

# **Is energy market integration a green light for FDI?**

Forthcoming in the Energy Journal

Executive Summary

The European Commission presented in 2015 a new Single Market Strategy aimed to reduce physical, legal and fiscal barriers between Member States. The creation of an internal electricity market is expected to increase competition as a result of major interconnection capacity and hence a reduction of concentration at national and regional levels. The single market strategy was preceded by energy market integration (EMI) in the northern European countries (NordPool) in the late 1990s and in Spain and Portugal (MIBEL) in 2007. Particularly, the MIBEL made a significant contribution towards establishing a south-European electricity market, and was an important step and benchmark towards the Single Market Strategy at the European level.

The expected outcomes of the Nordic and Iberian EMI are related to the energy sector, with a reduction in electricity prices due to greater competition, increase in bilateral electricity trade. The previous literature provides indications of most of these outcomes (e.g., price convergence and stability) for groups of integrated energy markets. However, energy market design and the way in which such markets operate have a direct effect on the cost-driven investment choices made by foreign firms, via energy prices. Thus, we identify additional mechanisms that extend beyond the energy sector and which have an effect on the whole of the economy. This study is, apparently the first to model and evaluate the impact of energy market integration policy outside the energy domain. Particularly, we focus on Foreign Direct Investment (FDI). Therefore, the article contributes to a better understanding of the economic outcomes

and spillovers of energy policy and hints on the expected effects of the EU's Single Market Strategy.

To study these effects, we develop a formal stylized theoretical model and undertake an empirical application on a global dataset including FDI data from 190 countries for the period 2003 to 2012. In short, the model includes energy as a production input in a standard setup of heterogeneous firms. The model derives an empirical gravity equation which incorporates bilateral energy costs with two main predictions: First, that FDI's intensive and extensive margins increase with lower bilateral energy costs. Second, the model points out how two mechanisms (price stabilization and reduction) govern the effect on FDI after joining an EMI.

Gravity estimation results show that the electricity market integration between Portugal and Spain in 2007 increased FDI between them. Our results highlight the prevalence of price stabilization mechanisms over cost reduction. However, the institutional credibility effect of EMI outweighs the cost reduction effects. Our findings seem to suggest that, in addition to the effects of energy market integration traditionally identified by academics and policy makers, electricity market integration facilitates investment flows between the integrated countries. This is of particular relevance when most of the Member States within Europe's internal electricity market have recently started operating under a single price mechanism, as they move closer to achieving the targeted integration.

The policy implications derived from this study stress the importance of considering the broader effects of energy market design. Major public investment plans in energy infrastructure (e.g., the current EU Commission's programme) could be expected to have a wider impact on the Member States' economies than initially estimated.