Korean Soc Sci J (2019) 46:77-98

Evaluating Philippine's Economic Development in 2010 and 2015: Utilizing Global Competitive Index, Human Development Index and Environmental Performance Index

Alma Angeli de Castro Placido[1] · Sungsoo Hwang[2]

Received: 14 May 2019 / Accepted: 29 May 2019 / Published online: 1 June 2019

Abstract This paper evaluates the Philippine's economic development between the years 2010 and 2015, under the leadership of former President Benigno "Noynoy" Aquino, III. This study presents an overview of the Philippine's economic development strategy and utilize the results from the Global Competitiveness Index (GCI) Report, Human Development Index (HDI) Report, and Environmental Performance Index (EPI) Report as a measure to evaluate the economic growth. Both quantitative analysis and qualitative analysis are used to compare the impact of the Philippine's development between 2010 and 2015. To the exception of the macroeconomic environment pillar of the GCI and ecosystem vitality issue area of the EPI, it is found that there are significant differences existing in each of the development indicators.

Keywords Global Competitive Index · Human Development Index · Environmental Performance Index · Benchmarking · Evaluation of Economic Development

This paper is based on the Master degree thesis of Alma Angeli de Castro Placido (Advisor: Sungsoo Hwang), "Comparative Analysis of the Philippine's Development Strategy" (2018)

✉ Alma Angeli de Castro Placido
angeliplacido@gmail.com

Sungsoo Hwang
sungsoohwang@ynu.ac.kr

[1] Associate Director, Ernst & Young, Philippines

[2] Associate Professor, Department of Public Administration & Park School of Policy and Saemaul, Yeungnam University. South Korea

Introduction

Evaluating a country's economic development is a challenge. Often, benchmarking strategy is employed to compare one to another. Many developing countries use widely accepted indexes as a guide to check where they are and to improve. One of the initial steps toward national development is benchmarking, wherein a country's capacity is measured by means of comparison to other nations. Three of the known references that could provide such benchmark are the Global Competitiveness Index (GCI), Human Development Index (HDI) and Environmental Performance Index (EPI). Many countries, especially developing countries, consider these reports as definitive guides to determine what needs to be improved.

The World Economic Forum (WEF) provides an assessment of a country's economy through its annual GCI report. The GCI report, that currently gauges the competitiveness of 144 economies, provides insight into the drivers of economic productivity and prosperity of each country. The GCI is divided into three sub-indexes: basic requirements, efficiency enhancers, and innovation & sophistication factors. With each sub-index having a different weight to calculate the overall economic performance of the country, global competitive index imparts a clear overview of each country's economic performance (Schwab, 2016).

The Human Development Index (HDI) developed by the United Nations Development Programme (UNDP) is anchored on people and their capabilities to stimulate development of the country. HDI measures development not on economic growth but on how national policies influence human development. As of its 2015 HDI report, it encapsulates human development measurements of 188 countries. HDI summarizes the average achievement of each country based on the three key dimensions of human development: a long and healthy life, being knowledgeable, and have a decent standard of living (UNDP, 2016).

On the other hand, the EPI quantifies and numerically mark the environmental performance of a nation's policies. Initially designed to supplement the environmental targets of the Millennium Development Goals (MDGs). The EPI was developed to evaluate environmental sustainability of a nation relative to the paths of other countries (Yale, 2016).

This study aims to provide a basis for understanding the Philippine economy, while using the GCI, HDI and EPI as a ground for assessing the country's development performance. Comparing 2010 and 2015, this study highlights areas that are improved with the sets of Philippine's development goals and strategies. In doing so, this study may aid countries, especially developing countries, to enhance their national competitiveness, human development and environmental performance.[1]

> "How much does the Philippine's development strategy of government contribute to the national development of the country?" This main research question can be broken into the following set of questions to be more specific and to use three indicators in evaluating its growth.

[1] Original thesis evaluated the Philippine's national development strategy in detail through a comparative analysis of its economic performance against Indonesia, Malaysia and Thailand by means of these countries' GCI, HDI and EPI results.

1. What changes did the Philippine's development strategy bring?
2. What is the standing of the Philippine's development strategy in terms of global competitiveness, human development and environmental performance as compared to Indonesia, Malaysia and Thailand?

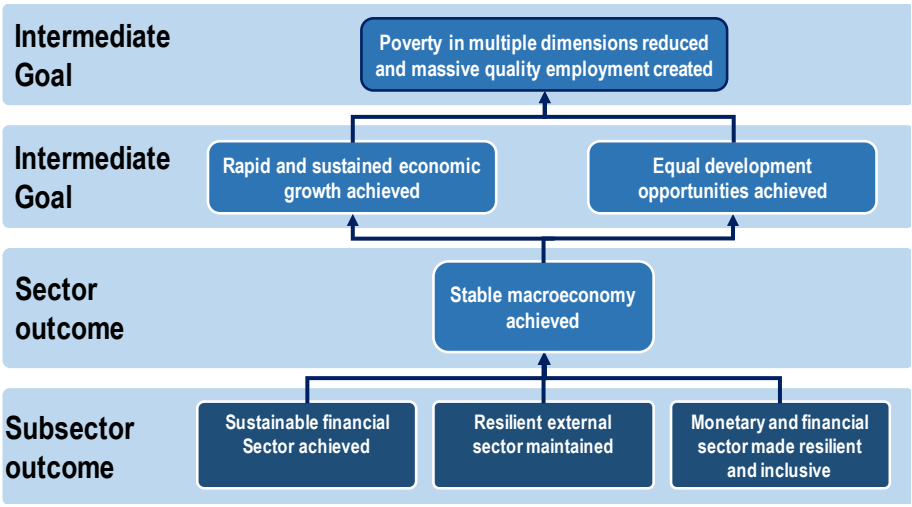
The Philippine Context: Aquino Administration

The Philippine islands have multiple ethnicities and languages. It has a multicultural history that stems from Austronesian, Asian, Islamic, European, and American influences (Harris, 2016). Efforts to promote linguistic unity, to address linguistic diversity within the country, is a continuous struggle (Kaufman, 2013). In addition, the Philippines has a long history of security challenges: its long wars between various insurgent groups is a burden each government administration face. In the past five decades, the Philippine government, specifically its military arm, have focused their resources in containing rebel movements (De Castro, 2010). Lastly, the lack of public policies to control land resources have been identified as one of the most important causes of the persistent poverty in the country (Asian Development Bank, 2005).

In August 2009, hundreds and thousands of Filipinos mourned in the streets when former President Corazon Aquino, the heroine of the 1986 'People Power' uprising in the Philippines, died. A few weeks after her burial, her low-profile son Benigno Simeon 'Noynoy' Cojuangco Aquino, III stepped forward as a presidential candidate in the May 2010 elections (Dressel, 2011). President Aquino was faced with countless problems; the most blatant is the widespread of corruption and inadequate administrative capacity. Corruption indicators indicated the Philippines was one of the most corrupt countries, ranking 139 (out of 180 countries) in the Transparency International (TI) Corruption Perception Index of 2009 (Transparency International Secretariat, 2009). There is no shortage of well-crafted anticorruption laws in the country, but enforcement is negligible for the reason that administrative capacity is not enough. Anticorruption laws in the Philippines are the Anti-Money Laundering Act (2001); Government Procurement Reform Act (2003); a Whistleblower Protection Act (2016) (Lanzona, 2016).

