Livelihood strategies in the context of population pressure: A case study in the Hararghe Highlands, Eastern Ethiopia

by

Tesfaye Lemma Tefera

Submitted in partial fulfillment of the requirements for the degree of PhD in Rural Development Planning in the Department of Agricultural Economics, Extension and Rural Development Faculty of Natural and Agricultural Sciences

University of Pretoria

TABLE OF CONTENTS

	Page
Acknowledgements	VI
Abstract	VIII
Acronyms and Abbreviations	X
ACIONYMS and Abbreviations	1 17
CHAPTER 1: INTRODUCTION	
1.1 The Problem in its Context: An Overview of National and Regional	al Scenarios
of Population, Resource and Welfare	
1.2 Population-Resources-Welfare Paradigms	
1.3 Definitions and Delimitation of the Research Problem	
1.4 Specific Objectives of the Research	
1.5 Relevance of the Study for Rural Development Policy and Practice	
1.6 Contributions of the Research to the Knowledge and Insights into	
Development Planning	
1.7 An Overview of the Study Region	
1.7.1 Physical and Social Settings	
1.7.2 Crop and Livestock Production	
1.7.3 Labour Relations and Methods of Production	
1.8 The Survey and Data	
1.8.1 Sampling Procedure	
1.8.2 Data and Data Collection Methods	
1.8.3 Data Quality Control Measures	
1.9 Data Analysis	25
1.9.1 Discriminant Analysis	25
1.9.2 Multivariate Linear Regression Model	27
1.9.3 Multivariate Logistic Regression Model	
1.10 Limitations of the Research	
1 11 The Organisation of the Thesis	30

CHAPTER 2: A REVIEW OF CONCEPTS, THEORETICAL	
PERSPECTIVES AND EMPIRICAL EVIDENCES	
2.1 Introduction	32
2.2 The Concept of Population Pressure	
2.3 Population Pressure and Change in the Land Use Systems	
2.4 Population Pressure and Rural Livelihood Diversification	
2.5 Population Pressure and Rural Demographic Behaviour	
2.6 Rural Livelihood Strategies and Entitlement to Food	
2.7 Population, Rural Livelihoods and Sustainability: A Synthesis	
2.8 A Framework for Analysing Rural Livelihood Strategies in the context of	
Population Pressure	54
2.9 Summary and Conclusion	
CHAPTER 3: ETHIOPIA'S SITUATION: PROCESSES AND STRUCTURES	
3.1 Introduction	
3.2 Evolution of the Land Tenure Institution and Uncertain Rights to Land	60
3.3 Organisational and Institutional Factors in the Natural	
Resource Management	
3.4 Access to the Market and Market Incentives	
3.5 Access to Appropriate Technologies	
3.6 Summary and Conclusion	71
AND SO	CIO-
CHAPTER 4: ECONOMIC SYSTEMS OF THE RESEARCH SITES AND SO	010-
ECONOMIC CHARACTERISTICS OF THE HOUSEHOLDS	72
4.1 Introduction	
4.2 Economic Systems of the Research Sites	
4.2.1 Alemaya	7 c
4.2.2 Sabale	
4.2.3 Kuni	/5
4.3 Typology of Households	
4.3.1 Local Perception of Wealth Categories and Wealth Indicators	
4.3.2. Validity Test and Refinement of Group Membership	
4.4 Socio-economic Characteristics of the Households	84

	4.4.1 Family Size and Structure	84
	4.4.2 Education	85
	4.4.3 Non-human Assets	
	4.4.4 Savings and Access to Credit	
	4.5 Gender Dimension of Differentiation	
	4.6 Summary and Conclusion	
	The Summary and Conclusion in the control of the co	
C	CHAPTER 5: RURAL LIVELIHOOD STRATEGIES IN THE HARARGHE	
Н	HIGHLANDS	
	5.1 Introduction	90
	5.2 Diminishing Landholding Size in the Hararghe Highlands	
	5.3 Land Use Strategies	93
	5.3.1 Cropland Expansion	. 95
	5.3.2 Land Use Intensification	100
	5.3.2.1 Labour-based Intensification	
	5.3.2.2 The Production of High-value Crops	104
	5.3.2.3 Investment in Land productivity-enhancing Technologies	109
	5.4 Livelihood Diversification	118
	5.4.1 Composition of Livelihood activities	
	5.4.2 Income Portfolios	124
	5.4.3 Determinants of Diversification	128
	5.5 Demographic Behaviour of Rural Households	130
	5.5.1 Migration	131
	5.5.2 Households' Size and Fertility Preference	133
	5.5.2.1 The Demand for Children	
	5.5.2.2 Status of Women and the Family System	137
	5.5.2.3. Resource Endowments and Demographic Behaviour	139
	5.6 Summary and Conclusion	145
	CHAPTER 6: WELFARE OUTCOMES AND SUSTAINABILITY IMPLICATIONS	OF
	RURAL LIVELIHOOD STRATEGIES	
	6.1 Introduction	. 149
	6.2 Food Security Outcome	. 150
	6.2.1 Measuring Food Security Status of Households	. 150

