

## A Study the Relationship between Balance Of Payment and National Income in Lao PDR

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**Abstract:** *The national income and balance of payments are very important role and cannot be isolated from each other because of the balance of payments is linked to affected the national income in the term of using of the fiscal and monetary policy. In this case, we have 2 objectives: understanding the overview and analysis of the relationship between national income and balance of payments. The data collection is from different sources as Bank of Lao PDR., Asian Development Bank and the World Bank to describe perfectly content. This journal, we used to describe and analysis the econometric on using the program Stata 13 to analysis by setting model assumptions of national income and the independent variables of the balance of payments. The finding results reveal that: the changing of the balance of payments are influencing to the growing of national income of Lao PDR. Independent variables affect that: if balance of payment or BOP, money supply or M2 and Foreign direct investment or FDI are change up or down 1 unit or \$ 1 million would make national income change increases or decreases 3.58 units or \$3.58 million, 1.57 units or \$1.57 million and 1.80 units or 1.80 million respectively.*

**Keywords:** *Gross domestic product (GDP), Balance of Payment (BOP), Money supply (M2), Foreign direct investment (FDI)*

### INTRODUCTION

Since 1986 after Lao's People Democratic Republic has been reformed new economics policy for opened the door from landlock to land link country by reforming the system economics from central economics to marketing economics system. From the result of that it can make the new economics system to nowadays such as: more foreign investment flow in, the reform of state entrepreneur and banking system, open trade and others (Hamdan et al., 2020). In 1992-1996 the economy grew up by an average 6.4% per year, the economy has suffered from the rise of the trade deficit, the deficit budget and the value of the local currency has been affected by the financial crisis in Thailand in 1997, resulting in economies of Lao PDR grow only 3.99% as then, the economy has been recovering sequence especially in the year of 2003-2013 average is 7-8% and year of 2014-2019 average is 6-7% of GDP (Goleman, 2013)

The principle factors that cause the balance of payments (BOP) to changing are due to internal and external factors. Internal factors are affected such as: economics policy, taxation, quota setting, epidemics and production factors. The main external factors are affected such as: exchange rate of currency, export-import value, foreign aid, economic crisis, global economic circle and so on the balance of payments is an integral part of macroeconomic policy instruction and also reflects the state of the economy in each quarter, especially in marketing economies or open economy (Sugiyono, 2016). In addition, there is an index indicating the economic classification such as: Gross Domestic Product (GDP), amount of money and international reserves to pursue a policy of economic government via inflow-outflow of capital and financial situation debt of the country, replacing debt, foreign aid, loans and the advantage in various fields especially on commerce's which identify the relationship between exchange rates with trading and services, currencies reserves foreign changing and as a tool for conducting of monetary policy (Pufall et al., 2016)

From the background and information, the researcher is analyzed focusing on the general relationship of the balance of payments and national income in Lao PDR with that was such as an important part on policy conduction, determination, using of fiscal and monetary economics policy. Balance of payment are closely importance for budget and monetary in the term of economics for example: Exports-imports, exchange rate, international money transferred with launched by Ministry of Industry and Commerce and Bank of Lao PDR among international payments of countries which conducted and monitored closely because unstable of economics will affect to the economy growth

### LITERATURE

National income or Gross Domestic Product or GDP (Leamer, 2009) is the total value of products and services (final product) of domesticable resources produced during a period of time in a country especially one year per time. Economic growth refers to the increase in economic capacity to produce products and services by comparing such growth from one to the next period. Nominal income growth, which includes inflation and actual income growth, has already offset the effects of inflation. Theory of growing economic concepts (Haller, 2016) described on the growth of the economy which will occur with the factors such as level of economic increase returns (Increasing Return) which is opposed to external factors such as increasing the number of the population. In the other word,

(Piętak, 2014) defined the rate of growth of the economy depends on one variables: the rate of return on capital and variables such as inflation, which will cause yield decreases resulting accumulation of reduced rate and growth of economic decline.

