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ECONOMIC IMPACT OF SUSTAINABLE FOREST MANAGEMENT PRACTICES ON THE MALAYSIAN TIMBER MARKET

ABDUL RAHIM ABDUL SAMAD

FEP 2011 3

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DOCTOR OF PHILOSOPHY
UNIVERSITI PUTRA MALAYSIA

2011

DEDICATION

This thesis is dedicated to my wife, parents, parents in law and all my siblings in law. Without their patience, understanding, support and most of all love, the completion of this thesis would not have been possible.

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

ECONOMIC IMPACT OF SUSTAINABLE FOREST MANAGEMENT PRACTICES ON THE MALAYSIAN TIMBER MARKET

By

ABDUL RAHIM ABDUL SAMAD

February 2011

Chair: Professor Mohd Shahwahid Hj. Othman, PhD

Faculty: Economics and Management

Malaysia is one of the major producing countries in global timber market. At the same time, issues relating to forests such as climate change, global warming and forest management has continued to be the Malaysian Government's main concern. Thus, the Malaysian Government has given its priority towards Sustainable Forest Management (SFM). It is noted that Reduced Impact Logging (RIL) option is widely known as a tool to achieve SFM.

Recognising the need to strengthened the SFM, Malaysia has undertaken a critical step to reduce the annual coupe or Annual Allowable Cutting (AAC) in the country and imposed stringent criteria on harvesting operations. This step was taken to ensure the sustainable capacity of the forests and to ensure the reduction or internalisation of externalities by minimising damage from timber harvesting activities. Hence, this policy implementation has affected the volume of timber that can be extracted from the forests. It is noted that, welfare economic impacts of stakeholders in timber industry will be affected as well. This is because their interests normally require trade-offs from the environmental and natural resource concerns. Furthermore, the interests of difference stakeholders were rarely fully mutually reinforcing.

Thus, the impact analysis of SFM practices on Malaysian timber market is needed. The purpose of this study is not only to carry out a timber market analysis but also to flag several scenarios

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that potentially arise due to SFM practices (i.e. reduction in harvested area, incremental cost of internalisation the externalities, external cost of timber harvesting operations and market access). These scenarios were incorporated into the timber market model as a platform for discussion about the possible need to revise the domestic and international supply-demand of timber as well as the welfare economic impacts of timber industry. As Malaysia have three main Forestry Department (i.e. Forestry Department of Peninsular Malaysia, Forestry Department of Sabah and Forestry Department of Sarawak), this study analysed the impact of SFM on timber market based on these three regions in Malaysia.

The data related to the timber market model are annual time series basis from 1970 to 2008. A partial equilibrium model was applied in this study covering supply of timber, domestic demand of timber and export demand of timber. This study employed a system of equations technique to estimate the Malaysian three regions timber market model and to determine the timber market, followed by analising the market and welfare economic impacts which incorporates several scenarios under SFM practices into the model.

Based on the estimated results from the timber market analysis, price of timber, harvested area and input cost are parameters that significantly determine the well-being of domestic timber market. The partial equilibrium model analysis shows that under the SFM practices scenarios (i.e. reduction in harvested area, incremental cost of internalisation the externalities and external cost of timber harvesting operations), the equilibrium quantity of timber and the price level decreased and increased respectively. In addition, the welfare economic impacts analysis provides an empirical evidence that there is a loss in economic welfare on the Malaysian timber industry resulting from the SFM practices. However, under the scenarios of market access, the result shows that there is a gain in economic welfare on Malaysian timber industry.

Hence, this study could identify the optimum level of quantity and price of timber by incorporating several scenarios under SFM practices into the timber market model. The results show that although timber producers would suffer a reduction in economic welfare from SFM/RIL practices, several advantages (i.e. prices premium and market access) could potentially offset their losses. In addition, proactive strategies and policies from the government for

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upstream activities in timber sector could lessen their losses in compliance with SFM practices. Although most of scenarios under SFM practices will slump the economic welfare on Malaysian timber industry, it has enhanced the forest conservation goal of the country.

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Abstrak thesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk Ijazah Doktor Falsafah

KESAN EKONOMI BAGI PENGURUSAN HUTAN SECARA MAPAN TERHADAP PASARAN KAYU BALAK MALAYSIA

Oleh

ABDUL RAHIM ABDUL SAMAD

Pengerusi: Profesor Mohd Shahwahid Hj. Othman, PhD

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Malaysia merupakan salah sebuah negara pengeluar kayu balak yang terbesar dalam pasaran kayu balak dunia. Dalam masa yang sama, isu-isu yang berkaitan dengan perhutanan seperti perubahan cuaca, pemanasan global and pengurusan hutan tetap dititikberatkan oleh Kerajaan Malaysia. Oleh itu, Kerajaan Malaysia telah memberi keutamaan kepada pengurusan hutan secara mampan (SFM). Ianya sudah sedia maklum bahawa cara pembalakan yang kurang kesannya kepada alam sekitar (RIL) adalah cara yang akan membantu untuk mencapai SFM.

Dalam memperkukuhkan keperluan untuk mencapai SFM, Malaysia telah mengambil langkah-langkah yang sewajarnya dengan mengurangkan kadar tahunan boleh tebangan (AAC) dan mengenakan syarat-syarat yang ketat untuk operasi tebangan kayu. Langkah ini untuk memastikan hutan berada dalam kapasiti yang mapan dan pengurangan atau mengambil kira tentang ekternaliti iaitu dengan meminimumkan tahap kerosakan selepas aktiviti tebangan kayu. Oleh itu, perlaksanaan polisi ini telah membawa kesan kepada jumlah kayu balak yang boleh di tebang dari hutan. Ianya sudah sedia maklum bahawa polisi ini akan memberi kesan ekonomi kepada mereka yang berada di dalam industri kayu balak. Ini kerana meraka perlu keutamaan dari segi alam sekitar dan sumber semulajadi berbanding tebangan kayu.

