ISSN: 2288-2766 © 2013 KODISA. http://kodisa.org/eajbe
Doi: http://dx.doi.org/10.13106/eajbe.2014.vol2.no2.58-67.

Low Growth Rate of GDP per Capita in the Philippines

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Received: March 30, 2014, Revised: April 20, 2014, Accepted: June 25.

Abstract

If we compare the GDP per Capita for the last 20 years between Philippines and other ASEAN countries, Philippines remains in the lowest on GDP per Capita. This paper is trying to find out the possible reasons for the low growth rate of the GDP per Capita in the Philippines. 53 years data from the World Bank are used explore the relationships between the GDP per Capita and eight economic indicators to run three time series models and one to one regression. Three indicators, namely, consumer price index, gross capital formation as a percentage of GDP and population are remarked with possible contribution to the low growth rate of the GDP per capita of the Philippines.

Keywords*: GDP, Asean, Population*

JEL Classifications : E660.

1. INTRODUCTION

For comparing the average standard of living of the country, the most common economic indicator used would be gross domestic product per capita or GDP per capita. If we want to compare the average standard of living in the Philippines as compared to other Asia countries, please see the information below in Figure 1.

Country	GDP per Capita			Ranking among the 8 countries			2002 % Increase over 1992	2012 % Increase over 1992	2012 % Increase over 2002
	1992	2002	2012	1992	2002	2012			
Singapore	12,700	23,700	59,900	2	2	1	87%	372%	153%
Japan	17,100	28,000	34,300	1	1	2	64%	101%	23%
Korea, South	5,600	17,700	31,700	3	3	3	216%	466%	79%
Malaysia	2,460	9,000	15,600	4	4	4	266%	534%	73%
Thailand	1,400	7,400	9,700	5	5	5	429%	593%	31%
China	370	5,000	8,400	8	6	6	1251%	2170%	68%
Indonesia	490	3,200	4,700	7	8	7	553%	859%	47%
Philippines	700	4,600	4,100	6	7	8	557%	486%	-11%

Source : CIA World Facebook

Figure 1 GDP per Capita from CIA World

It is a sad message if we compare the GDP per Capita for the last 20 years between Philippines and other Asia countries. As per the above table, Philippines remains in the lower bottom and actually, the position decreased from 6 in 1992 to 7 in 2012 to 8 in 2012.
If we exclude the more developed countries like Japan, Korea and China, the performance of the GDP per capita for Philippines is still the worst among other ASEAN countries like Malaysia, Thailand and

Indonesia. In terms of the absolute dollar value, Philippines is at the bottom end. In terms of the ranking, it is decreased from ranking 6 of 1992 to ranking 8 of 2012. In terms of increase over the previous years, the percentage increase of the Philippines is the low end too. In fact, if we compare 2012 against 2002, the GDP per capita for Philippines was actually decreased.

For the possible reasons, this is a complicated area which it will not be explained by any single factor. This paper is trying to find out the possible reasons for the low growth rate of the GDP per Capita in the Philippines as comparing to other Founding Fathers of the Association of Southeast Asian Nations (ASEAN). The approaches is to measure the correlations between the GDP per capita with other economic indicators for the ASEAN countries and to indicate the possible areas to contribute to the low growth rate of GPD per capita in the Philippines.

By going through the database of the World Bank, eight economic indicators are chosen to be used on this research. Each economic indicator represents some economic performance indication of the countries. This paper would try to explore the possible correlation between the GPD per capita with the eight economic indicators and to indicate the possible areas to contribute to the low growth rate of GDP per capita in the Philippines.

To focus on the proper comparison of the economic model in the Philippines, this paper is to compare Philippines with the rest of the Founding Fathers of the ASEAN, namely, Indonesia, Malaysia, Thailand and Singapore.

The basic economic indicator on this paper is of course the GDP per capita which is the dependent variable of this paper. From the World Bank database, we use the GDP per capita in constant 2005 value in US$.

