

**PEASANT TRANSFORMATION IN KENYA: A FOCUS ON AGRICULTURAL
ENTREPRENEURSHIP WITH SPECIAL REFERENCE TO IMPROVED FRUIT
AND DAIRY FARMING IN MBEERE, EMBU COUNTY**

BY

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DECLARATION

This thesis is my original work and has not been submitted for a degree in any other university.

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TABLE OF CONTENTS

DECLARATION.....	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	vii
LIST OF FIGURES	viii
ABBREVIATIONS AND ACRONYMS.....	ix
ACKNOWLEDGEMENTS	xi
ABSTRACT.....	xii
CHAPTER ONE	1
INTRODUCTION AND STATEMENT OF THE RESEARCH PROBLEM	1
1.1 Introduction.....	1
1.2 Statement of the Research Problem	5
1.3 Research Questions	8
1.4 Hypotheses	9
1.5 Objectives of the Study.....	10
1.6 Justification and Significance of the Study.....	10
1.7 Definition of Key Concepts	12
1.7.1 Operationalization of Concepts and Variables	13
1.8 Scope and Limitations of the Study	14
1.9 Organization of the Thesis	15
CHAPTER TWO	16
AGRICULTURAL ENTREPRENEURSHIP AND ASPECTS OF PEASANT TRANSFORMATION: A REVIEW OF THE LITERATURE	16
2.1 Introduction.....	16
2.2 Peasants and Peasant Societies: Some Conceptual Issues	17
2.3 Trends in Agricultural Entrepreneurship in Africa.....	20
2.4 Political Origins of Agricultural Entrepreneurship in Kenya	22
2.5 Overarching Theories for the Study.....	27
2.5.1 Marxism-Leninism and Social Change	27
2.5.2 Neo-Liberalism and Social Change.....	31
2.5.3 Schumpeterian Entrepreneurship and Social Change	33
2.6 Innovation, Entrepreneurship and Development: An Overview.....	35
2.6.1 Role of Agricultural Innovation and Entrepreneurship in Development	37
2.7 Linking Agricultural Entrepreneurship to Poverty Reduction and Peasant Transformation	43
2.7.1 Agricultural Entrepreneurship, Accumulation and Social Differentiation....	47

2.7.2 Agricultural Entrepreneurship and Social Change: Cultural and Political Reorientation of Peasants	50
2.8 Theoretical and Conceptual Frameworks for the Study	53
2.8.1 Theoretical Framework	53
2.8.2 Conceptual/Analytical Framework.....	61
2.9 Chapter Summary and Conclusion	65
CHAPTER THREE	66
METHODOLOGY AND DATA ANALYSIS	66
3.1 Introduction.....	66
3.2 Research Design.....	70
3.2.1 Sampling Procedure for Dynamic Panel Respondents	71
3.2.2 Sampling of Key Informants	73
3.2.3 Research Instruments	75
3.2.4 Why Mbeere Was Chosen for the Study	75
3.3 Study Methodological Approach	75
3.4 Data Analysis	79
3.4.1 Analysis of Dynamic Panel Quantitative Data.....	79
3.4.2 Analysis of Dynamic Panel and Key Informant Qualitative Data	80
3.5 Chapter Summary and Conclusion	83
CHAPTER FOUR.....	84
MBEERE: THE STUDY SETTING	84
4.1 Introduction.....	84
4.1.1 Mbeere District: Some Background Information	85
4.2 Geography and Population.....	86
4.3 Administrative Units.....	87
4.4 Climate and Agro-Ecological Zones.....	87
4.5 Physical Infrastructure/Social Overhead Capital	88
4.6 A Political Economy of Mbeere	90
4.6.1 A Brief History of the Mbeere	90
4.6.2 Peasant Economy and the Colonial Experience	92
4.6.3 Local Economy, Agriculture and Poverty	93
4.6.4 Local Level Electoral Politics	94
4.7 Land Ownership, Tenure and Rights	96
4.7.1 Land Reform and the Market	98
4.7.2 Innovation and the Roots of Agricultural Entrepreneurship in Mbeere	100
4.8 Chapter Summary and Conclusion	102
CHAPTER FIVE	103
THE SEEDS OF PEASANT TRANSFORMATION IN MBEERE: IMPROVED FRUIT AND DAIRY FARMING INNOVATIONS	103
5.1 Introduction.....	103
5.2 Colonial and Post-colonial Agricultural Innovation in Kenya	104
5.3 Farmer Innovation in Mbeere: The Colonial Origins	107

5.3.1 Commodity Production and the Origins of Social Differentiation in Mbeere	110
5.4 Introduction of Improved Fruit Farming in Mbeere	111
5.4.1 Introduction of Improved Mango Varieties in Kenya	112
5.4.2 Constraints to Improved Fruit Farming in Mbeere	116
5.5 Introduction of Improved Dairy Farming in Mbeere	119
5.5.1 Constraints to Improved Dairy Farming in Mbeere	121
5.6 Chapter Summary and Conclusions.....	123
CHAPTER SIX	125
THE TRANSFORMATION OF INNOVATION INTO ENTERPRISE	125
6.1 Introduction.....	125
6.2 Motivations for Improved Fruit Farming in Mbeere	126
6.2.1 Land Set Aside for Improved Fruit Farming.....	127
6.2.2 Financial Investments and Recurrent Costs in IFF	128
6.2.3 Outputs and Markets for Improved Fruit Farmers	130
6.2.4 Role of Middlemen in Fruit Trading.....	135
6.2.5 Farm-nonfarm Linkages	136
6.3 The Case of Improved Dairy Farming.....	137
6.3.1 Land Investments in Improved Dairy Farming	138
6.3.2 Financial Investments and Recurrent Costs in Improved Dairy Farming ...	139
6.3.3 Milk Outputs and Markets.....	142
6.3.4 Role of Middlemen in Milk Trade	144
6.3.5 Farm-Nonfarm Linkages for IDF	145
6.4 Chapter Summary and Conclusions.....	145
CHAPTER SEVEN.....	147
FROM HOUSEHOLD ENTERPRISE TO HOUSEHOLD TRANSFORMATION: INCOMES, POVERTY REDUCTION, WEALTH AND EMPLOYMENT CREATION	147
7.1 Introduction.....	147
7.2 Improved Household Incomes and Wellbeing.....	148
7.3 Poverty Reduction.....	152
7.4 Wealth and Employment Creation.....	161
7.4.1 Wealth Creation.....	161
7.4.2 Employment Creation.....	165
7.5 Improved Physical Infrastructure.....	169
7.6 Chapter Summary and Conclusions.....	172
CHAPTER EIGHT	174
AGRICULTURAL ENTREPRENEURSHIP AND FURTHER TRANSFORMATION: ACCUMULATION AND SOCIAL DIFFERENTIATION IN MBEERE.....	174
8.1 Introduction.....	174
8.1.1 Accumulation and Social Change: A Recapitulation	175
8.2 Age and Gender Differentiation.....	177

8.3 Educational Level and Ethnic Differentiation among Innovators	179
8.4 Behavioral, Functional and Occupational Differentiation	180
8.4.1 Behavioral Attributes: Perceptions towards Innovation and Entrepreneurship and Motivations	181
8.4.2 Functional Attributes: Individual Roles in Growing Innovations into Enterprises	182
8.4.3 Occupational Attributes: Farm and Non-farm Work Experiences of Innovators	183
8.5 Accumulation and Social Change in Mbeere	184
8.6 Accumulation and Political Relevance	187
8.7 Chapter Summary and Conclusions.....	189
CHAPTER NINE	191
SUMMARY OF FINDINGS, CONCLUSIONS AND IMPLICATIONS FOR POLICY AND DEVELOPMENT THEORY.....	191
9.1 Introduction.....	191
9.2 Innovators and the Seeds of Peasant Transformation in Mbeere.....	191
9.3 Transformation of Innovations into Profitable Household-based Enterprises.....	193
9.4 Entrepreneurial Innovation and Household Wellbeing.....	194
9.5 Household Accumulation and Social Differentiation	194
9.6 Rethinking Agriculture and Rural Development: The Policy Debate	196
9.7 Implications of Study Findings for Development Theory	201
9.8 Contribution of Study to the Peasantry Debate.....	204
9.9 Areas for Further Research	207
REFERENCES.....	208
APPENDICES.....	244
APPENDIX I: STRUCTURED QUESTIONNAIRE FOR QUANTITATIVE INFORMATION FROM DYNAMIC PANEL OF 200 FARMER INNOVATORS IN MBEERE (administered in 1996/97; 2006/07 and 2013/14).....	244
APPENDIX II: INTERVIEW GUIDE FOR QUALITATIVE INTERVIEWS WITH DYNAMIC PANEL OF 200 FARMER INNOVATORS.....	259
APPENDIX III: INTERVIEW GUIDE FOR KEY INFORMANTS.....	261

LIST OF TABLES

Table 2.1: The Anatomy of Entrepreneurship: A Modular Reconstruction	41
Table 3 1: Distribution of Key Informants	74
Table 4 1: Contribution of Agriculture to Household Income in Selected Districts	93
Table 4 2: Incidence of Poverty for Selected Districts	94
Table 5 1: Adoption Trend of Improved Fruit Farming	114
Table 5 2: Land Price Range in AEZs 4 and 5, 1970-2008	115
Table 6 1: Land Invested in Improved Fruit Farming, 1997-2014	127
Table 6 2: Increase in Number of Improved Fruit Trees (1997-2007)	128
Table 6 3: Recurrent Seasonal Financial Investments in IFF, 2005-2007	129
Table 6 4: Seasonal Fruit Sales (Mid-1990s and Mid 2000s).....	131
Table 6 5: Main Markets for Improved Fruits (Mangoes) in the Mid-1990s	132
Table 6 6: Main Markets for Improved Fruits (Mangoes) in the Mid-2000s	133
Table 6 7: Main Source of Market Information among the IFFs.....	134
Table 6 8: Distribution of Improved Dairy Cows among Respondents, 1997 and 2007	138
Table 6 9: Land Set aside for Improved Dairy Farming	139
Table 6 10: Main Source of Market Information among Improved Dairy Farmers	143
Table 6 11: Average Monthly Milk Sales from Improved Cows, Mid-1990s and Mid-2000s.....	144
Table 7 1: Average Seasonal Household Incomes from Improved Fruit Sales, 2007-2014	149
Table 7 2: Incomes from Improved Dairy Farming by Enterprise Size (Ksh.)	151
Table 7 3: Incomes from Improved Dairy Farming by Enterprise Size (Ksh.)	152
Table 7 4: Aspects of Poverty Reduction among the Farmer Innovators	159
Table 7 5: Aspects of Wealth Creation among the Farmer Innovators.....	163
Table 7 6: Employment Creation by Improved Fruit and Dairy Farming Enterprises, 2007	165
Table 8 1: Age Differentiation among the Innovators	177
Table 8 2: Gender Differentiation among the Innovators	179
Table 8 3: Comparative Education Levels among Improved Fruit and Dairy Farmers..	179
Table 8 4: Ethnic Differentiation among Household Heads	180
Table 8 5: Main Work Experience among the Innovators	183

LIST OF FIGURES

Figure 2. 1: Agricultural Entrepreneurship and Peasant Transformation: An Eclectic Marxian, Neo-liberal and Schumpeterian Theoretical Frameworks	61
Figure 2. 2: Conceptual Framework on Peasant Transformation	64

ABBREVIATIONS AND ACRONYMS

ADF	African Development Fund
AEZs	Agro-Ecological Zone(s)
AFC	Agricultural Finance Corporation
AIDS	Acquired Immune Deficiency Syndrome
AKIS	Agricultural Knowledge and Information Systems
APTF	Anti-Poverty Trust Fund
ASDS	Agricultural Sector Development Strategy
ASAL	Arid and Semi-Arid Lands
CBS	Central Bureau of Statistics (now Kenya National Bureau of Statistics)
CDF	Constituency Development Fund
CDTF	Community Development Trust Fund
CGIAR	Consultative Group on International Agricultural Research
CIGs	Common Interest Group(s)
CLSMB	Cotton Lint and Seed Marketing Board
CPK	Church of the Province of Kenya
CPPs	Core Poverty Programme(s)
DAO	District Agricultural Officer
DAREP	Dryland Applied Research and Extension Project
DDCs	District Development Committee(s)
DFRD	District Focus for Rural Development
EMI	Embu Meru and Isiolo
ERS	Economic Recovery Strategy
ESP	Economic Stimulus Programme
EU	European Union
FAO	Food and Agriculture Organization
FFV	Fresh Fruits and Vegetables
FSR	Farming Systems Research
FTC	Farmers Training Centre
GAPs	Good Agricultural Practices
GDP	Gross Domestic Product
GoK	Government of Kenya
HCDA	Horticultural Crops Development Authority
HIV	Human Immuno-deficiency Virus
HPI	Human Poverty Index
ICEG	International Centre for Economic Growth
ICRAF	International Centre for Research in Agroforestry
IDF	Improved Dairy Farming/Farmers
IDS	Institute for Development Studies (Nairobi/Sussex)
IFF	Improved Fruit Farming/Farmers
IFPRI	International Food Policy Research Institute
ILAC	Institutional Learning and Change
ITDG	Intermediate Technology Development Group
ITK	Indigenous Technical Knowledge
KARI	Kenya Agricultural Research Institute

KEFRI	Kenya Forestry Research Institute
KFA	Kenya Farmers Association
KGGCU	Kenya Grain Growers Cooperative Union
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KNBS	Kenya National Bureau of Statistics
KNCCI	Kenya National Chamber of Commerce and Industry
K-REP	Kenya Rural Enterprise Programme
KWFT	Kenya Women Finance Trust
Leg. Co	Legislative Council
MDGs	Millennium Development Goals
MP	Member of Parliament
MSE	Micro and Small Enterprise
MTEF	Medium Term Economic Financing
NALEP	National Agriculture and Livestock Extension Programme
NARC	National Rainbow Coalition
NARS	National Agricultural Research Organizations
NCPB	National Cereals and Produce Board
NGO	Non-Governmental Organization
NPEP	National Poverty Eradication Plan
NRI	Natural Resources Institute (UK)
ODA	Overseas Development Assistance
ODI	Overseas Development Institute
ODM	Orange Democratic Movement
OECD	Organization for Economic Cooperation and Development
PEC	Poverty Eradication Commission
PIP	Public Investment Programme
PRSP	Poverty Reduction Strategy Paper
R&D	Research and Development
RLF	Revolving Loans Fund
ROSCAS	Rotating Savings and Credit Associations
SACCOs	Savings and Credit Cooperatives
SAPs	Structural Adjustment Programmes
SDD	Social Dimensions of Development
SID	Society for International Development
SPSS	Statistical Package for Social Scientists
SRA	Strategy for Revitalizing Agriculture
SRDP	Special Rural Development Programme
SSA	Sub-Saharan Africa
SSI	Small Scale Irrigation
TARDA	Tana and Athi Rivers Development Authority
UNDP	United Nations Development Programme
WEF	Women's Enterprise Fund
WHO	World Health Organization
WSSD	World Summit for Social Development (Copenhagen)
WTO	World Trade Organization
YEDF/YEF	Youth Enterprise Development Fund

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ABSTRACT

Peasants are agricultural communities whose livelihoods revolve around their relations with land and the environment. Previous attempts to understand peasant transformation in Africa have often painted peasants as traditional and/or conservative societies that remain poor and backward because of fear to take the risks associated with experimenting with new or unfamiliar ideas. However, recent developments in rural Kenya tend to indicate that peasant societies are not static but receptive to new ideas and will especially embrace those that promise to take them out of poverty. Thus, although innovation is not new in peasant studies, it is entrepreneurship-driven innovation that has the potential for peasant transformation by effectively tackling poverty and creating employment and wealth. However, previous studies have tended to associate entrepreneurship with the urban-based commercial and industrial sectors and recently the jua kali or informal sector, thereby dismissing the potential of peasants to become agricultural entrepreneurs.

This study examines how peasants read the environment and take deliberate steps to transform their lives for the better. Specifically, it is about how some Mbeere peasants from Embu County have taken themselves out of poverty by taking advantage of the market and transforming two innovations into profitable household-based agricultural enterprises i.e. improved fruit and dairy farming. It uses an eclectic approach that combines three theories: a Marxist-Leninist theoretical perspective to show how society evolves from one stage to another in time perspective through interaction with the environment, neo-liberalism to explain how peasants take advantage of the market to generate profit from agricultural production thereby becoming entrepreneurs or agrarian capitalists; and a Schumpeterian perspective to explain the relationship between innovation and entrepreneurship.

It analyzes data collected over a 17-year period from a dynamic panel of 200 farmers and key informants. The study came out with three main findings. First, among peasant societies, the seeds of agricultural entrepreneurship are sowed through introduction of market-driven innovations and the transformation of such innovations into household businesses or enterprises. In Mbeere, it was through the introduction of improved fruit and dairy farming. Second, the emergence of household-based agricultural enterprise leads to household transformation mainly through increased incomes, poverty reduction, and wealth and employment creation. A major transformative effect is improved household wellbeing. Third and finally, agricultural entrepreneurship contributes to further transformation in the sense that sustained accumulation of wealth, coupled with associated local infrastructural development, leads to socio-cultural and structural differentiation which has class formation and other political implications. These findings appear to suggest that innovation and entrepreneurship can henceforth be studied together in or applied to agriculture. The study shows that peasants can willfully abandon traditional subsistence farming and embrace agriculture as a business and proactively interact with the market and the state to improve the quality of their lives. In the process, they acquire political relevance and visibility and local level development

takes place. The study recommends a roping in of the private sector in rural development through specific policy interventions by the state and other institutions.

CHAPTER ONE

INTRODUCTION AND STATEMENT OF THE RESEARCH PROBLEM

1.1 Introduction

Peasant agricultural communities populate much of Africa from the Atlas Mountains of Morocco and Algeria to the Southern Cape of South Africa and from the Gambia to Ethiopia and Djibouti. They are also found in parts of Asia and Latin America. Marx (1867; 1904; 1935) and Lenin (1939; 1946; 1956) defined and wrote about the Russian and European peasantries during the late 19th and early 20th centuries. The African peasantries in particular have been difficult to define and/or conceptualize owing to their composite nature and the myriad of socio-cultural, economic and political environments that have shaped their livelihoods through history.

It is notable that in the early 1970s, Theodore Shanin (1971), Joshua Forrest (1982); and Henry Bernstein (1977; 1979; 1988) provided working definitions of the peasantry. A seeming consensus was that peasants were simple agricultural producers who, with the help of rudimentary technology and the labour of their families, produced for consumption and sold the surplus to the market to meet household cash needs. At another level, peasants had an obligation to meet the demands of the holders of political power. This early conceptual framework takes into account two things that are central to this thesis. One is that peasants are dynamic entities that interact with key institutions, notably, the market and the state. This interaction has had major implications for peasant transformation. On the one hand, interaction with the state has changed them from simple agricultural producers (defined by a survival mentality) to capital-owning consumers. Interaction with the state has also improved their ability to make production and consumption choices and how to relate with other institutions of the state for their own benefit. On the other hand, interaction with the market has modelled some of them into conscious and rational investors of capital, labour and time, thereby generating profit out of farming by doing agriculture as business. This suggests that some of them have actually become entrepreneurs because they have been able to innovate and transform

their innovations into household-based micro, small and medium enterprises thereby occasioning significant agrarian change (Bernstein and Byres, 2001).

Studies of African peasant societies in particular seem to have proceeded on two fronts. On the one hand is the traditional view that such societies were basically rural and dominated by a moral economy that made them conservative and resistant to innovation and change. For this reason, peasants remained poor communities, vulnerable to the excesses of external forces such as finance capital and the state, whose policies would do little to modernize them (Hyden, 1980; 1983). On the other hand is the view that African peasants do not live isolated from the rest of the world and have the ability to spontaneously respond to economic incentives that may come in the form of farm profits. By so doing, they not only modernize their peasant economies but also improve the quality of their lives (Prahalad, 2005; Chambers, 2005; Maxon, 2003; Hill, 1997).

There is no doubt that Africa's rural societies have been undergoing change since the colonial state introduced the market economy based on commodity production. However, it is unclear whether such change has been transformative to peasant producers or has preserved them as a captive pool of reserve labour. It is also not clear the extent to which agricultural entrepreneurship has been responsible for such transformation and so is the direction and magnitude of the transformation. Nevertheless, there is evidence that agricultural entrepreneurship is associated with poverty reduction and wealth creation (Wegulo and Obulinji, 2000; Reardon, Berdegue and Escobar, 2001; Holzl et al, 2008; Makana, 2009; Key and Runsten, 2013). Since innovation is a constituent part of entrepreneurship, the question to ask is: to what extent can entrepreneurial innovation bring about fundamental change to peasant societies, in this case via agriculture?

Innovation and entrepreneurship are not synonymous. An innovation is a new idea, a new way of doing things or doing something that has been done in the past in a new way. In this case, an innovation may be in the form of an invention or adaptation. On the other hand, entrepreneurship has to do with perception of a profit opportunity and mobilization of resources (usually under conditions of risk) to exploit the opportunity to make money or create wealth. Money and/or wealth have wider ramifications for the quality of life and

this is how entrepreneurship transforms or changes people's lives for the better. This implies that without entrepreneurial thinking, an opportunity can easily go to waste. In agriculture, opportunities come in the form of innovation and, when an innovation is entrepreneurship-driven, it grows into an enterprise or business venture.

While innovation is as old as history, entrepreneurship traces its origins to the first half of the 18th Century courtesy of the work of the French economist, Richard Cantillon. The two key development studies concepts have been studied separately throughout history until Joseph Schumpeter (1934) introduced five innovations which he argued constituted entrepreneurship. These were: introduction of a new good; introduction of a new method of production; discovery and use of a new source of raw material; conquest of a new market; and new organization of any industry. Schumpeter's thesis was that the key attribute of entrepreneurship was innovation. Indeed, it would be unrealistic to conceptualize entrepreneurship without innovation.

This meant that the two concepts could henceforth be studied together. However, this conceptualization was thought to have been applicable only to the urban-based business/commercial and industrial sectors and not in agriculture, particularly the peasantry in rural Africa where agriculture is the main economic activity. It was not until the 1950s that studies on farmer adoption of hybrid maize in the US State of Iowa popularized the notion of agricultural innovation on a large scale. All this while, agricultural innovation and entrepreneurship were thought to be non-applicable to small-scale peasant agriculture. The prevailing knowledge was that peasant farmers were neither innovative nor entrepreneurial (Hyden, 1980; Bernstein, Crow and Johnson, 1992; Ellis, 1988; 1993; 1999; 2000). However, recent studies on innovation leave little doubt that some peasant farmers adopt agricultural innovation from time to time although understanding such innovation from an entrepreneurship perspective has been lacking (Chambers, 1983; Chambers, Longhurst and Pacey, 1981; Chambers, Pacey and Thrupp, 1989; Grebel, 2007; Collier and Dercon, 2013).

A related issue is that African peasantries have been undergoing transformation over the last hundred years or so but it is still not clear what factors have been behind this transformation especially at the household level. Large-scale agricultural innovation dating back to commodity production during the colonial times is arguably one factor behind this transformation. However, small-scale farmer entrepreneurship is still conspicuously lacking in the literature even though it is recognized that this transformation has been through individual farmer innovation which, when combined with entrepreneurship, leads to household-based accumulation and poverty reduction.

Agricultural innovation has both direct and indirect effects on poverty (Berdegue and Escobar, 2002). The adoption of technology largely determines the extent to which a household exits poverty. This in turn is influenced by other factors which include the institutions and incentives available to farmers (Berdegue and Escobar, 2002). Among the direct effects on poverty are the actual benefits such as profits accruing to the farmers. A new technology improves a farmer's income by reducing the marginal cost of producing one unit of output, and since the older technology drives output prices, the early adopters benefit from increased profits by using the new technology. The non-adopters who insist on using the old technology will not access this benefit. The early adopters benefit from a given productivity-enhancing technology through increased prices of farm commodities that are also the result of reduced costs per unit of output. The indirect effects of agricultural innovation on poverty include among others, access to new information and market outlets; wealth and employment creation; and assumption of new social status in society.

The above notwithstanding, poor farmers may innovate but they lack the necessary access to capital, skilled labour, information, and infrastructure. Therefore, they may not benefit from the direct effects of technological change relative to the larger commercial farmers. Indeed, unsubsidized poor farmers face barriers to entry into entrepreneurial activities even if they have noble innovations in mind. Favorable asset portfolios and production environments, better technologies, policies and institutional incentives are more conducive to the success of entrepreneurial farming initiatives. Although the poorer

farmers may lack these, they are nevertheless sources and conduits of agricultural innovation.

Poor farmers may have the incentives to engage in market-driven agricultural innovation processes but lack the capacity to fully respond to any arising profit opportunities. Such farmers are also unlikely to benefit from knowledge outputs of public and private Research and Development (R&D) institutions either because their assets are too limited, the productivity of such assets is too low or because the transactions costs facing them are too high. However, it is this group of farmers that represents the best opportunity to link agricultural innovation to poverty reduction in the developing countries. How they surmount factor scarcities, capability deficiencies, and environmental inhibitions among other barriers of production constitute the very raw materials for peasant transformation. Agricultural entrepreneurship and innovation are nonetheless fundamental elements of this transformation. This raises the need to examine how they contribute to the transformation of peasants and the society in general. This study therefore offers a good opportunity to examine how the two are linked to social change whose main features are poverty reduction and improved household wellbeing.

1.2 Statement of the Research Problem

The debate on whether or not the Kenyan peasantry was transformed as a result of external or endogenous capital died off in the 1980s. Ignited by Cowen's (1976) study on the impact of capital on peasant households in Central Kenya, the debate ended inconclusively. However, there was a general consensus that peasants were not resistant to change or risk-averse. They are receptive to new ideas and have been reacting towards them in various ways. In particular, the incentives offered by the market continue to entice the peasants as they are associated with tangible benefits and structural changes that in the long run transform peasant livelihoods in fundamental ways. One of these incentives is the profit associated with the discovery and exploitation of market opportunities. Market opportunities, on the other hand, are discovered and exploited only by the innovative individuals who are alert to such opportunities (the entrepreneurs). When such individuals exploit the opportunities and reap the benefits accruing usually in

the form of income, they become successful entrepreneurs. This establishes innovation as a central attribute of entrepreneurship. However, the available literature looks at entrepreneurship with reference to the urban-based business and industrial sectors and ignores the agricultural sector. The literature reinforces the old argument that peasant farmers are neither innovative nor entrepreneurial, yet there is growing realization that peasants would exit from poverty if they practiced agriculture as a commercial activity. They can only do this by adopting innovative skills and exploiting entrepreneurial opportunities.

This notwithstanding, the literature indicates that innovation and entrepreneurship may, in the past (from Kilby (1971) to Kingsbury (2013)), have been studied separately especially with respect to trade and industry. Even in agriculture (from Boserup (1965) to Collier and Dercon (2013)), it is suggestive that the two concepts do not stand on common ground. However, the Schumpeterian approach views entrepreneurship and innovation as closely related concepts to the extent that innovation is a subset of entrepreneurship. Nevertheless, innovation can exist alone without entrepreneurship and still contribute to poverty reduction, but the neo-Schumpeterian perspective views the two as closely related in such a way that entrepreneurship presupposes and drives innovation. It is this combination that is critical for poverty reduction in peasant communities but is poorly studied or not studied at all. In this regard, there is a need to establish how agricultural entrepreneurship has contributed to peasant transformation in rural Kenya and the role played by innovation in such transformation. This is important especially for marginal agricultural areas.

Thus, although agricultural innovation has been studied for a long time and has been found in peasant agriculture, it has not been associated with entrepreneurship because the latter was thought to be non-applicable to agriculture. However, in the last few decades, some marginal areas of rural Kenya seem to have undergone significant social change and/or transformation and at the same time there has been evidence of entrepreneurial behavior among the peasants that populate these areas. The implication is that peasants have taken innovation a notch higher which warrants that the two be studied

together to examine their potential and/or actual contribution to social change. More specifically, these two appear to play some role in alleviating poverty at household level especially when they work together rather than separately. This role is hitherto unknown. In peasant societies such as Mbeere, it is still unclear the extent to which entrepreneurship has driven farmer innovation towards poverty reduction and social transformation. All that one can say is that entrepreneurship has an equilibrating effect on social inequalities. It militates against exclusion without necessarily blocking the creation of social classes.

This study is about how agricultural entrepreneurship transforms the peasantry. It is about how agricultural entrepreneurship helps in the transformation of rural societies, specifically how peasants are able to transform their lives using innovative activities. Entrepreneurship is here taken to mean new and innovative approaches that peasants adopt and turn into income-generating activities and for subsistence and which in the process transform them into entrepreneurs. The study takes off from the foundation laid by Cowen's (1976) work on what capital does to peasant households. Cowen's work ignited the 1970s debate on African peasantries but the debate fizzled out in the early 1980s. The debate was fronted by neo-Marxists who argued that exogenous factors notably colonial capital and the market enslaved and impoverished peasant producers by expropriating and appropriating their means of production (land and labour) and turned them into a captive pool of cheap labour for the capitalists. Eventually, the peasants would be dissolved because they are incapable of coalescing around a common class ideology.

In reply, the neo-liberalists maintained that capital and the peasants would co-exist indefinitely because they needed each other. In particular, capital and the market unleashed peasant potential manifested through individual farmer innovation and entrepreneurship. The peasants would then use innovation and entrepreneurship to selectively respond to the incentives proffered by the State to confront poverty and improve the quality of their lives. For this reason, social change and/or transformation among the peasants would be endogenously engineered processes. As noted earlier, this

debate died in the early 1980s, inconclusively. Moreover, in the debate and subsequent studies, the role of farmer innovation and entrepreneurship in peasant transformation was neglected. Studies have continued to ignore this dimension yet it is critical for understanding how change or poverty reduction takes place.

This study thus intends to depart from where this debate ended and wishes to suggest a new paradigm to reconcile the Marxist-Leninist and neo-liberal perspectives on what the market actually does to the peasantry. It hopes to achieve this by studying the role of individual farmer entrepreneurship on social change and/or transformation in a peasant society and the implications of such change for future peasant studies in particular and development studies in general. It probes the circumstances in which innovation may contribute to peasant transformation through poverty reduction at the household level and what happens especially when innovation is entrepreneurship-driven or market-mediated.

When little is known about a given area of inquiry, an exploratory study is justified. This is why this study explores the dynamics and magnitude of peasant transformation through agricultural entrepreneurship. It focuses on one of Kenya's marginal, low-potential peasant communities, Mbeere, in Embu County. As noted above, previous studies on this subject have focused on high-potential areas with large-scale farming. Second, the observable social, economic and political change/transformation in the last two decades has not been studied and/or documented. Combined, these factors make Mbeere a suitable area for the study to fill the underlying gaps in our understanding of how agricultural entrepreneurship transforms peasant societies.

1.3 Research Questions

The overall research question guiding this study was: with particular reference to Mbeere, why do some peasant farmers defy tradition and venture into totally unknown and risky innovations? Put differently and with regard to the Mbeere political economy in the last two decades, what has been the role of agricultural entrepreneurship in peasant transformation and what are the implications of such transformation for local development?

The specific research questions were as follows:

1. How were the seeds of peasant transformation planted in Mbeere and what category of peasants was responsible?
2. How and why did the innovating peasants take advantage of the market and favorable state policies to transform their innovations into profitable household-based enterprises?
3. What has been the contribution of entrepreneurial innovation to household poverty reduction and wellbeing, wealth creation and employment generation in Mbeere?
4. What are the implications of household accumulation for further peasant transformation in terms of social differentiation or class formation?

1.4 Hypotheses

In line with the above research questions, four hypotheses guided the study.

1. That the seeds of peasant transformation in Mbeere are to be found in agricultural entrepreneurship which took place through adoption of two market-driven innovations i.e. improved fruit and dairy farming.
2. That those peasants who were keen on exiting poverty or saw the innovation (improved fruit or dairy farming) as an opportunity to exit poverty mobilized the necessary resources to transform their innovations into profitable household-based enterprises.
3. That the introduction of entrepreneurship-driven innovation has been responsible for some level of poverty reduction at the household level with the transformative effects being felt mostly in the areas of increased household incomes and improved improved wellbeing and wealth and employment creation.
4. That agricultural entrepreneurship constitutes a major basis of capital formation and accumulation among peasant societies and sustained accumulation, together with improved household wellbeing and infrastructural development, have implications for social differentiation, which in turn has political ramifications.

1.5 Objectives of the Study

The study's objectives were to:

- (i) Investigate how the seeds of peasant transformation were planted in Mbeere and what category of peasants was responsible. In particular, the study examines the historical, political and institutional contexts in which improved fruit and dairy farming were introduced in a peasant society such as Mbeere;
- (ii) Examine how the two agricultural innovations were transformed into profitable household-based enterprises and by whom;
- (iii) Examine what aspects of Mbeere peasant livelihoods have been most affected by agricultural entrepreneurship. Specifically, the study sought to establish the extent to which agricultural entrepreneurship may have influenced household poverty reduction in terms of increased incomes and wellbeing; wealth and employment creation; and
- (iv) Find out the effects of sustained accumulation and infrastructural development on social differentiation especially in terms of class formation and related political implications.

1.6 Justification and Significance of the Study

Available Kenyan studies on agricultural entrepreneurship tend to concentrate on Central and parts of Rift Valley Provinces which are mainly high-potential areas where commercial agriculture has been practiced for decades. There are few studies on agricultural entrepreneurship conducted among peasant communities in the marginal areas. The medium and low-potential areas such as Mbeere have not been associated with agricultural entrepreneurship at all. By focusing on two entrepreneurial innovations (improved fruit and dairy farming), this study opens new frontiers in investigating 1) how peasant innovators graduate into agricultural entrepreneurs with positive implications for household incomes and poverty reduction, and 2) how social change and development in the low-potential semi-arid areas of Kenya take place. By showing how smallholder peasant innovators identify and pursue profit opportunities in improved fruit

and dairy farming, the study portrays peasants as the instigators and perpetrators of their own transformation.

This study is significant in five main ways. First, it adopts a neo-Schumpeterian approach in exploring the relationship between farmer innovation, entrepreneurship and social change among peasant societies. Secondly, the study seeks to find out how agricultural innovators become or graduate into entrepreneurs and with what implications for poverty reduction. The study recognizes that innovation translates or feeds into entrepreneurship by enhancing increased quality of agricultural output which in turn helps in creating commodity demand chains. This demand results into improved production technologies, new markets and hence increased incomes.

Third, the agricultural sector in SSA has been so negatively affected by domestic as well as global forces that few see a future in it, yet the greater proportion of the African population continues to derive their livelihoods from agriculture (Collier and Dercon, 2013; Adekunle et al, 2012). The challenges and opportunities offered by market liberalization appear to have created grounds for innovative activities by some farmers whose impact on poverty deserves investigation at the micro and macro levels. This study therefore hopes to demonstrate that agricultural entrepreneurship, as exemplified in two main farm innovations, has had a direct bearing on poverty reduction and peasant transformation. This implies that agricultural entrepreneurship holds the key to poverty reduction among peasant communities in Africa.

Fourth, this study discusses the concepts of innovation and entrepreneurship jointly instead of separately as has been done before, and applies them to agriculture and rural transformation, hitherto neglected. This opens up possibilities for studying value chains in agricultural products at the local level and the interplay between these and global value chains. This places peasant producers as significant actors in global commodity chains and not the passive recipients of decisions made by domestic and international capitalists that they are known to be.

Fifth and finally, SSA agriculture continues to register diminishing returns against a backdrop of increasing poverty. However, agriculture is still the main source of livelihood for many, majority of who are peasants. With the currently shrinking public sector job market (thanks to the reforms) and multiple barriers to MSE sector entry and growth (which could absorb the a half million or so job-seekers entering the labour market every year), a vibrant agricultural sector would offer safe refuge to a good number of such people. For this reason, a study of this nature has the potential to restore faith in agriculture in an age of growing de-agrarianization and lack of employment.

The study combines Marxist-Leninist, neo-liberal and Schumpeterian theoretical approaches to analyze peasant transformation in Mbeere. The first approach helps to navigate through the controversial view of peasant dissolution by capital and/or the market. The second approach recognizes that entrepreneurship-driven individual farmer innovation through interaction with the market strengthens rather than weakens the African peasantry. On account of this, the peasants graduate into entrepreneurs, join the middle classes and take charge of their destinies. Within a neo-liberal perspective, they henceforth occupy a formidable position in commodity chain governance as agrarian capitalists. They are not the powerless sellers of labour that they are supposed to be under the Marxist-Leninist perspective.

1.7 Definition of Key Concepts

Agricultural entrepreneurship: perception of profit opportunities in agriculture and mobilization of resources to exploit them to make money or create wealth. This happens when human ingenuity brings up a new idea (innovation) and turns it into an income-generating venture and doing agriculture as a business. Here, the market plays a major role. The neo-Schumpeterian perspective postulates five types of innovation that constitute entrepreneurship either singly or in combination.

Agricultural innovation: introduction of a new idea or undertaking of ‘new combinations’ of the productive forces to change the way agriculture has been practiced in the past. The

idea may be an invention or an adaptation of an existing technology. Innovation is a subset of entrepreneurship.

Social change: sum total of the effects of external and internal forces on people's lives resulting in an economic and political reorientation of the way things were or were done in the past. Agricultural entrepreneurship is one such force behind social change. People's determination to improve their lot is another force. Social change subsumes peasant transformation because the latter refers to significant or fundamental changes in peasant lives and livelihoods.

Peasant transformation: fundamental social change or progressive positive changes in the lives and livelihoods of peasants through time, from subsistence farmers to agricultural entrepreneurs. It is operationalized as poverty reduction, social differentiation, infrastructural growth and local development. Transformation represents fundamental change from the original self. International capital, the market, and the state are some of the major agents of or intermediating factors in social change and peasant transformation.

Social differentiation: the emergence of social cleavages and/or inequalities within society or expansion of existing ones. It also means the assumption of different roles in the societal division of labour. Differentiation is a major aspect of social change.

Development: economic growth with positive, qualitative changes in people's lives. It subsumes peasant transformation and social change.

Panel respondents: a group of people appearing as respondents in a study who are subjected to periodic interviews with the same data collection tools at intervals over a given period of time.

1.7.1 Operationalization of Concepts and Variables

As stated above, this study was exploratory and did not intend to test any pre-prepared hypotheses. Instead, it had propositions that could be developed into hypotheses and tested in other studies in the future. For this reason, and as presented in the conceptual framework diagram (Figure 2.2), the study opted to rename the independent variables

“driving factors” and the dependent variables the “driven factors” outcomes, effects or impact. In this case, the market as exemplified by agricultural entrepreneurship was the factor driving peasant transformation. Transformation is an aspect of social change representing fundamental or complete changes in the lives and livelihoods of peasants. The overall effect or outcome is improved quality of life for the peasants. The argument is that agricultural entrepreneurship has contributed to social change in Mbeere and one of the main aspects of the change is a transformation of peasants from simple agricultural producers to agrarian capitalists, who are more economically rational and active and politically relevant. Below is an attempt at operationalizing the key concepts in the study.

Driving Factor: *Agricultural entrepreneurship*=introduction of a new agricultural good or product; introduction or adoption of a new farming (land and/or soil management) method; discovery of a new source of raw material for adding value to crop and livestock products; search for, discovery and penetration of a new market; and application of new farm management techniques including a proactive search for new information.

Driven Factors: *Effects or Outcomes/impact=Peasant Transformation*=change from peasant subsistence farming to market-led production; increased income at personal and household level; acquisition of capital assets (wealth); elevation of social status through sustained accumulation of wealth; creation of job opportunities; improvement in and increased access to physical infrastructure (houses, roads; water, electricity).

Intermediating Factors: internalization of market values; state policy; access to information from social capital and science and technology. Also include adoption of new crop and livestock varieties and technology-based production methods.

1.8 Scope and Limitations of the Study

There are several challenges experienced in studies of social change and this study was no exception. First is lack of a water-tight methodology for studying transformational change. One-stop sample surveys are not appropriate to capture the myriad of factors at play at any one time. To correct this, the study relied on triangulation or use of mixed methods in data collection. Second, the multiplicity of actors and factors often leads to erroneous attribution. To mitigate this, the study analysed the frequency of occurrence of certain variables in the qualitative data. Finally is the frequency and speed at which

certain events occur in history. This introduces the related problem of which variables may be more important than others. To address this challenge, the respondents were revisited and re-interviewed on specific aspects of entrepreneurship-based transformation. The peasant farmers who were in neither of these two farming activities acted like a control group.

1.9 Organization of the Thesis

This thesis is divided into nine chapters. Chapter one presents the introduction with a statement of the research problem; research questions; objectives; justification and significance; and scope and limitations of the study. Chapter Two reviews the relevant theoretical and empirical literature on aspects of peasant transformation in Africa and identifies the knowledge gap that this study sought to fill. It also presents the theoretical and conceptual frameworks. The methodology used in data collection and analysis is covered in Chapter Three. Chapter Four offers a description of the research site, Mbeere, with two maps: one showing the location of Mbeere district in Kenya, and the other showing Mbeere District with geographical and infrastructural features, including urban centres. The study findings are reported in four chapters. Chapter Five discusses findings in response to research question 1 and hypothesis 1. It explains how improved fruit and dairy farming innovations were introduced by a group of foresighted peasants thus planting the seeds of peasant transformation through agricultural entrepreneurship in Mbeere. Chapter Six discusses how the two innovations were transformed into household-based enterprises, with reference to research question 2 and hypothesis 2. Chapter Seven presents the findings for research question 3 and hypothesis 3 on the effects, outcomes or impact of agricultural entrepreneurship on household incomes, poverty reduction and wellbeing. Chapter Eight continues with findings on peasant transformation with reference to research question 4 and hypothesis 4 on the effects of sustained accumulation of wealth and related infrastructural development on social differentiation and political significance of the Mbeere peasants. Chapter Nine concludes with a discussion of the implications of the findings for policy and development theory. It also presents a brief contribution of the thesis to the peasantry debate.

CHAPTER TWO

AGRICULTURAL ENTREPRENEURSHIP AND ASPECTS OF PEASANT TRANSFORMATION: A REVIEW OF THE LITERATURE

2.1 Introduction

This study is about how agricultural entrepreneurship can transform peasant societies and especially what peasants do to exit poverty through engagement in profitable farming. Chapter one has highlighted the gaps that this study intends to fill with respect to the role of agricultural entrepreneurship in peasant transformation and how this in turn contributes to social change and development. The discussion has intimated that previous studies have tended to neglect this aspect by looking at the two concepts separately and applying them almost exclusively to commerce and industry and not agriculture. They (previous studies) have also tended to portray peasants and peasant societies as backward, poor, conservative, risk-averse and incapable of venturing into entrepreneurial activities. However, there is growing realization that peasants would exit poverty if they practiced agriculture as a business. The chapter revisits the debate on the Kenyan (and by extension, African) peasantry by summarizing the contending Marxist-Leninist and neo-liberal arguments on the role of capital and the market on peasant transformation or how peasants can by themselves improve their living conditions. This unending debate is fueled by unresolved issues on whether rural transformation (or social change and development) is brought about by the capture and subordination of the peasantry by exogenous capital through the market or is endogenously engineered by some farmers acting as agricultural entrepreneurs who consciously take advantage of the market and favorable state policies to improve the quality of their lives.

This chapter reviews the relevant literature in relation to these issues with three main objectives. First, the chapter discusses the relevance of Marxism-Leninism and neo-liberalism to this study as the two overriding theories that explain social change and development among peasant societies. It also borrows the Schumpeterian notion of entrepreneurship to explain innovation in peasant agriculture in Mbeere and proceeds to show how that this approach complements Marxism and neo-liberalism in discussing

agricultural innovation and entrepreneurship. It qualifies that the two concepts can now be studied together in agriculture and peasant transformation and/or rural development. Second, the chapter scours the relevant literature on aspects of peasant transformation and how it is traceable to agricultural innovation and entrepreneurship. Third and finally, the literature attempts to suggest the future direction of peasant studies in terms of policy and development theory.

2.2 Peasants and Peasant Societies: Some Conceptual Issues

The peasantry is the most numerous social group in areas that practice traditional forms of agriculture. The notion of “peasant” has been much debated but there seems to be consensus that peasant societies are characterized by low incomes, rudimentary technology, a tendency to rely on household labour, little or no marketable surplus, and risk-averseness (Ellis, 1988; 2000). In addition, they lack access to political power and are frequently subject to coercion by other social groups and suffer from wars waged in the interest of others (Hyden, 1980; Bernstein, Crow and Johnson, 1992; Berman and Lonsdale, 1992). Furthermore, they are economically exploited, for example, by merchants who practice usury, or by state bureaucracy, which devours a large proportion of their surplus value. They are in a continuous process of adaptation to the constantly changing society and environment they live in. They react to external forces imposed upon them by the environment and demands emanating from kinship, family and individual levels. Peasants are found in different social categories such as petty traders, petty commodity producers, service providers, labourers, small-scale farmers, and tenants, landless and marginalized classes (Ellis, 1988).

Two perspectives have dominated analyses of peasant societies. On the one hand is the traditional analysis which subscribed to the view that capital and state policies produced limited impact (if any) on rural agrarian economies (Hyden, 1980; 1983). It perceived African peasant societies as conditioned by a moral economy that rendered them both resistant and repellent to innovation and change (Hyden, 1980: 18). On the other hand is the perspective that peasants possess the ability to innovate in response to incentives offered by the state and the market and in the process, some become entrepreneurs (Prahalad, 2005; Chambers, 2005; Maxon, 2003; Hill, 1997). A study on peasant

response to agricultural innovation in Bungoma, Western Kenya (Makana, 2009), argues that the earlier (Goran Hyden) perspective grossly underestimated the propensity of African rural households to respond positively to economic incentives with a view to modernizing their agrarian economies. It is notable here therefore that African peasantries are dynamic and adaptable to agrarian innovations provided that they are adequately sensitized to the fact that such innovations will contribute to their economic wellbeing.

Further, peasant receptivity to agrarian innovations has wider implications for policy formulation and overall efforts at rural transformation. The case of Bungoma demonstrates that so long as appropriate policies are formulated by state agencies, peasant households can become effective instruments of rural transformation (Makana, 2009). Moreover, studies addressing agrarian change in Kenya's rural areas have tended to be lopsided in favour of high-potential agricultural areas where there are cash crops such as coffee and tea and peasant production is commercialized. Western Kenya has often attracted attention more as a reservoir of labor power than as a producer of agricultural surpluses. Thus, the case of Bungoma district adequately challenges the notion that any rural region in Kenya is the exclusive reservoir of labor power rather than a producer of agricultural surpluses.

Peasants are exposed to a wide range of uncertainties concerning production, prices, social security and political decisions. Price uncertainty prevails because the long period of agricultural production reduces flexibility to react to price advantages especially when market information and storage facilities are lacking. Social uncertainty is mainly caused by restricted access to land for part of the peasants and by the dependence of peasants on people who usurp control over resources, mostly through usury or share-cropping. Political uncertainty is inflicted upon peasants through unpredictable state actions like coups, wars, resettlement campaigns and other economic and political turnabouts. Large and ever growing numbers of peasants are uprooted by these specific uncertainties that condemn them to eking out a miserable existence in refugee camps (Ellis, 1988).

The uncertainty surrounding these occurrences is concretized in their unpredictability. Consequently, peasants have a limited scope to prepare for them. Facing growing

dependence on markets, peasants' knowledge no longer suffices to reduce risks. However, peasants are known to employ a long range of innovative livelihood diversification strategies to militate against disaster or the risk of failure. These include mixed cultivation of crops with differing qualities such as resistance to drought and disease, shorter periods of maturity and beneficial impact on the environment; crop rotation; sowing in a larger area than can be harvested; terracing; dam construction; water harvesting; collecting wild crops; and hunting. Another innovative measure is splitting the activities of household members along many lines, so that they are spread over several pursuits so as to eventually pool the benefits or gains. In this sense, reciprocity, hospitality and mutual social responsibility are appropriate cultural imperatives to moderate the contemporary uncertainties which could threaten peasant livelihoods. In spite of all these measures, peasants have remained largely powerless in the face of social and political uncertainties as well as towards market fluctuations and natural hazards.

From the above considerations, therefore, peasants are seen as men and women who live in farm households, have access to land which they use as a means of production, and utilize mainly family labour in farm production (Shanin, 1971). They have an attachment to the land even if they are active in diverse livelihood-securing activities. For this reason, peasants are characterized by small-scale agricultural production with limited surplus for the market, low division of labour, and rudimentary technology. However, innovation and entrepreneurship add value to what they do. In addition, they are socially subordinated by the ruling classes and are typically in a permanent process of transformation due to changes imposed on them by external forces. Peasant transformation also comes from inherent internal contradictions in the dialectics of life especially when the venturesome among them defy tradition and innovate by combining the forces of production in new ways. These contradictions are finally resolved in some form of synthesis that translates into better quality of life as evidenced in improved household wellbeing through poverty reduction and wealth creation.

Whether viewed from Marxist-Leninist or neo-liberal lenses, the Kenyan peasantry has been undergoing transformation for a long time except that the causes, nature, magnitude, direction and impact of such transformation are hitherto not well known. This is evident

in the transition from natural or traditional economy through communalism to a capitalist-led market economy. This type of economy captured peasant societies through cash crop production, sale of labour and as the market for foreign as well as domestically produced goods. It is unthinkable that any Kenyan peasant society today exists outside of the capitalist economy.

2.3 Trends in Agricultural Entrepreneurship in Africa

In studies carried out in other African countries, the OECD (2008) documents that in Ghana, agricultural entrepreneurship has taken mainly the form of food processing and seizing of new agribusiness opportunities supported by higher producer prices, provision of technological packages and improved farmer access to credit. In Mali, it is taking the form of breaking dependence on cotton and searching for “green gold” through irrigation-based agricultural diversification. It also involves entering into tripartite agreements with private agribusiness, the Malian government and the international aid community. In Senegal, it is horticultural production, agricultural export diversification in an effort to go beyond traditional export crops (notably rice), and assisting smallholder farmers tap into an expanding domestic market. The story of Tanzania is different. Her agricultural sector has been described as a “sleeping giant” and that is why this potential food exporter is still importing food. However, there is hope in making food-crop production profitable after tackling three main constraints: infrastructure, finance and property rights. Finally, the Zambian situation is such that efforts are being made towards crop diversification and export promotion; linking Zambian farmers to markets mainly through outgrower schemes; and improving market information to enable smallholder farmers to conduct agriculture as a business and contribute to poverty reduction and economic growth. What emerges from these studies is that though farmer innovation may have a longer history in many countries, agricultural entrepreneurship has not taken firm root on the continent.

In Kenya, instances of agricultural entrepreneurship among smallholder peasant farmers seem to have been on the rise as people become innovative in fighting poverty. One of the conventional forms of agricultural entrepreneurship is contract farming where farmers supply international supermarket chains, but this is uncommon in Kenya. The other outstanding example is flower farming around Lake Naivasha and other areas of the

country. Other not-so-new areas of agricultural entrepreneurship include the production of French beans, macadamia nuts, water melons and butter nuts and a variety of Asian spices notably *Karella* and *Dudthi*). Fresh fruits and vegetables (FFV) have also become major Kenyan exports (Dijkstra, 1999; 1997; Dolan, Humphrey and Harris-Pascal, 1999). In some cases, these are produced with the aid of irrigation. Pig or pork farming is also gaining popularity in Kenya with some farmers signing contracts with the company, Farmers' Choice. An interesting development is being witnessed in the move to unconventional practices such as *Quelea* farming in Western Kenya, morbidick flower in Siaya which earns Ksh.2.5 million per acre (Daily Nation, March 22, 2011, p. 3 of News); rabbits, broiler chicken, and turkeys in many parts of the country. Milk production from dairy cows and goats and large-scale ranching of beef cattle, sheep and camels for slaughter are also aspects of agricultural entrepreneurship, the former being one of my case studies. The growing practice of market-based greenhouse farming and agro-processing are other aspects of entrepreneurial farming with positive implications for poverty reduction. One common characteristic in all of these is that the activity is market-led such that the product is destined for local or overseas markets. Another is that they are all combinations of innovation and entrepreneurship and are targeted at poverty reduction and wealth creation.

Producer organizations have developed processes to facilitate access to agricultural inputs and the gathering and marketing of products. Such arrangements ensure wider exploitation of agricultural innovation, such as the adoption of new, high-yielding maize varieties taken up by the farmers in the Rift Valley region, with specific focus on Kitale. In addition is the example of adoption of technology by fruit farmers in Western region through a project run by Farm-Africa, and Kilimo Trust in conjunction with Maendeleo Agricultural Technology Fund (MAFT) which sought to directly improve the livelihoods of 600 local fresh fruit farmers and indirectly impact on an additional 3,000 farmers in Busia, Vihiga and Homa Bay districts in Kenya through the use of solar-drying technology. This is being done through good agronomic practices, value-addition and guaranteed markets in western Kenya with the support of five partners namely Ministry of Agriculture, micro finance institutions, agroveter stores, KARI in Kakamega and MNRT (Mache Natural Resource Technologists and Supplies) (Roothaert et al, 2009).

2.4 Political Origins of Agricultural Entrepreneurship in Kenya

How to transform the Kenyan peasantry and rural areas in general has been a subject of policy debate from the colonial period. In the aftermath of World War II, a policy debate preoccupied the Department of Agriculture in colonial Kenya with regard to how best to transform the rural areas that were populated by peasants. In this debate, the view that eventually held sway sought to promote greater rural agrarian commercialization through a system of rewards that would appeal to the emerging middle class of African farmers (rich peasants) in the rural reserves, thereby facilitating voluntary support of the colonial state's agricultural modernization campaign. The fundamental idea was to prop up the middle-class farmers, bestow them with a stake in the colonial political economy, and thus prevent a possible alliance with subversive peasants who were beginning to wage a struggle against the colonial authorities (Berman 1990: 366). Thus, the colonial state employed the mechanism of co-opting the forces of rural commercialization through the strategies of land consolidation, enclosure, and widening the scope of African involvement in growing high-value cash crops.

The focus, therefore, shifted to the African middle class rural households who responded positively to these agricultural innovations. The transformation of rural Kenya thus may be said to have begun with the colonial conquest. Rural households and social structures began to change almost immediately as Africans began to respond to social, economic and political changes brought about by colonial domination and the introduction of a market economy. While both local and long-distance trade had existed since the nineteenth century, commercial activity was not an essential part of survival or accumulation for the greater part of the population. Colonial conquest changed all that, incorporating diverse agro-pastoral societies into a single administrative hierarchy and market economy and alienating significant land for white settlers.

In Kenya, the origins of agricultural entrepreneurship may be traced to the Swynnerton Plan of 1954. It is named after R.J.M Swynnerton, a prominent colonial agricultural officer. The Plan was a colonial policy document whose aims were to intensify agriculture in the country which was a British colony then. It was geared to expanding native Kenya's cash crop production through improved markets and infrastructure,

distribution of appropriate agro-inputs and gradual consolidation and enclosure of fragmented land holdings (Swynnerton, 1955). The Plan's main objective was to create family holdings large enough to keep the family self-sufficient in food and also enable them to develop a cash income through improved farming practices. Here lies the very origin of agricultural entrepreneurship in Kenya. It envisioned that about 600,000 African families would have farming units of roughly 10 acres each which would raise average productivity in cash sales from 10 to 100 British pounds a year after providing for their own needs (Ogot and Ochieng, 1995). The Plan was meant to work within 20 years. In essence, the Plan was a reversal of previous colonial policies on native agricultural practices. This is so because among others, it recommended that all high-quality native land be surveyed and enclosed; that the earlier policy of maintaining traditional or tribal land tenure systems be reversed; and that all the thousands of fragmented land holdings be consolidated and enclosed.

By so doing, the colonial government hoped to create a progressive class of landed, wealthy Africans thriving on large-scale production and sale of agricultural commodities. These would be the entrepreneurs who would rely on innovation to consolidate their gains and partner with the colonial government both before and after independence. Being progressive and having a huge stake in the status quo, this class would see no benefits of joining the Mau Mau freedom movement. On the other hand, land alienation through the Plan was meant to create a landless and powerless class that would provide labour to the colonial settler farms and access land only through squatting. By losing their land, the colonial government hoped that these would give up fighting and engage in constructive dialogue. Colonialism and agricultural innovation therefore emerge as two critical factors behind the transformation and differentiation of the Kenyan peasantry.

According to the Plan, the emerging progressive class of African farmers would thereby be able to obtain credit which they had been denied previously. The title deeds would create security of tenure which would in turn spur investments in agriculture. Such investments would be accompanied by a wide array of innovations and those farmers able to transform the innovations into money-making ventures would be the entrepreneurs. This may be seen against another recommendation by the Plan that native African

farmers were to be allowed to grow cash crops such as coffee and tea and that they (farmers) would receive increased technical assistance and have access to all marketing facilities, all of which were initially restricted to the white settler fraternity. Results observed after the initial implementation of the Plan indicated that the value of recorded output from smallholdings rose from 5.2 million pounds in 1955 to 14 million pounds in 1964, with coffee accounting for 55% of the increase (Ogot and Ochieng, 1995).

Through the consolidation of small and scattered holdings in the greater Central Province (including current Kirinyaga, Embu and Meru Counties), the Plan also sought to ensure that land ownership was concentrated in the hands of a few farmers. These would then be transformed into what was seen as an “African middle class” that would be preoccupied with commercial commodity production and also offer employment to those rendered landless by the Plan. Other landless peasants would engage in small-scale crafts and trades to earn a living as micro and small entrepreneurs. To fully understand the Plan therefore, one needs to contextualize it within the larger colonial political economy and specifically the Mau Mau Uprising that took place from 1952 to 1957. After the declaration of a State of Emergency in 1952, villagization of the Kikuyu occurred which aggravated the living conditions in the African Reserves that had been in existence since 1926 when they were gazetted. The Plan was a culmination of reforms or changes that were intended to increase opportunities for Africans and further integrate them into the colonial economy. These measures however did little to contain the rising tide of African discontent as epitomized in the Mau Mau liberation struggle. It was clear that land consolidation had oppressive political motives as witnessed in a statement attributed to the Special Commissioner for Central Province who argued that “...land consolidation was to complete the work of the Emergency: to stabilize a conservative middle class, based on the loyalists; and, as confiscated land was to be thrown into the common land pool during consolidation, it was also to confirm the landlessness of the rebels” (Anderson, 2005).

Thus, the Swynnerton Plan may be said to have set in motion a process of modernization of the agricultural sector through the transfer of new technologies and land reform. The colonial government’s focus on Central Province with respect to land consolidation and

commercialization of agricultural innovations was meant to appeal to the emerging middle class of African farmers to dissuade them from supporting the liberation movement. This inevitably planted the seeds of agricultural entrepreneurship. The process was aided by three main factors: land consolidation, enclosure, and involvement of African farmers in the growth of high value crops such as coffee and tea. Thus, the state intensified the spread of cash crops and dairy cattle in the African Reserves on the basis of the newly introduced private, freehold property. For the Kikuyu of Central Province who lost their land to new private landlords courtesy of the consolidation, the result was bitterness and mental anguish. The Plan destroyed the age-old *ahoi* (tenant) system which guaranteed access to land for the landless that constituted about one-third of the Kikuyu population. The loss of access to land based on kinship, ancestral or communal tenure rights dealt a big blow to livelihoods for thousands and introduced rearrangements predicated upon social inequality (Berman and Lonsdale, 1992).

