THE EFFICIENCY OF BEEF CATTLE PRODUCTION IN THE TARGET AREA OF CONCENTRATION, JOHOR

By

TAPSIR SERIN

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

April 2004
Especially dedicated to my dearly beloved:

Wife,
Hafizah Ahmad

Children,
Muhammad Aqmal,
Farah Nadia, &
Muhammad Akif
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The production of beef in Malaysia is inadequate to meet the demand, due to the rapid increase in consumption and population. The Target Area Concentration (TAC) project is expected to be a major contributor to boost beef cattle production. This study examines the efficiency of resources used in the beef cattle production in the TAC in Johor, Malaysia. It addresses the issues on productivity and technical efficiency of beef cattle operations and their relationship with management inventory, farm performances, animal husbandry practices, as well as socio economic and demographic factors.

The translog and Cobb-Douglas stochastic frontier production functions were used to examine the issues of technical efficiency in the TAC project. The frontier regression model was estimated using the maximum likelihood estimation (MLE) technique. The translog stochastic frontier model was found to be suitable in representing the sample data and provide better estimates than the Cobb-Douglas model.
The results indicated that the beef operation in the TAC has an increasing return to scale. The average computed technical efficiency for individual farm units is 0.6829. The majority of the farms (51%) were between 40% to 80% of technical efficiency. The total loss in production due to inefficiency was estimated about 3,094 heads of beef cattle in Animal Unit (AU) per year. The study also found that there was a significant different in average technical efficiency by TAC location. However, the technical efficiency was not significantly different by farm types, ownership, and sizes.

The findings of this study suggest that there is room for expansion, through the adoption of best practice technology and optimal resource allocation. The farm’s technical efficiency could be improved by better planning and controlling skills by the farmers/managers, longer experience, proper training, more frequent of advisory services by extension agents, higher calving rate, involvement by DVS in breeding and health management services and by using cross breed cattle.
Abstrak tesis ini dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi sebahagian syarat keperluan untuk ijazah Master Sains

KECEKAPAN PENGELUARAN LEMBU PEDAGING DI KAWASAN TUMPUAN SASARAN DI NEGERI JOHOR

Oleh

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Fungsi pengeluaran sempadan stohastic translog dan Cobb-Douglas digunakan untuk mengkaji isu-su mengenai kecekapan teknikal di KTS di negeri Johor. Model regrasi
sempadan dianggarkan menggunakan teknik “maximum likelihood estimation” (MLE). Model stochastic translog didapati sesuai untuk mewakili data dalam sampel kajian dan memberikan penganggaran yang lebih baik dibandingkan dengan model Cobb-Douglas.

Penemuan kajian menunjukkan operasi pengeluaran lembu pedaging sedang berada pada tahap pulangan mengikut skel yang bertambah. Kecekapan teknikal yang dikira untuk setiap unit ladang menunjukkan nilai purata 0.6829. Majoriti ladang (51%) mencapai kecekapan teknikal diantara 40% sehingga 80%. Jumlah kerugian dianggarkan kerana ketidakcekapan adalah sebanyak 3,094 ekor lembu pedaging dalam kiraan Unit Ternakan (AU) setahun. Kajian ini juga menunjukkan ada perbezaan dalam purata kecekapan teknikal mengikut lokasi KTS. Bagaimanapun, tiada perbezaan kecekapan teknikal yang signifikan berasaskan jenis ladang, pemilikan ladang dan saiz ladang.

