

# CHAPTER I

## INTRODUCTION

### 1.1 Background of the Study

The key concept of national income and product accounts is gross domestic product (GDP). GDP is the total market value of all final goods and services produced within a given period of time by factors of production located within country (Ejim, 2014).

Table 1

*Real GDP per Capita of OECD Countries in International dollar (5 highest)*

Country	2009	2010	2011	2012
Luxembourg	79295,53512	80276,01129	80007,0651	77971,29554
Norway	65088,38672	64589,97466	64612,64778	65616,50153
Iceland	53653,4212	51528,38442	52735,23994	53222,78147
Switzerland	53631,07722	54642,81108	55006,05817	54996,05311
Denmark	45862,77292	46292,73656	46596,41377	46254,88712

Note. <http://data.worldbank.org>, retrieved on 23 May 2014

The GDP is the primary indicators used to measure the health of a country's economy. Usually, GDP is expressed as a comparison to the previous quarter year. For example, if the year-to-year GDP is up five percent, this means that the economy has grown by five percent over the last year (Case & Fair, 2006). When the economy of the country is healthy, typically the unemployment will be low, wage increases as business demand labor to meet the growing economy.

In order to help governments' foster prosperity and fight poverty through economic growth and financial stability, in year 1948, The Organization for Economic Co-operation and Development (OECD) was established. At first, the objective of the organization is to make individual governments recognize the interdependence of their economies; it paved the way for a new era of cooperation that was to change the face of Europe. The Organization for Economic Co-

operation and Development (OECD) was officially born on 30 September 1961, when the convention entered into force.

Table 2

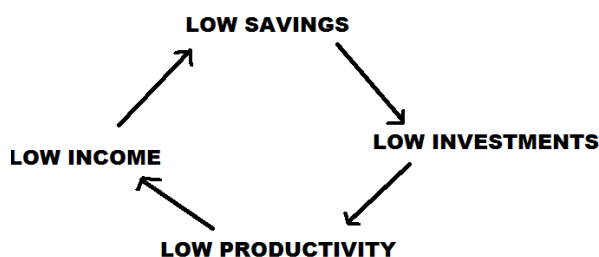
*Members of OECD countries*

COUNTRY	DATE OF JOINING	COUNTRY	DATE OF JOINING
Australia	7-Jun-71	Italy	29-Mar-62
Austria	29-Sep-61	Japan	28-Apr-64
Belgium	13-Sep-61	Korea	12-Dec-96
Canada	10-Apr-61	Luxembourg	7-Dec-61
Chile	7-May-10	Mexico	18-May-94
Czech Republic	21-Dec-95	Netherlands	13-Nov-61
Denmark	30-May-61	New Zealand	29-May-73
Estonia	9-Dec-10	Norway	4-Jul-61
Finland	28-Jan-69	Poland	22-Nov-96
France	7-Aug-61	Portugal	4-Aug-61
Germany	27-Sep-61	Slovak Rep.	14-Dec-00
Greece	27-Sep-61	Slovenia	21-Jul-10
Hungary	7-May-96	Spain	3-Aug-61
Iceland	5-Jun-61	Sweden	28-Sep-61
Ireland	17-Aug-61	Switzerland	28-Sep-61
Israel	7-Sep-10	Turkey	2-Aug-61
United Kingdom	2-May-61	United States	12-Apr-61

Note. <http://www.oecd.org>, retrieved on 29 May 2014

The mission of the Organization for Economic Cooperation and Development (OECD) is to promote policies that will improve the economic and social well-being of people around the world. The OECD provides a forum in which governments can work together to share experiences and seek solutions to common problems. The OECD work with governments to understand what drives economic, social and environmental change, including measure productivity and global flows of trade and investment, analyze and compare data to predict future trends. The OECD recommends policies designed to improve the quality of people's lives. So, it may seem that the OECD is focusing on how to end poverty cycle. ([www.oecd.org](http://www.oecd.org) retrieved on 23 May 2014)

According to Fessler (2012), poverty cycle is seemingly endless continuation of poverty. The poverty cycle is an extremely hard cycle to break. Internally it is almost impossible so the external sources must help the people suffering by providing worthwhile means for people to climb out of destitution, and by ensuring children's health and education. This cycle consists of the fact that low income leads to low savings which leads to low investment and low productivity which leads to low income again.



