

Development of Road Transport Logistic Infrastructure and Air Pollution in the Visegrad Group Countries

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Abstract

Road transport is a dominant branch of transport in majority of European countries, particularly in case of freight. Its common application results from availability of transport infrastructure and lower costs compared to other branches of transport. Unfortunately, road transport poses a serious threat to the natural environment due to emission of air pollution and noise. The research has shown that modern logistic transport infrastructure may significantly decrease the pressure of transport on the environment. For this reason, the goal of this paper is to determine the level of a dynamic impact of transport infrastructure development on emission of pollution into the air, being a by-product of conventional fuels combustion in road transport in the Visegrad Group countries. The Granger causality relationship between road transport energy consumption, length of roads, number of cars and nitrogen oxides (NO_x) emissions derived from road transport activity has been investigated for the Visegrad Group countries in the period of 1991-2015. Moreover, the response of the NO_x emissions to changes in road transport infrastructure and energy consumption have also been examined using the impulse response functions and variance decomposition of prediction error in the framework of the vector autoregression models (VAR) methodology.

Keywords: Road transport, logistic infrastructure, air pollution, VAR, impulse response function