Balance of payment the Bank of Lao PDR (2019, n.d.) has been said that is recorded summary of whatever happened to economics activities or doing business economy (Economics Transactions) between resident in the country and who have settled in the abroad (Non-Residents) during a punctual time, but usually will count by annual years, in the other words, the balance of payments like account of deposit-withdraw of the country itself. An international balance of payments (Quarter, 1962) consists of receipts and disbursements or transactions that take place between countries on economics activities. These items can be divided into four major categories: Products and Services, Capital Transfers, Donations, and Financial Activities. These four categories are grouped into four account: current account, trade account, income account and regular transferred account (Spinola, 2020)

Money Supply M2, in economics theory (william, 1973) mentioned that it is amounts total value of assets in the economy which is to be preserved and promulgated by the central bank and the private will track the analysis of money supply in the long term because the amount of money will be the impact on price levels, inflation, exchange rates and the cycle of business, according to the theory provides the money supply it is not depend on influenced producer, but it will depend on the policy of the government, especially the monetary policy of the central bank. Therefore, liquidity of money supply (Deposits et al., 2015) is not dependent on interest rates. In practice way, the central bank will determine the quantity of money supply, it is depend on the amount of GDP, why money is important economics because changes in money supply will cause a change in income, output and employment when the other things are constant (Chaitip et al., 2015) and in the conduct of monetary policy of the central bank is set to target the money supply are middle target and control inflation is the final target.

Foreign Direct Investment: Investment is using funds accumulated or loans from financial institutions or commercial bank to purchase tools, equipment, materials equipment which is called attractive factors for using to run businesses in the form of products and services which investors or developers expects to benefit as returns on investment in the form of profits, interest, dividends and returns of various things depend on the type of business investment or investment itself (Owusu-Antwi et al., 2013). If the financial sector mobilizes money savings and pays back into the economy in the form of investment, it will have an impact on the contraction or growth of the economy. Therefore, the country's saving and investment temperature must be good to promote the country's savings, investment and economic growth (Andreica & Maricescu, 2011).

## METHODOLOGY

The analysis will lead by descriptive approach which brought information data from document (documents data), website, reports and conclusions which contain on the table of program Excel to analyze the changes in the units (million) to help explain results and use programs statistic Stata 13. (Wan, 2018) to analyze the economic dimension of the relationship, and the coefficients of the variables into the analysis. The analyzed steps must be studied and described are: to present an overview of the national income (Gross Domestic Product), the Balance of Payments (BOP), the amount of the money supply (M2) and Foreign Direct Investment (FDI) from 1992-2019 and then will be presented to analyze (Gundersen, 2016) the by data statistics with variables that affect on the growing of national income, and then evaluate the results of studies and present the results by narrative and in the table to help make up the difference of data of each year clearly by describing the case and concluded lessons from the results of this.

The secondary data from the websites of the Bank of Lao PDR, Asian Development Bank, World Bank and the National Statistics Center of Lao PDR, which will explain the changes in Lao PDR's national income from 1992-2019.

**Table 1**  
Sources of data used to describe and analyze the model.

No	Data	Source	Units
01	GDP	Bank of Lao PDR	Million USD
02	BOP	Bank of Lao PDR	Million USD
03	M2	Asian Development Bank	Million USD
04	FDI	Bank of Lao PDR	Million USD

The descriptive analysis method is to explain and analyze the results of the data from program excel and graphs on the changes in national income and balance of payments from 1992-2019, based on data, research papers and the context of changes in national income and balance of payments. Further, quantitative analysis is the study of the changing relationship between National Income and Balance of Payments of Lao PDR, by using economic models to assist in the analysis.

