

Table of Contents

Dedication	i
Acknowledgement.....	iii
Table of Contents.....	v
List of Figures	viii
List of Tables.....	ix
List of Acronyms	x
Chapter one	1
Introduction	1
1.1. Background	1
1.2. Statement of the Problem.....	4
1.3. Basic Questions.....	6
1.4. Objectives of the Study	7
1.5. Organization of the Study	7
Chapter Two.....	9
Climate Change and Variability: The Discourse, Measuring the Economic Impacts and Adaptation in Agriculture	9
Introduction	9
2.1. Climate Change Discourse.....	10
2.2. Economic Approaches to Measure the Impact of Climate on Agriculture.....	17
2.2.1. Structural Approaches	17
2.2.2. Spatial Analogue Approaches	19
2.2.3. The Production Function.....	26
2.3. Adaptation to Climate Variability and Change.....	29
2.3.1. Conceptualizing Adaptation.....	30
2.3.2. Adaptation to Climate Variability and Change in Agriculture	33
2.3.3. Theoretical Approaches to Agricultural Adaptation at Micro-Levels.....	35
Concluding Remark.....	42
Chapter Three	44
Theoretical and Methodological Framework	44
Introduction	44
3.1. Conceptualizing Climate Variability and Climate Change.....	44

3.2. Theoretical Framework	48
3.3. The Research Approach	53
3. 4. The Study Area and the Selection Process.....	55
3.5. Sampling and Data Collection Process	59
3.6. The Design of Questionnaire and Interview Procedure	61
3. 7. Data Analysis	62
Concluding Remark	63
Chapter Four	64
Exploring Local Knowledge on Climate Variability and Change.....	64
Introduction	64
4.1. Analytical Approach.....	64
4.2. Demographic Characteristics of the Respondents (Sample Households)	66
4.3. Farmers' Perception and the Trend of Climate Variables	69
4.4. Farmers' Description, Detection and Attribution of Climate Variability and Change	77
4.4.1. Detection through Farmers' Concrete Experiences	83
4.4.2. Farmers' Attribution of Observed Changes in the Local Climate	85
4.5. Farmers' Description of Impacts of Climate Variability and Change.....	90
4.6. Climate Stress Factors in the Face of Non-Climate Stressors.....	98
Concluding Remark	101
Chapter Five	103
The Economic Impact of Climate Variability and Change on Crop Production.....	103
Introduction	103
5.1. The Model Framework.....	103
5.2. Model Specification.....	108
5.2.1. Stage one	108
5.2.2. Stage two.....	109
5.3. Estimation Technique and Econometric Issues	110
5.4. Model Estimation and Discussion	113
5.5. Projecting the Impacts of Climate Change and Weighing the Impact of Climate Variability	117
Concluding Remark	122

Chapter Six	123
Adaptive Behavior among Farmers	123
Introduction	123
6.1. Model Framework.....	123
6.1.1. Framing Adaptive Behavior from Psychological Perspective	125
6.1.2. Framing Adaptive Behavior from SEI Perspective.....	127
6.2. Empirical Model	128
6.3. Assumptions and Model Performance in Logistic Regression.....	130
6.4. Descriptive Analysis	133
6.4.1. Farmers' Adaptive Strategies	133
6.4.2. Barriers to Adaptation	134
6.5. Regression Analysis and Discussion	137
6.5.1. Impact of Perception Factors on Adaptive Behavior.....	138
6.5.2. Impact of SEI Factors on Adaptive Behavior.....	141
Concluding Remark	146
Chapter Seven	148
Conclusion and Outlook	148
7.1. Revisiting the Research Problem and the Gaps in the Literature	148
7.2. Summary of Major Research Findings.....	149
7.3. Theoretical Contributions and Policy Implications of the Study and Outlook....	152
7.3.1. Towards Local Discourse of Climate Variability and Change: Bridging the Gap in Climate Change Discourse	152
7.3.2. Towards the Very Form of Climate Critical to Subsistence Farming: Bridging the Gap in the Emphasis of Climate Concern.....	155
7.3.3. Towards Integrated Approach to Adaptive Behavior: Bridging the Gap between Psycho-cognitive and Socioeconomic Approaches.....	156
7.3.4. Towards Mitigation Actions at Local Levels: Bridging the Gap in Local Response.....	157
7.3.5. Towards Addressing the Needs of the Disadvantaged Groups: Bridging the Gap in Social Networks and Institutional Arrangements.....	158
References	159
Appendix	182