As a result, there emerged a landed aristocracy and a landless class with the latter having little or nothing to celebrate with the coming of independence in 1963 as they faced a bleak future (Atieno-Odhiambo, 1995). Nevertheless, most of the Plan's proposals were accepted by the East Africa Royal Commission (1953-1955), the appointing authority, which went further to recommend the recognition of private interests in land and removal of racial and political barriers inhibiting the free movement of land, labour and capital. To placate the landless and make governance possible after independence, a land resettlement programme was envisaged. This was also intended to formalize greater African participation in agriculture which was going to be the mainstay of independent Kenya's economy (Oucho, 2002). By 1960, most of the barriers to a functional land market had been removed. This was to be the meeting ground between the indigenous local and departing colonial political elite after independence. Compromises and modalities were worked out by the emerging African political leaders to continue accommodating the land, business and political and other interests of the "departing" colonial elite.

On the whole, the agricultural development policies that began in the 1950s and continued relatively unchanged after independence, laid the foundation for the agrarian

revolution for which Kenya is so well known. Five landmarks may be cited. First was the introduction of individual land tenure through titling. This effectively transformed land from a common property to a privately-owned commodity and introduced social inequalities based on land ownership. Second, access to credit from financial institutions was formally introduced as the title deed could be used as collateral. Third, the institutions to offer the credit to farmers were set up, starting with the Agricultural Finance Corporation (AFC). Unfortunately, small-scale peasant producers could not access such credit. Fourth, a foundation was laid for commercialization of cash crops and other high value crops and livestock products. Fifth and finally, access to markets was expanded and this benefited even the peasant farmers who were allowed to enter into cash crop production from 1933. These gave rise to or laid a firm foundation for agricultural entrepreneurship in Kenya and from a Schumpeterian perspective, it henceforth became possible to introduce new goods to the market and new methods of production; discover and use new sources of raw materials; discover and penetrate new markets; and engage new enterprise management techniques and practices.

However, land consolidation did not reach Mbeere. Here, it came in the form of land adjudication, registration and demarcation. There is little doubt, however, that the intentions of the colonial administration in Mbeere were informed by the Swynnerton Plan. The colonialists viewed the Mbeere as a passive group especially because they were not fully into the Mau Mau movement. Instead, they (Mbeere) had participated in the colonial political economy more as suppliers of cheap labour in the European settler farms and this is where a few of them got some of the agricultural innovations discussed in this thesis. Being a semi-arid area, the colonial administration found Mbeere an ideal place for punishing some of the Mau Mau convicts. This is how the Mwea and Ishiara Irrigation Schemes came to be constructed by Mau Mau convicts in the 1950s. Other notable innovations originating from the Swynnerton Plan which reached Mbeere were compulsory soil conservation and the establishment of a land market from the 1960s onwards. The land market was greatly boosted by the processes of adjudication, demarcation and registration which culminated in the issuance of title deeds in the 1970s. Land titles bestowed upon the farmers the security of tenure which acted as an incentive for investing on land. Investments on land came in the form of a variety of farm

innovations which further spurred or acted as seedbed for agricultural entrepreneurship. The titles also removed the risk of being chased away and leaving behind investments such as permanent fruit trees. This means that it was difficult for tenants or squatters to engage in permanent innovations. However, owing to a small population and the survival of clan-based access to land up to the 1980s, the proportion of landless people in Mbeere has remained minimal to this day. However, adjudication introduced individualized private property in land and this not only limited access to land but also prohibited permanent innovation on borrowed land.

2.5 Overarching Theories for the Study

The following two sub-sections discuss Marxism-Leninism and Neo-liberalism as the two overarching theories on peasant agriculture and social change. The third sub-section looks at how a neo-Schumpeterian interpretation of entrepreneurship enables innovation and entrepreneurship to be studied together in agriculture.

2.5.1 Marxism-Leninism and Social Change

Marxism-Leninism is a theoretical construct attributed to the German philosopher, Karl Marx, and the Russian ideologue, Vladimir Ilych Ulyanov, popularly known as Lenin. The gist of their theory of social change is contained in their many publications the most notable being Marx's *Capital Vol. 1: A Critical Analysis of Capitalist Production* (1867); *A Contribution to the Critique of Political Economy* (1904); *The German Ideology* (1970); *Selected Works* (1935) and Marx and Engels' *The Communist Manifesto* (1848). Lenin's main contributions include *The Development of Capitalism in Russia* (1956); *Capitalism and Agriculture* (1946); and *Imperialism: The Highest Stage of Capitalism* (1939). Their central thesis appears to have been a violent or revolutionary overthrow of the capitalist system which they saw as the biggest impediment to the social progression of peasant societies. From a Marxian perspective, capitalism employs the market to block peasant potential by turning both the peasant and their labour into commodities for sale thereby introducing unequal relations of production. In the process, the capitalist owns peasant innovation and dictates the returns to peasant production. This happens because the capitalist owns the production process and determines what is to be produced by the peasant. This puts the peasant in a subordinate and precarious social category. With profit

maximization as the guiding ideology, the capitalist seizes the key means of production (land, industries and labour) and turns them into private properties. This way, the capitalist creates the state and uses it to formulate policies that compel peasants to respect private property and pay taxes. To be able to pay taxes to the state and consume the products of the capitalist, the peasant seeks and offers wage labour to capitalist-owned concerns be they farms or industries. This is how the market and the state collaborate to turn the peasants into wage labourers and since peasant labour and innovation are owned by the capitalist, the result is exploitation of wage labour and enslavement of the peasant. In Marxian terms, this is expropriation and appropriation of peasant surplus value by the capitalist. As capitalism uses the state to legitimize exploitation under these relations of production, only the capitalist benefits from the profit opportunities offered by the market. On the other hand, the peasant is impoverished by enslavement by the market. Consolidation of capitalism ensures continued exploitation of the peasantry and condemns them to endemic poverty. At this point, the most rational solution is to overthrow capitalism by force. This is the message in the *The Communist Manifesto* (1848) by which Marx and Engels came to be viewed as revolutionaries in theories of social change.

At the broader theoretical level, Marxism-Leninism postulates that development is an evolutionary process triggered by immanent, natural dual or opposite forces known as dialectics. Dialectic is an idea or *thesis* while its opposite is an *antithesis*. When these forces interact with matter or the material world that is the environment, the result is a *synthesis*. At the synthesis level, the mode of production changes and in the process, society transits into a higher mode of production. This is how development takes place from a lower to a higher stage. Development may therefore be explained from the context of dialectical materialism. Since human interaction with the environment takes place through time, Marx coined the term historical materialism to explain this phenomenon. Three laws govern this process. First is the ‘struggle and unity of opposites’ by which the dialectics converse endlessly throughout history. Second is the ‘transformation from quantity to quality’ by which every successive stage is qualitatively superior to the one preceding it. Third and finally is ‘negation of the negation’ which means that every stage

in the development process is negated by a more superior one. Development, therefore, is a series of negations which may sometimes need to be speeded up by a revolution.

Marxism-Leninism portrays the thesis-antithesis-synthesis problematic as different modes of production covering different historical epochs. Viewed this way, it is easier to understand how every human society developed from natural economy through communal, slave, feudal, capitalist, and socialist to the final, communist, mode of production. According to Marx, communism is the ultimate stage of human development. He appears to have paid more attention to the capitalist stage since he wrote when the imperialism of finance capital was being felt all over the world mainly in the form of colonialism. He saw capitalism as a system that was full of contradictions and it was in these contradictions that its demise laid. As an economic system, capitalism uses the market to bestow benefits upon the *bourgeoisie* (rich class) at the expense of the *proletariat* (poor/workers). It reinforces social inequalities and creates a class society, with the rich and the poor as the two dominant classes. This is how in agricultural societies, peasants are depicted as poor and helpless victims whose future was doomed because their surplus value is expropriated and appropriated by the rich capitalists.

On his part, Lenin, in his thesis on the 'development of capitalism in Russia' (1956), was categorical that the introduction of a 'home market' or domestic capitalism would ultimately 'dissolve' the Russian peasantry. This suggests that the market has a transformational effect on the peasantry from two possible angles. Either, they would fizzle out of history as a social category or they would evolve from simple labour providers and sellers of simple agricultural commodities to individuals with greater decision making power on the mobilization of the means of production, notably land, industry, labour and finances. In this second scenario, interaction with the market would also alter the relations of production as former sellers of labour would become agrarian capitalists and sellers of agricultural commodities. This would pave way for social differentiation and class formation. From a theoretical point of view, one would have expected Lenin to vilify international finance capital as the architect of peasant poverty and destitution. While in agreement with Marx on the need for a revolution to overthrow the capitalist system, Lenin appears to have swayed towards a neo-liberal interpretation

of the market and its woes and benefits. His thesis on the evolution of the peasantry from simple agricultural producers to agrarian capitalists is agreement with this study on peasant transformation in Mbeere where some peasant farmers have switched from pure subsistence farmers to capitalistic or market-led improved fruit and dairy producers.

In Leninist terms, peasant dissolution can only be positive if it liberates and transforms them into independent producers who are willing partners of the market and not slaves or appendages. When they become the proactive partakers and beneficiaries of market forces and processes, dissolution should be understood not as obliteration or liquidation but as transformation to another status, in this case, that of agrarian capitalists. They become proactive decision makers who “rebel” against enslavement or relegation in the capitalist relations of production. Rebellion is breaking away from or defying tradition and venturing into new, often risky activities but which promise an escape from poverty. This is one of the contexts in which this study on improved fruit and dairy farming in Mbeere should be understood.

According to Marx and Lenin, therefore, the peasantry did not have a future as it was in the process of being dissolved by capital through the introduction of the market. This is why and how the role of the peasantry as change agents was questioned by Marx who described them as “potatoes in a bag” weighed down by rural idiocy and lack of class consciousness. The socio-economic environment has helped to reinforce peasant conservatism and poverty which have frustrated their efforts to move up the social ladder. This view is strengthened in the Communist Manifesto where Marx and Lenin promote the view that peasants are a politically irrelevant category but can come together to overthrow capitalism since they have nothing to lose but their chains. This is significant for this study because it suggests that peasants are driven by an atomistic ideology that informs adoption of agricultural innovations. When the individualistic ethic informs decision-making among peasants, it lays the foundation for entrepreneurship.

The relevance of this theory to this study is three-fold. First, the individualism associated with peasants and which inhibits class consciousness is positive in the sense that it drives individual innovation and entrepreneurship that eventually uproot them from poverty.

Secondly, and as Figure 2.1 depicts, the theory catalogues the factors that seem to condemn peasants to perpetual poverty and a doomed future. These obstacles to the progress of peasants originate from the fact that the market enslaves them in such a way that it is the rich class that enjoys the fruits of their labour. Lastly, the theory helps us in understanding social change as a dialectical process that transforms society from quantity to quality through struggle and unity of opposite forces. This is how the Mbeere society moved from natural subsistence economy to capitalism. Within capitalism, development results from resolution of its inherent contradictions. A good example is when peasant farmers begin to view agricultural entrepreneurship as a possible escape route from poverty and insecure livelihoods and actively take part in improving their material conditions.

2.5.2 Neo-Liberalism and Social Change

Neo-liberalism is an ideological system traceable to Adam Smith (1776), Alfred Marshall (1920) and other classical liberalists. Its main proponents include Scitovsky (1970); Balassa (1971; 1982; 1989); Bhagwati and Srinivasan (1978); Thompson (1980); Krueger (1978; 1995); Bates (1981; 1983); Bauer (1986); and Little (1993). Contemporary neo-liberalists include Colclough and Manor (2000); MacEwan (2001); Harvey (2006); Mudge (2008); Foucault (2010); Amable (2011) Crouch (2011) and Barry (2013). Neo-liberalism has many branches but all seem to converge on the argument that the ‘invisible hand’ or market is the most efficient allocator of goods and services in any human society. This is because in a stable society and market place, economic life should be as free as possible. Under free competition, the market tends to lower prices consistent with supply while yielding returns to the producers (Colclough and Manor, 2000). Freedom of exchange produces a natural harmony of interests which benefits everyone. Free markets produce outcomes which maximize both individual and social benefits. Thus, neo-liberalism is about how markets can work to everyone’s advantage if perfect competition were to prevail. However, in developing countries, the market is less socially efficient in allocating goods and services due to recurrent imperfections and the state is compelled to intervene to help, support or stand in for the market (Colclough and Manor, 2000).

Neo-liberalism shares many characteristics with democracy and the pursuit of human rights. The central thesis is that free markets in which individuals maximize their material interests provide the best means for satisfying human aspirations and that markets are in particular preferable to states and politics because the latter two are inefficient and threats to individual freedoms (Crouch, 2011). By presenting the market as the best instrument for reducing poverty and creating wealth, neo-liberalism brought poverty alleviation at the centre of the development policy debate. It conceptualized development as qualitative improvement in people's lives rather than mere attainment of aggregate economic growth as was emphasized in the 1970s.

Neo-liberalists have been radical on the causes of development problems and their solutions. For instance, they tend to attribute market failure to excessive state intervention and they opine that "in settling matters of resource allocation, imperfect markets are better than imperfect states" (Colclough and Manor, 2000: 7). They also see export expansion as being closely related to rapid economic growth. In other words, wider markets are likely to guarantee comparative advantage as well as economies of scale and by so doing they stimulate specialization. As such, too much state intervention translates to a slower pace of economic development. For this reason, if developing countries desire to promote production at the grassroots such as among peasant communities, they may need to dismantle those parts of state apparatus which exploit individuals and prevent production at the base. They will also need to create efficient, equitable and enabling infrastructure where none existed before.

In summary, therefore, neo-liberalism encompasses new forms of political-economic governance premised on the extension of market relationships (Larner, 2000). Such an arrangement inevitably means less government control in a *laissez faire* (free market) system. By emphasizing the centrality of markets alongside community wellbeing, poverty reduction and social justice, it is an ideological system that appears to be sympathetic to the Left and Centre-left political inclinations (Mudge, 2008). It is about how power and politics are employed in the pursuit of democratic development especially how people in poor countries can most effectively organize their economic lives to improve their material conditions (MacEwan, 2001). The main tenets of neo-liberalism

include improvement in basic standards of living of the majority; equitable income distribution; repair of physical environment; maintenance and strengthening of social community; and broad participation in decision-making about political, social and economic affairs. However, some of the often cited weaknesses of neo-liberalism include preventing implementation of programs that would allow people to exercise political control over economic affairs, and also discouraging involvement of people in solving their own problems and meeting the material needs of the majority. It promotes powerful elite groups, synonymous with Marx's *bourgeoisie*. At this point, neo-liberalism legitimizes and promotes capitalist development. This theory is relevant to this study because it explains how the market frees peasant potential in form of innovativeness and entrepreneurship and how they can use the market to improve their material conditions. Towards this end, the state only comes alongside other institutions as intermediating factors.

2.5.3 Schumpeterian Entrepreneurship and Social Change

In his classic work, *The Theory of Economic Development* (1934), Joseph Schumpeter argues that entrepreneurship can best be understood as an embodiment of novelty or innovation. It is the force that gives direction and economic meaning to innovation. Novelty arises from or is embedded in reorganization (of ideas, resources) not upon quantitative variation. Innovation does not arise from addition or subtraction of parts but rather in re-combining them. It is more of substitution rather than increase or decrease although the resultant novelty may be said to have more or less parts than its antecedent. Quantitative variations may, however, be used with innovative results and reorganization is entirely independent of numerical variation. According to Schumpeter, the definitive characteristic of a novelty (innovation) is its newness with respect to the interrelationships of its parts, not their number, as all innovations are qualitative departures from habitual patterns. Schumpeter further argues that the entrepreneur is critical in economic development through innovation or the "carrying out of new combinations" of the productive forces (Schumpeter, 1934). He saw innovation as falling in five categories namely: 1) introduction of a new good; 2) introduction of a new method of production; 3) discovery of a new source of raw materials; 4) conquest of a new

market; and 5) new organization of any industry. This applies to independent individuals as well as employees working in an organization.

An application of Schumpeter's conceptualization of entrepreneurship readily captures the two innovations that are the subject of this study. The introduction in Mbeere of improved fruit and dairy farming, quality and yield-enhancing technologies; alternative raw materials to make crop pesticides and livestock disease remedies; and the capture of local and overseas markets by some improved fruit farmers, all fall under Schumpeter's conceptualization of the innovations that constitute the raw materials for entrepreneurship. In addition, Schumpeter's innovator is not necessarily an inventor of things previously unknown to humankind. Rather, by viewing adaptation as innovation, Schumpeter captures most of the agricultural innovations in Mbeere and similar marginal areas. His theory enables us to view peasants as actual or potential entrepreneurs capable of improving their material conditions by turning their individually perceived and executed innovations into income-generating or profit-making enterprises. By looking at peasants as economically rational individuals capable of making their own production decisions, a neo-Schumpeterian interpretation of entrepreneurship as driver of economic development helps us navigate and draw linkages between the Marxist-Leninist and neo-liberal approaches in understanding the role of the market in social change and peasant transformation. Schumpeter also makes it possible to study innovation and entrepreneurship together in agriculture and rural development.

Innovation is not always a deliberate and consciously thought out process. It could be unpremeditated, unplanned, even unwanted. Indeed, some innovations occur at the spur of the moment. This is where innovation and entrepreneurship part ways. Whereas innovation may be unpremeditated, unplanned, and even unwanted, entrepreneurship is deliberately thought out and executed with clear motives in mind. While entrepreneurship takes innovation to a higher level by labelling it with a profit or commercial tag, the latter (innovation) oils and sustains entrepreneurship. Thus, while it is possible to have innovation without entrepreneurship, or for an innovation to lie idle or slip away, it is not possible to be entrepreneurial without being innovative. When innovation occurs, there is an intimate linkage or fusion of two or more elements that have not been previously

joined in exactly this fashion so that the result is a qualitatively distinct whole. Any innovation is made up of pre-existing components and “new combinations” are the products of mental activity. No innovation springs wholly from nothing. It must have antecedents, and for this reason, an innovation is a creation only in the sense that it is a new combination of pre-existing things, not in the sense that it is something emerging out of nothing. The dividing line between innovation and entrepreneurship is the point at which an innovator begins thinking about or planning to turn an innovation into an income-generating enterprise and proceeds to do so. At that point, the individual concerned transits from a simple innovator to an entrepreneur. Thus, an innovation is a new idea; entrepreneurship is what someone does to or with that idea.

2.6 Innovation, Entrepreneurship and Development: An Overview

An innovation is a new idea or way of doing things that is manifested in invention or adaptation of an existing technology. Entrepreneurship is perception and exploitation of profit opportunities through mobilization of resources, often under conditions of risk. The two concepts have been studied separately for years but according to the neo-Schumpeterian and neo-liberal schools, the distinctive attribute of entrepreneurs is innovativeness, which leads to the “creative destruction” of a tradition and establishment of a new, superior technology which then establishes a new tradition. Entrepreneurs are individuals, born or made, who possess extra-normal attributes over others and are defined by what they do and/or how they behave. However, exceptional individuals with uncommon intellectual capabilities and strong motivations are not too common in any society. For this reason, innovations, even important ones, happen daily if only emphasis is not laid on the spectacular ones.

Entrepreneurship, on the other hand, is the ability to perceive of profit opportunities and mobilize productive resources in new ways under conditions of risk in order to exploit those opportunities. The ability to mobilize resources is hereby distinguished from ownership of resources and this effectively enables one to conceptualise poor smallholder farmers as entrepreneurs. This also puts innovation at the centre of any entrepreneurial activity. According to Spring and McDade (1998), entrepreneurship is an essential component of economic development. The entrepreneur introduces change, said to be

pivotal to economic growth, into an economic system, resulting in increased production. It is entrepreneurs who put together new combinations, and whose actions have consequences for the entire society mainly because they possess superior organizational skills and are creative decision makers.

As mentioned above, innovation is considered one of the main characteristics of entrepreneurship by virtue of introducing new products, implementing new production techniques, finding new sources of raw materials, discovering new markets and introducing new management styles (Schumpeter, 1934; Spring and McDade, 1998; Gray et al., 1996). Entrepreneurs are distinguished from other people by their innovativeness and/or ability to use the innovations of others for profit. However, the innovations of entrepreneurs need not be the products of brand-new ideas but, rather, they may be reconfigurations (Spring and McDade, 1998: 3). Entrepreneurs may learn by observation or inspiration from others. Risk taking is also a key aspect of entrepreneurship. According to Chileshe (1992: 97), entrepreneurs exhibit at the most opportune moment, the necessary capacity by initiating, conceptualising and managing the required changes where others have not been able to do so. He goes ahead to note that they represent the essence of socio-economic progress, for which reason they are often described as adventurous, innovative, risk-taking and very tight-fisted (Chileshe, 1992: 100).

Israel Kirzner (1979; 1980) argues that entrepreneurship is nothing but 'alertness to profit opportunities' and the actual translation of such opportunities into tangible results. However, Kirzner's entrepreneur appears to be exclusively confined to the market place or business setting. This study takes the concept of entrepreneurship a notch higher by applying it to smallholder peasant farmers and also by introducing nonmarket-mediated innovations especially with respect to the use of indigenous technical knowledge in the search for cost-effective farm husbandry techniques and access to alternative farm inputs. Peasants operate in a system riddled with many actors, the market being one of them. When the demands of the market combine with innovation, there is a tendency to undermine risk averseness, subsistence orientation, seasonality and rudimentary technology, the hallmarks of peasant economics. The imperatives of entrepreneurship, which include dynamism, intuitiveness, perceptiveness, creativity and risk taking, serve

to reorient and transform peasants away from the ideology of survival into profit-minded entrepreneurs. Being the central characteristic of entrepreneurship, innovation is the translation of the human desire to overcome challenges and constraints in life. One such formidable challenge is poverty, be it absolute, chronic or transient. By creating new assets and enhancing capabilities through deployment of earned profit, entrepreneurship has a direct linkage with poverty reduction, wealth creation and an improvement in the quality of life for individuals, households and the broader locality. Employment creation and infrastructural growth are also among the many other developmental benefits of entrepreneurship. Thus, combining innovation and entrepreneurship ensures rapid socio-economic development of any country.

2.6.1 Role of Agricultural Innovation and Entrepreneurship in Development

Since the onset of the 1970s, there has been a raging debate on whether African smallholder farmers or the peasantry can be studied as innovators, entrepreneurs or both. One of the main arguments in the debate is that peasants constitute poor, backward communities because their risk-aversion inhibits innovativeness, which, in turn discourages the development of entrepreneurship among them. They do not improve their primitive cultivation methods due to their preoccupation with obeying the survival instinct (Shanin 1971; Leys 1975; Bernstein 1979; Friedmann 1980). Peasant scepticism about innovation is also seen to be related to imperfect knowledge about innovations as well as the modern agronomic practices associated with them (Ellis, 1988; 2000). A more significant line of argument in the debate, and along which our study proceeds, depicts small farmers as dynamic and at the forefront of technological change in agricultural practices, though not necessarily in the same manner or scale as in the advanced industrial societies.

Technological change in agriculture is caused by several factors. Population pressure is one of them (Boserup, 1965). Other factors include private initiatives by individual farmers in their attempts to address the various social, economic and environmental issues confronting them. The realisation that small farmers possess knowledge that makes them partial masters of their own environments has given rise to studies of what is referred to as indigenous technical knowledge (ITK) (Brokensha, Warren and Werner,

1980). The main argument in ITK studies is that small farmers are innovators whose activities increase farm productivity, improve natural resource management and also serve as a basis for technological advancement. This bestows upon them the potential to become entrepreneurs (Dommen, 1975; McDowell, 1975; MacPherson and Jackson, 1975; Richards, 1977; Chambers et al, 1989; Chambers, 1997).

The renewed interest with which scholars have approached this issue as well as new findings by researchers seem to have rendered obsolete the old “conventional wisdom” that smallholder farmers cannot be studied as entrepreneurs. For instance, it has been reported that so called traditional farmers have been experimenting with new cultivation methods and unfamiliar crop varieties even prior to colonial times (Richards, 1986; Chambers, et al, 1989). Some pick the new practices from government or university experimental farms (Johnny, 1979). This dynamism within what is regarded as traditional agriculture (Rhoades, 1989) has led to the relatively rapid spread of new crop varieties such as maize and cassava throughout tropical Africa in the last few hundred years (Johnson, 1972; Bunch 1984). Until the 1980s, on-farm experimentation by traditional farmers had received little attention but as the literature now shows (Biggs and Clay, 1981; Uozie, 1981; Budelman, 1983; Richards, 1986; Altieri, 1978; Lightfoot, 1987; Chambers, 1983; 1997; Chambers, Pacey and Thrupp, 1989; Chambers and Conway, 1992), “the experimenting, innovative and adaptive peasant farmer is now accepted as the norm, not the exception (Richards, 1991:13). In this case, on-farm experimentation and innovation are response mechanisms to the challenges of survival.

It has also been argued that the adverse conditions confronting the small farmers, especially those in the high-risk marginal ecosystems, tend to induce rather than discourage innovation (Vaughan, 1987; Juma, 1987; Rowland, 1993). In a study of on-farm research by farmers in India and Bangladesh, Gupta (1989) underscores the fact that experiments and other innovations by small farmers can serve as vital stimuli to agricultural scientists working in this area. Gupta subsequently advises prospective researchers on innovation among smallholder peasant farmers to follow up the odd, the unexpected, the absurd and the contradictory, in farmer’s fields.

The concept of entrepreneurship has been described as one of the most intriguing and elusive concepts. Part of the problem lies in its interdisciplinary nature, having been studied or used by economists, business strategists, organizational sociologists, and psychologists among others, to refer to different processes. However, consensus seems to have built around the role of entrepreneurship which, depending on the intellectual tradition, is “moving the economic system simultaneously closer to and away from equilibrium”, “enhancing the allocative efficiency for given ends and means” or “driving the dynamic performance of the system through the progressive creation of new products, processes or markets” (Peneder, 2009: 2). Whether it is a matter of occupational choice between being a salaried employee or self-employed; social and organizational embeddedness of entrepreneurial behaviour; or has to do with personal characteristics and individual cognitive processes within varying situational contexts, the real value of the concept seems to be its elasticity and applicability to a wide array of academic as well as practical arenas. Thus, although it may have originated from business, it is clearly applicable to a wide array of disciplines and contexts including agriculture, the subject of this thesis. This study, therefore, intends to add value to the existing body of literature by examining how agricultural entrepreneurship contributes to peasant transformation through innovation.

As mentioned above, innovation is the central defining attribute of entrepreneurship. The entrepreneur recognizes and appropriates opportunities through innovation and initiates changes from within or endogenously. The presence of a critical mass of entrepreneurs in any society, therefore, guarantees changes in economic life that are not forced upon it by external forces but arises from within. This in turn describes the essence of economic development which is antithetical to tradition (Schumpeter’s circular flow of economic life) or the tendency towards equilibrium. Development is or arises out of a deliberate but creative disturbance or destruction of the status quo.

This discussion thus suggests that entrepreneurs are advocates, agents, engineers or prime movers of change. They are agents of transformation. Through innovation, entrepreneurs bring about change in the way things are done by introducing new things that improve the quality of life. This is how innovations brought about by agricultural entrepreneurs can be

used to reduce poverty. While entrepreneurs are acceptors and agents of change, it should be borne in mind that people behave differently to newness in their experiences due to attitudinal biases. For this reason, and as Rogers (2000) correctly argues, no one is wholly or persistently an acceptor or rejecter of new ideas. The incidence and rapidity of each of these vary with individuals. This is how today's laggards may be tomorrow's innovators. The ability and willingness of an individual to introduce or use innovation to ameliorate a bad situation despite the risks involved lies at the core of entrepreneurship. The introduction of new things or ways of doing things or the doing in a new way of something that has been done in the past signifies the "creative destruction" of the "circular flow of economic life" according to Schumpeter. Every method of production involves some new combination of the productive forces and different methods are distinguishable in the manner in which such combinations occur. Consequently, every change in an economic system is always connected with the preceding state of affairs or antecedents. As such, technologically inferior methods may best fit certain economic conditions and times.

Individual entrepreneurs, as actors, play an important role in rural social transformation. As such, any analysis of entrepreneurial behaviour should be at the individual level since discovery or perception of opportunities is a cognitive process that takes place at the individual level (Audretsch, 1995). Organizations that individuals work in are inanimate entities and cannot discover or perceive. They can only offer logistical and other support in the exploitation of an opportunity. It is the individual discoverers who make calculated or rational choices on the manner in which they would like to exploit the opportunities they discover (Shane, 2003). For this reason, entrepreneurial activity depends on the characteristics of the opportunity (e.g. level of associated risk) and the characteristics of the individuals who exploit them (Casson, 2005). These opinions tend to converge in the argument that the behavioral dimension is the more comprehensive and relevant to the nature of entrepreneurship and the functional and occupational definitions add the necessary specifics for objective analysis (Peneder, 2009).

In an attempt to comprehend the anatomy of entrepreneurship that takes into account the behavioral, functional and occupational dimensions, Peneder (2009) came up with a

model with three ‘building blocks’. The first building block essentially refers to what entrepreneurs do and their role in economic growth and development. Creating opportunities through innovation is the essence of the second building block. Innovation also takes the form of discovering opportunities through market co-ordination and technological diffusion. The third and final building block describes the contextual dimensions that combine independent entrepreneurs and those working from within established large firms. This model is presented in Table 2.1.

Table 2. 1: The Anatomy of Entrepreneurship: A Modular Reconstruction

1st Building Block: General Behavioral Definition	
<i>Entrepreneurship is the pursuit and exploitation of profit opportunities.</i>	
Selected characterizations of entrepreneurial behaviour:	
(i)	Taking judgmental decisions (Knight, Casson, Hebert and Link)
(ii)	Creating new means, ends, or means-ends relationships (Venkataraman, Shane)
(iii)	Cognitive leadership (Witt)
2nd Building Block: Functional Differentiation	
<i>Equilibrating Forces:</i> (i) Market co-ordination (Hayek, Kirzner) (ii) Technology adoption/diffusion (Schultz, Rogers)	
<i>Disequilibrating Forces:</i> (i) Innovation (Schumpeter, Casson)	
3rd Building Block: Occupational Categories	
<i>Independent Entrepreneurs:</i> Owner-managers running businesses (Cantillon, Knight, Lazear)	
<i>Corporate Entrepreneurs:</i> Managers pursuing opportunities on the market but within the organizational context (Burgelman).	
Empirical Units of Observation	
(i)	Latent entrepreneurship
(ii)	Self-employment
(iii)	Small and medium-sized enterprises
(iv)	Firm entry
(v)	Firm survival
(vi)	Firm growth

Source: Adapted from Peneder, 2009: 28.

Looking at Peneder’s three building blocks, it is clear that the behavioral definition most closely approximates the phenomenon of entrepreneurship, while the functional and occupational dimensions provide lateral support mechanisms. This is because it merges the traits dimension with opportunity-creating and/or seeking behaviour without necessarily implying that the latter is a permanent feature or characteristic of entrepreneurs. However, it is important to appreciate that all the three forms of entrepreneurship are essential and complimentary in the process of economic development. The presence of all three is likely to foster a healthy economic ecology conducive for income generation, employment creation, infrastructural growth and general wellbeing through reduced poverty. It is clear therefore that in the many theories reviewed, none explains the whole story alone. Instead, there is a variety of indicators empirically explaining parts of the phenomenon. Peneder’s modular reconstruction of the theories of entrepreneurship provides clarity in a better manner because it approximates a

holistic explanation of entrepreneurs in commerce/trade, industry, as well as agriculture and acting within corporate contexts or individually.

The notion of independent entrepreneurs comprising owner-managers of micro, small and medium businesses who pursue and exploit profit opportunities through innovation and/or adoption of new production methods is applicable to this study. Being constantly alert to market behaviour, entrepreneurs become opportunity-creators and seekers, and, once they have taken a “judgmental decision” to pursue and exploit an opportunity, they bear the attendant risk emanating from inevitable market disequilibria. This conception correctly fits the improved fruit and dairy farmers in Mbeere, who are the subject of this study and who, from an occupational point of view, had started new businesses which became their passports to self-employment by preference rather than circumstance. In any case, individual preferences towards self-employment are manifestations of latent entrepreneurship (Grilo and Thurik, 2005; Grilo and Irigoyen, 2006). By distinguishing the behavioral from the functional and occupational perspectives, Peneder’s modular theory of entrepreneurship enables the study to better understand not only how the many theories in the literature relate to one another at the macro level, but also how the opportunity and profit-seeking, risk-bearing peasants grew innovation into enterprises with a potential to reduce poverty at the micro or household level.

In summary, it is safe to conclude that the various theories of entrepreneurship offer essential but only partial explanations of entrepreneurship. The dilemma is whether studies should continue adding more characteristics to the concept and arrive at an all-inclusive definition or coin a working generic definition that outlines the basic as well as combines the functional, occupational and behavioral dimensions of entrepreneurship. In an attempt to arrive at an all-inclusive definition, Wennekers and Thurin (1999:46) attempted the following definition:

Entrepreneurship is the manifest ability and willingness of individuals, on their own, in teams, within and outside existing organizations to perceive and create new economic opportunities (new products, new production methods, new organizational schemes and new product-market combinations), and to introduce their ideas in the market, in the face of uncertainty and other obstacles, by making decisions on location, form and the use of resources and institutions (Quoted in Peneder, 2009: 14).

This study borrows Peneder's three building blocks or dimensions of entrepreneurship as they seem to bolster the neo-Schumpeterian approach adopted by the study in explaining any one of the five forms of innovation that constitute entrepreneurship or that enterprising individual farmers are likely to come up with. This closes the overview section whose purpose was to a) clarify the meaning of the two concepts, b) show how they are related, and c) show how they have been used in the study.

2.7 Linking Agricultural Entrepreneurship to Poverty Reduction and Peasant Transformation

Agriculture is a major source of livelihood in developing countries, providing sustenance to billions of people, many of them poor. Of the world's 6.5 billion inhabitants, 5.5 billion live in the developing countries and 3 billion live in the rural areas of these countries (World Bank, 2007). Thompson (2006) observes that the developing world will remain predominantly rural until around 2020 and millions of poor people in those countries will continue to rely on agriculture for their livelihoods for the foreseeable future. Agricultural entrepreneurship would not only ensure food security but also reduce poverty through increased household incomes, employment creation, asset build-up, and infrastructural growth among others. Agricultural enterprise necessarily involves the introduction of new ideas, technologies and ways of doing things. In other words, agricultural entrepreneurship reduces poverty through innovation. In Kenya, innovative smallholder farmers have gained immensely from market reforms and overall economic growth, looking at their assets, incomes, and living standards. Increase in agricultural production for the smallholder peasant farmers is usually accounted for more by an expansion in farm size or output per farmer.

Poverty is a complex and multi-dimensional concept which has relative and absolute dimensions. According to Shanahan and Tuma (1994), relative and absolute definitions of poverty tap into fundamentally divergent notions of difference and deprivation. This position expounds Townsend's (1980) assertion that absolute and relative standards produce different policy implications and account for different experiences in poverty

and deprivation. Human poverty includes many aspects that cannot be measured or are not being measured. The UNDP has come up with three perspectives on poverty, namely, income, basic needs and capabilities. The income perspective holds that a person is poor if and when their income level is below the defined poverty line. Many countries have adopted income poverty lines to monitor progress in reducing poverty incidences. Often the cut-off poverty line is defined in terms of having enough income for a specified amount of food.

Agricultural entrepreneurship has been hailed as being crucial to poverty reduction through enhancement of increased earnings for households. Poverty reduction (and by extension wealth creation) is therefore a major component of peasant transformation. In Kenya and other developing countries, agriculture is a major employer and source of national income and export earnings. Growth in agriculture can be said to be ‘pro-poor’ if it harnesses poor people’s key assets of land and labour and creates a vibrant economy in rural areas where the majority of the poor peasants live. Agriculture connects economic growth with the rural poor, increasing their productivity and incomes (Thompson, 2006). Scoones and Thompson (2009) observe that innovation systems can help in understanding the relationship between farmers (in their rich and complex diversity) and other actors. In the Kenya Vision 2030 (GoK, 2008), the goal for Agriculture and Rural Development is to create an innovative, commercially-oriented, competitive and modern agricultural sector. The key strategic objectives include institutional reforms, increased productivity, increased access to markets, land use transformation and the development of the Arid and Semi-Arid Lands (ASAL). Agricultural innovation is particularly given special emphasis in Vision 2030 due to its potential in introducing and sustaining entrepreneurship in the agricultural sector (GoK, 2008: 162- 163).

The available literature contains a long history of farmer innovation across the globe, institution-based as well as through farmer-to-farmer extension. There is evidence that farmers respond to market and state incentives to increase production. There is also evidence that farmers respond to market reforms e.g. SAPs and/or profit signals to innovate. This may be in the form of knowledge spillover, livelihood diversification or farm-nonfarm linkages. Such innovations may happen within or lead to entrepreneurship

with possibilities of improving household welfare and wealth creation. Conceptually therefore, agricultural innovation alone may be responsible for some level of poverty reduction but greater impact is registered if the innovation is entrepreneurship-driven or is transformed into an enterprise through entrepreneurial thinking.

The indirect effects of agricultural entrepreneurship on poverty reduction mainly comprise the benefits passed on to others by the farmers who actually implement innovation. Four such benefits may be isolated. These are lower food prices due to higher agricultural productivity and output; employment generation in agriculture; broader economic growth through forward (production) and backward (consumption) linkages with the non-farm economy; and household market integration. Lower food prices are crucial in improving the welfare of urban and rural people who spend substantial proportions of their income on food either because they are landless or have insufficient land to meet their household food needs (CGIAR, 2000). This has been demonstrated by studies in India, Mexico and Nicaragua (Ravallion, 2000; de Janvry, Gordillo and Sadoulet, 1997). Studies have also shown that some improved technologies can increase total on-farm employment especially through stimulation of output per unit of land per unit of time. This was confirmed by a study on the adoption of improved rice varieties in the Philippines (Otsuka, 2000). Technological advancement may also result in increased wage rates (Otsuka, Gascon and Asano, 1994). However, innovations in the form of labour-saving technologies may reduce the demand for human labour (Renkow, 2000). Linkages with the non-farm economy may take the form of upstream linkages which are stimulated by growth in the farm sector thereby inducing the non-farm sector to increase input supplies to the farm sector. Downstream linkages occur when the non-farm sector is induced to invest in the capacity to supply agro-processing and distribution services, using farm products as inputs (Reardon, Berdegue and Escobar, 2001).

This thesis argues that embodied innovations (capital goods, new seed varieties, fertilisers and pesticides, etc) as well as disembodied innovations (new products, new production methods, new markets, new sources of raw materials, etc) have a major role to play in poverty alleviation. So also are process (gene modification in plants, new land and soil management practices) and product (new product) innovations. Ownership of capital

goods alone is a strong indicator of poverty alleviation. The benefits accruing from such ownership or access to capital goods includes enhanced household welfare and social status, increased food production and incomes from renting them out. Disembodied innovations have a higher potential for enhancing entrepreneurial activities or transforming innovation into agricultural enterprises. When farmers begin to do agriculture as a business, then, the profit motive takes over, the assault on poverty becomes more protracted, deliberate and planned and the lure of wealth drives and maintains the spirit of entrepreneurship. Farmers innovate when reacting to external stimuli. Innovation may therefore be deliberate and calculated or pure imitation. On the other hand, innovation may be spontaneous, accidental, unplanned. Whether planned or otherwise, innovation may help in alleviating poverty especially for the innovating households. As observed above, innovations that are embodied in capital goods or products such as tractors, fertilizers or improved seed, improved plant and animal varieties, inevitably elevate the socio-economic status of the adopting households. Households that own an assortment of agricultural equipment are considered better off in the sense that they can use them to improve production (of e.g. food) or lease them out at a fee.

In addition, the knowledge embodied in such capital goods is a valuable asset in fighting poverty. On the other hand, disembodied innovations such as those developed using a combination of productive factors (e.g. the five discussed by Schumpeter-introduction of a new good; introduction of a new method of production; discovery of a new source of raw material; discovery and conquest of a new market; and new organization of ny industry) have greater potential for becoming enterprises or triggering entrepreneurial activity (Sunding and Zilberman, 2000). Mechanical innovations (tractors and combines); biological innovations (new seed varieties); chemical innovations (fertilizers and pesticides); agronomic innovations (new soil and land management practices); and biotechnological and informational innovations, all have potential for poverty alleviation especially when turned into income-generating activities. Some mechanical innovations may triple output which in turn creates employment at various nodes along a given product's value chain. In the same vein, chemical and biotechnological innovations may increase production per unit of land which in turn has positive effects on household

incomes and employment. Process innovations (e.g. gene modification in plants) and product innovations (e.g. new seed varieties) also end up contributing positively to poverty reduction. Innovations may also be useful in terms of their impact on economic agents and markets. These include high-yielding, cost-reducing, quality-enhancing, risk-reducing, environment-protecting and shelf-life enhancing innovations. The two innovations i.e. improved fruit and dairy farming, which are the subject of this study, are good examples of poverty-reducing innovations.

2.7.1 Agricultural Entrepreneurship, Accumulation and Social Differentiation

Agricultural entrepreneurship gives rise to what is referred to as “commodification”. This phenomenon is understood as the process through which production and reproduction are market-mediated or obtained from market exchanges. In capitalism, as proposed by Marx, this process is premised on the historical emergence and formation of a fundamental production relation between capital and wage labor. In essence, the process of commodification of small-scale farming displays massive variation. Primarily, this shift attracts capital. In farming, this is in form of land, tools, seeds, fertilizers, and other chemicals, and labor in the form of families/households. Since market forces are usually imperfect, these factors are not evenly distributed within farming households, especially given the gender divisions of property, labor, income, and spending.

It is important to note that this situation contradicts the assumption that small-scale farmers are solely subsistence cultivators whose primary objective is to supply their food needs from their own farming. However, some of the literature shows that some farmers have involved themselves in the market through “subsistence surplus” production, that is, they produce beyond the consumption levels of their particular households. At this level, it is evident that there is emerging class differentiation among farmers who produce solely for subsistence and those who produce a surplus to sell to the capitalists. In addition, the nature of the activities outside their farms and the incomes accruing from such engagements provide a source of investment funds and a culture of saving.

Consequently, class formation is further complicated by the precarious conditions of both small and medium-scale farming due to the pressures on the farming households.

Medium farmers are often pushed into the ranks of poor farmers because of their vulnerability to “shocks” like drought, flood and deteriorating terms of exchange between what they need to buy and what they are able to sell – a typical expression of the ‘simple reproduction squeeze’. They can buy fewer inputs and less food and labor power when they earn less from their farming. This may be because of reduced harvests due to adverse weather conditions that hamper their production potentials, crop disease, pest infestation, insufficient fertilizers or labour shortages or even reduced prices of the commodities they sell or because they have to repay debts given in form of loans.

At the lower level of these class differentiations are the poor or marginal farmers who engage in ‘survival’ activities to reproduce themselves primarily through the sale of their labour power. This has been acknowledged by organizations like IFAD and the World Bank. The IFAD’s Rural Poverty Report (2001) notes that the rural poor live mainly by selling their labor power (2001: 203). As far as the poor peasants (who constitute a substantial share of the rural population) with small plots of land are concerned, their holdings are uneconomical (i.e. due to their small sizes) and, therefore, they produce a surplus so small that it is often not enough to settle loans and meet the household’s subsistence requirements (Moor, 1989). This condition has been further aggravated by the low profitability of paddy (Weerahewa and Abeygunawardena, 1989) coupled with the high cost of production (which is mostly unbearable for the majority). It could be suggested that the high cost of (crop) production is a result of the introduction of open economic policies which endanger their progress yet at the same time favoring progress of the wealthier farmers.

In the process of transforming the nature of rural agriculture through enhancing entrepreneurial innovation, a rural bourgeoisie and proletariat emerges. Differential levels of capital accumulation among farmers may be interpreted as predicated upon varying margins in return levels to the investments and redistribution of the accruing profits and/or incomes among the rural farmers. Thus, the notions of “peasants”, “family farmers”, “small farmers” “medium farmers” and “large scale farmers” have become synonymous with the transformation leading to social differentiation.

Agricultural entrepreneurship also contributes to wealth creation at the household level. Schumpeter (2005) portrayed the entrepreneur as a 'leader' who is motivated by the urge to perform the entrepreneurial function of carrying out new combinations. Nevertheless, the most commonly used proxy for Schumpeterian entrepreneurship in empirical work is self-employment. In Schumpeter's vision, the entrepreneur is an agent of change who disturbs the equilibrium in a steady state of affairs. The entrepreneur mobilizes resources to take advantage of opportunities and neutralize risks (Barney, 1991). In Schumpeter's view, entrepreneurs perform a central function in the economy by carrying out innovations and exploring new ways to organize the factors of production therefore influencing the process of wealth creation in a unique way believed to play an important role in economic growth.

It follows that the entrepreneur, being the creator of new wealth (Schumpeter, 1934), is the central figure in economic and business development as well as the basis of change and growth in society. This is visible in terms of: a) widening of the gap between the previously-noted economically successful and poorer groups of farmers (Gunathileke, et al, 1992) and b) the formation of a new stratum of accumulation- motivated dynamic entrepreneurs. This position is informed by the influence of market reforms which led to the emergence of a new entrepreneurial stratum in rural Kenya.

In a situation marked by absence of well-developed farmer organizations, the farmers who are capable of producing a marketable surplus - and who have their own means of transport and other necessary resources - are in a favourable position to exploit this opportunity to their advantage (Gunatilake et al, 1992). In such a context, the wealthy landowners - who also control the bulk of the means of production and exchange - have a far greater control over the destinies of the poor peasants who occupy the lower range of the agrarian hierarchy (Hettige, 1984). The wealthier farmer, who has either inherited or acquired a better position in the rural power structure, is always in a position to continually influence the majority of disadvantaged poorer farmers by further acquiring the ownership or control of various resources such as land and labour. This further improves their socio-economic status, which will also help them maintain their suitability for accessing working capital, technical know-how etc. (Shanmugarathnam, 1984). The

position of the majority of the farmers who do not own a decent piece of land (i.e. one which is productive, closer to an irrigation supply and road networks etc.) has deteriorated relatively and absolutely (Hettige, 1984) so that it is not uncommon for them to face failure and debt.

It is clear then that the economic opportunities which opened up with the introduction of free market policies were not equally accessible to all the rural inhabitants. This was due to the existence of a minority of rich farmers with inherited advantages which prevented the majority of disadvantaged poorer farmers from entering into the market process. The argument is that economic success is determined by the behaviour of the entrepreneur who is expected to behave in a manner likely to increase economic/business success and the higher the impact and frequency of entrepreneurial activity/process associated with any particular individual, the more such an individual approximates to the construct of an entrepreneur.

2.7.2 Agricultural Entrepreneurship and Social Change: Cultural and Political Reorientation of Peasants

Sustainable development of agriculture requires the development of entrepreneurial and organizational competency in farmers. The need for an entrepreneurial culture in the agricultural sector has been recognized recently (Bergevoet et al, 2005; McElwee and Bosworth, 2010). In some countries such as those comprising the European Union, researchers have investigated the factors and educational processes that contribute to the development of entrepreneurial capabilities in farmers, with the aim of spurring successful growth in the agricultural business (Pyysiäinen, Anderson, McElwee and Vesala, 2006) and increasing productivity in order to ensure farmers' survival as well as improvement of their environment (Marsden and Smith, 2005). For these purposes, farmers can either be integrated vertically inside a value chain or diversify their economic activities (Carter, 2003; Haugen and Vik, 2008; McElwee, 2006; McElwee and Bosworth, 2010).

It is equally important to note that agriculture is not a homogeneous sector. Farmers operate in a complex and multi-faceted environment which is tightly constrained and

regulated. This environment acts as a significant barrier to entrepreneurial activity (Carter, 2003; McElwee, 2008a). An important challenge for the agricultural sector consists in facilitating farmers' development of entrepreneurial and organizational capacities and attitudes, which requires economic support and greater emphasis on education and training (McElwee, 2006). Therefore, the individual(s) branded as agricultural entrepreneurs have a task to achieve the desired social change and/or transformation.

An "agricultural entrepreneur" is an individual who exploits the land or other related elements required to carry out agricultural, forestry or mixed activities. Wortman (1990) asserts that 'rural enterprise' as such is not only one of the new terms in this field but also a term that has been used incorrectly. His definition includes the creation of new organizations that introduce new products, create new markets, or use new technologies from rural areas (Wortman, 1990). Entrepreneurship strategies are regarded as tools for developing new forms of society as part of comprehensive agrarian reforms. They entail among other things, acquiring land, ascertaining the characteristics of beneficiaries, establishing a time-frame, creating enterprises, generating wealth and achieving a constant improvement in living conditions.

The transition from traditional agriculture to more modern, business-oriented operations undoubtedly includes addressing the factors that hold back rural societies such as traditionalism, economies of affection, cultural hangovers, political inactivity, low incomes and investment, migration and aging of the population, limited investment in science and technology, low levels of education, isolation and poor infrastructure. Some of the possible obstacles to rural entrepreneurship have been identified as: a) the size and density of rural areas; b) the social and economic make-up of communities; and c) the territories' links or ties with the outside world (Dabson 2002; Lichtenstein et al, 2004). Rural societies are understood as the natural space where many traditional agricultural activities take place, but also the place where the actors develop and carry out other, non-agricultural activities that influence the way of life in their respective areas. Potential rural entrepreneurs need to visualize the opportunities and be aware of the risks around them, identifying, among other things, their own potential and market as well as other

institutional potential. This links individuals to their immediate social surroundings and makes them responsible for their own development.

One implication of agricultural entrepreneurship as regards improved household incomes and wellbeing has been the benefit of small-scale farmers accessing modern marketing chains. Commodity chains provide more stable incomes and sometimes higher profits for their adherents, but participating in chains requires commercial and technical skills. Recent research has found out that in the long term, few smallholders can survive in these chains as suppliers. Only the more affluent smallholders, better endowed with natural resources, infrastructure, access to credit, and social capital, tend to endure. Despite poor rural households' limited access to the markets supported by modern value chains, the chains can bring important benefits to rural economies by creating many permanent and temporary jobs on the farm and in associated services such as input supply, sorting, packaging and transport.

Dynamic local economies create small business opportunities such as food stalls and professional services. Rural productive alliances, which are economic agreements between commercial buyers and formally organized producer organizations, enable small-scale producers to reach those markets. The agreements create favorable conditions and incentives for buyers and smallholders to establish mutually beneficial and sustainable relationships. Entrepreneurship has given rise to the phenomenon of farmer associations. These organizations can participate in the financing, development, and diffusion of innovations; manage public and private funds and programs for innovation; collaborate in the design of innovation policies; coordinate other actors in the agricultural innovation systems; and influence research and extension organizations. For many years, governments and funders favored the creation of cooperatives, but their performance has been rather disappointing. Lately, farmers and rural households have sought alternative organizational arrangements. These arrangements have had different goals, operate at different levels (local, regional, and national), and include community organizations, self-help groups, associations to manage natural resources (such as water users' associations), and lobbying associations. Such entities begin to aggregate and articulate increasingly political agenda.

2.8 Theoretical and Conceptual Frameworks for the Study

Theoretically, this thesis benefits from eclecticism borrowed from Marxism-Leninism, neo-liberalism and Schumpeterianism to explain peasant transformation. The conceptual framework derives from these three theoretical perspectives. The following sub-sections discuss them in detail.

2.8.1 Theoretical Framework

This study is about the role of agricultural entrepreneurship in peasant transformation and especially how agricultural entrepreneurship contributes to social change in rural Kenya. It employs a neo-Schumpeterian conception of entrepreneurship to weave together Marxist-Leninist and neo-liberal perspectives on the role of market-led innovation on peasant transformation, social change and development. The reason for combining the two theoretical perspectives is pragmatic eclecticism because each perspective provides but a partial picture of the complex transformation process. Indeed, one question that pops up is: what has been happening to the peasantry since Marx and Lenin predicted their dissolution through capital accumulation in the last century? In particular, have capital and the market dissolved the Kenyan peasantry in Marxian terms or have they transformed them into a different type of beings?

According to Schumpeter, an entrepreneur is an innovator, one who carries out “new combinations” of the productive forces thereby creatively destroying tradition or the equilibrium inherent in the “circular flow of economic life” (Schumpeter, 1934:74). Equilibrium here refers to existing tradition or custom, which, when overthrown, brings about change and/or development. As such, for change and/or development to occur, the innovative activities of the entrepreneur disrupt a pre-existing equilibrium and create a new, more superior one. This thesis is inspired by this school which views profit opportunities as endogenous realities and entrepreneurs as individuals who may be born, inducted or trained to perceive profit opportunities. Thus, innovativeness and risk-taking are some of the most critical attributes of an entrepreneur.

Schumpeterian entrepreneurship consists of any or a combination of five innovations: introduction of a new good; introduction of a new method of production; discovery of a new source of raw materials; discovery and conquest of a new market; and new organization or management of any industry or enterprise. To start with, the introduction in Mbeere of improved fruit and dairy farming matches the introduction of a new good. Although mangoes and milk are not new goods, improved varieties are. The newness of a good does not lie in its being unknown to people but rather in the fact that it has not been availed to the market in the same way before. The use of quality and yield-enhancing technologies; use of value-adding technologies; capture of local and overseas markets by some improved fruit and dairy farmers; and new enterprise management styles, all fall under Schumpeter's entrepreneurial innovations. So is "new organization of any industry" which means the ability to grow or transform an innovation into an enterprise, to destroy an existing monopoly and create a new one, or the introduction of efficiency-enhancing technologies. In addition, Schumpeter's innovator is not necessarily an inventor of things previously unknown to humankind. Rather, by viewing adaptation as innovation, Schumpeter's theory captures most of the agricultural innovations in Mbeere and other marginal areas. The notion of "new combinations" helps in understanding that while improved fruit and dairy farming are the main innovations, each of them invites subsidiary, ancillary or incidental innovations as the respective entrepreneurial farmers keep combining the productive forces in new ways.

Schumpeter's theory blends well with neo-liberal thinking especially with respect to the benefits and changes brought about by individual farmer innovation within a capitalist or market economy. The neo-liberal theoretical approach rests on the premise that the market inculcates the philosophy and tenets of individualism into peasants thereby liberating or freeing the potential of individual peasant farmers which often translates itself into agricultural innovation. In other words, individualism becomes an asset. In addition, the market provides an environment that encourages competition to the extent that individual success becomes purely an individual, not collective affair. Such success is predicated upon doing things differently and breaking tradition. This is how individual peasant farmers become innovative or embrace new ideas that have the potential of changing or transforming their status quo which is characterized by poverty. Innovation,

therefore, provides the peasant with the most basic raw material for entrepreneurship. Being independent, the peasants make and execute their own production decisions especially in terms of when, where, and how to mobilize resources or the means of production (land, labour, financial capital, etc.) in pursuit of profit opportunities. Since the peasant owns the means of production, decisions to enter into market transactions are consciously and deliberately made and these tend to direct innovation towards profit generation. As such, market entry is based on sound calculations of costs and benefits such as increased household incomes and wellbeing, poverty reduction and/or wealth creation. Within this liberalized atmosphere, the peasants own and appropriate their own surplus value which in turn paves way for household-based accumulation which Mamdani (1996) calls “accumulation from below”. This is how the peasants get transformed into “new beings”, in this case, wealthy entrepreneurs.

On the other hand, Marx and Lenin postulated that the market blocks the potential and independence of the peasantry because it enslaves and eventually dissolves them. This happens because the capitalist owns and controls the means of production (land, industry) including the peasant’s physical and intellectual labour and/or innovation. Consequently, almost all production decisions are made by the capitalist. This makes it possible for the capitalist to expropriate and appropriate peasant surplus value. All the while, the peasants cannot hit back because they are not a cohesive class. The lack of cohesion is explained by a characteristic individualism which made Marx equate them with potatoes in a bag. Individualism inhibits class consciousness without which the peasantry is rendered politically irrelevant. This creates fertile ground for continuation of peasant exploitation by the capitalist class. With no benefits accruing to them from their labour, the peasants are more or less condemned to poverty, helplessness and a bleak future. At some point in history, they get dissolved by capital and the market. The Marxian theoretical perspective does not seem to say what becomes of them after that, despite the eternal interplay of the thesis-antithesis-synthesis dialectics. In this tradition, there is no room for peasant transformation. They are simply dissolved by individualism and use of capital. It is still possible to argue that both theories envisage peasant transformation. Under Marxism-Leninism, the transformation originates from external forces while under neo-liberalism

and neo-Schumpeterianism, the transformation is internally sourced and driven by the peasants themselves.

From the Mbeere context, Marxism-Leninism helps in explaining the transition from traditional economy, through communalism, to capitalism. This is well captured from a historical-materialist perspective in the chapter on Mbeere (see Chapter Four). In this transformation or social change, the forces of immanence (dialectics) combine with those of human agency. Since capitalism in Mbeere is still young, its contradictions, which appear mainly in the form of poverty and social inequality amidst riches, are resolved by agricultural entrepreneurship into improved household incomes and wellbeing. In the end, poverty is alleviated and the previously poor peasants are elevated into the middle classes through accumulation. This is how development becomes a transformation from quantity to quality. In Figure 2.1, neo-liberalism explains how the market facilitates peasant transformation while Marxism-Leninism explains some of the obstacles that stand in the way of peasant transformation. This is how the two complement each other. In Figure 2.2, the two theories are woven together by neo-Schumpeterianism.

Accumulation over time alters or changes the social status of peasants who acquire a semblance of class consciousness first in the form of organized farmer groups with voice and an ability to engage the state on matters of their own interest e.g. roads, water, electricity and markets. This makes them prime candidates for the middle classes with some effectively joining the floating and lower middle classes with prospects of going further up. In the final analysis, these processes end up transforming the peasants into agrarian capitalists thereby significantly altering the existing relations of production based on egalitarianism and what Goran Hyden (1980) called the economies of affection (defined by reciprocity, hospitality and mutual social responsibility).

For this reason, neo-liberalism promises a brighter future for the peasantry but only for the innovative individuals among them. At this point and from a Marxian perspective, development happens as a resolution and synthesis of the contradictions inherent in the peasant and capitalist modes of production. Development appears as a transformation from quantity to quality. It is a fusion of the immanent forces of change on the one hand

and human agency through innovation and entrepreneurship on the other. The two theoretical perspectives therefore appear to complement rather than contradict each other in peasant transformation. The next paragraph explains in detail how this happens.

From a Marxian perspective, the market blocks peasant potential by turning both the peasant and their labour into commodities for sale thereby introducing unequal relations in the production process. As a result, the capitalist not only buys off and owns peasant innovation but also underpays for commodities produced by the peasant. This happens because the capitalist owns the production process and determines what is to be produced. The peasant does not influence what is to be produced. The market, through state policies, determines and pushes through what is to be produced. As peasant labour and innovation are owned by the capitalist, the result is exploitation of wage labour and enslavement of the peasant as object, which denies the latter freedom. In Marxian terms, this is expropriation and appropriation of peasant surplus value by the capitalist. Under these relations of production, only the capitalist is in a position to benefit from the profit opportunities offered by the market. On the other hand, the peasant is impoverished by enslavement by the market. Continued exploitation condemns the peasantry to endemic poverty.