The Philippine development plan was anchored on the concept of good governance, national security and ecological integrity. Strategic framework of the Philippine development plan highlights the importance of sustained economic growth, growth that generates mass employment, as well as growth that reduces poverty (National Economic and Development Authority, 2014).

Adopting a conservative approach, the Philippines received its first investment grade credit ratings (Yap et al, 2016). With an agenda to balance the budget, the Philippine government managed to achieve striking progress (Business Monitor International, 2016). Aquino's administration had managed reduce the budget deficit of the country to 0.9 percent of GDP in 2015 from 3.5 percent in 2010.



Source: National Economic and Development Authority. 2014. Philippine Development Plan 2011-2016.

Fig. 1 Macroeconomic Policy Plan Framework, 2011-2016

Relying on Development Theories

This section provides an overview of three major and more often competing development theories that are formulated by scholars that explains the reason behind the development of various economies.

Solow Model

The Solow model, originally introduced Robert Solow in 1956, is a model for economic growth that presumes a production function that exhibits diminishing marginal returns of input to production, a step beyond the original Harrod-Domar model. In summary of the Solow model, "steady state" may be rationalized through three exogenous factors: the population growth rate, the savings rate, and the depreciation rate of physical capital.

This model begins with the neoclassical production function:

$$Y = F\left(\frac{K}{L}\right) \tag{1}$$

To reflect the diminishing marginal returns to capital, the production function of the Solow model exhibits a curved slope. *Figure 2.0 presents the diagram of the Solow Model*. The Solow model suggest that physical capital alone cannot generate long-growth for the reason that it will in due course cause gains in output per worker to approach zero. This model incorporates the reasoning behind capital accumulation as only a means to gain short-run or transitory growth as the economy grow from one single point on the aggregate production function to another. To

define the long-run or steady-state per capita output level, the dynamics of capital and labor stocks must be included.

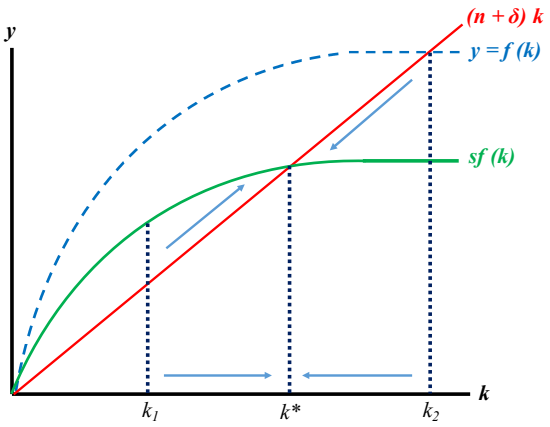


Fig. 2 Diagram of the Solow Model

The Solow model assumes that the increase in capital stock grows at the rate of saving (s) and at the same time is diminished at the rate of depreciation (δ), which is also presumed to depend on the existing size of the capital stock of the economy. Note that savings (s) is a fixed portion of the national output and that the total new investment is determined by the level of total national savings.

The steady state occurs when *sf(k)* line intersects with (n+δ)k line (shown as k^* in Figure 2.0). The steady state simply depicts the idea that, in the long-run, output per worker can no longer exceed k^*. Based on the Solow model, no matter where an economy starts (e.g., k_1, k_2) forces exist that pushes k to move to the steady state (k^*) (shown as the arrows in Figure 2.0).

Augmented Solow Model

Augmented Solow model is an alternative version of the Solow Model patterned by Mankiw, Romer and Weil in 1992. In addition to the original version of the Solow model, the Augmented Solow model included a new dimension of human capital. As defined by this model, human capital refers to the knowledge acquired by the workers as a result of education, training and self-learning. Like physical capital, generating human capital involve "investments". It also involves depreciation due to the fact that people often forget things and lose particular skills over time if they do not continually use their newly acquired skills (Mankiw, Romer & Weil, 1992).

Managed Sustainable Development

Managed Sustainable Development (MSD) is formulated due to scarcity of resources and environment & ecological issues brought about by modern human industrialization. MSD focuses

on the approaching development by identifying and classifying resources and goods & services within the context of sustainable development and turning them into market opportunities. Likewise, MSD highlights the negative effects of continuous disregard of natural-moral duty of preserving the natural resources and ecosystem to national development. (Saxena, 2017)

To determine the different development measures to be utilized as a comparative evaluation of the development growth of each country (i.e., the Indonesia, Malaysia, Philippines, and Thailand), this research have used the abovementioned theories as a guide to ensure that different dimensions of development is gauged. The Solow model and the Augmented Solow model is encapsulated within the development measure of the GCI and HDI, respectively. On the other hand, MSD is measured within the scope of the EPI.

Measuring Development

This section provides a discussion of the GCI, HDI, and EPI as a means of measuring the development of economies.

Global Competitiveness Index (GCI)

The GCI report provides a comprehensive view of the micro- and macroeconomic foundations of countries' overall national competitiveness (Schwab, 2012). The first GCI was released in 2005 and was prepared by the Oxford University Press within the scope of Jeffrey Sachs and Michael Porter's research work in competitiveness (Lall, 2001). The index is broader in scope than its predecessor, the growth competitive index, and uses a different weighing scheme. Instead of differentiating countries solely on the basis of their technological capabilities, countries are instead grouped according to their "stage of development" as reflected by their level of GDP per capita (Hojjat,2014). Three such stages are identified: factor driven, efficiency driven, and innovation driven.

In 2008, a revised index was presented by WEF under the leadership of Michael Porter (Porter, Delgado, Ketels, & Stern, 2008). This report then ranks nations according to three states, each state having pillars amounting to an overall 12 pillars with weighted percentages.

The first state is Basic Requirements, which is composed of four pillars: Institutions, Infrastructure, Macroeconomic Environment, and Health & Primary Education. These pillars are key for factor-driven economies. The Efficiency Enhancers is the second state and contains six pillars: Higher Education and Training, Goods Market Efficiency, Labor Market Efficiency, Financial Market Development, Technological Readiness, and Market Size. These pillars are key for efficiency-driven economies. The third state is Innovation and Sophistication factors and has two pillars: Business Sophistication, and Research & Development Innovation, and these pillars are fundamental for innovation-driven economies (Schwab, 2012). Each pillar in the GCI has a weighted sub-index, and the total of these sub-indexes under each pillar amounts to 100 points. The report shows a score for each of these factors and sub-factors in addition to the country's ranking compared to other countries.

Human Development Index (HDI)

The HDI embodies Amartya Sen's "capability approach towards human development, wherein it emphasizes the importance of ends (i.e., decent standard of living) over means (i.e., income per capita). Similar with GDP, the HDI is based on national averages notwithstanding that it, the latter, includes a wider set of welfare indicators (Stanton, 2007).

