



# The relationship between technical efficiency and industrial concentration: Evidence from the Indonesian food and beverages industry

Maman Setiawan <sup>a,b,\*</sup>, Grigorios Emvalomatis <sup>c</sup>, Alfons Oude Lansink <sup>c</sup>

<sup>a</sup> Business Economics, Wageningen University, Hollandseweg 1 6706 KN, Wageningen, The Netherlands

<sup>b</sup> Faculty of Economics, University of Padjadjaran, Jl. Dipati Ukur 35 Bandung 40132, Jawa Barat, Indonesia

<sup>c</sup> Business Economics, Wageningen University, Hollandseweg 1 6706 KN, Wageningen, The Netherlands

## ARTICLE INFO

### Article history:

Received 20 December 2010

Received in revised form 15 August 2011

Accepted 4 January 2012

Available online 14 January 2012

### JEL classification:

L10

L11

L13

L66

C33

### Keywords:

Technical efficiency

Industrial concentration

Quiet-life hypothesis

Efficient-structure hypothesis

Data envelopment analysis (DEA)

## ABSTRACT

This paper investigates the relationship between technical efficiency and industrial concentration in the Indonesian food and beverages sector. Firm-level data obtained from the Indonesian Bureau of Central Statistics (BPS) are used to estimate technical efficiency scores and calculate measures of industrial concentration. The results show that the food and beverages industry is characterized by high industrial concentration and firms in the industry are inefficient. The Granger-causality test suggests a one-way direction of causality, with industrial concentration having a negative impact on technical efficiency, at the sector level. This suggests that the quiet-life hypothesis, rather than the efficient-structure hypothesis, applies to the Indonesian food and beverages industry.

© 2012 Elsevier Inc. All rights reserved.

## 1. Introduction

The food and beverages sector is one of the economic sectors that contributes significantly to the Indonesian GDP and employment absorption. Since 2004, the output of this sector accounted for about 7% of the Indonesian GDP and about 23% of the total industrial manufacturing output. Additionally, the food and beverages sector absorbed about 23% of total employment in the Indonesian manufacturing industry in 2006. However, as shown by Setiawan, Emvalomatis, and Oude Lansink (2012), this sector is characterized by a tight oligopoly structure, with the concentration ratio for four firms (CR4) being about 66%, and has experienced high price-cost margins in the period 1995–2006. Given the importance of the food and beverages industry in the Indonesian economy, efficient transformation of inputs into outputs is necessary to ensure a competitive price and product quality for the consumers.

\* Corresponding author at: Business Economics, Wageningen University, Hollandseweg 1 6706 KN, Wageningen, The Netherlands. Tel.: +31 616051956; fax: +31 317483583.

E-mail address: [maman.setiawan@wur.nl](mailto:maman.setiawan@wur.nl) (M. Setiawan).