By acting as individuals, the peasants lack cohesiveness. However, it is in the interest of the capitalists that the peasantry remains divided. When divided, the peasants are easily manipulated and this could lower the cost of hiring labour. The lack of cohesiveness blocks the emergence of class consciousness among the peasant producers. Class consciousness is postponed indefinitely as the peasants get preoccupied with issues of personal survival as individuals and households, not as collectivities or blocks. This turn of events spells a doomed future for the peasantry as a social category and as beneficiaries of their own individually-generated wealth. However, their lot can change for the better if they are liberated from the enslavement of capitalism and become equal partners in capitalist relations of production. Peasant dissolution can only be positive if it liberates and transforms them into independent producers who are willing partners of the market and not slaves or appendages. When they become the proactive pertakers and beneficiaries of market forces and processes, dissolution should be understood not as

obliteration or liquidation but as transformation to another status, in this case, that of agrarian capitalists. They become proactive decision makers who “rebel” against enslavement or relegation in the capitalist relations of production. Rebellion is breaking away from or defying tradition and venturing into new, often risky activities but which promise an escape from poverty. This is one of the contexts in which this study on improved fruit and dairy farming in Mbeere should be understood.

Empirically, originally poor peasant farmers conquer poverty through market-mediated innovations and assume a new role as active decision makers in capitalist processes. In other words, agricultural entrepreneurship transforms the peasants by improving their quality of life and bestowing upon them a new social status. The bottom box (in Figure 2.1) summarizes the essence of peasant transformation: *quantity* refers to the primeval stage of traditional, conservative and risk-averse cultivators, while *quality* refers to the stage at which they are transformed by the market into profit-driven agrarian capitalists, able to manipulate capital and make rational decisions on the production incentives that the state offers. At this stage, they are also in a position to engage the state and international capital interests as an emerging social class. This is how development may be understood as a synthesis of some of the contradictions of capitalism from a Marxian perspective.

According to neo-liberal thinking, the market unlocks (rather than blocks) individual peasant potential and independence and provides an environment conducive to agricultural innovation. Due to the unlocked potential and independence, the peasants make and execute their own production decisions. The market and the state view and treat peasant farmers not as objects but as informed subjects. The peasants consciously analyze the options, opportunities and incentives offered by the market and the state and deliberately choose those that can get them out of poverty and ignominy. In the case of this study, improved fruit and dairy farming are the consciously chosen escape routes out of poverty. In a neo-liberal environment, the peasants own not only their labour but also the products of their creativity or innovativeness, the foundation stone for entrepreneurship. This means that the peasants have the potential for becoming capitalists or active and proactive market actors. Consequently, the proceeds of their labour and

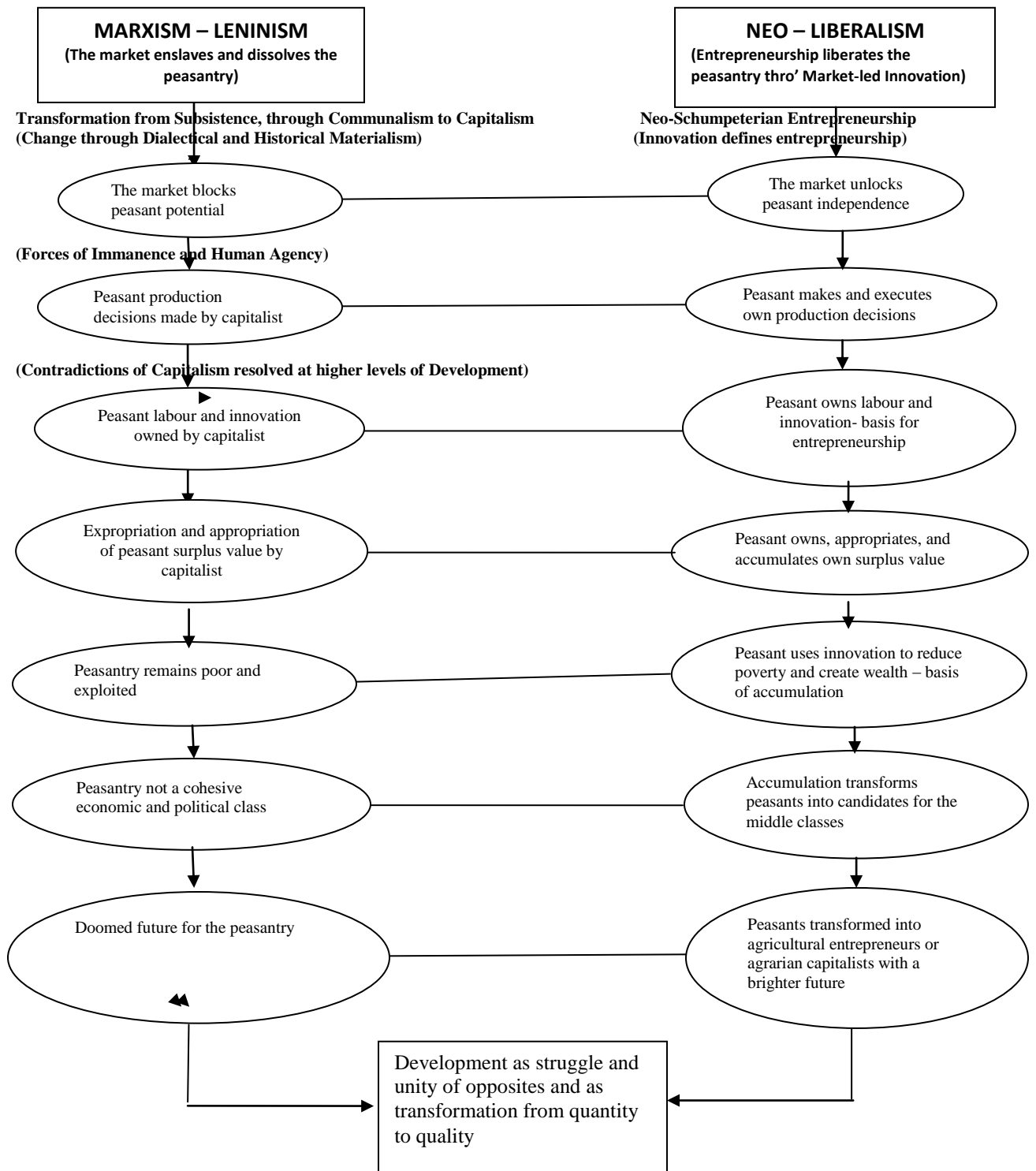
innovation become theirs. Ownership of the proceeds of labour and innovation enables the peasant to appropriate and accumulate own surplus value, the basis of wealth. This means that the innovative peasants acquire the ability to fight poverty especially at household level. They do this by growing or transforming their innovations into enterprises that generate profit, at which point they become entrepreneurs. They thus escape exploitation from other social categories. Accumulation becomes a major factor in social differentiation which is both engine and facet of peasant transformation.

Entrepreneurship becomes a tool to fight poverty by creating and enabling the accumulation of wealth especially at the household level. Innovation bestows upon the peasants the ability to respond to poverty as free human beings who make conscious, deliberate and calculated decisions to reduce poverty and create wealth. With a wide latitude of choice, they choose to engage in one activity or another (in Mbeere, they opted for improved fruit and/or dairy farming). Since both activities carry considerable risks and require considerable capital investments, those trying both activities at the same time tend to concentrate more on either such that one becomes the dominant activity. Rationally, they choose one entrepreneurial innovation in preference to another in response to socio-economic and environmental factors. Opting to abandon tradition to engage in unknown innovations means that some of the peasants are capable of engaging in risk-taking behavior.

Sustained accumulation widens and deepens pre-existing social cleavages and inequalities. It transforms the peasants into candidates for the middle classes beginning with the 'floating' and 'lower middle'. This is the beginning of the formation of social classes. The peasants get transformed into agricultural entrepreneurs or agrarian capitalists, first as willing partners and partakers of market processes and eventually as real capitalists who have a brighter future and the ability to influence their own destinies. At this point, (when previous labour sellers become employment creators or labour employers; and when poor, deprived citizens become wealth creators and accumulators), neo-liberalism meets Marxism when some of the contradictions of capitalism are resolved in a synthesis. This 'struggle and unity of opposites' and 'transformation from quantity to quality' are resolved at a higher stage in the development process. Courtesy of

the market, previously poor peasants assume a new social status, that of agrarian capitalists. As class consciousness continues to solidify, the foundation for future social classes is firmly laid. At this point, development ceases to be accidental and haphazard, but a deliberately engineered process where the forces of immanence meet those of human agency. In the case of Mbeere, this transformation is depicted diagrammatically in Figure 2.1.

Figure 2. 1: Agricultural Entrepreneurship and Peasant Transformation: An Eclectic Marxian, Neo-liberal and Schumpeterian Theoretical Framework



2.8.2 Conceptual/Analytical Framework

Conceptually and as depicted in the boxes in Figure 2.2, agricultural entrepreneurship is the driving force behind peasant transformation. Peasant transformation is the driven factor and consists of various outcomes. In between are the intervening or contingency factors that include the market, the state, social capital and information. The starting point is a peasant background characterized by poverty and deprivation. Individual critical self-assessment invites the desire to escape from poverty. The answer lies in starting or adopting individual farmer innovation, more so entrepreneurial innovations that develop into household-based enterprises. In the case of the study on Mbeere, these happen to be improved fruit and dairy farming using improved varieties of fruits and cows respectively. This culminates into doing agriculture as a business and not as a traditional pastime. The creative destruction of tradition is the essence of peasant transformation. By pursuing profit opportunities through innovation, the peasants get transformed into agricultural entrepreneurs or agrarian capitalists who utilize the proceeds to improve household incomes and wellbeing. By so doing, they end up reducing poverty and creating wealth and employment. If they accumulate the wealth on a sustainable basis, they reinforce pre-existing social inequalities by assuming a new social status. If the new social status or formation is accompanied by a corresponding collective consciousness, then this provides a foundation for the emergence of social classes.

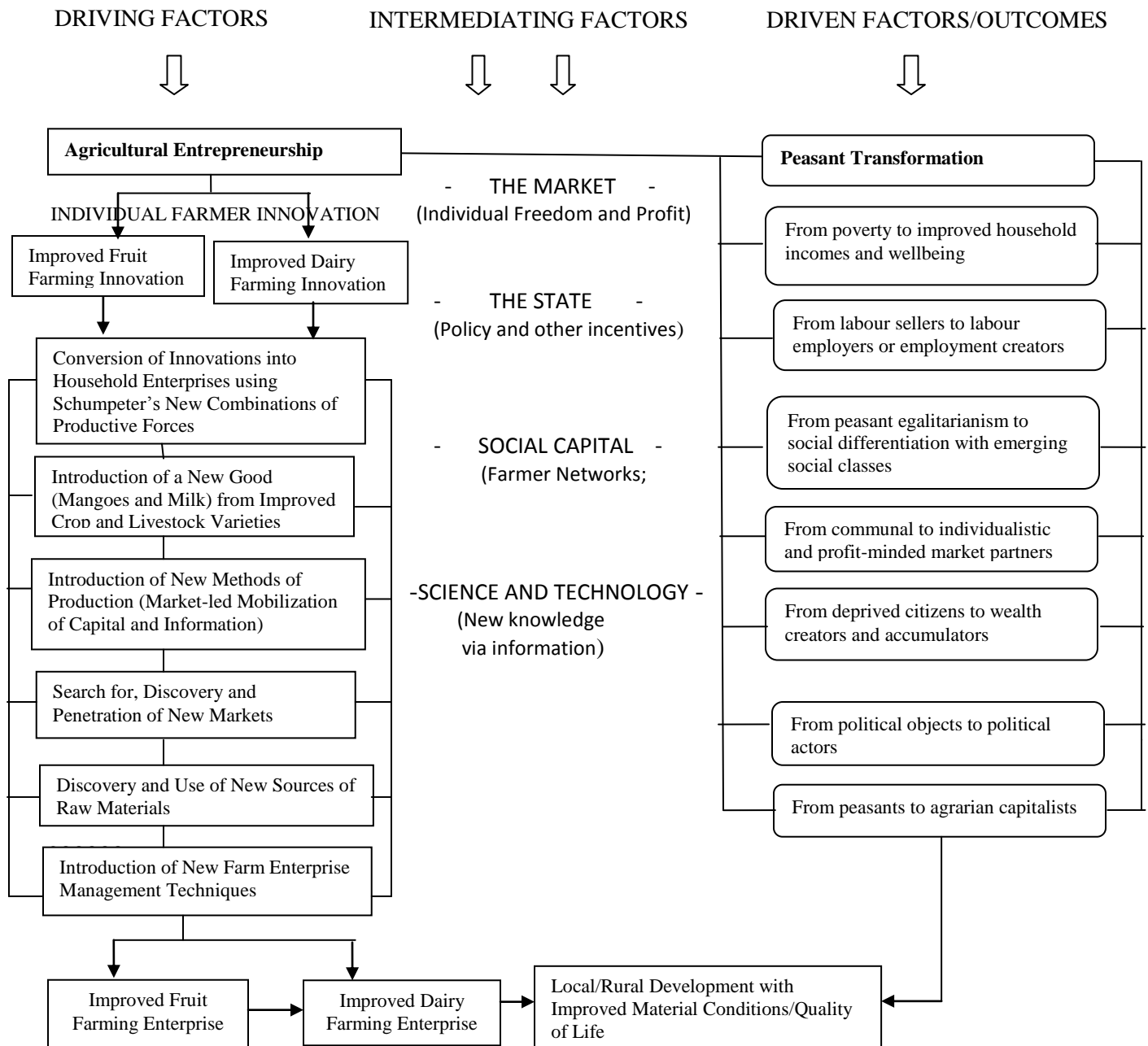
The above processes do not take place accidentally. Rather, they are premised on conscious, rational decision-making on the part of the individual farmer and four main institutions acting as intermediating or facilitating factors. These are the market, the state, social capital and science and technology as sources of information. The state acts as facilitator by offering policy and related institutional incentives which in turn offer a supportive role to those opting to innovate or adopt a given innovation. The market unlocks peasant potential, creativity and innovativeness and also offers attractive profit and a better life, as incentives for innovation. Social capital in the form of farmer networks and support mechanisms helps in identification and access to new market outlets for products of household-based enterprises coming from improved fruit and dairy farming activities. Information especially on new market outlets is sought from farmers' organizations, research centres, print and electronic media, internet and other sources.

The mobile phone becomes a regular companion of the agricultural entrepreneur. Information strengthens rational decision making especially in terms of what innovations to start or adopt, where to sell the products, and at what prices.

At the end of the driving and intermediating (institutional) factors is peasant transformation (see boxes in the right hand column). The underlying rationale for all these processes is the expectation of improved quality of life and/or wellbeing for household members. Conceptually and empirically therefore, peasant transformation in this thesis means one or a combination of the following transitions: from poverty to increased household incomes and wellbeing; from labour sellers to labour employers or employment creators; from peasant egalitarianism to social differentiation or increased social inequalities through accumulation; from communalism to individualism and profit-mindedness and other market values; from deprived citizens to wealth creators and accumulators; and from peasants to agrarian capitalists.

Sometimes, the starting point is an innovation which graduates into an enterprise but more importantly, it is human agency where entrepreneurship takes over and drives innovation. As drivers of innovation and aware of the operations and demands of the market, entrepreneurs seek and utilize new knowledge to develop and supply new goods and services needed by the market. This is how improved fruit and dairy farming were introduced in Mbeere by individual farmer innovators and grown into household-based enterprises. In the process, some of the innovators become transformed into agrarian capitalists who henceforth embark on doing agriculture strictly as a business. Some of the latent benefits of agricultural entrepreneurship include improved physical infrastructures and cultural and political reorientation of human behavior and thought systems. The cumulative effect is the transformation of peasants into agrarian capitalists and this is what appears to have happened in Mbeere in the last seventeen years.

Figure 2. 2: Conceptual Framework on Peasant Transformation



Source: Author's Conceptualization.

Being a profit-seeker, the entrepreneur uses information to undertake innovations that respond to different human needs that are time and location-specific and which meet varying social, economic and ecological imperatives. As such, the innovations may be cost-cutting, profit-maximizing, yield-enhancing, environmental quality restoring, pest-

controlling, etc. For many innovations, the market is a useful source of information. An entrepreneur may begin from a position of resource scarcity or poverty but deliberately seek start-up resources from sources such as credit. The entrepreneur's innovations, cumulatively and over time translate into benefits accruing to the household such as increased household incomes, food security, enhanced asset base, increased access to capability-enhancers (notably education and good health), enhanced social status and improved wellbeing. This is how agricultural entrepreneurship contributes to poverty reduction at the household level and such benefits eventually spread to the neighbourhood or macro level in the form of employment creation, infrastructural growth, increased access to social overhead capital and stimulation of local non-farm businesses.

2.9 Chapter Summary and Conclusion

Previous studies of innovation failed to adequately explain the process of social change and development among peasant societies, because they did not consider innovation as part of entrepreneurship, hence this study. Secondly, agricultural entrepreneurship is the missing link in poverty reduction and wealth creation studies. Thirdly, a clearer understanding of accumulation and social differentiation among peasant societies is made possible by analyzing the complex processes surrounding agricultural entrepreneurship. Fourthly, an analysis of the dynamics of social change and development in rural societies shows that agricultural entrepreneurship can complement employment creation and migration studies. Finally, by studying agricultural entrepreneurship, it is possible to combine Marxist-Leninist and neo-liberal schools of thought to rekindle the debate on 'what is happening to the Kenyan peasantry' that appears to have died at the outset of the 1980s. The review of literature therefore shows that a) there are gaps in the linkages between entrepreneurship, innovation and poverty reduction or social change; b) rarely do we have entrepreneurship discussed jointly with innovation in agriculture, yet they are critical in poverty reduction; and c) poverty reduction in agricultural communities is possible if agriculture is practiced as a business. Kenya's agricultural policies focused on this, but with no significant results.

CHAPTER THREE

METHODOLOGY AND DATA ANALYSIS

3.1 Introduction

This study was exploratory and heuristic in nature, covering the two former districts (now sub-counties) of Mbeere, namely Gachoka and Siakago (see the maps inserted in chapter Four). It examined an unfamiliar problem and specifically a problem with limited or inadequate information: how agricultural entrepreneurship contributes to peasant transformation. By adopting a case study approach with a dynamic panel of respondents, it aimed at generating new ideas, increasing familiarity with the subject under investigation, and gathering information for clarifying concepts. For this reason, the study did not aim at testing already formulated hypotheses but attempted to find out what was there rather than predict what variable relationships would be found. An exploratory study is usually guided by the existing literature on the subject under investigation. Information from the literature usually directs one to areas that are important and which can be enriched by other methods. To help understand the evolution of Mbeere peasant society through the introduction of agricultural entrepreneurship, the study focuses on the role of two farmer innovations and their effects on poverty reduction and social differentiation (among others), which are here viewed as aspects of social change and transformation. The relationship between agricultural entrepreneurship and peasant transformation is the area of inquiry. It sheds light on rural societies and social change and development.

Four research questions and hypotheses guided the gathering of relevant data. The questions revolve around the role of agricultural entrepreneurship on peasant transformation in the political economy of Mbeere. These questions were: How were the seeds of peasant transformation planted in Mbeere and what category of peasants was responsible for this? How and why did the innovating peasants take advantage of the market and favorable state policies to transform the innovations into profitable household-based enterprises? What has been the contribution of entrepreneurial innovation to household poverty reduction and wellbeing, wealth creation and

employment generation in Mbeere? What has been the role of agricultural entrepreneurship in peasant transformation in Mbeere in terms of household accumulation and social differentiation or class formation? This chapter, therefore, outlines the methodology used to gather information that could help in answering these three main research questions. On its part, the chapter seeks to answer three basic questions: how was the study conceptualized? How was it carried out? Why were the methods selected for data collection and analysis found to be appropriate? Finally, why was Mbeere chosen for the study?

The study used triangulation (or mixed methods) to collect primary and secondary qualitative and quantitative data. These methods of collecting data (field surveys, key informant interviews and observation) were used in order to enhance confidence in the findings on the extent to which agricultural entrepreneurship had fostered peasant transformation in the Mbeere District of Embu County. It treated innovation as the central attribute of entrepreneurship. This means that entrepreneurs are essentially innovators or are known for innovativeness. The peasant farmers who had ventured into either of two entrepreneurial innovations namely, improved fruit and dairy production, were extensively analyzed using data gathered to investigate the transformation process within a span of about two decades. Although a few farmers were found to have adopted both activities at the same time, the more dominant activity was considered. Being the primary innovations (each with subsidiary or incidental innovations), improved fruit and dairy farming were treated as the units of observation. The peasant farmers and their households, being the subject of transformation, were the source of information about what they had gone through. The farmers and their households became the units of analysis. Data for this study were drawn from a dynamic panel of 200 peasant farmer innovators. These were selected and interviewed in 1996/97. The same group was revisited and re-interviewed 10 years later in 2006/07. They were finally re-visited in 2013/14.

To capture change dynamics through time, the study adopted a case-study approach using the dynamic panel. Case study research adds considerable value to exploratory research such as this one by being able not only to describe in detail but also explain the

phenomena under investigation. The need for case study arises out of the need to understand complex social phenomena (such as change or transformation through innovation and entrepreneurship) because it allows investigators to retain the holistic and meaningful characteristics of real-life events. A case study is the preferred research strategy in answering “how” and “why” questions, when the investigator has little or no control over events, and/or when the focus is on a contemporary phenomenon within some real life context (Yin, 2003a: 2-10). This study therefore falls within “collective case studies” which involve more than one case with generalizable features (Stake, 2000: 437-438; Hartley, 2004: 326).

However, it should be noted that case studies are generalizable to theoretical propositions and not to populations or universes. In this respect, a case study does not represent a “sample” and in selecting a case study, the aim is to generate potentially generalizable theoretical propositions (analytical generalization) and sometimes to test external propositions generated elsewhere against the case study (Yin, 2003a: 14). Either way, a case study is not meant to generate statistical generalizations. This is left to surveys. In other words, case study research consists of detailed investigation, often with data collected over a period of time, of phenomena, within their context, with the aim of providing “an analysis of the context and processes which illuminate the theoretical issues being studied (Hartley, 2004: 323). It (case study) may then be used to generate hypotheses and/or build theory at a later stage because it has an empirical utility. Indeed, a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context especially when the boundaries between the phenomenon and its context are not sufficiently clear; copes with the technically distinctive situation in which there will be many more variables of interest than the available data suggest; relies on multiple sources of evidence with data needing to converge in a triangulating fashion; and benefits from the prior development of theoretical propositions to guide data collection and analysis.

For these reasons, a case study is not a method but a strategy. It is not a methodological choice but a choice of what is to be studied (Stake, 2000: 435). A case study can therefore use either qualitative or quantitative approaches or both (Hartley, 2004: 324;

Yin, 2003a: 14-15). In addition, a case study can be used together with other research strategies to address related research questions at different stages, or start with exploratory research and then test the emerging findings in a wider survey-based research (Hartley, 2004: 326-327). This is why the research design comprised mainly in collecting qualitative information with some bit of quantitative data to support and strengthen the conclusions derived from qualitative data. The frequency distributions reported in the findings chapters were gathered from the same set of 200 purposively selected farmer innovators and as such, no independent random sample survey was carried out.

In operationalizing innovation, the study adopted a neo-Schumpeterian approach by which innovation constitutes the central attribute of entrepreneurship and which is accomplished through new combinations of the productive forces. From a Mbeere perspective, innovation (and by extension, entrepreneurship) is operationalized as one or a combination of the following: introduction of a new good (e.g. production of improved fruit or milk and/or extraction of related products); introduction of a new method of production (e.g. introduction of large-scale production of improved fruit and milk with new yield-boosting, cost-cutting, value-adding and efficiency-enhancing agronomic and other land management practices); discovery and conquest of new markets for fruit and milk; discovery of new sources of raw materials (e.g. discovery of alternative animal feeds and substances for home-made pesticides and livestock drugs; and finally, introduction of new business management techniques for improved fruit and dairy household-based farm enterprises. The attributes describing an entrepreneur are rarely evenly distributed across any population or universe and cut across all categories of age, gender, and education levels. Categorical variables often occur in small numbers that the assumption of normal distribution may not be applicable. Consequently, statistical tests that require the assumption of normality cannot be used to analyze such data. In a social setting characterized by peasant risk-averse behaviour, entrepreneurship may be even harder to find or trace, even though it may increasingly become evident or more manifest with time.

This study treats entrepreneurship as the driving factor that fundamentally contributes to social change and transformation by impacting on a number of areas: household incomes

and wellbeing; wealth and employment creation; poverty reduction; accumulation and social differentiation; infrastructural growth and local development. This is the package of impacts of agricultural entrepreneurship that are responsible for peasant transformation in Mbeere. At the intermediate level, institutions come in to facilitate the transformation. The market plays an invaluable role in reorienting peasant livelihoods towards entrepreneurship or the pursuit of profit opportunities in farming. This is because the market consolidates a culture of individual achievement (as opposed to collective achievement in peasant society), increases alertness to profit opportunities leading to a proactive search for new market outlets, and establishes competition as the *modus operadi* which in turn calls for new dimensions of innovation and value addition.

The success of individuals and their households begins to depend on how well they can internalize the entrepreneurial instinct to drive future innovation. Alertness to profit opportunities and more so the income, wellbeing and poverty reduction benefits that go with exploiting them, slowly edges out the subsistence-based peasant livelihoods and mentality as well as the risk averseness associated with them. The study adopts neo-liberalism because it helps examine transformation. The Marxian perspective is good in terms of understanding blockages but does not show transformation except the transition from traditionalism through communalism to capitalism. Thus, Marxism explains why transformation lacks in the political economy of Mbeere and neo-liberalism depicts how change is taking place. Contrary to Marxian thought, therefore, the market does not dissolve the peasantry but instead transforms them into independent, capitalist producers and consumers and places them as prime candidates for the middle and rich classes. Peasant dissolution therefore is not synonymous with obliteration but rather transformation into capitalists and proactive market players with structured interaction with the state and other development actors. This chapter discusses the methodology used in sample selection, and data collection and analysis, beginning with the research design.

3.2 Research Design

Social change leading to transformation is a complex process. To understand this process in the Mbeere context, the study employed triangulation or mixed methods to gather the relevant data. In this endeavor, the study collected and analyzed primary and secondary

qualitative and quantitative data from two entrepreneurial innovations, namely, improved fruit and dairy farming. In exploring the context, process and dynamics of peasant transformation, the two activities were analyzed using data collected at two points in time through a 17-year period. Two respondent categories were used: a dynamic panel of 200 farmer innovators and key informants. These methods were complemented by unstructured interviews and observation. The selection of the dynamic panel through a multi-stage sampling technique is explained below.

3.2.1 Sampling Procedure for Dynamic Panel Respondents

Collection and analysis of dynamic panel data is one of the most appropriate methods to capture social change. Dynamic panel studies involve identification of groups of people who share certain common characteristics and gathering data from them periodically or at intervals over a given period of time (Hsiao, 1985; 2014; Dey, 1993). This research method has been shown to be effective in analyzing various aspects or categories of social change. These include effects of innovation on employment (Lachenmaier and Rottmann, 2011); caregiver staffing in nursing homes and their influence on quality of care (Castle and Anderson, 2011); employment and wages (Moore and Viscusi, 2014; Neumark, Salas and Wascher, 2014); political socialization (Jennings and Niemi, 2014; Bartels and Jackman, 2014; Greenstein, 2014); mobility in urban labour markets (Satchi and Temple, 2009; Coulson and Fisher, 2009; Ferreira, Gyourko and Tracy, 2010); inter-ethnic contact (Verkuyten and Thijs, 2015; Kanas, Chiswick and Lippe, 2012); national election studies (Alwin and Krosnick, 1991; Zaller, 2002; Lewis-Beck, Elias and Nadeau, 2008) and poverty reduction (Haggblade, Hazell and Reardon, 2010; Deininger and Okidi, 2003; Thirtle, Lin and Piesse, 2003), and household wellbeing (Collier and Dercon, 2014; Wooden and Li, 2014; Bruck et al, 2014) among others. This study falls within the last category i.e. poverty reduction and wellbeing.

Use of the fixed cohort design in panel studies has its own problems. The two outstanding problems are non-random attrition and panel conditioning. The first problem refers to the fact that panel respondents constitute a fixed cohort that has no recourse to randomized replacement when some may opt out or disappear in the course of time. This way, the sample may thin out gradually. The second problem is associated with the socialization

associated with panel respondents for being involved in the same study for long periods of time which may condition them to answering questions in a given way.

As discussed above, the study is about transformation or social change within a period of roughly two decades. To capture social change, the most appropriate approach was to closely study a dynamic panel of respondents who qualified as entrepreneurs. As explained in the theoretical framework, to identify who the agricultural entrepreneurs were, it was necessary to know the innovators first. To help isolate the innovators, the researcher developed four criteria for innovation or innovativeness. These were: a) a person practicing a new idea (crop or livestock variety) on their farm contrary to local tradition; b) use of new husbandry practices; c) the greater proportion of the produce is destined for the market or that the idea is generating income; and d) the idea is having a positive impact on the lives of household members. It should be noted that these criteria match Schumpeter's innovations that define entrepreneurship. With these criteria, the researcher enlisted the help of agricultural extension officers, local administrators, the District Dairy Board and officials of the local Evurori Farmers' Cooperative Society in identifying the innovators. From these sources, the researcher compiled a list of 1,015 farmers engaged in about 24 innovations. The innovations were mainly in adoption of new crop and livestock varieties, new farming practices, small-scale irrigation and new land and soil management practices. To select a scientifically acceptable sample of respondents, a multi-stage sampling technique was then employed.

The sample selection procedure occurred in four stages. The first stage involved construction of a sampling frame which essentially was compiling a list of innovators according to the four criteria outlined above. The list comprised 1,015 innovators. Due to the nature of the study, the resources available and concerns about data management, it was not feasible to study all the 1,015 innovators. During the second stage, and to enable a thorough analysis, the researcher decided to settle for the two most dominant activities. These turned out to be improved fruit and dairy farming. This necessitated knocking out all the other categories of innovators. This left a balance of 800 innovators. However, these included those practicing both improved fruit and dairy farming at the same time. The third stage involved putting the 800 in two clusters of improved fruit and dairy

farming respectively. This was preceded by determining the more dominant of the two activities (in terms of volume of investment, time allocated, output, and registration with the farmers' cooperative society) after cross-checking with the farmers. During the fourth and final stage, a sample of 25% was picked from the 800 innovators through simple random sampling. This is how the researcher arrived at the sample of 200 farmers. To be fair to both activities, 100 farmers were selected from each cluster. At this stage, the 200 farmers had qualified as entrepreneurs according to Schumpeter's five criteria of entrepreneurship. This became the dynamic panel of respondents for the study, which was visited and interviewed 3 times within a period of seventeen years.

3.2.2 Sampling of Key Informants

To gather additional information and complement data gathered through interviews with innovators, additional interviews were conducted with key informants. Key informants for this study were individuals considered to be knowledgeable in the area of improved fruit and dairy farming. These included state agents, input/output chain actors and managers; prominent farmers in other commodities, and members of community-based organizations (CBOs). These interviews served to ascertain other relevant explanatory facts about transformation taking place in Mbeere. The key informants had substantial as well as substantive and therefore useful knowledge or information in a given area or issue of inquiry. These were all individuals well versed in agricultural issues in general and agricultural entrepreneurship in Mbeere in particular.

In all, there were three categories of key informants namely state agents, input/output chain managers, and CBO operators. Eight were selected from each category which gave a total of 24 key informants. Importantly, they were drawn from all four administrative divisions of the former Mbeere district i.e. Evurore, Gachoka, Karaba and Siakago. Table 3.2 summarizes this category of respondents. Such individuals included among others, agricultural officers in various categories and dispensations, extension agents, local administrators, agri-input suppliers, agri-produce transporters, middlemen, depot owners or collection point managers, processors and NGO/CBO persons involved in agricultural issues.

Table 3.1: Distribution of Key Informants

Type/Category of Key Informant	Research Issues on Check List
<i>State Agents</i> District Agricultural Officer; District Horticultural Crops Officer; District Dairy Board Officer; Agricultural Extension Officers; District Officer; District Livestock Development Officer; District Animal Production Officer; District Veterinary Officer	Farmer responses to new ideas, innovation adoption trends, enterprise profitability and impact, credit access,, production levels and costs, product demand, constraints to entrepreneurial farming
<i>Input/Output Chain Managers</i> Agri-produce transporters; agri-input suppliers; District Dairy Board officials; Middlemen; fruit processors; milk depot owner/collection point managers; Evurore Farmers Co-operative Society	Value adding, vertical and horizontal chains, markets and marketing, farm-nonfarm linkages,
<i>CBOs</i> Kamurugu CBO Project; Anglican Church of Kenya; Compassion, Plan International; Heifer International	CBO-based new farming initiatives and innovations, fruit plant and improved livestock breeding, farmer-to-farmer extension, market outlets, enterprise impact on household welfare and poverty reduction
TOTAL=24	

Source: Survey Data, 1996/97; 2006/07.

The key informant interviews provided qualitative data on a variety of issues related to the role of agricultural innovation and entrepreneurship in peasant transformation. These included, among others, demand and supply for agricultural inputs; new value-adding technologies and their sources; new products, production levels and market outlets; quality control and maintenance; farmer attitudes to new agricultural practices; new land and farm management techniques; sources of credit and consumption levels; pest and disease incidences for improved fruit and dairy livestock varieties; benefits of and constraints to entrepreneurial agriculture including risk types and sources in Mbeere; and farmer coping mechanisms or innovative ways of managing risk.

Other useful information gathered through the key informant interviews was that on local commodity chains especially those involving input suppliers, farmers, traders, middlemen, processors, transporters and final consumers. Indeed, through these interviews, a link between the local fruit producers and international commodity markets especially in the Middle East was established.

3.2.3 Research Instruments

The dynamic panel respondents were interviewed using a structured questionnaire and an interview guide (see Appendices I and II). Another interview guide was used to gather data from the key informants (see Appendix III). The data were collected at three points in time (1996/97 and 2006/07) and 2013/14 using the same instruments. It was expected that the 17-year period was adequate to reveal changes in the lives of the respondents. To capture the changes more vividly, the two types of respondent were subjected to in-depth qualitative interviews. The purpose of the quantitative data was to establish the level and/or magnitude of the changes.

3.2.4 Why Mbeere Was Chosen for the Study

Mbeere was chosen for the study for four main reasons. First, a similar study has not been carried out in the area. Second, Mbeere is in the arid and semi-arid lands (ASAL) where agricultural entrepreneurship was previously unthinkable and this study is a fair representation of what has been happening in the ASAL in terms of agricultural development. Third, except for soil conservation, the area did not benefit adequately from colonial interventions in modernizing agriculture relative to the higher-potential zones of the country. As this study shows, the innovative Mbeere peasants have harnessed this seeming disadvantage to their benefit. Fourth and finally, although the researcher is a native habitant of the Mbeere community, this did not influence choice of research site. Instead, by strictly following the rules of scientific objectivity, the study presented an opportunity to learn first-hand what has been happening to the Mbeere peasantry during the last two decades

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3.3 Study Methodological Approach

The methodology for this study comprised three steps. The first step in undertaking the study comprised review of the relevant literature. Two main sets of the existing literature guided the study. One was on the subject of peasant transformation from Marxian and neo-liberal perspectives while the other was on agricultural innovation, entrepreneurship

and issues of poverty and poverty reduction. Thus qualitative data from the literature review was drawn from published works, previous research findings, documents, and archival records. Other written sources were farmers' diaries and records, District Annual Agricultural Reports and District Development Plans. This provided theoretical and empirical leads towards an understanding of the existing state of affairs on the links between these.

The second methodological step comprised collection of primary data through in-depth interviews from a dynamic panel of farmer innovators and key informants; unstructured interviews and observation especially examination and analysis of physical artifacts and infrastructure.

As is usual with case studies, the study began by formulating three main research questions on peasant transformation with each accompanied by a relevant hypothesis (see Chapter One). This was followed by determining the unit(s) of observation and analysis. In this respect, the two entrepreneurial innovations (improved fruit and dairy farming) became the units of observation while the individual peasant farmer innovators and their households became the units of analysis. How these units interacted to produce peasant transformation was then analyzed.

Thus the study relied on two main sources of primary data. The first source was 200 farmer innovators. The second source of data was key informants. These were people who were critical actors and observers of farmer activities and behavior in Mbeere. They included agricultural extension officers and members of the provincial administration among others.

It is noteworthy that the context and dynamics of social change and/or transformation are too complex to be captured in a one-stop field research or quantitative analysis. Neither is it possible to fully understand this change by looking at a few farmers. It is also for this reason that the study is based on field surveys spanning a long period of time and three visits. In-between the formal interviews, there were unstructured interviews with the respondents. Direct and indirect observation complemented these methods. For instance,

the study findings include observations on artifacts such as the tools used in fruit and milk farming, as well as the household assets acquired by different farmers over time.

The questions that guided the data collection were anchored in the logic or philosophy of science that links independent and dependent variables and sometimes explains causation. In this case, the transformation would be dependent on entrepreneurship. The overriding theoretical position in this regard is that change is more endogenously generated and driven, than externally imposed. The individual peasant farmer innovator is the change agent mostly responsible for the transformation. This happens through a deliberate and conscious decision to innovate. Secondly, the principal motivation lies in the desire by individual peasant farmers to change their livelihoods and lives for the better. In this regard, the study sought responses that attributed changes in the quality of life to either of the two innovations to conclude that these had had positive impact on the farmers and their households.

The qualitative data may also be used to look at differences between households at different income levels since the effects of income depend on things other than its size. Inferences from differences in the cross-section may also be made especially on the assumption that if people move to a different sub-group, they are likely to change their behaviour to that sub-group's mostly because they are facing the same set of circumstances. In analyzing the relationship between entrepreneurship and social change, therefore, one has to examine the decision-making process. This is because people's levels of information and of economic insight affect their decisions.

Since the bulk of the data collected in the two case studies were qualitative, content analysis emerged as the most appropriate method for analyzing the data. Content analysis here involved examining and searching for patterns in the data (Neuman, 1997: 426) and moves from description of the historical occurrence or social setting to interpretation of meaning. Interpretation is preceded by uncovering patterns, determining meanings, constructing conclusions (Patton and Appelbaum, 2003: 67; Yin, 2003a: 11-15). By so doing, content analysis helped to search for explanatory value on the relationship

between entrepreneurship and qualitative changes in the lives (transformation) of the individual peasant farmer innovators.

Three rounds of data collection were undertaken. In the first round of data collection (1996/97), interviews with innovators focused on the sources of the innovations and why they had opted to try either improved fruit or dairy farming. A sustained study of these sub-sectors started with a review of the available documents especially from the District Agricultural Office; archival records; observation and scrutiny of available physical artifacts.

At around 2006/07 (ten years or so later), interviews were conducted yet again with the same group, during the second round of data collection. This coincided with noticeable qualitative changes in the livelihoods and households of the innovators. These changes appeared to be for the better even though it would have been unfair to attribute the seemingly improved quality of lives to either innovation or any other variable without doing research. The same instruments used in 1996/97 were used.

The specific intention of this round of interviews was to a) find out what changes the Mbeere peasant farmer innovators had experienced with the two entrepreneurial innovations and, b) what were the implications for household incomes and wellbeing; employment creation; capital accumulation; poverty reduction; and social differentiation. In particular, the study sought to establish the emerging entrepreneurial trends in Mbeere agriculture from a neo-Schumpeterian perspective.

The third and last round of interviews took place in 2013/2014. The focus during this period was to collect information to firm up the conclusions on social change and development. Since studies meant to analyze change and its dynamics require time, the 17-year interval between the first and last visit were ideal to enable the study to make conclusions on peasant transformation and generalize them to the larger Mbeere population. The third and final methodological step was data analysis, which is explained below.

3.4 Data Analysis

The three rounds of fieldwork collected quantitative and qualitative data from the dynamic panel of respondents and qualitative data from the key informants. The statistical package for social scientists (SPSS) was used to process and analyze the quantitative data into descriptive statistics in the form of frequency distributions, while content analysis was used to analyze the qualitative data. Panel studies use the same research instruments on the same respondents for a long period of time. Many panel studies have been carried out over a period of 10 or more years. The intention is to capture the causes, dynamics, direction, and magnitude or intensity of social change in society. This is why this study collected and analyzed data in the period beginning in 1996 through 2007 to 2014.

3.4.1 Analysis of Dynamic Panel Quantitative Data

Quantitative analysis of panel data is traditionally the domain of economics interested in econometric modelling. Among the most commonly applied data analysis is the testing of covariance using the standard conditional logit program or random effects model (Chamberlain, 1980); regression and testing for dynamic equilibrium over time (Seung and Schmidt, 1995; Judson and Owen, 1999); the generalized method of moments (GMM); (Blundell and Bond, 1998); and estimation of error components (Arellano and Bover, 1995). Studies have shown how to guard against bias and inconsistency of various estimators when using the fixed cohort design (Kiviet, 1995). The most important thing in analysis of panel data is to establish and assess the initial conditions of the panel respondents and compare (and contrast) these with the new conditions after a period of time. This shows the type and magnitude of changes the panel respondents have gone through or experienced in the course of time. However, and as discussed above, fixed cohort design encounters two main problems: non-random attrition and panel conditioning. This study may have encountered the second problem but not the first since it involved collection of longitudinal survey data from a randomly selected sample. This is because the respondents who passed away during the study period were replaced with their spouses or senior members of those households.

At the level of analysis, this study was not interested in econometric modelling. Instead, it relied more on the qualitative information in explaining change as seen and experienced by the individual farmers. Quantitative analysis was brought in at two levels to measure or express the change in quantitative terms. At the first level, the data were processed using the Statistical Package for Social Scientists (SPSS) to generate frequency distributions. At the second level, and borrowing from Yin (2003a: 110) and Remenyi et al (2002: 5-6) who argue that content analysis may be used to transform what is essentially qualitative evidence into some form of quantitative evidence, content analysis helped to code and calculate frequencies from response patterns based on inferences and meanings of recurring words, phrases, sentences, sentiments, opinions and relationships per research question. These were analyzed into percentages to show that certain proportions of the respondents were associated with a given type of response. To conclude, it is important to reiterate that by using multi-method research, the weaknesses of one method were compensated for by another.

3.4.2 Analysis of Dynamic Panel and Key Informant Qualitative Data

For non-economists or those not interested in econometric modelling, several studies have provided the tools and rationale for analyzing dynamic panel data (Dey, 1993; Moore and Viscusi, 2014; Neumark, Salas and Wascher, 2014; Jennings and Niemi, 2014; Bartels and Jackman, 2014; Greenstein, 2014). In the context of this study, lessons on how to analyze qualitative data for panel studies on poverty reduction and household wellbeing have been provided by other studies (Collier and Dercon, 2014; Wooden and Li, 2014; Bruck et al, 2014; Haggblade, Hazell and Reardon, 2010; Deininger and Okidi, 2003; Thirtle, Lin and Piesse, 2003). These scholars seem to agree that panel data can be analyzed using mainstream qualitative content analysis. As mentioned above, qualitative data were collected from the dynamic panel respondents and key informants. It should be noted that qualitative research focuses on entities, processes and meanings that are not experimentally examined or measured (if measured at all) in terms of quantity, amount, intensity or frequency (Denzin and Lincoln, 2000). This makes qualitative research and content analysis appropriate to research questions focusing on processes and outcomes or those trying to understand individual and group experiences, dynamics and change. This is because while quantitative methods can say that change may have occurred over time,

they do not say *how* and *why* it occurred. Qualitative content analysis applies where there is no clear-cut objectivity or reality (Cassell and Symon, 1994) which has implications for what is perceived to be the nature of knowledge. The assumption here is that objectively true knowledge does not exist and that focus should instead be on an interpretive approach to social knowledge which recognizes that meaning emerges through interaction and is not standardized from place to place or person to person (Rubin and Rubin, 1995).

Content analysis is a research tool used to determine the presence of certain words or concepts within texts or sets of texts. Researchers quantify and analyze the presence, meanings and relationships of such words and concepts. They then make inferences about the messages within the texts, the writers, the audience and even culture and time of which these are a part. In content analysis, the text is coded and broken down into manageable categories on various levels such as word, word sense, phrase, sentence or theme. The categories are then counted and quantified.

Since the 1950s, content analysis became more sophisticated and accepted in the social sciences as a method for analyzing qualitative data. Its focus is on concepts and contexts rather than words, and semantic relationships rather than just presence (Wolfram-Cox and Hassard, 2005). Today, content analysis is used to construct mental models and examine linguistic, affective, cognitive, social, cultural and historical significance of occurrences or phenomena. In this respect, it is most appropriate for case study research such as this one on improved fruit and dairy farming in Mbeere.

Content analysis appears at two main levels: conceptual analysis which seeks to establish existence or frequency of words, concepts or phrases against the research questions; and relational analysis which examines relationships among concepts especially by establishing what other words or phrases appear next. Today, it is widely used in social science data interpretation and rather than being a single method, current applications of content analysis reveal three distinct approaches: conventional, directed and summative. The first involves coding categories derived directly from text data. The second starts with a theory or relevant research findings to guide coding, and the third consists of

counting, comparison of key words, themes or content and then interpreting meaning from content or text data (Kohlbacher, 2006). All three approaches were used to varying levels.

Content analysis has also been used to transform what is essentially qualitative evidence into some form of quantitative evidence as evident in the works of Yin (2003a: 110) and Remenyi et al (2002: 5-6). This involved tying emerging theory to existing literature to ensure internal validity, consistency and generalizability. This form of theory-guided analysis complements primary and secondary data thereby strengthening the validity and quality of content analysis. If mixed methods are used with measures of an empirical phenomenon (such as in this study), then this bestows more rigour, validity, confidence in and reliability of the results. This is because in triangulation, the weaknesses of each single method are compensated for by the counter-balancing strengths of another thereby allowing for a heuristic and more comprehensive understanding of the subject under study (Kohlbacher, 2006; Wolfram-Cox and Hassard, 2005; Kelle, 2001; Tashakkori and Teddlie, 1998; Brannen, 1992).

Proponents of content analysis such as Neuman (1997), Patton and Appelbaum (2003) and Yin (2003), point out that it is acceptable to attach some numerical significance to qualitative information after establishing discernible patterns in responses, deciphering meanings and making conclusions. When specific patterns occur in the data within a time-series context as happened in the Mbeere case, then, supplementary qualitative data are likely to enhance the explanation. In qualitative data analysis, people's experiences, thoughts, sentiments, aims and future plans are contained in their utterances, so what the respondents say must be taken seriously and recorded verbatim. Some of these should then be quoted verbatim when reporting findings. Sometimes, the researcher may calculate how many respondents were associated with particular patterns of responses and attach frequency distributions purely as descriptive statistics. This is the approach adopted in this study. In some cases, the study incorporated carefully selected verbatim quotations from certain respondents to qualify and exemplify certain findings, in line with the study objectives. In other cases, some descriptive statistics are presented to qualify and/or support important qualitative statements or findings.

3.5 Chapter Summary and Conclusion

Three conclusions may be derived from this chapter. First, case studies are useful strategies in exploratory studies where the exact distribution of certain characteristics or variables across a given population is not known or cannot be established beforehand. Indeed, the merits of qualitative content analysis become more explicit when dealing with case-study data collected over a period of time. Second, it is easier to operationalize the concept of entrepreneurship as a driving factor for other processes and outcomes by analyzing innovation through time without necessarily having to test hypotheses formulated beforehand. Third and lastly, it is possible to quantify some aspects of qualitative data from a purposive sample to strengthen the conclusions. However, the information gathered may be used in future studies to generate testable hypotheses. Three main challenges faced by the study may be cited. First was lack of financial resources for three rounds of data collection. Second was management and custody of panel data over a period of close to two decades. Third was lack of cooperation from a few farmers on subsequent visits who thought that the research was becoming a bit too intrusive. The next chapter (Four) presents a description of the study site, Mbeere, after which the findings chapters follow.

CHAPTER FOUR

MBEERE: THE STUDY SETTING

4.1 Introduction

Mbeere district in Embu County is a marginal area officially classified under the Arid and Semi-Arid Areas (ASALs). Since the colonial times, state-sponsored agricultural interventions focusing mainly on extension-driven innovation dissemination were also directed at the marginal areas and this has helped the growth of agricultural entrepreneurship there. However, studies have ignored the marginal areas especially with respect to agricultural entrepreneurship. It is therefore important to study peasant transformation in marginal areas because past studies have focused on the high-potential areas. A majority of the Mbeere are peasant farmers preoccupied with subsistence production. About two decades ago, some peasant farmers adopted the growing of high value crops such as improved varieties of mango, and zero-grazing of improved cattle in complete defiance of tradition, and in ways that increasingly resemble entrepreneurial or profit-oriented farming. Business in improved fruit and dairy farming has reportedly been on the rise and appears to be having a positive impact on poverty reduction, employment creation, infrastructural growth, and social change in the district.

The search for cash income to meet household needs has led to livelihood diversification in various ways such as increased post-harvest sale of the traditional food crops (millet, sorghum, green grams, cowpeas, pigeon peas, maize, etc) and engagement in non-farm income-earning activities across pre-existing gender divides. Land adjudication and registration into individually titled parcels has created land shortage forcing some farmers to intensify production through introduction of irrigation and others to adopt zero-grazing instead of free-range grazing. However, this has not stopped a cadre of farmers from engaging in market-led improved fruit farming with tendencies towards specialization. For another group of farmers, it has led to increased experimentation with improved dairy cattle, a phenomenon deemed impracticable twenty years ago due to the unsuitable climatic and agro-ecological conditions. All these are taking place at a time when the previously supportive framework of public institutions has largely collapsed. The physical infrastructure in Mbeere is also poor, with one tarmac road and one all-weather

road. The others are earth roads and footpaths that are usually rendered impassable during the rainy seasons. For this reason, agricultural entrepreneurship needs to be studied as one of the main forces in peasant transformation in Mbeere. This is the entry-point of this study to the existing body of literature on the subject.

The context in which innovations take place shapes or influences innovations while in other cases, the innovations may transform the context. The innovations in Mbeere have taken place within definite geographical, demographic, administrative, economic and political contexts. In turn, the innovations provide conceptual lenses through which to understand peasant transformation. The idea in this chapter is to put the study in a political economy perspective from the wider historical-materialist context. Two maps appended at the end of this chapter have been provided to assist the reader locate Mbeere District within county and national contexts.

4.1.1 Mbeere District: Some Background Information

Mbeere District was part of Embu District up to 1996 when it became a district on its own. Throughout the colonial period and up to the late 1970s, it was referred to as Lower Embu. Since the promulgation of the new constitution in 2010, it became part of the larger Embu County. It is inhabited by the Mbeere people who numbered 168,953 according to the 2009 national population census. Mbeere is a place where climate, ecology and politics seem to have driven and maintained peasant livelihoods and poverty for a long time. However, since the onset of the 1990s, some of the subsistence peasant farmers began embracing entrepreneurial or market-mediated innovations such as improved fruit and dairy farming. This phenomenon seems to have begun impacting positively on various aspects of household wellbeing, leading to what appears as transformation. Indeed, previous studies show how Mbeere looked like in the 1970s and 1980s, and seem to agree that ecological, social and economic changes were inevitable (Hunt, 1972; 1974; Brokensha, 1972; Brokensha and Nellis, 1975; 1988a; 1988b); Brokensha and Njeru, 1977; Mbithi and Wisner, 1977; Riley and Brokensha, 1977).

These and other studies appear to advance the thesis that although a majority of the Mbeere households derived less than 50% of their incomes from agriculture in the 1970s

(Hunt, 1974; 1975; Haugerud, 1981a; 1981b; 1994), the situation had begun to change at the onset of the 1990s when farm incomes began to outstrip those from other sources (Ngau, 1989; Evans and Ngau, 1991; Obulinji, 1996; Wegulo and Obulinji, 2001). This underscores the importance of agricultural entrepreneurship in improving household incomes and eventual poverty reduction and therefore laying a basis for the peasant transformation that this study is all about.

4.2 Geography and Population

According to the 2009 national population census, the Mbeere population was reported to be 168,953, having dropped from 170,953 in 1999 (GoK, 2010). A majority of the indigenous inhabitants of the district are the Mbeere people who derive the bulk of their livelihoods from peasant agriculture and related activities. Being a predominantly peasant society, other sources of livelihood include petty trade and livestock rearing.

Since the opening of the land market in the 1970s, there has been steady immigration into the district by people from other ethnic backgrounds especially Embu, Kikuyu, Kamba, Tharaka, Meru and Kirinyaga. Many Kikuyu immigrants not only bought land in Mbeere but are also among the most prominent agricultural entrepreneurs in the district to date, leading in improved fruit and dairy production. From the late 1960s, there has been immigration into Mbeere of farmers from Central province, Machakos, Kitui, Mwingi and Kirinyaga districts/counties. This trend gained momentum in the 1980s and 1990s and as this study found out that immigrants constitute more than 20% of the local population. The Kikuyu alone constituted about 19% of the Mbeere population by 2007 since they had become permanent residents and part of the electorate.

The main development challenges currently facing the district include among others, high levels of poverty, recurrent droughts or unreliable rainfall; high drop-out rates from school for both males and females at all levels; high incidences of pests and diseases; lack of secure land tenure especially in the Mwea irrigation and settlement scheme; land fragmentation as a result of population pressure and inheritance; and lack of effective disaster preparedness and response systems in the event of pest attacks, droughts and floods.

4.3 Administrative Units

Mbeere District was carved out of the former Embu district in February 1996. It is one of the thirteen districts that initially comprised Eastern Province (the number has since increased). Today, it is a sub-county of the larger Embu County. To the west and north-west lies Kirinyaga County while Machakos and Mwingi counties are found to the south and east respectively. To the north is Tharaka-Nithi County (see the attached maps). The former district covers a total area of 2,092.5 Km², and is administratively divided into four divisions namely, Evurori, Gachoka, Karaba and Siakago, with 19 locations and 41 sub-locations. It has two electoral constituencies namely Siakago and Gachoka. Just before it was put under the new Embu County, the district had been split into Mbeere North and Mbeere South districts.

The district has no gazetted forest, but has 3, 751 hectares of natural forest entrusted to the former Mbeere County Council. The forest reserves are Kiang'ombe in Evurori Division (2, 104 Ha), Kianjiru (1, 004 Ha) and Kiambere (643 Ha), both in Gachoka Division (GOK, 2002: 4). The district is sparsely populated with majority of the inhabitants concentrated around rural market centres such as Karaba, Kiritiri, Gachoka, Siakago, Kanyuambora, Ishiara, Mutuobare and Ngiiri. The population density for Siakago division is 100 persons per km² as compared to Gachoka's 79 persons per km². These are the two most densely populated divisions in the district. Generally, the district is classified as lying within the arid and semi-arid lands (ASALs). Geographically, the district traverses three agro-ecological zones (AEZs) namely 3, 4 and 5 where zone 3 is good medium potential; 4 is medium potential and 5 is low potential.

4.4 Climate and Agro-Ecological Zones

Mbeere has a semi-arid climate with two distinct rainy seasons per year: the long rains (March to May) and short rains (October to November). The district traverses three agro-ecological zones (AEZs) which intersect each other. The vegetation is mainly thorny bush and scrub with minor variations from one AEZ to another, described by Mbithi and Wisner (1977) as *Combretum acacia* and *Acacia commiphora*. Mbeere is characterized under the arid and semi-arid lands (ASAL) as most parts are dry and/or semi-arid for

most of the year. Brokensha and Riley (1977) and Hunt (1974) described Mbeere land as medium and low potential.

Rainfall is erratic and often poorly distributed and tends to decline as temperatures rise with declining altitudes. Rainfall ranges from 170-680mm in the short rains season and 300-800mm in the long rains. The hilly terrain and presence of huge water masses in the seven dams along the Tana River create micro-climatic effects which sometimes bring higher rainfall to the lower altitude areas. Most rains are received in AEZ 3 and the least in AEZ 5 with AEZ 4 receiving average rainfall. Temperatures are usually warm, with mean maxima of 30-35 degrees Celsius and mean minima of 17-21 degrees Celsius.

Soil and vegetation types vary with altitude. AEZ 5 soils are mainly quartzite and are well drained, shallow to deep, dark red to yellowish-brown loose loam to sandy clay loam with stony outcrops in many places. AEZ 4 is characterized by vertisols especially in the western and southern parts of Gachoka Division while the more fertile reddish brown sandy clay loams dominate the upper parts of AEZ 4. The more fertile volcanic soils are found in AEZ 3, which extends into Kirinyaga County. Black cotton soils are found in AEZs 4 and 5 which stretch from Evurori in the East to Karaba in the West and South. These were the cotton growing areas before it was abandoned in the late 1970s due to market failures.

Except for Mwea which is flat, much of Mbeere is dominated by rocky outcrops and hills with steep slopes that create ideal conditions for soil erosion and environmental degradation. These are aggravated by cultivation on steep hillsides (Jaetzold and Schmidt, 1979).

4.5 Physical Infrastructure/Social Overhead Capital

Generally, infrastructure in Mbeere is poorly developed. According to Brokensha (1988a), Mbeere was relatively neglected by the colonial government and by the two successive post-independence government(s). This explains the poor development of transport and communications, and health and education facilities. However, since the 1970s, the government had made some efforts to increase accessibility through

improvement of roads. Until 2008, there was only one tarmac road in the whole district, the Embu-Kiritiri-Kivaa-Kangonde road through Kamburu dam, which links Mbeere to Machakos, Kitui, and Mwingi towns on the one hand, and Thika and Nairobi on the other. These two trunk roads have greatly improved market access for agricultural produce in the district. Most of the roads in the interior are earthen with poor drainage systems which render them impassable during the rainy seasons thus making many areas inaccessible.

Infrastructure is central to the success of any entrepreneurial or market-driven activity. This ranges from roads through market centres or rural growth points to financial institutions. As mentioned above, there are a number of local market centres that also act as rural growth points and information access points. The main ones include Ishiara, Kanyuambora, Siakago, Gachoka, Kiritiri and Mutuobare. Farm products are carried to these markets on the back, bicycles, animal-and-hand-drawn carts (locally known as *mkokoteni*) and lately, vehicles (for the few middle class and rich farmers). Ishiara and Mutuobare were initially famous livestock selling centres but have since been transformed into commercial and information centres with the introduction of supermarkets and cyber cafes. These centres are also important fruit and milk collection and transit points. The banking infrastructure is poorly developed and most business is transacted via *M-Pesa* and/or microfinance institutions mainly in the form of SACCOs, ROSCAs and agri-based cooperative societies.