There are eight independent variables in this paper. These eight independent variables of eight economic indicators are to measure some particular economic performance of the country. They are Consumer Price Index, Exports of Goods and Services as a percentage of GDP, General government final consumption expenditure as a percentage of GDP, Gross Capital Formation as a percentage of GDP, Imports of Goods Services as a percentage of GDP, population, Total Reserves of the country and Trade as a percentage of GDP.

The visual view of the conceptual framework is shown in Figure 2 below.

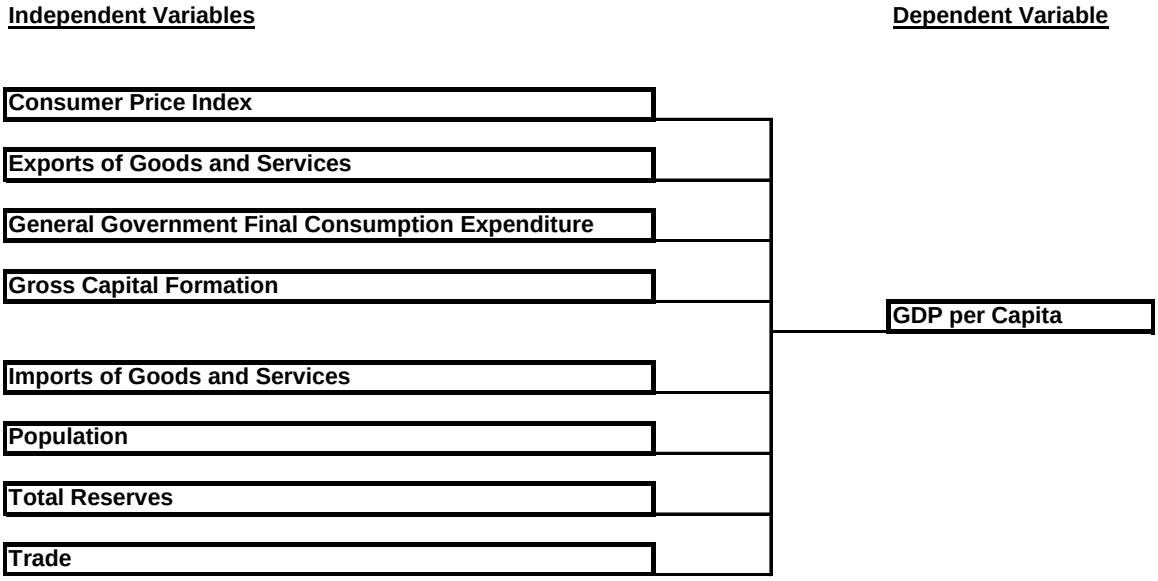

Figure 2 Conceptual Framework

As the economic indicators are extracted by country and by year, this would be a time series models to explore the relationships between the GDP per Capita as the dependent variable and the consumer price

index, exports of goods and services, general government final consumption expenditure, gross capital formation, imports of goods and services, population, total reserves and trade as the independent variables. In terms of the time series models, this will cover both the static model, the time in linear and the time in square models for each of the country between the dependent variable and the independent variables.
As this research is focused on the growth rate, the natural log of the GDP per Capita is used as the dependent variable as well as the natural log of population and total reserves are used as the independent variables.
The general time series static model would be

$$log(GDPpCap) = \beta_0 + \beta_1 ConPrIn + \beta_2 ExGdSr + \beta_3 GovConExp + \beta_4 GrCapFor + \beta_5 ImGdSr + \beta_6 log(Pop) + \beta_7 log(TtlRes) + \beta_8 Trade + u$$

The general time series time in linear model would be

$$log(GDPpCap) = \beta_0 + \beta_1 ConPrIn + \beta_2 ExGdSr + \beta_3 GovConExp + \beta_4 GrCapFor + \beta_5 ImGdSr + \beta_6 log(Pop) + \beta_7 log(TtlRes) + \beta_8 Trade + t + u$$