The analysis is used the Ordinary Least Square (OLS) to analyze the data (Moutinho et al., 2014). It is then constructed as an equation to show the relationship between the changes of National Income or GDP and Balance of Payments (BOP) of Lao PDR in each period by defining national income or GDP as dependent variable to balance of payment (BOP), Money Supply (M2) and Foreign Direct Investment (FDI) as independent variables, the evaluation uses the least quadratic approach, with variables modeled based on theoretical and theoretical implications. We hypothesize the impact of changes of Balance of Payments (BOP), Money Supply (M2) and Foreign Direct Investment (FDI) in Lao affect to the National income or GDP, and these factors are related in the same directly way with the National Income of Lao PDR. Based on these variables, the economic equations can be shown model assumption as the following below:

$$\widehat{GDP} = \beta_0 + \beta_1(BOP) + \beta_2(M2) + \beta_3(FDI) + U_i$$

Where is:

$\beta_0$ : is the economy growth that does not depend on an factor

GDP: is the gross domestic product or national income

BOP: is Balance of Payments.

M2: is Money Supply.

FDI: is Foreign Direct Investment.

$U_i$ : is the predictive variable.

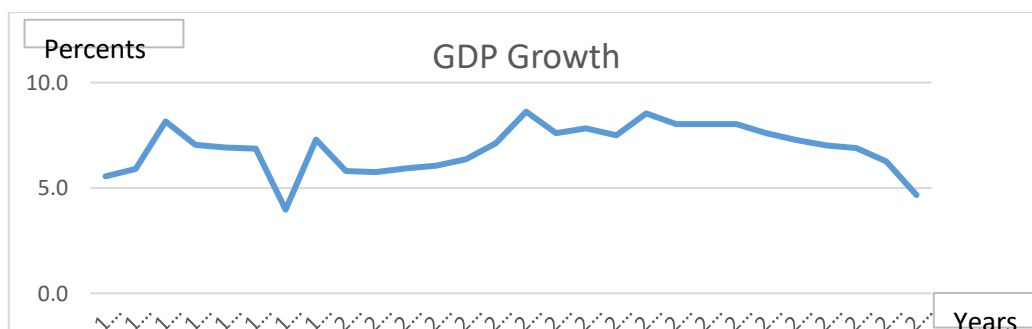
Further, there are some assumption of hypothesizes, namely:

- $\frac{GDP_{it}}{BOP} > 0$ ; the changing of balance of payments affect the national income in the same direction (Pesaran & Pesaran, 2016): if balance of payments increases, it means that more demand for products and services. On the other hand, if balance of payments is reduced, it means that the outflow of domestic currency, there will be less demand for consumption, lower national income.
- $\frac{GDP_{it}}{M2} > 0$ ; the changing of M2 it is affected to the national income in the same direction. When the M2 in the economic system increases, it means that has more money in the economy and it will make the national income growth. On the other hand, a decreasing of M2 in the economy, it indicates a decrease in the amount of money in the economy, which would lead to a decrease in national income, according to Keynesian economic theory
- $\frac{GDP_{it}}{M2} > 0$ ; the changing of foreign direct investment affects the national income in the same direction: a change or increase in the amount of foreign direct investment will result in an increase or decrease in the level of national income growth.

## FINDINGS AND DISCUSSIONS

### Descriptive Analysis

In the early 21<sup>st</sup> century, the global economy continues to many challenges in the economic crisis as economic recession such: the debt crisis in the euro zone, Asian economic crisis in Thailand, trade war of China-America, natural disasters, epidemics, unemployment, oil prices and the increased price of food. Lao PDR is one of the countries which affected indirectly by those factors, but government measures and policies to encourage economic growth as building infrastructure such as trade, wholesale-retail, services, transportation, post-telecommunications. Furthermore; it is followed by industry, agriculture, forestry and fisheries. In addition, Lao PDR expanded its membership by joining the World Trade Organization in early 2013, the following detail as the economic growth for example: economic growth of 4% in 1998, 8.6% in 2006, 7.5% in 2009 and 4.7% in 2019 (Najdov & Phimmahasay, 2016).