Most of the livestock slaughtered in Embu town comes from Mbeere. So is the bulk of cereal foods consumed such as green grams, cowpeas, millet, and sorghum and energy sources such as fuelwood and charcoal. Mangoes from Ishiara and Kanyuambora areas are famous consumer items in supermarkets and open air markets in Nairobi, Mombasa and other major urban centres in Kenya. The seemingly increasing immigration into the medium and low-potential areas has further stressed natural resources such as land, charcoal, fuel wood and building materials. As a result, the district has been experiencing increased resource extraction and labour migration from to the higher potential areas of Embu, Meru, Kirinyaga and Central province (Haugerud, 1981). Farm produce was initially mostly transported from the farm to the market on women's backs to the main

road where public or private vehicles convey it to the market. By the time of this study, the hand-cart, bicycle, donkey and motor vehicle were common means of transport.

4.6 A Political Economy of Mbeere

It would be incorrect to argue that pre-capitalist peasant societies were egalitarian. A closer look at Mbeere social organization indicates a highly unequal stateless society but one where inequalities were carefully camouflaged in the virtues of hospitality, reciprocity and mutual social responsibility. There were traditional accumulators of land, livestock and commercial merchandise who occupied higher social strata than the rest. These acted individually (as military leaders; clan leaders; traders; prominent crop, livestock and beehive farmers; and/or households) or as collectivities such as clans and lineages. Agricultural entrepreneurship has come to amplify social differentiation in Mbeere especially in terms of broadening these pre-existing social cleavages or inequalities by bequeathing them with the characteristics of conventional social classes and could in future end up as distinctive social classes. Prominent peasant farmers may be considered as a class either by virtue of their relations with capital or as exploited by capital in some sense. In this regard, some scholars have considered peasant farmers in rural societies as a class historically exploited by both capital and the state and this has remained central to the process of wealth accumulation.

4.6.1 A Brief History of the Mbeere

History is a major raw material of political economy. The history of the Mbeere is well documented by historians such as Were (1968), Ogot (1976), and Mwaniki (1973a; 1973b; 1974). Some of them quote the accounts of European explorers who passed through this area in the 18th and 19th centuries. According to oral accounts, the name Mbeere is a derivative of the word “mbere” which means “first”. It is a small Bantu group related in various ways to the Kamba, Chuka, Tharaka, Embu, Ndia, Gicugu and Kikuyu. From their dispersal area of Shungwaya at the coast, the Mbeere are said to have been the first group to migrate westwards and northwards reaching Igambang’ombe in present day Meru South District at around 1100 AD where they settled briefly. The other Bantu groups (Kamba, Tharaka, Mwimbi, Gicugu, Ndia and Kikuyu) soon joined the Mbeere at Igambang’ombe which was to become a famous dispersal cradle for the Mount

Kenya Bantu cluster. Igambang'ombe literally means "where the cows made noise" which refers to what happened when the various communities were dividing or separating the cows to follow different directions followed by different groups during the migration.

In these early times, the Mbeere were mainly hunters and gatherers and also domesticated traditional varieties of cattle, sheep and goats. Later on, the larger section of the Mbeere moved on and settled around Mwea but a smaller section chose to remain behind. These are today's Mbeere people of Meru South District who inhabit the current Igambang'ombe Division. After a series of wars with and cattle losses to the Maasai, a majority of the Mbeere retreated into their current abode which includes Evurori/Ishiara, Siakago and Gachoka Divisions. A few still live in Mwea especially Makima and Karaba areas. The current neighbouring communities followed the trail set by the Mbeere and passed through Igambang'ombe with the Kamba crossing the Tana River into present day Mwingi, Kitui and Machakos. Others such as the Chuka and Tharaka settled in the vicinity of the dispersal area while the Gicugu, Ndia and Kikuyu came past Mbeereland and eventually settled in present day Murang'a and Nyeri (Were, 1968; Ogot, 1976; Mwaniki, 1973a; 1973b; 1974).

According to historical and oral sources, the Mbeere were originally pastoralists with huge herds concentrated in areas such as Evurori, Ishiara, Nthawa and Mavuria. Livestock was important as a means of exchange and a currency for bridewealth. Livestock wars were common with the Kamba and Maasai especially during the Eighteenth Century (Mwaniki, 1973a). Besides livestock, the Mbeere cultivated a few drought-resistant crops such as bulrush millet, sorghum and cowpeas using shifting cultivation. Sweet potatoes, yams and bananas were also grown in the upper wetter zones. These crops subsequently became the traditional staple foods and "cash crops" in Mbeere agriculture. During drought years, food, especially grains, was obtained through exchange with neighbouring highland communities such as the Embu, Chuka, Meru and Kikuyu. As mentioned earlier, a common practice meant to minimize the risk of crop failure was the cultivation of several scattered plots concurrently. Average plot size was small and dependent on labour availability. Mwaniki (1982) further reports that recurrent droughts and severe famines during the nineteenth and twentieth centuries decimated

both livestock and humans. Attempts at restocking were frustrated by the colonial authorities who insisted that they sell the traditional animals so as to pay taxes. While the good land was used for farming, the poor land was left for grazing and firewood collection (Brokensha, 1971).

4.6.2 Peasant Economy and the Colonial Experience

The economy of Mbeere has since historical times been dominated by a peasant mode of production that combined hunting, gathering, traditional livestock rearing and some subsistence crop agriculture. The harsh geographical and agro-climatic conditions discouraged anything more than subsistence agriculture. Rudimentary technologies and reliance on family labour reinforced a pre-capitalist economy that did not involve production of a marketable surplus. All these activities revolved around certain relations to land, the principal means of production. Land tenure was mainly clan-based with a few instances of individually-owned land. Equitable access to land for cultivation, grazing, bee-hive hanging and watering points was guaranteed for all *bona fide* and naturalized members of every clan. The relations of production thus suggested an egalitarian society largely living outside of the market. This explains the dominance of traditional farming practices up till the onset of the colonial period when the Mbeere got introduced to market-led or capitalistic farming by European settler farmers and/or by working as labourers on European farms.

The colonial experience introduced more into Mbeere: wage labour, private property especially in land, commoditization of the productive forces (e.g. land), and individualized land tenure. The implication is that colonialism introduced two formidable institutions that were going to have a direct bearing on agricultural innovation and entrepreneurship in Mbeere, the market and the state. The two institutions firmly planted the seeds of peasant transformation from subsistence to profit-led farmers by giving a new meaning to farmer innovation. This is why meaningful farmer innovation began to appear only during the colonial period especially with the enactment of the Swynnerton Plan. Besides consolidating private property in land, the colonial experience undoubtedly introduced a “protestant ethic” among the Mbeere especially those who used the largely extension-driven innovations to reduce poverty. A few other farmers took the innovations

a step further by making them the basis of profit-led farming. These developed into entrepreneurs who constituted the core of private sector-led farming in the district. Thus, although farmer innovation may have co-existed with poverty in the initial stages, some farmers used it as a weapon against the latter and better still, the opportunities opened up by the market provided ideal nurseries for entrepreneurship to germinate and grow, thus making the war against poverty easier and more protracted.

4.6.3 Local Economy, Agriculture and Poverty

Like many other Kenyan communities, the Mbeere have for a long time been reliant on subsistence agriculture as the main source of household incomes. However, the sector was affected by the World Bank-sponsored market reforms that were introduced in the 1980s which contained measures aimed at resuscitating agricultural sector growth through a series of macro-economic reforms. Chief among the reforms were “putting the prices right” by making exchange rates more competitive; reducing public marketing margins and producer taxation to allow farmers access a higher share of world market prices; promoting the role of the private sector in agriculture; and reducing state subsidies on inputs such as fertilizer and extension services. Rising liberalization-related factor costs have had negative implications for smallholder agricultural innovation and entrepreneurship and in places such as Mbeere they presented little or no attractiveness to private sector investors or traders. Table 4.1 summarizes the importance of agriculture in the political economy of Mbeere, among selected Kenyan districts. In Mbeere, agriculture has been contributing 80% of household incomes.

Table 4 1: Contribution of Agriculture to Household Income in Selected Districts

High Income Contribution Districts	% Contribution to Income	Low Income Contribution Districts	% Contribution to Income
Lugari	90	Mombasa	1.0
Tana River	86	Moyale	5.7
Meru Central	85	Isiolo	9.6
Buret	85	Mandera	10.0
Kwale	81	Turkana	12.4
Kilifi	81	Kiambu	17.4
Vihiga	80	Malindi	20.3
Mbeere	80	Busia	35.4
Kericho	80	Trans Mara	38.0

Source: GoK (2003): Labour Force Survey Report 1998/9 in SID (2006).

In Table 4.2, we see that Mbeere district had a poverty incidence of 63% by 2005, comparable to Garissa, Mandera and Siaya districts and almost double that of Kiambu, Murang'a and Nyeri districts. Nationally, this is too high a poverty incidence not far from the poorest districts of Kilifi and Homa Bay.

Table 4 2: Incidence of Poverty for Selected Districts

Low Poverty Districts	%	High Poverty Districts	%
Kiambu	22	Kilifi	72
Murang'a	30	Homa Bay	71
Nyeri	30	Moyale	71
Nyandarua	34	Kitui	70
Thika	35	Busia	67
Kirinyaga	36	Wajir	65
Mwingi	36	Malindi	65
Maragwa	37	Garissa	64
Keiyo	39	Mandera	64
Laikipia	39	Siaya	64
Nakuru	39	Tharaka	63
		Mbeere	63

Source: UNDP (2005), Fourth Kenya Human Development Report.

4.6.4 Local Level Electoral Politics

A major driver of poverty in Mbeere has been political patronage capitalizing on deep-rooted clan cleavage and a one-house power dynasty holding near exclusive political sway over the peasant farmers. At the centre of the Mbeere patronage network is the dynasty of the late minister and long time MP for Gachoka constituency, Jeremiah Nyagah. The Nyagah family worked its way to the centre of power by embracing education during the colonial times. After acquiring education, he entered national politics in the 1950s, joining the Legislative Council (Leg. Co) in 1957 as a representative of the Old Central Province of which Mbeere was part. Nyagah was later to marry from Kirinyaga district. This double allegiance played a significant role in the Mbeere political economy in various ways. First, Kamba and Kirinyaga/Kikuyu immigrants from the two neighbouring districts were resettled in the Mwea irrigation scheme. Nyaga would later add these to his voting bloc in the subsequent years. Through

this kind of support and general patronage exercised over the area, his family dominated the Mbeere politics for a long time.

During Nyagah's long tenure as minister, the Mbeere appear to have reaped little spoils by way of development. Whenever any spoils of independence such as government positions or job opportunities arose, no Mbeere was appointed to senior posts. From the 1970s, politics in Mbeere has revolved around the community's two clans pitting the *Mururi* clan (*Thagana* in Siakago) against the rival *Ndamata* clan (*Irumbi* in Siakago). *Thagana/Mururi* is the bigger clan in Gachoka while *Irumbi/Ndamata* is the bigger one in Siakago. Since the 1969 general elections (in which Nyagah was defeated by Beatrice Kanini until President Kenyatta returned him to parliament), election results in the two constituencies have been almost predictable. Clan configuration has had implications for elective politics. It is the candidate from the bigger clan that has always won. After retiring from politics prior to the 2002 general elections, Nyagah passed the leadership baton to two of his sons, one of whom became a cabinet minister. In 2002, one of the sons inherited the Gachoka parliamentary seat while the other moved to Nairobi where he contested and won the Kamukunji parliamentary seat. The dynasty was ended after the 2007 general elections when the Reverend Mutava Musyimi defeated Joseph Nyagah.

The Nyagah dynasty extended its hegemony over the Mbeere peasants for over four decades and its stranglehold on the peasants was maintained mainly through clanism. In addition, Mbeere was subsumed under Embu for many years. Vague references existed in the form of historical accounts by early European explorers until Mwaniki Kabeeca wrote the "Living History of the Embu and Mbeere" (Mwaniki, 1973a). For instance, the Mbeere were seen as the underdogs of the Embu and the surrounding communities whose fame rested in recurrent famines, poverty, witchcraft and a source of cheap labour. It was not until 1996 when the government of President Daniel Arap Moi granted the Mbeere people their own district, which has since been subdivided into Mbeere North and Mbeere South Districts. The Mbeere welcomed this move which they saw as an opportunity to address the development problems notably lack of water, little access to education opportunities and poor health facilities (Mbeere was for a long time famous for traditional medicine as well as witchcraft). While Moi was looking for votes in granting

the district, the Mbeere saw it as an opportunity to reclaim their identity that had been lost by being subsumed under Embu District and to capture the national limelight. With the inauguration of the New Constitution in August 2010, Mbeere was once again subsumed under the Embu County. The Embu are relatively wealthier than the Mbeere owing to more favorable climatic conditions that sustain coffee, tea and dairy production.

4.7 Land Ownership, Tenure and Rights

Traditionally, land in Mbeere was divided among clans. According to Brokensha (1971), there are about 50 clans in Mbeere which coalesce around two broader or umbrella clans. These are referred to as *Irumbi* in Siakago or *Ndamata* in Gachoka and *Thagana* in Siakago or *Mururi* in Gachoka. The clans have played the role of regulating land tenure since historical times. In a study of land tenure changes in Mbeere, Mwaniki (1982), states that the early 1970s was a transition period between the old land tenure system based on lineage allocation of land rights and a new one based on individual ownership. The Mbeere used to have individual rights of cultivation, grazing, beehive hanging and access to communal water points and salt licks. However, before the 1940s, there were isolated cases of individual ownership of land. Limited land rights were also allocated to individuals who were not members of a land-holding lineage. For instance, a man could secure cultivation rights from his wife's lineage, but the land which he cultivated under this arrangement was neither disposable by him nor heritable by his sons. A second form of land tenure was lineage-controlled and was based on a relationship of fictive brotherhood created through a ritual called *guciarwa na rukooro* (being born into a family by sacrificing a goat). This ritual involved slaughtering a goat and taking an oath of allegiance between the stranger and members of the host clan. Through this ritual, a stranger was incorporated into a new clan and enjoyed the prerogatives of natal membership in the clan. However, the stranger could be expelled upon unsatisfactory behaviour.

A third form of land tenure was based on tenancy. This happened when *aboi* or *nturua* (tenants or squatters) approached clan leaders seeking cultivation or residential rights. The prospective tenants (*ahoi* in Kikuyu) would present gifts of beer to members of the lineage whose land they wished to cultivate or settle on. Although a tenant could not

transfer his cultivation rights nor bequeath them to his sons, his rights were renewable by his heirs. The host had the right to prohibit a tenant from growing permanent tree crops and restrict them to the growing of only seasonal crops like maize or millet. Perhaps this is why the introduction of improved fruit farming could not take place at this time. The main reason was that if land ownership was not permanent then it would be meaningless to plant permanent trees since a tenant could be evicted any time.

Land consolidation (locally known in Kiswahili as *songa* literally meaning “move”), which was part of the Swynnerton Plan of 1954, became unpopular and had to be curtailed only two years later due to opposition from the local people. Thus, land consolidation did not reach Mbeere. However, although the Mbeere were spared land consolidation and continued to have unfettered access to land, they experienced the full force of the other state-sponsored agricultural innovations.

Gradually, things changed after independence and in 1971, the government of Kenya embarked on land adjudication, demarcation and registration. As such, the possession of multiple holdings is still common in Mbeere and individuals have titles to several plots. Another common feature of peasant farming in Mbeere has been the concurrent cultivation of multiple plots located in different parts of a locality. This was intended to maximize farm produce and contribute to household food security. However, land shortage began to creep in a decade or so after adjudication. To a large extent, the current pattern of land ownership arises from past processes of clan land demarcation and consolidation. According to Mwaniki (1982), inequalities in land distribution, which began from the 1980s, have increased especially in cases where influential individuals use their positions to acquire more land. In other cases, some poor land owners sold their holdings to immigrants from neighbouring communities, notably Embu, Kamba, Meru and Kikuyu and consequently became landless.

As noted above, land consolidation did not reach Mbeere. What came here were land adjudication, registration and demarcation. There is little doubt, however, that the intentions of the colonial administration in Mbeere were informed by the Swynnerton Plan. The colonialists viewed the Mbeere as a passive group especially because they were

not fully into the Mau Mau movement. Instead, they (Mbeere) had participated in the colonial political economy more as suppliers of cheap labour in the European settler farms and this is where a few of them got some of the agricultural innovations discussed in this thesis. Being a semi-arid area, the colonial administration found Mbeere an ideal place for punishing some of the Mau Mau convicts. This is how the Mwea and Ishiara Irrigation Schemes came to be constructed by Mau Mau convicts in the 1950s. Other notable innovations originating from the Swynnerton Plan which reached Mbeere were the compulsory soil conservation exercise and the establishment of a land market from the 1960s onwards.

The land market was greatly boosted by the processes of adjudication, demarcation and registration which culminated in the issuance of title deeds in the 1970s. Land titles bestowed upon the farmers the security of tenure which acted as an incentive for investing on land by acting as collateral in credit acquisition. Investments on land came in the form of a variety of farm innovations which further spurred or acted as a seedbed for agricultural entrepreneurship. The titles also removed the risk of being chased away and leaving behind investments such as permanent fruit trees. This means that it was difficult for tenants or squatters to engage in permanent innovations if there was no security of tenure. However, owing to a small population and the survival of clan-based access to land up to the 1980s, the proportion of landless people in Mbeere has remained minimal to this day. However, adjudication introduced individualized private property in land and this not only limited access to land but also prohibited permanent innovation on borrowed land.

4.7.1 Land Reform and the Market

Mwaniki (1982) documents that due to land tenure reform in Mbeere, an individualistic attitude towards property ownership developed. This signaled a shift from the previous equity-laden lineage-based social system. Individual accumulation of land by speculators for non-agricultural uses in turn increased landlessness and unemployment among the Mbeere peasants. Such individualism has not been confined to cultivation rights alone but has extended to grazing rights. Reduction in free-range grazing land has also led to a marked decrease in livestock numbers and roadside grazing by tethering has become a

common practice in many parts of Mbeere. Another result of land shortage is that an increasing number of married men have been staying with their parents and farming alongside them. With population pressure and dwindling formal employment opportunities, some of the peasants have begun to view farming from a new perspective, as an income-generating full-time livelihood. Some of the agricultural innovations have been born this way. For those living close to the dams, fishing has become a major source of livelihood and hawking of raw and/or cooked fish is now common along the main roads and in local market centres such as Kiritiri, Mutuobare, Ngiiri and at the Tana Bridge on the Nairobi-Embu/Nyeri road.

As mentioned above, land adjudication in Mbeere began in 1971 and ended in 1974 in many parts of the district and its consequences have had far-reaching effects on the political economy of the Mbeere people (Brokensha and Njeru, 1977). These included among others, reduced amounts of land available for cultivation and free range grazing. This dealt a blow to shifting cultivation and meant longer cultivation periods on the same plot, in turn reducing soil fertility. The several innovations introduced to reduce soil erosion and promote environmental conservation in general were (and still are being) undertaken to improve soil fertility and increase yields. On the other hand, the progressive disappearance of the pre-existing clan-based communal land ownership system gave way to an individually-titled land tenure system. The demise of Common Property Resource (CPR) system especially communal land consolidated individualism which in turn meant that individual success in life was no longer going to be based on collective clan achievements but rather on those of the individual person.

This new emphasis on individualism, which is perfectly commensurate with Max Weber's *Protestant ethic*, began to nurture a spirit of capitalism located within and revolving around the individual. It also perfectly merges the Marxist-Leninist perspective of individualized non-cohesive peasants facing extinction by the market and the neo-liberal position by which the individualized peasants proactively innovate in response to market signals to reduce poverty and improve their lives. This may help explain the rise of agricultural entrepreneurship in Mbeere which began to confront poverty through a series of farm innovations at the household level. The emergence of zero-grazing of

improved cattle varieties is an innovation that is partly a direct consequence of declining land per capita and partly alertness to profit opportunities and knowledge of market outlets for milk by the emerging entrepreneurs.

4.7.2 Innovation and the Roots of Agricultural Entrepreneurship in Mbeere

During the post-independence period, a majority of the Mbeere continued to keep traditional livestock varieties (whose worth lay in numbers). However, starting in 1954 with the Swynnerton Plan, the state-run agricultural extension service embarked on a campaign to introduce modern farming methods and practices in the high and medium potential/marginal areas of the country. The first attempt at modernizing agriculture in Mbeere was the infamous compulsory soil conservation programme of the colonial government. However, due to unfavorable climatic conditions, the low-potential areas such as Mbeere were largely ignored. Independence was followed by the introduction of high value crops and in Mbeere, only cotton and cowpeas could do well. The adoption of improved livestock varieties for milk production and cultivation of permanent tree crops such as improved mangoes did not take place until the 1990s. As stated above, shifting cultivation began to decline after the 1970s mainly due to the introduction of land adjudication and cotton as a real cash crop. Longer cultivation periods led to reduced soil fertility and with access to communal grazing lands also declining, the stage was set for new practices such as hiring out of cultivated fields for grazing after harvest and specialization by a few people in the production of natural animal feeds to supplement the artificial feeds. A kind of specialization began to emerge with some peasant farmers going for improved fruit while others opted for improved cows and goats. However, land subdivision due to the imperative of inheritance has resulted in the emergence of several economically unviable pieces of land.

According to Brokensha and Njeru (1977), changes in land use and farming systems have clearly taken place in the whole of Mbeere. In both AEZs 3 and 4, land use has increasingly become intensive over the years. Traditional livestock, particularly ruminants, are becoming less important as grazing areas decline and veterinary costs escalate (KARI, DAREP and ODI, 1995). While the poorer farmers tend to sell their livestock especially to fund the education of their children, the relatively richer peasants

have been investing in upgrading or improving the local animal varieties for dairying. As tether-grazing increases, more farmers have begun growing fodder not only for their own animals but also for sale to other farmers thus triggering a fodder market among the owners of improved dairy cows. As soil fertility has continued to decline, manure has become more important but less available due to reduction in livestock numbers. As a result, some farmers have taken to composting using any available biodegradable materials. Crop production and soil conservation have gone hand in hand, although the former is being undermined by the disproportionate attention being accorded the cultivation and sale of *miraa* or Khat (the *Muguka* variety) and off-farm employment such as quarrying and sand harvesting. The need for incomes especially to pay school fees sometimes makes farmers sell even draught animals.

In the lower parts of AEZ 4 (notably Machang'a) and the whole of AEZ 5, land use was (and still is) relatively less intensive as there is more grazing land still available. Although tree planting had started here by the time of the study, especially of improved fruit varieties, it was slightly less pronounced than in the higher altitude AEZs 3 and upper 4. Instead, farmers tended to rely on the indigenous trees growing in unoccupied farms particularly for charcoal burning. In these areas, extensive livestock production was still widespread though diminishing in importance as in other areas. Even here, land enclosure/fencing had started in earnest. Some of the innovations noted at this time included the introduction of ox-ploughing and planting. As a result, farms have become more permanent with few or no prospects for fallowing. PLAN International, an NGO, has initiated several soil conservation measures in the area such as the *fanya juu* terracing method (KARI, KEFRI, DAREP, NRI and ODI, 1995).

In parts of lower AEZ 4 (e.g. Kilia), where the vertisol type of soils predominates and the terrain is flat and settlement regulated, there is relative uniformity in land size and use. The natural fertility and water retention capacity, combined with ox-plough cultivation, give higher returns to crop cultivation. In addition, the area is closer to more lucrative markets such as Nairobi and the prospects for higher prices provide an incentive to grow not only fruit but also horticultural crops (tomatoes, French beans, kales, etc). There is a clear separation of grazing from arable land and cultivation of tree crops is less

important. Grazing land is limited within the settlement area as the greater part of it is under crops. For those with larger herds, there is ample grazing space adjacent to the irrigated rice scheme and reserve land along the Masinga reservoir. Cattle and donkeys are highly valued as draught animals which make a significant contribution to poverty reduction and general household wellbeing (KARI, KEFRI, DAREP, NRI and ODI, 1995).

AEZ 5 is also referred to as the “livestock/millet zone” as is represented by Ishiara and Kirie Locations. Here, there is relative abundance of grazing land and some shifting cultivation still takes place. As a result, investment in soil conservation and improvement is minimal as evidenced by little terracing on the farms. Livestock, particularly goats, play a central role in the livelihoods of most families. Bee keeping is also an important income source although it appears to be terminally threatened by a rapidly declining natural environment and reduced hive hanging rights due to individual land tenure and a growing enclosure culture. Land holdings tend to be scattered and there are still pockets of un-demarcated clan land. The little shifting cultivation still in vogue suggests that clearing new land is part of staking more permanent future claims, while lack of permanence in cultivation and soil conservation measures is attributed to future uncertainty about ownership. Tree planting appears restricted and is occasionally done on settled compounds or homesteads (KARI, KEFRI, DAREP, NRI and ODI, 1995).

4.8 Chapter Summary and Conclusion

This chapter has discussed the research site in terms of geography and population, administrative units, climate and agroecological zones, physical infrastructure and land tenure, use and farming systems. On the one hand, these factors appear to have conspired to reproduce poverty in the district but on the other, they provide an ideal background for agricultural innovation. The conclusion therefore is that the venturesome peasants have positively responded to the incentives provided by the market, the state and other actors, to challenge the tradition of subsistence and poverty that has characterized Mbeere peasant livelihoods for many years. They have achieved this by consciously and selectively introducing or adopting entrepreneurial innovation as a matter of choice.

CHAPTER FIVE

THE SEEDS OF PEASANT TRANSFORMATION IN MBEERE: IMPROVED FRUIT AND DAIRY FARMING INNOVATIONS

5.1 Introduction

Chapter One defined peasant transformation as fundamental social change or progressive, positive changes in the lives and livelihoods of peasants through time from subsistence farmers to agricultural entrepreneurs. It is operationalized as increased household incomes and wellbeing, poverty reduction, wealth and employment creation, social differentiation, infrastructural growth and local development. Transformation represents fundamental change from the original self, which also includes complete re-orientation in economic and political behavior. Chapter Two discussed the link between agricultural innovation and entrepreneurship and how this relates to peasant transformation. In chapter Four, the arena in which these have been taking place was described. This chapter discusses how the seeds of peasant transformation were planted in Mbeere by peasant innovators. The transformation was later actualized through agricultural entrepreneurship when the two innovations (improved fruit and dairy farming) were introduced in Mbeere and subsequently transformed into household-based enterprises by those peasants who were keen on exiting poverty and had discovered that either or both of these innovations was/were viable escape routes from poverty. All this happened against a background of poverty and subsistence-based peasant livelihoods.

The chapter addresses the first research question: how were the seeds of peasant transformation sowed in Mbeere and what category of peasants was responsible? The discussion centres around the argument that poverty and a subsistence orientation dominated the Mbeere political economy until the market and the state facilitated the introduction of agricultural entrepreneurship in the area. This appeared in the form of agricultural innovation. Later on, some peasants powered by entrepreneurial thinking saw profit opportunities in these innovations and consciously and deliberately developed them into enterprises based at household level. This is how improved fruit and dairy farming

innovations constituted the basis of agricultural entrepreneurship in Mbeere. This chapter discusses the introduction of the two, and because agricultural innovations began in the colonial period, the discussion touches this too by examining the contents of the Swynnerton Plan of 1954.

The chapter begins with colonial and post-colonial policy on farmer innovation in Kenya especially the role played by the Swynnerton Plan in laying the foundation for agricultural entrepreneurship in the country before describing the Mbeere peasant livelihoods as a background to agricultural innovation. It then proceeds to explain how improved fruit and dairy farming were introduced in Mbeere as entrepreneurial innovations and how the two grew into household-based farm enterprises with implications for poverty reduction and peasant transformation in general. The chapter concludes with observations on the constraints associated with each entrepreneurial innovation.

5.2 Colonial and Post-colonial Agricultural Innovation in Kenya

Institutionalized farmer innovation is not a new concept in Kenyan agriculture since its origins are traceable to the Swynnerton Plan of 1954. The Plan was a colonial policy published as a government document whose main aim was to intensify African agriculture in Kenya. The Plan was meant to work within 20 years. It was geared to expanding native Kenya's cash crop production through improved markets and infrastructure, distribution of appropriate agro-inputs and the gradual consolidation and enclosure of fragmented land holdings (Swynnerton, 1954). The Plan's main objective was to create family holdings large enough to keep the family self-sufficient in food and also enable them to develop a cash income through improved farming practices. Viewed this way, the Plan is the origin of agricultural entrepreneurship in Kenya. It envisioned that about 600,000 African families would have farming units of roughly 10 acres each, which would raise average productivity in cash sales from 10 to 100 British pounds a year after providing for their own needs (Ogot and Ochieng, 1995).

In essence, the Plan was a reversal of previous colonial policies on native agricultural practices. This is so because among others, it recommended that all high-quality native land be surveyed, demarcated, adjudicated and registered; that the earlier policy of maintaining traditional or tribal land tenure systems be reversed; and that all the thousands of fragmented land holdings be consolidated and enclosed. By so doing, the colonial government hoped to create a progressive class of landed, wealthy Africans thriving on large-scale production and sale of agricultural commodities. These would be the entrepreneurs who would rely on innovation to consolidate their gains and partner with the colonial government both before and after independence.

These new land management innovations inevitably planted the seeds of agricultural entrepreneurship in the country. The process was aided by three main factors: land consolidation, enclosure, and involvement of peasant farmers in the production of high value crops such as coffee and tea. Thus, the state intensified the spread of cash crops and exotic dairy cattle in the African Reserves on the basis of the newly introduced private, freehold property. For the Kikuyu people of Central Province who lost their land to new private landlords courtesy of the consolidation, the result was bitterness and mental anguish. The Plan destroyed the age-old *ahoi* (tenant) system which guaranteed access to land for the landless that constituted about one-third of the Kikuyu population. The loss of access to land based on kinship, and ancestral or communal tenure rights dealt a big blow to the livelihoods of thousands of peasants and introduced rearrangements predicated upon social inequality (Berman and Lonsdale, 1992). There emerged a landed aristocracy and a landless class with the latter having little or nothing to celebrate with the coming of independence in 1963 as they faced a bleak future (Atieno-Odhiambo, 1995).

Nevertheless, most of the Plan's proposals were accepted by the East Africa Royal Commission (1953-1955), the appointing authority, which went further to recommend the recognition of private interests in land and removal of racial and political barriers inhibiting the free movement of land, labour and capital. To placate the landless and

make governance possible after independence, a land resettlement programme was envisaged. This was also intended to formalize greater African participation in agriculture which was going to be the mainstay of independent Kenya's economy (Oucho, 2002). By 1960, most of the barriers to a functional land market had been removed. This was to be the meeting ground between the indigenous local and departing colonial political elite after independence.

At independence, compromises and modalities were worked out by the emerging African political leaders to continue accommodating the land, business, political and other interests of the "departing" colonial elite. The progressive class of farmers would thereby be able to obtain credit which they had been denied previously. The title deeds would create security of tenure which would in turn spur investments in agriculture. Such investments would be accompanied by a wide array of innovations and those farmers able to transform the innovations into money-making ventures would be the entrepreneurs. This may be seen against another recommendation by the Plan that native peasant farmers be allowed to grow cash crops such as coffee and tea and that they would receive increased technical assistance and have access to all marketing facilities, all of which were initially restricted to the white settler fraternity. The impact of this was immediate. Results observed after the initial implementation of the Plan indicated that the value of recorded output from the small holdings rose from 5.2 million pounds in 1955 to 14 million pounds in 1964, with coffee accounting for 55% of the increase (Ogot and Ochieng, 1995).

Through the consolidation of small and scattered holdings in Central Province, the Plan also sought to ensure that land ownership was concentrated in the hands of a few farmers. These would then be transformed into what was seen as an "African middle class" that would be preoccupied with commercial commodity production and also offer employment to those rendered landless by the Plan. Other landless peasants would engage in small-scale crafts and trades to earn a living through micro and small enterprises.

To fully understand the socio-political basis of the Plan, one needs to contextualize it within the larger colonial political economy and specifically the Mau Mau Uprising that took place from 1952 to 1957. After the declaration of a state of Emergency in 1952, villagization of the Kikuyu occurred which aggravated the living conditions in the African Reserves that had been in existence since 1926 when they were gazetted. The Plan was a culmination of reforms or changes that were intended to increase opportunities for Africans and further integrate them into the colonial economy. These measures however did little to contain the rising tide of African discontent as epitomized in the Mau Mau liberation struggle. It was clear that land consolidation had oppressive political motives as witnessed in a statement attributed to the Special Commissioner for Central Province who argued that "...land consolidation was to complete the work of the Emergency: to stabilize a conservative middle class, based on the loyalists; and, as confiscated land was to be thrown into the common land pool during consolidation, it was also to confirm the landlessness of the rebels" (Anderson, 2005).

5.3 Farmer Innovation in Mbeere: The Colonial Origins

The Mbeere owe their peasant origins to two main factors. First was their history of hunting and gathering and traditional livestock rearing. Second was colonialism which subjected many adult males to wage labour in the settler-owned farms of Central Province (Mwaniki, 1973a). The Mbeere were not active participants in the freedom struggle and their three colonial chiefs Kombo Munyiri of Gachoka, Rumbia of Siakago and Mwandiko Ngira of Ishiara were known collaborators. In the process, they managed to accept and internalize some of the virtues of colonialism such as education and consequently encouraged their subjects to take their children to school. Education, not peasant farming, was seen as the way out of poverty. It is the ex-settler farm labourers who were among the first people to introduce new ideas or innovations in Mbeere agriculture, backed by the colonial administrators.

The Mbeere colonial chiefs are known to this day for their ferocity in enforcing some of the recommendations of the Swynnerton Plan notably, planned farming and soil conservation. Other innovations associated with them include the introduction of improved seed varieties (hybrid seeds), tree farming especially fruits, application of artificial fertilizers and pesticides. Prior to the 1990s, the Mbeere economy was dominated by peasant farmers whose livelihoods revolved around the production of traditional staple cereals and legumes for household consumption. These included cow peas, pigeon peas, green grams, millet and sorghum. The dictates of a semi-arid climate with unreliable rainfall, high crop pest incidence and the demands of modernity such as the imperative to pay school fees for children compelled the Mbeere peasants to adopt an agricultural economy that mixed crop production with the rearing of traditional livestock varieties namely cattle, goats, sheep and chicken. However, land demarcation and the rise of individual titling spelt the end of shifting, slash-and-burn cultivation and an increased adoption of market-led farming practices (Brokensha and Njeru, 1977).

Decision making on farming at the household level used to be carried out predominantly by men but this task has increasingly fallen into the hands of women especially those whose husbands are urban workers. Continuous cultivation and use of traditional tillage methods have rendered the soils infertile. This has called for soil fertility management innovations. The high crop and livestock pest and disease incidences are another source of pest management innovations. The per capita land under cultivation has been decreasing during the last twenty years partly due to the demands of inheritance in a patrilineal society. It has also been decreasing partly because issuance of title deeds after land adjudication and registration has vested individual ownership or tenure which has progressively excluded communal access and use. This has in turn triggered a wide range of farm-level innovations.

Zero grazing of improved dairy cattle and goats is one of the innovations fostered by land shortage due mainly to land adjudication and population growth and by extension, limitation of free-range grazing. The declining herds of traditional cattle, goats and sheep

per household are consequences not only of declining land sizes per capita but also increasing household demands for cash for paying school fees and meeting other household needs. The gradual decline in livestock numbers as a family bank has unleashed another set of innovations in livelihood diversification. Soil erosion and/or exhaustion, environmental degradation and declining and erratic rainfall have also set in motion a variety of innovations key of which are small-scale irrigation and tree planting, especially of fruit trees. Poverty is another trigger or push factor for farm innovations and once operational, the innovations are in turn used as weapons against poverty.

As mentioned above, the Mbeere were originally pastoralists but adopted cultivated or crop agriculture in the 1920s where virgin bush was cleared using machetes and traditional hand axes, then burnt after drying in the sun for some time. Crops were then hand-broadcast on plots averaging 1-3 acres depending on the size of the household (polygamous households with more children cultivated larger plots due to availability of labour and social status of the household head). In many instances, a household cultivated more than one plot in different localities concurrently so as to optimize on crop yields. Since soil fertility was high, there were good harvests but after 6-8 seasons (3-4 years), the plot was abandoned after a new site had been cleared and burnt. This is the shifting slash-and-burn mode of cultivation equivalent to the *Chitemene* system in Zambia. This traditional system of cultivation mixed all crops on the same plot. The main traditional crops included bulrush millet, finger millet, *dolichos lablab* (*njabi/njahi*), cowpeas, pigeon peas, green grams and sorghum. Millet was cultivated during the short rains and sorghum during the long rains seasons respectively. Thus, cereals, roots and tubers were all intercropped and commercialization of produce was largely unknown (Hunt, 1974; Mwaniki, 1973; Haugerud, 1979).

Farmer innovation in Mbeere agriculture appears to have begun in the 1930s during the colonial period. Average cropped land increased from one to two acres per household and new crops such as one-season sorghum were introduced in 1938 and maize and beans in 1940 (Kenya Agricultural Research Institute et al, 1995e). Artificial fertilizer was first

introduced in 1967 and its adoption has been rising over the years. Livestock rearing remained an important complementary economy to crop cultivation with traditional cows ranging between 50 and 80 and goats from 50 to 60 for households considered poor or average. The richer households had hundreds of each livestock variety. Mbeere initially comprised forested lands which attracted regular rainfall but the introduction of charcoal burning led to widespread destruction of indigenous trees. It is documented that this destruction of the natural environment caused the gradual decline in rainfall with effect from the 1940s (Brokensha and Riley, 1977; Brokensha, 1988b). Decreased rainfall levels in turn led to reduced crop yields and this may explain household decisions to increase cultivated land sizes from an average of one to up to two hectares, either in one continuous plot or in several plots located in different places. Use of farmyard manure to replenish soil nutrients has been on the rise in the district since the 1980s and this innovation has raised crop yields. In some areas, low crop yields have been exacerbated by the high crop pest incidence. In this respect, the introduction of small-scale irrigation, use of artificial fertilizers, adoption of drought-resistant, fast-maturing and high-yielding seed varieties and other livelihood diversification activities should be seen as crop-based innovations geared towards improving crop yields. So also should the new livestock pest management innovations.

5.3.1 Commodity Production and the Origins of Social Differentiation in Mbeere

The market as an institution appears to have entrenched itself in Mbeere through the sale of labour in the colonial settler farms in the 1950s and later the introduction of cotton as a cash crop in the late 1960s. After its introduction, cotton firmly established itself as a cash crop in the 1970s, mainly through the efforts of the agricultural extension service. This seems to have set in motion a process of social differentiation among the Mbeere peasant households with the cotton-producing households becoming richer and more prosperous while those glued to subsistence crops got less incomes and continued to sell labour to the richer peasants. During the brief period it was produced, cotton incomes contributed to the emergence of a small class of rich rural peasants (reminiscent of Rene Dumont's *Kulaks*) whose life-styles began to differ from those of the common peasants.

By transforming the innovation of cotton production into a commercial activity, this embryonic bourgeoisie became visible in asset acquisition as they were the first to put up corrugated iron-roofed houses and have piped water in their homes. The process of differentiation was strengthened by education. The households with sons and daughters educated up to university level and employed were also the more visible and progressive in the village. However, due to poor prices consistently offered by the state-owned Cotton Lint and Seed Marketing Board, most farmers opted out of cotton and its production finally stopped in the 1980s. The introduction of improved fruit and dairy farming as new sources of income therefore came as welcome relief for the former cotton farmers. The two innovations appear to have been embraced because they had the potential of filling the gap that cotton had left. In other words, the two came to continue with the process of peasant transformation that was started by cotton. In the sub-sections that follow, the study discusses how the two case-study innovations in Mbeere agriculture were introduced.

5.4 Introduction of Improved Fruit Farming in Mbeere

Improved fruit farming in Mbeere began in the late colonial period (1955-1962). It had four interrelated origins. First, some of the returning Mau Mau ex-convicts and colonial homeguards came back home with new ideas that they had learnt at detention camps in various parts of the country. These included new seed varieties (which included improved varieties of mango, papaya, orange, lemon, etc) and crop husbandry methods for increasing the quantity and quality of output. Detention camps such as Manyani, Hola, Kapenguria and Maralal are in arid or semi-arid areas and have similar climatic conditions to those of Mbeere. Application of such ideas was not difficult. Second, the vibrant colonial Agricultural Extension Service introduced new and/or improved seed varieties as well as new farming methods, practices and technologies. Agricultural Research Stations such as the one at Embu (now Kenya Agricultural Research Institute (KARI) and the colonial Demonstration Farm at Ishiara in Evurori Division provided support to extension services through new agricultural information. These farms

revolutionized farming practices in Mbeere. In Gachoka Division, the Kamurugu Demonstration Farm provided new seeds and information on new farming practices for farmers in the surrounding areas. The third origin was ex-wage labourers on European farms. The farms were invaluable sources of information among the early adopters of improved fruit farming in Mbeere. The last origin was the post-colonial Mbeere elite. Most of these were graduates of the colonial education system who began working during and after the first decade of independence.

Other pioneering innovators were civil servants in government ministries, teachers and agricultural extension agents. To these, innovation was not only an experimentation with new ideas learnt in colonial classrooms but was also fueled by a desire to make a difference from the normal or ordinary local lifestyles characterized by tradition and custom. The desire to imitate and excel in European culture propelled some to adopt new farming ideas. The presence of fruit trees on one's farm initially embodied a symbolic value of progressiveness, permanence, wealth and prosperity. Ripe fruits were given as free gifts to neighbours, friends, school children, visitors and the poor. No monetary value was attached to fruits in the late 1950s until the early 1970s. However, the construction of the Ishiara Irrigation Scheme by Mau Mau convicts in the late 1950s led to introduction of commercial value in fruits and ushered in commercial fruit farming in Mbeere. Out of nine improved mango varieties tried in various parts of Kenya, three were introduced in Mbeere and it is these three that this study focuses on. These were Apple, Kent and Tommy Atkins. Below is a short account of how this happened.

5.4.1 Introduction of Improved Mango Varieties in Kenya

The mango originated in East Asia and has been domesticated in Kenya since the colonial times. It is used to produce fresh and canned fruit, preservatives, pickles, juice, nectar and other drinks. Since its introduction, the Coastal areas have been the main mango producers in Kenya, usually growing the taller, larger type of trees that produce more fibrous fruits that have less juice content. However, grafted varieties with higher juice content and of exportable quality have been adopted in other parts of the country such as

Mbeere. These include *Apple, Boribo, Ngowe, Tommy Atkins, Kent, Van Dyke, Hayden, Alphonso* and *Eden* varieties. Most of the mango output is marketed locally as fresh fruit but some of the fruit is sold to export markets in Europe and the Middle East largely through the efforts of individual farmers, farmers' groups and the Horticultural Crops Development Authority (HCDA). Fruit processing plants in Nyeri, Nairobi and Mombasa comprise a major local market for mangoes including those from Mbeere. The quantity and value of Kenyan mangoes have been rising since the early 1990s although the exact figures are not available. An ODI Consortium contracted to study the mango *filiere* in lower Embu (now Mbeere District) put the quantity of locally marketed fresh mangoes in the whole of Kenya at 12,000 tonnes in 1992, with an estimated value of Ksh.36.0 million (Goldson and Associates, 1993: 11). However, the study gives no specific figures for Mbeere which has two mango harvest seasons i.e. December-February and June-August. Papaya is harvested throughout the year.

In Mbeere, traditional fruit varieties seem to have dominated from the colonial period (1952-1963). As indicated in Table 5.1, the production of improved mango varieties took root in the 1980s. The table also shows the main features of each period in the adoption calendar including the main markets. In the first phase of data collection, respondents were asked about the source of idea for the fruits they were farming. Going by the responses, the extension service, even at its peak in the 1970s, did not seem to have been the main source of innovation for a majority of the improved fruit farmers. The adoption of improved fruit varieties appears to have begun in earnest in the 1980s. The 1990s and 2000s saw increased adoption of improved fruit farming and the introduction of value-adding technologies and discovery and conquest of new markets both local and overseas (see Table 5.1).

Table 5 1: Adoption Trend of Improved Fruit Farming

Period	Time Lapse (Years)	Main Features	Main Fruits Grown	Main Markets
1952-1963	12	Colonial period; mainly extension-driven; traditional and improved varieties	Traditional varieties of mango, papaya, orange and lemon	Individuals; local market centres, roadsides
1964-1979	15	Height of extension service; land adjudication and registration	Traditional varieties of mango, papaya, orange and lemon	Individuals; local market centres, roadsides, local institutions, district, provincial towns, Nairobi and Mombasa
1980-1989	10	Weakening extension service; minimal introduction of improved varieties and specialized market-oriented production	Traditional and Improved mango and papaya varieties	Roadsides, local urban centres and institutions, district and provincial towns, Nairobi, Mombasa
1990-1998	9	Collapsed extension service; Increased adoption of improved fruit varieties; introduction of value-adding technologies; market diversification	Traditional and Improved mango, papaya and other varieties	Local towns, institutions, district and provincial towns; Nairobi, Mombasa, Overseas
1999-2007	10	Collapsed extension service; Increasing commercialized, capital and skill-driven profit-led IFF. Basis for on-farm processing/value addition laid	Traditional and Improved mango, papaya and other varieties	Local towns, institutions, district and provincial towns; Nairobi, Mombasa, Overseas

Source: District Agricultural Office, Siakago, 2007.

As already mentioned, 100 fruit farmers, all innovators in Mbeere, were interviewed in all the data collection phases of this study. The findings indicate that work experience topped the list of sources of improved fruit farming as an innovation as reported by 46% of the respondents. This was followed by extension agents (about 30%) and school or college (14%). Other sources of information about IFF which led to adoption were friends, neighbours and innate desire to try something new (10%). Later, private nurseries and seed stockists became more active as sources of new seeds and seedlings. The main reason given for adoption of IFF was the need to generate income, improve or diversify household income or simply to make money. This response came from 88% of the respondents. Those giving other reasons such as peer pressure, experimentation and ostentation constituted a mere 12%. This shows that entry into improved fruit farming was not accidental. It was calculated and a deliberate choice.

Improved fruit farming is a capital-intensive activity characterized by high risk. In terms of capital investments, land is one of the most critical requirements in fruit farming just like any other form of farming. Land ownership (rather than leasing) was found to be a

sine qua non in adoption of improved fruit farming. The table below gives an indication of land prices in Mbeere from the 1970s to about 2008. From the figures, it is implicit that price was not the biggest barrier to entry into improved fruit farming. Other sources of risk were. These included availability of adequate water for most of the year. Mbeere is known for frequent rain failure, yet, over 90% of the fruit farmers relied on rainfall. However, a few farmers had invested in irrigation. A high incidence of pests posed yet another risk to fruit farming in the district. Constant spraying with pesticides inflated the maintenance costs. This also made some farmers grow alongside mangoes, other fruit varieties such as oranges, lemon, passion and banana. Improved fruit farming also called for innovations in land and soil management practices. The other key condition for a successful mango enterprise was market availability. These are explained in greater detail in Chapters Six and Seven.

Table 5 2: Land Price Range in AEZs 4 and 5, 1970-2008

Period	Price Per Acre (Ksh.)
1970-1975	1,000-5,000
1976-1979	5,000-10,000
1980-1985	10,000-30,000
1986-1990	30,000-70,000
1991-1998	70,000-100,000
1998-2008	100,000-300,000

Source: Field Interviews with Farmers, Land Officers and Surveyors, 2007.

As a capital-intensive innovation, substantial financial investments in IFF went into land purchases during start-up, acquisition of farm tools, chemicals, seeds and/or seedlings for farm expansion; land preparation for planting; and care of the young seedlings until maturation. Recurrent costs especially operating costs such as those incurred when paying for farm labour and replacement of dead/dried up or disease-infected trees were reportedly high. By the time of the second round of data collection, the price of an improved/grafted mango seedling was Ksh.100 (\$1.42) so some farmers preferred planting the traditional or un-grafted varieties first (which cost Ksh.50.00 (\$0.71) or less) then later did the grafting themselves or hired trained grafters who charged Ksh.30.00-

40.00 (\$0.42-0.57) per seedling. Grafting takes place 2-3 months after germination of seedlings.

The interviews showed that those farmers who engaged in improved fruit farming had three distinct characteristics. First was access to off-farm income. The high financial capital requirements kept many ordinary peasants out of improved fruit farming. Close to 100% of the farmers were previously salaried employees. This gave them the requisite financial backing in case the venture failed or experienced instability. The second characteristic was education and skills. The interviews also showed that the lowest education level among the improved fruit farmers was Form Four ('O' Level) and the highest was a university degree. In addition, over 70% had attended at least one farmers' training course besides being in constant touch with research stations and agricultural extension agents. The third characteristic was ability to proactively search for new markets locally and overseas. In this respect, about 12% of the respondents reported accessing market information from the internet (see Table 6.9 in the next chapter).

Farmers without access to non-farm incomes were unlikely to take up improved fruit farming, had difficulties expanding the area under cultivation or were unable to hire sufficient labour when needed. This emphasizes the fact that improved fruit farming was a capital-intensive activity in terms of land, financial, labour and knowledge requirements. Lack of sufficient finance capital still remains a major barrier to entry in the fruit production enterprise in Mbeere. Labour constraints were felt mainly during farm preparation, weeding and harvesting and these were solved by hiring school children on contractual basis after school, during weekends or vacations. This, however, was an inadequate stop-gap measure.

5.4.2 Constraints to Improved Fruit Farming in Mbeere

Improved fruit production in Mbeere especially in the 1990s was not without constraints. These may be divided into four main categories: ecological, infrastructural, marketing and capital (financial and skills). Most farmers cited aridity, inadequate and erratic

rainfall, pests, poor and inadequate transportation and storage facilities. Others cited low prices at local markets, labour shortages and lack of finance capital to expand the activity. Soaring relative factor/input costs such as those of fertilizers, spray chemicals and fumigants even gave birth to innovations in alternative spraying inputs. Some farmers resorted to making and/or using home-made or alternative bio-degradable pesticides. The study found out that alternative pesticide and compost manure makers were earning some income out of these items. They also gave advice on agronomic principles and practices to other farmers at a negotiated fee.

With regard to ecological constraints, pests and diseases topped the list. All the farmers interviewed concurred that pests posed one of the biggest drawbacks to improved fruit farming. The most common were insect pests such as aphids and brown wasps which attacked the leaves and fruit. Powdery mildew, a fungal pest, inflicted considerable damage to mango and papaya fruits especially towards ripening. Wild animal pests such as birds, bats and vervet monkeys damaged the fruits at various stages of maturation and this inflated the production costs. Farmers living close to the Mwea Game Reserve had to contend with herds of marauding elephants which targeted mango and papaya fruits. Those farming along the banks of Rivers Tana and Thiba were sometimes forced to keep night vigils to scare away hippos which came out at night. The erratic nature and unreliability of rainfall was another ecological problem reported. Fruit trees are especially vulnerable when young or as seedlings. On average, there is a major drought in Mbeere once every two years or two seasons out of every four. This puts rain-fed IFF at an even greater risk as it increases water stress for the fruits. As coping mechanisms, some rain-fed IFFs increased the area under cultivation by introducing irrigation. Another coping strategy was intercropping fruit trees with seasonal crops notably legumes. While this was calculated to optimize production of diverse crops from the same land unit, it inadvertently replenished soil nutrients through nitrogen fixation. Mbeere is dominated by gravel, clay, and sandy soils which are prone to erosion especially during flash floods. Erosion and leaching are common problems in many parts of the district and hillsides and sloping areas are the most affected.

A second major constraint was infrastructure. Over 90% of the farmers cited poor transportation network as a major challenge. Prior to 2008, there was only one tarmac road in the whole district, the Embu-Kiritiri-Kamburu-Thika-Nairobi road. A second bitumen road linking Embu and Meru through Ishiara and Ciakariga was initiated in 2008 and completed in 2011. The others are earth roads which are rendered impassable during the rainy seasons. Except for the few who owned motor vehicles, especially pick-up trucks, popular modes of transporting produce to market were wheelbarrows, bicycles and ox/donkey carts. While the relatively wealthier farmers hired trucks single-handedly, a majority of the less wealthy organized themselves into groups and collectively hired trucks. This usually happened (and still happens) with mangoes and other fruits destined for Nairobi and other major urban centres.

A third constraint was lack of markets which was cited by about 65% of the farmers in the mid-1990s. However, this figure had dropped to about 30% by the mid-2000s, which shows increased access to local and international markets. Those unable to access urban and/or external markets by themselves (32%) sold to middlemen. It bears mention that the problem was about issue was finding good markets, not access to markets per se. Rarely did farmers report mangoes from Mbeere going to waste. This was because the middlemen would visit the farms just before the fruits matured and booked the number of trees they would during the harvesting period. When the harvesting season commenced, the middlemen would hire their own labourers to harvest, package and load onto waiting vans or trucks. The farmers and middlemen had established fruit collection points or centres at Ishiara market, Kabeburi and Cianyri respectively. Other collection points were at Kanyariri and Muconoke. All the same, low prices remained a major constraint in the Mbeere fruit farms throughout the 1990s and early 2000s.

On the whole, improved fruit farming was clearly a skill and knowledge-driven, capital-intensive activity. This not only constituted a major barrier to entry but also called for constant alertness to new information on new fruit production requirements and value-

adding technologies as well as new market outlets. This largely confined the activity to the better-off and/or more educated farmers. Despite this, the relatively good incomes accruing had knock-on effects such as employment creation which in turn had a positive impact on poverty reduction at the household level. Those who graduated into entrepreneurs embarked on wealth creation.

5.5 Introduction of Improved Dairy Farming in Mbeere

For a long time, dairy farming in Mbeere was associated with the wealthier households and those families that could produce enough milk for consumption at home were highly regarded. However, all families kept traditional cattle varieties that produced limited quantities of milk and required adequate free range grazing all day long throughout the year. They were also prone, though more resistant, to many tick-borne and other diseases relative to the improved varieties.

Findings indicate that it is in the 1990s that some farmers recognized that a few improved dairy cows were much more profitable than the rearing of hundreds of traditional varieties. This gave impetus to the adoption of improved cattle varieties in Mbeere, but this innovation required a certain level of boldness as improved varieties were more fragile and amenable to disease. Indeed, some of the farmers interviewed lost all of their initial improved cows to disease or other causes at the initial stages. They remained persistent in trying others. A case in point was that of a farmer from Kiritiri in Gachoka Division. In the early 1990s, a jealous neighbor allegedly poisoned his five cows. He did not give up but purchased another two and continued with the dairy enterprise. By the time of the second data collection in 2007, he had become a prominent dairy farmer with 15 improved dairy cows and a few pure grades.

For the pioneering dairy farmers, the 1990s was a period of great uncertainty, anxiety and anticipation. The high temperatures and limited water resources in Mbeere were and still are not suitable for improved cows. However, the bold experimenters started with one or two crossbreeds of the traditional Zebu and Serhiwal varieties before moving on to

acquire pure exotic grade cows. This innovation did not require vast expanses of land for free-range grazing but involved confined feeding with little movement of the cows. This new practice, which is referred to as zero grazing, brought with it new land management practices as relatively less land space was required unless the farmer needed to grow their own fodder. To small-scale farmers, it presented the twin-problem of finding adequate natural feeds in a semi-arid ecology and lack of money to purchase artificial feeds from stockists or dealers. Besides, the cost of an improved cow (Ksh.25-40,000) was beyond the reach of many poor farmers. The other problem was how to treat cow diseases which seemed to have prompted an array of innovations in alternative veterinary medicine. Related to these two was poor access to artificial insemination (AI) services. In reaction to this constraint, a few farmers deliberately reared improved breeding bulls for hire by the dairy farmers. Since the impact of land scarcity had not shown in the 1990s, the pioneering improved dairy farmers usually mixed the improved breeds with the traditional ones in free-range grazing. However, this practice was abandoned shortly afterwards owing to pest-borne diseases passed on by the infected traditional breeds. This had high casualties among the few improved breeds. As a result, the improved dairy farmers learnt to isolate the improved from the traditional varieties as a risk management strategy.

After its introduction, improved dairy farming began to progressively replace the rearing of traditional livestock varieties. Except for the initial price of an improved cow that may have proved to be a barrier to entry for some people, improved dairy farming was an activity destined for the poorer farmers, especially women. During the first and second rounds of data collection, it was the largest source of income for over 90% of the women-headed households in the sample. By the time of the third and final data collection phase in 2013/14, the figure had risen to over 95%. Improved dairy farming was a more labour-intensive activity and in good times, a poor family was guaranteed a minimum net income of Ksh.9,000 per month from only one improved cow.

Improved dairy farming is an activity that has no peak labour seasons so it employs relatively fewer but more permanent workers throughout the year. Access to and use of conventional IDF inputs (animal feeds, veterinary medicine, water, etc.) was limited for a majority of the dairy farmers. High prices at supply points, inadequate veterinary doctors and harsh ecological conditions were some of the reasons given for this limited access.

In response to these shortages, a market developed in Mbeere dealing in a variety of inputs for the budding improved dairy industry. These included manufactured animal feeds (dairy meal, pellets, milking cream, bran, concentrates, mineral salts, acaricides, etc) as well as natural or alternative animal feeds (Napier grass, bush fodder, acacia nuts, crop stover, rice straw, sweet potato vines, etc). Stores or agro-vet shops stocking veterinary drugs, chemicals and de-wormers trebled between 1997 and 2007. Private providers of AI services (university graduates who could not be absorbed into the civil service) and the preparation of home-made pesticides had also increased in the district. Also reported to have increased were professional raisers of improved breeding bulls for hire. These activities provide evidence of farm-nonfarm linkages through which IDF had sponsored hundreds of micro and small enterprises with implications for poverty reduction, employment and wealth creation.

5.5.1 Constraints to Improved Dairy Farming in Mbeere

Some of the salient constraints facing improved dairy farmers in Mbeere have already been cited in the foregoing discussion. One of the greatest problems faced by the early dairy farmers was finding adequate animal feeds. This appears to have necessitated the adoption of three feeding regimes: stall feeding all year round, a mix of stall feeding and grazing, and grazing only. These regimes or strategies were used simultaneously and seem to have triggered another type of innovation: planting of grass and other fodder to be harvested as animal feed and/or sold to the dairy farmers upon demand. This fostered various business linkages within the local economy. The management of cattle diseases posed another challenge especially to the early dairy farmers. Improved cows require constant attention and delicate care so dipping or spraying must be done regularly.

However, a number of farmers mentioned lack of dip, lack of money, lack of chemicals and massive presence of ticks as some of the setbacks with which they had to contend. Some farmers reported having benefited from extension agents in many ways such as how to feed the animals; when to contact veterinary officers; buying of artificial feeds; how to supplement artificial with natural feeds; types of drug to administer; how to identify the disease; and livestock enterprise management.

Market-mediated inputs such as used dry cells, kerosene, oil, and doom powder were used as raw materials to make alternative livestock disease drugs. Although these may have been readily accessible, some of the nonmarket-mediated inputs such as herbs sprouted only during the rainy seasons and largely disappeared after the weeding period when some of the animal pests and diseases struck. Others are rare species and are accessible only with the help of experts. Some of the experts who were processing home-made remedies for animal pests and diseases were charging a small fee for previously freely obtainable gifts of nature. Lack of or poor access to veterinary services was the last major handicap cited by the early dairy farmers. Government deployment of veterinary officers was highly inadequate at the ratio of one officer per administrative location. Because of inadequate numbers of government staff, the queue of needy farmers was always long. This prompted some farmers to come up with alternative home-made remedies. Prior to the 1990s, AI services were non-existent in the district especially in AEZs 4 and 5. As a coping mechanism, some farmers resorted to hiring improved breeding bulls to address the problem. The richer among the early dairy farmers were reported to have been hiring private veterinary personnel to meet the shortfall.

