UNIVERSITI PUTRA MALAYSIA

EVALUATION OF COMPETITIVENESS OF THE INDONESIAN FOOD MANUFACTURING INDUSTRY

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By

AZHARUDDIN MOHAMMAD AMIN

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirement for the Degree of Doctor of Philosophy

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DEDICATED TO

All Muknin in the World,
If You Are Helpfull in the Path of Allah, He Will Definitely Help You in Return
(QS 47:7)

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

EVALUATION OF COMPETITIVENESS OF THE INDONESIAN FOOD MANUFACTURING INDUSTRY

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August 2007

Chairman : Associate Professor Zainal Abidin Mohamed, PhD

Faculty : Agriculture

The development of the Indonesian food manufacturing industry has experienced a rapid growth. Its performance is very encouraging primarily in the aspects of the structural deepening, the diversification and the market orientation. However, the industry has faced an inefficient use of productive resources accumulation, low efficiency and productivity growth as well as small share in the international market. The objective of this study is to evaluate the competitiveness of the Indonesian food manufacturing industry. At the production level, the social profitability indicators such as the Domestic Resource Cost (DRC), the Net Social Profit (NSP) and the Social Cost Benefit (SCB) were applied to estimate the comparative advantage. In measuring efficiency and Total Factor Productivity (TFP) growth, the Data Envelopment Analysis (DEA) and the Malmquist index were used. To assess a market share, the Revealed Comparative Advantage (RCA) and the Relative Trade Advantage (RTA) indicators were employed. The secondary data of inputs-output and trade data in the form of pooled data were collected. The study focused on three different industrial trade policy regimes (imports substitution, exports oriented and

emerging and supporting industries). There are 54 sub sectors involved in the comparative advantage analysis, 55 and 42 sub sectors in the efficiency and productivity growth analyses for the total and medium scales and the large scale industries respectively, and 55 sub sectors in the market share analysis. All data are in the form of an international standard industrial classification (ISIC) code at 5 digits. The period of study covered was from 1996 to 2002. Then it was grouped into two sub periods i.e. two years before the economic crisis (1996/1997) and five years after the economic crisis (1998/2002).

The result shows that the Indonesian food manufacturing industry has a comparative advantage and is economically efficient in resource allocation, particularly for the import substitution and export oriented industries. However, under the emerging and supporting industry, only the malt liquors and malt sub sector had a comparative disadvantage. In the period of 1996/1997, 14 of the 54 sub sectors had a comparative disadvantage but the situation improved in the period of 1998/2002 where only three sub sectors were comparatively disadvantageous. It suggests that the industry in the subsequent period was economically efficient in the production process and had a declining trend in their production costs. The result of the sensitivity analysis shows that the import substitution industry was very sensitive to the increase in the production costs. Meanwhile, the export oriented and the emerging and supporting industries were sensitive to the decrease in the output border price and the shadow exchange rate appreciation respectively.

The most efficient industry was found to be the copra sub sector for the total industry, while for the large and the medium scales, the sub sectors of cooking oil

made from palm oil, peeling and cleaning roots and copra were fully efficient. It seems that the import substitution and large scale industries were more efficient throughout the period of analysis. The total industry had positive 9.00 percent of the average annual mean TFP growth rate. For large and medium scale industries, 25 and 15 percent TFP growth rates were respectively achieved. The copra sub sector had the highest positive TFP growth. Overall, the large scale industry performed better than did the medium and total scale industries in TFP growth.

The technological change has been the main driving force of TFP growth for all industrial categories. The large scale industry in the period of 1997/1988 was successful in achieving technological mastery. The technological mastery for the total industry was generated from the sub sectors of copra and cooking oil made of coconut oil. In the large scale industry it was contributed by the sub sectors of granular sugar and processing and preserving of fruits and vegetables. In the medium scale industry, it was contributed by the sub sectors of wheat flour, tapioca, granular sugar, sago, bakery products, frozen fish and other similar products, crude palm or vegetable and animal cooking oil, cooking oil made of coconut oil and brown sugar.

