

Table of Contents

| Chapter | Title | page |
|----------------|--|-------------|
| | Declaration | i |
| | Title Page | ii |
| | Acknowledgement | iii |
| | Abstract | iv |
| | Table of Contents | vi |
| | List of Tables | xi |
| | List of Figures | xiv |
| | List of Boxes | xv |
| | List of Abbreviation | xvi |
| | List of Maps | xviii |
| 1. | Introduction | 1 |
| | 1.1 Background | 1 |
| | 1.2 Statement of the Problem | 3 |
| | 1.3 Objectives of the Study | 13 |
| | 1.4 Research Hypotheses | 13 |
| | 1.5 Research Operational Charts | 14 |
| | 1.6 Importance of the Study | 16 |
| | 1.7 Scope and Limitations of the Study | 17 |
| | 1.8 Organization of the Study | 17 |

| | | |
|-----------|--|-----------|
| 2. | Literature Review | 19 |
| | 2.1 Introduction | 19 |
| | 2.2 What is Food Security | 20 |
| | 2.3 Review of Previous Studies on Food Security in Developing Countries | 23 |
| | 2.4 Food Security-Related Studies in Sri Lanka | 27 |
| | 2.5 Food Security in Developing Countries | 29 |
| | 2.6 Causes of Food Insecurity in Developing Countries | 31 |
| | 2.7 Measures of Food Security | 35 |
| | 2.8 Factors Determining Household Food Security | 40 |
| | 2.9 Comparative Insights from the Literature Survey | 42 |
| 3. | Theoretical Background | 46 |
| | 3.1 Introduction | 46 |
| | 3.2 Conceptual Framework of the Study | 47 |
| | 3.2.1 Demand Side and Supply Side of Food Security | 49 |
| | 3.2.2 Quantifying Household Level Food Security | 49 |
| | 3.2.3 Engel Co-efficient and Sources of Food Security | 50 |
| | 3.3 Elements of Rural Food Strategy | 58 |
| 4. | Research Methodology | 59 |
| | 4.1 Introduction | 59 |
| | 4.2 Profile of the Study Area | 59 |
| | 4.3 Selection of the Study Area | 61 |
| | 4.4 Selection of the Sample | 63 |
| | 4.5 Organization of the Field Survey | 64 |
| | 4.6 Data Collection Method | 65 |
| | 4.7 Data-Processing and Analysis | 68 |

| | | | |
|-----------|-------|---|------------|
| | 4.7.1 | Estimation of the Income Function | 68 |
| | 4.7.2 | Estimation of the Production Function | 73 |
| | 4.7.3 | Estimation of the Frontier Production Function | 75 |
| | 4.8 | The Method of Data Collection for Policy Analysis | 77 |
| | 4.9 | Limitations of the Research Methodology | 78 |
| 5. | | National and Rural Sector Food Security in Sri Lanka | 80 |
| | 5.1 | Introduction | 81 |
| | 5.2 | Economic Development in Sri Lanka | |
| | 5.3 | Rural Poverty and Food Security in Sri Lanka | 84 |
| | 5.4 | Agricultural Development and Rural Food Security | 87 |
| | 5.5 | Welfare Programs and Food Security | 94 |
| | 5.6 | Food Prices and Food Security | 95 |
| | 5.7 | Nature of Food Security Problem in the Rural Sector | 97 |
| | 5.8 | Summary and Preliminary Conclusion | 105 |
| 6. | | Nature and Causes of Food Security Problem in Moneragala | 108 |
| | 6.1 | Introduction | 108 |
| | 6.2 | Food Expenditure among Farmer Groups | 109 |
| | 6.3 | Food self-Sufficiency in the Study Area | 115 |
| | 6.4 | Expenditure on Nutritional Food | 119 |
| | 6.5 | Transitory and Chronic Food Insecurity in the Study Area | 121 |
| | 6.6 | Birth Weight of Children Under Three Years Old | 125 |
| | 6.7 | Food Subsidies and Food Security | 126 |