The HDI integrates measures of life expectancy, school enrolment, literacy and income to provide a broader-based measure of well-being and development other than income alone. Key capabilities are highlighted in HDI through the inclusion of three important end of development: access to health, access to education, and access to commodities. In detail, HDI is comprised of four component indexes, namely life expectancy, literacy, school enrollment, and income. These indexes are combined to into a single index (i.e., HDI) to compare the human well-being of countries (Stanton, 2007).

Since its publication, this index has become widely cited and is commonly used as a way of ranking the quality of life in different countries (Engineer, King & Roy, 2008). The UNDP's establishment of the human development report expanded both the availability of measurement and comparison tools used by governments, NGOs, and researchers, and our common understanding of development itself. Over the years, the HDI report has establish itself as the most popular composite index that measure human development (Dervis and Klugman, 2011).

Environmental Performance Index (HDI)

The EPI ranks countries performance based on their performance on two high-priority environmental issues: protection of human health and protection of the ecosystem. These two priority policy objectives are the basis of a country's overall EPI scores with nine issue areas and twenty indicators that reflect national-level environmental data.

In calculating EPI, datasets are transformed into comparable performance indicators, which requires standardizing raw values according to population, land area, gross domestic product, and other common unit of measurement. EPI is a comprehensive index that provides a quantitative matrix to evaluate environmental policy performance. EPI have managed to align its indicators to the United Nations Sustainable Development Goals[2] to evaluate national performance and showcase how far have these countries muddle through to reaching global targets (Yale, 2016).

[2] UN Sustainable Development Goals (SDGs)- also known as Global Goals, the SDGs build on the success of the Millennium Development Goals (MDGs) and aim to go further to end all forms of poverty. The new Goals are unique in that they call for action by all countries, poor, rich and middle-income to promote prosperity while protecting the planet. The 17 SDGs of the 2030 Agenda for Sustainable Development is now currently being adopted by world leaders starting January 1, 2016. (UNDP, 2015)

Comparing with others: Benchmarking Study

Benchmarking pertains to a notion of comparison with a relevant standard and taking specific actions with the aim of improving performance. When benchmarking is enforced throughout the organization, coordination is required to ensure that information about the organization being benchmarked and the experience of the process is shared. Organization using benchmarking as a management tool must be well equipped to provide necessary information to its partners. In essence, successful benchmarking is altogether founded on getting into every detail of the operational process within the organization for this is the only known approach in which the organization could arrive into better outputs (Holloway et al, 1998).

Benchmarking is long recognized and tagged as an important tool for improving products and organizational performance. For instance, Walter Chrysler, one of the founders of US leading automobile manufacturers, frequently bought and disassemble new automobiles to better understand his competition (Shetty, 1993). Ford engineers is said to anatomize some 50 German and Japanese cars before taking on the construction of the now popular Ford Taurus (Mittlesteadt, 1992). However, the key event that placed benchmarking as one of the most effective management tool among practitioners and scholars was Xerox Corporation's benchmarking-driven turnaround in the late 1970s (Garvin, 1993). Nowadays, benchmarking constitutes a wide range of activities, ranging from informal comparisons within the corporate boundaries to highly structured comprehensive analysis of competition across industries (Ketter et al, 2016).

The following section provides how data was collected and analyzed to evaluate the Aquino administration economic development strategy of the Philippines by means of benchmarking its GCI, HDI and EPI results against Indonesia, Malaysia and Thailand.

First, the index scores of the Indonesia, Malaysia, Philippines, and Thailand from 2010 to 2015 was gathered. Respective index scores were gathered and segregated on a 'per year', and 'per country' basis. After the collection process, the next step was quantitative analysis approach. In performing this phase, index data would run through statistical tests. The main objective of these tests was to determine the correlation between these index scores. After this, we then proceeded to the next phase, using qualitative approach to confirm the details of development strategies. The data was gathered specifically from related cases, articles, news, studies, and government reports that is identifiable to the index being analyzed.

By utilizing the results of the GCI, HDI and EPI, the index results of the Philippines is placed under a cross-sectional benchmarking analysis. This comparative analysis was done for the Philippine's index scores to be analyzed against the index scores of Indonesia, Malaysia and Thailand.

We utilized secondary data from the Global Competitiveness, Human Development, and Environmental Performance Reports published between 2010 to 2015. Secondary data is usually accumulated through research and surveys conducted by, or provided to the WEF, UNDP and Yale University. Secondary data is utilized for comparability purposes, since these reports are adjusted for comparability amongst countries. These reports used several methods of gathering information such as, but not limited to, census results, surveys, and registration records.

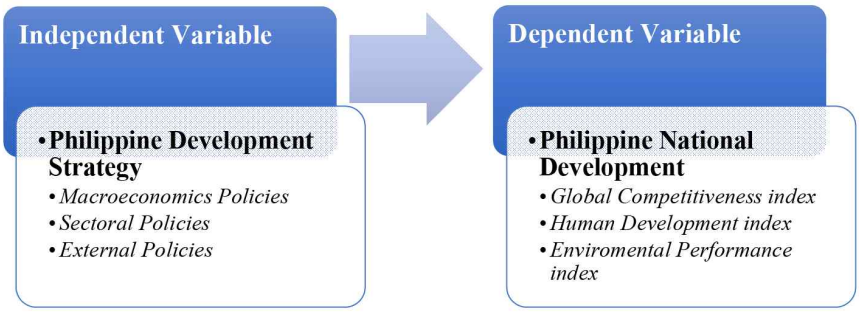


Fig. 4 Data and Variables

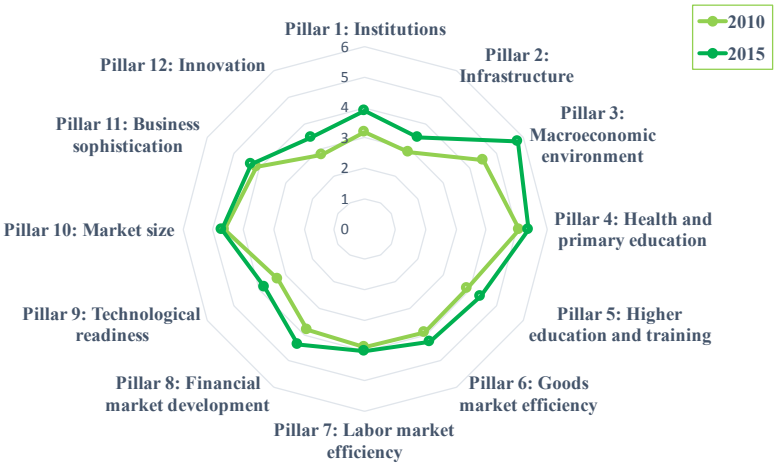
The Philippine Development Strategy, particularly the macroeconomic, sectoral and external policies employed between 2010 and 2015 are the independent variables. These policies constitute the overall development strategy of the Philippines to achieving high national development performance. While the Philippine national development, as measured by the GCI, HDI and EPI, are the dependent variables.

