Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

THE SENTIMENTS OF ADAM SMITH RELATING TO ECONOMIC GROWTH AS AN INSPIRER TO MODERN GROWTH THEORIES

Ayhan UÇAK*

ABSTRACT

The determinants of wealth of nations have always been an interesting issue for policy makers and economists. In economics, one of the most important subjects is to increase economic growth and welfare of society. As one of the most important political economists, Adam Smith analyzed the dynamics of wealth of nations and welfare of individuals and societies. In this study, we mainly focused Smith's views on the determinants of economic growth. It is clear that modern economic growth theory has been still benefited from the Smith's views on the economic growth which are division of labour, education, human capital, learning by doing, increasing returns to scale, technological change, externalities, institutional factors such as global free-competitive market economy, the role of government etc. Even if we are not on the same wave with Smith, it is still very important to review Smith's views on the determinants of economic growth in order to design better economic and political environment for economic agents to increase wealth of nations.

***Keywords**: Adam Smith, classical growth model, economic growth.*

MODERN BÜYÜME TEORİLERİNİN İLHAM KAYNAĞI OLARAK ADAM SMITH'İN EKONOMİK BÜYÜME İLE İLGİLİ FİKİRLERİ

ÖZET

Ulusların zenginliğini belirleyen faktörler, politika yapıcıları ve iktisatçıların ilgisini her zaman çekmiştir. İktisat biliminde en önemli konulardan biri, iktisadi büyümeyi ve toplumun refahını arttırmaktır. Bilindiği üzere, Adam Smith en önemli politik iktisatçılardan biri olarak, bireylerin ve toplumların refahının ve ulusların zenginliğinin dinamiklerini incelemiştir. Bu çalışmada, Smith'in iktisadi büyümenin belirleyicileri üzerindeki görüşlerine odaklanılmıştır. Açıktır ki modern büyüme

* Yrd.Doç.Dr., Trakya Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, İktisat Bölümü, ayhanucak@yahoo.com

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

teorileri hâlâ Smith'in iktisadi büyüme üzerindeki görüşlerinden yararlanmaktadır. Bunlar arasında, işbölümü ve uzmanlaşma, eğitim, beşeri sermaye, yaparak öğrenme, teknolojik değişim, dışsallıklar, küresel serbest rekabetçi ekonomi yapısı ve devletin rolü gibi kurumsal faktörler sayılabilir. Smith ile aynı düşüncede olunmasa bile, Smith'in ekonomik büyümenin belirleyicileri üzerine görüşlerini yeniden gözden geçirmek, iktisadi birimlere daha iyi ekonomik ve politik bir çalışma iklimi tasarlayarak refahlarını arttırmak için hâlâ büyük önem arzetmektedir.

Anahtar Kelimeler: Adam Smith, klasik büyüme modeli, ekonomik büyüme.

1. INTRODUCTION

Economic growth is one of the most important field in economics. In contrast to most of human history, the modern epoch has been characterized by a population explosion, rising life expectancy, rapid urbanization, diversified patterns of employment and steadily rising income per capita for the world as a whole. However, because the Industrial Revolution and economic growth have spread unevenly across the world, the modern era of human history has also witnessed the emergence of unprecedented global inequality. Since sustained economic growth is the most important determinant of living standards, there is no more important issue challenging the research efforts of economists than to understand the causes of economic growth.

It is our view that a knowledge of history in general, and economic history in particular, is important to understand how societies and economies change. Since contemporary economic historians are primarily interested in the long run development of economies, they seek to understand the fundamental causes of economic growth, the determinants of technological progress, the evolution and impact of institutions, and the historical origins of current economic problems. With respect to the determination of technological progress, which is now at the forefront of endogenous growth theory, Wright (1997) argues that if economists wish to take technology seriously then economics will have to become a more historical discipline.

We believe that this viewpoint of Wright is quite useful to understand the modern growth theories. In accordance with the purpose of the study, we think that it is suitable to review briefly modern economic growth theories in the second section of the paper to understand the role of Adam Smith to the growth literature. The third section includes the thoughts of Adam Smith concerning the growth paths of a capitalist economy. Of course like every thinker, Adam Smith is criticized whether at his own period or later, so the

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

most important criticism on his views in literature will be discussed in the forth section of the study. Finally, the crucial points of the study and the results will be expressed in the conclusion part.

2. A BRIEF REVIEW OF ECONOMIC GROWTH THEORIES

According to the classical economists, economic growth depends on not only main inputs such as land, labour, capital, technology but also depends on social, economic and political structures. Concern about the sustainability of economic growth was a major concern of the classical economists, with the pessimism of Thomas Malthus and David Ricardo contrasting with the optimism of Adam Smith. However, during the period 1870–1929 economists' research was heavily influenced by the 'marginalist revolution' and was therefore predominantly micro oriented, being directed towards issues relating to the efficient allocation of given resources (Snowdon and Vane, 2005:585-586).