	6.2.2 Food Security Status	153
	6.2.3 Household Level Determinants of Food Security Status	
	6.3 Sustainability Implications of Rural Livelihood Strategies	158
	6.3.1 The Concept of Sustainability	
	6.3.2 Highlights of Sustainability Implications	
	6.4 Revisiting Rural Livelihood Strategies: Towards a Livelihood Typology	165
	6.5. Summary and Conclusion	169
С	CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS	
	7.1 Introduction	173
	7.2 The Focus and the Purpose of the Thesis	
	7.3 Analytical Framework and Research Method	175
	7.4 Summary of the Major Findings of the Thesis	177
	7.5 Conclusions	185
	7.6 Policy Recommendations	
	7.6.1 Improving Structures and Processes	188
	7.6.2 Building Households' Livelihood Asset Base	192
	7.6.3 Re-orienting the Focus of Rural Development Interventions	
	7.6.4 Reducing Vulnerability through Institutionalised Social Safety net	. 197
	7.6.5 Improving Efforts to Accelerate Fertility Reduction	. 198
	7.6.6 Voluntary Resettlement	. 199
	7.6.7 Industrialisation	. 200
	7.7Methodological Recommendation	.201
	Bibliography	.202
	Annendices	.225

ACKNOWLEDGEMENTS

A number of persons and institutions have directly or indirectly contributed to the successful completion of this research. I thank them all, though I can't name them all.

My special thanks go to the Alemaya University in particular and Ethiopian people in general for giving me a privilege of pursuing higher studies. I just hope that we, the so-called educated Ethiopians, will one day find the wisdom to put first the interests of our country and millions of fellow Ethiopians who live in abject poverty, and restore the dignity of this country.

I extend my wholeheartedly appreciation to Dr. Bezabih Emana with whom I openly shared my ignorance and confusion at the initial stage of the research, and from whom I got important ideas to begin with.

I am very grateful to my two promoters, Prof. Johann F. Kirsten and Prof. Sylvain Perret, for their unreserved support. The interest they showed in my work right from the very beginning and their confidence in me even when I was not sure I could make it had helped me to move forward. Thank you for your skilful and humane guidance and for allowing me to make mistakes and learn from them. Thank you once more again Prof. Kirsten for your understanding, kindness and doing everything possible to make my stay at the UP comfortable. Mev. Botha, the department secretary, is also well appreciated for her cooperation.

To my wife Tigist Abraham, no words can express my appreciation for your direct and indirect contribution! It was indeed you together with our lovely little girl, Sena, who paid a lion's share of the price. Thank you for your endurance and for accepting a relegation to living in a substandard condition for the last three years. I am also grateful for assisting me in interviewing women about family planning and preschoolers' nutrition, and in the process for sharing and appreciating the hardships of fieldwork. Sweat heart, you are really so special and you will always have my unconditional love!!

It is unfair not to mention my poor and uneducated mum (Elfinesh Kalbessa) and dad (Lemma Tefera) whose crucial decision to invest part of their meagre resource in my education had laid a base for me to reach where I am today. Unfortunately, my dad's dream and determination to educate me until I reach 'grade 20' has come true in his absence. I can only say may his soul rest in peace forever!

I would like to thank Mr Haji for assisting the execution of the technical aspect of the preschoolers' nutrition survey, and Mr Jelan for kindly proof-reading the earlier version of the thesis. I also extend my especial appreciation to my friends Zerihun Gudeta, Dr. Arega Demelash, Getu Beyene, Yoseph Beyene, Tekalegn Tsegaw and all other fellow Ethiopians with whom I shared the moment of frustrations and hopes. Thank you Dr. Mutimba, Mr Giregna Tuli, and all other friends back home for your moral support and encouragements through your e-mails and letters.

Above all, I praise the almighty Lord for what I have achieved and for his mercy!!