The general time series time in square model would be

$$log(GDPpCap) = \beta_0 + \beta_1 ConPrIn + \beta_2 ExGdSr + \beta_3 GovConExp + \beta_4 GrCapFor + \beta_5 ImGdSr + \beta_6 log(Pop) + \beta_7 log(TtlRes) + \beta_8 Trade + t + t^2 + u$$

In addition to the above time series models, the one to one regression correlation is also being measured between dependent variable and each of the independent variable. Also, the three time series models, namely, the static model, the time in linear model and the time in square model are also be measured between the dependent variable and each of the independent variable.
When judging whether the economy is doing well or poorly, it is natural to look at the total income that everyone in the economy is earning (Mankiw 2012; Blanchard 2011, Saunders & Thornhill 2009; Wooldridge 2006). That is the task of gross domestic product. GDP measures two things at once, the total income of everyone in the economy and the total expenditure on the economy's output of goods a services. GDP can perform the trick of measuring both total income and total expenditure because these two things are really the same. For an economy as a whole, income must equal expenditure. The measure of aggregate output in the national income accounts is called the gross domestic product or GDP for short.
GDP per capita is the ratio of real GDP to the population of the country. It gives the average standard of living of the country. Dividing the gross domestic product of the country in a given period by the population of the country will yield the GDP per capita or GDP per person. It would measure the average GDP for each individual in the country. GDP per capita is a common economic indicator to indicate the average standard of living of the country for the people in this country.
The Association of Southeast Asian Nations, or ASEAN, was established on 8 August 1967 in Bangkok, Thailand, with the signing of the ASEAN Declaration (Bangkok Declaration) by the Founding Fathers of ASEAN, namely Indonesia, Malaysia, Philippines, Singapore and Thailand. Brunei Darussalam then joined on 7 January 1984, Viet Nam on 28 July 1995, Lao PDR and Myanmar on 23 July 1997, and Cambodia on 30 April 1999, making up what is today the ten Member States of ASEAN.

2. RESEARCH DESIGN

The data from this paper will be run with the regression models with time series. The STATA statistical software, version 11, will be used to run these models. There are one dependent variable and eight independent variables on this paper. The regression models will be run for each country on the dependent variable and the eight dependent variables. In order to test on the time series, the three time series models will be used to run on the data, namely, the static model, the time in linear model and time in square model.

The results of the each of the independent variable will be observed on the statistical statistically by referring to the value of P>|t| in the results of each of the model. In addition, the value of the coefficient of each of the independent variables as well as the sign of each of the independent variables would be observed to under the impact to the dependent variable as well as whether the relationship between whether their correlation is positively correlated or negatively correlated.

In additional to run the multiple regression analysis with the 3 time series, an one to one regression model is also run between the dependent variable and each of the independent variable. Furthermore, the 3 time series model will also be run for each of the one to one regression model, namely the static model, the time in linear model and the time in square model. The coefficient of the independent variable and the sign will be observed to measure the possible correlation to the dependent variable. From the results of the regression models with time series and the one to one regression models, conclusions will be drawn to identify the possible correlation between the dependent variable and the eight independent variables.

The data of the five Founding Fathers of the ASEAN are extracted from the database of World Bank. All the economic data are extracted from 1960 to 2012, with a total of 53 years. The dependent variable is the GDP per Capita in constant 2005 value of US$. As this research is focused on the growth rate, the natural log of the GDP per Capita is used as the dependent variable. By going through the database of the World Bank, eight economic indicators are chosen to be used on this research as the independent variables.

From some basis statistical analysis on the data for each country, which including the beginning value at 1960, the final value at 2012, the percentage changes for the 53 years as well as the annual combined growth rates are compared for the 53 years.

As an overall of the combined annual growth rate, Indonesia has the higher growth rate of 28.13% as compared to Singapore of 2.70% being the lowest. For population growth rate, Philippines is the highest of 2.54% as compared to Thailand of 1.73% being the lowest. For total reserves, Singapore is the highest of 16.0% as compared to Indonesia of 11.73% being the lowest.