Together with the beginning of macroeconomics as a new discipline, R.F. Harrod (1939) and E.D. Domar (1946) extended the static and short-term structure of Keynesian Model to dynamic and long-term structure. While Keynes emphasized the impact of investment on aggregate demand, Harrod and Domar emphasized how investment spending also increased an economy's productive capacity. The model assumes an exogenous rate of labour force growth (n), a given technology exhibiting fixed factor proportions (constant capital–labour ratio, K/L) and a fixed capital–output ratio (K/Y). Therefore, to carry on a balanced growth path, capital, labour and output variables should grow at same ratios ever. If this assumption is valid, then the output growth rate must be equal to the labour force growth rate which corresponds to the equality of the warranted rate and the natural rate of growth. As Yeldan (2009:106) stated, if the economy happens to be on this path (and this would happen by only sheer luck), then it would be said to have balanced growth with full employment. If, however, for some reason this equality is perturbed, for instance, the situation $n > g$ corresponds with persistent unemployment and $n < g$ represents the unemployed capital stock conversely which decelerates the output growth ratio till the realization of $n = g$. Hence, the equivalence in the form of $g = s/v = n$ indicates a knife-edge equilibrium which might be broken down to the both sides.

Harrod-Domar model not only shows that in which conditions growth follows stable or unstable path but also shows that the market mechanism

may not provide stable growth rate in the long run therefore they confirmed that the proposal of Keynes which capitalist system was inherently unstable is valid not only in the short run but also in the long run. This led to the birth of the neoclassical model of economic growth. Solow (1956) and Swan (1956) constructed the neoclassical model of economic growth.

Solow relaxes the assumption of constant relation between capital and labour and ran the model under neoclassical conditions. Solow (1956:65) explains that *"In Harrod-Domar model, the critical question of balance boils down to a comparison between natural rate of growth and the warranted rate of growth. Bu this fundamental opposition of warranted and natural rates turns out in the end to flow from crucial assumption that production takes place under conditions of fixed proportions. There is no possibility of substituting labour for capital in production. If this assumption is abandoned, knife-edge notion of unstable balance seems to go with it. Indeed it is hardly surprising that such a gross rigidity in one part of the system should entail lack of flexibility in another".* Therefore Solow emphasizes that his study devotes a model of long-run growth which accepts all the Harrod-Domar assumptions except that of fixed proportions. The adaptation of the system to an exogenously given rate of increase of the labour force is worked out in some detail, to see if the Harrod instability appears. On the other hand, *w*hen we consider the neoclassical growth model, one of the main problems of the neoclassical growth model is that changes in technology can not explained by the model and in the model steady-state growth is zero, if an economy grows at steady state, what the source of this growth is unknown. David Romer (1996: 25) comments that the Solow model takes as given the behaviour of the variable that it identifies as the main driving force of growth. Another aspect of the neoclassical model centers on the strong assumptions including perfect competition, constant returns to scale and no externalities. When lifting these assumptions, it is difficult for model to solve the macroeconomic stability. Hahn and Matthews (1964:811) state that *the problem of the knife-edge remains a problem even when production coefficients are flexible and to reach steady state equilibrium may take so long time.*

In order to eliminate these restrictions of the neoclassical model, some aspects of the neoclassical growth model was extended by Cass (1965) and Koopmans (1965) who draw inspiration from Ramsey (1928) and Uzawa (1961). Although the neoclassical growth model has theoretical and practical

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

deficiencies, it is the theoretical engine for the following growth models to be improved.

After the neoclassical growth model, endogenous growth models provide a theoretical framework for analyzing persistent growth of output that is determined within the system governing the production process. One key assumption of Romer's (1986) growth model is increasing returns to scale. The model also addresses technological spillovers and other positive externalities that may be present in the process of industrialization. An important implication of the new growth models is that economies with increasing returns to scale do not necessarily reach a steady-state level of income. The models also do not conclude that poor countries will grow faster than rich countries, so there is no expectation of convergence. Income disparities may persist or even enlarge if richer countries make investments that encompass larger externalities. In developing countries, the potentially high rates of return on investment (low capital-labour ratios) are often greatly eroded by lower levels of complementary investments in human capital, infrastructure, or R&D. Thus the new growth models emphasize the importance of investments in human capital and potential gains from technology transfer from the technologically advanced countries.

In the endogenous growth models, the knowledge and the processes of creating knowledge are important parts of the production, which reflect no diminishing returns. As firms and workers are experienced on production, they can produce more efficiently, which is called learning-by-doing. Arrow (1962) by inspiring Romer's studies, emphasizes that the failure of the Solow–Swan model to endogenize technological change was that it missed the empirically obvious point that the knowledge associated with technological change is continually growing as the result of production experience. Arrow (1962) assumes that the technical augmentation factor is related to economy-wide aggregate capital in a process of "learning-by-doing". Endogenous growth models were extended by the studies Romer (1986, 1987, 1990, 1994), Lucas (1988, 1993), Grossman-Helpman (1991), Aghion-Howit (1992) by including the variables affecting endogenous technological change such as human capital, research and development, education, government policies, physical structure, spillover effects, externalities and institutional factors etc.

