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Income Distribution, Human Capital and Environmental Quality: Empirical Study in China

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Abstract

This paper has structured the simultaneous equations including the environmental quality determined equation and the income distribution determined equation, which are then applied Chinese provincial panel data to from 1996 to 2008. From the econometrical result, it is concluded that there is a significantly negative relationship between environmental quality and the imbalance of income distribution in China at the present; the improvement of human capital can reduce the detrimental effects from the differences in income distribution and better the environmental quality in China.

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Key Words: Income Distribution, Human Capital, Environmental Quality, EKC (Environment Kuznets Curve);

1. Introduction

Since the reformation of 1978, the economy has been growing rapidly with the annual GDP growth rate reaching a peak level of 9.8% in China. However, this impressive economic performance has also placed traumatic levels of stress on environment and natural resources. What is more, China's environmental problems are currently exploding in size and complexity. An investigation of World Bank revealed that about eight to twelve percent of Chinese GDP is consumed with paying huge costs of environmental crisis and that thirty of the most polluted cities in the world were located in China. Not surprisingly, the GINI coefficient has reached 0.48 in China, which is far above the international red line (0.4).

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The current studies suggest that income distribution is one of the key factors which can significantly affect environmental quality. Therefore, in order to understand and solve the emerging environmental problems in the fast-growing economy in China, it is important to study the relationship between income distribution and environment quality, specifically the individual characteristics in China. At the same time, this paper has also provided a representative case for developing countries regarding the study of the relationship between income distribution and environmental quality.

2. Literature Review

The study of the relationship between economic development and environmental problems was proposed during the negotiation of NATFA (North American Free Trade Area) and the early study was made by Grossman and Krueger (1991) [1]. Grossman and Krueger (1991) concluded that the pollution level would increase as GDP Per Capita rises in less developed regions, but decrease in the highly-developed regions. Later, Panayotou (1993) [2] proposed the Environmental Kunzites Curve (EKC) to illustrate how environmental quality would be deteriorated in accordance with an increase in GDP Per Capita, and improved when income level rises to a certain degree. At present, there is a consensus in academia that EKC exists in the current economy, but the relative inflexion point, which is the bottom of the curve of EKC, will not appear spontaneously. Therefore, it is valuable to discuss factors which can accelerate or slow the coming of the inflexion point of EKC, and income distribution is one of the most important factors which can affect the inflexion significantly.

Firstly, this paper reviews such literatures which consider that an imbalance in income distribution is detrimental to the improvement of environmental quality. Boyce (1994) [3] publishes the pioneering study in this scope and concludes that the rich would have always had more social power and prefer to consume more high-polluting goods but bear less responsibility for the corresponding pollution cost, since the imbalanced distribution of social power has always resulted from an unequal income distribution, therefore, the greater the income distribution differential, the worse the environmental quality. Martinez-Alier （1995） [4] has classified environmental goods into two categories: the environment-luxury which is low in demand income elasticity and the environment-necessary which is higher, He concludes that as the income distribution gap rise, the following would likely occur: 1) the demand of the environment-luxury goods would increase, 2) the supply would also increase because the poor tend to sell cheap, and 3) the imbalance of income distribution is detrimental to the improvement of environmental quality. From the perspective of the go-between theory in democratic voting, Magnani (2000) [5] proposes that, since the demand of the environment-goods is more flexible, therefore, as the income per capita rises, the structure of goods shall be changed to be environment-friendly, and environmental quality shall be improved. However, if the income distribution gap continues to increase, the relative income of the go-between shall be decreased and they would pay less to environment-friendly goods and the inflexion of EKC shall be delayed. Marsiliani and Thomas (2002) [6] adopt both the static and inter-temporal models to find that a larger income distribution gap reduces the ability of the go-between and the equilibrium of the political economy shall pay less attention to environmental protection. Torras and Boyce (1998) [7], Boyce et al. (1999) [8], Maganani (2000) [5], Gawande et al. (2001) [9], and Bimonte (2002) [10] adopt the GINI index coefficient to measure the gap in income distribution and confirm that a greater gap in income distribution would deteriorate environmental quality. Bimonte (2002) [10] also finds that the balance of income distribution would accelerate the coming of the inflexion of EKC.

Next, we consider the literature which maintains that the effect of a bigger gap in income distribution upon environmental quality is uncertain. Scruggs (1998) [11] questions the assertions of Boyce (1994) [3] firstly, he considers that income distribution has nothing to do with environmental policy upon real democratic politics, but he also considers that based on the social paradigm proposed by Hofrichter and

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