

The Impact of Economic Variables on Environmental Pollution with Emphasis on Financial Development Index: Application of Generalized Method of Moments

Pages 29-44

Hassan Heidari, Asall Sadeghpour

Introduction: Nowadays, environmental pollution is one of the main challenges in the world. Therefore, in addition to the policies and measures within their borders, countries prefer international organizations in the field of environmental issues. Previously it was thought that economic growth causes an increase in income and will lead to improved quality of life. However, the high growth rate of the world economy in the last few decades with reduced environmental quality puts the environmental pollution in the spotlight in the globe. In most studies in the literature on the investigation of economic factors effects on environmental pollution, these factors have been limited to economic growth and energy consumption. This study investigates the impact of macroeconomic variables such as economic growth, energy consumption, environmental pollution and an index of financial development on countries with different level of income (low, medium, high) during the period of 1980-2010. We apply a dynamic panel data approach with Generalized Method of Moment (GMM) estimate methodology. Recent empirical studies show that the relationship between environmental degradation and per capita income level is similar to the turn-down U (primary Kuznets curve). The message of Kuznets hypothesis is that economic growth is the cause of infection and its treatment. In recent years we have witnessed a backlash economy for changes in financial statement which emphasizes the important role of financial markets. A variety of ways to finance the economy is moving toward the gates. But, there is a dichotomy in this case. Degree of economic and financial development decreases the environmental degradation. The results of some studies show that financial liberalization and the adoption of policies to financial openness and liberalization to attract higher levels of R&D might reduce the environmental degradation. In this study, however, we are interested in checking what the effect of financial development index is on the environmental pollution.

Material and Methodology: In general format EKC hypothesis can be specified as follow: $E = f(Y, Y^2, Z)$ (1) Where, E is environmental deterioration emission, Y is income indicator and Z is other variables affecting the environment. Following the empirical literature, the standard log-linear functional specification of long run relationship among per capita carbon emissions, per capita energy consumption, per capita real income, and the square of per capita real income can be expressed as follows: $CO = 1 + 2en + 3yt + 4yt^2 + 5fd + Ut$ (2) Where, co is the carbon dioxide emission (measured in metric kilo grams per capita), en is the energy consumption (measured in kg of oil equivalent per capita), y is per capita real GDP, y^2 is the square of per capital real GDP, fd is the financial development indicator (domestic credit to private sector as a percentage of GDP) and Ut is error term. Empirical results The preliminary step in this analysis begins by investigating the unit root test of the variables using the Im, Pesaran and Shin (IPS) unit root test. Table 1 summarizes the outcome of the IPS unit root tests on the natural logarithms of the levels of the variables.

The results for three different income groups of countries show that all signs of the estimated parameters are consistent with the theory. The Sargan and Wald tests results confirm the validity of the interpretation of the results. Energy consumption has positive effects on environmental pollution in all three income groups. Financial development in low-income countries has a significant and positive effect on the level of air pollution, while for the middle-income countries this relationship is not significant. The coefficient of financial development in countries with high income has a negative and significant impact on environmental pollution. Economic growth has decreased environmental pollution in all three income groups. However, environmental Kuznets curve is only confirmed in the high-income countries.

Conclusion: This paper has investigated the impact of economic variables on environmental pollution with an emphasis on financial development index. We have used panel data approach with GMM estimate method. Our results have demonstrated that financial development in low-income countries increases environmental pollution. It can be said that these countries represent the facilities granted to the private

sector in production, regardless of the environmental impact. In countries with high per capita income, this index has a negative impact on environmental pollution. This shows that, the private sector uses of funds, with investments in environmental protection measures and do their products. Moreover, the results show an inverse U relationship between economic growth and environmental pollution only for the countries with high per capita income. According to these results, we suggest that the civilized world needs to move towards a new approach of theeconomical environment: Take a holistic approach that need strengthening and support through interdisciplinary collaboration and interaction, too much emphasis is placed on natural resources and environmental multidisciplinary professionals and experts in economics and political elites. It is one of the most necessary accessories to ensure the sustainable development.

economic growth, energy consumption, environment Kuznets curve, environmental pollution, financial development

Archive of SID