Noticeable Economic Gains

The Aquino administration may be considered as a time for economic prosperity of the country. This administration achieved noticeable economic gains, which can be seen as a reflection of the policies that took place during this period. The evaluation of the Philippine development strategy demonstrates the effects of policies implemented, that is relatively determined to weed out corruption within its government functions. This section of the study also provides the standing of the Philippine's development strategy as against the other tiger cub economies – Indonesia, Malaysia and Thailand – in terms of the global competitiveness, human development and environmental performance of each country. To the exception of the macroeconomic environment pillar of the GCI and ecosystem vitality issue area of the EPI, the results show that there exist significant differences in each of the development indicators of the four countries.

Global Competitiveness

This section discusses the progress in the GCI pillar scores of the Philippines from 2010 to 2015, and highlights the cause of this development based on the analysis made in the per GCI pillar discussion of this study.



Source: Schwab, K. 2010-2016. The Global Competitiveness Report from 2010 to 2015. Switzerland: The World Economic Forum

Fig. 5 Global Competitiveness Progress of the Philippines

Basic Requirements

The government's efforts of eliminating corruption during this period have certainly made positive impact on the institution, and macroeconomic environment pillar score of the country, as undue influence and corruption is considered as one of the factors to establish strong public institutions. Similarly, it also heavily influenced the current and possible investor's trust in the country which positively contributes to the overall economic growth of the country. With the macroeconomics pillar of the Philippines increasing by almost 15%, it seems like the economic growth of the Philippines is looking bright. Aquino's presidency resulted to the stabilization of the Philippine democratic system and notable positive economic growth (Bertelsmann Stiftung's Transformation Index (BTI) 2016). As the corollaries of a country's corruption can be reduced once the government implements an effective anti-corruption strategy (Quah, 1988). President Aquino's platform to intensifying anti-corruption efforts under his administration, being much prioritized among other government strategies, made a positive impact to some extent. However, this focus of the government resulted to tight fiscal policies wherein government spending on public infrastructures, health, and other public services came in short relative to other tiger cub economies. This low government spending led to the Philippines having relatively lower infrastructure and health pillar scores. The Philippines have a fairly large average national saving of 48.91%, in percentage of its GDP, compared to Indonesia (31.84%), Malaysia (31.24%), and Thailand (28.38) (World Bank, 2016). As shown in figure 6.0, Philippine's traditionally tight fiscal position did not necessarily translate to more quality public investments. Lastly, the Philippines also appears to have a lower health and primary education pillar score relative to Indonesia, Malaysia and Thailand which primarily indicate the country's workforce have a relatively lower state of health compared to the other countries observed.

Efficiency Enhancers

Among the efficiency enhancers, the Philippines have exceled in improving its higher education and training, financial market development and technological readiness pillar scores. Improvement in the higher education training is relatively noticeable due to the government passing the "K to 12" law that caused a revamp of the traditional educational system of the country, particularly on its curriculum and educational cycle, that directs the government to "create a functional basic education system that will develop productive and responsible citizens equipped with the essential competencies, skills and values for both life-long learning and employment." (Department of Education (DepEd), 2015). In addition, Technical Education and Skills Development Authority (TESDA) of the Philippines's Strengthened Technical-Vocational Education Program (STVED) provided a competency-based curriculum which is aligned with industry requirements that further secured the employment opportunities of future Filipino workers. The strategy of the Philippines on its financial market development is to create a more accessible financial market to support its macroeconomic stability. The increase in the financial market development score of the Philippines came into no surprise as its macroeconomic environment have already improved which is an indirect effect to the government's effort to improve the financial market of the country. On the other hand, technological readiness of the country is mainly due to the Philippine Digital Strategy (PDS) that the Aquino government have used during this period that was aimed towards using Information and Communication Technologies (ICTs) as a key towards achieving socio-economic development at a national level (Department of Information and Communications Technology, 2014). Looking at the standing of the Philippines in terms of its efficiency enhancers sub-index, the country has made diminutive improvement in its labor market efficiency and market size. Labor market efficiency pillar, that indicates the efficiency and flexibility of the country's labor market, shows that the Philippines have a relatively high unemployment rate compared to Indonesia, Malaysia, and Thailand. Furthermore, the country's labor market participation rate is indicative of an area for improvement to enhance the country's labor market efficiency. On the other hand, the market size pillar, which gauges the state of a nation's domestic and foreign market competition, indicates that the Philippines needs further improvement in boosting its market size. .

Innovation and Sophistication factors

As the stage of the development of the Philippines is only on its transition from stage 1 (factor driven economy) to stage 2 (efficiency-driven economy), innovation and sophistication factors sub-index may be relatively lower than other economies that is on the later stages of development. A small improvement can be seen in the Philippine's business sophistication pillar from 2010 to 2015. Surprisingly, the innovation pillar score of the Philippines made a huge leap from its previous score, before the Aquino administration started. The Harmonized National Research and Development Agenda (HNRDA) of the Department of Science and Technology (DOST) of the Philippines reaped positive effects to improve the state of the country's innovation pillar through the inclusive growth of its sectors, and climate change and disaster risk management (DOST, 2013).

Due to limited space here, we only displays one example of how we analyzed each of twelve pillars here as a comparative benchmark study.[3] Here we used ANOVA and time series plot to compare among other countries, with the looking at specific development strategies Philippine undertook.

The following section shows how we approached "Pillar 7: Labor Market Efficiency" in detail. A labor market that is efficient can be characterized by capability to match labor workers with the most suitable job provided the individual's skillset and benefits both employees and employers to perform in various ways to improve productivity of human capital (i.e., employees working efficiently and employers providing the appropriate incentives) (WEF, 2016). In a study made by Mortensen and Pissarides on the Theory of Unemployment, it was concluded that the higher common components of labor productivity in the market, the probability that an unemployed worker finding a job is also higher.

One-way ANOVA Results : Benchmark Study of Pillar 7 of Four Countries

Factor Information

Factor	Levels	Values
Factor	4	Indonesia, Malaysia, Philippines Thailand

Table 1 Analysis of Variance: Labor Market Efficiency

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Factor	3	2.74333	0.914444	27.30	<0.0001
Error	20	0.67000	0.033500		
Total	23	3.41333			

Model Summary

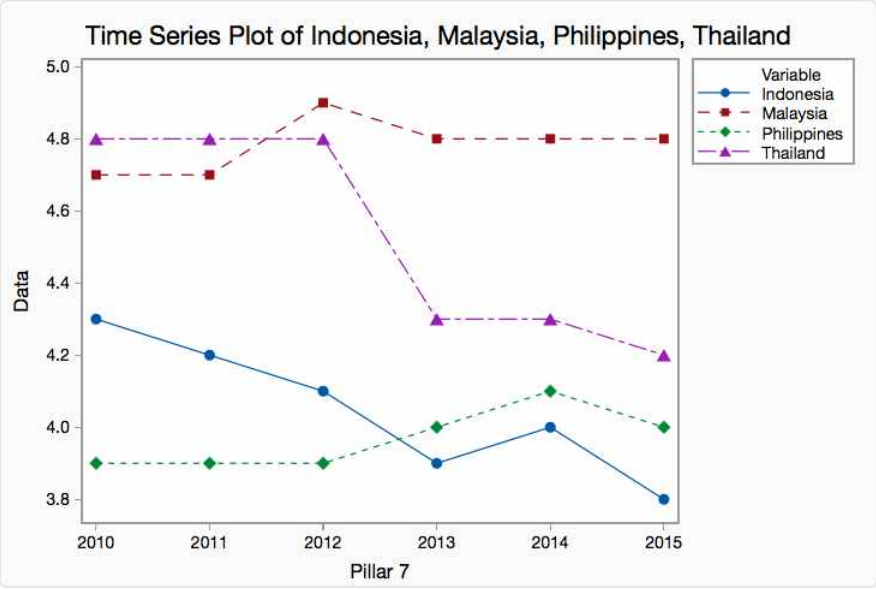
S	R-sq	R-sq (adj)	R-sq (pred)
0.183030	80.37%	77.43%	71.73%

