

**ESSAY TITLE: IDENTIFY THE TYPES OF POLICY AVAILABLE TO A GOVERNMENT THAT AIMS TO PROMOTE ECONOMIC GROWTH. FOR EACH POLICY YOU IDENTIFY, DESCRIBE HOW THE POLICY IS EXPECTED TO WORK AND LIST ITS COSTS.**

When we discuss about economic growth, we mean the growth that it is required, and it is the principal source to improve the standards of living over time for a growing population. A growing economy means that there will be more goods and services for people to consume. Nevertheless, there are countries in which the rate of economic growth has risen faster than other states over the time.

In modern economic growth, there are two main characteristics for the growth process. First of all, in all industrialized and developed economies, the agricultural sector is not a significant part of the economy. Its share tends to be reduced in terms of output and employment. To argue this fact, as an example, we can say that in the United States, in 1820, 70 per cent of the labor force was depending in agricultural sector. As the years passed and industrialization and technology appeared, the labor force in the United States in 1987 become to 3 per cent. This phenomenon is very common in the developed nations, although in less developed countries such as Indonesia, Brazil, Korea, the agricultural labor force tends to diminish, but with a lower rate than developed countries.

Secondly, another characteristic of modern economic growth is urbanization. The population in less developed countries tends to move in the industrialized countries because the large firms demand plenty of labor force, in order to produce satisfactorily. Also, firms which produce a big amount of output, it is necessary to be close to the main urban areas, where the greater amount of consumers live there. Concisely, in a modern economic growth, the developed economies tend to shift away from agricultural sector and to increase the industrial sector.

There are two main sources of economic growth, the capital accumulation and the technological process. These sources separately play different roles in the process of economic growth. Firstly, capital accumulation cannot sustain growth by itself. Because of the reason that returns to capital decrease, a constant increase in output per worker would require larger increase in the level of capital per worker. There is a level at the economy, in which save and investment will not be able for further increase in capital. At that level of output per worker may stop growing. It is argued

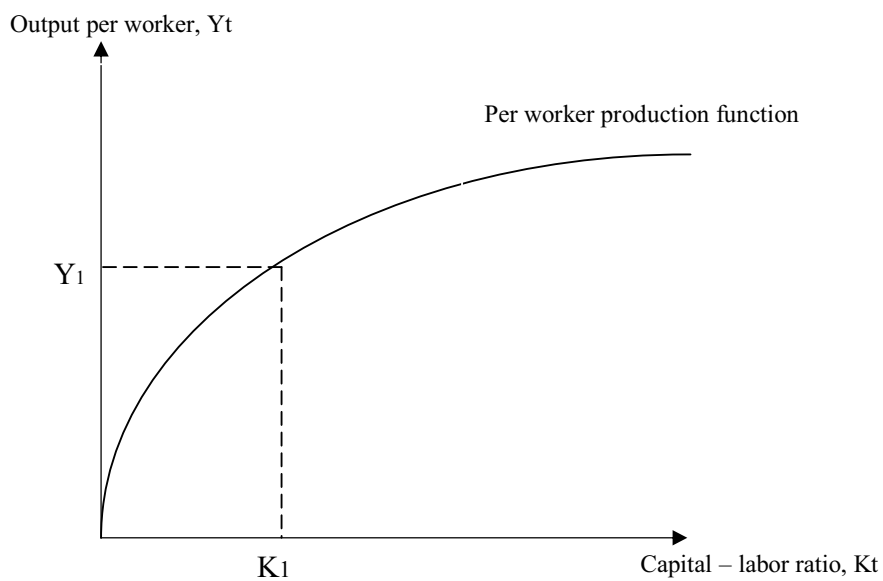
that a higher saving rate cannot increase the growth rate of output permanent, but it can keep a higher level of output.

Secondly, a sustainable economic growth requires a sustain technological process. If we argue that capital accumulation cannot sustain growth forever, then technological process should do it. In the long – run, an economy, which has a high rate of technological process, it will overtake all other economies.

To continue our analysis about economic growth, it is necessary to present the Solow growth model. This model of economic growth, developed in the late 1950s by Nobel laureate Robert Solow and Trevor Swan of the Australian National University. This model has become the basic framework for economic growth, it is the expression of neoclassical approach and it examines the economy as it grows over time. Before we start the explanation of the neoclassical model, we assume that the population is growing and that at any particular time a fixed share of the population is of working age.

