

## **The J-curve effects and the EU28 bioenergy trade balance: a co-integration approach**

### **ABSTRACT**

This paper investigates the influence of the economic factors on the bilateral balance of trade (TB) of the EU28 zone bio-energy sector outcomes. Concentration is provided to estimate the J-curve hypothesis: whether the bio-energy output trade balance in the European Union region profits from a minimising of the value of the Euro European (EUR). The study applies the panel-data co-integration test method to regress yearly bilateral TB data of the EU28 regions bio-energy sector productions between 1990 and 2013. To test whether the J-curve effect exists, this research analysed the long-run impact of the real exchange rate (ER) on the level of bioenergy output balance of trade using various estimations; Fully Modified Oriented Least Square (FMOLS), Dummy Oriented Least Square (DOLS), and Pooled Mean Group (PMG) models. The results help the experiential effectiveness of the J-curve by applying FMOLS approach, showing that devaluation has developed the TB of bioenergy outputs. FMOLS analysis does figure demonstration related to the long-term evolution of the bioenergy outputs TB proposed by the J-curve effects. Thus, the results show that the EU28 trade balance of bioenergy has showed the validity of the J-curve manner of modification.

**Keyword:** Trade balance; Sustainability; Fully Modified Oriented Least Square (FMOLS); Dummy Oriented Least Square (DOLS); Pooled Mean Group (PMG) models