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

3. ADAM SMITH AND THE CLASSICAL GROWTH MODEL

Adam Smith and other classical economists had important contribution on the economic growth theory. Barro and Sala-i-Martin (2003:9) state that classical economists, such as Adam Smith (1776), David Ricardo (1817), and Thomas Malthus (1798), and, much later, Frank Ramsey (1928), Allyn Young (1928), Frank Knight (1944), and Joseph Schumpeter (1934) provided many of the basic ingredients that appear in modern theories of economic growth. These ideas include the basic approaches of competitive behavior and equilibrium dynamics, the role of diminishing returns and its relation to the accumulation of physical and human capital, the interplay between per capita income and the growth rate of population, the effects of technological progress in the forms of increased specialization of labour and discoveries of new goods and methods of production, and the role of monopoly power as an incentive for technological advance.

Rostow (1992:508) states that according to Adam Smith (1776), the main factors affecting the engine of economic growth are population growth, capital growth, the division of labour (technological progress) and institutional framework of the economy (competitive-free traded market economy). Smith also stated the importance of stable legal framework in which invisible hand of the market could function, and open trading system (see in Viner (1927) , Hutchison, T. (1976), Spengler, J. J. (1959a, 1959b) Rothschild (1992),).

The Theory of Moral Sentiments begins with the following assertion: *How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it except the pleasure of seeing it.* Smith (1759: I.1.1). Smith (1759: III.I.85) stated that *every man is, no doubt, by nature, first and principally recommended to his own care; and as he is fitter to take care of himself than of any other person, it is fit and right that it should be so.* Smith (1776: I.2.2) stated that … *it is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest* ... Smith (1776: IV.5.8.2) also stated that *The natural effort of every individual to better his own condition, when suffered to exert itself with freedom and security is so powerful a principle that it is alone, and without any assistance, not only capable of carrying on the society to wealth and*

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

prosperity, but of surmounting a hundred impertinent obstructions with which the folly of human laws too often incumbers its operations; though the effect of these obstructions is always more or less either to encroach upon its freedom, or to diminish its security.

Smith (1776: IV.2.9) stated that " ... *But the annual revenue of every society is always precisely equal to the exchangeable value of the whole annual produce of its industry, or rather is precisely the same thing with that exchangeable value. As every individual, therefore, endeavours as much as he can both to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value; every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by* ***an invisible hand*** *to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good. It is an affectation, indeed, not very common among merchants, and very few words need be employed in dissuading them from it*.."

Technological progress could also increase growth overall. Smith's famous thesis that the division of labour (specialization) improves growth was a fundamental argument. Smith (1776: I.1.5) stated that " ...*this great increase of the quantity of work which, in consequence of the division of labour, the same number of people are capable of performing, is owing to three different circumstances; first to the increase of dexterity in every particular workman; secondly, to the saving of the time which is commonly lost in passing from one species of work to another; and lastly, to the invention of a great number of machines which facilitate and abridge labour, and enable one man to do the work of many*..." Smith also saw improvements in machinery and international trade as engines of growth as they facilitated further specialization. Smith also believed that "division of labour is limited by the extent of the market" - thus positing an economies of scale argument. As division of labour increases output (increases "the extent of the market") it then induces the possibility of further division and labour

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

and thus further growth. Thus, Smith argued, growth was self-reinforcing as it exhibited increasing returns to scale. Output growth (g_Y) was driven by population growth **(g_L),** investment **(g_K)** and land growth **(g_N) and** increases in overall productivity (**g_P**).

Output growth model is (Rostow,1992:508 ; The History of Economic Thought, 2009):

$$g_Y = f\,(g_L, g_K, g_N, g_P)$$

Smith's economic growth model can be formalized as follows (Adelman, 1964:26 ; Rostow,1992:508 ;The History of Economic Thought, 2009):

$$Y = F(K, L, N) \quad \textbf{(1)}$$

where, K: Capital, L: Labour, N: Land

The production function (F) is not subject to the restriction of diminishing marginal productivity, but subject to the increasing returns to scale. Salvadori (2003a and 2003b) stated that Smith's argument appears to be implicitly based on the hypothesis that each single firm operates at constant returns, while total production is subject to increasing returns. Technological progress, development in machinery and the market size affect division of labour and therefore affect productivity and the internal and external economies ,which lead to increasing returns to scale. Adam Smith also emphasized the role of the institutional structure (U) of the economy affecting economic growth level. Adelman (1961) stated that two restrictions emphasized for the production function:

$$\frac{\partial f}{\partial L} = g(K,U)\ ;\ \frac{\partial f}{\partial K} = h(K,U) \quad \textbf{(2)}$$

Marginal productivity of labour and land are functionally related to the amounts of capital (K) employed and to the institutional framework (U) of the economy.