In terms of the combined annual growth rate of the GDP per capita, Singapore is the highest of 5.32%, as compared to Thailand of 4.39%, Malaysia of 4.15%, Indonesia of 3.53% and Philippines of 1.49% being the lowest. Among the five Founding Fathers of the ASEAN, Philippines has the lowest combined annual growth rate on GDP per capita. In terms of the absolute value, the combined annual growth rate of GDP per capita of Philippines is less than half (1.49% only being 42.21% of 5.32%) of the combined annual growth rate of GDP per capita of Indonesia, being the second least growth rate.

From the basic statistical analysis, Philippines has the lowest combined annual growth rate on GDP per capita among the five Founding Fathers of the ASEAN. In absolute value, the combined annual growth rate of GDP per capita of Philippines is relatively low as compared to the other Founding Fathers over the 53 years. This is the key drive for this paper to find out what could be the possible contributions to the low growth rate of GDP per capita in the Philippines.

A summary of combined annual growth rate for five founding fathers of the ASEAN would be shown in the Table 3 below.

Summary of Combined Annual Growth Rate

Combined Annual Growth Rate (CAGR)

Indicator Name	ID	MY	PH	TH	SG
Consumer price index (2005 = 100)	28.13%	3.11%	8.98%	4.62%	2.70%
Exports of goods and services (% of GDP)	0.92%	1.06%	1.84%	3.06%	na
GDP per capita (constant 2005 US$)	3.52%	4.15%	1.49%	4.39%	5.32%
Log (GDP per capita (constant 2005 US$))	0.53%	0.53%	0.21%	0.62%	0.58%
General government final consumption expenditure (% of GDP)	-0.31%	0.48%	0.42%	0.66%	-0.01%
Gross capital formation (% of GDP)	2.62%	1.19%	0.04%	1.27%	1.98%
Imports of goods and services (% of GDP)	1.50%	1.31%	2.11%	2.86%	na
Population (Total)	1.99%	2.48%	2.54%	1.73%	2.28%
Log (Population (Total))	0.10%	0.15%	0.14%	0.10%	0.15%
Total reserves (includes gold, current US$)	11.73%	12.17%	13.30%	12.63%	16.06%
Log (Total reserves (includes gold, current US$))	0.50%	0.51%	0.58%	0.53%	0.67%
Trade (% of GDP)	1.20%	1.17%	1.98%	2.96%	na

Table 3 Summary of CAGR for Indonesia, Malaysia, Philippines, Thailand and Singapore

3. RESULTS

For the one to one regression analysis for the five founding fathers ASEAN countries, all the independent variables except the general government final consumption expenditure (under both Indonesia and Philippines) are statistical significant to the GDP per capita as the dependent variable on a one to one basis.

For those independent with statistically significant values, the absolute values of the coefficients are evaluated to the impacts of the natural log of GDP per capital as the dependent variable.

The coefficient of the consumer price index of Philippines is -0.0111 which is the highest among the rest of the ASEAN countries. With the negative coefficient of 0.0111, it would mean that the GDP per capital will decrease by 1.11% with every one point increase in the consumer price index. As per the Table 3, the combined annual growth rate of the consumer price index of Philippines is on the high side among the ASEAN countries as being 8.98%. This would be one of the factors which contribute the low growth rate of the GDP per capita.

The coefficient of the exports of goods and services of Philippines is -0.0033 which means that GDP per capital will decrease by 0.33% with every one percent increase of exports of goods and services as a percentage of GDP. The absolute value of the exports of goods and services as a percentage of GDP of Philippines in 2012 is 30.81%, which is relatively low as compared to that of Malaysia (87.47%) and of Thailand (74.98%). With a moderate combined annual growth rate of the exports of goods and services as a percentage of GDP of 1.84%, the impact of the exports of goods and services to the GDP per capita of Philippines is minimal.

