



DECOMPOSITION FACTORS OF ENERGY CONSUMPTION: LMDI INDEX, PANEL VECM AND TIME SERIES VECM

Eka Sudarmaji*

Economics & Business
University of Pancasila
Indonesia
esudarmaji@me.com

*Corresponding Author email: esudarmaji@me.com

Submitted: 24 November 2021

Revised: 29 December 2021

Accepted: 06 January 2022

Peer-review under responsibility of 7th Asia International Conference 2021 (Online) Scientific Committee

<http://connectingasia.org/scientific-committee/>

© 2022 Published by Readers Insight Publisher,

Office # 6, First Floor, A & K Plaza, Near D Watson, F-10 Markaz, Islamabad, Pakistan,

editor@readersinsight.net

This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).



ABSTRACT

This study presented an econometric model applied to commercial, industrial, household, and transport sectors. We layout two main econometric models: individual time series VEC models and panel VEC models for three targeting models, namely Social-aspects, Economic-aspects, and Technical-aspects. The robustness of the measurement model through Innovation Accounting Approach (IAA), Granger Causality, Long-run, and Short-run Co-integration during 1971-2017 was assessed. On the panel VECM, we identified the positive sign in speed-of-adjustment for the social and economic aspects. Only the technical aspects had a negative sign speed-of-adjustment and significant at 5%. The positive sign showed that the social-aspects and technical-aspects process were not converging in the long run after an experience shocks. Under Time Series VECM, we identified that the models were more stable for all individual sectors than Panel VECM Model. The equation parameters were considered stable since the sum of recursive errors gets inside the two critical lines. Based on LMDI, we found that economic factors were the most significant factors that aggravate the change in energy consumption for the four sectors. On the other hand, technical aspects were the lowest. We saw that the government could impede its energy use over the period by improving the technical aspect. Energy efficiency has been the cornerstone in controlling the rising energy used. Energy efficiency has been the cornerstone in controlling the rising energy used. In the last decade, the negative social aspects in household and industrial sectors signified the decreasing significance of less labor force.

Keywords: *Energy Consumption; Energy Intensity; Four Sectors; LMDI Index; VECM*