As we know in general, the amount of output that can be produced is determined by the production function. The production function is a relationship between total output  $Y$  and the total quantities of capital and labor inputs,  $K$  and  $N$ . In terms of per – worker, it can be written as  $Y_t = f(K_t)$ . This equation explains that output per worker  $Y_t$  in each year depends on the amount of capital per worker  $K_t$ . In Figure 1 we present the per – worker production function.

FIGURE 1 – THE PER – WORKER PRODUCTION FUNCTION



The amount of capital per worker is on the horizontal axis and the output per worker is on the vertical. If the capital labor ratio is  $K_1$ , then output per worker is  $Y_1$ . This production function slopes upward and to the right because an increase in the capital – labor ratio raises the amount of output per worker.

The neoclassical growth model examines the interaction of growth, saving and capital accumulation over time. It argues that if there is not productivity growth, the economy will reach a level in which output, consumption and capital per worker are constant. This situation is generally known as steady state. For the steady state to be reached, per capita saving must equal capital widening, so that  $\Delta k = 0$ . Mathematically, we have  $s q = (n+d) k$ . In [Figure 2](#), we present the situation of the steady state.

FIGURE 2 – STEADY STATE EQUILIBRIUM OF THE ECONOMY

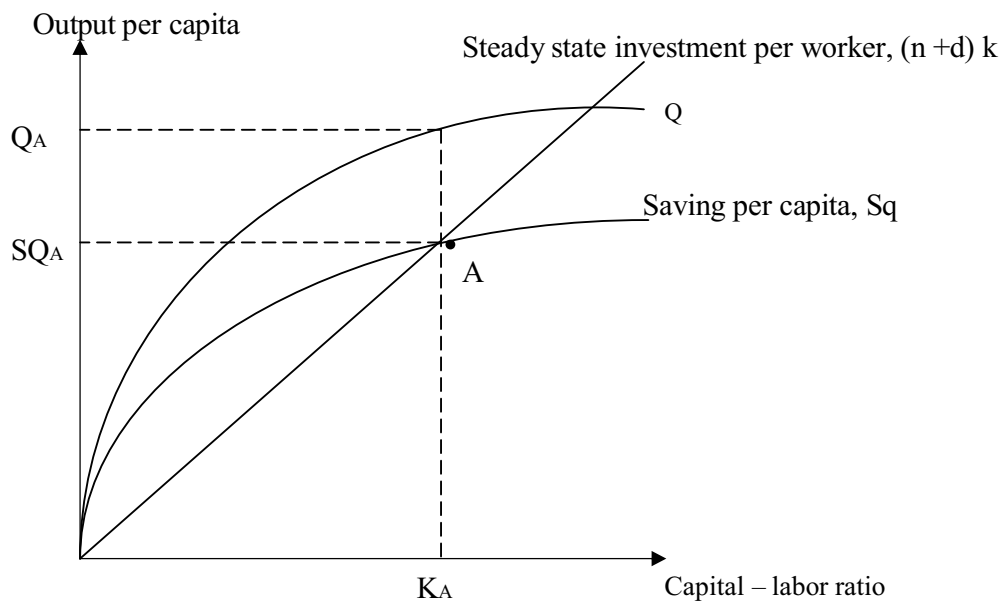
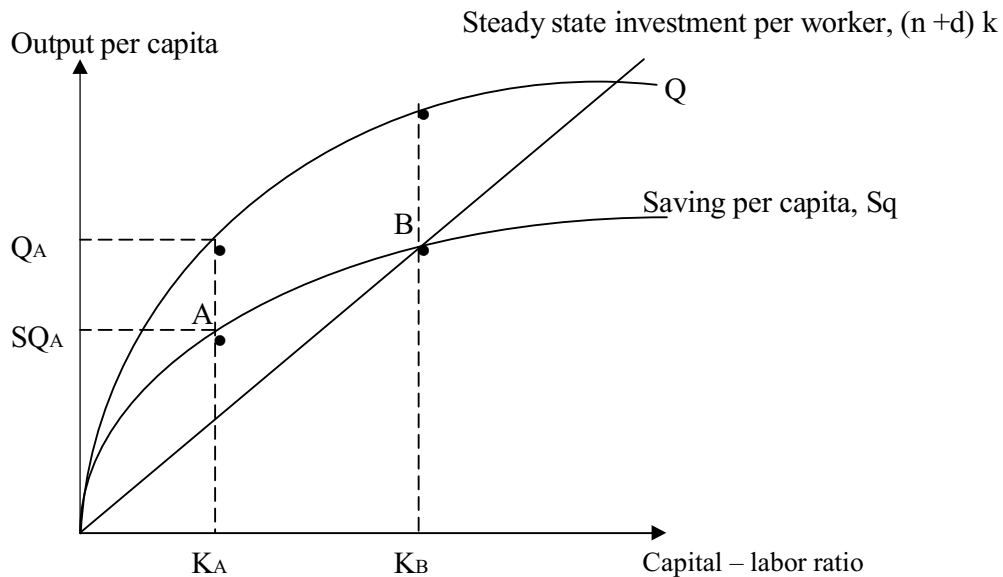


