CHAPTER 1

INTRODUCTION

1.1 Research Background

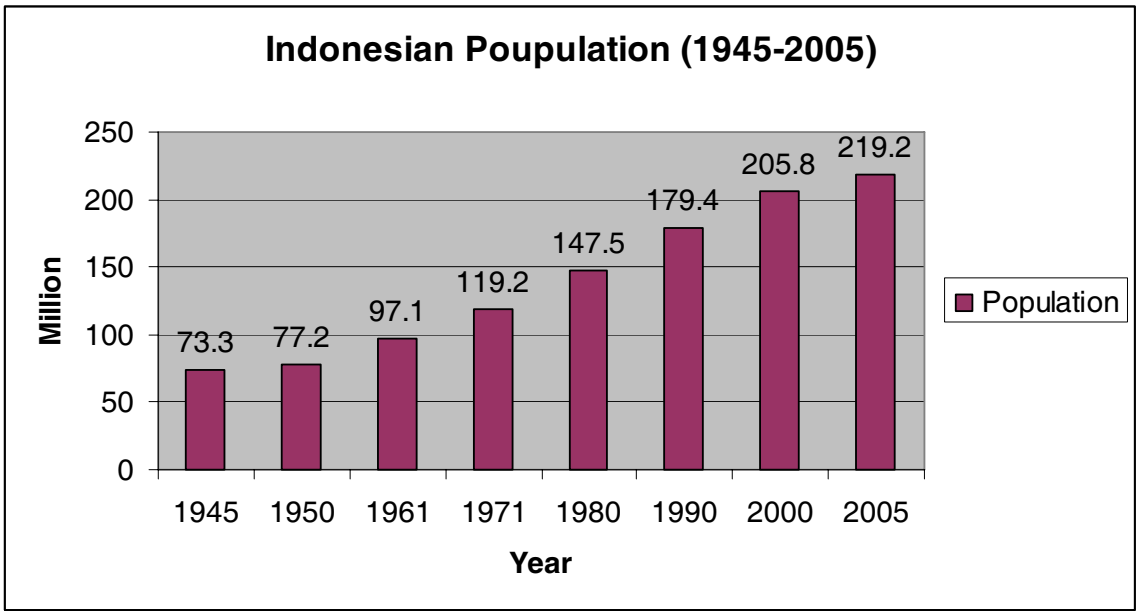
Indonesia, a country in Southeast Asia, became an independence state (from a Dutch colony) in August 17, 1945. Indonesia is administratively divided into provinces, municipalities, sub districts, and villages. The development of the administrative activities is parallel with the improvement in administrative services and welfare. In terms of politics and government, the era of Indonesian government can be divided into three periods: the Old Order (1955-1965), the New Order (1966-1998), and the Reformation Order (1999-now).

Based on the data from Indonesian Statistic Board (2006), after 60 years of independence, total population of Indonesia has increased from 73.3 million in 1945 to 219.2 million in 2005 (see Figure 1.1). The percentage of population living in urban areas has also significantly increased from 14.9 percent in 1945 to 48.3 percent in 2005. In line with increasing in population, the share of the labor force has also increased during the last three decades. Indonesian Statistic Board (BPS) recorded that labor force participation rate had increased from 63.3 percent in 1976 to 67.5 percent in 2004. But this increase was not followed by the increase in employment rate.

Since independence, Indonesia has been developing constantly. The macroeconomic indicators such as gross domestic product (GDP), inflation rate, unemployment rate, and numerous economic indicators show sign of a good economy.

Economic growth is one measurement of macroeconomic performance in evaluating the development of the country. It shows the percentage change in GDP or GNP of a country.

Figure 1.1: Indonesian Population (1945-2005)



