DECOUPLING AND DECOMPOSITION OF FINAL ENERGY USE IN ARGENTINA

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• Overview:

Energy production and use are important contributions to greenhouse gases. Argentina does not escape that situation. As of 2014, 53% of greenhouse gases´ emissions originate in energy. A way to mitigate emissions is through energy efficiency (EE). There is evidence that the potential of EE to reduce emissions is almost as high as the deployment of renewable (OECD/EIA 2016). There are many articles that measure the contribution of EE as a way to compensate the energy use using decomposition techniques and also several that study decoupling between energy and economic activity, and there are few papers that link both. There is no study of that kind for Argentina. This work attempts to fill that gap.

• Methodology:

Decomposition allows differentiating what part of energy demand originates in economic activity, in energy intensity and in structure changes. This article uses the *Logarithmic Mean Divisia Index* (LDMI), following Ang (2015). Decoupling indexes allow a qualification of decoupling. Among the three well-know indices (see Conte Grand, 2016), this manuscript calculates Tapio (2005) elasticity between energy and economic activity. Decomposition and decoupling formulae are interrelated for the analysis (in line with .

• Expected results:

The results show for that energy intensity has compensated activity expansion for the 2004 y 2017 period, and the result has been a weak decoupling between energy final demand and GDP. That same kind of decoupling has occurred in industry and the agricultural sector (the intensity effect has been relatively lower in the latter). When both sectors are taken together, a reduced structure effect can be observed. Yearly decoupling and decomposition are generally in that same direction, but results also differ for some biannual changes. In general, the findings are in line with the literature.

• Conclusions:

Energy intensity reductions are crucial to be able to increase economic activity and at the same time decrease energy use. More data needs to be developed to perform this type of analysis at a more disaggregated level.

* La parte de descomposición es una actualización de un trabajo previo de la autora para el Ministerio de la Producción, el cual fue presentado en *In-depth Energy End Use Data and Metrics Workshop* en Febrero de 2018 en la Universidad Torcuato Di Tella. La autora agradece los comentarios de Gustavo Ramírez y Magdalena Barafani a versiones previas de este documento, la ayuda de Agustín Shehadi como ayudante de investigación y de Oraimar Socorro de la Biblioteca de UCEMA por la búsqueda de bibliografía.

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