Figure 2 represents the equilibrium of the steady state. The  $s q$  curve represents the saving per capita and since it is a constant fraction of output, it has the same shape as the production function. The steady state investment per worker line and the saving per capita must intersect, because  $s q = (n + d) k$ , the point of intersection is  $A$ . When capital – labor ratio is  $K_A$ , output per capita is  $Q_A$ , which means that saving is enough for capital widening. At the left of point  $A$ ,  $s q$  is greater than  $(n + d) k$  line, thus saving is greater than the necessary for capital widening. In this situation, we can argue that the economy is in capital deepening, which means that the capital stock per worker will rise.

The next case we examine, describes the process of the economy to reach the steady state. This process is described in [Figure 3](#).

**FIGURE 3 – ECONOMIC GROWTH OF A COUNTRY THROUGH TIME**



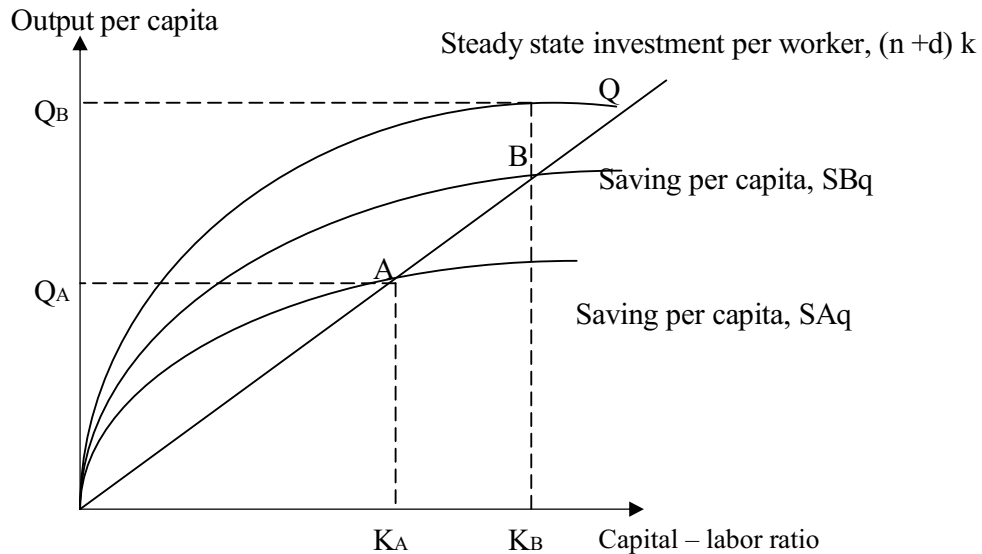
If we suppose that the country is at the beginning level of economic growth, it will have a low capital – labor ratio,  $K_A$ , with output  $Q_A$ . There is no need to use saving for capital investment, because capital – labor ratio is very low. Although, national saving is greater than the capital-widening requirement, thus capital – labor ratio tends to expand to the right of point A. Over the time  $K_A$  reach  $K_B$ , because of the capital deeping, until the economy reach a level in which  $K$  will remain constant.

As a conclusion, we observe that whenever the economy is out of the steady state, there are always forces, which push the economy to the long – run steady state equilibrium. This feature shows that the economy continues to grow towards the steady state point and to create a stable system.

The Solow growth model asserts that there are three major recommendations for economic growth, which are the raise in the saving rate, the population growth and productivity growth.