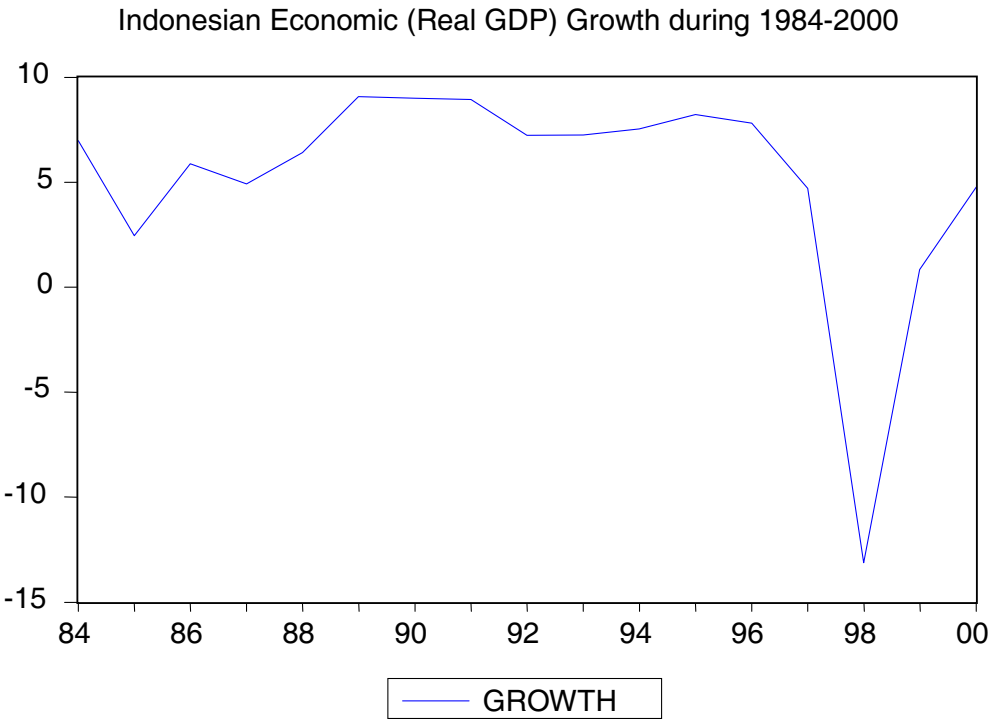
Source: Indonesian Statistic Board (2005)

Temple (2003) studied the economic growth of Indonesia for a long period of time since 1966. He provides some good evidences of the economic growth in Indonesia where the country had grown rapidly for most of the previous 30 years with improvement in living standard and reduction in poverty. He regarded Indonesia as another East Asia example with sound policy and strong growth.

Based on the data from Indonesian Statistic Board (BPS), Indonesia had experienced relatively high growth rate between 1967 and 1981 where the growth rate was on the average seven percent per year during that period. However in 1980s, the growth rate declined to about three percent per year due to the negative effect of the declining in world oil prices and other structural problems. Then in the 1990s, the growth

rate exceeded 7 percent per year. There was one special shock to the economic growth when Indonesia experienced economic crisis on the year 1997. This was the second crisis in Indonesian economy after period 1965-1966 (see Figure 1.2). Margono and Sharma (2004) found that the economic growth declined by more than 13 percent in 1998. In the recovery period, actually after year 2000, the economic growth shows the tendency to reach normal growth path.

Figure 1.2: Indonesian Economic Growth (1984-2000)



Source: Nasir (2003).

Political instability and instrumental weakness combined together with the internal tensions had shared greater portion for the crisis in 1998. This refers to the

massive requirement for the step down of President Soeharto (New Order regime) that followed by the country's chaos in 1998. The chaos in the political system had been followed by the economic collapse. Despite the amazing growth rate for long period, Indonesia's rapid growth was partly sustained by favorable external shocks. As an oil exporting country, Indonesia had been benefited greatly by two oil shocks in 1970s. Geographic neighbors and trade partners[1] who were among the fastest growing countries are the other external factors that support the economic growth in Indonesia (Temple, 2003). This can be happened via gains from trade among the countries and also transfer of labor between the countries.

Although Indonesian economic growth has been rapid, Temple (2003) found that a dynamic manufacturing sector was slow to emerge. It was because of obviously economic growth has been contributed by primary sector such as agriculture and mining. When compared to Malaysia and Thailand in the Southeast Asia, Indonesia is "latecomer" to industrial transformation. Indonesia according to Temple (2003) has followed the same pattern as its neighbors in Southeast Asia where strong growth is driven by capital accumulation and increase in educational attainment.

Technical change in agriculture had played a key role in the economic growth of 1970s and poverty reduction in Indonesia. This was true because of the dominant role of agriculture in the economy where majority of the people live and work on the rural areas. Agricultural sector had absorbed for about 75 percent of the total employment in the economy in the early 1960s.[2] As the structural change emerged in the country, this

[1] These neighbors and trade partners are such as Malaysia, Singapore, Thailand, Australia, and some other Southeast Asian countries.

[2] According to Frohberg and Hiemenz (2005), many developing countries have been benefited by a comparative advantage in agricultural production.

number has reduced gradually where employment in manufacturing and services sectors has persistently increased (Temple, 2003). Margono and Sharma (2004) also supported this argument that in the early stage of development, Indonesia like the other developing countries relied upon primary products such as agriculture (forestry, fisheries, and mining). However, the role of secondary products such as manufacturing industry was relatively small. Nevertheless, after the collapse of prices of oil and other materials the government has changed the policy towards bigger role of manufacturing sector.

The focus of the New Order government led by President Soeharto had given more efforts to develop agricultural sector. Manufacturing had also been developed but only to produce agricultural machineries. The government also focused on import substitution industries. With the strong policy on agricultural development, Soeharto regime had succeeded the self-sufficient in rice in 1980s where the country had enough food for the population.