Livelihood strategies in the context of population pressure: A case study in the Hararghe Highlands, Eastern Ethiopia

By

Tesfaye Lemma Tefera

Degree:

Ph.D. Rural Development Planning

Department: Agricultural Economics, Extension and Rural

Development

Promoter:

Professor Johann F. Kirsten

Co-promoter: Professor Sylvain Perret

ABSTRACT

The thesis presented the results of an investigation into livelihood strategies of rural households in the Hararghe Highlands in the context of population pressure. The human welfare and resource outcomes of rural livelihood strategies were assessed, accounting for the 'mediating' factors. The study enriches the current policy debate on how to create an enabling environment to strengthen sustainable rural livelihoods and mitigate adverse welfare and resource consequences of unsustainable rural livelihood strategies.

The sustainable livelihood framework for analysing rural livelihoods in the context of population pressure was modified in the thesis to guide the analyses. Primary data was obtained from 197 randomly selected households from three representative sites in the Hararghe Highlands. Whilst verbal description, interpretation and appreciation of facts, and case studies were used for the qualitative data analysis, multivariate techniques and logistic regression were employed to analyse the quantitative data.

The study showed that subdivision and fragmentation of agricultural land and reemergence of landlessness have accompanied the unprecedented population growth
in the Hararghe Highlands. The pace of demographic change of the area is so fast
that it has caused failure of indigenous countervailing and adaptations. Sufficient
effective demand for sustainable intensification of smallholder farms has, however,
not been created due to uncertain right to the land and inadequate market incentives.
Furthermore, the technology generation and dissemination systems have failed to
build the capacity of smallholder farmers to respond to the demographic pressure in
a sustainable way. This has generally resulted in negative welfare and resource
outcomes.

Nonetheless, rural households pursue heterogeneous livelihood strategies due to differential access to livelihood assets, and heterogeneous constraints and incentives. The nature and the extent of welfare and resource outcomes of rural livelihood strategies are different across sites and among different households. A livelihood strategy that integrates cash crop production with high external input-based staple crops production and trade was found to be more successful. Overall, the findings challenge the current untargeted and uniform intervention that implicitly assumes that only farming and the intensification of staple crop production for food self-sufficiency is important to all households. Furthermore, the findings challenge the over simplified generalisations regarding the human welfare and resource effects of rural population growth in Ethiopia as if the interactions between them were taking place in a political, an institutional and an agro-climatic vacuum and as if rural households in a district, a sub-district or a village were a 'homogeneous' group.

What is thus needed is decentralisation of rural development planning and building of the capacity of local institutions so that they may be able to understand rural livelihoods and design innovative and locally specific integrated interventions to support sustainable rural livelihoods. The specific recommendations include ensuring land tenure security, improving farmers' access to the market and appropriate technologies, creating conducive environment for commercialisation and livelihood diversification, institutionalised safety net, resettlement and family planning.

Acronyms and Abbreviations

ADLI Agricultural Development Led Industrialisation

AMC Agricultural Marketing Corporation

CSA Central Statistical Authority

DFID Department for International Development (UK)

