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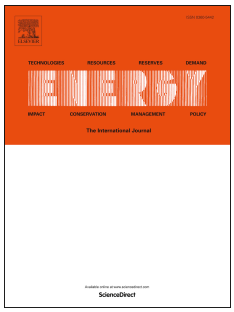

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**Title Page**

# The influence of coal and noncarbohydrate energy consumption on $CO_2$ emissions: Revisiting the environmental Kuznets curve hypothesis for Turkey

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## Abstract

The purpose of this paper is to investigate the dynamic long run relationship between $CO_2$ emissions, economic growth, financial development, trade openness, industrialization, urbanization, coal and noncarbohydrate energy consumption within the framework of environmental Kuznets curve (EKC) for Turkey over the period 1971–2014. The two main contributions of this study are that the EKC hypothesis has been examined by separating trade openness and final energy consumption into import-export and coal-noncarbohydrate energy consumption respectively. The findings of the autoregressive disturbed lag bounds testing approach showed that economic growth, coal consumption, financial development, import, industrialization and urbanization had a positive impact on $CO_2$ emissions, while export and noncarbohydrate energy consumption decreased $CO_2$ emission in the long run. Moreover, the study supported the EKC hypothesis, which suggests an inverted U-shaped relationship between per capita income and $CO_2$ emissions. The turning point obtained from long run regression was found to be approximately $14360 that outside of the sample period. Finally, these important findings indicate that noncarbohydrate energy consumption and export can be a solution to reduce environmental pollution, and Turkey's $CO_2$ emissions will begin to decline when the country reaches the per capita income level at the turning point in the coming years.

**Keywords:** Environmental Kuznets Curve; Coal and noncarbohydrate energy consumption; Industrialization; Urbanization; Trade openness; Financial development.

## 1. Introduction

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