Table 2 Means: Labor Market Efficiency

Factor	N	Mean	StDev	95% CI
Indonesia	6	4.05000	0.18708	(3.89413, 4.20587)
Malaysia	6	4.78333	0.07528	(4.62747, 4.93920)
Philippines	6	3.96667	0.08165	(3.81080, 4.12253)
Thailand	6	4.5333	0.2944	(4.3775, 4.6892)
Pooled StDev = 0.183030				

[3] For the entire detailed analysis, please see Placido, A. (2018) *Comparative Analysis of the Philippine's Development Strategy: An evaluation of the Philippine's Development Strategy under the administration of President Benigno Aquino, III using the results of the Global Competitive Index, Human Development Index and Environmental Performance Index (*Master Thesis), retrieved from http://yu.dcollection.net/srch/srchDetail/200000015180

As presented by Table 1, there exist a significant difference (P-value < 0.05) between the GCI labor market efficiency index scores of Indonesia, Malaysia, Philippines and Thailand. Indonesia and the Philippines bearing mean scores of 3.97 and 4.05, respectively, is significantly different from the mean scores of Malaysia (4.78) and Thailand (4.53).

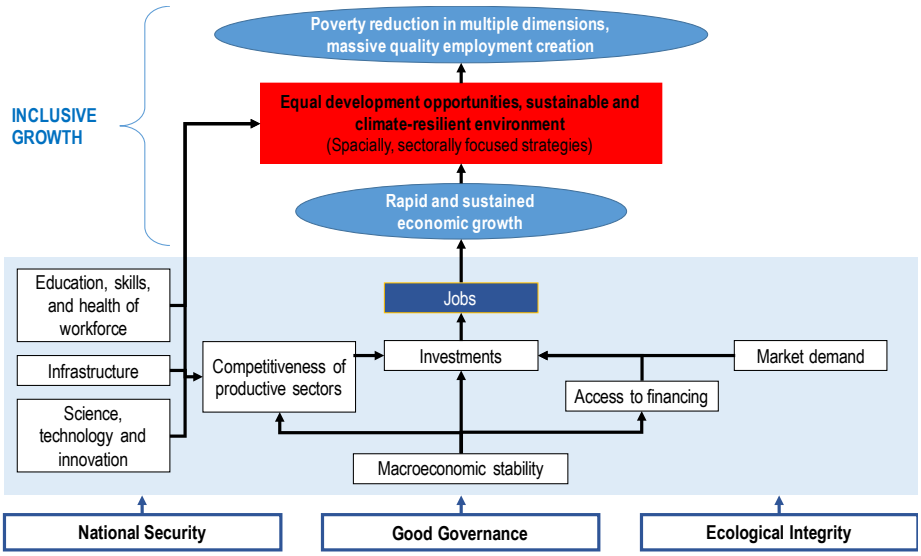


Source: WEF.2010-2015. The Global Competitiveness Report from 2010 to 2015. Switzerland: The World Economic Forum

Fig. 6 Time Series from 2010 to 2015: Labor Market Efficiency

Figure 6 displays the GCI labor market efficiency Index performance of Indonesia, Malaysia, Philippines and Thailand over the evaluated 6-year period. Likewise, it demonstrates the increase in GCI Labor Market Efficiency Index scores of Malaysia and the Philippines by 0.1 point, specifically a percentage increase of 2.13% and 2.56%, respectively. Contrary to the performance of Malaysia and the Philippines, Indonesia and Thailand have underperformed in this pillar with a decrease in GCI Labor Market Efficiency Index score of 0.5 and 0.6, respectively, or a percentage change of -11.63% and -12.5%, respectively.

We now discuss what kinds of development strategies Philippine used. Job creation is one of the goals of the Philippine development strategy under the Aquino administration. Through creation of massive quality employment, the government aim to gain and sustain the rapid economic growth of the country. To do so, capital accumulation is necessary for economy to grow and take on labor into productive work. To encourage investments in the country, it would require for a stable and predictable market environment. Certainly, effective performance of all productive sectors (i.e. agriculture, industry, and services) is important for the economy's growth and its ability to create job opportunities (NEDA, 2014).



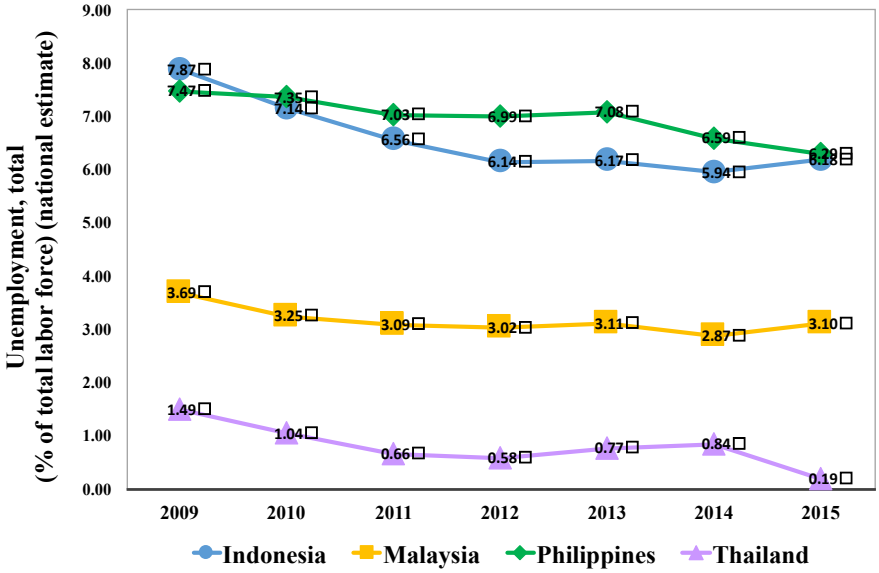
Source: National Economic and Development Authority (NEDA). 2014. Philippine Development Plan 2011-2016 Midterm Update. Philippines: National Economic and Development Authority

Fig. 7 Updated Plan Strategic Framework of the Philippines

Prior to the Aquino administration, the labor market of the Philippines had two main challenges: (1) there was a deficit in the generation of decent and productive employment and (2) there was an urgent need for greater access to employment opportunities, which includes individuals in vulnerable employment that less likely to have formal work arrangements or access to benefits or social protection, and are more at risk to adverse impact of economic cycles, youth population unemployment, unemployed among educated individuals and job and skills mismatch in the labor market. To address these issues, the following strategies were employed:

As displayed on figure 8 below, the Philippines have managed to lower its unemployment rate by 1.18% from 2009 to 2015. Notwithstanding the fact that the Philippines have the highest unemployment rate at 6.29% compared to Malaysia (3.1%), Indonesia (6.18%) and Thailand (0.19%), the Philippines still made an average progress to lower its unemployment rates in comparison to the performance of Malaysia, Indonesia and Thailand that have to lowered their unemployment rates by 0.59%, 1.69%, and 1.30% percentage decrease, respectively.