To explain how the raise in the saving rate leads to economic growth, we use [Figure 4](#)

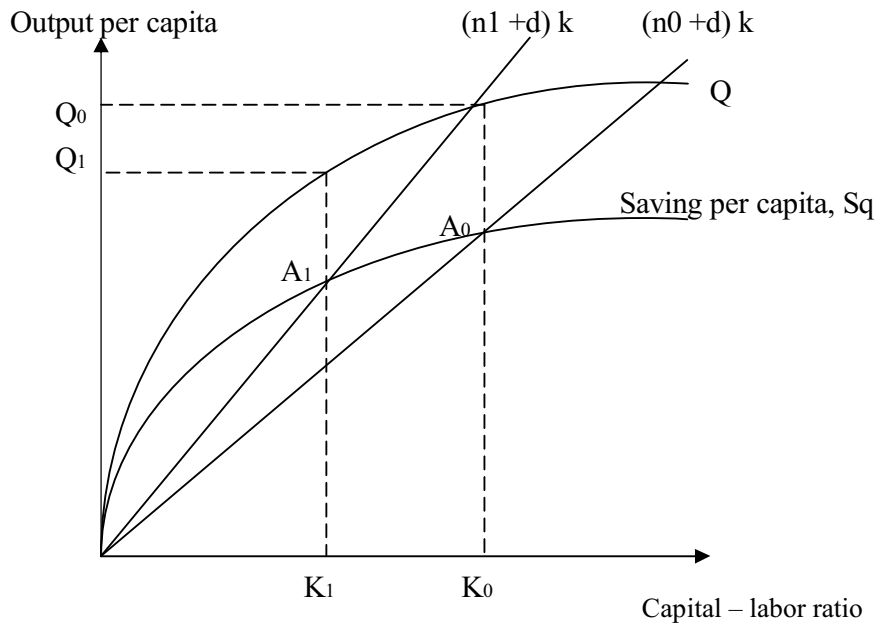
FIGURE 4 – DIFFERENT SAVING RATES



Suppose that there are two countries, the first one with saving rate  $S_A$  and the other with  $S_B$ . The rate of population growth and the capital depreciation is the same in both countries. The main difference between the two countries is the point where the saving curve intersects the capital widening line. As we can see from Figure 5, the country, which has higher saving rate at the steady state, has also a higher capital – labor ratio. Let's suppose now that a government policy raises the private saving rate from  $S_A$  to  $S_B$ , thus the saving rate of the country rises. We can see in Figure 4 that when saving rate increases, then saving is greater than the requirements for capital deeping, thus capital – labor ratio increases. The economy shifts from point  $Q_A$  to point  $Q_B$ . As a result, we see that an increase in the saving rate leads to temporary increase in the growth rate and a permanent increase in the level of per capita income.

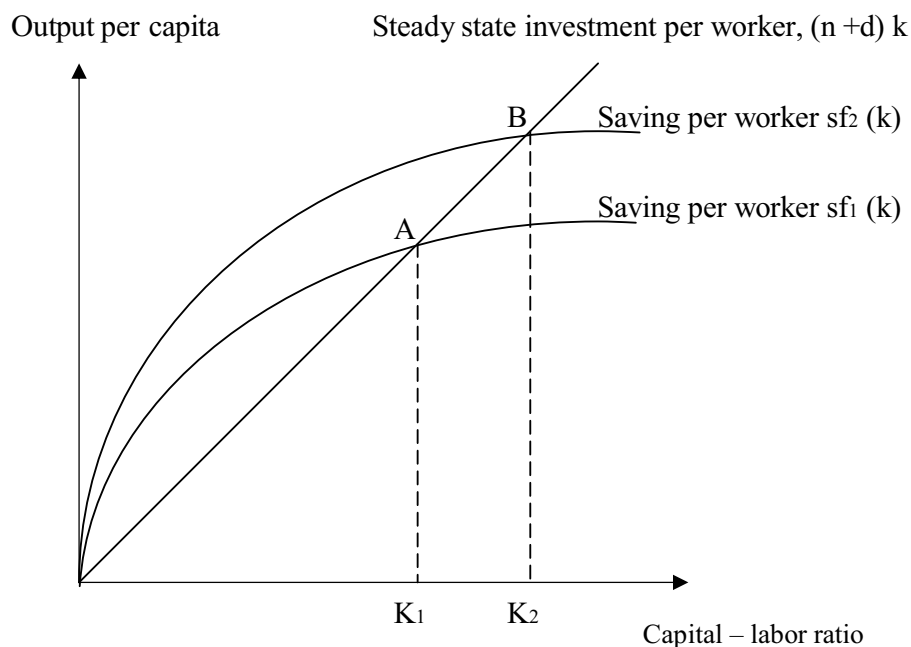
A second factor that determines economic growth is the rate of population growth, which is presented in [Figure 5](#).