The growth rate of economy by the time is as follows,

$$\frac{dY}{dt} = \frac{\partial f}{\partial L}\frac{dL}{dt} + \frac{\partial f}{\partial K}\frac{dK}{dt} + \frac{\partial f}{\partial N}\frac{dN}{dt} \quad \textbf{(3)}$$

applying the restrictions, **(4)**

$$\frac{dY}{dt} = g(K,U)\frac{dL}{dt} + \frac{\partial f}{\partial K}\frac{dK}{dt} + h(K,U)\frac{dN}{dt}$$

In the Smith's economy, institutional framework (laissez faire) is important and given, exogenously :

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

$$U = \overline{U}(t) \quad \textbf{(5)}$$

Land supply is limited and fixed in quantity, $dN/dt = 0$, The growth rate of economy is therefore,

$$\frac{dY}{dt} = \frac{\partial f}{\partial K}\frac{dK}{dt} + g[K,\overline{U}(t)]\frac{dL}{dt} \quad \textbf{(6)}$$

The growth rate depends on $\frac{dK}{dt}$ and $\frac{dL}{dt}$

Population growth is endogenous and it depends on the sustenance available to accommodate the increasing workforce, therefore labour supply

$$dL_S/dt = q\left(w - \overline{w}\right) \quad \textbf{(7)}$$

depends on the difference between the actual money wage rate (w) and the subsistence wage $(\overline{w})$.

Labour demand depends on wages-fund which depends on growth of income and capital :

$$\frac{dL_D}{dt} = a\frac{dK}{dt} + b\frac{dY}{dt} \quad \textbf{(8)}$$

In the long run, labour supply equals labour demand,

$$\frac{dL_S}{dt} = \frac{dL_D}{dt} \text{ and therefore, } \left(w - \overline{w}\right) = a\frac{dK}{dt} + b\frac{dY}{dt} \quad \textbf{(9)}$$

The growth rate of economy with labour-growth equation is as follows:

$$\frac{dY}{dt} = \frac{\partial f}{\partial K}\frac{dK}{dt} + g[K,\overline{U}(t)]\left(a\frac{dK}{dt} + b\frac{dY}{dt}\right) \quad \textbf{(10)}$$

$$\frac{dY}{dt} = \frac{dK}{dt}\left\{\frac{\partial f/\partial K + a\,g[K,\overline{U}(t)]}{1 - b\,g[K,\overline{U}(t)]}\right\}$$

The greater capital stock results in more division of labour, which raises the productivity of labour. As a result, the marginal capital-output ratio, $(dK/dt)/(dY/dt)$ falls. On the other hand, institutional environment of the economy has the same effect on the capital accumulation.

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

Investment is also endogenous and, it determined by the rate of savings (mostly by capitalists). Investment and therefore capital accumulation mainly depends on the profit rate above the compensation for risk to be made by investment.

$$dK/dt = k(r - \bar{r}, Y) \ , \ \partial k/\partial Y > 0 \qquad \textbf{(11)}$$

r stands for the rate of profits at time t, and $\bar{r}$ denotes its minimum value.

Another important factor affecting profit rate is institutional environment because investment risk is affected by institutional environment. Therefore, profit theory of Smith is as follows:

$$(r - \bar{r}) = \mathrm{m}\left[\mathrm{K}, \overline{U}(t) \right] \text{ , where } \partial m/\partial Y < 0 \qquad \textbf{(12)}$$

The capital accumulation process, by substituting eq.12 into eq.11 is as follows,

$$dK/dt = k\{\mathrm{m}\left[\mathrm{K}, \overline{U}(t) \right], Y\} \ , \ dY/dt > 0 \ , \ dK/dt > 0 \ , \ \partial k/\partial Y > 0 \qquad \textbf{(13)}$$

Rostow (1992:511) states that growth of capital stock,

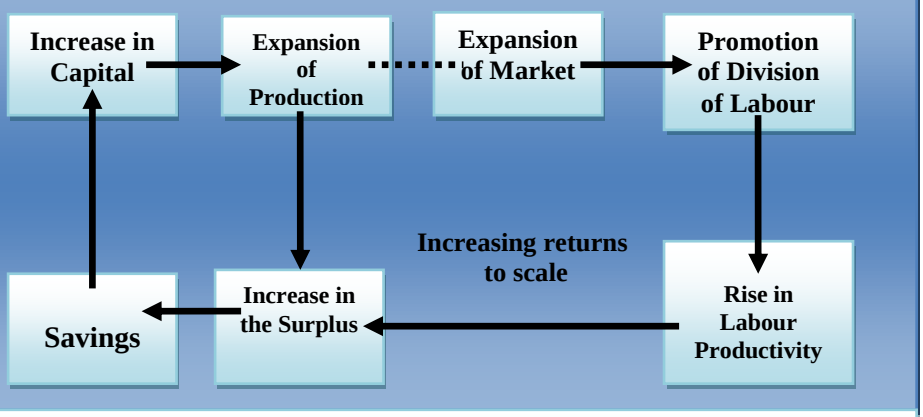
$$dK/dt = (sr_t - \delta) \qquad \textbf{(14)}$$

depends on saving rate of capitalists (s), the rate of return to capital (r_t), the depreciation rate (δ). Initial capital stock and institutional factors also affect economic growth rate.