To revolutionize the labor market of Malaysia, its government have focused on attaining two goals: (1) raising the skills of Malaysians to increase employability, and (2) reforming the labor market to transform Malaysia into a high-income nation. To raise the skills Malaysians, the government employed two strategies: (a) mainstreaming and broadening access to quality technical education and vocational training and, (b) enhancing the competency of tertiary graduates to prepare them for entering the labor market. While reforming the labor market would involve three strategies: (a) making the country's labor market more flexible, (b) upgrading the skills and capabilities of the existing workforce and (c) attracting and retaining talent.



Source: International Labour Organization, ILOSTAT database. Data retrieved last March 2017.

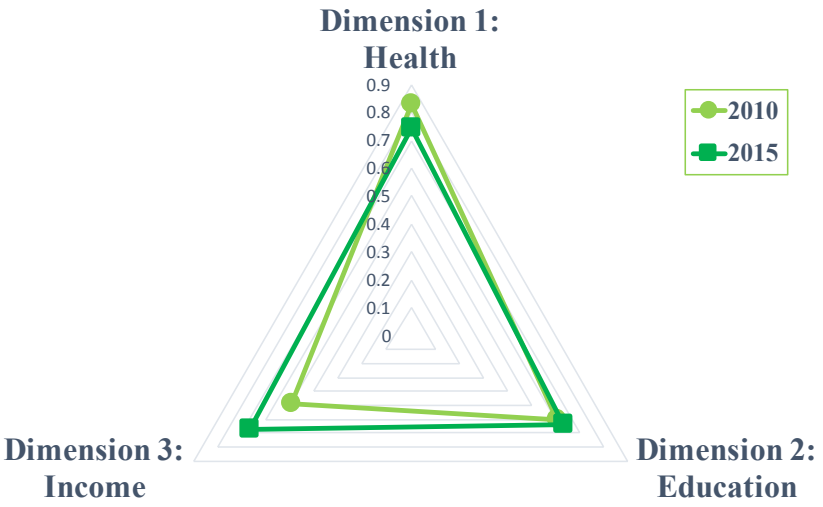
Fig. 8 Total unemployment rate (% of total labor force) of Indonesia, Malaysia, Philippines, and Thailand, 2009-2015

Assessing the development strategy of the Philippines and Malaysia to enhance their respective labor market, both countries have focused on improving the quality of its labor force and creating job opportunities to ensure employment for all of its labor force. For instance, the development strategy of the Philippines involved promoting productive investment and entrepreneurship among overseas Filipino workers and their families, and developing and harmonizing green development programs.

Human Development

This section discusses the progress in the HDI dimension scores of the Philippines from 2010 to 2015. Likewise, this section highlights the cause of this development based on the analysis made in the per HDI dimension discussion of this study. Note that for the purpose of comparison, the dimension indicators (i.e., life expectancy at birth, expected years of schooling, mean years of schooling, and Gross National Income per capita) are converted to dimension index scores based on the computation of the UNDP.

To the exception of the health index, the Philippines improved its human development index scores, this is especially apparent in the improvement of income dimension from 0.49 to 0.67, a percentage increase of 35.86%. The education dimension made a slight increase of 4.33% from its 2010 value of 0.61 to 0.64 by the end of 2015.



Source: UNDP.2010-2016. Human Development Report from 2010 to 2016. New York, NY 10017 USA: United Nations Development Programme

Fig. 9 Human Development Progress of the Philippines

Health Dimension

Among the three dimensions of the HDI, the health dimension of the Philippines made a remarkable decline. This is quite alarming considering that Malaysia and Thailand have successfully increased their health dimension scores. Using the other health measures by the HDI, it was identified that there was a sudden decline in DPT and measles immunization during the Aquino administration, which may be considered as one of the possible causes that made the life expectancy at birth lower within these years (WHO and UNICEF (a), 2009-2015). On a lighter note, it was observed there is a continuous decline in the mortality rates of infants and adults in the Philippines (University of California, Berkeley, and Max Planck Institute for Demographic Research, 2009-2015; UNICEF, WHO, World Bank, UN DESA Population Division, 2009-2015)

Education Dimension

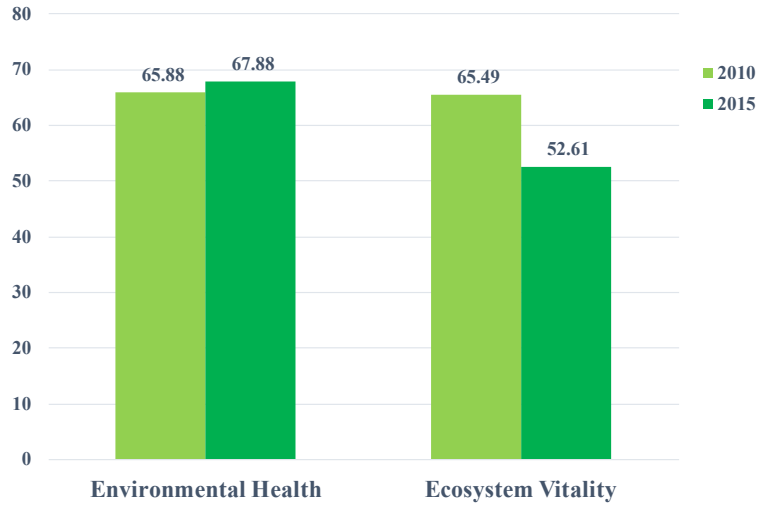
The education dimension of the Philippines made a slight increase from 2010 to 2015. Likewise, comparing the country with the other tiger cub economies, the Philippines is falling behind in terms of its education dimension. However, in consideration that it is during the Aquino administration that the educational system of the Philippines is ongoing a transition for its K to 12 and STVED programs. It is possible that these changes cannot instantly be reflected in the education dimension of the HDI and effects of these changes may only take place after the Aquino administration.

Income Dimension

The Philippine's income dimension score in the HDI shows promising progress for the country compared to the other two dimensions. Assessing the various income measures used in by the HDI, it shows almost similar trend for all indicators. Albeit, the Philippines having the lowest rank and being far from Indonesia's progress of 154.06% percentage increase, the percentage increase of the Philippines between its 2009 to 2015 GNI per capita of 109.77% is relatively higher in comparison to the GNI per capita percentage increase of Malaysia and Thailand of 76.77% and 81.46%, respectively (United Nations Development Programme, 2010-2015).