In market share estimation, under the import substitution industry, all sub sectors had a comparative disadvantage. Under the exports oriented industry, it seems that many food sub sectors were very competitive. However, most of them were intermediate products. Lastly, the sub sectors under the emerging and supporting industry show a decline in their RCA indices in the subsequent period.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

PENILAIAN DAYASAING INDUSTRI PEMBUATAN MAKANAN INDONESIA

Oleh

AZHARUDDIN MOHAMMAD AMIN

Ogos 2007

Pengerusi : Profesor Madya Zainal Abidin Mohamed, PhD

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Pembangunan industri pembuatan makanan Indonesia mengalami perkembangan pertumbuhan yang pesat. Walaubagaimanpun perkembangan tersebut menghadapi berbagai masalah dalam penggunan sumber-sumber produktif, seperti rendahnya kecekapan ekonomi, tingkat kecekapan teknikal dan produktiviti serta kecilnya pemanfaatn pasaran antarabangsa. Kajian ini bertujuan untuk menilai dayasaing industri pembuatan makanan Indonesia. Pada aras pengeluaran, keuntungan secara ekonomi dianalsis dengan menggunakan nisbah sumber kos domestik (DRC), keuntungan sosial bersih (NSP) dan kos faedah sosial (SCB) bagi menguji keuntungan faedah berbilang. Analisis kecekapan, pertumbuhan total faktor produktiviti menggunakan kaedah data envelopment analsis (DEA), Malmquist produktiviti index (MPI). Analisis bahagian pasaran pula menggunakan faedah berbilang terungkap (RCA) dan faedah perdangangn relatif (RTA).

Data yang digunakan meliputi data sekunder input-output dan data perdagangan dalam bentuk data pooled. Jumlah industri yang dikaji dalam analsis faedah berbilang yaitu 54 sub sektor. Analisis kecekapan dan produktiviti pula dibahagikan

55 sub sektor untuk industri skel keseluruhan dan menengah, manakala industri skel besar 42 sub sektor. Analisis penguasaan pasaran melibatkan 55 sub sektor. Keseluruhan analisis menggunakan ukuran ISIC kod 5-digits. Kajian bermula dari tahun 1996 hingga 2002, yang dibahagikan kepada sebelum krisis ekonomi (1996/1997) dan selepas krisis ekonomi (1998/2002).

Hasil kajian mendapati bahawa industri pembuatan makanan Indonesia mempunyai faedah berbilang dan cekap secara ekonomi. Utamanya pada industri penggantian import dan industri berkenaan barangan eksport. Namun pada kumpulan industri sokongan dan terbitan terdapat sub sektor yang tidak mempunyai faedah berbilang. Pada tahun 1998/2002, hanya tiga industri tidak mempunyai faedah berbilang berbanding 14 industri pada tahun 1996/1997. Ini menggambarkan bahawa semua kumpulan industri selepas krisis ekonomi adalah lebih cekap berbanding sebelum krisis ekonomi dan juga didapati kecenderungan kemerosotan dalam kos pengeluaran dan adanya peningkatan aliran dayasaing dan tahapan faedah berbilang. Sementara hasil analisis kepekaan mendapati bahawa kenaikan kos pengeluaran sangat peka terhadap pembuatan barangan makanan pada kumpulan industri penggantian import, manakala pada industri makanan berkenaan barangan eksport, industri sokongan dan terbitan sangat peka terhadap penurunan harga output antarabangsa dan kenaikan kadar pertukaran bayangan.

Kecekapan teknikal, mendapati industri skel besar lebih cekap berbanding skel menengah secara teknikal. Industri kopra adalah yang paling cekap secara teknikal dalam industri keseluruhan. Manakala pada kumpulan industri skel besar dan menengah, sub sektor yang paling cekap secara teknikal adalah industri minyak masak dari sawit, mengupas dan membersihkan akar dan kopra. Kumpulan industri

makanan penggantian import dan industri skel besar adalah industri yang paling cekap secara teknikal selama masa kajian.