However, despite the attendant costs and constraints, improved dairy farming was reported to be a promising poverty reduction activity for the poorer households especially the female-headed ones. The findings indicated positive changes in household wellbeing for a majority of the farmers from a number of perspectives. These included increased household incomes and/or more stable income regimes; improved diet through availability of milk-based proteins for the family; ability to meet household food security

and other basic needs; acquisition and accumulation of capital assets; employment creation; access to credit; livelihood diversification mainly in the form of farm-nonfarm linkages; and improved living standards. These key research issues are covered in greater detail in chapters Seven and Eight.

5.6 Chapter Summary and Conclusions

The discussion in this chapter has shown the socio-economic and institutional contexts in which two entrepreneurial farmer innovations, i.e. improved fruit and dairy farming, were introduced in Mbeere in the 1990s. The composite context was characterized by poverty-reproducing traditional peasant livelihoods. The discussion has shown how innovation became institutionalized during the colonial times especially after the Swynnerton Plan of 1954. The chapter also shows that the Mbeere first got captured by the capitalist or market economy through the sale of wage labour to the colonial settler farms in Central and Rift Valley Provinces in the 1950s and 1960s and later through the introduction of cotton as a cash crop in the 1970s. By such capture, the peasant farmers shifted from labour providers to semi-autonomous producers for the market. This in turn shows that contrary to classical thought, capital (or the market) does not necessarily dissolve the peasants but instead preserves them as surrogate partners in the capitalist relations of production. After some time, the peasants graduate into entrepreneurs or agrarian capitalists with autonomy to make production decisions and join the middle classes and/or coalesce around common interests on which they engage the state as a relevant social category.

There are several conclusions regarding when and how agricultural innovation was introduced in Mbeere through improved fruit and dairy farming. The first is that despite the myriad of constraints, improved fruit and dairy farming became firmly established in Mbeere largely through the efforts of a small group of venturesome peasant farmers. This group had additional income from salaries or income-generating activities. They had the advantage of education and better skills. They also attended farmer training programmes and therefore had access to information. Second, the two innovations formed a basis for

agricultural entrepreneurship in the district with a potential for social change and development. They represented the introduction of a new good; method of production; involved discovery and use of new sources of raw materials; compelled farmers to look for new markets; and called for new enterprise management styles, in other words, all of Schumpeter's five entrepreneurial innovations. For the two innovations to graduate into enterprises through the actions of entrepreneurs, the latter must have certain levels of individualism and specifically the *protestant ethic* or spirit of capitalism which instills profit-mindedness in people. Third, and as discussed in the next chapter, the two innovations heralded a change in livelihoods by steering farmers away from a subsistence mentality towards a form of specialization in profit-led production. Fourth and finally, the specialized and capital-intensive nature of improved fruit farming excluded many peasants from participation mainly because it requires substantial capital investments, a certain level of education, market information, and personal attributes such as foresight and calculated risk taking. However, improved dairy farming was the more friendly activity especially to the poorer households, more so, those headed by women.

CHAPTER SIX

THE TRANSFORMATION OF INNOVATION INTO ENTERPRISE

6.1 Introduction

The previous discussion in the literature is clear on three main things: that innovation and entrepreneurship can be studied together and applied to agriculture; that innovation that is founded on or driven by entrepreneurship reduces poverty and brings about social change and development; and that entrepreneurial innovation is the engine of peasant transformation. That means that if peasants could adopt or internalize the tenets of entrepreneurship (market values) and practice agriculture as a business, then they would improve their lives, livelihoods and wellbeing. This is because entrepreneurship liberates the peasant farmers from poverty by showing them how to make money out of innovation. By unlocking and encouraging peasant independence and innovativeness, the market actually transforms the innovators into entrepreneurs and capital accumulators. The discussion in the previous chapter has demonstrated that non-farm income, education and skills were crucial in the introduction of improved fruit and dairy farming as entrepreneurial innovations in Mbeere. Even more important is that the innovating farmers were now able to have additional family income.

This chapter attempts to demonstrate that after their introduction, the two primary innovations (improved fruit and dairy farming) underwent changes which had implications at household level in terms of improved quality of life of the farmers. These changes manifested themselves in several forms including improved household incomes and wellbeing (poverty reduction) of the peasants involved (this is the subject of chapter seven). The chapter details how each of the two innovations was deliberately grown into a household enterprise by the farmer innovators concerned. This was achieved through the undertaking of Schumpeter's 'new combinations' or secondary innovations pertinent or incidental to each primary innovation in terms of investments in land; allocation of financial capital and labour; introduction of new crop and livestock husbandry practices; and search for new market outlets in response to increased outputs. Thus, the chapter shows how the concerned innovators metamorphosed into entrepreneurs who made money by building the respective innovations into profit-led household-based enterprises.

The chapter discusses findings with respect to the second research question and hypothesis on how and why the innovations were transformed into profitable household-based enterprises.

6.2 Motivations for Improved Fruit Farming in Mbeere

Although improved fruit farming was evident in the 1950s, some farmers were still skeptical about its success in the district until the 1990s. The journey was thus slow at the initial stages but picked up in the 2000s. The amount of land allocated to fruit farming especially mangoes ranged from slightly under 2 hectares to over 10 hectares. The demand for huge tracts of land made fruit farming a factor-intensive activity. This constituted a constraint as land was getting increasingly scarce in the district. While some farmers bought already grafted seedlings, others planted the traditional varieties. They then had them grafted by experts when about 2 months old. The grafters were paid an agreed fee but some farmers did the grafting on their own after undergoing some training. The major sources of grafted seedlings included personal tree nurseries, the Kamurugu Community Project Farm in Gachoka Division, and KARI research stations. Others were bought from as far afield as Embu town, Kutus in Kirinyaga district, and Nyeri in Central province. While acknowledging that mixing of various varieties is a risk-management strategy, all the fruit farmers interviewed said they wanted to make money from growing fruits. Others hoped to increase sales and incomes by establishing juice extraction plants on-farm in the near future to add value to their products.

The emergence of improved fruit farmers from among peasant farmers heralded a new era in peasant agriculture in Mbeere characterized by “new individuals”. These individuals appeared to have had a mission in farming. Social esteem from pioneering action or association with modernization did not appear to be adequate incentives for them. Their motivations appeared to lie in improving their lives by transforming the innovation of improved fruit farming into a profit-led farm enterprise. When the 100 innovators were asked why they had chosen the respective innovations, 95% reported that they wanted to change the way things were done in the past and make money from farming by increasing and/or diversifying their income sources. In addition, over 90% expressed the desire to generate wealth from farming and reduce poverty. Over 70% said

they had committed themselves to invest whatever they had at their disposal. They were even prepared to apply for credit from financial institutions.

It is worth reiterating that for an innovation to be transformed into an enterprise, the farmer must first have perceived that the innovation in question presented an opportunity to generate profit or make money (Kirzner, 1970; 1980; 1997a; 1997b; Peneder, 2009). Once such a perception sets in, the next thing is the ability and will to invest in it. The data show that the improved fruit innovators who chose to embark on a journey towards entrepreneurship and invested various amounts of resources in this activity prospered and became wealthy (see chapter seven). These resources included land, finances, labour (including specialized skills) and time. In contrast, the (non-innovating) farmers who feared to venture into improved fruit farming and stuck to production of traditional mangoes never made it in life through farming. They remained relatively poorer. Those who produced no fruits at all and did not have any other sources of income were many times worse off.

6.2.1 Land Set Aside for Improved Fruit Farming

Land is a critical resource in improved fruit farming because physical expanse is required. In the course of the two decades that the study covered, the size of holdings set aside for improved fruit farming did not remain constant but increased over time. By 2007, the majority of farmers (86%) had holdings of up to 2 hectares. These were still a majority (76%) by 2014. Those with 2-6 hectares were 14% by 2007 but had reduced to 13% by 2014. No farmer had exceeded 6 hectares by 2007. However, by 2014, 7 % had set aside 6-8 hectares and 4% had 8-10 hectares. This shows that about 11% of the farmers had increased their holdings to over 6 hectares by 2014 (see Table 6.1).

Table 6 1: Land Invested in Improved Fruit Farming, 1997-2014

Land Size (Ha)	1997-2007		2008-2014	
	Frequency	%	Frequency	%
0-2	172	86.0	152	76.0
2-6	28	14.0	26	13.0
6-8	-	-	14	7.0
8-10	-	-	8	4.0
TOTAL	200	100.0	200	100.0

Source: Field Surveys, 1997; 2007; 2014.

Table 6.2 shows enterprise growth in terms of number of fruit trees planted and/or owned from the mid-1990s and mid-2000s. In the 1990s, not a single farmer had in excess of 100 trees. However, in 2007, 75% of farmers had more than 100 trees. Some had as many as 5,000 trees. Importantly, 25% of farmers had thousands of trees by 2007. These figures indicate a gradual increase in the number of improved trees. The figures show that farmers increased the number of trees. This increase may be attributed to the need to earn more income from the improved trees (one hectare takes about 500 trees at 7x7 ft. spacing).

Table 6 2: Increase in Number of Improved Fruit Trees (1997-2007)

1997-2007 (N=100)				2007-2014 (N=100)		
Improved Fruit Trees	Trees	Frequency	%	Trees	Frequency	%
	1-10	55	55.0	100 -2,000	75	75.0
	11-100	45	45.0	2,001-5,000	25	25.0
Total	-	100		-	100	100.0

Source: Field Survey, 2007; 2014.

6.2.2 Financial Investments and Recurrent Costs in IFF

The recurrent seasonal financial capital investments for improved fruit farming included the costs incurred in land preparation, planting, weeding, fertilizer application, harvesting, packaging, transportation and replacement of dead trees. Looking at the aggregated investment figures, one notices a sudden departure from what may be called subsistence farming by virtue of the scale of financial investments. At the lower end, about 23% of the farmers had invested up to Ksh. 40,000 (\$571.43); about 49% who may be described as middle range had invested up to Ksh. 80,000 (\$1,142.90) and the higher-end investors constituting about 43% had invested amounts ranging from Ksh. 80,000 to over 100,000 (\$1,428.57) per mango season in the period 2005-2007 only. Such high levels of resource mobilization corroborate the theoretical argument that entrepreneurship is about boldness in confronting risk without fear of failure. The farmers reported that although the investments and recurrent costs depended on the size of the enterprise, they had been increasing over time since the mid-1990s. By 2007, it had become clear who the small, medium and big entrepreneurial mango farmers in Mbeere were (see Table 6.3).

Table 6 3: Recurrent Seasonal Financial Investments in IFF, 2005-2007

Average Amount Invested (Ksh.)	Frequency (N=100)	% of Respondents
Up to 20,000	11	11.0
20,001-40,000	12	12.0
40,001-60,000	25	25.0
60,001-80,000	24	24.0
80,001-100,000	23	23.0
Over 100,000	20	20.0
Total	100	100.0

Source: Field Data 2006/07.

Fruit production enterprises incur huge costs in the initial activities of land preparation, re-planting or replacing withered or destroyed seedlings, weeding, fertilizer, and latter activities of harvesting and transportation of produce to market. There are two mango seasons per year and the statistics indicated that average fruit production per tree was 20kg per crop season. The weight of Mbeere mangoes varies from 0.3-1 kg per piece depending on variety (Apple mangoes are heavier than the rest), management, and age of orchard. Total production ranged from 10 to 16 tons per hectare. Several respondents indicated that per-tree costs were less for the bigger farms. Smaller farms tended to incur higher costs per tree and the costs of establishing a mango enterprise ranged from Ksh.50,000 (\$714.28) for the smaller farmers to over 100,000 (\$1,428.57) for the medium and big farmers.

The farm-gate price for a piece of mango was Ksh.10.00 (\$0.15) during the 1990s but rose to Ksh.20.00 (\$0.29) during the 2000s. A standard mango piece weighs 500-650g retail prices oscillated between Ksh.30-40.00 per kilogram. The standard mango packaging crate was introduced by the Horticultural Crops Development Authority (HCDA) in 2005. The crate takes an average of 25 pieces depending on size, and at an average weight of 500-650g per piece, the total weight of a crate was 16.25 kg. This puts the farm-gate price of a crate at Ksh.500 (\$7.14). Retail prices for the crate would reach up to Ksh.1500 during lean seasons. The cost of a grafted mango seedling varied from Ksh.50.00-90.00 (\$0.71-1.28) but the larger farmers benefited from discounts on seedlings thus enabling them to raise their profit margins through economies of scale. Land preparation, seedlings, fertilizer, planting, weeding, spraying, fumigation, harvesting, packaging, and transportation constituted the key cost items for improved fruit farming. Most farmers relied on family labour for harvesting but as the enterprise

grew, the hiring of casual labour increased especially during harvesting periods. Peak casual labour demand during harvests hence became a usual feature among improved fruit farming households. Transportation costs of the produce to market ranged from about Ksh.1,000 to Ksh.5,000 (14.9-71.4) for the smaller farmers to over Ksh.10,000 (142.9) per season for the bigger farmers. The returns figures indicate that improved fruit farmers earned higher incomes than those producing traditional varieties but these are discussed in the next chapter.

6.2.3 Outputs and Markets for Improved Fruit Farmers

With the recommended spacing of 6 by 6 metres, one hectare takes about 500 trees but sometimes, some farmers reduce the spacing to 3 by 3 metres and squeeze up to 1,000 trees per hectare. As indicated above, mango production per mature tree per crop season ranges from 20-30 kg and with an average of 500 trees per hectare this would give the farmer a minimum yield of 10,000 kg (10 tons) per hectare. With about 1,000 trees per hectare, production rises up to an average of 16 tons per hectare. The price fluctuates between Ksh.20-40 per kilo and at a minimal price of Ksh.20.00 per kg, this translates to Ksh.400.00 per tree and Ksh.200, 000 (\$2,857.14) per crop season in net profits. The few farmers with up to 10 hectares earn about Ksh.2 million (\$28,571.43) per mango season. This shows that improved mango farming is lucrative though seasonal and due to the high initial and operational or production costs, it has become a preserve of the wealthier farmers who can afford such investments and who also have other income floors to cushion them against the ever present risk of failure especially inadequate or total rain failure in some seasons or pest infestation. For this reason, improved fruit farming requires vast expanses of land which may not be forthcoming any more. Down the value chain, employment opportunities emerged for middlemen in the form of brokers, wholesalers, trading agents and/or retailers and for transportation agents who delivered the produce to local and national markets.

During the mid-1990s, output of improved fruit was limited but expanding. Seasonal fruit sales largely reflected output levels. Those selling up to 2,000 kg were 85% while 9% sold up to 4,000kg; 4% up to 6,000kg and 2% up to 8,000kg per season. Production increased such that by the mid 2000s, 10% of the farmers were selling 8,000-10,000kg per season with some exceeding the 10,000 kg mark. About 4% were selling over 20,000

kg per crop season. Table 6.4 summarizes this information on seasonal sales of improved fruit.

Table 6 4: Seasonal Fruit Sales (Mid-1990s and Mid 2000s).

Unit (Kg)	% Mid 1990s (N=100)		% Mid 2000s (N=100)	
	Frequency	%	Frequency	%
Up to 2,000	85	85.0	70	70.0
2,001-4,000	9	9.0	11	11.0
4,001-6,000	4	4.0	4	4.0
6,001-8,000	2	2.0	5	5.0
8,001-10,000	-	-	4	4.0
Over 10,000	-	-	6	6.0
Total	100	100.0	100	100.0

Source: Field Surveys 1997; 2007; 2014.

A major aspect of growing an innovation into an enterprise has to do with introduction of new production methods or value-adding techniques. About 48% of the fruit farmers reported that they had introduced at least one new value-adding method or technique. As explained in detail in the next chapter, improved fruit farming was recognized as a feasible way out of poverty, and as such, competition was evident among some of the innovators-cum-entrepreneurs. The competition was geared towards excelling in farming and being able to reduce poverty by creating and/or accumulating wealth.

Discovery and conquest of new markets is a major entrepreneurial innovation. Market outlets constitute an indispensable factor in growing an innovation into an enterprise. Entrepreneurs target captive markets but also proactively discover hitherto unknown markets. Others create markets for their goods by advertising them. Roadside and open-air retail markets for fruits began to appear in various localities throughout Mbeere in the 1970s. By 2007, mangoes were the main fruits traded in local growth points (rural markets) such as Ishiara, Kanyuambora, Siakago and Kiritiri. While trade in improved fruit varieties was largely embryonic by the mid-1990s, that for traditional varieties was vibrant with some of the fruit reaching destinations such as Nairobi and Mombasa. As mentioned earlier, the innovator's home was one of the first fruit trading sites in Mbeere with school children acting as the first captive market especially for mangoes. Roadside and open-air miniature retail markets for fruits had begun to appear in various localities throughout Mbeere as early as the 1970s. Traditional mangoes, papaya and bananas were the main fruits traded in most of these local markets or growth points such as Ishiara, Kanyuambora, Siakago and Kiritiri.

To find out the configuration of fruit markets in the 1990s, the respondents were asked to state the main market for their produce. The markets were then disaggregated into five levels which are reported in Table 6.5. The findings indicated five market levels: middlemen (wholesalers, retailers, trading agents); local market centres and shops; local institutions such as schools, health centres and polytechnics, major urban centres (district, provincial and national towns); and abroad or overseas. Each level or niche was identified and served by specific actors and the modes of transporting the commodity ranged from human portage to motorized transport (bicycles, motor cycles, pick-up trucks and lorries. Transportation costs depended on distance from the farm gate. As the table shows, 54% of the farmers targeted or could access levels one and two markets while the other 46% concentrated on the more lucrative levels 3-5 markets.

Table 6 5: Main Markets for Improved Fruits (Mangoes) in the Mid-1990s

Type of Market	No. of Respondents	% of Total (N=100)
Level One: Middlemen (wholesalers, retailers, trading agents)	32	32.0
Level Two: (Local market centres, shops)	22	22.0
Level Three: Local institutions (schools, health centres, polytechnics)	20	20.0
Level Four : Major urban centres (district, provincial and national towns)	18	18.0
Level Five: Abroad or overseas	8	8.0
TOTAL	100	100.0

Source: Field Survey, 2006/07.

The information summarized in Table 6.5 indicates that about 32% of the farmers sold their produce to or through middlemen (wholesalers, retailers, and trading agents) who in turn retailed them in the bigger district and provincial markets with some destined for national markets such as Nairobi and Mombasa. The middlemen were reported to perform multiple roles that were beneficial to the producers besides connecting them to global or overseas markets. A good proportion of fruit trading took place at local markets, from the occasional roadside display of ripe mangoes during the two mango seasons per year, to bulk sales to local public institutions such as schools, health facilities and village polytechnics. This implies that the commodity chain for Mbeere mangoes was basically local in the 1990s. Local markets or rural market centres accounted for 22% of fruit sales while local public institutions (schools, health centres and polytechnics) took up 20%. Major urban centres such as district, provincial and national markets took up 18% of the

fruit trade. Only 8% found its way to international or overseas markets. One farmer summarized the issue of markets and growth of enterprise thus:

I had grown traditional mangoes for a long time before I realized that I was wasting my time because their prices remained low. I changed to improved varieties namely Apple and Tommy Atkins and after five years I got my first harvest. I got 250 kg. There were many obstacles but I persevered and persisted. A good proportion of my first harvest was sold at the local market centres. Before my second harvest, I attended a farmers' training course in Nyeri, and during our free time, I asked my fellow trainees and trainers where I could sell my mangoes at a good price. I was directed to five prospective buyers: three middlemen and two juice makers. This gave me confidence and an incentive to increase the number of trees. From then on, I have been increasing the acreage under improved mangoes and I always buy the Daily Nation Newspaper to read especially the pages on agricultural entrepreneurship. I also regularly watch the TV and listen to the radio for tips on new farming methods and markets for mangoes. Besides, I don't take long before visiting the Embu agricultural research station. I have invested a lot of money, time and other resources in this activity to make sure that I succeed. Today, I have 10 hectares under improved mangoes and I harvest about 12 tons per hectare. I am not shy to declare that I am one of the most successful mango farmers in Mbeere and Embu County in general. I am now reaping the fruits of my foresight, hard work, determination and patience. I get good money every year.

The situation had changed somehow by 2006/07. By this time, there was a greater concentration on local institutions and major centres. The role of middlemen had declined slightly due to a rise in cooperative institutions that did corporate selling. There was a clear push towards national and international markets. The role of major urban centres had increased from 18% to 27% while international markets had almost trebled. It is in the major urban centres that value-adding took place (see Table 6.6).

Table 6 6: Main Markets for Improved Fruits (Mangoes) in the Mid-2000s

Type of Market	No. of Respondents	% of Total (N=100)
Level One : Middlemen (wholesalers, retailers, trading agents)	20	20.0
Level Two : (Local market centres, shops)	13	13.0
Level Three : Local institutions (schools, health centres, polytechnics)	19	19.0
Level Four : Major urban centres (district, provincial and national towns)	27	27.0
Level Five : International (abroad or overseas)	21	21.0
TOTAL	100	100.0

Source: Field Survey, 2006/07.

As mentioned earlier on, improved fruit farming was a knowledge-based enterprise and those who could access adequate timely information had higher chances of competing or succeeding in growing the innovation into a profit-led enterprise. The main sources of market information for these farmers (as depicted in Table 6.7) was print and electronic

media comprising newspapers, radio, television and mobile telephone, complemented by trade fairs and exhibitions, as reported by 22% of the respondents. About 20% of the farmers relied on social capital/networks for market information. It is important to note that close to 17% of the farmers interacted with the Kenya Agricultural Research Institute (KARI) stations for information on output markets among other types of information. The growing use of the internet was evident among 12% of the fruit farmers. State agencies were the least source of market information, suggesting the rising potential and independence of the farmers in informational innovation.

Table 6.7: Main Source of Market Information among the IFFs

Type of Market	Frequency	% of Total (N=100)
Newspapers, radio, tv, mobile telephone, trade fairs and exhibitions	22	22.0
Social capital/networks	20	20.0
Research station/KARI	17	17.0
Middlemen/brokers	15	10.0
Internet	12	15.0
KNCCI/HCDA*	10	12.0
Total	100	100.0

**KNCCI refers to Kenya National Chamber of Commerce and Industry while HCDA refers to Horticultural Crops Development Authority.*

Source: Field Survey, 2006/07.

The fruit innovators were found to have contributed to vertical market differentiation with several players present. Although there were no individual brands, conventional market channel coordination was achieved through bargaining and negotiation. The meeting of buyer and seller at the producer's farm or at the local market during harvest time minimized transactions costs. These translated into higher prices and hence profits accruing to the farmer as found out by Dijkstra (1997) in his study on fruit trading in Kenya. However, middlemen (brokers, wholesalers), though important sources of market information, sometimes dictated prices to the detriment of the farmer especially during times of bumper harvests. Five forms of vertical differentiation of fruit markets were identified. These were:

Farmer-----end consumer

Farmer----- retailer-----end consumer

Farmer-----broker/wholesaler-----end consumer

Farmer-----broker/wholesaler-----retailer-----consumer

Farmer-----trading agent----wholesaler-----retailer----- end consumer

6.2.4 Role of Middlemen in Fruit Trading

There was a marked presence of facilitating intermediaries in the fruit trade in the form of middlemen or brokers, wholesalers and trading agents. However, the absence of arrangements such as contract farming negated market integration which in turn kept sunk costs low. Ideally, therefore, this should have boosted profit margins. On the whole, over 50% of the fruit farmers dealt with middlemen at some point in their market transactions and about 32% were heavily dependent on them. A closer look at marketing strategies reveals that middlemen may have been indispensable actors in the Mbeere fruit industry. One of the most important roles that middlemen seemed to play was that of linking the producer with the consumer. This helped foster forward and backward linkages which in turn boosted input markets. By straddling the two worlds of producer and consumer, the middlemen supply strategic market information to the producers. Such information may be general in nature or specific on the recommended crop husbandry methods, better harvesting, sorting, storage, preservation and packing as well as packaging. This way, middlemen act as innovation triggers and quality verifiers to both producers and consumers. This quality overseeing helps the producer reduce production costs and comply with market demands and/or consumer specifications especially for overseas markets. The buyers or consumers also benefit by getting value for money through improved quality control and maintenance and being able to access the required quantities of produce.

The study also found that middlemen played multiple but crucial roles. These included bulk buying of produce; provision of advice on better harvesting; helping farmers save on transport; price fixing; linking producer to consumer; providing information on new markets; providing information on market demands in terms of quality and quantity; helping farmers to reduce production costs; and innovation triggers and quality verifiers or superintendents. Besides the usual bulk buying of produce and saving the farmer the agony of losing perishable commodities if and where transportation facilities were poor, middlemen accomplish a number of positive things. They gave advice on better production methods especially at the point of harvesting and packaging thereby helping the farmer to reduce production costs; saving the farmer transport costs especially with

on-farm or farm-gate buying; linking producer to buyer; providing market information especially on new markets; and providing the farmer with market demands or consumer specifications per product. Middlemen have also been credited with being not only triggerers of innovation but also verifiers of innovation and quality by sounding the necessary alarms to both producers and consumers. The role of middlemen was qualified by the following words from a farmer.

Middlemen have been very useful to us mango farmers. Transportation is a bit poor here. They come directly to the farm to buy our produce thereby saving us time and transportation money. Their efficient buying arrangements help us to minimize losses from perishability. To us, a poor price is better than rotten mangoes. From time to time, they give us what the buyers out there want thereby linking us to new market outlets. They check our mangoes and tell us what is wrong with them. They also tell us how to improve our farming and increase output. This way, they help us set targets every season.

6.2.5 Farm-nonfarm Linkages

The main inputs in fruit farming include manure, pesticides, fungicides, insecticides, fertilizer, seedlings and knapsacks while. Both fruit and milk production were found to have fostered a number of farm-nonfarm linkages with implications for poverty reduction and wealth creation or accumulation. These linkages occur on the supply and demand sides and include the rise of *mikokoteni* or hand carts and ox/donkey carts for transportation of inputs such as animal feeds and output to the market. The scarcity of fodder saw the rise of individuals who grew Napier grass, and/or collect acacia nuts and other natural fodder specifically to sell to the dairy farmers. At the market places and towns, shops selling manufactured animal feeds and stocking a wide array of farm inputs such as hoes, machetes, wheelbarrows, and sacks were evident and on the rise in parts of Mbeere where IFF and IDF were practised. So were fertilizer and spray chemical stockists. Some livestock owners became manure suppliers to farmers for a fee. For mango growers, there was a new regulation requiring them to use the recommended modern crates for packaging. This in turn fostered linkages between the farmers and crate making industries. The local kiosks and hotels were major buyers of milk. The two forms of enterprise were also responsible for employment creation in various activities such as land preparation, weeding, spraying/fumigation, harvesting and transportation. Other linkages were found in the growth of informal extension; processing industries and supermarkets, wholesalers and retailers. In most of these activities, middlemen remained

major actors or link agents. This created more opportunities for employment and therefore income for more people (see chapter seven).

Much of the locally consumed fruit was not subjected to any meaningful value adding or rigorous quality control measures. Value addition for fruit at the local level was found to be limited and much of the produce was consumed as fresh fruit. However, the fruit meant for export was subjected to international quality standards and middlemen were known to visit the farmers to supervise the harvesting of fruit and packaging according to the recommended methods and standards. To achieve the necessary quality and enable them maintain existing niches or cut new ones in local and overseas markets, fruit farmers were found to undertake a variety of measures. These included watering, manuring and mulching of holes; grafting; fertilizer application; timely weeding and removal of suckers; disease control (especially powdery mildew and leaf rot which are common in the area); careful harvesting, sorting and grading; packaging and preservation; transportation and warehousing. The fruit farmers were found to be proactive in locating markets and once a niche was identified, it was maintained through five main methods: quality control and maintenance; timely delivery to consumer or intermediary; market loyalty; informal networking, and meeting quantity requirements.

The foregoing discussion shows how farmers in Mbeere adopted improved fruit farming as an innovation and used their ingenuity to turn it into an income-generating enterprise. It is clear that aided by non-farm income, education, training and information, the innovators in question were able to use new methods of production to put a new good on the market; discover and conquer new markets; discover new sources of raw material and apply new managerial styles to the new enterprise. Thus, these innovators got transformed into entrepreneurs. The outcomes and benefits of this (changes in household income status and poverty reduction; employment creation; social differentiation; and overall development) are the subject of the next chapter.

6.3 The Case of Improved Dairy Farming

A previous discussion showed how improved dairy farming was introduced as an agricultural innovation in Mbeere. Despite having climatic and ecological conditions

hostile to the activity, some enterprising individuals discovered its economic potential and worked on its viability despite the risks involved. The discussion here focuses on how these individuals mobilized resources or undertook new combinations to turn it into a household enterprise with potential for peasant transformation. The resources involved land, finances, labour, skills and time. The aim is to demonstrate that like improved fruit, the innovators involved used their ingenuity, dexterity and foresight to make improved dairy farming a profitable enterprise with implications for poverty reduction, employment creation, social change and development. The implications are discussed in the next chapter.

6.3.1 Land Investments in Improved Dairy Farming

Dairy farming does not require expansive physical space to operate profitably. This is irrespective of the number of dairy animals a farmer has. In 1997, 80% of the farmers had 1-5 improved cows and 20% had more than 5 cows. Ten years later, (in 2007), those with 1-5 cows were 55% while those with more than 5 cows had increased to 45%. This indicates that 25% of the farmers had acquired more than 5 improved cows with some having as many as 25 improved cows (see Table 6.8). It also suggests that the activity had begun to avail tangible benefits to the innovating farmers and their households.

Table 6.8: Distribution of Improved Dairy Cows among Respondents, 1997 and 2007

1997-2007 (N=100)			2007-2014 (N=100)			
Improved Cows	No. of Cows	Frequency	%	No. of Cows	Frequency	%
	1-5	80	80.0	1-5	55	55.0
	5-25	20	20.0	5-25	45	45.0
Total	-	100	100.0	-	100	100.0

Source: Field Survey, 2006/07.

The land required for IDF does not increase exponentially with the number of animals owned or acquired. The amount of land set aside or invested in dairy farming remained minimal as zero-grazing requires little space. However, in combining zero-grazing with free range grazing, the land invested varied from under 1 hectare to about 4 hectares. A common trend reported was that at the beginning of the enterprise, more farmers had more land at their disposal but this had dwindled with time which implied a growing land scarcity, especially with the onset of the 2000s. Secondly, some of those with more land at their disposal would grow alternative fodder such as Lucerne. Although the land set

aside for the activity was not necessarily commensurate with total land owned, the figures show that three quarters had devoted less than five acres (2.5 ha), which suggests that even typical farmers could participate or that land was not a barrier to entry. The land distribution among the sampled farmers was as indicated in Table 6.9.

Table 6.9: Land Set aside for Improved Dairy Farming

Amount of Land	No. of Respondents	%of Total (N=37)
0-2 ha	30	30.0
2.1-5	46	46.0
5.1-10	19	19.0
Above 10	5	5.0
Total	100	100.0

Source: Field Survey, 2006/07.

6.3.2 Financial Investments and Recurrent Costs in Improved Dairy Farming

The cost of an improved cow ranged from Ksh.15,000 to 40,000 (\$214.3-571.4) depending on age, size, state of health and relationship between buyer and seller. Improved calves would cost the former price while a mature cow would go for as much as the latter price of Ksh.40,000. The cows were usually sourced from outside Mbeere, especially Embu, Meru and Kirinyaga districts. Only a few acquired their improved cows locally. About 70% of the farmers accessed paid artificial insemination (AI) services while about 30% who could not the services paid a fee to local breeders of improved bulls for breeding. Maintenance costs up to first milking averaged Ksh.5,000 for the poorer farmers, with the medium-scale farmers spending between Ksh.10,000 and 20,000 (\$142.9-285.7). The bigger farmers spent up to Ksh.50,000 (\$714.3). Zebu, Boran and Serhiwal crossbreeds had maintenance costs of between Ksh.5-10,000 (\$71.5-142.9), much lower than the pure exotic grade cows. Transportation of milk to market was usually done on foot (for the smaller farmers (1-5 cows). The medium-sized farmers (6-10 cows) used either bicycle or motor vehicle; and the bigger farmers (over 10 cows) used a motor vehicle. About 50% of the farmers reported using motorized transport due to large milk quantities or far away markets. Transportation costs ranged from Ksh.1,000 to Ksh.20,000 (\$14.3-285.7) per milking season, excluding other costs.

Most of the production costs of improved dairy farming were incurred on animal feeds and veterinary care. Due to rising costs of production, some farmers settled on cost-effective alternatives. For instance, alternative animal feeds included acacia nuts that

were purchased from people who collected and stored them for sale during the dry seasons. The nuts are rich in iron and other nutrients that boost milk production. Due to continued enclosure of private lands as individual tenure demands, the supply of acacia nuts was reported to be on the decline and not accessible to all as the free gifts of nature that they previously were. Instead, they were collected, packed in 50kg sacks and sold at Ksh.300 to the dairy farmers by those on whose land acacia trees grew, and who may not have had cows of their own. Other alternative animal feeds included sweet potato vines and wild fodder that grew along river banks, in swamps or on irrigated plots. The other feeds included Napier grass, Lucerne and harvested crops. As a result, some individuals had commercialized the growing of alternative animal feeds which they sold to the dairy farmers through formal as well as informal arrangements.

Improved dairy farming is a labour-intensive activity throughout the year. Recurrent costs were related to paying for labour and animal feeds while the least costs were encountered in transportation of milk to the markets. However, the dairy farmers made profits some of which were ploughed back into the enterprise through purchase of additional cows, animal feeds or to meet veterinary care costs. Most farmers spent an average of up to Ksh.10,000 per month on feeds and veterinary care per cow. Only a few large farmers spent in excess of Ksh.50,000 per month.

On average, one dairy cow would consume 25 bags of dairy meal a month; 21 bags of pollard; 10 bags of green maize syringe, straw or cabbage; and 20 bags of wheat bran. Going by these figures, the cost of feeding cow stood at Ksh.44,850 (\$640.7) a month excluding other items such as Napier grass and Lucerne. It is these costs that led to use of alternative feeds by a good proportion of the farmers. However, despite the seemingly high maintenance costs, dairy farming proved to be a profitable venture in Mbeere. As demonstrated in chapter seven, never in the history of traditional dairy farming in Mbeere did farmers earn so much money from milk.

Milk production varied with type of cow and feeding level. Although Jerseys are known to be the highest milk yielders among the improved breeds (District Dairy Board, 1997), it all depends on the health of the cow and availability of adequate quality feeds and

plenty of water. According to information received from veterinary officers, lactating cows may be divided into three categories i.e. high, medium and low yielders. Under optimal conditions, high yielders produce 30 litres per day on average and some may produce up to 40 litres; medium yielders on average produce 18-29 litres a day; and the low yielders produce below 18 litres. The non-lactating, pregnant and calving cows are referred to as “dry cows” with reference to milk production. This happens when there are 3 milking sessions a day with 8-hour intervals i.e. 10.00 AM, 6.00 PM and 3.00 AM. However, this is the ideal situation for the bigger dairy farmers in the more ideal conditions of AEZ 3 in Mbeere and similar parts of Embu, Meru, Central and Rift Valley Provinces. This promised good cash returns to the farmer, even when viewed against a background of soaring prices of conventional animal feeds.

The estimate costs for improved dairy farming showed that farmers spent more during the initial stages of buying cows and installation of basic facilities. Thereafter, the recurrent costs for improved dairy farming decreased until after the milking season for any given cow. The dairy farmers had their recurrent costs in fodder procurement, veterinary care, water, milking and transport. Transport costs were minimal for the smaller farmers who sent their children or farmhand to deliver the milk on foot or by bicycle to nearby tea kiosks, town hotels, shops, schools, and/or health facilities. The costs however increased among the larger farmers who used pick-up trucks.

Access to credit is known to be a significant factor in boosting production (Renkow, 2000; World Bank, 2007). Mobilization of credit covers initial capital deficiency but in the case of Mbeere, few dairy farmers appeared to have borrowed. Only 67% of the respondents reported having accessed some form of credit. The main sources of credit for the smaller dairy farmers were given as rotating savings and credit cooperatives (ROSCAs) mainly in the form of merry-go-rounds and SACCOs (Savings and Credit Cooperatives). The medium and large dairy farmers got their credit from the Agricultural Finance Corporation (AFC), Kenya Women Finance Trust (KWFT), Equity and K-REP Banks. The few farmers who were accessible to credit appeared to be the more educated, younger and ambitious individuals who had the resolve to take some risk. As such,

although 33% of the dairy farmers had not borrowed any loan, there was evidence of a growing rural capital market.

6.3.3 Milk Outputs and Markets

The production of any commodity with exchangeable value presupposes that there is someone who is in need of it and will buy it. In this respect, for a smallholder farmer to decide to begin producing milk from improved cows, there needs to be an end-consumer, trader or processor in the area whom the farmer knew will be willing to buy the products. This way, the farmer is an actor. On the other hand, for the trader or processor to register their presence in an area, they need to know that it will be profitable to do so. This means that they need to have information on actual or potential supply of the commodity they are seeking. This is a structure. Within such actor-structure relations, the larger farmers may innovate relative to smallholders by virtue of being able to control all or much of the supplies. In these relations, the supplier and trader and/or processor establish themselves as two independent but symbiotic innovators. Should the expected number of suppliers fail to deliver sufficient quantities of the relevant product or raw material, then the venture fails. This observation seems to exclude the smallholder improved dairy innovators in Mbeere who are the subject of this study. A majority of the dairy innovators were small farmers, which suggests that the structure among milk producers and buyers and/or processors was more flexible and friendlier to the actor(s) than that in fruit production. Such flexibility allowed for actors in the milk industry to produce and sell smaller quantities of the commodity (e.g. just a few litres from one cow) and increase the quantity sold over time with the purchase of more cows. However, IDFs have to wait for the cow to calve before they begin trading in milk.

The Mbeere milk chain was essentially local, being concentrated at local market centres and shops and local institutions such as schools, polytechnics and health facilities. In a few instances, the milk reached major urban centres (district and provincial towns) as it was supplied by the farmers living close by. In the 1990s, the bulk of the milk was sold to levels one and two markets with little reaching level three markets. However, by the mid-2000s, some value adding had made it possible for some farmers to penetrate levels four and five markets. A few of farmers were involved in the manufacture of yoghurt for local

supermarket chains and some finding its way to markets in Uganda, Tanzania and Rwanda (EAC market).

The rejuvenation of the Kenya Cooperative Creameries (KCC) by the government and the dominance of Brookside Milk (a private company) created incentives for farmers to save and purchase improved cows. In addition, the development of new rural towns, expansion or upgrading of existing ones to urban centres and rise in the number of public institutions such as schools, colleges, village polytechnics, and health centres tremendously increased the demand for milk. So did tea kiosks and hotels in both the urban and rural areas. The expansion of rural market and/or administrative centres such as Ishiara, Kanyuambora, Siakago, Gachoka and Kiritiri further boosted the demand for milk, more so because milk buying and/or processing depots were established in these towns. A breakdown of the sources of market information for IDFs is given in Table 6.10.

Table 610: Main Source of Market Information among Improved Dairy Farmers

Type of Market	Frequency	% of Total (N=100)
District Dairy Board and Local Market Centres	40	40.0
Social capital/networks	30	30.0
Middlemen/brokers	20	20.0
Newspapers, radio, tv, mobile telephone, trade fairs and exhibitions	5	5.0
Internet	5	5.0
Total	100	100.0

Source: Embu District Dairy Board and Individual Farmers.

The unprecedented rise in the number of milk dealers and middlemen in the area perhaps testifies to some of the desirable impacts of the market reforms one of which was better prices, due to buyer competition through which the producers benefited by selling to the highest bidder. Population growth and the creation of more administrative/political units also played a role in this budding milk market in Mbeere. Upgrading of some of these towns into District or Divisional headquarters saw the subsequent establishment of key government departments whose staffs became regular consumers of milk. However, the milk value chain remained largely localized, usually ending at the Divisional, District or Provincial Headquarters. It is therefore reasonable to conclude that market reforms

created opportunities for improved dairy farmers and other chain actors in Mbeere. They appear to have constituted an important push factor towards entrepreneurship by sharpening some of the actors' personal characteristics such as perceptiveness and alertness to profit opportunities and strengthened their resolve to mobilize other resources in the exploitation of these opportunities. As a result, milk production and sales shot up with the proportion of farmers producing 10,000 litres or more increasing from 15% in the mid-1990s to 35% by the mid-2000s (see Table 6.11).

Table 6.11: Average Monthly Milk Sales from Improved Cows, Mid-1990s and Mid-2000s.

Litres of Milk	% Mid-1990s (N=100)		% Mid-2000s (N=100)	
	Frequency	%	Frequency	%
450-10,000	85	85.0	65	65.0
10,001-20,000	15	15.0	25	25.0
20,001-30,000	-	-	10	10.0
Total	100	100		

Source: District Dairy Board, 2007.

6.3.4 Role of Middlemen in Milk Trade

The milk trade in Mbeere has been without middlemen for a long time. The Kenya Cooperative Creameries (KCC) has been the monopoly state corporation in milk processing and distribution in Kenya since independence. Its life, collapse and resuscitation by the state largely precluded the role of middlemen. In addition, the structure of the milk trade in Mbeere has enabled the producers to interact directly with the buyers in the form of end-consumers. This has also largely negated the role of middlemen. This notwithstanding, the Mbeere milk chain was largely local with little finding its way into international markets. However, recently, Brookside Milk has been playing a "middleman" role in its endeavor to become sole buyer in the milk industry. After 2007, Brookside and other private entrepreneurs had established a few milk-buying depots in Mbeere some of which had become major milk buyers. Some of these had also set up various milk-cooling and fermentation plants and were selling fermented milk (locally known as *maziwa lala*) to the public. These not only created employment but were also sources of income for many people. The farmers were the biggest beneficiaries as the activity transformed them from poor peasants to rich farmers.

6.3.5 Farm-Nonfarm Linkages for IDF

The study noted several non-farm linkages that the dairy enterprise had forged in Mbeere. Four of these linkages may be isolated. The first was the collection and sale of acacia nuts during the dry seasons. As already noted, the nuts are rich in vitamins which boost milk production. Acacia trees are common throughout Mbeere but are not found on every farm. As such, the nuts are traded between those on whose farms they grow and the dairy farmers. This has necessitated the growth of a thriving animal feed transportation industry as evidenced by the large number of *mikokoteni* (hand and/or ox/donkey-drawn carts) seen delivering the merchandise on a daily basis to the dairy farmers' homes. In other cases, dairy farmers leased pasture or abandoned farms (usually after harvest) to the dairy farmers for a fee per season. This was a knock-on effect or farm-nonfarm linkage spurred by improved dairy farming and which has had positive implications for poverty reduction.

Second was the purchase and use of pick-up trucks to transport both animal feeds. The trucks also supplied water to the farmers living far from watering points. Thirdly, a crucial linkage was created between the dairy farmers and sellers of conventional animal feeds as evidenced by the many dealers' stores or shops that emerged throughout Mbeere in the 2000s. Other stores were found selling veterinary inputs (drugs, milking apparatus, shovels, wheelbarrows, jugs, etc.). Fourth and finally, the construction of cow-sheds and other zero-grazing facilities boosted micro, small and medium enterprises operated by carpenters, timber sellers and stockists of hardware such as corrugated iron sheets, wire mesh, cement, and water tanks. Water drillers such as Davis and Shirliff also got looped into the dairy farming enterprise by being contracted by some farmers to drill bore holes for water.

6.4 Chapter Summary and Conclusions

The chapter has attempted to demonstrate how improved fruit and dairy farming as entrepreneurial innovations were transformed by innovative peasant farmers into household enterprises. It has focused on five key areas in which each innovation was grown into an enterprise. These areas are: land investments; financial investments and recurrent costs; output, markets and returns; role of middlemen (where applicable); and farm-nonfarm linkages. The findings here demonstrate that first, when an innovation is

entrepreneurship-driven, it is likely to contribute to poverty reduction and wealth creation, which in turn impact positively on household wellbeing. Second, when an innovation grows into an enterprise, it creates employment opportunities not only for members of the innovating households but also for those in the larger locality. Third, it is only those innovators who foresaw income or profit opportunities in their innovations and deliberately invested resources in them that succeeded in growing their innovations into enterprises. In Schumpeter's words, these were the entrepreneurs who creatively destroyed the tradition of peasant farming and embraced entrepreneurship thereby realizing higher levels of development for their households and society in general. This is how the improved fruit and dairy farmers of Mbeere have been the architects and/or prime movers of peasant transformation. Fourth, improved fruit and dairy farming significantly transformed peasant agriculture in Mbeere from the 1990s onwards. The peasants who were involved in either case showed courage, determination, confidence, resoluteness and singular business mind as individual farmer innovators who broke ranks with tradition and custom and took the risk associated with either new venture. Fifth, the farmers involved in the introduction of the two innovations were motivated by the desire to improve the quality of their lives through not only farming but also by doing farming in a different way. As such, the activities brought a new dimension to peasant economics and belief systems. Sixth, they had the promise of creating employment opportunities for the local people besides forming a basis for class formation. Finally, the farmers succeeded by devoting capital investments (land, finances and labour) to this entrepreneurial innovation but fruit farming tended to have less recurrent costs relative to dairy farming. This suggests that improved dairy farming was the more viable poverty alleviation tool for the poorer households. The next chapter demonstrates the impacts of each of these two activities on household incomes leading to poverty reduction; employment creation; infrastructure development; social change; and development. In other words, the impact of agricultural entrepreneurship on peasant transformation in Mbeere is discussed in the next two chapters (seven and eight).

CHAPTER SEVEN

FROM HOUSEHOLD ENTERPRISE TO HOUSEHOLD TRANSFORMATION: INCOMES, POVERTY REDUCTION, WEALTH AND EMPLOYMENT CREATION

7.1 Introduction

The discussion in chapter five showed the historical, policy and institutional contexts in which the two innovations were introduced in Mbeere. Chapter six shows how each of these was transformed into an enterprise with implications for peasant transformation. For each of the innovations, it is apparent that the farmer innovators concerned clearly perceived their income-generating potential and deliberately went ahead to mobilize the necessary resources to realize this potential. The resources deployed in new ways included land, finances, labour (physical, education and skills) and information. As such, there is evidence that Schumpeter's new combinations in resource mobilization were undertaken. In particular, efforts to introduce new goods, new methods of production; discover and penetrate new markets; discover and use new sources of raw material, and employ new managerial skills (in land, financial and other investments) were made. This means that the secondary innovations accompanying each primary innovation were henceforth entrepreneurship-driven. This was made possible by personal dexterity, ingenuity, courage/boldness, determination, confidence, foresight, resoluteness and singular business mind as individual farmer innovators broke ranks with tradition and shouldered the associated risks. The two innovations were now being run as enterprises and broadly speaking, agriculture in Mbeere had begun to be practiced as a business. As enterprises, therefore, each of the two had the potential to effect peasant transformation. One farmer narrated the difficulties at start:

I made up my mind to venture into dairy farming after learning from several farmers' field days I had attended that it was a rewarding venture...I defied public opinion and went ahead and sold my traditional cows and goats. I got Ksh.700,000 from which I used Ksh. 150,000 to buy three Freisian cows from a farmer in Embu.....Due to the problem of water that we have here in Mbeere, I used what was left to dig a borehole, buy and install a water tank, build cow sheds and plant fodder. The three cows have since multiplied to over 30. I was armed with confidence and luck.....when my neighbours' traditional cows were ravaged by drought. My dairy farm has now been valued at Ksh.10 million and with the market for milk expanding every day, the sky is the limit. Each cow produces an average of 40 litres a day which I sell at Ksh.60 a litre.... The traditional cows I kept before used to produce only 2 litres per cow per day....I keep records for all transactions on a daily basis... I am happy I did not stick with the traditional animals.

The theoretical basis of this study holds that when peasant agriculture is replaced by entrepreneurial agriculture, the peasants undergo transformation. The transformation happens at the household (micro) and locality (macro) levels. This chapter demonstrates that when peasants become entrepreneurs or agrarian capitalists, several transformative things happen at the household level: originally poor households create incomes and wealth leading to poverty reduction and improved wellbeing; they change from deprived citizens to wealth accumulators with a different social status; from victims of social egalitarianism to profit-minded individuals; and from political objects to active political actors. At the macro level, the peasants change from labour sellers to labour employers or employment creators; infrastructure development takes place in form of increased access to social overhead capital; and many other businesses are stimulated through farm-nonfarm linkages. These are all areas of the peasant transformation or social change and development which this study is all about. Discarding tradition to venture into something new or unknown and full of risks is not easy as one farmer narrated:

...It takes a bold heart to discard what one has believed in for years. I pity my friends and neighbours who still keep traditional animals under the free range system yet they are not getting much and the land area for free range grazing is fast diminishing.....this sentimental attachment to traditional animals is not good for anybody.....It is hard to continue keeping such large numbers of animals as the land is becoming smaller and drought has become common....during times of severe drought, my friends lose almost all of their traditional animals but mine are safe and well nourished.....When I was starting, I didn't imagine that I would rise to become one of the most successful dairy farmers in Mbeere with several millions in the bank.....I visit the KARI station in Embu regularly for farming lessons and never miss farmers' field days where I meet experts who I ask questions about my improved dairy cows...

The chapter therefore analyzes data covering the 200 improved fruit and dairy farmers and as such, the percentages given are out of 200. The findings reported in this chapter are in response to the third research question and third hypothesis on how each of the entrepreneurial innovations impacted on household incomes, wellbeing, poverty reduction and wealth and employment creation.

7.2 Improved Household Incomes and Wellbeing

In the previous chapter, it is indicated that farm-gate prices for mango piece varied from Ksh.10.00 (\$0.15) during the 1990s to Ksh.20.00 (\$0.29) during the 2000s. A standard mango piece weighs 500-650g (2 pieces per kg) and retail prices oscillated between

Ksh.30-40.00 per kilogram. As indicated above, seasonal per tree mango yields averaged 20 kg and with 500 trees per hectare, this would give the farmer an average of 10,000 kg (10 tons) per hectare. With a price of Ksh.20.00 per kg, this translates to Ksh.400.00 per tree and Ksh.200,000 (\$2,857.14) per crop season in net profits. The few farmers with up to 10 hectares earned about Ksh.2 million (\$28,571.43) per mango season.

During the mid-1990s, output of improved fruit expanded. Those selling up to 2,000 kg were 85% while 9% sold up to 4,000kg; 4% up to 6,000kg and 2% up to 8,000kg per season. Production increased such that by the mid-2000s, 10% of the farmers were selling 8,000-10,000kg per season with some exceeding the 10,000 kg mark. About 4% were selling over 20,000 kg per crop season (refer to Table 6.4 in chapter six).

Income levels during a previous 2-year period indicated that although production costs may have been high, the farmers received appreciable incomes from the sale of improved mangoes. These ranged from around Ksh.20,000 in 1997 to over Ksh.1 million by 2007 and 2 million by 2014. Going by the production/sales figures in Table 7.1, and depending on the production costs, the majority (70%) reported generating incomes of up to Ksh.250,000 per crop season in the mid-2000s. About 15% of the farmers were earning between a half million and 2 million (and above) by 2014. According to some farmers' accounts, this signaled increased and sustained incomes which consequently reduced poverty at the household level. Comparatively, this was good news because these farmers were poor peasants a few years previously. It was a clear indication that agricultural entrepreneurship through improved fruit farming had succeeded in creating at least 15 millionaires out of poor peasant farmers in Mbeere by 2014.

Table 7 1: Average Seasonal Household Incomes from Improved Fruit Sales, 2007-2014

Incomes (Ksh.)	Number of Farmers	% (N=100)
0-250,000	70	70.0
250,001-500,000	15	15.0
500,001-750,000	11	11.0
750,001- 2,000,000	4	4.0
TOTAL	100	100.0

Source: Farmer Interviews, 2007; 2014.

Supportive data from the Kenya Agricultural Productivity and Agribusiness Project (KAPAP, 2013) indicated that 1,400 improved mango farmers in Embu and Mbeere districts earned Ksh.58 million in the 2012/13 crop year, up from Ksh.28 million in 2010/2011. The figures show an average earning of Ksh.41,000 per farmer per mango season and more than 100% increase in earnings in three years. This was realized from 1,700 hectares planted with improved mangoes. KAPAP bypasses middlemen, sets up prices and seeks new markets abroad. This provides a good incentive to the mango farmers. The income-enhancing quality of improved fruit farming was captured by a farmer thus:

Initially, I used to grow millet, sorghum and green grams. None of these ever gave me more than Ksh.30,000 in any one season. When I shifted to improved mangoes, the difference in income was obvious. Mango farming is clearly a profitable investment. For the last five years, I have been getting an average of Ksh.750,000 in net profit every mango season. With this money, I have educated all my six children, four of them up to university. I have also used some of the proceeds to pay for a medical life insurance cover for myself and my wife. Besides, I have bought a pick-up truck and a personal car. This stone house you see here where I live also came from mangoes. In simple terms, the mangoes have chased away the poverty that used to characterize my family and today, I am in a comfortable income status.

Improved dairy farming, though associated with higher per unit recurrent costs, appeared to have greater implications for poverty reduction for the poorer households. This was evident in female-headed households where ownership of only one dairy cow made all the difference in basic needs and wellbeing of the households. A single mother owning only one dairy cow could, for instance, educate her children, and provide food every day. A good illustration is the case of one female farmer from Evurori Division whose husband had died many years earlier and left her with 8 children to fend for alone. Four of these children were in secondary school and four in primary. Luckily, he had left behind one dairy cow (with a female calf) whose milk was fetching an estimated net profit of Ksh.9,000 per month. When the calf matured and began producing milk, the widow started earning a net profit of about Ksh.18,000 per month. With this, she was able to educate all her children through secondary school until some were employed. They then started remitting to her some money for family upkeep. Others joined university education.

Zero-grazing is a new land management practice that optimizes any available space unless the farmer wishes to diversify the mode of feeding through additional free-range

grazing. However, as explained in chapter four, population growth and individualized land tenure with enclosure had reduced free range grazing and zero grazing had become a widely accepted practice. Though it increasingly appears that improved dairy farming may be the more preferred and feasible means of poverty reduction, there are fewer chances of having farmers with hundreds of dairy cows. Instead, the situation unfolding in many parts of Mbeere is that of having hundreds of dairy farmers with each having just one cow or slightly more. What is clear is that although few farmers keep traditional cattle, these are on their way to extinction mainly through sales for school fees, disease, and the fact that the die-hard traditional peasant farmer is also getting slowly but surely phased out of history. This is a clear case of peasant transformation.

The figures in Table 7.2 suggest that despite the seemingly high recurrent costs, improved dairy farming had good cash returns by the mid-2000s as per cow net profits ranged from Ksh. 22,500 for low yielders per month to Ksh.52,500 per month for the high yielder cows

Table 7 2: Incomes from Improved Dairy Farming by Enterprise Size (Ksh.)

Period	Net Profit Per Cow (Ksh.)		
	Low Yielders (Less than 18 litres a day)	Medium Yielders (18-29 litres a day)	Large Yielders (30-40 litres a day)
Mid-1990s	9,000*	14,400	21,000
Mid-2000s	22,500	35,250	52,500

**The price of milk in the mid-1990s was Ksh.20 per litre and the calculation has been done for the average recorded production of 15 litres a day or 450 litres a month for one low-yielder cow. In the mid-2000s, the price of milk had risen to Ksh.50 per litre. For the second column, calculations are based on an average of 23.5 litres a day and in the third column, the calculation is based on an average of 35 litres a day.*

Source: Field Data, 2007, and Embu District Dairy Board.

The benefits of improved dairy farming in terms of increased household incomes have become clearer with time. While the recurrent costs in a typical milking season ranged from below Ksh.10,000 for the small farmers to about Ksh.50,000 or more for the medium and big farmers in the 1990s, these had increased tremendously by the mid and late-2000s. Farmers with only one improved cow earned net profits of about Ksh.9, 000 per month. However, going by the statistics in Table 7.3, it is evident that at least 5% of the improved dairy farmers in Mbeere were earning incomes of close to Ksh. 1 million or over by the late-2000s in one milking cycle (4-5 months). This means that agricultural entrepreneurship had contributed to the creation of at least 5 millionaires in Mbeere by

2007. These had risen to about 10 by 2014. At the lower end, about 70% of the dairy farmers were earning incomes of up to Ksh.250,000 per milking season from all cows. It is therefore reasonable to suggest that improved dairy farming is a viable and feasible poverty reduction activity among the poorer households. It does this by roping in more of the poorer peasant farmers especially women. All the farmers interviewed agreed that there had been a marked increase in the incomes accruing from milk sales in the 2000s as compared to the 1990s. This had more to do with improved husbandry methods despite rising costs of animal feeds and other inputs.

Table 7 3: Incomes from Improved Dairy Farming by Enterprise Size (Ksh.)

Incomes (Ksh.)	Frequency	% (N=100)
0-250,000	75	75.0
250,001-500,000	10	10.0
500,001-750,000	10	10.0
750,001- over 1,000,000	5	5.0
TOTAL	100	100.0

Source: Farmer Interviews, 2007.

7.3 Poverty Reduction

The discussion in chapters one and two observed that poverty is a situation of deprivation, especially of incomes and assets; inability to meet some basic needs; and stunted capabilities due to inability to afford education and health. It also involves lack of information and poor infrastructure. Poverty reduction, therefore, is the process of meeting basic and secondary needs (food, shelter, clothing, education and medical care). Viewed this way, poverty reduction is related to the ability of an individual to reverse the situation of deprivation and/or destitution, exclusion and want through wealth creation and accumulation. It is also synonymous with improved quality of life, wellbeing, and ability to participate more meaningfully in public life. With regard to the farmer innovators, the findings reveal that entrepreneurship transformed new farming ideas into assets which helped reduce household poverty. The innovators were responsible for radical changes in land use and an overhaul of the cultural orientations that sustained subsistence-based peasant farming.

A point to emphasize is that poverty reduction happened through wealth creation among these households. It happened through a combination of the following: higher or

more stable household incomes; increased household wellbeing and asset acquisition; accumulation at the household level; employment creation; and infrastructural growth. Wealth creation, nonetheless, is about increased investment in non-farm activities especially those related to agriculture. A closer look at the reasons advanced for trying the new idea reveals that majority of the 200 innovators had a clear reason for trying the idea which was to improve the quality of their lives by generating income and fighting poverty. As mentioned earlier, the innovators began operating at a time when the extension service was on the decline, courtesy of the SAPs. The decision to do farming as a business was something out of the ordinary, a rebellion against the subsistence tradition of peasants.

Innovation may be accidental but entrepreneurship is not. This finding indicates that improved fruit and dairy farming in Mbeere were not accidental but deliberate. They were preceded by careful thought, deliberation and soul-searching. Over 80% of the innovators reported that they had decided to try the new idea to generate income in order to improve their lives and those of other members of their households. This is an important finding because the innovation was consciously executed with the clear purpose of improving household wellbeing. The innovators were clearly guided, propelled and urged on by the entrepreneurial spirit.