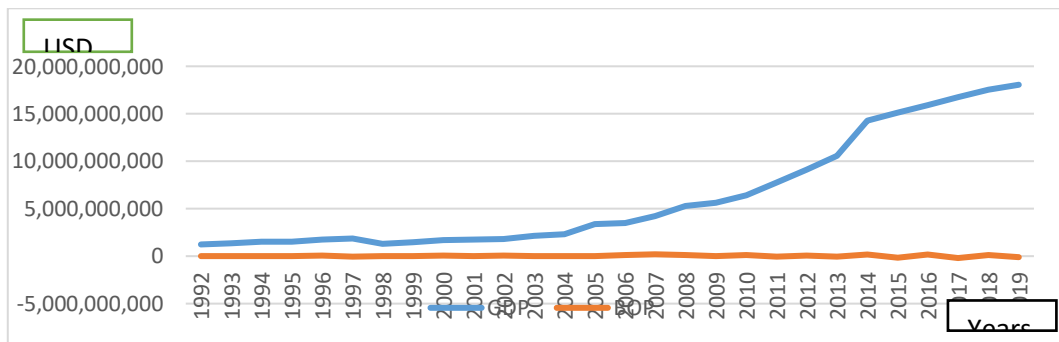
**Figure 1**

Percent of economy growth of Lao PDR

Source: World bank 2020

Balance of payments of Lao PDR was erratic because of the external environment factor, in 1997 it is deficit of \$ 31 million because of Asian economic crisis which case in Thailand and spread to the all Asian countries. In 2011, the deficit of Balance of Payments (IMF, 2019) was \$ 57.5 due to the deficit in trade and deposit account which will affected to the government budget to reduce the money spending plan with the amount total of \$ 8.27 million. In 2012, it is surplus of \$ 60.89 million because of surplus in services account and grants the fund to launched the ASEAN University Games and the Asia-Europe Meeting which held in Vientiane capita; Lao PDR.

Balance of Payments is one of the factors indicate the National Income (as an indicator of the level of growth of the economy), to determine the growing of national income in the countries, once considered view of the relationship between the balance of payments and national income is not close to each other. In the other words, balance of payments affects the growing of national income not much as the graph below the national income and balance of payments are not parallel and do not forward in the same direction in the year (Pdr & Economic, 2009). The effecting of national income and balance of payments (in dollars) are increasingly positive and negative levels of uncertainty and insecurity. From 1992 to 1996, the national income level changed more drastically because of many factors such as policy conducting, natural disasters, production factors, except for 1998. Because of the direct impact of the Asian financial crisis, the national income and the balance of payments were severely reduced. Since 2000-2013 the national income it is modified more than the balance of payments and the national income has changed is increased in some years because of the increasing of investment, inflation stable and interest rates, the figure displayed that the balance of payments change first and the consequence to national income because of the import of capital, manufacturing value which is in 2009 the relations it was in the negative way because of the external factors affected for example: financial world crisis in 2008. From the analysis it is pointed that the changing of national income it is caused by factors such as domestic consumption, taxation, public investment, policy conducting, monetary management, etc. The balance of payments it is caused on both internal and external factors such as foreign aid, import and export, etc.



**Figure 2**

The relationship between Balance of Payment and National Income

Source: Bank of Lao PDR, 2020

**Measurement Model**

In this section, the results will evaluate by the assumption of model statistic from program Stata 13. and using series data by the annual year from 1992-2019. All result will be summarized and show as the following table below:

From Table 2: It can be seen that the independent variables in the assumption models are consistent with the set assumptions which are shown to be accepted. There are three independent variables that can explain the variability of the variables according to the National Income (GDP). These include: BOP, M2, FDI, which can be described in the following table and equation:

