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PRODUCTIVITY PERFORMANCE OF WOOD SAWMILL INDUSTRY BASED ON VALUE-ADDED OUTPUT IN PENINSULAR MALAYSIA

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By

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PRODUCTIVITY PERFORMANCE OF WOOD SAWMILL INDUSTRY BASED ON VALUE-ADDED OUTPUT IN PENINSULAR MALAYSIA

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Chairman: Associate Professor H'ng Paik San, PhD
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Wood sawmill industry is the basic link between the raw materials and the end-users of the sawn timber products in Peninsular Malaysia. The efficiency of the wood sawmill industry is crucial to the development of the wood based industries in Malaysia with the export earnings of RM22.1 billion in 2016. Value added manufacturing activities in the wood sawmill industry of Peninsular Malaysia is important to provide employment opportunities, particularly among the low income population living in the rural areas, and to provide returns to the local economy while being environmentally sustainable. This study is a review on the value-added wood sawmill industry in Peninsular Malaysia, based on the estimates of the value of logs and sawn timber in Peninsular Malaysia over the period of 2003 – 2015. The productivity performance measures based on the concept of value added are emphasized in this study. The value added in the wood sawmill industry achieved negative value between 2003 – 2006 and subsequently increased to achieve positive value by year 2007 onwards.

This study utilises linear regression to analyze the direction of the long term trend of the value added in the wood sawmill industry in Peninsular Malaysia from 2003 to 2015. A further analysis using the value added productivity measures found that the amount of value added had a significant link to the sawn timber price rather than the number of workers. Based on the findings, Malaysia is paving the right direction to achieve the goal of National Timber Policy 2020 by transforming the timber industry into a high value-added industry.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

PRESTASI PRODUKTIVITI INDUSTRI KILANG PAPAN KAYU BERDASARKAN OUTPUT BERNILAI TAMBAH DI SEMENANJUNG MALAYSIA

Oleh

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Industri pengilangan kayu di Semenanjung Malaysia adalah hubungan asas antara bahan mentah dengan pengguna produk kayu gergaji. Kecekapan industri pengilangan kayu adalah penting untuk pembangunan industri berasaskan kayu di Malaysia. Aktiviti pembuatan nilai tambah dalam industri pengilangan kayu di Semenanjung Malaysia adalah penting untuk peluang pekerjaan, terutamanya bagi penduduk berpendapatan rendah yang tinggal di kawasan luar bandar, memberi pulangan kepada ekonomi tempatan sementara menjaga alam sekitar yang mampan. Kertas kajian ini mengkaji industri kilang papan bernilai tambah di Semenanjung Malaysia, berdasarkan anggaran nilai kayu balak dan kayu gergaji di Semenanjung Malaysia sepanjang tempoh 2003 - 2015. Langkah-langkah prestasi produktiviti yang berasaskan konsep nilai tambah ditekankan dalam kajianini. Nilai tambah dalam industri kilang kayu papan mencapai nilai negatif di antara tahun 2003-2006 dan seterusnya meningkat kepada nilai positif dari tahun 2007.

Kajian ini menggunakan regresi linier untuk menganalisis arah trend jangka panjang dalam nilai tambah kilang papan di Semenanjung Malaysia dari tahun 2003 hingga 2015. Walau bagaimanapun, analisis lanjut menggunakan ukuran produktiviti nilai tambah mendapati bahawa penambahan nilai ini mempunyai hubungan yang signifikan kepada harga pasaran kayu gergaji berbanding dengan guna tenaga pekerja.
Berdasarkan penemuan ini, Malaysia bergerak ke landasan yang betul untuk mencapai matlamat Dasar Perkayuan Negara 2020, mengubah industri perkayuan menjadi industri penambahan nilai tinggi.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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AAC	Annual allowance cutting
ASEAN	Association of Southeast Asian Nations
Bbf	Billion board feet
BJC	Builders Joinery and Carpentry
BS	British Standard
CIDB	Construction Industry Development Board
DOSM	Department of Statistics, Malaysia
EN	European Standard
EU	European Union
EU-28	European Union 28 member states
EUTR	European Union Trade Regulations
FAO	Food and Agriculture Organization of the United Nations
Ft^3	Cubic Feet
GDP	Gross Domestic Products
Ha	Hectares
IHPA	International Hardwood Products Association
ILO	International Labour Organization
ITTO	International Tropical Timber Organization
JAS	Japan Agriculture Standard
JIS	Japan Industrial Standards
M^3	Cubic meters
MC&I	Malaysian Criteria and Indicators
MDF	Medium Density Fiberboard
MITI	Ministry of International Trade and Industry
Mmfbm	Million feet board
MTC	Malaysian Timber Council
MTIB	Malaysian Timber Industry Board
NATIP	National Timber Industry Policy
NFP	National Forest Policy
OSB	Oriented Strand Board
PRF	Permanent Reserved Forests (PRF)
RIL	Reduced Impact Logging
SFM	Sustainable Forest Management
SME	Small and Medium Enterprises
SMS	Selective Management System
TLAS	Timber Legality Assurance System
UAE	United Arab Emirates
USCB	United States Census Bureau
USDA	United States Department of Agriculture
USDC	United States Department of Commerce
USFS	United States Forest Service
VA	Value Added
VPA	Voluntary Partnership Agreement
WWF	Worldwide Fund for Nature

CHAPTER 1

INTRODUCTION

1.1 Background

Since the 1990s, the forest industry in the world has been confronted with major issues, which develop over the years. The global forest industry, which harvests 1.6 billion m^3 of logs per annum, is inseparably linked to the destruction of forest ecosystem, and becomes one of the factors that cause global warming (WWF, 2016). Nonetheless, timber has been the primary material used in the economic development of countries that are rich in forest coverage.