Poverty emerged as one of the greatest push factors towards the adoption of improved fruit or dairy farming. When asked to state why they had chosen to engage in the activity, over 90% of the respondents cited the “desire for better incomes”; “desire for stable incomes”; or simply “desire to escape from poverty”. While other reasons for engaging in either activity were given, e.g. peer pressure, individual interest, and lack of formal employment, the need to escape from poverty topped the list as the main driving force, motivation or push factor into entrepreneurial behaviour. There was a close association between improved fruit or dairy farming and the assets or wealth acquired with the help of farm-generated profits. This finding complements the one where farmers reported improved household incomes and others who reported that they were *better off* than they were before they engaged in the farming activity in question. Improved food security; increased ability to pay school fees and buy uniforms for children; improved ability to

meet medical care for self and family members; improved shelter, and ability to acquire and expand household asset portfolios, were among the several positive results mentioned.

Except for land and livestock, few of the innovators owned capital assets such as motor vehicle, real estate, solar panel, radio, television set, gas cooker, mobile telephone etc., before engaging in either activity. When asked what assets they had acquired with the incomes from the activity, one encounters an impressive list of capital goods acquired by the farmers using farm profits or incomes. These included fixed capital such as land, livestock, real estate or rental houses, motor vehicle and/or motor cycle. Other farmers reported improving their shelter by building a permanent residential house and equipping it with modern appliances. Other assets acquired with farm incomes included capital items such as ox-drawn plough, water pump, wheelbarrow, knap sack, ox/donkey-cart, sprayer pump, chaff cutter, water tank, television set, solar battery/panel, modern utensils, gas cooker, and *posho* mill. It is noteworthy that all the innovators had mobile phones at the time of the second interview in 2007. Others had reinvested part of their profits in starting up new businesses or boosting existing ones. The list of capital assets acquired in the course of running the enterprise indicated several items: fruit farmers indicated items such as sprayer pump, knapsack, hoe, and water tank, while dairy farmers mentioned milking can, chaff cutter, manger and water tank. Items common to both types of farmer included bicycle, ox-cart, wheelbarrow and mobile phone. Some of these were reportedly acquired as prerequisites for running the activity while others were accessed with farm incomes or profits. One farmer summarized this aspect of poverty reduction:

The income from improved fruit farming has done many things for me. Twenty years ago, my household smelt of poverty. There were wooden implements all over the compound. I could not even afford a bicycle. Today, courtesy of the money from mangoes, I am the proud owner of this beautiful home, two rental flats, a water pump, a bus and a lorry. I also have a personal car and my wife has her own car. In the compound, you can see a wheelbarrow, a knap sack, a sprayer pump, a 20,000-gallon water tank. This is not to mention things like television set, and modern kitchen equipment. As you can see, we are connected to power from the national grid and we have water all year round. This would not have been possible without mangoes.

As mentioned earlier, milk was not the item for free gifts. Milk farmers recognized its market value quite early. Data for this study show that by 2007, about 75% of the milk

produced was sold; about 20% was consumed at home; and only 5% was given out as compliments. In traditional Mbeere society, complimentary services served to build or strengthen social capital as beneficiaries were expected to reciprocate one time. As the need for cash increased, home consumption of the commodity decreased and complimentary services disappeared altogether. The mushrooming of tea 'kiosks', canteens, and local restaurants in urban and rural Mbeere provided a ready market for milk. Though the market was extensive, it required small amounts at a time, usually in the mornings and evenings when tea is usually in higher demand. In the formative years, value-adding to milk was minimal or non-existent and the furthest it went was natural home fermentation. Fermented milk, however, had a rather limited market.

In the 1990s, the commodity chain for milk therefore remained essentially local among the dairy innovators. Basically, milk market niches were confined to two out of the five market levels i.e. local market centres and shops; and local institutions such as schools, polytechnics and health centres. This is because the first level, "middlemen", was not applicable by then. Equally not applicable were levels 4 (major urban centres) and 5 (international) markets. Thus, the Mbeere milk chain was rather short, being a farmer/producer-consumer transaction in most cases. Commercial urban-based fermentation into *maziwa lala/mala* (sour milk), however, began to pick up from the late-1990s as evidenced by the rising number of sour milk micro-enterprises in the major district and provincial towns. Fresh milk depots for cooling and preservation were few and far between so the bulk of the trade dealt in fresh milk. However, the situation had changed markedly by the mid-2000s when the market for milk products expanded to include international consumers from neighbouring countries after some farmers embarked on value adding to produce yoghurt and other products.

Since the mid-1990s, Mbeere District has witnessed an increasingly changing socio-economic landscape. To complement what David Brokensha called "changing rural ecology" (Brokensha, 1988), there have been changing land use patterns due to intensive farming and increasing agro-forestry practices against a backdrop of improved fruit and dairy farming. New land use patterns have emerged with increasing capitalization for fruits and a switch from free range to zero-grazing due to population pressure and

increasing land scarcity. In the 2000s, it was no longer the size of the land one owned that mattered but rather the personal dexterity and foresight of the individual to use innovation as a stepping stone into entrepreneurship. According to some of the farmers, it all seemed to start with a “desire for better or more stable incomes”. In pursuit of this objective, the innovators appeared to have laid a sound foundation for entrepreneurship in improved fruit and dairy farming.

It is notable that the peasants who became entrepreneurs are largely self-made people with ruthless ambition, a winning mentality and a vision that surpasses one’s own time. They were relentless in their pursuit of opportunities and their conversion into profit through creative resource mobilization. Most of the opportunities they pursued and exploited had potential for effecting change and were therefore associated with leap-frogging. The findings clearly show that successful entrepreneurs were those with the “right idea”, did not quit and ended up creating business out of innovation by turning problems into opportunities. This was corroborated by the following words from one respondent:

I started growing improved mangoes in the early 1990s. Initially, I planted two seeds which germinated after the rains. After two years, they produced few but huge fruits with higher juice content than the traditional mangoes. My children ate a few but I sold the others. The price of one was twice that of several traditional mangoes, which were sold in heaps of up to 10 pieces. The little money I got gave me faith and courage to abandon the traditional varieties. The following season I visited the local agricultural research station where I bought 20 seedlings of grafted Apple Mango variety. The results were amazing. Although I rely on the rains, I have been adding at least 100 seedlings every year. Today, I have 1,000 mature trees of improved mango. Each mature tree yields an average of 30kg so I sell about 30 tons per season. With the price of improved mangoes at Ksh.40.00 per kilo, I get about Ksh. 1.2 million per season. Initially I was poor but such money has done many things for me and changed the status of my household in various ways. My family has no problem with food, school fees, medical bills and other necessities. I have bought a fleet of vehicles, livestock and developed my plots at the local market here and in Embu town. Among the first people any new administrator is introduced to, is me, and the politicians are my good friends. Recently, I led a delegation to the local MP and we discussed our mango cooperative, possibilities of setting up a juice processing plant here, the need to improve our roads and how to firm our grip on overseas markets.

The sentiments expressed by the above farmer bring out key issues of social change and development. First, the improved mangoes offered irresistible incentives over the traditional varieties in the form of higher yields and prices. Such incentives made the innovators to completely abandon the traditional varieties and farming practices and

embrace the new ones. Second, the profits earned fueled the need to expand the enterprises leading to increased production; Third, the entrepreneurs became rich or wealthy individuals with ability to access adequate quality food for their families at all times; afford decent shelter and clothing; pay for the education of their children, and meet medical bills. Fourth, sustained wealth creation and accumulation has elevated them to a higher social status and may have joined one of the middle classes. The elevated status has helped them acquire political importance in Mbeere society. Fifth and finally, after converting to entrepreneurs, the farmers became proactive in the search for information on new farming methods and new markets. Their activities stimulated non-farm businesses some of which they owned; and contributed to infrastructure development in the form of improved roads and a possible juice processing plant.

The findings show that over 80% of the improved fruit and dairy farmers were able to pay school fees for their children. They were able to retain their children and other dependants in school for longer periods of time. On the ability to meet medical bills, 70% of the innovators reported increased capacity in this respect which implied higher capability in health. This in turn facilitated the performance of other functions that mitigated poverty. Observation during the interviews revealed that a greater proportion (85%) of the households belonging to the entrepreneurs had better shelter. Their housing comprised mainly permanent houses (stone or brick walls and iron or tile roofs) and the accompanying infrastructures as compared to those belonging to the farmers who stuck to traditional farming methods and practices. The latter continued to live in wooden mud-walled houses though some could afford corrugated iron roofs. Socially, the families of the entrepreneurs were respected as their homesteads stood out among the rest in the village. Comparatively, attractive, modern homesteads in the district initially belonged to senior civil servants, company executives and business people. However, activities of the few farmers who adopted agricultural entrepreneurial activities changed the landscape. These farmers have modern houses and enjoy general wellbeing. One farmer qualified this by stating the following:

I will never go back to traditional cows because doing so would mean going back to poverty. Since I started improved dairy farming, things have changed for the better. The money I get from milk has helped me build a modern home, install solar panels and buy a generator, so my house is lit all the time. I am a rich man now and my neighbours

know it. I am liquid most of the time and people come to borrow money from me because they call me “sonko” which means rich man. My family is comfortable and respected in the neighbourhood.

Food security is a major aspect of poverty reduction. The findings show this to have changed especially for the farmers who were entrepreneurs. About 92% of the households engaged in entrepreneurial farming reported increased capacities in affording or accessing adequate food throughout the year. While some produced their own food on their farms, others purchased it from the market. In particular, about 65% of the dairy farmers reported setting aside some milk for family consumption while the fruit farmers used part of their fruit incomes to meet household food requirements. Such households had also achieved higher nutritional standards by being accessible to a bigger variety of nutritionally valuable foods. A farmer gave the following response:

On my farm, I produce food for my family but the best thing to have happened in my life is that the money I get from milk is enough to buy whatever food my family desires from the market. For the last five years, I have been using part of the milk income to purchase two cows per year. Today, I have fifteen improved cows which give me good money. I am experiencing a new lease of life after kicking poverty out of my life. My family and I are now well respected in this area especially because they know how poor we were before adopting improved dairy farming. I would strongly encourage poor people to try this activity because it surely is an escape route out of poverty.

Donkeys are a recent phenomenon in Mbeere but with the coming of age of fruit and dairy farming enterprises, their numbers shot up dramatically in the 10-year period between 1997 and 2007. The same applies to donkey/ox-drawn carts and the hand-pushed *mikokoteni* (carts). Besides transporting the produce (both fruit and milk), these had become important items for ferrying animal feeds and water between sellers and buyers. In other words, the growth of improved fruit and dairy farming into enterprises increased the use of these carts thereby providing income opportunities for other people. These developments testify to the fact that the two types of enterprise created farm-nonfarm linkages and helped establish networks with other enterprises critical in the further growth and profitability of fruit and dairy farming in Mbeere. Such growth and profitability had helped to cut back on the incidence of poverty.

Over 80% of the innovators reported that their activity had improved their incomes, enabled them acquire valuable capital assets and made them more visible and

creditworthy to financial institutions. Overall, both improved fruit and dairy farmers reported improved household wellbeing to the extent that they were better off than they were before they got involved in the respective activities. One farmer said as follows:

When I was poor, no bank would listen to me. The assets I have acquired with improved fruit incomes currently range from modern farm implements to real estate. After struggling alone so much and becoming the wealthy farmer I am today, every financial institution now wants to give me a loan. They even call me on the phone”.

Thus, in as far as personal characteristics are concerned, the innovators must be credited with a rare drive and resolve to achieve economic emancipation which is directly tied to improved quality of life. This is how Kirzner (1980) saw entrepreneurs as the “prime movers of progress”.

In the absence of precise measurements of poverty reduction, respondents were asked to indicate which aspects of poverty reduction had been addressed by their respective entrepreneurial innovations. Theoretically, the study treats the following as aspects of poverty reduction: increased household incomes or cash reserves; increased ability to meet food, shelter, clothing, education and medical care; increased household asset base; increased knowledge and skills; and finally, increased household capital goods or assets. These were identified as some of the incidences of poverty reduction and are summarized in Table 7.4.

Table 7 4: Aspects of Poverty Reduction among the Farmer Innovators

Item/Aspect	Frequency	% of Households (N=200)*
Increased farming knowledge and skills	200	100.0
Increased capacity to meet food, clothing, education, and medical care	180	90.0
Improved shelter	174	87.0
Increased household incomes or cash reserves	150	75.0
Household capital goods/assets	140	70.0

** The column percentages do not total to 100 due to multiple entries.*

Source: Field Survey, 2014.

The findings tend to suggest that the quality of life had changed for the better as 87% of the 200 respondents reported they were better off with a fundamentally changed status

quo; 6% had remained the same, and 7% were worse off. The findings reveal, therefore, that after more than a decade of improved fruit and dairy farming in Mbeere, the benefits had begun to manifest themselves in various ways. The first to benefit were the households belonging to the innovators, an overwhelming majority of who reported qualitative changes in their lives, appreciable levels of household asset acquisition and wealth creation. Among the most frequently cited changes were increased and more stable household incomes that enabled easier access to food, shelter, clothing, education and medical care. It emerged that improved dairy farming may have changed the lives of more people for the better relative to fruit farming.

In the Mbeere economy, agricultural entrepreneurship has helped to foster change-inducing outcomes in several aspects. The increased household incomes had stimulated consumption of non-traditional or imported consumer goods. Their well finished stone-and-tile houses contained exotic Chinaware and expensive furniture. From observation, it was clear that the farmers and their families had changed consumption patterns in favour of exotic breakfasts and clothing. This means that rural households had become linked to international commodity chains. These households had adequate incomes to purchase the needed food items and had become regular customers at the local supermarkets. Part of the income from profits was consumed at home, saved, or used to expand the enterprise. When saving happened for a long time, it resulted in accumulation which amplified the pre-existing social cleavages or inequalities. Part of the proceeds was translated into capital assets such as land, livestock and mechanical tools. When an innovation became an enterprise, the innovating household became the nucleus around which many activities revolved. The environs benefited from employment creation and new opportunities for farm-related businesses. As nuclei of economic activity, these innovations increased accessibility to public goods mainly roads, water and electricity. All these translated into poverty reduction, wealth creation, improved living standards, and new relations of production.

As such, agricultural entrepreneurship raised the wellbeing of the innovating households and those in the immediate neighborhoods. Tangible aspects of increased household wellbeing included stabilized household income regimes, household asset acquisition,

and increased ability to develop capabilities through affording school fees and medical care; clothing and food security. In summary, agricultural entrepreneurship contributed to poverty reduction in many ways: acquisition and accumulation of incomes and capital assets; facilitating access to public goods such as water and electricity; employment creation; stimulating better infrastructure; and ability to spur growth of other enterprises through the forging of forward and backward linkages.

7.4 Wealth and Employment Creation

The following two subsections discuss the achievements of agricultural entrepreneurship in as far as wealth and employment creation are concerned, being two major aspects of peasant transformation.

7.4.1 Wealth Creation

The literature reviewed in chapter two showed that wealth creation and poverty reduction are closely related. Wealth consists in a wide array of merchandise comprising movable and immovable capital assets and/or properties. It also refers to ownership of cash incomes. Wealth creation therefore refers to engagement in activities that lead to acquisition, ownership and/or command of disposable capital assets and liquid cash. Wealth creation is a prerequisite of accumulation and also includes access to information, knowledge and skills or improved capabilities. Employment creation is part of wealth creation. In Mbeere, the benefits accruing to the innovating farm households began to be more visible in the 2000s especially with respect to capital asset acquisition and accumulation. When asked “what capital assets have you acquired with farm incomes in the previous 3 years”, respondents gave a long catalogue of items. These ranged from the more basic apparatus such as panga/machette, jembe/hoe, wheelbarrow, bicycle, radio, television set, gas cooker and cylinder and utensils, through intermediate items such as water pump, water tank and piped water, solar panel, ox/donkey cart, and motor cycle, to the more valuable assets such as permanent house (brick or stone), additional livestock especially dairy cows and goats, land, motor vehicle, and getting connected to water and electricity from the national grid. Clearly, therefore, adoption of agricultural entrepreneurship had enabled them to acquire assets that they did not have.

Capital asset build-up among the innovating farmers was gradual but assured. Some of the farmers reported that they had bought land to extend their farms or invest in real estate within and/or outside the district. The growing shortage of land in the district had compelled especially land prospectors among the innovators/entrepreneurs studied to look outside the district for answers. It was apparent that improved fruit and dairy farming were beneficial ventures in Mbeere especially with respect to wealth creation. One of the farmers noted thus:

I am one of the pioneering improved dairy farmers in Mbeere and I have been in the dairy farming industry for the last 17 years. People around here refer to me as “Gichoni wa Iria” meaning “Gichoni of the milk”. I started with 2 cows on experimental basis and I knew they could die any time because this is Mbeere. The initial years of the 1990s were tough and I lost 3 of my improved cows to tick-borne diseases. However, I replaced them with 1 Guernsey, 1 Jersey and 1 Friesian. I decided to do this to see which type was more resilient in this hostile climate. The Jersey appeared to do better than the other two and from that point I bought an additional 4 Jersey cows. Today and as you can see, I have over 20 improved cows. They are medium and high-yielders so each one gives me in the region of 30-40 litres a day. I get close to 1 million shillings per month from milk sales. I have employed 2 permanent workers and 1 casual worker to carry out the different duties related to my dairy farm. From the milk proceeds, I have bought 2 *matatus*, a lorry and a personal car for my family.

The farmer quoted above presents some valuable lessons which a farmer wishing to be entrepreneurs must internalize and put to practice. First is persistence and not giving up despite the obstacles in the way. Coping with obstacles creates resilience. Second is access to new information as key to enterprise growth. Third is access to new markets as an incentive to increased production. Finally is the lesson that when farmers become entrepreneurs, they cease to be labour sellers and become labour employers or employment creators.

As argued above, poverty reduction and wealth creation are not mutually exclusive. However, the latter takes place after the basic needs are met. Thus, wealth creation is here understood as going beyond meeting basic needs to include accumulation. To capture this, respondents were asked “in what ways do you think your entrepreneurial activity has led to wealth creation?” Specifically, the question looked at employment creation, cash reserves, capital assets, land and livestock acquisition, and real estate. The responses are indicated in Table 7.5.

Table 7 5: Aspects of Wealth Creation among the Farmer Innovators

Item/Aspect	Frequency (N=200)*	% of Households
Employment creation	200	100.0
Improved cash reserves/bank accounts	174	87.0
Capital assets (motor vehicles, machines, farm equipment)	132	66.0
Land and livestock acquisition	110	55.0
Real estate (rental properties)	100	50.0

*The column percentages do not total to 100 due to multiple entries.

Source: Field Survey, 2014.

Despite the high recurrent costs, part of the milk profits were reportedly used to buy household assets, put up more decent shelter or access water or electricity. Two dairy farmers present good examples of beneficiaries of improved dairy farming. Both were from Kanyuambora Location. One of them started selling milk using a bicycle. He saved some of the profits and after 3 years he purchased a pick-up truck. By 2007, he had bought a lorry and had put up a magnificent stone house initially with solar panels but was later connected to the national electricity grid. In addition, he had sunk a borehole to increase water supply to his homestead. The second farmer bought his first *matatu* (minibus) in 2004 and a second one in 2007. He bought both from the proceeds of his milk. He too had a permanent house with water and electricity. These and many others present good examples of wealth creation from the two agricultural entrepreneurial activities. During interviews, the two farmers conceded that dairy farming was their biggest income source and that others were insignificant. For this reason, they spent most of their time in this activity. The quotations below illustrate some of these issues and specifically how improved fruit and dairy farming improved their lives. They come from interviews with two farmers from Evurori and Gachoka and Evurori Divisions respectively. One of them underscored the value of new farm management practices or Schumpeter's new combinations in the following words:

Here on my farm, I showcase modern dairy farming methods and practices...feed store with hay, silage and Napier grass...the Napier grass occupies 3 acres of the farm...I also plant Lucerne...I engage experts at every stage...livestock experts have become my best friends and have been by my side in all my undertakings from designing the farm layout to milking and sale of milk.....Silage is made by mixing Napier grass with molasses and other food products...The Napier grass is shredded into smaller pieces and packed into polythene bags to ferment for 3 days.....I have bought a shredding machine...The animal feeds are quite expensive and that is why I have planted Napier grass and Lucerne but

cows cannot feed on those alone so I have to look for alternative raw materials such as wheat and barley straws, sweet potato vines from neighbouring farms and traditional creepers from the bush...there are also people who grow alternative fodder which they sell to us.....Getting the right staff to take care of the animals is also not easy... most of the ones I get for hiring do not have any knowledge of farming and I have to train them lest they mess up things...I have already employed 4 workers to carry out different tasks related to my dairy enterprise but I now intend to hire a farm manager for better yields and returns.....

The other farmer mentioned how he succeeded in his improved dairy farming enterprise and the benefits that he was enjoying.

I have set up a milk selling business in Embu town with branches in Kiritiri and Siakago markets...Gone are the days when cattle were kept for sentimental or ornamental reasons. Farmers must do the arithmetic and see what they get in the wrong run...

These sentiments were corroborated by another farmer Ishiara Location, a single mother with one dairy cow who remarked:

My husband died ten years ago and left me with six children to fend for. Without a reliable source of income, it was difficult to feed and educate the children. My husband's brother is a prominent improved dairy farmer here and I have always yearned to get even a fraction of the money he earns from dairy farming. When I approached him for advice on how to keep improved dairy cows, he dissuaded me citing the huge costs involved. I did not lose hope but pressed on. I was a member of a Women's SACCO or merry-go-round as we call it. When my turn came and I got money, I bought an improved calf. I reared it until it matured and after AI, it calved. I have been earning between Ksh.8,000-10,000 a month. This is the money I have used to feed, clothe and educate all my children. As we speak, two have graduated from universities and got employed; two have cleared Form Four and the remaining two are in secondary school. Since I cannot afford to maintain more than two improved cows at the same time, I have been selling its calves except this one you see here, which is also being milked. This cow is my husband.

This was in reference to the fact that milk income from her cow had enabled her to pay school fees and meet other basic household needs, the way her late husband would have been doing.

In summary, improved fruit and dairy farming will remain landmark agricultural innovations in the development history of Mbeere. Their conversion into profit-making agricultural enterprises has put real money into people's pockets than never before. Originally poor peasants have become rich and financially active and visible. Increased liquidity and capital assets have improved the entrepreneurs' social status and given them the power to influence their destinies. Proceeds from the two activities have changed the livelihoods of the farmers and reoriented them away from the traditional subsistence

mentality. The activities of these few individuals have fundamentally changed the Mbeere landscape in form of modern houses and access to water and electricity. It shows that the inculcation of market values and/or entrepreneurial mind-sets is related to poverty alleviation, wealth creation and general wellbeing.

7.4.2 Employment Creation

Improved fruit and dairy farmers seemed to rely on three main sources of labour: self, household members and hired workers. The richer farmers tended to rely more on hired permanent and casual labour. Overall, all the innovators had employed varying numbers of permanent and casual workers. In specific terms, by 2007, both enterprises had employed at least 1 permanent and 1 casual worker. Around this time, 90% of IDFs had employed 1-2 permanent workers compared to 25% of IFFs. At the same time, 10% of IDFs had hired 1-4 casual workers compared to 75% of the IFFs (see Table 7.6). For IFFs, the number of casual workers ranged from 1-9 depending on the season. Overall, those in improved dairying tended to sustain more permanent labour while those in fruit tended to employ more casual workers in any given crop season especially during the peak harvest period. In IFF, employment opportunities were created in the areas of land preparation, planting, grafting of seedlings, weeding, replacement of dried-up or damaged seedlings, spraying, general maintenance, harvesting, grading and packaging, and transportation to markets. In IDF, jobs were created in sourcing animal feeds and feeding the cows; watering the animals; sourcing for and assisting AI and veterinary service providers; milking; and transportation of the to market.

Table 7 6: Employment Creation by Improved Fruit and Dairy Farming Enterprises, 2007

Type of Enterprise	Jobs Created						TOTAL
	No. of People Employed on Permanent Basis	Frequency	%	No. of People Employed on Casual Basis	Frequency	%	
Improved Dairy Farming	1-2	90	90.0	1-4	10	10.0	100
Improved Fruit Farming	1-2	25	25.0	1-9	75	75.0	100
Total	-		-	-	-		200

Source: Field Survey, 2006/07.

However, dairy farming had a higher retention rate for permanent workers while fruit farming had a higher turnover rate for casual labour. This is because dairy farming has a prolonged or continuous demand for intensive labour throughout the year. In contrast, the demand for intensive labour in fruit farming is less prolonged and peaks only during harvesting periods. More importantly, the innovations had fostered farm-nonfarm linkages with rural-urban inter-business linkages and inter-sectoral resource transfers which in turn created further employment. For example, the fruit industry had made it possible for truck owners to hire out their vehicles to transport fruit to other local markets. Human or ox/donkey carts would be hired to transport the fruit from the farm to the local markets. Motor vehicle transport business in turn became a nursery from which motor vehicle repairers grew. They earned some income from repairing the trucks and pick-ups and making and repairing the *mikokoteni*, the hand carts.

The dairy industry had been responsible for a budding market for alternative fodder for dairy cows. The first source of such alternative fodder included farmers who harvested and sold dry harvested crops to the dairy farmers. A second group of farmers deliberately grew Napier grass and wild creepers which they sold to the dairy farmers. A third source involved farmers who collected wild acacia nuts (from the species *Acacia tortilis*), packed it in 50-kg bags and sold it to the dairy farmers at between Ksh.200-300 per bag). Truck and mikokoteni owners were also hired to transport conventional hay as well as the alternative feeds to those who needed them and got paid for it. At a more conventional level, farm input stockists usually located in market centres, supplied the farmers with the needed items such as machetes, wheelbarrows, fertilizers, animal feeds and drugs. The few tractor owners reported being overstretched during farm preparation seasons when the demand rose. Those unable to afford or access tractors went for ox-drawn ploughs which were also reported to be in high demand during the ploughing periods.

Peak periods of labour demand varied with enterprise. For fruit farmers, it was during farm preparation, seedling transplantation and grafting, spraying, harvesting and transportation to market. In contrast, dairy farming is characterized by intensive labour especially in the forms of watering and feeding the animals adequately on a daily basis up to calving; milking, and transportation of the milk to the market. The incomes, wealth

and job creation resulting from determination and foresight are summarized by one farmer as follows:

I am one of the pioneering improved fruit farmers in Mbeere. I have been in the fruit farming industry for the last 20 years. People around here refer to me as “Njue wa Maembe” meaning “Njue of the mangoes”. I started with less than 100 improved trees. Although I was not sure of success in the initial stages, I gained confidence after my first harvest. Some of the trees died due to drought conditions and pests but I increased the acreage from the mid-1990s because I could see some promise in terms of returns. Today, I have 8 hectares under improved mangoes. I get around Ksh.2-3 million per year from mangoes alone. I have employed 2 permanent workers and 5 casual workers to carry out different duties related to my dairy farm. From the proceeds, I have bought a personal car, a pick-up truck and a *matatu*. The latter two are for my other businesses.

Innovation is a double-edged phenomenon. While some innovations may create employment, others may necessitate the laying off of some workers. For instance, the introduction of tractor ploughing by IFFs reduced the demand for ox-drawn ploughing. Similarly, the introduction of weed killers reduced the demand for manual weeding. In dairy farming, the use of trucks for milk transportation reduced the need for foot and bicycle transporters.

This replacement of an older innovation by a newer one is central in Schumpeter’s new combinations. The introduction of new, more efficient technologies to replace older, less efficient ones is also prominent in Schumpeter’s creative destruction of tradition or disturbance of an existing equilibrium and restoration of a new equilibrium at a higher level of development. The study thus provides evidence to the effect that quite a good number of the innovators exhibited unusual dynamism in introducing or embracing new technologies.

The dynamism associated with the innovators was evident in the manner in which they carried out new combinations of the productive forces representing new ancillary innovations pertinent to each of the two primary innovations. As a result, the improved dairy farmers reported healthier animals and more milk. On the other hand, the fruit farmers reported increased soil fertility and retention of moisture content leading to higher yields. Other benefits included improved efficiency in production, marketing and delivery; increased incomes; household food and diet improvement; employment creation; and availability of manure from the dairy cows with a potential for biogas

production, among others. Featuring prominently among the benefits mentioned was increased household incomes, a fact which reinforces the main argument of this thesis that agricultural entrepreneurship has had a positive welfare effect at both the household and macro levels, with reduced poverty and enhanced wealth creation in the long term.

The discussion above has showed that innovation is double-edged. It spreads, creating a multiplier effect through copying or imitation by neighbours and visitors. However, imitation is yet to lead to overproduction of either fruit or milk in Mbeere. The demand for these two commodities was reportedly high both locally and further afield and was still growing.

This points to a growing rural labour market revolving around fruit and dairy production and employment creation is one of the main ways of accessing income and reducing poverty. While such labour is absorbed in activities such as land preparation, digging holes, fertilizer/manure application, planting, weeding, pruning, spraying, and harvesting (for fruit farmers), it is expended in fetching water (dairy cows require huge quantities of water daily), fodder acquisition (e.g. cutting of napier grass or fetching dry crop fodder), feeding the cows, milking, and milk delivery (for dairy farmers). For both activities, labour was also required for transporting the produce to the market. Although fruit farming employed more casual labour seasonally, dairying was the more labour-intensive of the two activities and tended to employ fewer but more permanent workers. Wages for permanent labour averaged Ksh.3,000 per month while those for casual labour averaged Ksh.200 per day. In both farming activities, farm proceeds (profits) were cited as the largest source of worker wages.

For the fruit farmers, the demand for labour reached its peak during the planting, weeding, spraying and harvesting periods and lessened towards flowering and maturation of the fruit. Some unquantified labour is also spent in protecting the fruit trees from damage by domestic and wild animals and also human thieves. Irrigating fruit farmers faced higher labour demands as irrigation is a labour-intensive activity requiring 6-8 hours a day. Furrow and pump irrigation were the dominant methods of irrigation by a few fruit farmers and these had a higher likelihood of hiring permanent labour. For dairy

farmers, labour demands appeared to be more evenly distributed throughout the year as dairy cows require constant care and attention. To improve the energy-milk conversion ratios, the adoption of stall feeding was found to be gradually spreading throughout Mbeere. Initially, this activity was confined to AEZ 3 which is wetter, cooler and friendlier to improved cattle varieties especially Jerseys, Freisians and Guernseys. After years of experimentation with heavy losses, adoption of improved cows finally picked up in EAZs 4 and 5 (which are the drier and hotter of the three AEZs) in the 2000s. Labour in dairy production takes many forms and acquisition of adequate animal feeds presented one of the greatest challenges facing dairy farmers in Mbeere. One respondent had this to say:

Mbeere is known for all types of fruit pests and diseases. The rains have been erratic in the last several years. The amount of money and land required for profitable fruit farming is also not little. Luckily for me, I have 15 acres and I have dedicated 5 acres to improved mangoes only. Now I have 650 mature trees but I am aiming at 1,000 trees by the end of 2015. My farm is a bit rocky so I don't get good harvests. However, I have teamed up with a few villagers and together we have tapped water from the nearby permanent river which we use for irrigation. This has increased my chances of making it as a fruit farmer. This is why I am talking of reaching 1,000 trees by 2015. I can't complain about what I get from mango sales because it is not bad at all. It is mangoes that have made me what I am today. I opened a farm bank account some time ago and have used some of my savings to acquire some properties. The car you see here came from mangoes. The improved cow you see here came from mangoes. When you look at this compound, does it look like it belongs to a poor man? I also help the local people. On the farm I have employed 2 permanent workers and during harvest time I employ more than 10 casuals to do the harvesting, sorting, packaging and loading, although some buyers come with their own hired labourers.

The above narration by a farmer brings out several issues. The constraints faced by improved fruit farmers in Mbeere and coping mechanisms; high production costs and good returns to enterprise which have helped alleviate poverty. The farmers have also been able to save, run bank accounts and acquire and property. Some of the farmers have diversified into improved dairy farming, and lastly, improved fruit farming has created employment for the local people.

7.5 Improved Physical Infrastructure

The provision of physical infrastructure is primarily the responsibility of the state. However, the multiplier effects of improved fruit and dairy farming in Mbeere have had positive implications for local level development. Many farmers reported that their activities had attracted the attention of local politicians, the government and NGOs. As a

result, local politicians had begun to lobby for increased allocation of CDF, LAFT, road maintenance fuel levy funds and rural electrification to the fruit and milk-producing localities. Plan International, an NGO, was upgrading rural access roads through a Food-For-Work programme which gave food to locals in return for work on the roads. As mentioned above, improved fruit and dairy farming were also indirectly stimulating household food security and social overhead capital.

The spread effect of IFF and IDF became evident when the respondents were asked to say how far their farms or homes were from the nearest road. More fruit farmers were nearer a road than dairy farmers such that while the farthest fruit farm from the road was 5 km, the farthest dairy farmer was 7 km from the nearest road. This suggests that dairy farming has the capacity to penetrate the remoter rural areas while fruit farming is more infrastructure-dependent. This is perhaps due to the bulky nature and perishability of fruits hence the need to reach the market faster. On the other hand, most milk was consumed locally and in case of extra-local markets, its life would be prolonged through cooling at depots or collection points that had doubled in the 17-year period covered by the study.

Incomes from IFF and IDF were used to enable some farmers access needed overhead social capital or public goods such as water and electricity. Increased connectivity to water through piping, sinking of boreholes or dam construction was reported by over 50% of the farmers. Specifically, by 2007, all the IDFs could access water throughout the year as compared to 52% of the IFFs. So was electricity connectivity to the national grid and buying of solar panels. 56% of the innovators in both activities had electricity connected to their premises. About 35% had bought solar panels. Due to increased production, some of the farmers reported that they had been able to petition the local authority and Members of Parliament (for Gachoka and Siakago constituencies respectively) for improvement of the road networks through release and use of the Local Authorities Transfer Fund (LATF) and Constituency Development Fund (CDF). Others materially supported the NGO-sponsored food-for-work programme of improving rural access roads. This suggests that the two activities had produced a category of agri-producers needing such facilities the way flower farming had done in some Kenyan

localities. Improved access to resources such as water and electricity had not only helped in the establishment and growth but also profitability and sustainability of the two enterprises in question.

Improved fruit farming in Mbeere is mostly a rain-fed enterprise but there is the potential for irrigation since there are three permanent rivers passing through Mbeere, i.e. Thuci, Thiba and Tana. Indeed, by 2007, a few of the fruit farmers were irrigating. In contrast, dairy cows require constant supply of water for drinking and other uses. This had compelled some farmers to sink boreholes or install water tanks in their homesteads. Others had piped water tapped from distant sources.

At another level, the two enterprises appeared to have either stimulated the growth of rural financial markets or were stimulated by the growth of the former. About 62% and 53% of the fruit and dairy farmers respectively reported having taken at least one loan from a financial institution in the previous five years. There were more borrowers among the IFFs relative to the IDFs. The loans were partly or wholly ploughed into the enterprise and had had a positive contribution to enterprise growth. This was an indication that the two activities had started stimulating the growth of rural financial markets and that access to credit was not an inhibition to those who wished to grow their businesses. The biggest loan source reported by both fruit and dairy farmers was cooperative societies especially savings and credit cooperatives (SACCOs). This was followed by self-help groups and microfinance institutions, the Agricultural Finance Corporation (AFC), the Kenya Women Finance Trust (KWFT), Kenya Rural Enterprise Programme (K-REP) and commercial banks. The loan sources have since diversified to include several microfinance institutions, village-based lending groups, NGOs, and religious organizations such as the Catholic Diocese of Mbeere.

An informational revolution through ICT integration was another aspect of infrastructural growth that assisted entrepreneurship in taking root in Mbeere. All the 200 interviewed farmers had mobile phones which played a crucial role in growing the two knowledge-based enterprises. Farmer networks were another key source of information especially on

new market outlets for fruit and milk. A further smaller proportion reported accessing information especially on commodity markets from the internet.

Incomes are part of household wellbeing. Wellbeing has also to do with the ability to meet basic needs and develop human capabilities. As such, reduced poverty means increased wellbeing. This study found that entrepreneurial farming activities have had real benefits to the innovating households. The two activities in question have helped to improve household wellbeing and establish farm-nonfarm linkages that have in turn had positive knock-on effects within the Mbeere rural peasant economy. One notable farm-nonfarm linkage is the sprouting of businesses either associated with or serving the agricultural sector such as ox/donkey carts, motor vehicle and bicycle repairs, and farm input stockists. The findings indicate that more of the innovating households were able to afford adequate quality food on a more regular basis, send their children to school and pay for medical bills for themselves and other household members. This corroborates the fact that over 80% of the farmers cited poverty as their major driving force into entrepreneurship. The finding also complements the one where farmers reported improved household incomes and others who reported that they were better off than they were before they engaged in the farming activity. Improved availability of food, increased ability to pay school fees and buy uniforms for children, and improve on shelter, were among the positive results mentioned.

7.6 Chapter Summary and Conclusions

The discussion in this chapter has attempted to present evidence of how entrepreneurship increased incomes for the farmers leading to poverty reduction and wellbeing at the household level and to employment creation at the macro level. It has shown that wealth creation and enhanced household wellbeing took place as a result of these activities. One of the conclusions emanating from this chapter, therefore, is that when innovation is entrepreneurship-driven, or when entrepreneurship converts an innovation into a business, the results include not only poverty reduction but also wealth and employment creation. Secondly, while improved fruit farming was a preserve of the richer peasant innovators, improved dairy farming was the more friendly poverty reduction innovation for the poorer households especially those headed by women. Thirdly and finally, by

virtue of being able to increase household incomes and wellbeing, improved fruit and dairy farming have inculcated the tenets of a capitalist market economy in a hitherto peasant society. For this reason, the two innovations proved to have been fundamentally changing peasant livelihoods, culture and ways of thinking and reorienting them towards market integration via agricultural entrepreneurship or agrarian capitalism. This way, agricultural entrepreneurship became a formidable instrument of peasant transformation in Mbeere.

Agricultural entrepreneurship in Mbeere was not an accidental phenomenon but rather a conscious and deliberate attempt to increase and/or diversify incomes and in turn reduce poverty and improve the quality of life through innovation. Entrepreneurship influenced value addition or product upgrading thereby laying the foundation for profit-oriented farming. This in turn created the potential for poverty reduction by increasing or stabilizing household incomes and creating employment opportunities on and off the farm. The cumulative effect of this process spread from the entrepreneurs' immediate households to the macro level especially by creating employment and promoting farm-nonfarm linkages. This is where each of the two enterprises spurred the evolution or growth of other activities, all of which contributed to improving the incomes of the farmer households. However, improved dairy farming appeared to be friendlier to the poorer households relative to improved fruit farming. It is therefore reasonable to argue that future poverty reduction interventions be focused on cost-effective measures for enabling these households to access dairy cows and/or dairy goats.

CHAPTER EIGHT

AGRICULTURAL ENTREPRENEURSHIP AND FURTHER TRANSFORMATION: ACCUMULATION AND SOCIAL DIFFERENTIATION IN MBEERE

8.1 Introduction

Social cleavages or inequalities are a characteristic feature of the Mbeere society and are in no way peculiar to this part of the world. As explained in chapter Four, Mbeere society was structured with the wealthy land and livestock owners, and chiefs and their council elders occupying the top privileged slot in the social hierarchy. The next social category, the equivalent of today's middle class, comprised clan leaders, war heroes, diviners and traditional doctors. The poor, who were in the majority, formed the base of the social hierarchy. Being a small community with a population of less than 200,000 people, a casual look by an outsider would give the impression of an egalitarian society. In reality however, egalitarianism was a convenient ideology that helped sustain the virtues of generosity, hospitality and mutual social responsibility.

The idea of improved fruit and dairy farming as income-earning activities was not accepted by everyone in Mbeere and neither were they feasible to everyone. Their introduction and transformation into profitable household enterprises may be credited to the efforts of the 200 insightful, intuitive and courageous farmers out of the entire population in the mid-1990s. The activities of this small group of improved fruit and dairy farmers only amplified the existing social inequalities in Mbeere and laid a foundation for the development of social classes in future. As chapters 6, 7 and 8 demonstrate, the two activities have contributed significantly to poverty reduction and wealth and employment creation, accumulation and social differentiation. This chapter discusses the findings on the fourth and final research question and hypothesis on further transformation of the peasantry by agricultural entrepreneurship. Specifically, it analyzes the implications of sustained accumulation on social differentiation in Mbeere and political significance of the peasantry.

Poverty reduction and wealth creation through improved fruit and dairy farming constituted fundamental economic changes in Mbeere. However, this was only one aspect of the transformation. The process of peasant transformation was not complete without further socio-cultural and political changes. This chapter re-examines the data to find out the effects of accumulation on social differentiation of the Mbeere peasantry. The chapter analyses the data with a view to understanding how agricultural entrepreneurship contributed to social change and development in Mbeere. The discussion examines how the evolutionary process of social change, kicked off by innovations in the mid-1990s, culminated in socio-cultural evolution and political re-orientation in the 2000s and beyond. The chapter pays special attention to accumulation and social differentiation or amplification of existing social inequalities leading to semblances of class formation owing to accumulation of wealth. The chapter answers to the third and final research question and attendant proposition.

8.1.1 Accumulation and Social Change: A Recapitulation

This study views accumulation as gradual amassing of wealth over a period of time, eventually resulting in changes in social status for the farmers concerned. In this regard, social differentiation refers to a process of creating new social cleavages and/or categories or amplifying existing ones. The concern of this study, therefore, is how the peasant innovators accumulated their own surplus value (as exemplified by the wealth they created) to become candidates for the middle classes (starting with the floating and lower middle), thus widening the pre-existing social inequalities. It is notable that when peasants are transformed by agricultural entrepreneurship to become agrarian capitalists, they acquire class characteristics and begin to engage the state through organized farmer interest groups. They also begin to engage in market transactions, not as subordinates, but as independent players with definite stakes. Eventually, they may acquire voice and ability to influence state policy as a class.

To revisit the earlier discussion under Marxist-Leninist thinking, the market blocks peasant potential because it enslaves and eventually dissolves the peasantry. As a result, production decisions are made by the capitalist. The capitalist also owns and controls the means of production including the peasant's physical and intellectual labour or

innovation. The result is expropriation and appropriation of peasant surplus value by the capitalist. The peasant cannot hit back because they are not a cohesive social class. Since they lack class consciousness, the peasantry is a politically irrelevant social category. This exacerbates as well as perpetuates peasant exploitation by the capitalist class, which translates to a doomed future for the peasantry. At some point in history, they get dissolved but the Marxian theoretical perspective does not seem to say what becomes of them after that.

On the other hand, the neo-liberal theoretical approach rests on the premise that the market liberates or frees individual peasant farmer potential which often translates itself into agricultural innovation, the latter being the basis of entrepreneurship. As an independent entity, the peasant makes and executes their own production decisions especially in terms of when, where and how to profitably mobilize resources and benefit from the means of production notably land, labour and financial capital. Since the peasant owns the means of production, decisions to enter into market transactions are consciously and deliberately made and tend to direct innovation towards profit generation. Market entry is based on sound calculations of costs and benefits such as increasing household incomes, improving wellbeing and reducing poverty. These eventually translate into poverty reduction and wealth creation. Within this liberalized atmosphere, the peasants own and appropriate their own surplus value which in turn paves way for household-based accumulation. Mamdani (1996) calls this “accumulation from below”.

Accumulation over time alters or changes the social status of peasants who acquire a semblance of class consciousness, first in the form of organized farmer groups with voice and ability to engage the state on matters of their own interest e.g. roads, water, electricity and markets. This makes them prime candidates for the middle classes with some effectively joining the floating and lower middle classes with prospects of going further up. In the final analysis, these processes end up transforming the peasants into agrarian capitalists thereby significantly altering the existing relations of production but promising a brighter future for the former peasants. At this point and from a Marxian perspective, development happens as a resolution or synthesis of the contradictions inherent in the peasant and capitalist modes of production. Development appears as a transformation

from quantity to quality. It is a fusion of the immanent forces of change, on the one hand, and human agency through innovation and entrepreneurship on the other. In the following section, the discussion focuses on accumulation and social differentiation from five main perspectives: age and gender; education and ethnic background; behavioral, functional and occupational characteristics; accumulation and social differentiation; and cultural and political re-orientation. The thread that ties all these perspectives is that development is improved quality of life.

8.2 Age and Gender Differentiation

The youngest farmer innovators comprised 20% and were found in the 21-40-year age bracket while the oldest were 80 years and above and accounted for only 5%. The biggest concentration was in the 41-60-year age bracket. About 29% were in the 61-80 age bracket. This shows that about 66% were in the age bracket of 21-60 years. The age differentiation appears to suggest that even as early as the mid-1990s, it was indicative that entrepreneurial farming was not for the old but rather younger members of society. By being attracted by the desire and opportunity to make money and improve the quality of their lives, the innovators exhibited entrepreneurial behaviour from the start. What seemed to have been unfolding, going by the case of Mbeere, was that entrepreneurial farming was not a traditional pastime or an activity for the old and/or unemployed. Rather, a small group of determined relatively younger, more ambitious and well-motivated entrepreneurs was getting deeply involved in profit-led or market-oriented farming (agribusiness). The older generation was slowly giving way to a more vigorous younger generation of individuals who viewed agriculture as an enterprise and not a traditional activity.

Table 8 1: Age Differentiation among the Innovators

Age Bracket (Years)	Frequency	% (N=200)
21-40	40	20.0
41-60	92	46.0
61-80	58	29.0
81 and above	10	5.0
TOTAL	200	100.0

Source: Field Surveys 1996/97; 2006/07.

However, entrepreneurship was not the exclusive preserve of individuals of any age or age group. Findings suggest that the relatively younger farmers had a higher likelihood of engaging in profit-led or entrepreneurial farming. This finding further suggests that the youth especially those in the 21-40 age group were brave, ambitious and ready to shoulder the risks associated with improved fruit and/or dairy farming. When asked whether they had received any parental assistance in either starting or running their entrepreneurial activities, only 26% replied in the affirmative. Similarly, only 21% reported having been assisted with cash by a working/earning relative. Since parental influence seems to have been minimal in orienting children towards an entrepreneurial culture or inculcating entrepreneurial behaviour in them, then, there is reason to believe that the urge for economic emancipation or independence may have played a lead role in pushing the innovators towards adopting entrepreneurial undertakings. Going by what was going on in Mbeere, it is reasonable to argue that profit-led farming was no longer the exclusive preserve of the elderly, as 66% of the entrepreneurs were 60 years old and below. Neither was farming to be regarded as a traditional pastime or an activity of last resort when better jobs were not forthcoming.

In terms of gender differentiation, men comprised 76% of improved fruit farmers while women accounted for 24%. Generally, this was a male-dominated activity in addition to the fact that Mbeere is a patriarchal society. Without access to the opportunities open to the men, women generally lack the huge investments required to mount and maintain an improved fruit enterprise. However, among the improved dairy farmers, the men were 54% while the women made up 46%. Women especially dominated the categories with 1-5 cows at 56% compared to 44% for men (see Table 8.2). This may be interpreted to mean that improved dairy farming is the more viable and friendly poverty reduction activity among female-headed households. Most women are members of merry-go-rounds and other community-based micro-finance outfits. They therefore easily access the seed capital required to buy at least one cow to begin with from these.

This has definite policy implications which are discussed in chapter nine. However, it is in order to mention a few here. In its efforts to alleviate poverty and create wealth for the citizens, the state could create an environment that enables women to venture into

improved fruit farming. Land reform and access to seed capital should receive priority. Secondly, this study found dairy farming to be the more friendly activity for the poorer women-headed households. Mechanisms therefore need to be put in place to enable more women to own improved dairy cows. Here, the state could partner with private sector actors such as Heifer International to establish cost-effective acquisition of improved dairy cows by women. Whether they begin with one cow or more, involvement in improved dairy farming gives the women a sense of ownership of household-based wealth-creating assets.

Table 8 2: Gender Differentiation among the Innovators

Category	Men		Women		Total (N=200)
	Frequency	%	Frequency	%	
Improved Fruit Farmers	76	76.0	24	24.0	100
Improved Dairy Farmers	54	54.0	46	46.0	100
TOTAL	130	65.0	70	35.0	200

Source: Field Surveys, 1996/97; 2006/07.

8.3 Educational Level and Ethnic Differentiation among Innovators

A look at the social differentiation in terms of education levels suggests that none of the improved fruit farmers was illiterate; 18% were primary school leavers; 53% had secondary education and 25% had some post-secondary or tertiary education. About 4% were university graduates. With respect to IDFs, 13% were illiterate or did not have any formal education; 32% were primary school leavers; 36% had secondary education and 19% had post-secondary training. None of the IDFs had university education. The comparative education levels appear to suggest that IFF was a more knowledge-based enterprise relative to IDF. Conversely, IDF was an activity in which even the illiterate and poorly educated could engage in an attempt to reduce poverty and/or create wealth. Table 8.3 shows the social differentiation based on education level.

Table 8 3: Comparative Education Levels among Improved Fruit and Dairy Farmers

Level of Education	Improved Fruit Farmers		Improved Dairy Farmers		Total
	Frequency	%	Frequency	%	
None	0	.0	13	13.0	13.0
Primary	18	18.0	32	32.0	50.0
Secondary	53	53.0	36	36.0	89.0
Post-secondary/tertiary	25	25.0	19	19.0	44.0
University	4	4.0	0	.0	4.0
Total	100	100.0	100	100.0	200

Source: Field Survey, 1996/97.

Much of the land in Mbeere is mostly medium and low-potential and is unlikely to attract immigrants. However, and as the ethnic differentiation depicted in Table 8.4 shows, although about 79% of the innovators were indigenous Mbeere, close to 20% of the studied innovators were Kikuyu. Embu and Meru immigrants were 1% each. This ethnic differentiation suggests that ethnic innovators Mbeere occupy a leading position in trying to turn agriculture in an inhospitable ecosystem into a money-minting venture. It also shows that immigrants led by the Kikuyu spotted income-generating opportunities in agriculture here and decided to take the risk by buying land and investing in farming. It also shows intra-ethnic differentiation in that in every community, there are those who stand above the rest and take the lead in venturing new risky things. These are the entrepreneurs who eventually succeed.

Table 8 4: Ethnic Differentiation among Household Heads

Ethnic Background	No. of Respondents	% (N=200)
Mbeere	158	79.0
Kikuyu	38	19.0
Embu	2	1.0
Meru	2	1.0
Total	200	100

Source: Field Survey, 1996/97.

8.4 Behavioral, Functional and Occupational Differentiation

The Mbeere agricultural entrepreneurs in improved fruit and dairy farming appeared to present the lesson that wherever entrepreneurs are found, they are self-made individuals with ruthless ambition to excel and/or succeed. Their vision surpasses one's own time due to hard work and a winning mentality. They pursue and convert opportunities into profit and such opportunities have potential for effecting change. Indeed, they see or turn problems into opportunities, enabling them to create and grow business through innovation. Their success is usually associated with "leap-frogging" and this is why the successful entrepreneurs are those with the "right idea" but do not quit. The discussion that follows focuses on some of the key behavioral, functional and occupational attributes of the innovators. These are perceptions towards innovation and entrepreneurship and

motivations; individual roles in transforming innovations into enterprises; and farm and non-farm work experiences of the innovators.

8.4.1 Behavioral Attributes: Perceptions towards Innovation and Entrepreneurship and Motivations

The Mbeere innovators were characterized by aggressiveness and a relentless search for new markets. Thus, self-initiative, drive, articulateness and resolve were complemented by middlemen especially in the fruit trade. More importantly, the study found that the daringness and venturesomeness associated with the pioneering innovators were complemented by prior first-hand learning from agricultural training institutions then known as Animal Husbandry Industrial Training Institutes (AHITI) and field days at the farms of local contact farmers. Others benefited from farmer group learning visits to successful farmers in Embu and Murang'a and Nyeri Districts. Many reported having visited Ndomba and Wambugu Farms in Kirinyaga and Nyeri Districts respectively. In specific terms, while about 55% of the innovators had attended such trainings by the mid-1990s, this number had risen to about 88% by the mid-2000s. The implication is that this group of farmers comprised curious and highly motivated individuals who were willing to sacrifice their time and resources to ensure the success of their enterprises. They would not stop at the level of innovation but moved further to transform their innovations into income-generating enterprises. Their biggest motivation seemed to lie not in pioneering action per se but rather the real possibilities of making money and moving out of poverty through farming. As such, these individuals were characteristically different from the ordinary farmers who chose to stick to traditional farming practices. Their new farming practices and outcomes of the latter placed them in a completely new social category and made them good candidates for the middle classes.

While a semblance of cooperative transportation and marketing framework was evident in the fruit trade, this was largely absent in the milk trade. The dairy farmers appeared to have been benefiting from captive markets that included tea kiosks, shops and institutions such as schools and health facilities. Middlemen, being more active in the fruit trade, were found to play a critical role in linking producers and consumers and providing vital information to the producers on new consumer demands or buyer specifications and price

trends. The internet, as an informational innovation, was found to be playing a major role in market sourcing and on-line negotiations for this small group of aggressive and proactive farmers. This was reported by some mango exporters who had discovered huge market potential for fresh mango in the Middle East and other Arab countries. Other farmers reported working closely with the Kenya National Chamber of Commerce and Industry (KNCCI) for access to information on overseas markets.

8.4.2 Functional Attributes: Individual Roles in Growing Innovations into Enterprises

Increased exposure to new knowledge and skills changed the innovators' perceptions of their functions and roles. By combining in-born characteristics with acquired or learned skills and expertise, the innovators assumed a new position in society with new roles. They began seeing themselves as the performers, suppliers of needed items, friends of the market, tradition breakers, and bringers of change. In other words, they assumed the enviable position of entrepreneurs. Urbanization and access to information provided the opportunities needed for enhancement of capabilities at household level. After satisfying the basic needs of their households, they went on to embrace a saving culture which enabled them accumulate surplus value. One of the benefits of this was movement from poverty reduction to wealth creation. At the same time, they experienced a transformation from labour sellers to labour employers or employment creators. By using the incomes generated and the power of bargaining they were able to increase access to social overhead capital. The activities or functions of the innovators were clearly distinguishable from those of the ordinary or traditional farmers because they were usually market-inspired and driven. The innovators became the unequalled actors in the market place especially those that had received some market training.

Market training and education did have noticeable effects. Discussions with farmers in Mbeere who had received marketing training from the Kenya Market Development Programme (KMDP) displayed a markedly different understanding of the challenges they faced as opposed to those who had not received the training. Rather than claim that the primary marketing problem they faced was the unscrupulous behaviour of private traders, which is a common refrain heard both in discussions with the Ministry of Agriculture and among farmer groups with no market training, farmers who had received KMDP training

often talked about ways of increasing their gross profit margins, using certain strategies to explore higher prices, and even by-passing middlemen. This represents a dramatic shift from a sense of helplessness to one of entrepreneurship-driven innovation.

8.4.3 Occupational Attributes: Farm and Non-farm Work Experiences of Innovators

The findings indicate that the innovators were differentiated in terms of their work experiences. The greatest proportion (60%), were civil servants; 52% were teachers; 42% were full-time farmers; 30% had some business experience and 10% were former labourers on European farms. About 6% had other work experiences. Two facts may be gleaned from the statistics in Table 8.5. First, about 58% of the innovators had some form non-farm income source or fall-back occupation to cushion them in case the innovation failed or experienced teething problems. Second, although most of the innovators were serving or former civil servants, no specific occupation may be solely associated with entrepreneurial behaviour. More importantly, we witness a situation where after the innovations were transformed into enterprises, the farmers were also transformed from part-time to full-time farmers. This was due to the demands imposed by entrepreneurial or profit-led farming. We also see the innovators being transformed from ordinary farmers to farm managers with calibrated responsibilities adhering to strict time frames. We see the introduction of efficiency and product upgrading with the farmers occupying specific slots in the production, distribution and marketing chains for fruit and milk. Finally, we witness a transformation to full-time innovators as the farmers became relentless profit pursuers.

Table 8 5: Main Work Experience among the Innovators

Main Work Experience	Frequency	% of Innovators (N=200)
Civil service	60	30.0
Teaching	52	26.0
Farming	42	21.0
Business	30	15.0
European farm labourer	10	5.0
Other	6	3.0
Total	200	100.0

Source: Field Surveys, 1996/97; 2006/07.

8.5 Accumulation and Social Change in Mbeere

The study presents evidence to the effect that agricultural entrepreneurship through individual farmer innovation triggered social change and development in Mbeere. A major aspect of the social change was cultural re-orientation from peasant ideologies to adoption and internalization of market values. The efforts and determination of a group of farmers deliberately but creatively destroyed the foundations of peasant agriculture. In this regard, agriculture ceased to be a traditional pastime handed down from one generation to another. With the infusion and internalization of market tenets and philosophy, the emergent new farmers began to view agriculture as a business activity. This has had implications for fundamental social change (transformation) of the Mbeere peasant society. This formed the entry point for agricultural entrepreneurship which gradually overwhelmed the pre-existing peasant modes of production. By examining the behavioral, functional and occupational attributes of the innovators, it emerges that the latter were individuals with an uncommon resolve to change the way things had been done for generations and deployed their personal dexterity with the market, state and other institutions acting as midwives. They used non-farm incomes and new innovations to manage any attendant risks and as they transformed agriculture, so also did the latter transform them into new beings, farm managers owing strict allegiance to the dictates of efficiency and profit.

Agricultural entrepreneurship enabled accumulation which in turn heralded social change in Mbeere in various aspects. At the cultural level, the social structure underwent change in terms of entrenched individualism and changed relations of production. The inculcation of market values and development of physical infrastructure greatly undermined cultural attitudes such as egalitarianism, generosity, reciprocity and mutual social responsibility. In this evolutionary process, the innovators seized the opportunities availed by the informational revolution that included mobile phones and the internet to effect further social change and development. Here, social change is examined from four angles. First, through innovation, entrepreneurs ceased to be the passive victims of geography and the politics of exclusion. Instead, they undertook new combinations of the productive forces and broke out of what Schumpeter called “the circular flow of economic life”. As entrepreneurs, they extracted benefits from market processes and used

the market not as foe but as partner. Notable here is that social change and development were physical processes and occurrences through which innovations were used to acquire capital goods or assets. These included the new stone-and-tile permanent residential and rental houses that have given Mbeere a new-look in terms of movable and immovable assets.

As the innovations grew into profitable enterprises, those involved in these activities assumed a new status in the social structure. When the innovators graduated into wealth generators and accumulators, a process of social differentiation set in. This shook off the previous egalitarianism associated with Mbeere peasant society. The wealth generated in form of money, capital assets and knowledge began to have multiplier effects in the larger society in terms of employment creation, infrastructure development and farm-non-farm linkages. This is one of the ways by which agricultural entrepreneurship laid a firm foundation for peasant transformation in Mbeere.

A key question to pose here is: does the Mbeere agricultural entrepreneurship experience depict a case of dissolution or preservation of the peasantry and what does it portend for the peasant mode of production? A response from one of the farmers provides insights on this.