**Table 2**  
Displays data analysis result

Variables	Coef.	t-stat	Standard error	Prob
Constant	1.40e+09	10.07	1.39e+08	0.000
BOP	3.580177	3.15	1.135209	0.004
M2	1.572215	25.39	0.0619319	0.000
FDI	1.803648	4.19	0.4301091	0.000
Total data	28			
Adjusted R-square	0.9924			
F-Statistic	1049.02			
Durbin-Watsan	-			

Source: Data analysis result

Model assumption:  $\widehat{GDP} = 1.40 + 3.58(BOP) + 1.57(M2) + 1.80(FDI) + U_i$

The BOP variable has a coefficient of 3.58, which is related in the same direction. The BOP variable can explain the change of GDP with a level 99% of confidence (Prob), which is accepted with the model assumption setting. If the BOP increases by 1 million unit or 1 million dollars, it will increase 3.58 million dollars which was other variables are constant value. It is indicated that if the balance of payments is increased, it will make the national income or GDP increase, too

The M2 variable has a coefficient of 1.57, which is related in the same direction. The M2 variable can explain the change of GDP with a level 99% of confidence (Prob), which is accepted with the model assumption setting. If the M2 increases by 1 million unit or 1 million dollars, it will increase 1.57 million dollars which was other variables are constant value. It is indicated that if the government spending or injecting money into the economy system, it will cause the economy to grow or increase national income.

The FDI variable has a coefficient of 3.17, which is related in the same direction. The FDI variable can explain the change of GDP with a level of 99% confidence (Prob), which is accepted with the model assumption setting. If FDI increase by 1 unit or 1 million dollars, it will increase 1.80 million dollars which was other variables are constant value, it means that if amount money of FDI increases in the economy, it will make national income growth, too

In the analytical table, it is observed that the t-statistic values of the variables obtained from the analysis when compared with the values of T in the T-Student, and it is seen that the value of T-statistic of the independent variables (at each level of confidence) are bigger than that the independent variables, it can be described in a positive direction. For the F-Statistic value = 1049.02 is bigger than the value of  $F_{(0.01 (2:19))} = 5.93$  From the F-distribution table. It means that independent variables (X) given in the assumption model is valid and can be used up to 99 percent of the dependent variable (Y).

## CONCLUSION

From the research is in accordance with the objectives setting. The analysis of the relationship between the balance of payments and national income can be summarized as follows: Balance of payments and national income are changed in the same direction and opposite in some years, it is mean that the national income growth in the positive and frequency (Real GDP). On the other hand, balance of payments is volatile heavy as a result of internal and external factors affecting such as fund aid, export - import, Taxes, economic crises, etc.

The results of the analysis from program statistic Stata 13. The relationship between national income (GDP), balance of payments (BOP), Money Supply (M2) and Foreign Direct Investment (FDI) can be explore as follows: It can be seen that all the independent variables in the model are accepted with the model assumption setting in hypothesis, which can be indicated that there is a positive way. There are three independent variables that can explain changes in GDP. Includes: BOP, M2, FDI, which can be expressed as follows: BOP variables can be explained GDP variable, which find that the change in BOP in the previous year, the increasing or decreasing in 1 unit of BOP will be increased or decreased the national income by 3.58 units. M2 variables can be explained GDP variable, which find that the change in M2 in the previous year, the increasing or decreasing in 1 unit of M2 will be increased or decreased the national income by 1.57 units FDI variables can be explained GDP variable, which find that the change in FDI in the previous year, the increasing or decreasing in 1 unit of FDI will be increased or decreased the national income by 3.17 units. Therefore, we conclude that changes of Balance of Payments (BOP), Money Supply (M2) and Foreign Direct Investment (FDI) are influenced the change of national income or GDP.

In the next study, independent variables should be incorporated into the analysis of the balance of payments and national income to make the analysis more accurate. The variables to be analyzed should have several theories related to the occurrence of changes in the balance of payments and national income.

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