

Dynamics of Cross Country Variations in the Productivity Growth and the Role of Natural Capital

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It is true that almost all the growth accounting approaches for examining the cross-country productivity growth has used traditional multifactor production function approach by ignoring the natural capital which actually plays a crucial role as a contributory factor to the GDP growth of every economy. The most important components of the natural capitals are the land, fossil fuel, minerals (iron, copper etc.), forest wood, the oil etc. But it is paradoxical that while measuring the GDP of every economy the value addition of the natural capital are taken into account either in the form of user cost or in the form of rental value. However, modern growth theories i.e. the endogenous growth theory and Schumpeterian growth theory have also used the natural factor (renewable and non-renewable) along with their rates of depletion in deriving the long run optimal steady state growth path. It is also well known that the majority of the countries in the globe have been embarked on an update of macroeconomic standards including the 2008 System of National Accounts by taking into account of the environmental and natural resource statistics along with environmental cost for achieving sustainability of growth and environment. Massive amount of studies have been done to assess the changes in the sectoral total factor productivity and environmental efficiency specially in case of agriculture by considering natural factors (Linh, Truc, LE et. al., 2019; Anik et. al., 2017; Coelli and Rao, 2005, Coelli et. al., 2007; Alessandracoli, 2021, Chaudhary, 2016 etc.). However, studies on the impact of the changes in nature, environment and climate, the natural capital on productivity growth are scarce (Brandt et. al., 2014, 2017; OECD, 2016; Hamilton, 2018 etc.).

Under this backdrop we examine the contribution of natural capital to the growth of GDP across two sets of select countries namely (i). a set of developed countries and (ii.) a set of developing countries during the period from 1990-2019 in view of comparing the relative role of natural capital in the growth of GDP of the developed and developing countries. We will use a multifactor aggregate production function containing labour, tangible capital, intangible capital and the natural capital as inputs and use the growth accounting method to estimate the production elasticities of the factor inputs. We will also examine the dynamics of the cross-country variations in the contributions of the natural capital and other factors on the variations of the growth of GDP by using dynamic panel exercise with GMM technique. This study is based on the secondary data which are available from World Bank's Wealth database, KLEMS database, PENN World Table 10.0; OECD database, FAOSTAT2021 database and USDA, 2021 database. The collection of relevant data set as well as its tabulation for our study is in progress.

KeyWords :, Natural Capital ;Growth Accounting; Aggregate Production Function; Developed and Developing Countries ; Dynamic Panel.