In the 1980s up to the early 1990s, traditional mango varieties dominated here. More than half of the output was given out as complimentary to school children, relatives and friends. Less than half was sold to passersby at open air markets and roadside selling points. I had several hundred trees of traditional mango varieties. However, after attending a seminar by Plan International on the benefits of improved mangoes in 1992, I went to the local government Demonstration Farm where I learnt more on husbandry methods. From there, I waited for the onset of the rains whereupon I purchased 5 grafted seedlings each of Apple, Boribo, Kent and Van Dyke varieties. I went and planted those 20 seedlings on my farm after consulting a horticulture expert. Five of them withered so I was left with 15. I kept a close watch on the 15 seedlings with constant spraying and the required husbandry methods. Despite the many problems caused by pests and diseases, I harvested a total of 500 kg which I sold at Ksh. 20 per kilo. I got Ksh.10, 000. That marked the beginning of my career as an improved fruit farmer in Mbeere. Ever since, I have been uprooting the traditional varieties gradually and replacing them with improved ones. Today, I have 800 mature improved mango trees from which I earn an average net income of Ksh. 1.2 million per season from mangoes alone. My target is 1,000 trees or four hectares by 2013. This has helped me improve the quality of my life and that of my family. More importantly, I cannot be counted among the poor.

From the above, it is evident that many farmers sprang from humble beginnings to become wealthy businessmen. True to the saying that opportunity favours the prepared mind and that practice makes perfect, the innovators confronted many hurdles but were quick to seek information and knowledge on better production techniques which they put to test on the farm. Although the initial returns were meagre, they were better than similar quantities from traditional mangoes. This motivated them to increase production until they became millionaires. Success depends on risk-taking, determination and persistence.

Enhanced socio-economic status is likely to invite political ambition. Classical literature abounds with the desire by entrepreneurs to become “leaders” worthy of adoration and emulation by other members of their communities. The urge to achieve or make it in life is more associated with entrepreneurs. It all seems to start with perception of a profit opportunity and proceeds through resource mobilization to economic wellbeing. Economic wellbeing then becomes a substructure upon which a holistic development of the human person is premised. Social recognition or esteem is a cherished aftermath of the struggle out of poverty. Indeed, it is a truism that few societies (if any) the world over recognize or adore poor people.

As discussed above, the study found that a majority of the innovators were motivated by the need to escape from poverty. Implicitly, escape from poverty created a key raw material for social recognition, much more than individual moral integrity. Though social recognition is difficult to quantify and few people would report in an interview that they were explicitly in search of social recognition, it emerged clearly from our field interviews that the successful farmer innovators were also held in high esteem by the communities around them. The innovators were among the most respected members of the Mbeere community. The traditional farmers enjoyed the least social esteem or recognition if any.

While few of the traditional or ordinary subsistence farmers were recognized beyond their sub-location, some of the entrepreneurs were widely acknowledged beyond their location, division and even district. It is these renowned and successful farmers that every sitting Member of Parliament or administrator needed to know and to whom every

incoming administrator was introduced. Usually, they were renowned for what they did or the activities in which they were involved or had excelled. For instance, in Kanyuambora Location, one of the farmers, a Kikuyu immigrant, was a renowned improved mango entrepreneur nicknamed “Karanja wa Maembe” meaning “Karanja of the mangoes”. In the same location, there was another Kikuyu entrepreneur who owned over 20 improved cows. His nickname was “Kamau wa ng’ombe cia nuthu” or “Kamau wa iria” which means “Kamau of the exotic cows” or “Kamau of the milk”.

There are many other examples of entrepreneurs who were renowned for having excelled in a particular activity. While neighbours, friends and personal initiative may have been among the sources of inspiration in trying new ideas, it was clear from the study that the desire for better income was the greatest single source of inspiration for all the innovators. This seems to underscore the interrelatedness of economic success with enhanced social esteem. The above findings are corroborated by those on the socio-economic status of the respondents which indicated that over 80% of the innovators in both fruit and dairy felt that they were better off compared to before they started the activity in question.

8.6 Accumulation and Political Relevance

Increased incomes are natural precursors of political ambition. The desire for self-actualization drives economically well-off individuals to venture into politics. Few individuals would openly admit that they went into profit-led farming with political ambitions but during our discussions, some revealed that they had either tried their hand or were intent on running for political office as councilor or Member of Parliament. It also emerged that some of the wealthier entrepreneurs enjoyed an ambivalent description: they were regarded either as political assets or adversaries of the incumbent holders of political seats. As shown in chapter four, what, however, complicated the political equation in Mbeere was that politics was clan-based and some of the wealthiest entrepreneurs were non-Mbeere immigrants. These findings increasingly suggest that the improved fruit and dairy farmers were able to combine innovation and entrepreneurship to create wealth and participate more actively in social life. In particular, they began to acquire political significance and relevance by engaging the state as organized farmer

groups notably cooperatives. With time, this introduced elements of class consciousness, a precursor to class formation.

Social change was also manifested in the emergence of new perceptions on farming and other agricultural activities. The study found that due to the economic benefits accruing from improved fruit and dairy farming, land began to be viewed as wealth or a strategic asset that should not be sold at anybody's whim. The quality of land began to overshadow its quantity with the realization that it was innovation that made all the difference. New combinations of the productive forces became more important than external intervention or aid. Of particular importance was the entrenchment of the ethic of individualism and the capitalist spirit by which success is measured at the individual, not collective or community level. This new entrepreneurial culture replaced the earlier cultural foundations and values of Mbeere peasant economy and livelihoods which included egalitarianism, reciprocity, hospitality and mutual social responsibility. This attitudinal and behavioural change put the entrepreneur at the centre of all social, economic and political life. It banished the culture of free things and people began to view the means of production as exchange values. This new commodification of things extended even to previously free gifts of nature such as wild acacia nuts which as we have explained earlier became a commodity for sale to the dairy farmers.

Entrepreneurs are leaders in their own right. Classical literature abounds with the desire by entrepreneurs to become "leaders" worthy of adoration and emulation by other members of their communities. The urge to achieve or make it in life is more associated with entrepreneurs. The findings have shown that prolonged accumulation of wealth enhanced the entrepreneurs' social status and widened the existing social inequalities by putting them in a new socio-economic stratum or class. Political relevance set in when the farmers began organizing and articulating their collective interests around cooperative societies such as the now defunct Evurori Farmers Co-operative Society and Embu District Dairy Board. This put them on a negotiating platform with the politicians and the state which they subsequently used to agitate for better produce markets and improvement of physical infrastructures notably roads and increased accessibility to water and electricity. The discussion has also shown that most of the respondents wanted

to escape from poverty. Escape from poverty carries with it social esteem and recognition. It was therefore not surprising when it emerged from the interviews that the successful farmers were also held in high esteem by the communities around them. Indeed, while, the innovators were among the most respected members of the Mbeere community, the traditional farmers enjoyed the least social esteem or recognition if any. One of the farmers noted thus:

I started with one improved cow which I bought from a prominent farmer in Embu. It has given birth to three offspring which I am also milking now. I sold one to offset school fees for my children in secondary school. Five years ago, and encouraged by the success of the first lot of cows, I bought 2 pure exotic breeds (Friesians). The Friesians have had 3 offspring each and I now have 11 cows which give me about Ksh. 100,000 a month. I count myself as a successful dairy farmer and people listen to me when I talk at the cooperative society. The District Dairy Board also takes my views seriously. I no longer count myself as poor and when you look around my compound, you can see what the dairy farming business has done. There is a borehole with water and I have solar panels which give me electricity whenever I need it. I have been connected to the national grid and I want to team up with my neighbours so that we can put up a milk cooling plant here. This stone house you see here was originally mud and grass thatch. Thanks to my milk, I now live like a king....

What comes out of the above farmer's sentiments is that incomes from improved dairy farming have not only made him financially able and/or wealthy, well accessible to social overhead capital. This has in turn given him social esteem among peers and when participating in community matters such as a cooperative society. The evolution or social change has been not only physical but also mental. The entrepreneurs have acquired and accumulated tangible and visible economic assets that have elevated them socially and made them important people in society whose views are taken seriously. More importantly, they see farming purely as a business or money-making venture. This is a fundamental departure from their original status as poor peasants respected or recognized by noone. At this elevated social stage, they are also politically significant in society. As peasants, it is their votes that counted but as wealthy and influential individuals, it is their views or opinions that count.

8.7 Chapter Summary and Conclusions

This discussion has highlighted the last key aspects of peasant transformation in Mbeere, accumulation and social differentiation and further implications for cultural and political re-orientation. Improved fruit and dairy farming have gained root in Mbeere as

agricultural enterprises that have significantly altered the relations of production to the extent that some of the previous labour sellers have been transformed into labour employers or employment creators. The market, state, social capital and technology have played an intermediating role in this transformation. The findings reveal then that first, agricultural entrepreneurship destroys the socio-cultural foundations of peasant society by inculcating market philosophy and tenets. It converts the willing and alert peasants into innovators whose activities contribute to greater market integration. Second, entrepreneurship-guided innovation enables accumulation which in turn leads to social differentiation among previously peasant households. This ‘accumulation from below’ fundamentally changes the egalitarian character of peasant societies by exacerbating the pre-existing social inequalities and introducing the attributes of class society. Agrarian capitalism is synonymous with class society. Third, agricultural entrepreneurship fundamentally alters some socio-cultural beliefs and practices that drive peasant livelihoods (such as economies of affection) and replaces them with market tenets such as individualism, profit-mindedness and efficiency. Fourth and finally, agricultural entrepreneurship helps in inculcating the rudiments of class consciousness into innovators and shapes class formation. This becomes critical in shaping behaviour and attitudes of innovators as a politically relevant group.

Judging by the experience of Mbeere, it is safe to conclude that in due course, the middle peasantry will transform themselves into serious capitalist farmers. It is likely that the “new agriculture” as we might call it, will not be for peasants. It is an agriculture that will be information-based, education or skill-driven, capital-intensive and geared towards poverty reduction and wealth creation. It is a manifestation that agricultural innovation and entrepreneurship may hold the key to rural development if only the correct policy mix is implemented in the agricultural sector.

CHAPTER NINE

SUMMARY OF FINDINGS, CONCLUSIONS AND IMPLICATIONS FOR POLICY AND DEVELOPMENT THEORY

9.1 Introduction

This study sought to explore whether and how agricultural entrepreneurship was related to peasant transformation in one rural district of Kenya, Mbeere. To achieve this, the researcher employed mixed methods to gather data over a 17-year period, to seek answers to four research questions that were guided by four corresponding hypotheses. This final chapter presents a summary of the findings and discusses the conclusions and implications for policy and development theory.

9.2 Innovators and the Seeds of Peasant Transformation in Mbeere

The first research question was on how the seeds of peasant transformation were sown in Mbeere and what category of peasants was behind this. The corresponding hypothesis was that the origins of peasant transformation were to be found in agricultural entrepreneurship which took place through market-driven innovation. The findings related to this research question indicate that in Mbeere, agricultural entrepreneurship was introduced by peasant innovators who were keen on exiting poverty and found an appropriate and viable escape route in either or both of the two main market-oriented innovations, namely, improved fruit and/or dairy farming. One conclusion, therefore, is that peasants can be rational in their choice of livelihood activities and easily take advantage of the market and favorable state policies to exit poverty. They do this by transforming or growing the promising agricultural innovations into profit-making household-based enterprises. In Mbeere, the individuals behind this were a small group of people turned out to be the ambitious, venturesome, foresighted and intuitive peasants who perceived these activities as profit-making opportunities and positively responded to the incentives provided by the market, the state and other actors. In so doing, they deliberately went out of their way to challenge the tradition of poverty and subsistence economics that had characterized Mbeere peasant livelihoods for many years.

By consciously and selectively introducing or adopting entrepreneurial innovations, the other conclusion is that peasants are dynamic and receptive to new ideas especially those that carry some economic rewards and promise to improve their wellbeing and take them out of poverty and ignominy. Such individuals end up being entrepreneurs. A second conclusion, therefore, is that were it not for the small group of insightful and venturesome peasant farmers, agricultural entrepreneurship, and, by extension, peasant transformation, would not have succeeded in Mbeere. Although the introduction of these two innovations faced several challenges at the start especially climatic, ecological (pests and diseases), cultural, lack of financial capital information and knowledge, it was through the endurance, determination, persistence, ambition and foresight of this small group of peasants that the two innovations were converted into profitable enterprises based at household level. A closer look at the characteristics of this category of peasant innovators suggests that entrepreneurship is commensurate with certain levels of individualism, in line with Max Weber's *protestant ethic* or spirit of capitalism, which instills profit-mindedness in individuals. To become an entrepreneur, therefore, one has to acquire selfish individualism even though this may ended up antagonizing oneself with the neighbours and the rest of the community. To these individuals, all factors of production are viewed as economic assets judged according to monetary value. For this reason, it is also safe to conclude that peasant innovators were largely responsible not only for their own transformation but also that of the entire community.

Thus, despite the myriad of constraints, improved fruit and dairy farming became firmly established in Mbeere largely through the efforts of a small group of venturesome peasant farmers. This group had additional income from salaries or income-generating activities. They had the advantage of education and better skills. They also attended farmer training programmes and therefore had access to information. Second, the two innovations formed a basis for agricultural entrepreneurship in the district with a potential for social change and development. They represented Schumpeter's introduction of a new good; new method of production; discovery and use of new sources of raw materials; search, discovery and capture of new markets; and new enterprise management styles. The two innovations graduated into enterprises by being run as businesses or inspired by profit-

mindedness. The two innovations heralded a change in livelihoods by steering farmers away from a subsistence mentality towards a form of specialization in profit-led production. Finally, the specialized and capital-intensive nature of improved fruit farming excluded many peasants from participation mainly because it requires substantial capital investments, a certain level of education, market information, and personal attributes such as foresight and calculated risk taking. However, improved dairy farming was the more friendly activity especially to the poorer households, more so, those headed by women.

9.3 Transformation of Innovations into Profitable Household-based Enterprises

The findings related to the second research question tend to indicate that those peasants who saw profit opportunities in improved fruit and/or dairy farming went ahead and mobilized the necessary resources to transform them into enterprises. Acting as entrepreneurs, they focused on three main areas in which each innovation was grown into an enterprise: land, financial (e.g. acquiring more land and planting more trees and buying more cows for fruit and dairy farmers respectively) and labour investments. Other areas included meeting recurrent costs and search for output markets. The conclusion here is that first, when an innovation is entrepreneurship-driven, it is likely to consume resources, labour and time. When an innovation finally grows into an enterprise, it creates employment opportunities not only for members of the innovating households but also for those in the larger locality. Second, it is only those innovators who foresaw income or profit opportunities in their innovations and deliberately invested resources in them that succeeded in growing their innovations into enterprises. In Schumpeter's words, these were the entrepreneurs who creatively destroyed the tradition of peasant farming and embraced entrepreneurship thereby realizing higher levels of development for their households and society in general. This is how the improved fruit and dairy farmers of Mbeere have been the architects and/or prime movers of peasant transformation. Third, improved fruit and dairy farming significantly transformed peasant agriculture in Mbeere from the 1990s onwards. The peasants who were involved in either case showed courage, determination, confidence, resoluteness and singular business mind as individual innovators who broke ranks with tradition and custom and took the risk associated with either new venture. Fourth, the peasants involved in the introduction of the two

innovations were motivated by the desire to improve the quality of their lives by doing farming in a different way. As such, the activities brought a new dimension to peasant economics and belief systems. Finally, fruit farming tended to have less recurrent costs relative to dairy farming. This suggests that improved dairy farming was the more viable poverty alleviation tool for the poorer and/or female-headed households.

9.4 Entrepreneurial Innovation and Household Wellbeing

The third research question was on the contribution of entrepreneurial innovation to household incomes and wellbeing which appeared in terms of increased household incomes, reduced poverty and wealth and employment creation in Mbeere. Its corresponding hypothesis was that the introduction of entrepreneurship-driven innovation was responsible for some level of poverty reduction at the household level. The innovating households became main sources of casual and permanent jobs for the local villagers. This has enabled neighbours and people from the wider localities to earn income, thus spreading the benefits of agricultural entrepreneurship. The findings further show that wealth creation and enhanced household wellbeing have been key aspects of poverty reduction in Mbeere. The two entrepreneurship-driven innovations have enabled initially poor peasants to create wealth and exit poverty. The acquired ability to increase household incomes and wellbeing suggests that improved fruit and dairy farming have inculcated the tenets of a capitalist market economy in a hitherto conservative peasant society. This way, the two innovations have ended up fundamentally changing peasant livelihoods, culture and ways of thinking by reorienting and compelling them to internalize market philosophy via agrarian capitalism. The two enterprises have produced no less than 15 millionaires in the last two decades. This is one major way in which agricultural entrepreneurship has contributed to peasant transformation in Mbeere.

9.5 Household Accumulation and Social Differentiation

The fourth and final research question was on the implications of sustained household accumulation for social differentiation or class formation. The accompanying hypothesis was that sustained accumulation of wealth, coupled with the associated local infrastructural development, leads to social differentiation and political reorientation of

the peasantry. The study has assembled evidence to the effect that agricultural entrepreneurship has contributed to peasant transformation in Mbeere in significant ways. Due to the increased incomes, the entrepreneurs have managed to acquire capital assets and become wealthy. With time, the entrepreneurs have been able to accumulate wealth which has in turn elevated their social status. The conclusion is that sustained accumulation has broadened the pre-existing social inequalities leading to social differentiation which has subsequently laid a basis for the emergence of social classes in Mbeere against a background of peasant egalitarianism. Finally, the activities of the entrepreneurs have facilitated access to increased social overhead capital in form of better roads, water, electricity and possibility of construction of fruit juice processing plants hitherto non-existent in Mbeere. Few as the entrepreneurs might be, they have been responsible for a changed Mbeere landscape. Their lives, homes and properties are qualitatively better than those of those peasants who got stuck in traditional farming practices.

In other words, originally poor peasant households have moved from poverty to increased incomes and wellbeing and from labour sellers to labour employers or employment creators. Culturally and behaviorally, there has been movement from peasant communalism to market individualism with profit-mindedness and efficiency; from deprivation to wealth creation and ownership, accumulation and social differentiation; from social egalitarianism to increased inequalities with some joining the middle classes; from elementary to improved physical infrastructures; from a culture based on economies of affection to one based on commodification and where individual success is predicated on innovation and risk taking; and from political irrelevance to political voice and participation. The cumulative effect has been local economic development and improved quality of life which in turn translates to a brighter future for previously hopeless peasants. At this point, the Marxian and neo-liberal schools appear to converge – the point where the market helps to resolve some of the contradictions of capitalism. This is the stage of a higher level of development which results from the ‘struggle and unity of opposites’ and ‘transformation from quantity to quality’. This study, therefore, fills an important gap in the understanding of agricultural entrepreneurship as the missing link in

peasant transformation. By adopting a neo-Schumpeterian approach that depicts innovation as a subset of entrepreneurship, it makes it possible to study agricultural entrepreneurship among peasant societies.

This thesis has therefore shown that contrary to classical thought, capital (or the market) does not necessarily dissolve the peasants but instead preserves them as surrogate partners in the capitalist relations of production. After some time, the peasants graduate into entrepreneurs or agrarian capitalists with autonomy to make production decisions and join the middle classes and/or coalesce around common interests on which they engage the state as a politically relevant social category.

9.6 Rethinking Agriculture and Rural Development: The Policy Debate

This thesis has shown that agricultural entrepreneurship has contributed to peasant transformation in Mbeere. This calls for a rethink of agriculture and rural development policy. To begin with, for agricultural entrepreneurship to succeed and become sustainable among peasant societies, policies must aim at increasing commitment to agriculture by making agriculture profitable and competitive; empowering farmers and other stakeholders; creating enabling political and macro-economic environments; implementing high impact investments in services, infrastructure and natural resource management; and address the “nexus issues” of agriculture-population-environment-poverty linkages. Improving the welfare of the rural poor will involve among others, supporting investments in agriculture, rural infrastructure, health and education and ensuring that agriculture evolves into a business within an enabling environment conducive to improving the quality of life by making households self-sufficient in basic needs. This will involve extending aspects of the “Washington Consensus” such as productivity enhancement using low-input technologies, establishing links with the wider livelihood strategies, managing risk, effecting land reforms, and innovatively addressing the mainly hostile global economic environment with actors such as WTO, the EU’s Good Agricultural Practices (GAPs) requirements and contract farming with traceability. All this is within the realization that the entrepreneur is an innovator and it is through innovation that the farmers manage to reduce poverty. Similarly, entrepreneurship is a

temporary condition for any person unless they continue innovating and a good guide to innovation is prices and profit. Currently, the evidence from Ghana, Mali, Senegal, Tanzania and Kenya indicates clear advances in turning African agriculture into a business (Friis-Hansen, 1998; Djikstra, 1997; 1999; Dolan, Humphrey and Harris-Pascal, 1999; Stamoulis, 2007; OECD, 2008; USAID, 2008; Szirmai et al, 2011).

Increased agricultural productivity is driven by the ready availability of new technologies together with improved incentives for farmers and agribusiness supported by enabling government policies. It is increasingly recognized that Integrated Agricultural Research for Development (IAR4D) and innovation systems have a major role to play in introducing new approaches to poverty reduction and social transformation. This requires facilitation to ensure working relationships involving partners in alliances that will stimulate further innovation. Accelerating agricultural development in rural societies requires the creation of links in ways that encourage interaction between public, private and non-state actors. This necessitates support for facilitation of engagement and alliances between partners that create the environment for innovation. It will also need unending government support to encourage institutional innovation with expertise that includes a wide knowledge of markets, agribusiness techniques and rural finance that can complement specialist technical expertise.

With regard to dairy farming in Kenya, there is need for appropriate interventions for scaling up the growth that has already been registered in this sub-sector. Primarily, the promotion of market-oriented smallholder dairy production, which significantly raises household incomes, can have a profound effect on poverty reduction. In Kenya, development has been built on efficient market systems, disease control, infrastructure provision, research and extension, in support of smallholder production. Government support has been crucial in this. At the same time, subsidized support systems have proved to be unsustainable. Thus, as a policy measure, government provision of public goods needs to complement the incentives for private marketing, processing and input supplies. Development actors must also come to appreciate the fact that the development of a successful smallholder industry with special focus on the dairy industry requires two

complementary elements. Firstly, increased productivity requires improved livestock breeds, strong disease control and veterinary services and improved quality and quantity of feeds. To encourage more smallholder dairy producers, local institutions need to be developed and supported for more efficient service delivery. Secondly, expanding market institutions with facilities for milk bulking and collection, and group organizational structures are essential and these can be most effectively supplied by the private sector. Although formal licensed markets based on processed milk products are important, informal markets selling raw milk and informal dairy products with low-cost processing should remain an essential component of a successful dairy industry.

Developing countries must acknowledge that they not only need to address the needs of the rural poor, but rather need to work with them. There is need to promote local innovators and recognize farmers and other rural people as legitimate experts in their respective areas. More important is the need to support and help to upscale innovative and successful local action. To do this, governments will need to reconsider their approaches. They need to have a positive approach, which starts from, but is not confined to local ideas, which focuses on local people's strengths and explores the particular opportunities open to them, rather than dwelling on their weaknesses and problems. A probable approach is to navigate how to move from problem-based programmes towards strengthening the solutions to be found in local communities, building upon existing strengths and initiatives and supporting innovation.

On another policy measure, the role of stakeholders needs to be clarified. The private sector has an important economic role as far as social transformation is concerned. The truth is that it is also a powerful innovator. It is however less clear how it will contribute to the broader sustainable goals of development since its profit-making goals may not always be in line with the social goals of poverty reduction and pro-poor development. The most relevant issues that policy interventions touching on the role of private stakeholders need to address are associated with matters of how to set priorities with multiple stakeholders. One is learning through innovation alliances with researchers, practitioners, policy makers, private sector and rural poor which are required for greater

poverty reduction impact as well as broader ownership of innovation processes. Such a concern should be tackled through appropriate frameworks that seek to incorporate the private sector in the process of implementing efforts in transforming the nature of rural agriculture through enhanced entrepreneurial activities.

In terms of policy to promote entrepreneurship among farmers, there is need for a working model to strengthen agricultural entrepreneurship which includes four steps: a) the organization of producers; b) the organization of support services; c) marketing (learning by doing) and, d) the provision of credit. However, this must reflect the needs of the farmers since the concern for small-scale producers suggests that policies need to be based on four significant pillars that is, a) education and training; b) business networks that link entrepreneurs to suppliers and sources of capital, c) resources; and d) infrastructural and institutional support.

There must be policy interventions that promote the establishment and support activities of producer organizations since they act as stimulants to the process of social transformation. However, one of the factors that have to be considered when focusing on agricultural entrepreneurs is the local actors in rural areas who are different from those in the urban areas. The fundamental element often missing from strategies designed to link agriculture with markets is the active involvement of producers and their organizations which are treated as merely the passive recipients of infrastructure, services and training. The success of enterprise initiatives will depend on what producer organizations achieve, hence the importance of focusing on entrepreneurs and their self-management and competency creation. The developing countries should note that a strictly economic, market-oriented approach, disconnected from the communities and families of producers, would be less effective, even irrelevant to the aspirations of rural farmers. An associated implication is that an entrepreneurial advocacy agenda needs to be driven from the grassroots by communities that stand to gain most from entrepreneurial activity. If entrepreneurship is imposed by an external agency, the legitimacy of the movement is likely to be compromised. Hence, individual champions consisting of grassroots leaders need to be identified and supported.

The literature proposes a number of adjustments needed to create a model that addresses all productive sectors: urban or rural, agricultural or non-agricultural, large or small. There must be a climate of competition with clear and efficient rules and less red tape for business; elimination of monopolistic action; more enterprise promotion; increased technical and scientific knowhow; better infrastructure and effective incorporation of the existing SMEs into the global economy. Among the most applicable models are those that entail the creation of rural centers, networks of enterprise facilitators, community training programs, distance learning technologies and business support systems.

New enterprises can be created by providing education and training in business skills, attracting immigrants who have entrepreneurial skills (lifestyle entrepreneurs, early retirees or returning ex-villagers) and encouraging under-represented young people to enter the self-employed workforce. Support for business start-ups is usually provided with pre-startup advice, idea appraisal and start-up assistance. The success of existing entrepreneurs can be enhanced by supporting them with business advice (e.g. business planning, marketing, exporting and information technology), providing specialist support such as helping farmers diversify into new farm and non-farm activities, and providing infrastructure such as incubators, transportation and info-communication.

Any country aiming at transforming its rural people and agricultural practices must equally emphasize on transforming its entrepreneurial ecosystem. The entrepreneurial ecosystem, which is the environment that fosters the emergence of new ventures, is an interconnected set of elements comprising risk takers, information brokers, resource providers, demand markets, and enabling technologies that act together to form a virtuous cycle of wealth creators. Attached to this ecosystem is an entrepreneurial process, which is the collection of decision tasks, such as opportunity identification and selection, resource assembly, organizing, and management of growth and exit. The industrial conditions that foster production at efficient scales are often missing in developing countries. Local demand markets are small due to relatively lower purchasing power, which increases distribution costs. In rural areas, these problems are exacerbated by

geographic distance and isolation, which result in higher costs of transportation. Poor access to financial capital is worsened by the invisibility of rural markets and lack of information among seekers of financial capital. Lack of access to human capital in terms of management and industry expertise reduces the ability to identify and exploit industry-specific opportunities. Also, lack of access to social capital and networks can result in decreased social acceptance of entrepreneurship as a legitimate activity.

Intervention measures must consider that national institutions that enforce property rights in developing countries are not sufficiently developed to guarantee credit and exchange contracts, which add to difficulties in accumulating capital. Kenya needs to borrow a leaf from the experiences of other developing countries which show that basic infrastructure such as telecommunications, intra-regional transport networks, and power distribution are poorly laid out, thus limiting production efficiency and hence increasing the costs of entry for start-ups. The inability to produce at an efficient scale in turn means that capital cannot be leveraged to allow savings and reinvestment in enabling technologies that improve productivity.

In essence, it is important to note that the entrepreneurial ecosystem comprises an interactive collection of institutional, economic, and individual factors. Therefore, one can suggest that a necessary condition for the emergence of an entrepreneurial economy that will impact on the process of social transformation is the establishment of institutional norms for entrepreneurship. For rural entrepreneurship to be sustainable, high rates of potential market growth are necessary. This is because the decision to accumulate capital is a decision to defer consumption in the hope of a promise for higher future gains. The scale of such gains is affected by the time it takes to generate positive value.

9.7 Implications of Study Findings for Development Theory

This study has definite implications for development theory. First, by examining the evolution of agricultural entrepreneurship in Mbeere, development emerges initially as an immanent, inherent, endogenous and organic process that owes its origins to natural

evolution and the endless interplay of the Marxian dialectics. With the introduction of new crops, improved livestock breeds and new farming practices, colonialism may be said to have disturbed the forces of immanence that were previously at play in Mbeere. However, during colonialism, the individual is portrayed as a passive entity. The imposition of the capitalist mode of production on the subsistence-based peasant mode of production introduced contradictions that gradually appeared to resolve themselves at higher levels of development. In Marxian terms, the struggle and unity of opposites found its synthesis in transforming peasant farmers into agrarian capitalists. This is transformation from quantity to quality. With the introduction of entrepreneurial innovation, development appears as intentional and born of rational thought and conscious choice. It originates from the creativity and dexterity of individuals intent on solving the problems that confront them from time to time, be they social, cultural, economic or environmental. In this case, poverty is one such problem whose solution lies in intentional, rational choice on the part of individuals such as investing in a profit-led market-mediated activity such as improved fruit and/or dairy farming. Development therefore appears as the desired positive state of affairs which is the motivation that drives innovation. In Mbeere, therefore, we find immanent development preceding intentional development and that the former is a *sine qua non* of the latter.

Second, when improved fruit and dairy farming appear to transform the lives of the innovating households from basic needs pursuers to rural accumulators, we see a semblance of dialectical transformation. The innovators may be seen as the bringers of social change and development from below with the institutions of the market and state acting as the principal midwives. We see a situation where the market teams up with other institutions to transform peasants from ordinary survivors governed by a subsistence ideology to capitalists capable of running profit-oriented micro and small enterprises in the agricultural sector. The market serves as an institution of accumulation and transfer of goods and services at the individual and household level. On the other hand, the state assists in introducing new research-based products through research institutions, offering some marketing assistance through cooperatives, and policy directions. For this reason, since entrepreneurs are capitalists, the study opens a new

frontier in development studies where entrepreneurship can be studied in rural agriculture besides the traditional domains of urban-based commerce, industry and the informal sector where they have hitherto been confined.

The Mbeere study appears to support the theoretical argument that agricultural entrepreneurship appears to be correcting some of the negative consequences of capitalism. The emergence of agricultural entrepreneurs from among peasants has contributed to the deepening social differentiation in Mbeere. Entrepreneurial profit is the genesis of accumulation, employment, infrastructural growth, self-gratification and poverty reduction and according to Max Weber, neither profit nor accumulation is a sin. An examination of the individual attributes of the innovators in the Mbeere study also reveals the importance of personal characteristics such as the value of thrift, foresight, individual denial for a better future, hard work, and a savings culture in entrepreneurial success.

Fourth, while some benefits of entrepreneurship are tangible, others are not. When some of the innovators in the study graduate into entrepreneurs, we begin to see development as natural and observable, not necessarily or always measurable or linear. This position is well articulated by Cowen and Shenton (1996). In Mbeere, one sees a meeting point of development as an ideology and development as a measurable entity. The mere possession of knowledge of available resources and their alternative uses, of new markets for a given commodity, and of new ways of manipulating the market to generate profit, is a non-measurable aspect of development.

Finally, the study found a substantial number of women among the innovators. The message here is that innovation and entrepreneurship reduce gender inequality at the household level. Though attitudes towards inequality differ across the gender divide, the study portrays women as formidable entrepreneurs especially in improved dairy farming. Mbeere is a matriarchal society where men control most of the resources, especially land and money and this finding brings women to the forefront of rural development.

This study comes at an opportune moment. It is after the debate on the African peasantry had subsided. From a Kenyan perspective, it supports the viewpoint traceable to Michael Cowen (1976) that capital, through participation in cash crop production, contributes to social differentiation among peasant households. This study takes this debate further by adding that such differentiation comes about as a result of agricultural entrepreneurship through the adoption of improved fruit and dairy farming innovations. It challenges the old view of peasant conservatism and risk averseness associated with Frank Ellis (2000). The study straddles a rich terrain of theoretical and empirical literature on innovation and entrepreneurship. It extends Robert Chambers' thesis of "putting the last first in rural development" (1983) which portrays farmers as innovators by adding that smallholder peasant farmers can actually combine innovation with entrepreneurship to alleviate household poverty. This way, it makes a definite contribution to poverty studies.

The study also builds on theories of agrarian change through perception and exploitation of profit opportunities in agriculture. It challenges Bryceson and Jamal's (1997) position of "farewell to farms" after finding out that farmers can be a major cause of endogenous growth especially when they become entrepreneurs, a position held by Zoltan Acs and David Audretsch (2008). When they reach this level, they become what Bonturi (2008) calls "drivers of innovation". It opens a new front of inquiry that begins to examine innovation as part of entrepreneurship in agriculture and recognizes the dynamism of peasant farmers who willingly bring about social change and development in rural societies. The study provides a fitting rider to Cowen and Shenton (1996) that intentional and immanent forms of development are not necessarily opposite poles. In cases such as Mbeere, the former comes after the immanent dialectics have run their course. Thus, the study has identified a positive relationship between agricultural entrepreneurship and peasant transformation.

9.8 Contribution of Study to the Peasantry Debate

In the opening chapter, reference was made to the debate on what has been happening to the Kenyan peasantry which ended inconclusively in the early 1980s. This study has come up with findings that appear to contribute to or rekindle that debate. The debate was

fronted by neo-Marxists who argued that exogenous factors notably colonial capital and the market enslaved and impoverished peasant producers by expropriating and appropriating their means of production (land and labour) and turned them into a captive pool of cheap labour for the capitalists. Eventually, the peasants would be dissolved because they were incapable of coalescing into a social class united around a common class ideology. This school holds that change is externally sourced or driven.

In reply, the neo-liberalists maintained that capital and the peasants would co-exist indefinitely because they needed each other. In particular, since the market inculcates entrepreneurial values in peasants and offers them irresistible incentives such as incomes (and by extension, wealth) and elevated social status, this prepares them for social change. However, this would be possible only if or when they (peasants) abandoned traditional peasant practices and embraced business values in doing agriculture. This is how the market captures the peasantry without enslaving them but by freeing their innovative potential. Using business values, they convert new farming ideas (innovations) into enterprises based at household level. This is how the Mbeere peasants selectively responded to the incentives proffered by the State to reduce poverty and create wealth thereby improving the quality of their lives. For this reason, social change and/or transformation among the peasants are endogenously sourced or engineered processes. Section 9.7 discusses the contribution of this study to the peasantry debate.

This study is built on the premise that by studying innovation and entrepreneurship together, it is possible to understand how peasants combine productive forces or resources in new ways to address poverty. This opened the possibility of applying Schumpeter's conception of entrepreneurship as a combination of innovations geared towards satisfying market demands for new goods and services. This in turn makes it possible to study peasants as entrepreneurs. Viewed this way, peasant transformation is the very essence of rural development. The market, the state, social capital and science and technology are key intermediating institutions in this transformation. The study's contribution in resuscitating the peasantry debate is given towards the end of this chapter.

Three research questions guided the study and the responses are contained in quantitative and qualitative information) collected at three points in time over two decades from a dynamic panel of innovators complemented by key informants.

To the neo-liberalists, the study holds that though the market is good at reducing poverty, this only happens to a few bold and innovative farmers who eventually get transformed into entrepreneurs. The state must come in with appropriate policies for poverty reduction for the greater majority of the peasants. Complete market dominance of the economy at the expense of the state is not possible. The emerging petite bourgeoisie does not take absolute control of the state but partnerships are forged.

Finally, more value may be added to the debate by bringing on board a neo-Schumpeterian approach which views entrepreneurship as the adoption of market-led or mediated innovations. This means that it is now possible to study innovation and entrepreneurship together and apply them to agriculture. By making it possible to study peasants as entrepreneurs, the Marxist-Leninists as well as neo-liberals are likely to appreciate the new fact that peasants can never be perpetually condemned to poverty. Instead, peasants can influence their own destiny by using entrepreneurship to improve their material conditions. This happens only when they consciously abandon tradition and chose to operate agriculture as a business.

This thesis holds tapital and the market do not dissolve the peasants but instead change their status from subordinate to petty-bourgeois producers and stakeholders in the capitalist system. This is more the case when the capital is not foreign-originated but endogenous. In the latter case, peasants discover their hidden potential and exploit it to their advantage. Entrepreneurship disrupts traditional patterns of ownership and use of the means of production by introducing equity through innovation. By responding to market demands, the peasants create and own wealth by which they acquire political relevance and visibility. This stimulates class consciousness and the peasants join one of the middle classes in transit to the richer classes.

9.9 Areas for Further Research

First and foremost, the propositions in this study could be developed into hypotheses and empirically tested in a random sample survey. Secondly, future research could be conducted on value chains for micro, small and medium enterprises in agriculture specifically in improved fruit and dairy farming in Mbeere and other parts of Kenya. Thirdly, a study could be done on the sustainability of agricultural entrepreneurship as an escape route out of poverty in Mbeere and other arid and semi-arid areas of the country. Fourthly, a future study could be mounted on the implications of the emerging social classes in Mbeere for political discourse especially the political potential of agricultural entrepreneurs on local politics. Special focus could be placed on the misuse of farmers by politicians who regard them as a docile and captive pool of voters. Finally, the potential of women entrepreneurs in improved dairy farming could be explored further and its implications for rural societies and change.

REFERENCES

- Abukutsa-Onyango, M. (2009), 'Solving Kenya's Food Crisis: One Indigenous Crop at a Time'. <Downloaded from <http://solveclimate.com/topic/Africa>> Retrieved on 16 September 2009.
- Acs, Z.J. and Audretsch, D.B., (eds.) (2008), Handbook of Entrepreneurship Research. Boston: Kluwer.
- Acs, Z.J. and Audretsch, D.B. (2005), Entrepreneurship, Innovation and Technological Change: Foundations and Trends in Entrepreneurship. The Netherlands: Kluwer Academic Publishers.
- Acs, Z.J. and Audretsch, D.B., Braunerhjelm, P. and Carlsson, Bo, (2005), The Knowledge Spillover Theory of Entrepreneurship. University of Baltimore: Institute for Development Strategies.
- Acs, Z.J. and Audretsch, D.B. (2004), "The Impact of Geographic Differences in Human Capital on Service Firm Formation Rates". *Journal of Urban Economics* 56: 244-278.
- Acs, Z.J. and Audretsch, D.B., Braunerhjelm, P. and Carlsson, Bo, (2004), "The Missing Link: The Knowledge Filter and Entrepreneurship in Endogenous Growth". London: CEPR Discussion Paper 4783.
- Adams, R.H. (1994), "Non-Farm Income and Inequality in Rural Pakistan". *Journal of Development Studies* 31(1): 110 –133.
- Adekunle, A.A., Ellis-Jones, J., Ajibefun I., Nyikal, R.A., Bangali, S., Fatunbi, O. and Ange, A. (2012), Agricultural Innovation in Sub-Saharan Africa: Experiences from Multiple Stakeholder Approaches. Accra, Ghana: Forum for Agricultural Research in Africa (FARA).
- Agro-ProFocus (2009), Promoting Farmer Entrepreneurship: Summary. AC Arnherm, The Netherlands: Agri-ProFocus.
- Ahmad, N. and Seymour, R.G. (2008), Defining Entrepreneurial Activity: Definitions Supporting Frameworks for Data Collection. Paris: OECD Statistics Working Papers 2008/01.
- Ahmad, N. and Hoffmann, A.N. (2008), A Framework for Addressing and Measuring Entrepreneurship, OECD Statistics Working Papers 2008/02. Paris: OECD.
- Alila, P. and Omosa, M. (1998), 'Rural Development Policies in Kenya' in Ng'ethe, N. and Owino, W. (eds.), From Sessional Paper No. 10 to Structural Adjustment: Towards Indigenizing the Policy Debate. Nairobi: IPAR.

Allen, T. and Thomas, A. (2000), *Poverty and Development into the 21st Century*. Oxford: Oxford University Press.

Alwin, D. F. and Krosnick, J. A. (1991), "Aging, Cohorts and the Stability of Sociopolitical Orientations Over the Life Span". *American Journal of Sociology* 97 (1): 169-195.

Amable, B. (2011), "Morals and Politics in the Ideology of Neo-Liberalism". *Socio-Economic Review* 9 (1): 3-30.

Amin, S. (1974), *Accumulation on a World Scale*. Rome: FAO and AGRIS.

Amin, S. (1976), *Unequal Development: An Essay on the Social Formations of Peripheral Capitalism*. New York: Monthly Review Press.

Amin, S. (1977), *Imperialism and Unequal Development*. New York: Monthly Review Press.

Anderson, D. (2005), *Histories of the Hanged*. New York: W.W. Norton.

Archibald, T., Thomas, L., Betts, J. and Johnston, D. (2002), "Should Start-up Companies be Cautious? Inventory Policies Which Maximize Survival Probabilities". *Management Science* 48 (9):1161-1174.

Arellano, M. and Bover, O. (1995), "Another Look at the Instrumental Variable Estimation of Error-Components Models". *Journal of Econometrics* 68 (1): 29-51.

Arrighi, G. and Saul, J.S. (1968), "Socialism and Economic Development in Tropical Africa". *Journal of Modern African Studies* 6 (2): 141-169.

Atieno-Odhiambo, E.S. (1995), "The Formative Years" in Ogot, B.A. and Ochieng, W.R. (eds.), *Decolonization and Independence in Kenya, 1940-1993*. Nairobi: East African Educational Publishers.

Audretsch, D.B. (2005), *The Entrepreneurial Society*. New York: Oxford University Press.

Audretsch, D.B., Grilo, I. and Thurik, A.R. (eds.), (2007), *Handbook of Research on Entrepreneurship Policy*. Cheltenham: Edward Elgar.

Audretsch, D.B., Keilbach, M. and Lehmann, E. (2005), *The Knowledge Spillover Theory of Entrepreneurship and Technological Diffusion*. New York: Emerald Publishing Limited.

Audretsch, D.B., Keilbach, M. and Lehmann, E. (2005), *Entrepreneurship and Economic Growth*. New York: Oxford University Press.

Audretsch, D.B. (1995), *Innovation and Industry Evolution*. Cambridge MA: MIT Press.

Azoulay, P. and Shane, S. (2001), “Entrepreneurs, Contracts and the Failure of Young Firms”. *Management Science* 47 (3): 337-358.

Balassa, B. A. and Associates (1982), *Development Strategies in Semi-Industrial Economies*. Baltimore: Johns Hopkins University Press.

Balassa, B. A. (1989), *Comparative Advantage, Trade Policy and Economic Development*. New York: Harvester Wheatsheaf.

Balassa, B. A. and Associates (1971), *The Structure of Protection in Developing Countries*. Baltimore: Johns Hopkins University Press.

Barney, J. (1991), Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99-120.

Barry, A., Osborne, T. and Rose, N. (2013), *Foucault and Political Reason*. London: Routledge.

Bartels, L. M. and Jackman, S. (2014), “A Generational Model of Political Learning”. *Electoral Studies* 33: 7-18.

Bates, R. H. (1981), *Markets and States in Tropical Africa: The Political Basis of Agrarian Policies*. Berkeley and Los Angeles: University of California Press.

Bates, R. H. (1981), *Essays on the Political Economy of Rural Africa*. New York: Cambridge University Press.

Bates, R. H. (2005), *Beyond the Miracle of the Market: The Political Economy of Agrarian Development in Kenya*. Cambridge: Cambridge University Press.

Bauer, P. T. (1986), *Reality and Rhetoric: Studies in the Economics of Development*. Cambridge, Mass.: Harvard University Press.

Baumol, W. J. (2008), “Small Enterprises, Large Firms, Productivity Growth and Wages”. *Journal of Policy Modeling* 30 (4): 575-589.

Baumol, W. J. (1993), *Entrepreneurship, Management and the Structure of Payoffs*. Cambridge MA: MIT Press.

Baumol, W. J. (1990), “Entrepreneurship: Productive, Unproductive and Destructive”. *Journal of Political Economy* 98: 893-921.

Baumol, W. J., Litan, R. E. and Schramm, C. J. (2007), "Sustaining Entrepreneurial Capitalism". *Capitalism and Society* 2 (2): 1-36.

Beck, T., Demirguc-Kunt, A. and Maksimovic, V. (2008), Financing Patterns around the World: Are Small Firms Different? *Journal of Financial Economics* 89: 467-487.

Bell, M. (2006), Background Paper for the L20 Workshop on 'Furthering Science and Technology', March 2006, UNU-MERIT Maastricht.

Berdegue, J. A. and Escobar, G. (2002), Rural Diversity, Agricultural Innovation Policies and Poverty Reduction. London: ODI Agricultural Research and Extension Network (AgREN), Network Paper No.122.

Bergevoet, R. H. M., Giesen, G. W. J., Saatkamp, H. W., van Woerkum, C. M. J. and Huirne, R. B. M. (2005), Improving Entrepreneurship in Farming: The Impact of Training Programmes in Dutch Dairy Farming and Developing Entrepreneurship Abilities to Feed the World in a Sustainable Way. Paper Presented at the International Farm Management Association's 15th Congress, Campinas SP, Brazil, No. 24219.

Bernstein, H. (1977), "Notes on Capital and the Peasantry". *Review of African Political Economy* 4 (10): 60-73.

Bernstein, H. (1979), "African Peasantries: A Theoretical Framework". *The Journal of Peasant Studies* 6 (4): 421-443.

Bernstein, H. (1988), "Capitalism and Petty-bourgeois Production: Class Relations and Divisions of Labour". *Journal of Peasant Studies* 15 (2): 258-271.

Bernstein, H. and Byres, T. J. (2001), "From Peasant Studies to Agrarian Change". *Journal of Agrarian Change* 1 (1): 1-56.

Bernstein, H., Crow, B. and Johnson, H. (1992), Rural Households: Crises and Responses. Oxford: Oxford University Press.

Berelson, B. (1971), Content Analysis in Communication Research. New York: Hafner Publishing Company.

Berman, B. and Lonsdale, J. (1992), Unhappy Valley: Conflict in Kenya and Africa-Book Two: Violence and Ethnicity. Nairobi: East African Educational Publishers.

Berry, S. (1997), "Tomatoes, Land and Hearsay: Property and History in Asante in the Time of Structural Adjustment". *World Development*, 25 (8): 1225-1241.

Berry, S. (1993), No Condition is Permanent: The Social Dynamics of Agrarian Change in Sub-Saharan Africa. Madison: University of Wisconsin Press.

Besley, T. and Case, A. (1994), "Diffusion as a Learning Process: Evidence from HYV Cotton". Manuscript: Princeton.

Bigsten, A. (1996), "The Circular Migration of Smallholders in Kenya". *Journal of African Economies*, 5 (1): 1-20.

Bhagwati, J. N. and Srinivasan, T. N. (1978), Trade Policy and Development. Washington DC: World Bank.

Binswanger H. P. and McIntire, J. (1987), "Behavioral and Material Determinants of Production Relations in Land-abundant Tropical Agriculture". *Journal of Economic Development and Cultural Change* 36 (1): 73-100.

Blackwood, D. L. and Lynch, R. G. (1994), "The Measurement of Inequality and Poverty: A Policy Maker's Guide to the Literature". *World Development*, 22 (4): 567-578.

Blundell, R. and Bond, S. (1998), "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models". *Journal of Econometrics* 87 (1): 115-143.

Bonturi, M. (2008), Entrepreneurs as Drivers of Innovation and Growth. Paris: OECD.

Boserup, E. (1965), The Conditions of Agricultural Growth. Chicago: Aldine Publishing Company.

Bradshaw, Y., Noonan, R., Gash, L. and Buchmann-Sershen, C. (1993), "Borrowing Against the Future: Children and Third World Indebtedness". *Social Forces*. 71: 629 – 656.

Brady, D. 2003. 'Rethinking the Sociological Measurement of Poverty'. *Social Forces*. 81 (3): 715 – 751. University of North Carolina Press <Stable URL: <http://www.jstor.org/stable/3598174> Accessed: 26/03/2010 03:56>

Brannen, J. (1992), "Combining Qualitative and Quantitative Approaches: An Overview" in Brannen, J. (ed.), *Mixing Methods: Qualitative and Quantitative Research*. Brookfield: Avebury: 3-37.

Breisinger, C. et al (2008), "Agriculture for Development in Ghana: New Opportunities and Challenges". Washington DC: IFPRI Discussion Paper 00784.

Brokensha, D. (1988a), The Mbeere in Kenya, Volume I: Changing Rural Ecology. University of California at Santa Barbara: Institute for Development Anthropology.

Brokensha, D. and Njeru, E. H. N (1977), Some Consequences of Land Adjudication in Mbeere Division, Embu. University of Nairobi: IDS Working Paper No. 320.

Brokensha, D. and Riley, B. (1977), Vegetation Changes in Mbeere Division, Embu. IDS Working Paper No. 319.

Brokensha, D. and Nellis, J. (1975), Administration in Mbeere: Portrait of a Rural Kenya Division. University of Nairobi: IDS Discussion Paper No. 114.

Brokensha, D. (1972), Mbeere Clans and Land Adjudication. University of Nairobi: IDS Staff Paper No. 96.

Bromley, D. W. (1991), Environment and Economy: Property Rights and Public Policy. Oxford: Basil Blackwell.

Bruck, T., Esenaliev, D., Kroeger, A., Kudebayeva, A., Mirkasimov, B. and Steiner, S. (2014), "Household Survey Data for Research on Well-being and Behaviour in Central Asia". *Journal of Comparative Economics* 42 (3): 819-835.

Bruton, G. D., Ahlstrom, D. and Obloj, K. (2008), "Entrepreneurship in Emerging Economies: Where Are We Today and Where Should the Research Go in the Future?" *Entrepreneurship: Theory and Practice* 32(1): 1-14.

Bryceson, D.F. (1999), "Sub-Saharan Africa Betwixt and Between: Rural Livelihood Practices and Policies". Leiden: Afrika-Studiecentrum (ASC), Working Paper 43/1999.

Bryceson, D. F. and Jamal, V. (eds.) (1997), Farewell to Farms: De-Agrarianisation and Employment in Africa. Aldershot: Ashgate.

Bryceson, D. F. (1996), "De-agrarianisation and Rural Employment in Sub-Saharan Africa: A Sectoral Perspective". *World Development*, 24 (1): 94-111.

Bryman, A. (1992), "Quantitative and Qualitative Research: Further Reflections on their Integration" in Brannen, J. (ed), *Mixing Methods: Qualitative and Quantitative Research*. Brookfield: Avebury.

Bryman, A. (2004), *Social Research Methods* (2nd Edition). New York: Oxford University Press.

Buhler, W., Morse, S., Arthur, E., Bolton, S. and Mann, J. (2002), *Science, Agriculture and Research: A Compromised Participation?* London: Earthscan.

Burgelman, R. A. (1983a), Corporate Entrepreneurship and Strategic Management: Insights from a Process Study. *Management Science* 29: 1349-1364.

Burgelman, R. A. (1983b), A Model of Interaction of Strategic Behaviour, Corporate Context and the Concept of Strategy. *Academy of Management Review* 8: 61-70.

Carley, K. (1989), *Computer Analysis of Qualitative Data*. Pittsburgh, PA: Carnegie Mellon University.

Carley, K. (1990), "Content Analysis" in Asher, R.E. (ed), *The Encyclopedia of Language and Linguistics*. Edinburgh: Pergamon Press.

Carroll, G. R. and Hannan, M. T. (2000), *The Demography of Corporations and Industries*. Princeton NJ: Princeton University Press.

Carter, M. R. (1997), "Environment, Technology, and the Social Articulation of Risk in West African Agriculture". *Economic Development and Cultural Change* 45 (3): 557-591.

Carter, S. L. (2003), "Entrepreneurship in the Farm Sector: Indigenous Growth for Rural Areas". *Entrepreneurship in Regional Food Production*. Bodo, Norway: Norland Research Institute, pp. 23-50.

Cassel, C. and Symon, G. (1994), "Qualitative Research in Work Contexts" in Cassel, C. and Symon, G. (eds.), *Qualitative Methods in Organizational Research: A Practical Guide*. London: Sage: 1-13.

Casson, M. (2005), *Review of Scott Shane: A General Theory of Entrepreneurship*. Cheltenham: Edward Elgar.

Casson, M. (2003), "Entrepreneurship, Business Culture and the Theory of the Firm" in Acs, Z.J. and Audretsch, D.B. (eds.), *Handbook of Entrepreneurship Research*. The Netherlands: Kluwer Academic Publishers: 223-246.

Casson, M. (1982), *The Entrepreneur: An Economic Theory*. Aldershot, UK: Gregg Revivals.

Casson, M., Yeung, B., Basu, A. and Wadeson, W. (eds.), (2006), *The Oxford Handbook of Entrepreneurship*. Oxford: Oxford University Press.

Castle, N. G. and Anderson, R. A. (2011), "Caregiver Staffing in Nursing Homes and Their Influence on Quality of Care: Using Dynamic Panel Estimation Models". *Medical Care* 49 (6): 545-552.

Central Bureau of Statistics (CBS), ICEG and K-REP (1999), *National Micro and Small Enterprise Baseline Survey*. Nairobi: CBS, ICEG and K-REP.

CGIAR (2000), *CGIAR News*, June 2000. Washington DC: CGIAR.

Chamberlain, G. (1980), "Analysis of Covariance with Qualitative Data". *Review of Economic Studies* Vol. XLVII (1) No. 146: 225-238.

- Chambers, R. (2005), *Ideas for Development*. London: Earthscan.
- Chambers, R. (1998), *Challenging the Professions: Frontiers for Rural Development*. London: ITDG.
- Chambers, R. (1997), *Whose Reality Counts? Putting the Last First*. London: ITDG.
- Chambers, R. and Conway, G. (1992), "Sustainable Rural Livelihoods: Practical Concepts for the 21st Century". IDS, University of Sussex: *Discussion Paper No. 296*.
- Chambers, R. (1989), "Editorial Introduction: Vulnerability, Coping and Policy". University of Sussex: *IDS Bulletin*, 20 (2): 1-7.
- Chambers, R., Pacey, A. and Thrupp, L. (eds.) (1989), *Farmer First: Farmer Innovation and Agricultural Research*. London: ITDG.
- Chambers, R. (1983), *Rural Development: Putting the Last First*. London: Longman.
- Chambers, R., Longhurst, R. and Pacey, A. (eds.) (1981), *Seasonal Dimensions to Rural Poverty*. London: Frances Pinter.
- Chandrasekhar, C. P. (1993), "Agrarian Change and Occupational Diversification: Non-Agricultural Employment and Rural Development in West Bengal". *Journal of Peasant Studies* 20 (2): 205-270.
- Chinkhuntha, G. (2004), How to Support Innovation and Entrepreneurship in African Farmers. www.ifpri.org/2020africaconference.
- Clark, N. (2002), "Innovation Systems, Institutional Change and the New Knowledge Market: Implications for Third World Agricultural Development". *Economics of Innovation and New Technologies* 2 (4 -5): 353-368.
- Crouch, C. (2011), *The Strange Non-death of Neo-liberalism*. Cambridge: Polity Press.
- Cohen, W.M. and Klepper, S. (1992), "The Tradeoff between Firm Size and Diversity in the Pursuit of Technological Progress". *Small Business Economics* 4 (1): 1-14.
- Cohen, W. M. and Klepper, S. (1991), "Firm Size versus Diversity in the Achievement of Technological Advance" in Acs, Z. J. and Audretsch, D. B. (eds.), *Innovation and Technological Change: An International Comparison*. Ann Arbor: University of Michigan Press: 183-203.
- Colclough, C. and Manor, J. (eds.) (2000), *States or Markets? Neo-liberalism and the Development Policy Debate*. Oxford: Oxford University Press.

Collier, P. and Dercon, S. (2014), "African Agriculture in 50 Years: Smallholders in a Rapidly Changing World". *World Development* Vol. 63: 92-101.

Collier, P. and Dercon, S. (2013), *African Agriculture in 50 Years: Smallholders in a Rapidly Changing World*. Oxford: Oxford University.

Companys, Y. E. (2005), "Strategic Entrepreneurs at Work: The Nature, Discovery and Exploitation of Entrepreneurial Opportunities". Paper presented at a Workshop on Opportunity and Growth at the Max Planck Institute, Jena, Germany, March 2005.

Coulson, N. E. and Fisher, L. M. (2009), "Housing Tenure and Labour Market Impact: The Search Goes On". *Journal of Urban Economics* 65 (3): 252-264.

Cowen, M. P. and Shenton, R. W. (1996), *Doctrines of Development*. London and New York: Routledge.

Cowen, M. P. (1976), *Capital and Peasant Households*. Nairobi: Institute for Development Studies. *Mimeo*.

Creswell, J. W. (2003), *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (2nd Edition). Thousand Oaks: Sage.

Critchley, W. (ed) (1999), *Promoting Farmer Innovation: Harnessing Local Environmental Knowledge in East Africa*. Nairobi: UNDP.

Daily Nation, March 22, 2011, p. 3 of News. Nairobi: Nation Media Group.

Davidsson, P. (2003), "The Domain of Entrepreneurship Research: Some Suggestions" in Katz, J. and Shepherd, S. (eds.), *Advances in Entrepreneurship, Firm Emergence and Growth*, Vol. 6. Amsterdam: Elsevier: 315-372.

Davies, S. (1996), *Adaptable Livelihoods: Coping with Food Insecurity in the Malian Sahel*. London: Macmillan.

Deininger, K. and Okidi, J. (2003), "Growth and Poverty Reduction in Uganda 1999-2000: Panel Data Evidence". *Development Policy Review* 21 (4): 481-509.

Deininger, K. (2005), "Land Policies for Growth and Poverty Reduction: Key Issues and Challenges Ahead. Washington DC: World Bank Discussion Paper.

De Janvry, A., Gordillo, G. and Sadoulet, E. (1997), *Mexico's Second Agrarian Reform: Household and Community Responses*. La Jolla, California: Center for US-Mexican Studies, University of California at San Diego.

De Lauwere, C.C. (2004), "The Role of Agricultural Entrepreneurship in Dutch Agriculture of Today". *Agricultural Economics* 33: 229-238.

Delgado, C., Hopkins, J. and Kelly, V. A. (1998), *Agricultural Growth Linkages in Sub-Saharan Africa*. Washington D.C: IFPRI Research Report 107, IFPRI.

Delgado, C. (1995), "Agricultural Diversification and Export Promotion in Sub-Saharan Africa". *Food Policy* 20 (3): 225-243.

Denzin, N. K. and Lincoln, Y. S. (eds.) (2000), *Handbook of Qualitative Research* (2nd Edition). Thousand Oaks: Sage.

Dercon, S. and Krishnan, P. (1996), "Income Portfolios in Rural Ethiopia and Tanzania: Choices and Constraints". *Journal of Development Studies* 32(6): 850-875.

De sola P.I. (1959), *Trends in Content Analysis*. Urbana, Illinois: University of Illinois Press.