*Figure 1. Poverty Cycle*

Note. <http://centralecon.wikia.com>, retrieved on 23 May 2014

According to Romer (2006), capital and labor are given a key role on GDP growth. GDP is the function of capital stock in the economy and per unit effective labor. This statement was supported by Solow and Swan (1956) through Neoclassical Growth Model. It explains a long-run economic growth by looking at capital accumulation and labor.

In its development, capital and labor have been divided into six factors. According to Cooper and John (2011) these factors are physical capital, labor hours, human capital, knowledge, natural resources, social and infrastructure. Physical capital refers to goods such as factory buildings, machinery, and production facilities, and so forth used in production. Labor hours are the number of hours that are worked in the entire economy. Then, human capital is the skills and education embodied in the work force of the economy. While knowledge is the important factor that describes the production process. Natural resources

include oil, coal, and other mineral deposits; agricultural and forest lands; and other resources. Social infrastructure refers to the legal, political, social, and cultural frameworks that exist in an economy. An economy with good social infrastructure is relatively free of corruption, has a functional and reliable legal system.

In short, capital consists of physical capital and natural resources. While, labor consists of labor hours, human capital and knowledge. For social and infrastructure it cannot be measured since it contain general business climate, the legal environment, and any relevant feature of the culture. These factors are different for each country. For instance, general business climate, it was form by three parties, business, society, and government. For developed countries, government may have policy tend to promote society. While, for developing countries, government usually tend to promote industry to increase the government revenue. So, each country has different policy and cannot control each other. As well as legal environment and culture, each country has different environment and culture that cannot be measured.

In the other hand, broadband is also included as important input that affects and support the GDP growth (ITU, 2012). Broadband defined as the technology that enables high-speed transfer of data, is linked to the emergence of the internet (Websters, 1960). Broadband technology is a contributor to economic growth but there is still lack of research about its impact to economic growth (Atif et al., 2012). First, the deployment of broadband technology improves productivity by facilitating the adoption of more efficient business processes such as marketing, inventory optimization, and streamlining of supply chain. Second, the deployment of broadband technology accelerates innovation. Third, broadband leads to a more efficient deployment by maximizing their reach to labor pools, access to raw materials, and consumers such as outsourcing of services, virtual call Centers (ITU, 2012).

In the last 10 years, the use of broadband has increased rapidly. The data from Internet World Stats (2014) showed that broadband users in 2003 were 10.6% of the total world population. This number increased rapidly to 34.3% in 2012 (see table 3). This fact indicates the use of the broadband has become an important factor in many human activities in the last 10 years.

Table 3  
World broadband users

YEAR	NUMBERS OF USERS	% OF WORLD POPULATION
2003	677 M	10,60%
2004	812 M	12,70%
2005	938 M	14,60%
2006	1.043 M	16,00%
2007	1.173 M	17,80%
2008	1.463 M	21,90%
2009	1.669 M	24,70%
2010	1.966 M	28,70%
2011	2.110 M	30,40%
2012	2.405 M	34,30%

Note. [www.internetworldstats.com](http://www.internetworldstats.com) retrieved on 1 August 2014

However, there have been many debates and discussions about how a good broadband infrastructure will give positive impact to GDP. Many literatures proved how broadband gives an impact to GDP growth. Atif et al. (2012) proved that there has been a positive impact between broadband and GDP in OECD countries. Badran (2012) through his linier regression analysis also proved that 1% enhancement on broadband infrastructure will gives 0.0005% enhancement on GDP. On the other hands, there are two members of OECD which also the member of G20 with high GDP are still considered as low broadband infrastructure, those are: Italy and Turkey. This fact makes this research more interesting to be done.

The broadband development index put the ICT intensity as the core indicator and comparison to measure the advancement technology within across countries. The ICT intensity includes three indicators which are the number of internet users, fixed internet subscribers, and mobile broadband. Therefore, this study will categorize OECD-member countries by dividing the fixed internet subscribers per 100 inhabitants into two divisions' high and low broadband infrastructure with mean as the divider. (www. internetworldstats.com retrieved on 1 August 2014).

