UNIVERSITI PUTRA MALAYSIA

POLICY ANALYSIS MATRIX FOR LIVESTOCK INDUSTRY IN PENINSULAR MALAYSIA

ZULHERI ADHA

FP 2011 39

POLICY ANALYSIS MATRIX FOR LIVESTOCK INDUSTRY IN PENINSULAR MALAYSIA

ZULHERI ADHA

MASTER OF SCIENCE
UNIVERSITI PUTRA MALAYSIA

2011

© COPYRIGHT UPM

POLICY ANALYSIS MATRIX FOR LIVESTOCK INDUSTRY IN PENINSULAR MALAYSIA

by

ZULHERI ADHA

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

March 2011

© COPYRIGHT UPM

DEDICATION

I dedicate this thesis to **my beloved mother** (Suyatmi Sofyan) and **father** (Darul Arief) who have given loves for my success, warm kisses to **my dear wife** for her love, and big hugs to **AUBAMA** for great support to me.

© COPYRIGHT UPM

Abstract of thesis presented to the Senate of Universiti Putra Malaysia
in fulfillment of the requirement for the degree of Master of Science

POLICY ANALYSIS MATRIX FOR LIVESTOCK INDUSTRY IN PENINSULAR MALAYSIA

by

ZULHERI ADHA

March 2011

Chairman : Professor Zainal Abidin Mohamed, PhD

Faculty : Agriculture

The main objective of this study was to assess the comparative advantage of livestock sectors in Peninsular Malaysia. The study analyzed livestock productions, namely broiler, layer, beef cattle, and goat in Negeri Sembilan, Perak and Selangor. This study used a Policy Analysis Matrix (PAM) to determine whether livestock productions have comparative advantage if produced under large, medium or small production scale.

The primary data were collected through an in-depth interview with farmers using structured questionnaire. Data were collected from 39 broiler farmers, 18 layers farmers, 39 beef farmers, and 40 goat farmers in Peninsular Malaysia.

© COPYRIGHT UPM

The results of the study indicated that the non-ruminant sector which consists of broiler and layer sub-sector showed positive results on the ratio of social profitability for all types of farm scale. These results mean that the broiler and layer farm were profitable if managed in either small, medium, or large scale. The ruminant sector on the other hand showed that, the beef farm would only generate profit if managed in a large scale. While goat production is capable of generating profits if managed in large and medium scale of operation.

Domestic Resource Cost (DRC) ratio as the comparative advantage indicator shows that broiler farm in large scale has DRC ratio of 0.24 and layer farm in medium scale has DRC ratio of 0.26. In the ruminant sector, goat were produced in large scale has DRC ratio of 0.43 while beef produced in large scale with DRC ratio of 0.81. All of farms have a comparative advantage when their ratio implies that the value added per unit of products is larger than the value of domestic resources used to produce that unit. As a result, broiler farm in large scale with DRC ratio of 0.24 has a greatest comparative advantage in the Malaysian livestock industry. Based on the level of comparative advantage, this study recommends that the Malaysian livestock industry should focus on poultry to manage the broiler farm. Moreover, the government was asked to provide support for production, distribution and trade of broiler can take place with more profitable.

© COPYRIGHT UPM

Abstrak thesis yang dikemukakan kepada Senat Universiti Putra Malaysia
Sebagai memenuhi keperluan untuk ijazah Master Sains

MATRIKS ANALISIS DASAR UNTUK INDUSTRI TERNAKAN DALAM SEMENANJUNG MALAYSIA

Oleh

ZULHERI ADHA

Mac 2011

Chairman : Profesor Zainal Abidin Mohamed, PhD

Faculti : Pertanian

Objektif kajian ini ialah untuk menganggar kelebihan bandingan sector-sektor ternakan di Semenanjung Malaysia. Kajian mengenalisis pengeluaran ternakan iaitu ayam pedaging, ayam penelur, lembu, dan kambing dalam tiga negeri. (Negeri Sembilan, Perak, dan Selangor). Kajian ini meggunakan Matriks Analisis Dasar (PAM) untuk menentukan sama ada satu kelebihan bandingan pada pengeluaran ternakan jika dikendalikan dalam skala perniagaan komersial, menengah ataupun kecil.