Purata pertumbuhan TFP pada industri keseluruhan adalah 9 persen setiap tahun, dan masing-masing 25 dan 15 persen pada industri skel besar dan menengah. Pada industri keseluruhan, kopra adalah sub sektor yang mempunyai purata pertumbuhan tahunan TFP paling tinggi. Pada kumpulan industri besar dan menengah pula disumbang oleh sub sektor industri makanan tepung gandum dan memproses dan kesediaan produk ikan. Perubahan teknologi merupakan punca kepada pertumbuhan TFP di semua skel industri. Pada tahun 1997/1988, tahapan penguasaan teknologi telah wujud pada industri skel besar. Penguasaan teknologi disumbang oleh industri kopra dan minyak masak dari kelapa pada industri keseluruhan. Pada kumpulan industri skel besar pula disumbang oleh industri pembuatan gula putih, dan memproses dan kesediaan sayur dan buah. Manakala dalam skel menengah disumbang oleh indutri gula putih, tepung gandum, tepung ubi, sagu, roti dan biskut, ikan segar dingin, sayuran dan minyak masak kasar haiwan, minyak masak kelapa dan gula merah.

Analisis penguasaan pasar pula mendapati bahawa pada kumpulan industri penggantian import tidak mempunyai faedah berbilang. Sedangkan dalam industri makanan berkenaan barangan eksport, banyak industri makanan yang mempunyai faedah berbilang merupakan produk barangan pertengahan. Tetapi pada barangan makanan produk akhir didapati tidak mempunyai faedah berbilang utamanya yang terdapat pada kumpulan industri sokongan and terbitan. Kebanyakan industri makanan pada kumpulan industri sokongan and terbitan mempunyai indek RCA yang merosot pada masa tahun 1998/2002 selepas krisis ekonomi.

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I certify that an Examination Committee has met on 3 August 2007 to conduct the final examination of Azharuddin Mohammad Amin on his Doctor of Philosophy thesis entitled "Evaluation of Competitiveness of the Indonesian Food Manufacturing Industry" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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This thesis submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee are as follows:

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DECLARATION

I declare that the thesis is my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously and is not concurrently submitted for any other degree at UPM or at any other institution.

AZHARUDDIN MOHAMMAD AMIN

Date: 3 August 2007

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ACOP	Annual Census of Production
ADB	Asian Development Bank
AE	Allocative Efficiency
AFTA	Asian Free Trade Area
APEC	Asia Pacific Economic Cooperation
APs	Accounting Prices
ASEAN	Association of South East Asian Nations
BAPPENAS	Board of National Planning and Development
BCC	Banker Charnes Cooper
BKPM	Coordination of Investment and Promotion Board
CASER	The Center for Agro-Socio Economic Research
BPS	Central Board of Statistics
CCR	Cooper Charnes and Roodes
CEECs	Central and East European Countries
CF	Conversion Factor
CIF	Cost Insurance and Freight
CIMMYT	International Maize and Wheat Improvement Center
COMTRADE	Commodity Trade Statistics
CPO	Crude Palm Oil
CR4	Concentration Ratio
CRS	Constant Return to Scale
DAI	Department of Agriculture Indonesia
DEA	Data Envelopment Analysis
DEPKOP	Department of Cooperative

DEPRINDAG	Department of Industry and Trade
DMU	Decision Making Unit
DRC	Domestic Resource Cost
DSI	Dienste von System Integrationen
EE	Economic Efficiency
EFFCH	Technical Efficiency Change
EPC	Effective Protection Coefficient
ESI	Emerging and Supporting Industry
EU	European Union
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FOB	Free on Board
FYDP	Five Year Development Plan
GBHN	State Guidelines for National Development
GDP	Gross Domestic Products
GNP	Gross National Products
GOV	Gross Output Value
HHI	Hirschmann-Herfindahl Index
HRD	Human Resource Development
IFPRI	International Food Policy Research Institute
IMD	The International for Management Development
ISI	Import Substitution Industry
ISIC	International Standard Industrial Classification
LDCs	Least Development Countries