



**UNIVERSITI PUTRA MALAYSIA**

**FACTORS AFFECTING EXPORT DEMAND  
FOR THE MALAYSIAN RUBBER PRODUCTS**

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FOR THE MALAYSIAN RUBBER PRODUCTS**



**By**

**LINA FATAYATI SYARIFA**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,  
in Fulfilment of the Requirements for the Degree of Master of Science  
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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment  
of the requirement for the degree of Master of Science

**Factors Affecting Export Demand for  
The Malaysian Rubber Products**

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**LINA FATAYATI SYARIFA**

**July 2009**

**Chairman : Prof. Dr. Mad Nasir Shamsudin**

**Faculty : Agriculture**

Rubber products have greatly contributed to the export earning of Malaysia. However, the export demands for Malaysian rubber products have been fluctuating over the years. The fluctuation in the quantity demanded for Malaysian rubber products export is caused by several factors such as the export price of the rubber products, foreign income, and the price of substitute. This study was an attempt to determine the factors which have significantly affected the export demand for the rubber products in the short term. In order to accomplish the objective of the study, the Error Correction Model (ECM) was employed.

The secondary data (quarterly) gathered from 1998 to 2007 were used in this study. The variables include the quantity of the export rubber products, export price of the rubber products, Gross Domestic Product (GDP) per capita of Organization for Economic Co-operation and Development (OECD) (used as a proxy of the world's income), and the synthetic rubber price as a substitute price. Before the estimation of regression was done, each individual series (both in levels and first differences)

was tested for their unit roots, using the Augmented Dickey Fuller (ADF) and Philip Peron (PP) Tests. The results gathered from the unit root tests showed that all the variables used in the study were integrated with the order of one, or I (1). The next step was to determine whether any combinations of the variables were co-integrated in the long run, using the multivariate co-integration test of Johansen and Juselius on each of the five equations. The results revealed that all the variables of the export demand for the rubber products were co-integrated in the order of one, or I (1). Therefore, this enabled the researcher to implement the ECM test.

The results from the estimation of the ECM showed that in the midstream rubber products, the own price elasticity of latex concentrate and Standard Malaysian Rubber (SMR 20) were inelastic with an elasticity of 0.98 and 0.20, respectively. Meanwhile, the income elasticity of the SMR 20 is 0.29, implying that the SMR 20 could be considered as necessity goods. In particular, the income elasticity of latex concentrate is 2.95, indicating that latex concentrate could also be considered as luxury goods. Cross price elasticity of the latex concentrate and SMR 20 were found to be inelastic with their cross price elasticity of 0.08 and 0.21, respectively, and they possessed positive sign which showed that the latex concentrate and SMR 20 were substitution for synthetic rubber.

In downstream rubber products, the own price elasticity of glove is elastic with its own price elasticity of 1.14, and become important determinant of export demand. However, the own price elasticity of latex threads and motorcar tyre are found to be inelastic with their own price elasticity of 0.11 and 0.79 respectively. The income elasticity of glove was found to be 0.51, implying that it could be considered as

necessity goods. Meanwhile, the income elasticity of latex threads and motorcar tyre was 1.00, and 7.46, respectively, indicating that latex threads and motorcar tyre could be considered as luxury goods. Nevertheless, the cross price elasticity of glove and latex threads was found inelastic against synthetic rubber which was 0.06 and 0.06, respectively. Coupled with the positive sign, both glove and latex threads were proven as substitute products for synthetic rubber. The income elasticity of motorcar tyre was found to be elastic against synthetic rubber, i.e. 1.37, and it had negative sign which indicated that motorcar tyre was complementary for synthetic rubber.

In relation to the midstream rubber industry, the findings of this study suggest that Malaysia should emphasize more on supply management policy actions. In more specific, the policy in own price and the price of synthetic rubber in the midstream rubber industry will not impose important effect for the demanded export quantity. As for the rubber downstream industry, the government should intensify research and development (R&D) activities to ensure that all Malaysian rubber products meet international standards in health and safety. In particular, the improvement in terms of price competitiveness would be an appropriate strategy if Malaysia were to increase its export growth for glove. This could be achieved by reducing the cost incurred in producing gloves. One of the downstream rubber products is complementary with synthetic rubber. Therefore, the policy that should be taken is reducing the production cost of synthetic rubber. This policy has been implemented by the Malaysian Government, i.e. by removing the import duty imposed on synthetic rubber in 1986.

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

**Faktor-Faktor yang Memberi Kesan Kepada  
Permintaan Eksport untuk Produk-Produk Getah Malaysia**

Oleh

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**Pengawai Selia : Prof. Dr. Mad Nasir Shamsudin**

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Produk-produk getah memberi sumbangan yang besar dalam menjana pendapatan eksport Malaysia. Walaubagaimanapun, permintaan untuk eksport produk getah Malaysia menjadi tidak menentu sejak beberapa tahun kebelakangan ini. Ketidaktentuan permintaan ini disebabkan oleh harga eksport produk getah, pendapatan asing, serta harga barang pengganti. Oleh itu, kajian ini dijalankan untuk menentukan faktor-faktor yang memberikan perbezaan yang bermakna dalam mempengaruhi permintaan eksport untuk produk getah dalam jangka masa pendek. Untuk mencapai objektif, kajian ini menggunakan aplikasi Model Pembetulan-Ralat (ECM).