According to Hertel et al. (2006), the relative rate of total factor productivity (TFP) growth between agriculture, manufacturing and services also has an important role on structural change. Their argument is based on the work of Kets and Lejour who examined sector growth rate in Organization for Economic Co-operation and Development (OECD) over the past two decades. The finding is that the TFP growth in agricultural sector is relatively higher compared to the other sectors (manufacturing and services). So far, productivity measurement in agriculture has become the attention of many scientists including Coelli and Rao (2005) who also searched for the agricultural productivity for many countries in the period of 1993 to 2003.

Economic growth is contributed by two sources; the first is the use of more inputs, such as labor and the stock of physical capital. It may also be contributed by the increases in outputs per unit of input. The second source of economic growth may come from a better management or economic policy. But in the long run it is primarily due to the advancement in knowledge and or technology (Appleyard and Field, 2001; Saggi, 2000).

Indonesian economic growth has been shared by capital, labor, and technological change. But the share of each of these three components is different. Based on Nasir (2003), capital share in Indonesian economic growth is 0.82 and it is greater than labor share which is only 0.32. By assuming variable return to scale (VRS), the evidence shows that capital is relatively more elastic than the labor. With relatively high population (currently around 206 million based on BPS data), Indonesia has surplus in supply of labor that can reduce the marginal product of it. On the other hand, the country still needs more capital in order to maintain higher growth or at least persistent growth level.

In the long-run, in order to reach the *conditional convergence* in growth, Indonesia has to put more attentions on how to get more shares of technological change on economic growth.[3] According to Romer (1990) technological change provides the incentive for the persistent capital accumulation and the combination of capital accumulation and technological change account for much of the increase in output per worker. Economic growth itself (in Endogenous growth theory) has been influenced by

[3] C*onditional convergence* is the condition where the country starts with different initial growth point, and then dynamically it will reach the same steady state level of growth. Romer (1996) said that differences that arise because of the countries are initially at different points in relation to their balanced growth paths gradually disappear as they converge to balanced growth path. So far Barro (1998) defined the convergence concept as the lower the starting level of real per capita gross domestic product (GDP), the higher is the predicted growth rate.

other factors such as research and development (R&D), education and training, foreign direct investment (FDI) as well as the other factors.

1.2 Problem Statement and Motivation

The share of capital and labor in economic growth are mostly found in many researches. It is also applied for Indonesian economic growth. The role of technical change (technological change)[4] is also crucial in the area of economic growth in Indonesia. It is not yet clear how much of Indonesia's economic growth can be explained by technical change.

Understanding the role of technical change in Indonesian economy will help the country in achieving long-run growth. As Romer (1996) stated that in the long-run, economic growth will rely on technical change that can be brought via human capital and also R&D. Indonesia, as the small open economy with perfect capital mobility will face the issue of capital flows. On the other hand, the country has more workers with the problem of labor productivity.

The previous arguments motivate the researcher to analyze deeply the issue of technical change and its contribution to the economic growth. This analysis is together brought with the role of FDI on economic growth and further policy analysis in achieving persistent economic growth.

1.3 Research Objectives and Questions

The research about the role of technical change in Indonesian economic growth is important in exploring how much technical change contributes to the economic growth.

[4] In this research technical change has the same meaning with technological change.

Technical change affects growth as well as capital and labor. The research objectives are to analyze the growth of Indonesian economy; i.e. to look at:

(i) The growth rates of outputs and inputs

(ii) The role of technical change on economic growth

(iii) Differences between sectors of the economy

(iv) Government policies toward supporting economic growth

(v) The role of foreign direct investment (FDI) on economic growth.

Based on the research objectives above, the main research question is **"what is the contribution of *technical change* to the growth in Indonesia?"** The following research questions will be raised following the main question:

(i) How is the change in outputs, capital, labor, and energy over time in Indonesia?

(iii) How is the government policy towards facilitating the technical change and economic growth by comparing the change in the government policy over time?

(iv) How is the role of foreign direct investment (FDI) on economic growth?

1.4 Organization of Dissertation

The rest of the dissertation is structured as follows: Chapter two presents an overview of Indonesian economy that describes the economic development in Indonesia, structural transformation, and also economic growth overtime. In addition, the description of the research design is presented. The literature review on related studies especially on economic growth, the role of research and development (R&D), education, learning by doing and also foreign direct investment (FDI) is provided in Chapter three.

Furthermore, Chapter four presents a theoretical basis for the empirical approaches that are used to achieve the objectives of the research. Then, Chapter five presents the change in outputs, capital, labor, energy, and FDI overtime. This part is more of descriptive analysis rather than modeling. In Chapter six, the researcher will focus on the analysis of the contribution of technical change on Indonesian economic growth using Malmquist index and also the role of FDI on economic growth. The government policies toward facilitating technical change and economic growth are presented in the following Chapter seven. And finally, Chapter eight will conclude with the main findings of the entire analysis, draw policy implications, discusses the limitation of the study and proposes the gap for future researches.