EARO Ethiopian Agricultural Research Organisation

ECA United Nations Economic Commission for Africa

EPRDF Ethiopian People's Revolutionary Democratic Front

FAO United Nations Food and Agricultural Organisation

FFW Food for Work

GDP National Gross Domestic Product

GOs Government Organisations

ha Hectare

HHs Hararghe Highlands

kca kilo calories

kg kilo grams

MoA Ministry of Agriculture

Mt Metric tone

IFAD International Fund for Agricultural Development

IFPRI International Food Policy Research Institute

ITK Indigenous Technical Knowledge

NARS National Agricultural Research Systems

NGOs Non-Government Organisations

NRM Natural Resource Management

OCFELE Opportunities Cost of Female Labour Effect

OLS Ordinary Least Square

PADETS Participatory Demonstration and Training Extension System

PAs Peasant Associations

SLF Sustainable Livelihood Framework

RPNRE Reduced Pressure on Natural Resource Effect

SAPS Structural Adjustment Programmes

SCF/UK Save the Children Fund/United Kingdom

SSA Sub-Saharan Africa

TLU Tropical Livestock Units

US United States of America

LIST OF TABLES

Table 1.1: Distribution of total number of households and cropped area (ha) in
1996/973
Table 1.2: Peasant associations and districts covered by the study
Table 2.1: Comparison of actual average size and minimum size of cultivated land required (ha)
Table 3.1: An overview of cropland tenure security in Ethiopia
Table 3.2: An overview of forest and grazing land tenure security in Ethiopia64
Table 4.1: Summary of the basic features of the study sites
Table 4.2: Local terminology for socio-economic categories78
Table 4.3: Tests of equality of group means (pooled)
Table 4.4: Test of significance of group of functions (pooled)
Table 4.5: Structure matrix (pooled sample)
Table 4.6: The summary of household typology by site
Table 4.7a: Mean value of family structure, by site
Table 4.7b: Mean value of family structure, by types of household
Table 4.8: Mean distribution of cultivated land, livestock and farm implements, by types of
household86
Table 4.9: Ability to save cash and access credit, by types of household
Table 4.10: Socio-economic differentiation by gender of heads of households 88
Table 5.1: Change in the cultivated land size per household over-time92
Table 5.2: Trends in food crop and cash crop production in the Hararghe Highlands since the
early 1990s (percentage of households growing/used to grow the crop in question)105
Table 5.3: Income possibilities for staple foods and the main cash crops in the HHs
108
Table 5.4: Type of conservation structure used by households
Table 5.5a: Technology use, by site
Table 5.5.b: Technology use, by types of household
Table 5.6: Definition of variables for assessing the determinants of fertiliser use
Table 5.7 a: Logistic regression estimates of the determinants of adoption of chemical fertiliser in
the Hararghe Highlands115
Table 5.7b: Logistic regression estimates of the determinants of adoption of chemical fertilisers in
the Hararghe Highlands (alternative model)
Table 5.8: The rate of Participation in livestock-rearing activities, by types of householdds 120
Table 5.9a: Participation in off-farm/non-farm activities, by types of household in the HHs
(expressed as percentage of participants)
Table 5.9b: Participation in off-farm/non-farm activities, by site in the HHs (percentage of
participant)

Table 5.10a: Mean household income portfolios, by types of household (proportion of the	
total income which is = 1.00)	127
Table 5.10b: Mean household income portfolios, by sites (proportion of thetotal income which	is
= 1.00)	
Table 5.11: Mean diversification indices, by site and types of household	128
Table 5.12a: Definition of variables for assessing the determinants of participation in off-	
farm/non-farm activities	128
Table 5. 12b: Logistic regression estimates of the determinants of diversification into off-farm	and
non-farm activities in the HHs	129
Table 5.13: Migration situation in Hararghe	132
Table 5.14a: The extent of participation of children in different farming and household	
activities in Hararghe	
Table 5.14b: Parents' perception of the value of their children's labour services in the HHs	135
Table 5.15a: Parents' perception of the value of their children as old age insurance, by	
types of household	
Table 5.15b: Parents' perception of the value of their children as old age insurance, by site	. 136
Table 5.16a: Differences in the demographic characteristics (mean), by types of household.	. 140
Table 5.16b: Differences in the demographic characteristics (mean), by site	. 141
Table 5.17: OLS estimates of the determinants of the actual family size and desired number	
children by women of reproductive age in the HHs	
Table 6.1: Typical minimum consumption basket for low-income households in Ethiopia	
Table 6.2a: Food security status, by site	
Table 6.2b: Food security status, by types of household	
Table 6.3: Definition of variables for assessing the determinants of households' food security	
the HHs	. 154
Table 6.4: Logistic estimates of the determinants of food security status of households	
in the HHs	. 155
Table 6.5: OLS and Logistic estimates of the determinants of long-term nutritional status of	
average and average LILLs	157

LIST OF FIGURES

Figure 2.1: Labour force, output growth and 'optimum' population	. 34
Figure: 2.2: Positive effect of population pressure on rural livelihood and natural resource	. 49
Figure 2.3: A framework for analysing rural livelihood strategies in the context of population	
pressure	. 56
Figure 4.1: Box-plot distribution of livestock in tropical livestock unit	
Source: developed from own field survey data	. 86
Figure 4.2 Socioeconomic categories by gender of household head	. 88
Figure 5.1 Spatial and temporal aspects of expansion of agricultural land in Sabale	. 95
Figure 5.3: Value of main agricultural exports (in thousand birr)	107
Figure 5.3: Mean household income portfolio, all sites	126

LIST OF TEXT BOXES

Box 5.1: Coping with the increasing shortage of grazing land in the Hararghe Highlands	97
Box 5.2: "Sorghum dies seven times and resurrects seven times"	01
Box 5.3: Capital deficient intensification leads to soil mining and a yield decline	102
Box 5.4 a: Why do poor households diversify their livelihoods?	123
Box 5.4b: Why do better-off households diversify their livelihoods?	124
Box 5.5: Deliberate restrictions on free labour movement in Ethiopia	133
Box 5.6: Weakening community-based support systems	137