Data sekunder (suku tahunan) bermula 1998-2007 digunakan dalam kajian ini. Pembolehubah yang digunakan dalam kajian ini adalah kuantiti eksport bagi produk getah, harga eksport produk getah, Keluaran Dalam Negara Kasar (KDNK) per kapita oleh Pertubuhan Kerjasama Ekonomi dan Pembangunan (OECD) yang mana

bertindak sebagai proksi. Sebelum anggaran untuk regresi dijalankan setiap siri individu, bagi setiap tahap dan perbezaan pertama akan diuji untuk mencari unit asas masing-masing dengan menggunakan Augmented Dickey Fuller (ADF) dan Ujian Philip Peron (PP). Hasil keputusan ujian unit asas menunjukkan kesemua pembolehubah yang digunakan dalam kajian ini saling berhubungkait dengan aturan satu, atau  $I(1)$ .

Langkah seterusnya adalah untuk menentukan sama ada sebarang kombinasi pembolehubah ini adalah saling berkait dalam jangka masa yang panjang iaitu dengan menggunakan ujian Johansen dan Juselius multivariat co-integrasi pada setiap lima persamaan. Hasil keputusan menunjukkan semua pembolehubah bagi permintaan eksport produk getah adalah saling berhubungkait dalam aturan satu, atau  $I(1)$ . Keputusan ini membenarkan kajian ini menggunakan ujian Model Pembetulan-Ralat (ECM).

Hasil anggaran ECM menunjukkan dalam produk-produk getah pertengahan, keanjalan harga bagi lateks pekat dan Standard Malaysian Rubber (SMR 20) adalah tidak anjal dengan darjah keanjalan masing-masing 0.98 dan 0.20. Keanjalan pendapatan SMR 20 adalah pada kadar 0.29, dengan andaian bahawa SMR 20 itu dianggap sebagai barangan keperluan. Keanjalan pendapatan bagi lateks pekat ialah 2.95, yang menunjukkan bahawa lateks pekat dianggap sebagai barangan mewah. Keanjalan bagi silang harga lateks pekat dan SMR 20 adalah tidak anjal dengan keanjalan silang harga masing-masing berjumlah 0.08 dan 0.21 dan mempunyai perkaitan positif, yang menunjukkan lateks pekat dan SMR 20 adalah pengganti bagi getah sintetik.



Bagi produk-produk hiliran getah, keanjalan harga bagi sarung tangan adalah anjal dengan keanjalan harganya 1.14, dan menjadi petunjuk penting bagi permintaan eksport tersebut. Bagaimanapun, keanjalan harga bagi benang getah dan tayar kereta didapati tidak anjal dengan keanjalan harga masing-masing 0.11 dan 0.79. Keanjalan pendapatan bagi produk sarung tangan adalah pada kadar 0.51, yang menunjukkan bahawa sarung tangan sebagai barang keperluan. Manakala, keanjalan pendapatan bagi benang getah dan tayar kereta adalah 1.00, dan 7.46, yang menunjukkan bahawa benang getah dan tayar kereta sebagai barangan mewah. Keanjalan harga silang sarung tangan dan benang getah adalah tak anjal berbanding getah sintetik iaitu masing-masing 0.06 dan 0.06 dan mempunyai perkaitan positif, yang menunjukkan bahawa sarung tangan dan benang getah adalah produk-produk pengganti kepada getah sintetik. Manakala, keanjalan harga silang bagi tayar kereta berbanding getah sintetik adalah anjal pada darjah 1.37 dan mempunyai perkaitan negatif yang menunjukkan bahawa tayar kereta adalah pelengkap terhadap getah sintetik.

Kesimpulan yang dicapai bagi kajian ini menunjukkan bahawa didalam industri produk utama getah, Malaysia harus lebih menitikberatkan aspek polisi tindakan pengurusan bekalan. Dasar penentuan harga getah dan harga getah sintetik untuk industri utama getah tidak akan memberi sebarang kesan penting terhadap permintaan kuantiti eksport. Dalam industri hiliran getah, kerajaan harus memperbanyakkan aktiviti-aktiviti penyelidikan dan pembangunan (R&D) bagi memastikan produk getah Malaysia mematuhi piawaian antarabangsa dalam aspek kesihatan dan keselamatan.

Peningkatan daya saing harga adalah satu strategi yang paling tepat jika Malaysia mahu meningkatkan pertumbuhan jumlah eksport untuk industri sarung tangan. Ini boleh dicapai dengan mengurangkan kos pengeluaran sarung tangan getah tersebut. Satu daripada produk hiliran getah adalah pelengkap kepada getah sintetik. Oleh itu, dasar yang patut diambil adalah mengurangkan kos pengeluaran getah sintetik.



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I certify that a Thesis Examination Committee has met on 31 July 2009 to conduct the final examination of Lina Fatayati Syarifa on her thesis entitled “Factors Affecting Export Demand for Malaysian Rubber Products “ 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 Master of Science.

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## DECLARATION

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

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**LINA FATAYATI SYARIFA**

Date: 10 September 2009



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