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## **Energy Efficiency Convergence and Oil Price Volatility: Evidence from the Mediterranean**

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### **Overview**

This paper investigates the effect of oil price volatility on the energy efficiency convergence of 12 Mediterranean Countries<sup>1</sup> with the EU Countries<sup>2</sup>. Building upon and extending the work by Markandya, Pedroso and Streimikiene (2004), we inquire about whether oil exporting countries are converging in terms of their energy intensity levels to oil importing countries in presence of oil price fluctuations.

### **Method**

We test the hypothesis using Panel Data which allows controlling for heterogeneity amongst the data and thus better analyze the dynamics of adjustment. More specifically, our inquiry for convergence focuses on the energy intensity gap between the EU Countries and the Mediterranean Countries. The energy intensity gap is expressed in energy intensity growth rates. We measure the yearly volatility by the annualized standard deviation of daily oil price volatilities which we extracted by the Bloomberg database. Other energy data were derived by the World Bank Database and the International Energy Agency.

### **Results/Conclusions**

The data support the convergence hypothesis, as there is a significant positive effect at a 5% level of the energy intensity gap between the EU Countries and the Mediterranean ones and the energy intensity growth rate. However, oil price volatility is not significant at a 5% level and thus oil price fluctuations do not seem to have any effect on energy efficiency convergence.

### **References**

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<sup>1</sup> Mediterranean Countries: Algeria , Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Spain, Tunisia, Turkey

<sup>2</sup> EU Countries: We take the average of 15 EU Countries and we regard this as a representative of an EU Country. The 15 EU countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and UK.