The forest industry in particular, the wood based sector particularly the wood based sector is a major contributor to the Malaysian economy under the 1st Industrial Master Plan (IMP 1986-1995), the strategy proposed for the wood based sector is to achieve a comparative advantage in the world's market for the timber products, by fully utilizing the forest resources and rationalizing the sawmill through the manufacture of down-stream products such as moulding and furniture. The success of the 1stIMP leads to the formulation of the 2nd IMP in 1996 and the 3rd IMP in 2006.

The majority of the 6,000 manufacturing establishments of the wood based sector in Malaysia are classified as SME (Small or Medium Enterprises), and the industry is known as one of the largest socioeconomic sectors. Being one of the leading tropical timber producers, the sector employed 217,000 workers (MPIC expects bright prospects, 2014).

In 2015, the wood based sector contributes 3.4% of the total Gross Domestic Product (GDP), and 4.3% of the total merchandise valued at RM779.9 billion (Central Intelligence Agency, 2017). The export earnings of Malaysian wood based sector valued at RM22.11 billion in 2016, a drop of 0.2% compared to 2015. The major contributors of the export earnings were furniture valued at RM7.8 billion, plywood valued at RM4.4 billion, sawn timber valued at RM3.4 billion, logs valued at RM1.6 billion, fiberboard valued at RM1.2 billion and builders' joinery and carpentry valued at RM1.2 billion. (Amarthalingam, 2017).

1.2 Statement of Problem and Justification

The Malaysian National Timber Industry Policy (NATIP) launched in 2009 with the intention to provide strategic thrusts and policy directions to address challenges faced by the Malaysian timber industry, and to achieve RM53 billions of export earnings by 2020.

Despite the opportunities offered by the Government to motivate the wood based sector to enhance their productivity, the response was not very encouraging. Both Ratnasingam (2002) and Ng and Thiruchelvam (2011) concurred that the poor response was due to the low level of technology presently used by the majority of the companies, and the unsustainable supply of timber. More than 60% of the machineries used are sourced from Taiwan due to competitive pricing, while some of the modernized machines are sourced from Italy and Germany (Ratnasingam, 2005). The local machine fabricators in Malaysia do produce locally modified machines such as presses, portable saws, and bench drills for the domestic market.

Although there is an apparent lack of technology improvement in domestic manufacturing capacity, the wood sawmill industry remains a high value-added manufacturing industry in Malaysia. According to Baltrusaitis (2008), the value added in the sawmilling process could be improved if the recovery rate of logs increases through the utilization of frame gang saws or smaller kerf as part of the technology advancement.

Value added is described as the difference between the selling price and the production cost of an output without subtracting the amount for asset depreciation, and the depletion and degradation of natural resources (Berg, 1976). It is a business perception that due to higher revenue in the manufacturing sector, the sector would have better value added in comparison to the retail or service sector.

So far, the wood sawmill industry is victimized by the misperception that the industry is a sunset industry. In addition, the progress of the sawmill industry has been undermined by misguided policies that jeopardize the efforts of the industry to transform in the future. The sawmill industry needs to overcome several challenges, which include the need to address issues pertaining to the supply of raw materials and skilled manpower, the adoption of advanced technologies, the emphasis on research and development (R&D),and the increasing demand for legal and sustainable timber in the world's market (MPIC and MTIB, 2009).

However, in reality, the wood sawmill industry needs to be further encouraged to develop with appropriate technologies to adapt to the local conditions, and to improve the efficiency, productivity, competitiveness and value added. It is therefore necessary to re-evaluate the current structure of sawmills, in line with the targets set by the IMP 3 which focuses on higher value-added downstream activities.

The productivity performance of wood sawmill industry is emphasized in this study and the calculation of the productivity performance is based on the concept of value added.

This study provides important data on the value added to the wood sawmill industry in Peninsular Malaysia. It also reveals how job employments over the period of 2003 to 2015 affected the productivity performance.

The scope of this study is limited to the wood sawmill industry in Peninsular Malaysia. The states of Sabah and Sarawak were not included in this study since the two states are regulated by their own respective forestry policies.

The ratio based on value-added performance measurement developed in this study can be utilized as a benchmarking of the wood sawmill industry in Malaysia for future development or feasibility study.

1.3 Objective

The objective of this study is to evaluate the productivity performance of the Peninsular Malaysian wood sawmill industry utilizing sawn timber as value-added output in productivity measurement.

The specific objectives of this study are:

1. To calculate the value added of the wood sawmill industry in Peninsular Malaysia using subtraction method and linear regression.

2. To calculate the labor productivity of the wood sawmill industry in Peninsular Malaysia.

1.4 Research boundaries

1. Due to time limitation, this study only included wood sawmill industry, and did not take into account of other categories of wood based sectors such as furniture and plywood industries.

2. This study focused on the productivity performance based on value added without including other productivity factors and financial productivity.

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