| | | |
|-----------|---|------------|
| 6.8 | Households' Views on Food Security | 127 |
| 6.9 | Paddy Stock and Food Security | 132 |
| 6.10 | Consumption Loans and Food Security | 138 |
| 6.11 | Prices of Agricultural Commodities and Food Security | 139 |
| 6.12 | Agricultural Wage Rate and Food Security | 143 |
| 6.13 | Comparison of Different Measures of Food Security | 145 |
| 6.14 | Summary of the Findings | 147 |
| 7. | Demand and Supply Side Factors of Food Security in the Moneragala District | 151 |
| 7.1 | Introduction | 151 |
| 7.2 | Empirical Estimates of the Income Function | 152 |
| 7.3 | Empirical Estimates of the Production Function | 155 |
| 7.4 | Efficiency Analysis of Farm Level Agricultural Production | 161 |
| 7.5 | Summary of Empirical Findings | 163 |
| 8. | Conclusion and Policy Implications | 165 |
| 8.1 | Nature of Food Security Problem in the Moneragala District | 165 |
| 8.2 | What is the best Measures of Food Security | 167 |
| 8.3 | Overall Conclusion | 168 |
| 8.4 | Developing Food Strategy for Asian Developing Countries | 170 |
| 8.5 | Recommendations for Further Research | 179 |

| | | |
|-----------|---|-----|
| 9. | Bibliography | 182 |
| | Appendix A SPSS Output | 192 |
| | Appendix B Econometric Output | 205 |
| | Appendix C Questionnaires for Field Survey | 239 |
| | Appendix D Questionnaires for Focus Group Interviews | 245 |

List of Tables

| Number | Title | Page |
|--------|--|------|
| 1.1 | Average Annual Growth Rate of Real GDP and Real Agricultural GDP Growth Rate (at 1996 factor cost prices) | 3 |
| 1.2 | Poverty Head Count Ratio National and by Sector (%) | 5 |
| 4.1 | Demographic Features of the Moneragala District | 60 |
| 5.1A | Average Annual Real GDP Growth Rates in Selected Countries | 82 |
| 5.1B | Human Development Index for Selected Countries | 83 |
| 5.2 | Percentage of Poor Households in Sri Lanka and Different Provinces | 85 |
| 5.3 | Total Annual Expenditure on Imports | 88 |
| 5.4 | Total Production of Selected Food Commodities | 90 |
| 5.5 | Food Self-Sufficiency in Sri Lanka (%) | 93 |
| 5.6 | Current and Deflated Prices for Rice and Wheat (1980-2000) | 96 |
| 5.7 | Percentage of Per-Capita Daily Calorie Intake for Selected Food Items by Sectors | 97 |
| 5.8 | Proportion of Persons with Daily Energy Consumption Below 2,200 Calories | 98 |
| 5.9 | Expenditure on Food by Sector Per Month (Rs/Month) | 100 |
| 5.10 | Percentage of Average Expenditure for One Month Per Person by Sectors (%) | 101 |
| 5.11 | Quantities of Own Produced/Open Market Purchased Rice Consumption (grams per person/per month) | 102 |
| 5.12 | Per Capita Monthly Income (Rs.) by Rural, Urban and Estate Sectors | 104 |
| 5.13 | Gini Co-efficient Based on One Month Income Receivers by Sectors and All Islands | 104 |

