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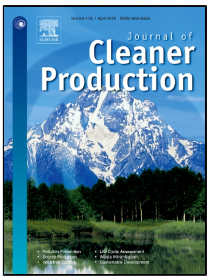

Identifying the impacts of human capital on carbon emissions in Pakistan

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PII:	S0959-6526(18)30312-3
DOI:	10.1016/j.jclepro.2018.02.008
Reference:	JCLP 11955
To appear in:	*Journal of Cleaner Production*
Received Date:	13 October 2016
Revised Date:	28 January 2018
Accepted Date:	02 February 2018

Please cite this article as: Sadia Bano, Yuhuan Zhao, Ashfaq Ahmad, Song Wang, Ya Liu, Identifying the impacts of human capital on carbon emissions in Pakistan, *Journal of Cleaner Production* (2018), doi: 10.1016/j.jclepro.2018.02.008

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Identifying the impacts of human capital on carbon emissions in Pakistan

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Abstract: At present, carbon emissions reduction is a very important challenge all over the world. Improvement of human capital helps to reduce carbon emissions. This paper studies the long- and short-term effects of human capital on carbon emissions in Pakistan from 1971 to 2014. We employ an autoregressive distributed lag model and the vector error correction model to analyze the co-integration and direction of causalities between human capital and carbon emissions, respectively. Results show that a significant long-term relationship exists between human capital and carbon emissions. Improvement of human capital will reduce carbon emissions without decreasing economic growth. Granger causality test results describe the bidirectional causality that exists between human capital and carbon emissions in the long term and no causality in the short term. Human capital and economic growth have feedback effects in the long term and no effect in the short term. The results of this study show that improvement in human capital through education will help carbon emissions reduction in the long term. This study will help policymakers devise a comprehensive strategy to reduce carbon emissions through improvement of human capital.

Keywords: Human capital; Carbon emissions; Energy consumption; Economic growth; Pakistan

1. Introduction

Climate change, resulting from the growing concentration of greenhouse gases (GHGs) in the atmosphere, has been regarded as one of the major issue in the 21st century. Carbon emissions constitute a major part of GHGs; thus, the balance between economic growth and sustainable carbon emissions is a very important challenge worldwide nowadays.

The carbon emissions- economic growth relationship has grabbed the attention of researchers and policy makers to reducing carbon emissions without effecting economic growth. While, carbon-growth nexus are related with energy consumption and economic growth relationship (Mirza and Kanwal, 2017). Many empirical studies show consciences that energy consumption plays an important role in economic growth and increases carbon emissions (Ahmad et al., 2016;

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