Dome (1994:6) explains the Smithian growth process like Figure-1. Dome (1994) states that Smith's theory of economic growth consists of a rise in the productivity of labour by means of the division of labour, and an increase in productive labour by way of capital accumulation. The sequence shown by increase in capital, expansion of production, increase in the surplus, and savings depicts process of growth by capital accumulation.

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

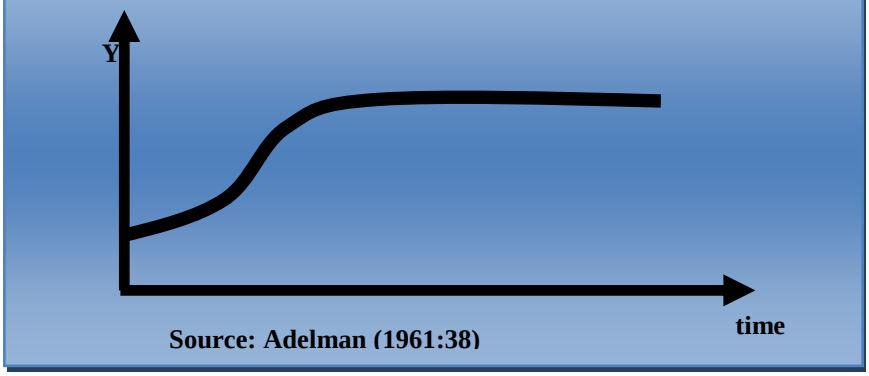
Figure-1 Smithian Growth Process



Source: Dome, Takuo, History of Economic Theory, A critical introduction, Edward Elgar, 1994,p.6

The important part of the Smithian growth model is increasing returns to scale by rising labour productivity resulted from the division of labour. The processes consist of expansion of market leading to the promotion of division of labour, which leads to rise in labour productivity and increase in the surplus.

Figure-2 Expansion Path of The Economy



Source: Adelman (1961:38)

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

In the Smithian growth model, when capital stock is so large, then the rate of profit drops to $\left(\bar{r}\right)$. Savings of capitalists is what creates investment and hence growth, Smith saw income distribution as being one of the most important determinants of how fast (or slow) a nation would grow. However, savings is in the part determined by the profits of stock, as the capital stock of a country increases, Smith posited, profit declines - not because of decreasing marginal productivity, but rather because the competition of capitalists for workers will bid wages up. So lowering the living standards of workers was another way to maintain or improve growth (although the counter-effect would be to reduce labour supply growth). Despite increasing returns, Smith did not see growth as eternally rising, he posited a ceiling (and floor) in the form of the "stationary state" (see in Figure-2) where population growth and capital accumulation were zero. Adelman (1961:40) states that in the stationary state, there is no per capita growth, wages are at the subsistence level, profits are at the minimum consistent with risk, no net investment takes place, population remains unchanged, and total income constant. The rate of capital formation depends crucially upon the relationship between the market rate of net profits (r) and the minimum consistent with compensation for risk bearing $\left(\bar{r}\right)$.Adelman (1961:40) expresses that the evolution of economy for Smith can follow many different routes. Growth or retrogression, stationary state or underdevelopment –what determines which of these time paths and states the economy will choose? Adelman says that we may arrive the answer in several different ways. The simultaneously solution for capital accumulation equation (eq.13) and the income-growth relationship (eq.10) will carry us the final point. By doing this, we arrive the general form of the economy's rate of output:

$$Y = y\left[K_0, L_0, N_0; \alpha_0 \ldots\ldots\ldots \alpha_\infty; \overline{U}(t)\right] \qquad \textbf{(15)}$$

Adelman (1961:40) underlines that dynamic progress of the economy is seen to depend upon the initial conditions, $\left(K_0, L_0, N_0\right)$ and upon the structural parameters $\left(\alpha_0 \ldots\ldots\ldots \alpha_\infty\right)$ as before, and also depends on exogenously determined historical change in the institutional environment $\left[\overline{U}(t)\right]$.

According to Smith, institutional framework affects these variables, for this reason he advocates the free competitive market economy (invisible

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

hand). As we mentioned above, according to Smith, the fundamental economic determinant of growth is the rate of capital formation. On the other hand, the rate of capital formation depends crucially upon the relationship between the market rate of net profits (r) and the minimum consistent with compensation for risk bearing $\left(\bar{r}\right)$. Both of these quantities are dependent upon the institutional set up. As Adelman (!961:41,42) emphasizes, freedom of international trade, regulation of competition, security of life and property, political institutions, all play a role in establishing the relationship between (r) and $\left(\bar{r}\right)$. In Smith's world, a favourable political and legal environment, on the other hand, can contribute significantly toward increasing the flow of investment. Furthermore, by permitting international division of labour, free trade also contributed toward raising the output of the world as a whole. Domestically, Smith favoured a policy of non-intervention. As Dome (1994:13) indicates, Smith supported free competition because according to him, it would extend the market, promote the division of labour, accumulate capital, and consequently increase the wealth of nations is theoretically to make clear the way in which harmonious development of the economy is realized under a system of natural liberty.