Data asas adalah terkumpul melalui temu duga mendalam dengan para penternak menggunakan soal selidik yang distrukturkan. Data dikutip dari 39 penternak ayam pedaging, 18 penternak ayam penelur, 39 penternak lembu, dan 40 penternak kambing dalam semenanjung Malaysia.

© COPYRIGHT UPM

Kajian bermula dengan menganalisa nisbah keuntungan untuk setiap subsektor di pasaran antarabangsa. Keputusan pertunjukan kajian sector non ruminansia yang mengandungi ayam pedaging dan ayam penelur menunjukkan kesan positif pada nisbah keuntungan social pada semua jenis skala perniagaan. Hasil positif ini bermakna bahawa perniagaan ayam pedaging dan juga ayam penelur boleh menyediakan keuntungan bila dikendalikan dalam skala perniagaan yang kecil, menengah, ataupun komersial. Manakala sector ruminansia menunjukkan bahawa, menternak lembu hanya akan menjana keuntungan jika dikendalikan dalam perniagaan berskala komersial dan menternak kambing mampu menjana keuntungan jika dikendalikan dalam skala perniagaan menengah dan komersial.

Berasal daripada mengkaji nisbah Kos Sumber Dalam Negeri (DRC) sebagai penunjuk kelebihan bandingan dalam pengeluaran ternakan, ladang ayam pedaging berskala komersial mempunyai nisbah DRC bernilai 0.24 dan ladang ayam penelur berskala menengah mempunyai nisbah DRC bernilai 0.26. Dalam sektor ruminansia, kambing yang dikeluarkan dari ladang berskala komersial mempunyai nisbah DRC bernilai 0.43 manakala lembu yang dikeluarkan dari ladang berskala komersial mempunyai nisbah DRC bernilai 0.81.

Sebenarnya, kesemua ladang-ladang tersebut mempunyai satu kelebihan bandingan apabila nisbah mereka menandakan nilai tambah seunit produk-produk lebih besar dari pada nilai sumber dalam negeri yang digunakan bagi mengeluarkan unit itu. Menurut Tsakok (1990), tingkatan kelebihan bandingan setiap subsektor terbesar jika nisbah DRC mendekati titik nol. Hasilnya, ladang ayam pedaging berskala komersial dengan nisbah DRC bernilai 0.24 mempunyai suatu

© COPYRIGHT UPM

kelebihan bandingan terbaik dalam industri ternakan Malaysia. Berpangkalan pada kelebihan bandingan, kajian ini mencadangkan bahawa tumpuan industri ternakan Malaysia ialah menguruskan ladang ayam pedaging. Berkenaan hal tersebut, kerjaan dimintai untuk menyokong kegiatan pengeluaran, pengagihan dan perdagangan ayam pedaging sehingga boleh berlaku dengan lebih menguntungkan.

© COPYRIGHT UPM

ACKNOWLEDGEMENT

First and foremost, thank and praise to ALLAH S.W.T, for making this research an unforgettable one. I would like to express my deepest gratitude and appreciation acknowledgement to each and every one who has contributed in finalizing this thesis. Special thanks go to Professor Dr. Zainal Abidin Mohamed, my main supervisor, for his patience, guidance, advice and his continuous support toward completion of my thesis. I also wish to thanks to the other members of my supervisory committees, Professor Dr. Mad Nasir Shamsuddin and Dr. Ismail Abd Latif for their guidance and valuable review to this thesis. I am sincerely thankful and greatly appreciative for all of the help, encouragement, guidance and friendship that I have gained during this project from the staff of Department of Agribusiness and Information Systems, Faculty of Agriculture, Universiti Putra Malaysia. Not forgetting to Indonesia Student Association (PPI-UPM), my housemates (R719) for their friendship in these couple of years. Last but not least, I want to thanks to my Malay family (Puan Sri Ashidah binti Minin, Kak Tina, Bang Is, and Bang Beck) for their support and encouragement throughout my study.

© COPYRIGHT UPM

I certify that a Thesis Examination Committee has met on 8 March 2011 to conduct the final examination of Zulheri Adha on his thesis entitled "The Policy Analysis Matrix for Livestock Industry in Peninsular Malaysia" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Putra Malaysia (Higher Degree) Regulation 1981. The Committee recommends that the student be awarded the Master of Science.