As the impact of the general government final consumption expenditure as a percentage of GDP of Philippines is not statistical significant, the impact of the general government final consumption expenditure to the GDP per capita of Philippines would not be statistical significant.

The coefficient of the gross capital formation of Philippines is 0.0059 which is the highest among the rest of the ASEAN countries. With the positive coefficient of 0.0059, it would mean that the GDP per capital will increase by 0.59% with every one point increase in the gross capital formation as a percentage of GDP. As per the Table 3, the combined annual growth rate of the gross capital formation as a percentage of GDP of Philippines is on the lowest among the ASEAN countries as being 0.04%. By reviewing the absolute value of the gross capital formation as a percentage of GDP of Philippines, it is noticed that the gross capital formation as a percentage of GDP does not change much over the 53 years. The gross capital formation as a percentage of GDP remains at 18% level from 1960 to 2012 while other ASEAN countries have increased this ratio from 87% (Malaysia) to 287% (Indonesia). As compared to the other ASEAN countries, the ability of the Philippines to generate capital formation is low over the 53 years. This would be one of the factors which contribute the low growth rate of the GDP per capita.

The coefficient of the imports of goods and services of Philippines is -0.0022 which means that GDP per capital will decrease by 0.22% with every one percent increase of imports of goods and services as a percentage of GDP. The absolute value of the exports of goods and services as a percentage of GDP of Philippines in 2012 is 33.99%, which is relatively low as compared to that of Malaysia (75.54%) and of Thailand (73.85%). With a moderate combined annual growth rate of the exports of goods and services as a percentage of GDP of 2.11%, the impact of the imports of goods and services to the GDP per capita of Philippines is minimal.

The coefficient of population of Philippines is -16.3037 which means that GDP per capital will decrease by 16.30% with every one percent increase of population. The absolute value of the population of Philippines in 2012 is 96.7 million, which is second highest in the ASEAN countries (Indonesia being the highest as 246.9 million). The combined annual growth rate of the population in the Philippines is the highest among the ASEAN countries of being 2.54% over the 53 years from 1960 to 2012. With the high coefficient of population of Philippines with a negative value of 16.30 and the highest combined annual growth rate of the population in the Philippines, this would be one of the factors which contribute the low growth rate of the GDP per capita.

The coefficient of the total reserves of Philippines is -0.0932 which means that GDP per capital will decrease by 0.09% with every one percent increase of total reserves. As per the Table 3, with a moderate combined annual growth rate of the total reserves of 13.30% among the ASEAN countries, the impact of total reserves of Philippines is minimal.

The coefficient of the trade of Philippines is -0.0014 which means that GDP per capital will decrease by 0.14% with every one percent increase of trade as a percentage of GDP. The absolute value of the exports of goods and services as a percentage of GDP of Philippines in 2012 is 64.79%, which is relatively low as

compared to that of Malaysia (163.01%) and of Thailand (148.83%). With a moderate combined annual growth rate of the exports of goods and services as a percentage of GDP of 1.98%, the impact of trade to the GDP per capita of Philippines is minimal.

A summary of regression of natural log of GDP per capita on one to one basis for all ASEAN countries would be shown in the Table 4 below.

Table 4

Summary of Regression of natural log of ASEAN GDP per Capita on one to one basis

Coefficient/Significant	ID	MY	PH	TH	SG
ConPrIn-2005	-0.0030	-0.0053	-0.0111	-0.0018	0.0041
ExGdSr-GDP	0.0202	0.0089	-0.0033	-0.0019	na
GovConExp-GDP	Not Significant	-0.0584	Not Significant	-0.0188	-0.0082
GrCapFor-GDP	0.0031	0.0024	0.0059	0.0050	0.0014
ImGdSr-GDP	0.0299	0.0110	-0.0022	0.0026	na
Pop-Ttl-l	10.5263	2.5442	-16.3037	-7.0554	-3.2798
TtlRes-Cur-l	0.0487	0.1042	0.0932	0.2090	0.3477
Trade-GDP	0.0128	0.0050	-0.0014	-0.0009	na

Table 4 Summary of Regression of natural log of ASEAN GDP per Capita on one to one basis

On the summary of the three time series models of all the five founding fathers of the ASEAN countries, for those independent with statistically significant values, the absolute values of the coefficients are evaluated to the impacts of the natural log of GDP per capital as the dependent variable.