Environmental Performance

This section discusses the progress in the EPI environmental issue scores of the Philippines from 2010 to 2015. Likewise, this section highlights the cause of this development based on the analysis made in the per EPI environmental issue discussion of this study.



Source: Yale University. 2010-2016. Environmental Performance Index from 2010 to 2016. New Haven, CT: Yale University. Available: www.epi.yale.edu.

Fig. 10 Environmental Performance Progress of the Philippines

The Philippines enhanced its environmental performance in terms of environmental health but not in its ecosystem vitality.

Environmental Health

A distinct feature of the Philippine development strategy is its emphasis on sustainable growth and protection of the environment. The Philippines have a strategy specifically addressing

environmental issues and ensuring for a healthier and cleaner environment (NEDA, 2014). This is reflective of the improvement in the state of environmental health of the country from the start of the Aquino administration up to the end. However, even with this strategy in place and positive impact it created, the Philippines remains to have a more serious case of air pollution compared to the other tiger cub economies (Brauer, M. et al. 2016). Likewise, improvement on the water resource and sanitation infrastructure is still considered to be a focus and goal for the next administration to ensure that all citizens, regardless of the income bracket to which they belong, would have equal access to these basic necessities (WHO and UNICEF (b), 2009-2015).

Ecosystem Vitality

Similar with that of environmental health, the Philippines also have a strategy to ensure improvement in the ecosystem vitality of the country. In detail, this strategy is specifically aimed at achieving improvement in the adaptive capabilities of communities and sustainable management of the country's natural resources (NEDA, 2014). However, unlike the strategy that address environmental health, strategy to improve ecosystem have reaped less than stellar results. In fact, from 2010 to 2014, the ecosystem vitality results of the Philippines indicate a decreasing trend of 49.69% percentage decline (Yale University, 2010-2016). Evaluating in detail the various ecosystem vitality categories, it can be noted that one of the primary cause of this poor performance is due to the poor state of the Philippine's water resource treatment facilities. On the other hand, an increase can be seen from 2014 to 2015 on the country's ecosystem vitality score which is mainly brought about by the improvement in its forest area coverage. This is a valuable indication that the National Greening Program (NGP) under the Aquino administration is rather effective in increasing the forested area of the country (Republic of the Philippines, 2011).

Conclusion

The Philippine Government was constantly pestered with corruption issues that run over decades. The efforts to weed out corruption over the years have failed until the Aquino administration. The strong anti-corruption efforts of this administration translated to noticeable economic gains. Based on the findings of this study, the Philippine government's development plan provided an impact on the Philippine's ranking in the Global Competitiveness Index, Human Development Index and Environmental Performance Index. Likewise, the implementation of the Philippine's development plan responded to the degree of change in level of the country's ranking in the Global Competitiveness Index, Human Development Index and Environmental Performance Index. The policies and strategies of this administration resulted to some positive and some negative impact on the overall development of the country, as follows:

Global Competitiveness Index

The Bottom-up Budgeting process (BuB) shifts greater burden of accountability to the

government officials (Department of Budget and Management, 2012). Likewise, this is also reflective of the relatively tight fiscal policies of the Philippine government, which came in to no surprise as it is trying to minimize corruption. Notwithstanding the high national savings of the country as compared to other tiger cub economies, the Philippines remains to have a rather lower infrastructure investment. Other areas that is seen as an area of improvement for the country is its labor market efficiency and market size. Based on the analyses of this pillar, it was seen that, relative to Malaysia that was able to increase their pillar score, the Philippines have been focusing on many areas of development. On a lighter note, the anti-corruption strategy of the government made a significant impact on improving the macroeconomic environment and financial market development of the country.

Other significant programs and policies that the Aquino administration employed from 2011 to 2016 are the various educational programs and policies: the "K to 12" law that reformed of the traditional educational system of the country; and TESDA's STVED program. These programs aided the country into achieving a higher education and training pillar.

In spite the lower business sophistication pillar score of the Philippines, the country managed to improve its innovation score which may reflect the impact of the HNRDA imposed during the Aquino administration. It is expected that the country would have relatively lower innovation and sophistication factors scores, as it is still in its transition from a factor driven economy to efficiency-driven economy. Hence, the significant increase in the innovation score of the country is a notable improvement.

Human Development Index

As the HDI provides a gauge of the state of the overall well-being of the society, a higher HDI score implies that the country is doing rather well in expanding people's choices in such a way that enables them to live a longer, healthier and fuller lives. A substantial improvement can be seen in the country's income dimension score that indicate the country's higher level of living standards.

On the other hand, a diminutive increase in the education dimension score can be seen. The GCI higher education and training score and HDI education dimension score of the Philippines provided a different score of the country even though both country measures the same area of development. Looking further, it shows that the higher education and training score of the GCI provides the current state of the country's educational system not only in terms of the expected and mean years of schooling of the HDI rather it also measures the quality of the educational system of the country.

Lastly, based on the analyses of the health dimension of this study, the relatively lower public service on infant immunization against common diseases like DPT and measles resulted to a lower life expectancy at birth for the country. This is possible reflection of the country's tight fiscal policies.

Environmental Performance Index

It was clear that in developing the overall development strategy of the Philippines during the

Aquino administration, preservation of the environment is taken into account. The development strategy that was directed to improving the environmental health and ecosystem vitality of the country was seen as not meeting expectation, although a slight improvement can be seen in the country's overall environmental health. On the aspect of ecosystem vitality, there was a significant improvement in increasing the forested area of the country, as compared to other tiger cub economies, which may be attributed to the NGP of the government.

In sum, this study supports the idea of prioritizing not only on the income dimension of development but of its other aspects, such as health, education, and environment to name a few. Identifying various issue areas that hinders the overall economic progress of a country is key to its development. In doing so, various composite index like the ones used in this study can be utilized by the government as a form of a country's system check. It is important to consider that the economic development of a country will be a success when there is equal growth in terms of the various dimensions. We suggest these composite indexes should be utilized for evaluating development strategies and policies.

References

Asian Development Bank. 2005. *Poverty in the Philippines: income, assets and access*. Asian Development Bank.

Bertelsmann Stiftung. 2016. *BTI 2016 — Philippines Country Report*. Gütersloh: Bertelsmann Stiftung

Borras, S., Jr. 2003. "Inclusion-exclusion in public policies and policy analyses: the case of philippine land reform, 1972–2002". *Journal of International Development* Vol. 15, pp 1049–1065.

Brauer, M. et al. 2016. The Global Burden of Disease Study of 2015. Data retrieved last August 2017.

De Castro, R.C. 2010. "Weakness and Gambits in Philippine Foreign Policy in the Twenty-first Century". *Pacific Affairs*, Vol. 83, No. 4, pp. 697-717

Department of Budget and Management. 2012. Bottom-up Budgeting (BuB) Basics. Available at: http://openbub.gov.ph

Department of Education (DepEd). 2015. *Education for All* 2015 National Review Report: Philippines

Department of Information and Communications Technology. 2014. *The Philippine Digital Strategy*: Transformation 2.0 Digitally Empowered Nation. Philippines.

