ABSTRACT

This study analyzes the effect of the intensity of energy use on firm-level technical efficiency in the medium - large Indonesian manufacturing industry over the period 2010-2014. The method used is Stochastic Frontier Analysis (SFA) with a transcendental logarithmic (translog) production function model. Estimates are carried out at the company level with a data panel balance model. The total number of observations is 44,150, with a sample of 8,902 firms within a period of five years. This study also includes two control variables, namely company size and dummy ownership structure of the company. The results shows that the average level of firm-level technical efficiency in medium-large Indoensian manufacturing industries is 0.854. The estimation of the SFA model shows that the intensity of energy use has a positive effect on the technical inefficiency of manufacturing industry firms. The greater the level of energy intensity used, the greater the technical inefficiency of the firm or it can be said that the energy efficiency is getting lower. Firm size also positively influences the technical inefficiency of the firms. Firms with a larger size tend to have a high level of technical inefficiency (low technical efficiency). Dummy variable of the firm ownership structure negatively influences of the firm technical inefficiency. This means that theres is a difference in the technical efficiency based on the structure of firm ownership. In this case foreign firms are more efficient than domestic firms.

Keywords : technical efficiency, energy intensity, manufacturing industries, stochastic frontier analysis