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Carbon Dioxide Emissions and GDP: Bootstrap Panel Granger Causality Analysis on G7 Countries / Karbondiyoksit Emisyonu ve GSYİH: G7 Ülkeleri Üzerine Bootstrap Panel Granger Nedensellik Analizi

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ABSTRACT

This paper investigates the existence of Granger causality between carbon dioxide emissions and GDP in seven major advanced economies called “Group of Seven” (G7) which is a group consisting of the finance ministers and central bank governors of countries. The panel causality testing approach, that is based on SUR systems and Wald tests with country specific bootstrap critical values developed by Kónya (2006), is applied to the panel of G7 countries for the period of 1971- 2012. This approach allows to test for Granger-causality on each panel member by individually taking into account the contemporaneous correlation across countries. In this context, two different variables (GDP and GDP per capita) have been separately used in order to establish links between emissions and economic development level of countries. The results indicate one-way causality from carbon dioxide emissions to GDP in Japan, one-way causality running from GDP to carbon dioxide emissions in UK, USA, Japan, Canada and Germany. Similarly, results of the analysis support one-way causality running from carbon dioxide emissions to GDP per capita in Germany, Japan and USA, one-way causality from GDP per capita to carbon dioxide emissions in all G7 countries except Canada and France.

KEYWORDS Carbon Dioxide Emissions; Panel Granger Causality; G7 Countries

JEL O43, Q56, O50