Department of Science and Technology (DOST). 2013. DOST: Harmonized National R&D Agenda 2013-2020

Dervis, K. and Klugman, J. (2011). "Meauring human progress: the contribution of the human development index and related indices". Revue d'E´conomie Politique, Vol. 121 No. 1: pp. 73-92.

Dressel, B. 2011. "The Philippines: how much real democracy?". *International Political Science Review* Vol. 32(5) pp 529–545

Engineer, M., King, I., and Roy, N. 2008. "The human development index as a criterion for optimal planning". Indian Growth and Development Review Vol. 1 No. 2, 2008: pp. 172-192

Garvin, D. A. 1993. "Building a Learning Organization,". Harvard Business Review, July-August: pp. 78-91

Gordon, R. 1990. What is New Keynesian Economics?. *Journal of Economic Literature* Vol. 28: pp 1115-1171

Harris, R. 2016. "Critical Perspectives on Politics and Development in the Philippines: Preface to Special Issue on the Philippines". *Journal of Developing Societies* 32, 3: pp. 209–219

Holloway, J., Francis, G., Hinton, M. and Mayle, D. 1998. "Best practice benchmarking: Delivering the

goods?". Total Quality Management Vol. 9 No. 4 & 5

Holloway, J.A., and Francis, G. 2002. "Beyond Comparisons-The Role for the Operational Researcher in Benchmarking". The Journal of the Operational Research Society, Vol. 53, No. 3, Part Special Issue: Performance Management: pp. 283-291

Hojjat, M. 2014."Determinants of international competiveness". *Journal of Economic & Financial Studies*, 02(01), 20-26 Vol., No. 1

Kaufman, S. 2013. "The limits of nation building in the Philippines" *International Area Studies Review* 16(1): pp 3-23

Ketter, W., Peters, M., Collins, J. and Gupta, A. 2016. "Competitive benchmarking: an is research approach to address wicked problems with big data and analytics". MIS Quarterly Vol. 40 No. 4: pp. 1057-1080

Lall, S. 2001. "Competitiveness Indices and Developing Countries: An Economic Evaluation of the Global Competitiveness Report", *World Development*, Vol. 29 No. 9, pp. 1501-1525

Lanzona, Jr., Leonardo A. 2016. "The sustainability of recent Philippine economic growth." *Southeast Asian Affairs* 2016

Mankiw, G., Romer, D. and Weil, D. 1992. "A contribution to the empirics of economic growth." *The Quarterly Journal of Economics* May 1992 pp. 407-437

Mittelstaedt, R. E. 1992. "Benchmarking: How to Learn from Best-in-Class Practices". National Productivity Review (11:3): pp. 301-315

National Economic and Development Authority (NEDA). 2014. *Philippine Development Plan 2011-2016*.

Porter, Delgado, Ketels, & Stern. 2008. THE GLOBAL COMPETITIVENESS REPORT 2008 – 2009. Geneva, Switzerland: World Economic Forum

Quah, J. 1988. "Corruption in Asia with Special Reference to Singapore: Patterns and Consequences". *Asian Journal of Public Administration* 10, no. 1: pp. 80 – 98.

Ravallion, Martin. 2012. "Mashup Indices of Development" *The World Bank Research Observer*, Vol 27 (1): pp.1-32

Republic of the Philippines. 2011. Executive Order No. 26: National Greening Program (NGP) of the Philippines

Saxena, S. 2017. "Managed Sustainable Development: Classification of Resources and Goods & Services, Calculating Sustainable Growth Rate and The Sustainable Development Index." *International Journal of Scientific & Technology Research* Vol. 6, Issue 05: pp. 42-48

Schwab, K. 2009. THE GLOBAL COMPETITIVENESS REPORT 2009-2010. Geneva, Switzerland: World Economic Forum

_____ 2010. THE GLOBAL COMPETITIVENESS REPORT 2010-2011. Geneva, Switzerland: World Economic Forum

_____. 2011. THE GLOBAL COMPETITIVENESS REPORT 2011-2012. Geneva, Switzerland: World Economic Forum

_____2012. THE GLOBAL COMPETITIVENESS REPORT 2012-2013. Geneva, Switzerland: World Economic Forum

_____2013. THE GLOBAL COMPETITIVENESS REPORT 2013-2014. Geneva, Switzerland: World Economic Forum

_____2014. THE GLOBAL COMPETITIVENESS REPORT 2014-2015. Geneva, Switzerland: World Economic Forum

_____2015. THE GLOBAL COMPETITIVENESS REPORT 2014-2015. Geneva, Switzerland: World Economic Forum

_____. 2016. THE GLOBAL COMPETITIVENESS REPORT 2015-2016. Geneva, Switzerland: World Economic Forum

Shetty, Y. 1993. "Aiming High: Competitive Benchmarking for Superior Performance". Long Range Planning (26:1): pp. 39-44

Solow, R. 1956. "A contribution to the theory of economic growth." Quarterly Journal of Economics: 70

Stanton, E.A. 2007. Inequality and the Human Development Index. University of Massachusetts Amherst

Transparency International Secretariat. 2009. Corruption threatens global economic recovery, greatly challenges countries in conflict. Available at: https://www.transparency.org

UNICEF, WHO, World Bank, UN DESA Population Division. United Nations (UN) Interagency Group for Child Mortality Estimation. Available at www.childmortality.org

United Nations Development Programme. 2010. Human Development Report 2010: The Real Wealth of Nations. New York, NY 10017, USA

_____. 2011. Human Development Report 2011: Sustainability and Equity. New York, NY 10017, USA

_____. 2013. Human Development Report 2013: The Rise of the South. New York, NY 10017, USA

_____. 2014. Human Development Report 2014: Sustaining Human Progress. New York, NY 10017, USA

_____. 2015. Human Development Report 2015: Work for Human Development. New York, NY 10017, USA

_____. 2016. Human Development Report 2016: Human Development for Everyone. New York, NY 10017, USA

United Nations Development Programme.2015. Sustainable Development Goals. New York, NY 10017, USA

University of California, Berkeley, and Max Planck Institute for Demographic Research. The Human Mortality Database. Data retrieved last August 2017.

The World Bank. 2016. World Development Indicator. Data retrieved last July 2017.

World Health Orgnization (WHO) and United Nations Children's Fund (UNICEF) (a). 2009-2015. Monitoring and Assessing Immunization Systems. Available at: http://www.who.int/immunization/monitoring_surveillance/en/

WHO and UNICEF (b). 2009-2015. WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation. Available at: http://www.wssinfo.org/

Yale University. 2010. Environmental Performance Index from 2010. New Haven, CT: Yale University. Available at: www.epi.yale.edu.

_____. 2012. Environmental Performance Index from 2012. New Haven, CT: Yale University. Available at: www.epi.yale.edu.

_____. 2014. Environmental Performance Index from 2014. New Haven, CT: Yale University. Available at: www.epi.yale.edu.

_____. 2016. Environmental Performance Index from 2016. New Haven, CT: Yale University. Available at: www.epi.yale.edu.