ABSTRACT

Recent studies consider education and human capital growth as a main source of economic growth. In the classical model, population growth and capital accumulation was envisaged as an engine of economic development. Population and market rate of wages were believed to have mutual affinity. Neoclassical model, it is known as Solow Model, shows capital accumulation would increase the growth rates in the short run, but cannot generate any long run GDP growth rate increase. The Solow model implies that economies will conditionally converge to the same level of income, given that they have the same rates of savings, depreciation, labor force growth, and productivity growth. This study firstly examines the structural and economic changes in Turkish economy and then analysis the effect of education and the role of technical progress on Turkish economic growth during the period 1990-2012. This study finds out that the real GDP growth rate is dependent on capital formation and growth rate of labor force.

Keywords: Education, GDP Growth, Human capital, Labor Force, Turkey

1. INTRODUCTION

In economic theory, labor, capital and land are accepted as production factors. These traditional production factors are also historically proved role in the countries’ social and economic development. In the classical model, population growth and capital accumulation was envisaged as an engine of economic development. Population and market rate of wages were believed to have mutual affinity.

This study examines the effect of education and the role of technical progress on Turkish economic growth during the period 1990-2012. Several studies, such as Armer and Liu (1993), used the levels of schooling as the proxies of human capital in their models. Recently, it is believed that education plays a key role in
the ability of a developing country to absorb modern technology and to develop the capacity for self-sustaining growth and development. Gungor (2010) stated that the efficient use of new technologies necessitates the employment of a better educated workforce that is able to work with these technologies. Lau, Jamison, Liu, and Rivkin used cross-state data for individual Brazilian states in 1970 and in 1980. Their results indicate that one additional year of average education per person of the labor force increases real output by approximately 20 percent. Therefore, average education has a large, positive, and statistically significant effect on real output.

New growth literature underlines human capital accumulation as a key factor in country’s long-run economic performances. However, The Solow neoclassical growth model argue that macroeconomic policy cannot affect growth rates over the long-term. Solow shows capital accumulation would increase the growth rates in the short run, but cannot generate any long run GDP growth rates. The Solow model implies that economies will conditionally converge to the same level of income, given that they have the same rates of savings, depreciation, labor force growth, and productivity growth. Thus, as stated by Todara and Smith (2009), the Solow model is the basic framework for the study of convergence across countries. The Solow growth model expanded on the Harrod-Domar formulation by adding a second factor, labor, and introduced a third independent variable, technology, to the growth equation. Unlike the fixed-coefficient, constant-returns to scale assumption of the Harrod-Domar model, Solow’s neoclassical growth model exhibited diminishing returns to labor and capital separately and constant returns to both factors jointly. With these assumptions, The Solow model argued that how saving and population growth determine the economy’s steady-state capital stock and steady-state level of income per person. According to the Solow model, higher saving leads to faster growth, but only temporarily. An increase in the saving rate raises growth until the economy reaches the new steady-state. The Solow model now cannot explain persistent growth, thus the special role of human capital through education must be introduced into the model.

Mankiw, Romer, and Weil (1992) highlighted the role of human capital and they show that when human capital is accounted for, as well as physical capital, the Solow model does a rather good job of explaining incomes and growth across countries. Mankiw et al. (1992) suggests that international differences in income per capita are best understood using an augmented Solow growth model. In their model output is produced from physical capital, human capital, and labor and is used for investment in physical capital, investment in human capital, and consumption. The augmented Solow model says that differences in saving, education, and population growth should explain cross-country differences in income per capita. Their examination of the data indicates that these three variables do explain most of the international variations.

Another research made by Gould and Ruffin (1993) supports to endogenous growth theories. The two authors state that the Solow model left unanswered too many questions about growth differentials across countries and the mechanism of technological progress. Gould and Ruffin (1993) suggest that output and growth are directly connected to human capital and they take human capital as one of the production factor. According to these authors, accumulation of human capital as a factor of production can in turn affect level of output and growth. With these explanations, we can understand that output has a spill-over effect through human capital accumulation. Levine and Renelt (1992) found evidence suggesting an educated populace is a key to economic growth. As stated by Gould and Ruffin (1993), it is accepted that a larger educated work force may increase growth either faster technological progress, as individuals build on the ideas of others, or by simply adding to the productive capacity of a country. According to Gould and Ruffin, in 1960, only seven percent of Guatemala’s children of secondary school age actually attended secondary school. Barro (1991) estimates that
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