| | | |
|------|---|-----|
| 6.1 | Engel Co-efficient Among Different Groups of Farmers | 110 |
| 6.2A | Monthly Food Expenditure Among the Groups of Farmer (Rs.) | 112 |
| 6.2B | Monthly Food Expenditure between Groups of Farmers and Within Groups of Farmers(Rs.) | 112 |
| 6.3 | Monthly Income of Marginal Farmers and Semi-Marginal Farmers (Rs.) | 113 |
| 6.4 | Self-Sufficiency Ratio for Farmer Groups (Rs.) | 115 |
| 6.5 | Value of Consumption of Home Production between Marginal Farmers Semi-marginal Farmers (Rs.) | 117 |
| 6.6 | Expenditure on Nutritional Food among Farmer Groups (Rs.) | 119 |
| 6.7 | Mean Nutritional Food Expenditure by Marginal and Semi-marginal Farmers (Rs.) | 120 |
| 6.8 | Distribution of Total Cultivated Land Area (Acres) | 122 |
| 6.9 | Distribution of Capital Stock among Different Farmer Groups (Rs.) | 124 |
| 6.10 | Mean Value of Capital Stock among Different Farmer Groups (Rs.) | 124 |
| 6.11 | Birth Weight of Children in the Sample (kg) | 125 |
| 6.12 | Distribution of Government Food Subsidy (Rs.) | 126 |
| 6.13 | Intensity of Food Security vs. Level of Income of Farmers | 128 |
| 6.14 | Pattern of Income Distribution (Rs.) | 130 |
| 6.15 | Intensity of Food Security Vs. Groups of Farmers | 131 |
| 6.16 | Mean Value of Rice Stock of Different Groups of Farmers | 132 |
| 6.17 | Mean Rice Stock of Marginal and Semi-marginal Farmers (Kg.) | 133 |
| 6.18 | Correlation of Rice Stock per Season and Rice Yield Per Acre | 135 |
| 6.19 | Mean Rice Yield per Acre (kg) | 136 |
| 6.20 | Rice Stock of Farmer Groups Irrigated Area Vs. Non-irrigated Area | 137 |
| 6.21 | Farmer Groups and Consumption Loans | 138 |

| | | |
|-------|---|-----|
| 6.22A | Farm Gate Prices of Selected Agricultural Commodities (Rs.) | 141 |
| 6.22B | Change in Average Farm Gate Prices of Agricultural Commodities Adjusted for Inflation (1990-2002) | 142 |
| 6.23 | Nominal and Real Wage Rate in the Agricultural Sector | 144 |
| 7.1 | Log Linear Income Function Using Ordinary Least Square Method | 152 |
| 7.2 | Log Linear Production Function for the Study Area | 158 |
| 7.3 | Determinants of Efficiency – The Cobb-Douglass Model | 162 |

List of Figures

| Figures | Title | Page |
|----------------|--|-------------|
| 3.1 | Conceptual Framework of the Study | 47 |
| 4.1 | Linkages between the method of data collection and the Analytical Area of the Study | 78 |
| 6.1 | Nature and Causes of Food Security Problem in the Moneragala District | 149 |

List of Boxes

| Box | Title | Page |
|------------|--|-------------|
| 1.1 | Research objectives Hypotheses and Key Variables | 14 |
| 2.1 | FAO Food Security Indicators | 36 |

List of Abbreviation

AI = Agricultural Instructor
APC = Agricultural Productivity Committee
ARDO = Agricultural Research and Development Officer
ASC = Agricultural Service Centers
ASL = Agrarian Services Law
CFS = Consumer Finance Survey
CCPI = Colombo Consumer Price Index
CC's = Cultivation Committee
DS = Divisional Secretariat
E-view = Econometric View
FAO= Food and Agricultural Organization
GDP = Gross Domestic Product
GLS = Generalized Least Square Method
GN = Grama Niladari
HDI = Human Development Index
IRDP = Integrated Rural Development Program
LFSS = Labor Force and Socio-economic Survey
MP = Minister of Parliament
OLS = Ordinary Least Square Method
PMB = Paddy Marketing Board
SPSS = Statistical Package for Social Scientists
UNDP= United Nations Development Program
WHO = World Health Organization
WFS = World Food Summit
WFC = World Food Conference

List of Maps

| Map | Title | Page |
|------------|---|-------------|
| 3.1 | Location of the Moneragala District | 62 |
| 3.2 | Map of the Study Area (Madulla & Siyabalanduwa) | 63 |