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ANALYSIS

Information access, income distribution, and the Environmental Kuznets Curve

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Abstract

Recent empirical studies have tested the hypothesis of an Environmental Kuznets Curve (EKC) focusing primarily on the relationship between per capita income and certain types of pollutant emissions. Given the stock-nature of many pollution problems, emissions only partially account for the environmental impacts. Moreover, almost all of the studies have given consideration to little more than income levels as explanatory variables. This paper empirically tests the hypothesis of the EKC existence for a stock-sensitive indicator, that is, the percentage of protected area (PA) within national territory. It does theorize that economic growth is a necessary condition in order to better address environmental issues. But it also stresses that other variables (income distribution, education, information accessibility) may play a fundamental role in determining environmental quality. Contrary to other studies that mainly focus on the calculation of the income level corresponding to the transition point, this paper is more concerned with the calculation of environmental quality corresponding to that transition point, that is, the minimum level of environmental quality that a country is willing to accept. This paper highlights the idea that if the transition point is determined primarily by income level, social policies determine the level of environmental quality corresponding to that point.

Keywords: Environmental quality; EKC; Inequality; Information accessibility; Protected area

1. Introduction

Recently, many studies have found evidence of the existence of an inverted U-shaped relationship between environmental quality and per capita income level. Scholars in the field define this relationship as the Environmental Kuznets Curve (EKC). Data analysis seems to demonstrate that in the early stages of the economic growth process environmental quality falls, but then, as income exceeds a threshold level, environmental quality begins to rise. The reason why environmental quality increases when income becomes higher than a threshold level is still not completely clear.[1]

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[1] Some scholars have attempted to empirically test some of the structural factors, apart from income level, that may help to explain the observed relationship between income level and indicators of environmental quality (Grossman, 1995; Grossman and Krueger, 1995; Panayotou, 1995; Suri and Chapman, 1998; Unruh and Moomaw, 1998).

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The idea that economic growth is ultimately beneficial for the environment has caused some authors to maintain that only economic growth is necessary, because the surest way to improve the environment is to become rich (Beckerman, 1992). This viewpoint implies that environmental problems are a temporary phenomenon since economic growth and technological innovation will resolve these problems in due time.[2]

Torras and Boyce (1998, p. 148) maintain that the same incautious policy inference that was drawn from the original Kuznets curve can also be derived from the so-called EKC. There is no reason to believe that the relationship linking income and environmental quality is automatic, and there is no evidence showing that economic growth is a perfect substitute for environmental policy (Arrow et al., 1995). There is certainly nothing inevitable about the relationship that has been observed in the past (Grossman and Krueger, 1995, pp. 371–372).

This, together with the observation that the environmental performance varies among countries, makes it plausible to think that additional variables, other than income level, may influence the environmental performance of a country. Some recent studies show that economic and social policy may have a very important role in determining the emergence of the downward sloping part of the EKC (Panayotou, 1995; Grossman and Krueger, 1995; Torras and Boyce, 1998).

In this paper we test the existence of a U-shape relationship between per capita income and the percentage of protected area (PA) within national territory. The existing empirical work focuses on the relationship between income and emission of pollutants, which, due to the stock-nature of many environmental problems, does not fully account for environmental impacts (Rothman and de Bruyn, 1998, p. 144). The environmental quality of a specific site may turn out to be very low, due to both the cumulative effects of emissions and to the delayed effect of past accumulations of pollutants (Kaufmann and Cleveland, 1995; Panayotou, 1995). Depending on geographic location and original atmospheric and environmental conditions, pollutant emissions may have very different environmental impacts. The same is true for natural resources (for example, a forest). Due to its depleting effects, a certain amount of consumption may be sustainable or unsustainable depending on the starting level of the stock of the natural resource.

This paper also investigates possible causal linkages between inequality, literacy, information accessibility, and environmental quality. The hypothesis is that the more the development process is participated, i.e. the higher is the level of literacy, information access, and equality, the higher is the demand for environmental quality.

Whereas other studies are mainly concerned with the calculation of the transition point, that is, the point at which the relationship between income and environmental quality changes from negative to positive, this paper is more concerned with the calculation of the environmental quality threshold level. This is the minimum level of environmental quality that a society is willing to accept before the relationship between income and environmental quality changes from negative to positive. The paper highlights the idea that while the transition point is determined primarily by income level, social policies determine the level of environmental quality corresponding to that point.

The hypotheses is tested using cross-section data from a sample of European countries for which data are available (see the table in Appendix A). This permits the consideration of a more homogeneous set of countries, both from an economic and a morphological-natural point of view. Economic homogeneity allows us to separate the supposed juxtaposition of the two different relationships that developing and developed countries follow (Vincent, 1997). Natural homo-

[2] This statement is based on the idea that technological innovations will always arrive just in time, and that these innovations will also provide us with therapeutic tools, as climate engineering could be in the case of global warming. This can be defined as the *air conditioning syndrome*. It is derived from the supposition that, if the temperature increases, we will react by cooling the atmosphere, heedless of the irreversible changes to ecosystems that this would cause (Bimonte and Ulgiati, 1997).