4. CRITICISM OF ADAM SMITH'S VIEWS ON THE DETERMINANTS OF ECONOMIC GROWTH

Smith's views on the determinant of economic growth have important effect on the classical growth model. On the other hand, Smith's views were criticized by the many other thinkers such as Ricardo, Malthus, Marx, etc.

Hamberg (1971:141) states that *"in the classical model (and the Marxian model as well), capital accumulation was the fuel that drove the engine of economic development. There is no indication that the classical thought of any fixed relation between the rate of growth and the rate of capital accumulation, but there is no doubt that they thought of them as positively correlated"*.

After Smith, Ricardo (1817) stressed that land as an important input had diminishing returns because of the fixed supply of land. This characteristic of land leads to increasing land rents and increasing cost of living for workers, therefore increasing cost of agriculture production causes decrease of the profits of the capitalists, which disrupts the capital accumulation. For this reason, Ricardo claimed (at first) that this decline can

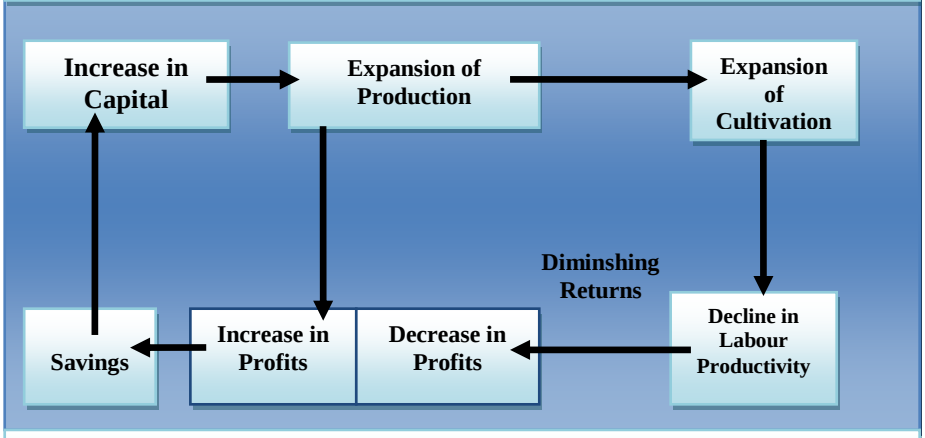
Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

be happily checked by technological improvements in machinery (albeit, also with diminishing productivity) and the specialization brought by trade, although he also had stationary states. On the other hand, Ricardo later claimed that, in fact, machinery displaces labour and that the labour "set free" might not be reabsorbed, thus merely create downward pressure on wages and thus lower labour income. In order to reabsorb this extra labour without this effect, then the rate of capital accumulation must be increased. But there is no obvious mechanism for this to happen particularly given the tendency described above for profits and thus savings to decline over time (The History of Economic Thought:2009)

Ricardo (1817:29) stated that *the natural tendency of profits then is to fall; for in the progress of society and wealth, the additional quantity of food required is obtained by the sacrifice of more and more labour. This tendency, this gravitation as it were of profits, is happily checked at repeated intervals by the improvements in machinery, connected with the production of necessaries, as well as by discoveries in the science of agriculture which enable us to relinquish a portion of labour before required, and therefore to lower the price of the prime necessary of the labourer. The rise in the price of necessaries and in the wages of labour is however limited; for as soon as wages should be equal to the whole receipts of the farmer, there must be an end of accumulation; for no capital can then yield any profit whatever, and no additional labour can be demanded, and consequently population will have reached its highest point. Long indeed before this period, the very low rate of profits will have arrested all accumulation, and almost the whole produce of the country, after paying the labourers, will be the property of the owners of land and the receivers of tithes and taxes.*

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

Figure-3 Ricardian Growth Process



Source: Dome, Takuo, History of Economic Theory, A critical introduction, E.Elgar, 1994,p.36

Ricardian growth process is explained in Figure-3. Dome (1994:36) stated that comparing the Smithian growth process, the difference between two models is the effects of diminishing returns by expanded cultivation, which leads to declining labour productivity and decreasing profit. In the Smithian growth model, there is an increasing returns resulted from division of labour by expansion of market size, which leads to rise in labour productivity and increase in surplus. While the Smithian growth model contains an accelerator ascribed to the division of labour, Ricardian growth contains a decelerator ascribed to the scarcity of fertile land. In the Ricardian growth model, capital accumulation pressures profits to increase while the law of diminishing returns pressures them to decrease. Since the effect of the latter eventually exceeds the effect of the former, profits and the rate of profit decrease toward zero in the long run.

According to Ricardo, only capitalists would save all or most of their profit income and accumulate it to expand the production. As long as profits positive, capital will be expanding. Ricardo predicts that capital accumulation and growth will stop when the extensive margin is pushed out to the point where the yield on the marginal land just equal to the conventional wage. At this point the profit rate and total profits are zero so there is no more capital accumulation, and the entire surplus takes the form of rent. We can describe this situation as the stationary state. At the

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

stationary state most of a large population lives at the edge of substance, pressing on the limited resources of the heart, while small wealthy class of landowners appropriate the social surplus product (Foley and Michl, 1999:199). On the other hand Ricardo states that technological improvements in machinery and international trade eliminate these negative aspects. But improvements in machinery increase unemployment and affect negatively the demand for goods and there may not be mechanism to solve these problems.