The coefficient of the consumer price index of Philippines is -0.0041 which is the highest among the rest of the ASEAN countries. With the negative coefficient of 0.0041, it would mean that the GDP per capital will decrease by 0.41% with every one point increase in the consumer price index. As per the Table 3, the combined annual growth rate of the consumer price index of Philippines is on the high side among the ASEAN countries as being 8.98%. This would be one of the factors which contribute the low growth rate of the GDP per capita.

As the impact of the exports of goods and services as a percentage of GDP of Philippines is not statistical significant, the impact of the exports of goods and services to the GDP per capita of Philippines would not be statistical significant.

The coefficient of the general government final consumption expenditure as a percentage of GDP of Philippines is -0.0087 which means that GDP per capital will decrease by 0.87% with every one percent increase of the general government final consumption expenditure as a percentage of GDP of Philippines. As per the Table 3, with a moderate combined annual growth rate of the total reserves of 0.42% and a moderate absolute value of 10.53% as the general government final consumption expenditure as a percentage of GDP of Philippines among the ASEAN countries, the impact of total reserves of Philippines is minimal.

The coefficient of the gross capital formation of Philippines is 0.0041 which is the second highest among the rest of the ASEAN countries. With the positive coefficient of 0.0041, it would mean that the GDP per capital will increase by 0.41% with every one point increase in the gross capital formation as a percentage of GDP. As per the Table 3, the combined annual growth rate of the gross capital formation as a percentage of GDP of Philippines is on the lowest among the ASEAN countries as being 0.04%. By reviewing the absolute value of the gross capital formation as a percentage of GDP of Philippines, it is noticed that the gross capital formation as a percentage of GDP does not change much over the 53 years. The gross capital formation as a percentage of GDP remains at 18% level from 1960 to 2012 while other ASEAN countries have increased this ratio from 87% (Malaysia) to 287% (Indonesia). As compared to

the other ASEAN countries, the ability of the Philippines to generate capital formation is low over the 53 years. This would be one of the factors which contribute the low growth rate of the GDP per capita.
As the impact of the imports of goods and services as a percentage of GDP of Philippines is not statistical significant, the impact of the imports of goods and services to the GDP per capita of Philippines would not be statistical significant.
The coefficient of population of Philippines is -11.1557 which means that GDP per capital will decrease by 11.16% with every one percent increase of population. The absolute value of the population of Philippines in 2012 is 96.7 million, which is second highest in the ASEAN countries (Indonesia being the highest as 246.9 million). The combined annual growth rate of the population in the Philippines is the highest among the ASEAN countries of being 2.54% over the 53 years from 1960 to 2012. With the high coefficient of population of Philippines with a negative value of 16.30 and the highest combined annual growth rate of the population in the Philippines, this would be one of the factors which contribute the low growth rate of the GDP per capita.
As the impact of the total reserves of Philippines is not statistical significant, the impact of the total reserves to the GDP per capita of Philippines would not be statistical significant.
As the impact of the trade as a percentage of GDP of Philippines is not statistical significant, the impact of the trade to the GDP per capita of Philippines would not be statistical significant.
The summary of regression of natural log of GDP per capita on time series for all ASEAN countries would be shown in the Table 5 below.