FIGURE 5 – THE RATE OF POPULATION GROWTH



The population growth rate has two main effects when the economy is in the steady state. Firstly, higher population growth rate tends to lead a higher steady state growth, because in the long – run all the aggregate variables increase at the population rate of growth. Second, the population growth determines the rate of saving, which must be used for capital widening. In Figure 5, we have two different population growth rates,  $n_0$  and  $n_1$  with  $n_1 > n_0$ . The difference between the two population rates is the capital widening line, which is steeper. The steeper line guides the economy to steady state equilibrium with a lower level of capital income. If we assume now that the economy affects a decrease in population rate, the capital widening line shifts down and to the right. Also the capital widening requirements, reach the initial level of the steady state.

The third factor of economic growth is productivity improvement, which can be reached by a shift in per – worker production function, because at any level of capital – labor ratio, each worker can produce more output. In [Figure 6](#), we present the effects of productivity improvement in economic growth.

FIGURE 6 – THE EFFECTS OF PRODUCTIVITY IMPROVEMENT

According in Figure 6, the initial steady state equilibrium is determined by point A and the corresponding capital – labor ratio is  $K_1$ . The productivity improvement raises output per worker for any level of capital – labor ratio. Because of the fact that saving is a constant fraction of output per worker, saving per worker also rises at any level of capital – labor ratio. In Figure 6 the saving curve shifts from  $sf_1(k)$  to  $sf_2(k)$  and the new steady state equilibrium point is B. Thus the new capital – labor ratio is  $K_2$ , which is greater than the initial steady state capital – labor ratio. Concisely, the productivity growth increases the amount that can be produced at any capital – labor ratio and also causes a long – run capital – labor ratio rise.

The neoclassical growth model has a major disadvantage, it assumes that the rate of productivity growth is given, without explaining the reason in which productivity growth is sometimes slow and sometimes rapid. Economists in recent years have tried to expand the neoclassical growth model and to solve the disadvantage. They have focused in two main characteristics, the role of human capital and the importance of technological innovation by private firms.

The term of human capital is based on the knowledge, skills and training of individuals. The economies grow faster and become wealthier if they invest on people, through improved nutrition, schooling and job training. Also, a healthier and

more skilled labor forces more productive, which leads to economic growth. The second characteristic of the new growth theory is the technological innovation by private firms. It is about the improvement and the research of the firms to improve the quality of the products.

A basic difference between neoclassical growth model and new growth theory is that according to neoclassical theory, the ability of government to influence long-run living standards is limited. If the government succeeds in raising the saving rate, this would influence the standards of living, as the economy moves to a greater steady state. In contrast, the new growth theory argues that a rise in saving rate may lead to a permanent rise in the growth rate of output, and thus an improvement in living standards will occur.

Despite all these facts, which improve economic growth and the standards of living, there are also costs of growth, in which the government have to consider. Firms, in order to produce more and to achieve faster growth, have to invest more. This kind of investment requires financing, and finance can be achieved from higher savings or higher taxes. In both cases there must be a decrease in consumption. Another cost is that many people argue that an excessive pursuit of material growth by a country can lead to a more greedy, selfish society. As society becomes more industrialized, violence, crime, diseases and other social problems arrive. There is also a cost in environment. An industrialized society, with high level of consumption, has also a high level of pollution and waste. Finally, if economic growth requires a greater amount of resources, rather than using the same amount more efficiently, in the near future the resources will decrease more rapidly.

In this essay, we examined the neoclassical growth model, which study the interaction of growth, saving and capital accumulation over time and it predicts that without productivity growth, the economy will reach steady state, in which output, consumption and capital per worker are constant. In contrast, the new growth theory tries to expand the neoclassical growth framework and to include explanations of productivity growth. We have also analyzed the government's types of policy, which promote economic growth. It is also necessary for a government to consider a list of costs that economic growth has, and to make the necessary movements in order a better standard of living and the quality of life.



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