Table 4

*Broadband Penetration of OECD countries*

HIGH BROADBAND	LOW BROADBAND
Netherlands	Spain
Iceland	Portugal
Denmark	Italy
Switzerland	Ireland
Sweden	Greece
Belgium	Turkey
Finland	Czech Rep.
Norway	Estonia
	Austria

Note. <http://data.worldbank.org>, retrieved on 6 June 2014

This study started from categorizing the member of OECD countries into two categories, high broadband and low broadband infrastructure. Then the study will analyze the impact of capital and labor on GDP growth against each category. Based on the data shown, this study is entitled: ***“Impact of Capital and Labor on GDP of OECD-Member Countries with High and Low Broadband Infrastructure”***.

## **1.2 Research Problem**

From the information gathered above, the proposed research problems for this study are as follow:

1. a) Does capital have significant impact on GDP growth of all OECD countries?  
b) Does labor have significant impact on GDP growth of all OECD countries?
2. a) Does capital have significant impact on GDP growth of OECD countries with high broadband infrastructure?  
b) Does capital have significant impact on GDP growth of OECD countries with low broadband infrastructure?
3. a) Does labor have significant impact on GDP growth of OECD countries with high broadband infrastructure?  
b) Does labor have significant impact on GDP growth of OECD countries with low broadband infrastructure?

## **1.3 Research Objectives**

Based on the proposed research problems, then the research objectives of this study are as follow:

1. a) To discover how significant the impact of capital on GDP growth in all OECD countries  
b) To find out how significant impact on GDP growth in OECD countries.
2. a) To know how significant the impact of capital on GDP growth in OECD countries with high broadband infrastructure.  
b) To understand how significant the impact of capital on GDP growth in OECD countries with low broadband infrastructure.
3. a) To perceive how significant the impact of labor on GDP growth in OECD countries with high broadband infrastructure.

b) To recognize how significant the impact of labor on GDP growth in OECD countries with high broadband infrastructure.

#### **1.4 Research Contribution**

Advantages from the study entitled: “Impact of Capital and Labor on GDP of OECD-Member Countries with High and Low Broadband Infrastructure” are as follows:

1. Theoretical

This study will help to explain the factors that affect GDP growth. Result of this study is also useful for conducting future study related to GDP, capital, and broadband infrastructure. This study can be references for other researchers who are willing to do advanced research about labor and capital.

2. Government

This study can give some recommendations for Governments to adopt policies that will lead GDP growth.

3. For Researcher

First, by the consideration of broadband doesn't affect on GDP that much in the previous study, researcher would like to modify the model by eliminating broadband from dependent variable and put it as a grouping tool. Second, this study can give additional knowledge to the researcher in accordance to the field of study.

#### **1.5 Research Limitations**

There are several limitations in this study that should be taken into consideration. First, the study is only limited on 17 OECD countries by the consideration of complete data on labor, capital, GDP, and broadband users. Second, the study is in the period of 2003-2012 by the reason of broadband has been developing significantly so the effect can be seen clearly in that period



([www.internetworldstats.com](http://www.internetworldstats.com) retrieved on 15 August 2014). Third, this study only focuses on Capital and Labor as the factors that influence GDP.

## **1.6 Research Outline**

Chapter I: This chapter sets up the research problem for the reader. It also provides the backgrounds information defining the issue and important terms. It specifies the research objectives explored in greater detail to contribute to understanding the research problem.

Chapter II: This chapter summarizes the major studies and findings that have been published on the research topic and how this study contributes or adds to what has already been studied. This chapter also states a clear description of the theory that applies to the research problem, an explanation of why it is relevant, and how the modeling efforts address the hypothesis to be tested.

Chapter III: This chapter explains the detailed technical and scientific activities which include the research design, sampling plan, instrumentation, statistical tools, and treatment of data.

Chapter IV: This chapter organized a logical presentation of the findings that address the research questions, and focus on how these key findings relate back to the theory and prior researches presented at the beginning of the study

Chapter V: This chapter outlines the implications, conclusions, and recommendations supposed to advance the study of the research topic by its theoretical, methodological, or substantive contributions.