Member of the Thesis Examination Committee were as follows:

Nolila Mohd Nawi, PhD
Faculty of Agriculture
(Chairman)

Abdullahi Farah Ahmed, PhD
Faculty of Agriculture
(Internal Examiner)

Mohd Mansor Ismail, PhD
Associate Professor
Faculty of Agriculture
(Internal Examiner)

Abdul Hamid Jaafar, PhD
Associate Professor
Faculty of Economic and Business, UKM
(External Examiner)

BUJANG BIN KIM HUAT, PhD
Profesor and Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: March 2011

© COPYRIGHT UPM

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

Zainal Abidin Mohamed, PhD
Professor
Faculty of Agriculture
Universiti Putra Malaysia
(Chairman)

Mad Nasir Shamsudin, PhD
Professor
Faculty of Agriculture
Universiti Putra Malaysia
(Member)

Ismail Abd. Latif, PhD
Senior Lecturer
Faculty of Agriculture
Universiti Putra Malaysia
(Member)

HASANAH MOHD GHAZALI, PhD
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

© COPYRIGHT UPM

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 at any other institution.

ZULHERI ADHA

Date : 8 March 2011

© COPYRIGHT UPM

TABLE OF CONTENTS

	Page
ABSTRACT	iv
ABSTRAK	vi
ACKNOWLEDGEMENTS	ix
DECLARATION	xii
LIST OF TABLES	xvi
LIST OF FIGURES	xviii
LIST OF ABBREVIATIONS	xix
CHAPTER	
I. INTRODUCTION	1
1.1. The Livestock Industry in Malaysia	4
1.2. Consumption Livestock	8
1.3. Self Sufficiency Level	10
1.4. Problem Statement	14
1.5. Objectives	16
1.6. Significant of the Study	16
1.7. Organization of the Study	17
II. LITERATURE REVIEW	19
2.1. Theoretical Framework	19
2.1.1. Theory of Trade	19
2.1.2. Comparative Advantage	20
2.1.3. Revealed Comparative Advantage	23
2.1.4. Domestic Resource Cost	24
2.1.5. Policy Analysis Matrix	26

© COPYRIGHT UPM

2.2. Government Policy Measures and Comparative Advantage 28
2.2.1. Overview of Livestock Industry in Malaysia, Brunei, Indonesia, Philippines, and Thailand 29
2.2.2. The Comparative Advantage of Livestock Industry in Malaysia, Brunei, Indonesia, Philippines, and Thailand 33

III. METHODOLOGY 37
3.1. Policy Analysis Matrix 37
3.1.1. Private Profitability 38
3.1.2. Social Profitability 39
3.1.3. Nominal Protection Coefficient 40
3.1.4. Effective Protection Coefficient 42
3.1.5. Domestic Resource Cost 43
3.2. Data Collection 44
3.2.1. Secondary Data 45
3.2.2. Primary Data 45
3.2.3. Steps of Data Analysis 47
3.3. General Assumptions 50
3.3.1. Social Valuation 50
3.3.2. Production, Trading, and Processing Cost 51
3.3.3. Allocation of Cost between Domestic and Foreign 51
3.3.4. Intermediate Input 52
3.3.5. Primary Input 54
3.3.6. Trade Regimes 55
3.3.7. Measurement of Marketing Cost 56

IV. RESULT AND DISCUSSION 60
4.1. Ruminant Sector 61
4.1.1. Farm and Farmers Profiles 61
4.1.2. Analysis of Social Profitability 63
4.1.3. Analysis of Protection 66
4.1.4. Analysis of Comparative Advantage 68
4.1.5. Sensitivity Analysis 71

© COPYRIGHT UPM

4.2. Non-Ruminant Sector 75
4.2.1. Farm and Farmers Profiles 75
4.2.2. Analysis of Social Profitability 76
4.2.3. Analysis of Protection 78
4.2.4. Analysis of Comparative Advantage 81
4.2.5. Sensitivity Analysis 85

V. SUMMARY AND RECOMMENDATION 89
5.1. Summary 89
5.2. Result and Discussion 91
5.3. Recommendation 95

REFERENCES 98
APPENDICES 103
BIODATA OF STUDENT 161

© COPYRIGHT UPM