Penemuan kajian ini mencadangkan masih ujud ruang untuk peningkatan pengeluaran dengan menggunakan teknologi terbaik yang diamalkan dan pengagihan sumber secara optima. Kecekapan teknikal ladang boleh diperbaiki dengan kemahiran perancangan dan kawalan yang lebih baik oleh penternak/pengurus ladang, pengalaman yang lebih lama, latihan yang mencukupi, khidmat nasihat yang lebih kerap dari agen pengembangan, kadar kelahiran anak lembu yang lebih tinggi, penglibatan dari Jabatan Perkhidmatan Haiwan dalam perkhidmatan pengurusan kesihatan dan pembiakan serta penggunaan baka lembu kacukan.
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I certify that a Examination Committee met on 21st April 2004 to conduct the final examination of Tapsir Serin on his Master of Science thesis entitled “The Efficiency of Beef Cattle Production in The Target Area of Concentration, Johore” 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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DECLARATION

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

__________________
TAPSIR BINSERIN

Date : 28th May 2004
## TABLE OF CONTENT

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEDICATION</td>
<td>ii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td>ABSTRAK</td>
<td>v</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>vii</td>
</tr>
<tr>
<td>APPROVAL</td>
<td>ix</td>
</tr>
<tr>
<td>DECLARATION</td>
<td>xi</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xv</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xix</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>xx</td>
</tr>
</tbody>
</table>

## CHAPTER

1 **INTRODUCTION**

   Livestock Sector in Malaysia                      1
   Beef Industry in Malaysia                         5
   Productions of Cattle and Buffalo                 8
   Population of Cattle and Buffalo                  13
   Government Policy                                 17
   Government Incentives                             20
   Beef Production in the Target Area of Concentration 22
   Farming System of Cattle Integration in Oil Palm Plantation 27
   Problem Statement                                 30
   Objective of the Study                            33
   Significant of the Study                          33
   Organization of the Thesis                        35

2 **LITERATURE REVIEW**

   The Concept of Efficiency                        37
   Review of Related Literatures in Technical Efficiency 40

3 **METHODOLOGY**

   Theoretical Framework                            55
   Frontier Production Function                      55
   Stochastic Frontier Production Functions          57
   Alternative Functional Form                       61
   Return to Scale and Efficiency in Input Use       62
   Model Specification                               64
   Battese and Coelli Specification                  66
   Data Analysis                                     68
   Descriptive Analysis                              68
   Production Function and Technical Efficiency Estimation 69
Construction of Input and Output Indices 69
Factors Affecting Technical Efficiency 71
Construction of Management Inventory Variables 73
Location of the Study 75
Data Collection and Sampling 76
Questionnaire 78

4 RESULTS AND DISCUSSIONS 80
Descriptive Analysis 80
   Farm Background 81
      Location of Farms 81
      Types of Farms 81
Socio-Economics and Demographic Background 82
   Race of Farmers 82
   Age of The Farmers 83
   Experience in Beef Farming 83
   Experience in Other Livestock Farming 85
   Academic Background 86
   Training 87
   Off-Farm Income 88
   Other Businesses 89
   Visits by Extension Agents 90
   Farm Credit 91
   “Pawah” Scheme 93
Farm Characteristics 94
   Grazing Areas 94
   Age of Oil Palm 97
   Grazing Systems 98
   Farm Labor 98
   Cattle Population 100
   Output of Farms 108
Animal Husbandry Practices 108
   Breeds of Cattle 108
   Breeding Methods 109
   Breeding Management 110
   Health Management 111
   Bull:Breeder Ratio 112
   Breeder Replacement 108
Farm Performances 114
   Calving Rate 114
   Mortality rate 116
Costs Structure 117
   Fixed Costs 117
   Variable Costs 118
Management Inventory 119
Empirical Estimates of Stochastic Production Function 123
  Test of Production Function Form 123
  Frontier Production Function Estimates 125
  Ordinary Least Squares (OLS) Production Function 130
  Maximum Likelihood (MLE) Production Function 131
Test of Technical Inefficiency Effect 136
Technical Inefficiency Effect 139
Elasticity and Returns to Scale 143
Technical Efficiency 147
Output Losses 151
Comparison of Farm’s Technical Efficiency 152

5 SUMMARY AND CONCLUSION 160
Policy Implications 169
  Recommendations 172
REFERENCES 176
APPENDICES 182

BIODATA OF THE AUTHOR 196