Another classical economist T.Malthus (1798) claimed that population, when unchecked, increases in a geometrical ratio, however, subsistence increases only in an arithmetical ratio. Malthus was convinced that, in spite of any technical improvement, the growth of population would inevitably be more raid than the growth of production. Malthus was also pessimistic like Ricardo despite the Smith's optimism.

At this point, we had better express that classical economists were like minded about the stationary state would occur ultimately. But there are some differences among them about this period's characteristic. It might be useful to compare the views of A. Smith and J.S.Mill on this period's feature.

According to Smith: *"It deserves to be remarked, perhaps, that it is the progressive state, while the society is advancing to the further acquisition, rather than when it has acquired its full complement of riches, that the condition of the labouring poor, of the great body of people, seems to be the happiest and the most comfortable. It is hard in the stationary, and miserable in the declining state. The progressive state is in reality the cheerful and the hearty state to all the different orders of society. The stationary state is dull, the declining melancholy."* (Smith, 1776:Book 1, Ch.8).

As for J.S.Mill : *"...I cannot, therefore, regard the stationary state of capital and wealth with the unaffected aversion so generally manifested towards it by political economists of the old school. I am inclined to believe that it would be, on the whole, a very considerable improvement on our present condition. I confess I am not charmed with the ideal of life held out by those who think that the normal state of human beings is that of struggling to get on; that the trampling, crushing, elbowing, and treading on each other's heels, which form the existing type of social life, are the most desirable lot of human kind, or anything but the disagreeable symptoms of one of the phases of industrial progress. It may be a necessary stage in the progress of civilization…"* (Mill, 1848: Book 4, Ch.6).

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

As we see, according to Mill, stationary state is a happiness age, in opposition to Smith and also Ricardo. On the other hand, Karl Marx is rather pessimistic about the diminishing rate of profit when he criticizes capitalism. He had different ideas on the structure of the economic system. Marx criticized the system and also the classical economists. Marx believed there was a declining rate of profit over the long-term. The long-run tendency for the rate of profit to decline is brought about not by competition increasing wages (as in Smith), nor by the diminishing marginal productivity of land (as in Ricardo), but rather by the "rising organic composition of capital".(The History of Economic Thought, 2009). Marx enlarged his analysis to the social and political factors. According to Marx there is a social conflict among the classes resulting from the income distribution. Marx claimed that in the production process, surplus was only be created by workers and capitalist exploit the workers by creating labour-substituting technological advances. On the other hand, Marx stated that as long as the capitalists invest more and use the labour-substituting technology (rising organic composition of capital), both the rate of profit and wages decline, which leads to the downfall of capitalism (1849,Vol.3, Ch.III). While Marx's model of destruction of capitalism was based on a class system separated capitalists and the proletariat, Schumpeter (1939) saw the possibility that entrepreneur could improve growth by efficiently combining resources, adopting new technical improvements in machinery and conducting the division of labour. According to Schumpeter, innovation and new ideas was the engine which driving economic growth.

5. CONCLUSION

In this study, we mainly focused Smith's views on the determinants of economic growth by comparing other growth theories. We see that, according to Smith, the fundamental economic determinant of growth is the rate of capital formation. On the other hand, the rate of capital formation depends crucially upon the relationship between the market rate of net profits and the minimum consistent with compensation for risk bearing. Both of these quantities are dependent upon the institutional set up. These institutional factors are freedom of international trade, regulation of competition, security of life and property, political institutions and all play a role in establishing the relationship between these two variables which affect the rate of capital formation.

In Smith's world, a favourable political and legal environment can contribute significantly toward increasing the flow of investment. Furthermore, by permitting international division of labour, free trade also contributed toward raising the output of the world as a whole.

Finally, we observed that modern economic growth theory has been still benefited from the most of Smith's views on the economic growth which are division of labour, education, human capital, learning by doing, increasing returns to scale, technological change, externalities, institutional factors such as global free-competitive market economy, the role of government etc.

We concluded that Smith's views on the determinants of economic growth have still great importance to increase wealth of nations and welfare of both individuals and societies. Even if we are not on the same wave with Smith, it is still very important to review Smith's views on the determinants of economic growth in order to design better economic and political environment for economic agents to increase wealth of nations.

REFERENCES

Adelman, Irma, (1961), *Theories of Economic Growth and Development*. Stanford: Stanford University Press.

Aghion, P., Howitt, P. (1992), "A Model of Growth Through Creative Destruction", Econometrica, 60.2. 323-351.

Arrow, K. J. (1962), "The Economic Implications of Learning By Doing", Review of Economic Studies, V. XXIX.

Barro, R.J. and Sala-i-Martin, X. (2003), *Economic Growth*.. Cambridge, MA, USA: MIT Press.