Oleh sebab itu, analisa kesan dari perlaksanaan SFM terhadap pasaran kayu balak amatlah diperlukan. Kajian ini bukan sahaja bertujuan untuk menganalisa pasaran kayu balak semata-mata, tetapi untuk memasukkan juga beberapa scenario yang dikatakan akan berlaku hasil

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daripada perlaksaan SFM (seperti: pengurangan kawasan tebangan, peningkatan kos setelah mengambil kira kesan ekternaliti, kos luaran untuk operasi tebangan kayu balak dan peluang pasaran). Beberapa scenario ini akan di analisa di dalam model pasaran kayu balak sebagai landasan perbincangan tentang pasara kayu balak dan kesan ekonomi bagi industri ini. Di Malaysia, terdapat tiga Jabatan Perhutanan yang utama iaitu Jabatan Perhutanan Semenanjung Malaysia, Jabatan Perhutanan Sabah dan Jabatan Perhutanan Sarawak, maka dengan itu, kajian ini juga terbahagi kepada tiga wilayah utama di Malaysia ini.

Data-data berkaitan dengan model pasaran kayu balak ini adalah berbentuk siri masa tahunan yakni dari tahun 1970 sehingga 2008. Model keseimbangan separa telah digunakan dalam kajian ini dan ia merangkumi model penawaran kayu balak, permintaan domestik kayu balak dan permintaan eksport kayu balak. Kajian ini menggunakan teknik sistem persamaan untuk menganggarkan dan menentukan model pasaran kayu balak di tiga wilayah utama di Malaysia. Ia diikuti juga dengan menganalisa kesan kepada model pasaran dan ekonomi dengan mengambil kira beberapa scenario di dalam perlaksanaan SFM.

Berdasarkan keputusan yang dianggarkan daripada analisa pasaran kayu balak, harga kayu balak, kawasan tebangan dan kos input adalah parameter yang signifikan menentukan keupayaan pasaran domestik kayu balak. Analisa model separa keseimbangan menunjukkan kesan daripada beberapa scenario dalam perlaksanaan SFM (seperti; pengurangan kawasan tebangan, peningkatan kos setelah mengambil kira kesan ekternaliti dan kos luaran untuk operasi tebangan kayu balak), keseimbangan kuantiti kayu balak akan jatuh manakala harga kayu balak pula akan meningkat. Seterusnya, bagi analisa kesan ekonomi, ia menunjukkan bukti empirikal bahawasanya industri kayu balak Malaysia mengalami masalah kerugian hasil dari perlaksaan SFM. Walaupun begitu, bagi scenario peluang pasaran, keputusan bagi analisa kesan ekonomi menunjukkan industi kayu balak Malaysia akan memperolehi keuntungan.

Oleh itu, kajian ini dapat mengenalpasti kuantiti dan harga kayu balak yang optimum dengan mengambil kira tentang beberapa scenario perlaksanaan SFM ke dalam model pasaran kayu balak. Keputusan analisa menunjukkan walaupun pengeluar kayu balak akan mengalami masalah pada kesan ekonomi apabila SFM dilaksanakan, tetapi beberapa kelebihan seperti harga premium

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dan peluang pasaran akan berpotensi untuk mengimbangi kerugian mereka. Tambahan pula, beberapa strategi dan polisi dari kerajaan untuk aktiviti-aktiviti huluan di hutan akan mengurangkan kesan kerugian mereka dalam perlaksanaan SFM. Walaupun kebanyakkan scenario dalam perlaksanaan SFM akan membawa kesan ekonomi yang tidak baik pada industi kayu balak Malaysia, namun ia telah menyokong matlamat Malaysia iaitu memelihara hutan daripada kemusnahan.

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ACKOWLEDGEMENTS

I am heartily thankful to my supervisor, Professor Dr. Mohd Shahwahid Hj. Othman whose expertise, encouragement, suggestion, guidance, support and careful reading of the thesis from the initial to the final level enabled me to develop an understanding of the research.

I would like to thank the other members of my committee, Professor Dr. Mad Nasir Samsudin and Associate Professor Dr. Awang Noor Abdul Ghani for their many valuable criticisms, suggestions and advices. Many thanks are due also to the all staff of the Faculty of Economics and Management whose warm hospitality, understanding and support enable me to do my thesis,

Finally, my special and deepest thanks and love go to my wife, Zariyawati Mohd Ashhari, for her affection, sacrifice, patience, support and encouragement. My parents, parents in law and all my siblings in law in their own ways have continuously provided me with love and inspiration. I really love them all.

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I certify that Thesis Examination Committee has met on 24 February 2011 to conduct the final examination of Abdul Rahim Abdul Samad on his thesis entitled "Economic Impact of Sustainable Forest Management Practices on The Malaysian Timber Market" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [(P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

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DECLARATION

I declare that the thesis is my original work except for quotations and citations which have been duly acknowledge. I also declare that it has not been previously and is not concurrently submitted for any other degree at Universiti Putra Malaysia or other institutions.

_____

ABDUL RAHIM ABDUL SAMAD

Date: 24 February 2011

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