debt distress still remained moderate but that it was on a transition to high risk with heightened vulnerabilities from public debt. The external debt distress indicators are higher than previous years due to the higher external PPG debt stock which is projected debt flows to finance public investment with less concessional borrowing terms over time. Finally, this research using the regression analysis econometric technique to estimate the impact of external debt and debt service to economic growth shows results that there is a negative relationship between external debt and GDP by 0.030%. This implies that when external debt to GDP goes up by 1%, on average, it will lead to a GDP growth rate decline by 0.030% holding other variables constant. Moreover, the coefficient of debt service (DS) shows that there is a negative relationship of 0.233248 with economic growth. This implies that when debt service to GDP increases by 1%, on average, the GDP growth rate will decrease by 0.233248% holding other variables constant.

These results show that over the period of 1996-2015 the external debt and debt service are key factors that negatively affect the GDP growth in Laos PDR, and the accumulation of external debt mainly consisted of multilateral and bilateral loans, which have a long maturity of 20 to 40 years. Thus, over the period of 1996 to 2015, the debt services of Laos mainly considered the principle payments that led to crowd out of public investment and this impacts the economic growth of Laos PDR. Other reasons behind this could be that the debt servicing of external debt has to be paid for in foreign currency and that the value of the Lao kip is weak as compared to the creditor countries’ currency.

In order to support economic growth without a debt burden, the Government of Lao PDR should pay more attention to the debt management profile and tighten fiscal policy by cutting some unimportant items of expenditure, increasing revenue to reduce fiscal deficit. However, the government should borrow only for productive programs. Importantly, the government should establish, maintain and manage a credible database. The database should provide timely, accurate and comprehensive data to stakeholders for the purpose of disclosure and DSA. Moreover the government should establish transparent loan cycles that cover the activities for project identification, appraisal and approval, loan negotiations and contracting, loan disbursements, project implementation monitoring and evaluation as well as loan repayment. The government should provide a policy framework that is credibly creating an environment that will encourage investor confidence for both local and foreign investors to invest in the country.
However, the capacity building of staff is of key importance to improve debt management in Laos. Therefore, the government needs to encourage staff who are in charge of debt management to learn more about debt management in our country, and welcome all technical assistance from donors to support our debt management program.
References