Cass, D. (1965), "Optimum Growth in an Aggregative Model of Capital Accumulation", Review of Economic Studies, Vol.32, No.3, pp.233-240.

Domar, E. D. (1946), "Capital Expansion, Rate of Growth and Employment", E.M, V. 14.

Dome, T. (1994), *History of Economic Theory: A Critical Introduction*, Edwar Elgar Publishing.

Foley D.K. and Michl T.R. (1999), *Growth and Distribution*, Harvard University Press.

Grossman, G. and Helpman, E. (1991), *Innovation and Growth in the Global Economy*, Cambridge, MA:MIT Press.

Trakya Üniversitesi Sosyal Bilimler Dergisi
Haziran 2013 Cilt 15 Sayı 1 (29-48)

Hahn, F.H. and R.C.O., Matthews, (1964), " The Theory of Economic Growth: A Survey" The Economic Journal, 74 (296): 779-902.

Hamberg, D.(1971), *Models of Economic Growth* , New York : Harper & Row.

Harrod, R. F. (1939), " An Essay In Dynamic Theory", Economic Journal, V. XLIX. March 1939.

Hutchison, T. (1976), "Adam Smith and The Wealth of Nations" Journal of Law and Economics, Vol. 19, No. 3, 1776: The Revolution in Social Thought pp. 507-528 The University of Chicago Press.

Koopmans, T.C. (1965), "On the Concept of Optimal Growth" Cowles Foundation for Research in Economics at Yale Unv. Paper.238, http://cowles.econ.yale.edu/P/cp/p02a/p0238.pdf, accessed 10/05/2005

Lucas, R.E. Jr. (1988), "On the Mechanics of Economic Development", Journal of Monetary Economics, 22: 3-42.

Lucas, R.E. Jr. (1993), "Making A Miracle", Econometrica, 61(2): 251-272.

Marx, K. (1849), *Capital, Vol.III*, ElecBook Classics, London, UK., 1998.

Mill, J.S. (1848), *Principles of Political Economy*, William J.Ashley,ed. (1909), 7th edit.

Ramsey, F.P. (1928), "Mathematical Theory of Saving", Economic Journal, 38: 543-559.

Ricardo, D. (1817), *On The Principles of Political Economy and Taxation*, .John Murray, 1821, 3th Edt. Michigan Unv.

Romer, P.M. (1986), "Increasing Returns and Long-Run Growth", Journal of Political Economy, 94.5. 1002-1037.

Romer, P.M. (1987), "Growth Based on Increasing Returns Due to Specialization", American Economic Review, 77(2): 56-62.

Romer, P.M. (1990), "Endogenous Technological Change", Journal of Political Economy, 98 (5): 71-101.

Romer, P.M. (1994), "The Origins of Endogenous Growth", Journal of Economic Perspectives, 8 (1): 3-22.

Rostow, Walt W. (1992), *Theorists of Economic Growth from David Hume to the Present: with a perspective on the next century*, Oxford University Press US.

Rothschild, E. (1992), "Adam Smith and Conservative Economics" Economic History Review, Xlv (1): 74-96.

Salvadori, N. (2003a), *The Theory of Economic Growth, A Classical Perspective*, EE Pub.

Salvadori, N. (2003b), *Old and New Growth Theories: An Assessment*,, EE Pub.

Schumpeter, J.A. (1939), *Business Cycles, A Theoretical, Historical and Statistical Analysis of the Capitalist Process,* New York, McGraw-Hill Book.

Smith, A. (1759), *The Theory of Moral Sentiments*, London: A. Millar,1790,6th .

Smith, A. (1776), *An Inquiry into the Nature and Causes of the Wealth of Nations*, London: Methuen & Co. 1904 5th.

Snowdon, B. and Vane, R. Howard (2005), *Modern Macroeconomics*, Edward Elgar Publishing, UK.

Solow, R.M (1956), "A Contribution to the Theory of Economic Growth", Quarterly J. of Economics, 70. 65-94.

Spengler, J.J. (1959a), "Adam Smith's Theory of Economic Growth: Part I" Southern Economic Journal, Vol. 26, No. 1 pp. 1-12 Southern Economic Association.

Spengler, J.J. (1959b), "Adam Smith's Theory of Economic Growth: Part II" Southern Economic Journal, Vol. 26, No. 1 pp. 1-12 Southern Economic Association.

Swan, T. W. (1956), "Economic Growth and Capital Accumulation", Economic Review, V. XXXII..

The Hıstory of Economic Thought Website, Classical Growth Theory: From Smith to Marx, Http://Homepage.Newschool.Edu/Het// accessed:02/09/2009.

Uzawa, H. (1961), "On A Two-Sector Model of Economic Growth", Review of Economic Studies, V.29, No.1, pp.40-47.

Viner, Jacob. (1927), "Adam Smith and Laissez Faire" The Journal of Political Economy, 35 (2): 198-232, The University of Chicago Press.

Wright, G. (1997), "Towards a More Historical Approach to Technological Change", Economic Journal, 107 (4449: 1560-1566.

Yeldan, E. (2009), The Economics of Growth and Distribution, Eflatun Publishing.