Table 5

Summary of Regression of natural log of ASEAN GDP per Capita on Time Series

Coefficient/Significant	ID	MY	PH	TH	SG
ConPrIn-2005	-0.0033	-0.0034	-0.0041	0.0024	Not Significant
ExGdSr-GDP	0.0091	Not Significant	Not Significant	Not Significant	na
GovConExp-GDP	-0.0126	0.0067	-0.0087	Not Significant	-0.0122
GrCapFor-GDP	0.0020	0.0095	0.0041	0.0034	0.0024
ImGdSr-GDP	0.0091	-0.0090	Not Significant	Not Significant	na
Pop-Ttl-l	-5.2453	-3.7891	-11.1557	-4.8146	-0.8563
TtlRes-Cur-l	0.0321	Not Significant	Not Significant	0.0900	0.1282
Trade-GDP	-0.0092	Not Significant	Not Significant	Not Significant	na

Table 5 Summary of Regression of natural log of ASEAN GDP per Capita on time series

4. CONCLUSIONS

To explore the relationships between the GDP per Capita as the dependent variable and the consumer price index, exports of goods and services, general government final consumption expenditure, gross capital formation, imports of goods and services, population, total reserves and trade as the independent variables, three time series models, namely the static model, the time in linear and the time in square models are run for each of the country between the dependent variable and the independent variables. Furthermore, an one to one regression analysis is run for each of the independent variable against the dependent variable for each country.

From the one to one regression analysis and the three time series models of the five founding fathers of the ASEAN countries, for those independent variables with statistical significant, the coefficient of the independent variables as well as the absolute values are evaluated to the impact to the natural log of GDP per capita as the dependent variable.

From the evaluation of the coefficients and the absolute values of the independent variables with statistical significant, three independent variables are remarked with possible contribution to the low growth rate of the GDP per capita of the Philippines. The three independent variables are consumer price index, gross capital formation as a percentage of GDP and population.

With the high negative value of the coefficient of the consumer price index of Philippines, it would indicate the high impact to the GDP per capita as negatively correlated. Furthermore, the combined annual growth rate of the consumer price index of Philippines is on the high side among the ASEAN countries. This would contribute to the low growth rate of the GDP per capita in the Philippines.

With the high value of the coefficient of the gross capital formation as a percentage of GDP of Philippines, it would indicate the high impact to the GDP per capita. However, the combined annual growth rate of the gross capital formation as a percentage of GDP of Philippines is on the lowest among the ASEAN countries. As a matter of fact, the gross capital formation as a percentage of GDP does not change much over the 53 years. As compared to the other ASEAN countries, the ability of the Philippines to generate capital formation is low over the 53 years. This would indeed contribute to the low growth rate of the GDP per capita.

With the high negative value of the coefficient of population of Philippines, it would indicate the high impact to the GDP per capita. The population in the Philippines is the second highest in the ASEAN countries and with the highest combined annual growth rate of the population in the over the 53 years from 1960 to 2012. This would also contribute to the low growth rate of the GDP per capita.

From the analysis, the impacts of the other independent variables (namely, exports of goods and services as a percentage of GDP, general government final consumption expenditure as a percentage of GDP, imports of goods and services as a percentage of GDP, total reserves and trade as a percentage of GDP) are minimal.

From the above, the government of the Philippines should focus more on the control of increase in consumer price index, hence inflation, generation of more capital formation, hence new investments, and control of increase in population in order to increase the average standard of living in the Philippines through a higher value of GDP per capita.

REFERENCES

Blanchard, Olivier. (2011). Macroeconomics. 5th Edition. Boston: Prentice Hall. 2(1), 235-239.

Mankiw, N. Gregory. (2012). Principles of Macroeconomics. 6th Edition. Mason: South-Western Cengage Learning. 3(2), 532-567.

Saunders, M., Lewis P., & Thornhill, A. (2009). Research methods for business students. Philippines: Pearson Education South Asia Pte Ltd. 3(2), 222-237.

Wooldridge, M. Jeffrey. (2006). Introductory Econometric. A Modern Approach. 4th Edition. Mason: South-Western Cengage Learning.3(1), 52-73.