Dey, I. (1993), *Qualitative Data Analysis: A User-Friendly Guide for Social Scientists*. London: Routledge.

Dijkstra, T. (1997), *Trading the Fruits of the Land: Horticultural Marketing Channels in Kenya*. Aldershot: Ashgate.

Dijkstra, T. (1999), "Commercial Horticulture by Kenyan Smallholders" in Grossman, D. et al (eds.), *Urban and Peri-Urban Agriculture in Africa*. Aldershot: Ashgate.

Dlamini, P.M. (1997), *The Characteristics of Growth in Micro Enterprises in Swaziland*. Final Project Report, Department of Agricultural Economics and Management, University of Swaziland.

Dolan, C. and Humphrey, J. and Harris-Pascal, C. (1999), *Horticulture Commodity Chains: The Impact of the UK Market on the African Fresh Vegetable Industry*. University of Sussex: Institute of Development Studies. *Mimeo*.

Eisenhardt, K.M. (1989), "Building Theories of Case Study". *Academy of Management Review* 14(4): 532-550.

Ellis, F. (2000), *Livelihoods, Diversification and Poverty*. Oxford: Basil Blackwell.

Ellis, F. (1999), "Rural Livelihood Diversity in Developing Countries: Evidence and Policy Implications". *New Resource Perspectives* No. 40. London: ODI.

Ellis, F. (1999), "The Determinants of Rural Livelihood Diversification in Developing Countries". *Journal of Agricultural Economics* 20.

Ellis, F. (1998a), "Household Strategies and Rural Livelihood Diversification". *The Journal of Development Studies*, 35 (1): 1-38.

Ellis, F. (1998b), "Rural Livelihood Diversity in Developing Countries: Analysis, Policy, Methods". Economic and Social Committee for Research (ESCOR), Project No. R6646.

Ellis, F. (1993), *Peasant Economics: Farm Households and Agrarian Development*. Cambridge: Cambridge University Press.

Ellis, F. (1988), *Peasant Economics: Farm Households and Economic Development*. Cambridge: Cambridge University Press.

Ellison, G. and Fudenberg, D. (1993), 'Rules of Thumb and Social Learning'. *Journal of Political Economy* 101 (4): 612 – 643.

Endres, A. M. and Woods, C. R. (2006), "Modern Theories of Entrepreneurial Behaviour: A Comparison and Appraisal". *Small Business Economics* 26: 189-202.

English, P., Jaffe, S. and Okello, J. (2004), "Exporting Out of Africa: The Kenya Horticulture Success Story". Paper presented at the Conference: Scaling Up Poverty Reduction: A Global Learning Process, Shanghai, May 25.

Evans, A. (1993), "Contracted Out": Some Reflections on Gender, Power and Agrarian Institutions". *IDS Bulletin*, 24 (3).

Evans, H. E. and Ngau, P. (1991), "Rural-Urban Relations, Household Income Diversification and Agricultural Productivity". *Development and Change*, 22: 519-545.

Evans, H. E. and Ngau, P. (1991), "Rural-Urban Relations, Household Income Diversification and Agricultural Productivity". *Development and Change* 22: 519-545.

FAO (1995), *World Agriculture: Toward 2010* (ed. Alexandratos, N.). Rome: FAO.

Feldman, M. P. and Audretsch, D. B. (1999a), Science-based Diversity, Specialization, Localized Competition and Innovation. *European Economic Review* 43: 409-429.

Ferreira, F., Gyourko, J. and Tracy, J. (2010), "Housing Busts and Household Mobility". *Journal of Urban Economics* 68 (1): 34-45.

Fisher, T., V. Mahajan and A. Singha, (1997), *The Forgotten Sector: Non-Farm Employment and Enterprises in Rural India*. London: I T Publications.

Folbre, N. (1994), *Who Pays for the Kids? Gender and Structures of Constraint*. London: Routledge.

Forrest, J. B. (1982), "Defining African Peasants". *Peasant Studies* 9 (4): 242-249.

Foucault, M. and Burchell, G. (2010), *The Birth of Biopolitics*. New York: Picador.

Francis, E. (2000), *Making a Living: Changing Livelihoods in Rural Africa*. London: Routledge.

Francis, E. (1999), "Learning From the Local: Rural Livelihoods in Ditsobotla, Northwestern Province, South Africa". *Journal of Contemporary African Studies*, 17 (1): 49-73.

Francis, E. (1998), "Gender and Rural Livelihoods in Kenya". *The Journal of Development Studies*, 35 (2): 72-95.

Francis, E. (1995), "Migration and Changing Division of Labour: Gender Relations and Economic Change in Koguta, Western Kenya". *Africa*, 65 (2).

Francis, E. and Hoddinot, J. (1993), "Migration and Differentiation in Western Kenya: A Tale of Two Sub-locations". *The Journal of Development Studies*, 30 (2).

Gibbon, P. (ed.) (1995), *Markets, Civil Society and Democracy in Kenya*. Uppsala: Nordic Africa Institute.

Gillham, B. (2000), *Case Study Research Methods*. London: Continuum.

Gilling, J., Jones, S. and Duncan, A. (2001), "Sector Approaches, Sustainable Livelihoods and Rural Poverty Reduction". *Development Policy Review* 19 (3): 303-319.

Global Donor Platform for Rural Development (2008), *Agricultural Sector Experiences in Implementing the Paris Declaration on Aid Effectiveness*. Bonn: German Federal Ministry for Economic Cooperation.

Goldsmith, E. (2003), *Learning to Live with Nature: The Lessons of Traditional Irrigation*. www.edwardgoldsmith.org/page_103.html.

Goldson and Associates (1993), *The Mango Filiere in Lower Embu, Meru and Isiolo (EMI)*. Nairobi: Consultancy Report.

Goldstein, M. and Udry, C. (1999), *Agricultural Innovation and Resource Management in Ghana*. Final Report to IFPRI under MP17.

Government of Kenya, (2010), *Report of the 2009 Population Census*. Nairobi: Government Press.

Government of Kenya (2009a), *2009/2010 Estimates of Development Expenditure of the Government of Kenya for the Year Ending 30th. June 2010 Vol. 1*. Nairobi: Government Press.

Government of Kenya (2009b), 2009/2010 Estimates of Development Expenditure of the Government of Kenya for the Year Ending 30th. June 2010 Vol. 2. Nairobi: Government Press.

Government of Kenya (2009c), Agricultural Sector Development Strategy 2009 – 2020. Nairobi: Government Printer.

Government of Kenya (2009), Ten Years of Fight against Poverty: A Report of the Poverty Eradication Commission. Nairobi: Government Printer.

Government of Kenya (2008), First Medium Term Plan (2008 – 2012). Kenya Vision 2030: A Globally Competitive and Prosperous Kenya. Nairobi: Ministry of Planning and National Development.

Government of Kenya (2007), *Economic Recovery Strategy (2003 – 2007): The Third Annual Progress Report (2005 – 2006)*. Nairobi: Ministry of Planning and National Development.

Government of Kenya (2006), *Mid-Term Review of the Economic Recovery Strategy for Wealth and Employment Creation*. Nairobi: Ministry of Planning and National Development.

Government of Kenya (2005), Strategy for Revitalizing Agriculture 2004 – 2014. Short Version. Nairobi: MOA, MOLFD, MOCDM.

Government of Kenya (2003), *Labour Force Survey Report 1998/9*. Nairobi: Central Bureau of Statistics/Kenya National Bureau of Statistics.

Government of Kenya (2002), *Mbeere District Development Plan 2002 – 2008. Effective Management for Sustainable Economic Growth and Poverty Reduction*. Nairobi: Government Press.

Government of Kenya (2001a), *Poverty Reduction Strategy Paper for the Period 2001 – 2004*. Nairobi: Ministry of Finance and Planning.

Government of Kenya (2001b), *Report of the Sector Working on Agriculture and Rural Development – Poverty Reduction Strategy Paper*. Nairobi: Ministry of Finance and Planning.

Government of Kenya (2001c), *Mbeere District Poverty Reduction Strategy Paper: Consultation Report for the Period 2001 – 2004*. Nairobi: Ministry of Finance and Planning.

Government of Kenya (2000), *Poverty in Kenya: Popular Version of the Second Report*. Nairobi: Ministry of Finance and Planning.

Government of Kenya (1999), *National Poverty Eradication Plan 1999 – 2015*. Nairobi: Government Press.

Government of Kenya (1997), *Mbeere District Development Plan 1997 – 2001*. Nairobi: Government Press.

Government of Kenya, (1997), *Economic Recovery Strategy for Employment and Wealth Creation*. Nairobi: Government Press.

Government of Kenya, (1965), *Sessional Paper No.10 on African Socialism and its Application to Planning in Kenya*. Nairobi: Government Printer.

Galdwin, T. N., Kennelly, J. J. and Krause, T. S. (1995), “Shifting Paradigms for Sustainable Development: Implications for Management Theory and Research”. *Academy of Management Review*, 20 (4): 874-907.

Grebel, T. (2007), “Neo-Schumpeterian Perspectives in Entrepreneurship Research” in Hanusch, H., Pyka, A., *Elgar Companion to Neo-Schumpeterian Economics*. Cheltenham, UK: Edward Elgar.

Grebel, T. Pyka, A. and Hanusch, H. (2004), “An Evolutionary Approach to the Theory of Entrepreneurship” in Holzl, W. and Foster, J. (eds.), *Applied Evolutionary Economics and Complex Systems*. Cheltenham, UK: Edward Elgar: 155-180.

Greenstein, F. I. (2014), *Personality and Politics: Problems of Evidence, Inference and Conceptualization*. New Jersey: Princeton University Press.

Grilo, I. and Irigoyen, J.M. (2006), “Entrepreneurship in the EU: To Wish and Not to Be”. *Small Business Economics* 26 (4): 305-318.

Grilo, I. and Thurik, A. R. (2005), “Latent and Actual Entrepreneurship in Europe and the US: Some Recent Developments”. *International Entrepreneurship and Management Journal* 1: 441-459.

Haggblade, S., Hazell, P. and Reardon, T. (2010), “The Rural Non-farm Economy: Prospects for Growth and Poverty Reduction”. *World Development* 38 (10): 1453-1526.

Hall, A. J. (2007), *The Origins and Implications of Using Innovation Systems Perspectives in the Design and Implementation of Agricultural Research Projects: Some Personal Observations*. UNU-MERIT Working Paper 2007-013. Maastricht: United Nations University-Economic and Social Research Training Centre on Innovation and Technology.

Hall, A. (2007), *Challenges to Strengthening Agricultural Innovation Systems: Where Do We go From Here?* Maastricht: United Nations University - Economic and Social Research Training Centre on Innovation and Technology, UNU-MERIT Working Paper No. 2007-038.

Hall, A. J. (2005), "Capacity Development for Agricultural Biotechnology in Developing Countries: An Innovation Systems View of What it is and How to develop it". *Journal of International Development* 19 (5): 611-630.

Hanmer, L., Pyatt, G. and White, H. (1996), *Poverty in Sub-Saharan Africa: What Can We Learn from the World Bank's Poverty Assessments?* The Hague: Institute of Social Studies.

Hart, G. (1995), "Gender and Household Dynamics: Recent Theories and Their Implications" in Quibria, M.G. (ed.), *Critical Issues in Asian Development: Theories, Experiences and Policies*. Oxford: Oxford University Press.

Hartley, J. (2004), "Case Study Research" in Cassel, C. and Symon, G. (eds), *Essential Guide to Qualitative Methods in Organization Research*. London: Sage: 323-333.

Hartley, J. (1994), "Case Studies in Organization Research" in Cassel, C. and Symon, G. (eds), *Qualitative Methods in Organizational Research: A Practical Guide*. London: Sage.

Hartog, J., Ferffer-i-Carbonell, A. and Jonker, N. (2002), "Linking Measured Risk Aversion to Individual Characteristics". *Kyklos* 55: 3-26.

Harvey, D. (2006), "Neo-liberalism As Creative Destruction". *Geografiska Annaler, Series B, Human Geography* 88 (2): 145-158.

Haugerud, A. (1994), *Studying Social Change through Return Visits: An Embu Restudy*. University of Nairobi, Institute for Development Studies: Working Paper No. 494.

Haugerud, A. (1981), *Development and Household Economy in Two Eco-Zones of Embu District*. University of Nairobi, Institute for Development Studies: Working Paper No. 382.

Haugerud, A. (1981), *Economic Differentiation Among Peasant Households: A Comparison of Embu Coffee and Cotton Zones*. University of Nairobi, Institute for Development Studies: Working Paper No. 383.

Haughton, J. and Khandker, S. R. (2009), *Handbook on Poverty and Inequality*. Washington DC: The World Bank.

Hayami, Y. and Ruttan, V. (1985), *Agricultural Development: An International Perspective*. Baltimore: Johns Hopkins University Press.

Hayek, F. A. von (1937), "Economics and Knowledge". *Economica* (New Series) 4: 33-54.

Hayek, F. A. von (1945), *The Use of Knowledge in Society*. *American Economic Review* 35: 519-530.

Hazell, P. B. R. and Haggblade, S. (1993), "Farm-Nonfarm Growth Linkages and the Welfare of the Poor" in Lipton, M. and Van der Gaag, J. (eds.), *Including the Poor. Proceedings of a Symposium organized by the World Bank and the International Food Policy Research Institute*, Washington, D.C: World Bank, pp. 190-204.

Heald, S. (1991), "Tobacco, Time and the Household Economy in Two Kenyan Societies: The Teso and the Kuria" *Comparative Studies in Society and History* 33(1).

Hebert, R. F. and Link, A.N. (1989), "In Search of the Meaning of Entrepreneurship: Is a Synthesis Possible?" *Small Business Economics* 1: 39-49.

Heyer, J. (1996), "The Complexities of Rural Poverty in Sub-Saharan Africa". *Oxford Development Studies* 24(3): 281-297.

Hill, P. (1997), *The Migrant Cocoa Farmers of Southern Ghana: A Study in Rural Capitalism*. Oxford: International African Institute.

Hiroven, M. (2008), *A Tourist Guide to Systems Studies of Rural Innovation*. LINK Policy Resources on Rural Innovation Series No. 1. Hyderabad, India: LINK.

Hirsch-Kreinsen, H. and Jacobson, D. (eds.) (2008), *Innovation in Low-Tech Firms and Industries*. Cheltenham: Edward Elgar.

Holmes, T. J. and Schmitz, J. A. (1990), "A Theory of Entrepreneurship and its Application to the Study of Business Transfers". *Journal of Political Economy* 98: 265-294.

Holzl, W., Peneder, M., Silva-Porto, M., van der Horst, R. and Telussa, J. (2008), *The Economics of Entrepreneurial Activity and SMEs: Policy Implications for the EU*, Background Report prepared for the European Competitiveness Report 2008.

Hunt, D. (1976), "Chayanov's Model of Peasant Household Resource Allocation and its Relevance to Mbeere Division, East Africa". University of Nairobi: IDS Working Paper No. 276.

Hsiao, C. (2014), *Analysis of Panel Data*. London: Cambridge University Press.

Hsiao, C. (1985), "Benefits and Limitations of Panel Data". *Econometric Reviews* 4 (1): 121-174.

Hunt, D. (1975), "Growth Versus Equity?: An Examination of the Distribution of Economic Status and Opportunity in Mbeere, Eastern Kenya". University of Nairobi: IDS Occasional Paper No. 11.

Hunt, D. (1974), "Resource Use in a Medium-potential Area: The Mbeere Rural Economy". University of Nairobi: IDS Working Paper No. 180.

Hyden, G. (1980), *Beyond Ujamaa in Tanzania: Underdevelopment and an Uncaptured Peasantry*. London: Heinemann.

Hyden, G. (1983), *No Shortcuts to Progress: African Development Problems in Perspective*. London: Heinemann.

Institute for Education in Democracy (IED) (2008), *Report on 2007 General Elections*. Nairobi: IED.

Ikiara, G. K. (1998), 'Economic Restructuring and Poverty in Kenya' in Ng'ethe, N. and Owino, W. (eds.), *From Sessional Paper No. 10 to Structural Adjustment: Towards Indigenising the Policy Debate*. Nairobi: IPAR.

Jaetzold, R. and Schmidt, H. (1979), *Farm Management Handbook of Kenya Vol. I, Part C, East Kenya: Natural Conditions and Farm Management Information*. Nairobi: Ministry of Agriculture.

Jaetzold, R. and Schmidt, H. (1983), *Farm Management Handbook of Kenya Vol. II, Part C, East Kenya: Natural Conditions and Farm Management Information*. Nairobi: Ministry of Agriculture.

Jayne, T. S., Yamano, T., Weber, M. T., Tschirley, D., Benfica, R., Chapoto, A. and Zulu B. (2003), "Smallholder Income and Land Distribution in Africa: Implications for Poverty Reduction Strategies". *Food Policy* 28: 253-275.

Jazairy, I., Alamgir, M. and Panuccio, T. (1992), *The State of World Rural Poverty: An Inquiry into its Causes and Consequences*. London: IT Publications for IFAD.

Jennings, M. K. and Niemi, R.G. (2014), *Generations and Politics: A Panel Study of Young Adults and their Parents*. New Jersey: Princeton University Press.

Jick, T. D. (1979), "Mixing Qualitative and Quantitative Methods: Triangulation in Action". *Administrative Science Quarterly* 24(December): 602-611.

Judson, R. A. and Owen, A. L. (1999), "Estimating Dynamic Panel Data Models: A Guide for Macroeconomists". *Economics Letters* 65 (1): 9-15.

Kabeer, N. (1991), "Gender, Production and Well-Being: Rethinking the Household Economy". *Discussion Paper* No. 288, Institute of Development Studies, Sussex.

Kanas, A., Chiswick, B. R. and Lippe, T. (2012), "Social Contacts and the Economic Performance of Immigrants: A Panel Study of Immigrants in Germany". *International Migration Review* 46 (3): 680-709

Karayiannis, A. D. (2009), "The Marshallian Entrepreneur". Quoted in Peneder, M. (2009), *The Meaning of Entrepreneurship: A Modular Concept*. Austrian Institute of Economic Research (WIFO), Working Paper No.335/2009.

KARI, KEFRI, DAREP, NRI and ODI, (1995a), *Second Six Monthly Technical Report for the Period April –September 1994*. Embu: KARI, KEFRI, DAREP, NRI and ODI

KARI, KEFRI, DAREP, NRI and ODI, (1995b), *Farming in Kilia: AEZ 4, Settlement Area, Food and Cash Cropping Mainly on Vertisols*. Embu: KARI, KEFRI, DAREP, NRI and ODI.

KARI, KEFRI, DAREP, NRI and ODI, (1995c), *Farming in Kirie: AEZ 5, Livestock Millet Zone, Shallow Stony Soils*. Embu: KARI, KEFRI, DAREP, NRI and ODI.

KARI, KEFRI, DAREP, NRI and ODI, (1995d), *Farming in Mbita: Upper AEZ 4, Area of Mixed Soils and Higher Potential with Mixed Farming Community*. Embu: KARI, KEFRI, DAREP, NRI and ODI.

KARI, KEFRI, DAREP, NRI and ODI (1995e), *Farming in Mbeere Vol. 1: Systems Overview, Analysis and Opportunities for Intervention. Report of an Informal Diagnostic Survey of the Farming Systems of Lower Embu, Kenya*. Compiled and Edited by A. Sutherland, J. Ouma and J. Ndubi. Embu: KARI, KEFRI, DAREP, NRI and ODI.

Kariuki, J. G. and King'oo, B. M. (1998), "Agricultural Strategies for Poverty Reduction: Case Study, Kenya". Paper presented at workshop on Agricultural Sector Strategies for Poverty Reduction in Eastern and Southern Africa, Wageningen, The Netherlands, 23-25 November 1998. CTA and EC Directorate General for Development.

Kelle, U (2001), "Sociological Explanations between Micro and Macro and the Integration of Qualitative and Quantitative Methods". *Forum Qualitative Social Research* 2 (1) Article 5.

Key, N. and Runsten, D. (1999), "Contract Farming, Smallholders and Rural Development in Latin America: The Organization of Agroprocessing Firms and the Scale of Out-grower Production". *World Development* 27 (2): 381-401.

Kingsbury, Damien (2013), *Critical Reflections on Development*. New York: Palgrave MacMillan.

KIPPRA (2009), *Kenya Economic Report 2009. Building a Globally Competitive Economy*. Nairobi: Kenya Institute for Public Policy Research and Analysis (KIPPRA).

Kirzner, I. M. (1997a), "Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach". *Journal of Economic Literature* 35: 60-85.

Kirzner, I. M. (1997b), *How Markets Work: Disequilibrium, Entrepreneurship and Discovery*. London: IEA.

Kirzner, I. M. (1985), *Discovery and the Capitalist Process*. Chicago: University of Chicago Press.

Kirzner, I. M. (1980), *The Prime Mover of Progress: The Entrepreneur in Capitalism and Socialism*. London: Institute of Economic Affairs.

Kirzner, I. M. (1979), *Perception, Opportunity and Profit: Studies in the Theory of Entrepreneurship*. Chicago: University of Chicago Press.

Kitching, G. (1971), *Class and Economic Change in Kenya: The Making of an African Petite Bourgeoisie 1905-1970*. New Haven: Yale University Press.

Kitching, G. (1982), *Development and Underdevelopment in Historical Perspectives*. London: Methuen.

Kiviet, J. F. (1995), "On Bias, Inconsistency and Efficiency of Various Estimators in Dynamic Panel Data Models". *Journal of Econometrics* 68 (1): 53-78.

Knickel, K., Tisenkopfs, T. and Sarah, P. (eds.) (2009), *Innovation Processes in Agriculture and Rural Development: Results of a Cross-national Analysis of the Situation in Seven Countries, Research Gaps and Recommendations*.

Knight, F. H. (1921), *Risk, Uncertainty and Profit*. New York: Harper and Row.

Larson, D. and Mundlak, Y. (1997), "On the Intersectoral Migration of Agricultural Labour". *Economic Development and Cultural Change*, 45 (2): 295-320.

Kolbacher, F. (2006), "Use of Qualitative Content Analysis in Case Study Research". *Forum Qualitative Social Research* 7(1), Article 21.

Krippendorff, K. (2004), *Content Analysis: An Introduction to its Methodology* (2nd Edition). Thousand Oaks: Sage.

Krueger, A. O. (1995), *Growth Theories in Light of the East Asian Experience*. Chicago: University of Chicago Press.

Krueger, A. O. (1978), *Liberalization Attempts and Consequences*. Chicago: NBER Books.

Lachenmaier, S. and Rottmann, H. (2011), "Effects of Innovation on Employment: A Dynamic Panel Analysis". *International Journal of Industrial Organization* 29 (2): 210-220.

- Lall, S. (2001), *Competitiveness, Technology and Skills*. Williston: Edward Elgar.
- Lall, S., Stewart, F. and Wangwe, S. (eds.) (1992), *Alternative Development Strategies in Sub-Saharan Africa*. Basingstoke: Macmillan.
- Larner, W. (2000), "Neo-Liberalism: Policy, Ideology, Governmentality". *Studies in Political Economy* Vol. 63.
- Larson, D. and Mundlak, Y. (1997), "On the Intersectoral Migration of Agricultural Labour". *Economic Development and Cultural Change* 45 (2): 295-320.
- Lazear, E.P. (2005), Entrepreneurship. *Journal of Labour Economics* 23:649-680.
- Lazear, E. P. (2004), Balanced Skills and Entrepreneurship. *American Economic Review* 94: 208-211.
- Leftwich, A. (2000), *States of Development: On Primacy of Politics in Development*. Cambridge: Polity Press.
- Lenin, V.I. (1956), *The Development of Capitalism in Russia: The Progress of the Formation of a Home Market for Large-scale Industry*. Moscow: Foreign Languages Publishing House.
- Lenin, V.I. (1946), *Capitalism and Agriculture*. Moscow: International Publishers.
- Lenin, V.I. (1999). *Imperialism: The Highest Stage of Capitalism*. Chippendale: Resistance Books.
- Lewis-Beck, M.S., Elias, A. and Nadeau, R. (2008), "Economics, Party and the Vote: Causality Issues and Panel Data". *American Journal of Political Science* 52 (1): 84-95.
- Leys, C. (1971), "Politics in Kenya: The Development of Peasant Society". *British Journal of Political Science* 1 (3): 307-337.
- Leys, C. (1975), *Colonialism and Underdevelopment in Kenya: The Politics of Neo-colonialism*. London: Heinemann.
- Leys, C. (1996), *The Rise and Fall of Development Theory*. Nairobi: East African Educational Publishers.
- Liebeskind, J. P. (1996), "Knowledge, Strategy and the Theory of the Firm". *Strategic Management Journal* 17 (Winter Special Issue): 93-107.
- Liedholm, C., McPherson, M. and E. Chuta (1994), "Small Enterprise Employment Growth in Rural Africa: *American Journal of Agricultural Economics* Vol. 76, December, pp. 1177-1182.

Link, A. N. (2007), "Public Policy and Entrepreneurship" in Audretsch, D., Grilo, I. and Thurik, I. (eds.), *Handbook of Research on Entrepreneurship Policy*. Cheltenham: Edward Elgar: 130-139.

Lipton, M. and Ravallion M. (1995), "Poverty and Policy" in Behraman J. and Srinivasan, T.N. (eds.), *Handbook of Development Economics IIIB*. Amsterdam: Elsevier: 2551-2657.

Lipton, M. and van der Gaag, J. (eds.), (1993), 'Including the Poor'. Proceedings of a Symposium Organized by the World Bank and the International Food Policy Research Institute. Washington, D.C: The World Bank.

Little, I. M. D. (1993), *Boom, Crisis and Adjustment: The Macroeconomic Experience of Developing Countries*. Washington, DC: The World Bank.

Lonsdale, J. and Berman, B. (1979), "Coping with the Contradictions: The Development of the Colonial State in Kenya, 1895-1914", *Journal of African History* 20, No. 4.

Lundvall, Bengt-Ake, (1992), *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. London and New York: Pinter.

Lyamchai, C. J., Kingamkono, M. N., Mowo, J. G. and German, L. (2005), *Farmer Innovations in Natural Resource Management: Lessons and Challenges from Lushoto, Tanzania*. ICRAF.

MacEwan, A. (2001), *Neo-liberalism or Democracy?: Economic Strategy, Markets and Alternatives for the 21st Century*. Sydney: Pluto Press.

Mackenzie, F. (1993), "A piece of Land Never Shrinks: Reconceptualizing Land Tenure in a smallholding District, Kenya," in T. Bassett and D. Crummey (eds.), *Land in African Agrarian Systems*. Madison, WI: University of Wisconsin Press.

Makana, N. E. (2009), "Peasant Response to Agricultural Innovations: Agrarian Diversification and Technical Change: The Case of Bungoma District in Western Kenya, 1954-1960". *Ufahamu: A Journal of African Studies*, 35 (1).

Mamdani, M. (1975), 'Class Struggles in Uganda'. *Review of African Political Economy*. 2 (4): 26-61.

Mamdani, M. (1976), *Politics and Class Formation in Uganda*. London: Heinemann.

Mamdani, M. (1987), "Extreme but Not Exceptional: Towards an Analysis of the Agrarian Question in Uganda". *Journal of Peasant Studies* 14 (2): 191-225.

Mamdani, M. (1996), *Citizen and Subject: Contemporary Africa and the Legacy of Late Colonialism*. Princeton, N.J: Princeton University Press.

Marx, K. (1975), *Das Capital: A Critique of Political Economy* (Vols. 1-3). Moscow: Progress Publishers.

Marx, K. and Engels, F. (1848), *The Communist Manifesto*. Moscow: International Publishers.

Marx, K. (1970), *The German Ideology*. Moscow: International Publishers.

Marx, K. (1904), *A Contribution to the Critique of Political Economy*. Moscow: International Publishers.

Martinussen, J. (1997), *Society, State and Market: A Guide to Competing Theories of Development*. London: Zed Books.

Marshall, A. (1920), *Principles of Economics*, 8th ed. London: Macmillan.

McElwee, G. and Bosworth, G. (2010), "Exploring the Strategic Skills of Farmers Across a Typology of Farm Diversification Approaches". *Journal of Farm Management*, 13(12): 819-838.

McElwee, G. (2008a), "Literature Review and Segmentation Framework" in C. Rudmann (ed.), *Entrepreneurial Skills and their Role in Enhancing the Relative Independence of Farmers. Results and Recommendations from the Research Project: Developing Entrepreneurial Skills of Farmers* (pp. 19-26). Frick: Research Institute of Organic Agriculture FiBL.

McElwee, G. (2008b), "A Taxonomy of Entrepreneurial Farmers". *International Journal of Entrepreneurship and Small Business* 6 (3): 465-478.

McElwee, G. (2006), "Farmers as Entrepreneurs: Developing Competitive Skills". *Journal of Developmental Entrepreneurship* 11(3): 187-206.

Maxon, R. M. (2003), *Going Their Separate Ways: Agrarian Transformation in Kenya 1930-1950*: London: Associated University Press.

Maxwell, S. (1998), *Agricultural Development and Poverty in Africa*. London: CTA Annual Report Special Paper.

Mayring, Phillip (2000a), "Qualitative Content Analysis". *Qualitative Social Research* 1(2) Article 20.

McClelland D. (1961), *The Achieving Society*. New York: Free Press.

- McCormick, D. and Abuodha, C. O. (2000), “Differences Between Rural and Urban Households: A Research Using the 1999 MSE Baseline Study Data”. Nairobi: African Centre for Economic Growth.
- McCormick, D. and Pedersen, P. O. (eds.), (1996), *Small Enterprises: Flexibility and Networking in an African Context*. Nairobi: Longhorn.
- McTavish, D. G. and Pirro, E. (1990), “Contextual Content Analysis”. *Quality and Quantity* 24: 245-265.
- Mellor, J. (1976), *The New Economics of Growth*. Ithaca, N.Y.: Cornell University Press.
- Mellor, J. (1986), “Agriculture on the Road to Industrialization” in Lewis, J. P. and Kallab, V. (eds), *Development Strategies Reconsidered*. New Brunswick, NJ: Transaction Books. Reprinted in Eicher, C. K. and Staatz, J. M., *Agricultural Development in the Third World*. Baltimore: Johns Hopkins University Press.
- Minja, E. M., Ulicky, E. and Mziray, H. A. (2003), *Farmer Group Activity Reports for the DFID Crop Protection Programme (CPP) Bean IPM Promotion Project in Eastern and Southern Africa*.
- Minot, N. and Ngigi, M. (2004), “Are Horticulture Exports a Replicable Success Story? Evidence from Kenya and Cote d’Ivoire”. EPTD Discussion Paper No. 120, MTID Discussion Paper No. 73. Washington DC: IFPRI.
- Mkandawire, T. and Soludo, C. C. (1999), *Our Continent Our Solutions: African Perspectives to Structural Adjustment*. Dakar: CODESRIA.
- Moore, M. J. and Viscusi, W. K. (2014), *Compensation Mechanisms for Job Risks: Wages, Workers’ Compensation and Product Liability*. New Jersey: Princeton University Press.
- Moore, D. B. and Schmitz, G. G (eds.) (1994), *Debating Development Discourse: Institutional and Popular Perspectives*. London: Macmillan.
- Mudge, S.L. (2008), “What is Neo-liberalism?” *Socio-Economic Review* 6 (4): 703-731.
- Mugenda, M. O. and Mugenda, A. G. (1999), *Research Methods: Qualitative and Quantitative Approaches*. Nairobi: ACTS Press.
- Mwaniki, H. S. K. (1982), *A Precolonial History of the Chuka of Mount Kenya, 1400-1908*. Halifax, Nova Scotia: Dalhousie University, PhD Thesis.
- Mwaniki, H. S. K. (1974), *Embu Historical Texts*. Nairobi: East African Literature Bureau.

Mwaniki, H. S. K. (1973a), *The Living History of the Embu and Mbeere*. Nairobi: East African Literature Bureau.

Mwaniki, H.S.K. (1973b), *A Political History of the Embu, 1500-1906*. Nairobi: East African Literature Bureau.

Nafziger, E. W. (1998), *Inequality in Africa: Political Elites, Proletariat, Peasants and the Poor*. Cambridge: Cambridge University Press.

Ndege, P. (1993), "Struggles for the Market: The Political Economy of Commodity Production and Trade in Western Kenya, 1929-1939". West Virginia University: PhD Dissertation.

Nelson, R. (1992), *National Innovation Systems: A Comparative Analysis*. New York: Oxford University Press.

Neumark, D., Salas, J. M. I. and Wascher, W. (2014), "Revisiting the Wage-Employment Debate: Throwing Out the Baby with the Bathwater". *Industrial and Labour Relations* 67 (3): 608-648.

Newman, W. L. (1997), *Social Research Methods: Qualitative and Quantitative Approaches* (3rd Edition). Boston: Allyn and Bacon.

Ngau, P. (1989), "Rural-Urban Relations and Agrarian Development in Kutus Area". University of California at Los Angeles: PhD Thesis.

Ng'ethe, N. and Omosa, M. (eds.) (2009), *Drivers and Maintainers of Poverty in Kenya: A Research Agenda*. Chronic Poverty Research Centre-Institute for Development Studies, University of Nairobi: Occasional Paper No.73.

Ng'ethe, N. and Misati, L. (2009), 'Introduction' in Ng'ethe, N. and Omosa, M. (eds.), *Drivers and Maintainers of Poverty in Kenya: A Research Agenda*. *IDS Occasional Paper* No. 73. Nairobi: IDS/CPRC (K).

Njeru, G. R. (2009), 'Political Institutions and Processes' in Ng'ethe, N. and Omosa, M. (eds.), *Drivers and Maintainers of Poverty in Kenya: A Research Agenda*. *IDS Occasional Paper* No. 73. Nairobi: IDS/CPRC (K): 59-72.

Njeru, G.R. (2003), *Livelihood Diversification and Entrepreneurship: An Analysis of Smallholder Production and Marketing Innovations in a Rural District of Kenya, Mbeere*. University of Nairobi: IDS Working Paper No. 539.

Njeru, G.R. (1996), "Small-scale Farmer as Entrepreneur" in McCormick, D. and Pedersen, P.O. (eds.), *Small Enterprises: Flexibility and Networking in an African Context*. Nairobi: Longhorn, pp. 100-112.

Obulinji, H.W. (1996), "The Impact of Sugar Cane versus Maize and Beans Growing on Employment and Income Generation at the Household Level: A Case Study of Lunza and Eshirombe Sub-Locations of Kakamega District, Kenya". Egerton University: M.A. Thesis.

Odaga, A. (1991), "Kech en Mar Pesa: Gender and Livelihood in a Western Kenya Sub-location". Oxford University: PhD Thesis.

OECD (2008), *Turning African Agriculture into a Business: A Reader*. Paris: OECD.

Ogot, B. A. and Ochieng, W. (1995) (eds.), *Decolonization and Independence in Kenya, 1940-1993*. London: James Currey.

Ogot, B. A. (ed.) (1976), *Kenya Before 1900*. Nairobi: Kenya Literature Bureau.

Oloo, A. (2009), 'Policy, Policy Change and Poverty' in Ng'ethe, N. and Omosa, M. (eds.), *Drivers and Maintainers of Poverty in Kenya: A Research Agenda*. Institute for Development Studies and Chronic Poverty Research Centre (CPRC-K), University of Nairobi: *IDS Occasional Paper No. 73*.

Omiti, J., Owino, W., Otieno, W. and Odundo, P. (2002), 'Poverty Reduction Efforts in Kenya: Institutions, Capacity and Policy'. Nairobi: Institute of Policy Analysis and Research (IPAR) *Discussion Paper No. 033/2002*.

O'Neil, R. J. (1995), "Farmer Innovation and Biological Control". *Midwest Biological Control Newsletter* 2 (3): 1-2.

Onjala, J. O. (1998), *Economic Growth and Development in Kenya Since Independence*' in Ng'ethe, N. and Owino, W. (eds.), *From Sessional Paper No. 10 to Structural Adjustment: Towards Indigenizing the Policy Debate*. Nairobi: IPAR.

Orvis, S. (1997), *The Land Question in Kenya*. Gainesville: University Press of Florida.

Ostrom, E. (2009), *Understanding Institutional Diversity*. Princeton: Princeton University Press.

Otsuka, K. (2000), "Role of Research in Poverty Reduction: Lessons from the Asian Experience". *Food Policy* 25: 447-462.

Otsuka, K., Gascon, F. and Asano, S. (1994), "Green Revolution and Labour Demand: The Case of Central Luzon, 1966-90". *Journal of Development Studies* 31 (1): 82-109.

- Oucho, J. (2002), *Undercurrents of Ethnic Conflict in Kenya*. Leiden: Brill.
- Oyelaran-Oyeyinka, B. and McCormick, D. (eds.) (2007), *Industrial Clusters and Innovation Systems in Africa*. Tokyo, New York, Paris: United Nations University Press.
- Oyugi, W. O. (2011), ‘The Design of Devolution in the New Constitution’. Nairobi: Centre for Law and Research International (CLARION).
- Palmquist, M. E. (1990), *The Lexicon of the Classroom: Language and Writing in Classrooms*. Pittsburgh, PA: Carnegie Mellon University, Doctoral Dissertation.
- Parker, S. (2004), *The Economics of Entrepreneurship and Self-Employment*. Cambridge: Cambridge University Press.
- Patton, E. and Appelbaum, S. H. (2003), “The Case for Case Studies in Management Research”. *Management Research News* 26 (5): 60-71.
- Peneder, M. (2009), *The Meaning of Entrepreneurship: A Modular Concept*. Vienna: Austrian Institute of Economic Research (WIFO), Working Paper No.335.
- Peneder, M. (2008a), *Entrepreneurship, Technological Regimes and Productivity Growth: Integrated Classifications of Firms and Sectors*. EU KLEMS Working Paper No. 28.
- Peneder, M. (2008b), “The Problem of Private Under-investment in Innovation: A Policy Mind-map”. *Technovation* 28: 518-530.
- Peneder, M. (2008c), “The Impact of Venture Capital on Firm Growth and Innovation”. Paper presented at the 15th Global Finance Conference in Hangzhou, China, 18-20 May 2008.
- Platteau, J-P. (1992), “Land Reform and Structural Adjustment in Sub-Saharan Africa: Controversies and Guidelines”. FAO Economic and Social Development Paper No. 107. Rome: FAO.
- Plehn-Dujovic, J. M. (2009), *Entry and Exit by New versus Existing Firms*. *International Journal of Industrial Organization* 27: 214-222.
- Pomp, M. (1994), “Smallholders and Innovation Adoption: Cocoa in Sulawesi, Indonesia”. Vrije University, Amsterdam: PhD Thesis.
- Prahalad, C. K. (2005), *The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits*. Pennsylvania: Wharton School of Publishing.
- Preston, P. W. (1982), *Theories of Development*. London: Routledge.

Pretty, J. N., Thompson, J. and Hinchcliffe, F. (1997), *Sustainable Agriculture: Impacts on Food Production and Challenges for Food Security*. London: International Institute for Environment and Development, Sustainable Agriculture and Rural Livelihoods Programme, Gatekeeper Series No. 60.

Pyysiäinen, J., Anderson, A., McElwee, G. and Vesala, K. (2006), “Developing the entrepreneurial Skills of Farmers: Some Myths Explored”. *International Journal of Entrepreneurial Behavior Research*, 12(1): 21-39.

Ravallion, M. (2000), “Prices, Wages and Poverty in Rural India: What Lessons do the Time Series Data Hold for Policy?” *Food Policy* 25: 351-364.

Reardon, T., Berdegue, J. A. and Escobar, G. (2001), “Rural Nonfarm Incomes and Employment in Latin America: Patterns, Determinants and Policy Implications”. *World Development*, March 2001.

Reardon, T., et al (2000), “Effects of Non-Farm Employment on Rural Income Inequality in Developing Countries: An Investment Perspective”. *Journal of Agricultural Economics* 51 (2): 266-288.

Reardon, T. (1997), “Using Evidence of Household Income Diversification to Inform Study of the Rural Non-Farm Labour Market in Africa”. *World Development* 25 (5): 735-747.

Reardon, T., Delgado, C. and Matlon, P. (1992), “Determinants and Effects of Income Diversification amongst Farm Households in Burkina Faso”. *Journal of Development Studies*, 28 (1): 264-296.

Remenyi, D., Money, A., Price, D. and Bannister, F. (2002), “The Creation of Knowledge through Case Study Research”. *Irish Journal of Management* 23(2): 1-17.

Renkow, M. (2000), “Poverty, Productivity and Production Environment: A Review of the Evidence”. *Food Policy* 25: 463-478.

Ricketts, M. (2006), “Theories of Entrepreneurship: Historical Development and Critical Assessment”, in Casson, M., Yeung, B., Basu, A. and Wadeson, W. (eds.), *The Oxford Handbook of Entrepreneurship*. Oxford: Oxford University Press: 33-58.

Riley, B. and Brokensha, D. (1988), *The Mbeere in Kenya, Vol. II: Botanical Identities and Uses*. Boston: University Press of America.

Rivera-Ferre, M. G. (2008), ‘The Future of Agriculture: Agricultural Knowledge for Economically, Socially and Environmentally Sustainable Development’. *European Molecular Biology Organization (EMBO) Reports* 9 (11): 1061 – 1066.

Roberts, C. (ed.) (1997), *Text Analysis for the Social Science Methods for Drawing Statistical Inferences from Texts and Transcripts*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Rogers, E. (2000), *Diffusion of Innovations*. New York: Free Press.

Roothaert, R. and Muhanji, G. (eds.) (2009), *Profit Making for Smallholder Farmers. Proceedings of the 5th MATF Experience Sharing Workshop, 25th - 29th May 2009, Entebbe, Uganda*. FARM-Africa, Nairobi.

Rubin, H. J. and Rubin, I. S. (1995), *Qualitative Interviewing: The Art of Hearing Data*. Thousand Oaks: Sage.

Rudmann, C., Vesala, K. M., and Jäckel, J. (2008), "Synthesis and Recommendations" in Rudmann, C. (ed.), *Entrepreneurial Skills and their Role in Enhancing the Relative Independence of Farmers: Results and Recommendations from the Research Project: Developing Entrepreneurial Skills of Farmers* (pp. 85-108). Frick: Research Institute of Organic Agriculture FiBL.

Sachs, W. (ed.) (2010), *The Development Dictionary: A Guide to Knowledge as Power (New Edition.)*. London: Zed Books.

Sahlman, W. A., Stevenson, H. H., Roberts, M. J. and Bhide, A. (1999), *The Entrepreneurial Venture* 2nd ed. Cambridge MA: Harvard Business School Press.

Sahn, D. E. (1994), "The Impact of Macroeconomic Adjustment on Incomes, Health and Nutrition: Sub-Saharan Africa in the 1980s" in Cornia, G.A. and Helleiner, G.K. (eds), *From Adjustment to Development in Africa: Conflict, Controversy, Convergence, Consensus*. London: Macmillan.

Sahn, D. E. and Sarris, A. (1991), "Structural Adjustment and the Welfare of Rural Smallholders: A Comparative Analysis from Sub-Saharan Africa". *World Bank Economic Review* 5 (2): 259-289.

Saith, A. (1992), *The Rural Non-Farm Economy: Processes and Policies*. Geneva: ILO.

Saul, J. S. (1979), *The State and Revolution in Eastern Africa*. London: Heinemann.

Satchi, M. and Temple, J. (2009), "Labour Markets and Productivity in Developing Countries". *Review of Economic Dynamics* 12 (1): 183-204.

Sautier, D., Vermeulen, H., Fok, M. and Bienabe, E. (2006), "Case Studies of Agri-Processing and Contract Agriculture in Africa". Latin American Center for Rural Development-RIMISP Paper prepared for the World Development Report 2008 on Agriculture for Development.

Schejtman, A., Berdegue, J. and Modrego, F. (2006), Income Diversification through Agricultural Development. Latin American Center for Rural Development (RIMISP), Paper prepared for the World Development Report 2008.

Schmitz, J. A. (1989), "Imitation, Entrepreneurship and Long-run Growth". *Journal of Political Economy* 97: 721-739.

Schultz, T. W. (1980), "Investment in Entrepreneurial Ability". *The Scandinavian Journal of Economics* 82: 437-448.

Schultz, T. W. (1975), "The Value of the Ability to Deal with Disequilibria". *Journal of Economic Literature* 13: 827-846.

Schumpeter, J. A. (2005), "Development". *Journal of Economic Literature*, 43, 108-120.

Schumpeter, J. A. (1934), *The Theory of Economic Development*. Cambridge, Mass: Harvard University Press.

Scitovsky, T. I. (2013), *Welfare and Competition*. New York: Routledge.

Scitovsky, T. I., Little, I. M. D. and Scott, M. (1970), *Industry and Trade in Some Developing Countries*. Rome: FAO and AGRIS.

Scoones, I. and Thompson, J. (2009), *Farmer First Revisited: Innovation for Agricultural Research and Development*. Warwickshire: Practical Action Publishing.

Sen, A. (1999), *Development as Freedom*. New York: Alfred A. Knopf.

Sen, A. (1992), *Inequality Reexamined*. Washington D. C.: Harvard University Press.

Sen, A. (1990), "Food, Economics and Entitlements" in Dreze, J., Sen, A. and Hussain, A. (eds.), *The Political Economy of Hunger: Selected Essays*. WIDER Studies in Development Economics. Oxford: Clarendon: 50-68.

Sen, A. (1981), *Poverty and Famines: An Essay on Entitlement and Deprivation*. Oxford: Clarendon.

Setboonarng, S. (2006), *Organic Agriculture, Poverty Reduction and the Millennium Development Goals*. Asian Development Bank (ADB) Discussion Paper No. 54.

Seung, C.A. and Schmidt, P. (1995), "Efficient Estimation of Models for Dynamic Panel Data". *Journal of Econometrics* 68 (1): 5-27.

Shanahan, S. E. and Tuma, N. B. (1994), 'The Sociology of Distribution and Redistribution' in Melser, N. J. S. and Swedberg, R. (eds.) (1994), *The Handbook of Economic Sociology*. Princeton University Press: 733 – 765.

- Shane, S. and Ulrich, K. T. (2004), "Technological Innovation, Product Development and Entrepreneurship". *Management Science* 50 (2): 133-144.
- Shane, S. (2004), *A General Theory of Entrepreneurship: The Individual-Opportunity Nexus*. Cheltenham: Edward Elgar.
- Shane, S. and Eckhardt, J. (2003), "The Individual-Opportunity Nexus" in Acs, Z. J. and Audretsch, D. B. (eds.), *Handbook of Entrepreneurship Research*. New York: Springer Publishers: 161-194.
- Shane, S. (2001a), "Technological Opportunity and New Firm Creation". *Management Science* 47 (2): 205-220.
- Shane, S. (2001b), "Technological Regimes and New Firm Formation". *Management Science* 47 (9): 1173-1190.
- Shane, S. and Venkataraman, S. (2000), The Promise of Entrepreneurship as a Field of Research. *Academy of Management Review* 25: 217-226.
- Shanin, T. (ed) (1974), *Peasants and Peasant Societies*. Harmondsworth: Penguin Books.
- Shivji, I. G. (1973), *The Silent Class Struggle*. Dar-es-salaam: Tanzania Publishing House.
- Shivji, I. G. (1976), *Class Struggle in Tanzania*. London: Heinemann.
- Shockley, G. E., Frank, P. M. and Stough, R. R. (eds.) (2008), *Non-Market Entrepreneurship: Interdisciplinary Approaches*. Cheltenham: Edward Elgar.
- SID (2006), *Readings on Inequality in Kenya: Sectoral Dynamics and Perspectives*. Nairobi: Society for International Development.
- Silberschmidt, M. (1992), "Have Men Become the Weaker Sex?: Changing Life Situations in Kisii District, Kenya". *Journal of Modern African Studies* 30 (2).
- Silici, L. (2007), *The Role of Social Capital in the Adoption and the Performance of Conservation Agriculture: The Practice of Likoti in Lesotho*. Maseru: PhD Executive Summary.
- Silva, O. (2007), "The Jack-of-all-Trades Entrepreneur: Innate Talent or Acquired Skill?" *Economics Letters* 97 (2): 118-123.
- Simpson, B. M. (1998), "Investing in People: The Support of Farmers' Learning, Creativity and Local Social Networks in the Project Pisciculture Famiale in Zaire". *Journal of Agricultural Education and Extension* 5 (2): 99-110.

Smith, C. P. (ed.) (1992), *Motivation and Personality: Handbook of Thematic Content Analysis*. New York: Cambridge University Press.

Smith, A. D. (1973), *The Concept of Social change: A Critique of the Functionalist Theory of Social Change*. London: Routledge and Kegan Paul.

Solomon, M. (1993), "Content Analysis: A Potent Tool in the Searcher's Arsenal". *Database* 16(2): 62-67.

Spring, A. and McDade, B. E. (1998), 'Entrepreneurship in Africa: Traditional and Contemporary Paradigms' in Anita Spring and Barbara E. McDade (eds) (1998), *African Entrepreneurship: Theory and Reality*. Gainesville: University of Florida Press.

Stake, R. E. (2000), "Case Studies" in Denzin, Norman K. and Lincoln, Yvonna S. (eds) (2000), *Handbook of Qualitative Research* (2nd Edition). Thousand Oaks: Sage: 435-453.

Stake, R. E. (1995), *The Art of Case Study Research*. Thousand Oaks: Sage Publications.

Stamoulis G. A. (2007), *Rural Development and Poverty: Is Agriculture Still the Key?* Rome: FAO-Agriculture and Development Economics Division, ESA WP 07-02.

Stark, O. (1991), *The Migration of Labour*. Cambridge, M.A.: Basil Blackwell.

Stevenson, L. and Lundstrom, A. (2007), "Dressing the Emperor: The Fabric of Entrepreneurship Policy" in Audretsch, D., Grilo, I. and Thurik, I. (eds), *Handbook of Research on Entrepreneurship Policy*. Cheltenham: Edward Elgar: 94-129.

Streissler, E. W. (1988), "The Intellectual and Political Impact of the Austrian School of Economics". *History of European Ideas* 9: 191-204.

Sumberg, J., Okali C. and Reece, D. (2003), 'Agricultural Research in the Face of Diversity, Local Knowledge and the Participation Imperative: Theoretical Considerations'. *Agricultural Systems (UK)*. 76 (2): 739-754.

Sunding, D. and Zilberman, D. (2000), "The Agricultural Innovation Process: Research and Technology Adoption in a Changing Agricultural Sector". Paper submitted for publication in a volume titled *Handbook of Agricultural Economics*.

Swynnerton, R. J. M. (1954), *A Plan to Intensify the Development of African Agriculture in Kenya*. Nairobi: Government Printer.

Szirmai, A., Wim, A. N. and Goedhuys, M. (eds.) (2011), *Entrepreneurship, Innovation and Economic Development*. Oxford: Oxford University Press.

Tashakkori, A. and Teddlie, C. (1998), *Mixed Methodology: Combining Qualitative and Quantitative Approaches* (Vol. 46). Thousand Oaks: Sage.

Taylor, E. and T. J. Wyatt, T. J. (1996), “The Shadow Value of Migrant Remittances, Income and Inequality in a Household-Farm Economy”. *Journal of Development Studies* 32 (6): 899-912.

Technical Centre for Agricultural and Rural Cooperation (CTA) (1998), Reducing Poverty through Agricultural Sector Strategies in Eastern and Southern Africa. Proceedings of a Workshop organized by CTA and the European Commission, Wageningen, The Netherlands, 23-25 November 1998.

Tedlow, R. S. (2001), *Giants of Enterprise: Seven Business Innovators and the Empires They Built*. New York: Harper Collins.

Thirtle, C., Lin, L. and Piesse, J. (2003), “The Impact of Research-led Agricultural Productivity Growth on Poverty Reduction in Africa, Asia and Latin America”. *World Development* 31 (12): 1959-1975.

Thompson, E. P. (1980), *Political Response to Capitalist Crisis: Neo-Marxist Theories of the State and the Case of the New Deal*. New York: Pluto Press.

Thompson, J., Millstone, E., Scoones, I., Ely, A., Marshall, F., Shah, E. and Stalg, S. (2007), “Agri-food System Dynamics: Pathways to Sustainability in an Era of Uncertainty”. STEPS Working Paper 4, Brighton: STEPS Centre.

Thompson, J. (2006), ‘The Dynamics of Changing Rural Worlds: Balancing income generation and household and community food security in an era of growing risk and uncertainty’. Paper presented at the Global Forum on Agricultural Research 3rd Triennial Conference, Reorienting Agricultural Research to Achieve the Millennium Development Goals, 8 – 11 November 2004, New Delhi, India.

Thorbecke, E. (2004), ‘Conceptual and Measurement Issues in Poverty Analysis’. WIDER *Discussion Paper* No. 2004/04. United Nations University.

Titscher, S., Meyer, M., Wodak, R. and Vetter, E. (2000), *Methods of Text and Discourse Analysis*. London: Sage.

Townsend, P. (1980), ‘Research on Poverty’, in Atkinson, A.B. (ed) (1980). *Wealth, Income and Inequality*: 299 – 306. London: Oxford University Press.

UNDP, (2005), *Linking the National Food Strategy to the MDGs: A Case Study of Ethiopia*. New York: UNDP.

UNDP, (1997), *Human Development Report 1997*. New York and Oxford: Oxford University Press.

UNDP, (2002), *Addressing Social and Economic Disparities: Kenya Human Development Report 2001*. Nairobi: UNDP.

UNDP, (2005), Linking Industrialization with Human Development: Fourth Kenya Human Development Report. Nairobi: UNDP.

USAID (2008), “Tanzania’s Agenda for Action”. Dar es Salaam, February 2008.

Vandenberg, P. (2006), Poverty Reduction through Small Enterprises: Emerging Consensus, Unresolved Issues and ILO Activities. Geneva: ILO.

Van der Pol, F. (2005), ‘Indigenous Knowledge and Agricultural Innovation’. Downloaded from <http://knowledge.ctn.int/en>.

Van Praag, M.C. (1999), “Some Classic Views on Entrepreneurship”. *De Economist* 147 (3): 311-335.

Van Praag, M. C. and Van Ophem, H. (1995), “Determinants of Willingness and Opportunity to Start as an Entrepreneur”. *Kyklos* 48:513-540.

Van Stel, A., Carree, M. and Thurik, R. (2005), “The Effect of Entrepreneurial Activity on National Economic Growth”. *Small Business Economics* 24: 311- 321.

Venkataraman, S. (2004), “Regional Transformation through Technological Entrepreneurship”. *Journal of Business Venturing* 19: 153-160.

Venkataraman, S. (1997), “The Distinctive Domain of Entrepreneurship Research” in Katz, J.A. (ed.), *Advances in Entrepreneurship, Firm Emergence and Growth* Vol. 3. Greenwich, Connecticut: JAI Press: 119-138.

Verheul, I., Wennekers, S., Audretsch, D. B. and Thurik, R. (2001), *An Ecclectic Theory of Entrepreneurship*. Tinbergen Institute, Discussion Paper TI2001-030/3.

Verkuyten, M. and Thijs, J. (2015), “Multicultural Education and Interethnic Attitudes: An Intergroup Perspective”. *European Psychologist* 18 (3): 179-190.

Vesala, H. T. and Vesala, K. M. (2010), Entrepreneurs and Producers: Identities of Finnish Farmers in 2001 and 2006. *Journal of Rural Studies*, 26(1): 21-30.

Vesala, K. M., Peura, J. and McElwee, G. (2007), The Split Entrepreneurial Identity of the Farmer. *Journal of Small Business and Enterprise Development*, 14(1): 48-63.

Wortman, M. S. (Jr.) (1990). A Unified Approach for Developing Rural Entrepreneurship in the U.S. *Agribusiness* 6: 221-236.

Von Braun, J. and Kennedy, E. (eds.) (1994), *Agricultural Commercialization, Economic Development and Nutrition*. Baltimore: Johns Hopkins University Press.

Von Braun, J. and Pandya-Lorch, R. (eds.) (1991), *Income Sources of Malnourished People in Rural Areas: Microlevel Information and Policy Implications*. Working Papers on Commercialization of Agriculture and Nutrition No.5. Washington, D.C.: IFPRI.

Von Pischke, J. D. (1991), *Finance at the Frontier*. Washington D. C: World Bank EDI Development Studies.

Wagner, J. (2003), "Testing Lazear's Jack-of-all-Trades View with German Microdata". *Applied Economics Letters* 10: 687-689.

Wambugu, N. and Kibua, T. (2004), 'Economic Growth and Poverty in Kenya: A Comparative Analysis of Effects of Selected Policies'. Nairobi: IPAR Discussion Paper No. 058/2004.

Weber, M. (1958), *The Protestant Ethic and the Spirit of Capitalism*. New York: Scribner's.

Weber, R. P. (1990), *Basic Content Analysis 2nd Edition*. Newbury Park, CA: Sage Publications.

Webster, A. (1990), *Introduction to the Sociology of Development 2nd Edition*. London: Macmillan.

Wegulo, F. and Obulinji, (2000), "The Interface between Farm and Non-Farm Activities Among the Mumias Sugar Cane Growers" in Alila, P. O. and Pedersen, P. O. (eds), *Negotiating Social Space: East African Micro-Enterprises*. Trenton, N.J.: Africa World Press.

Wennekers, S. and Thurik, R. A. (1999), "Linking Entrepreneurship and Economic Growth". *Small Business Economics* 13: 27-55.

Were, G. S. (1968), *East Africa Through a Thousand Years: AD 1000 To The Present Day*. London and Nairobi: Evan Brothers.

Wickama, J. M. and Mowo, J. G. (2001), *Using Local Resources to Improve Soil Fertility in Tanzania*. IIED Managing Africa's Soils No. 21.

Williamson, O. E. (1985), *The Economic Institutions of Capitalism*. New York: Free Press.

Winkelerprins, A. M. G. A. (1999), "Local Soil Knowledge: A Tool for Sustainable Land Management". *Society and Natural Resources* 12 (151-161).

Witt, U. (1999), "Do Entrepreneurs Need Firms?: A Contribution to a Missing Chapter in Austrian Economics". *Review of Austrian Economics* 11: 99-109.

Witt, U. (1998), "Imagination and Leadership: The Neglected Dimension of an Evolutionary Theory of the Firm". *Journal of Economic Behaviour and Organization* 35: 161-177.

Wolfram-Cox, J. and Hassard, J. (2005), "Triangulation in Organizational Research: A Re-presentation". *Organization* 12 (1): 109-133.

Wooden, M. and Li, N. (2014), "Panel Conditioning and Subjective Wellbeing". *Social Indicators Research* 117 (1): 235-255.

World Bank (2007a), *Zambia Smallholder Agricultural Commercialization Strategy*. Washington DC: The World Bank.

World Bank (2007b), *World Development Report 2008: Agriculture for Development (Draft Version)*. Washington D.C: The World Bank.

World Bank (2006), *Enhancing Agricultural Innovation: How to Go Beyond the Strengthening of Research Systems*. Economic Sector Work Report, Washington DC: The World Bank.

World Bank (2003), *Kenya: A Policy Agenda to Restore Growth: Poverty Reduction and Economic Management*, Africa Region. Washington DC: The World Bank.

World Bank (2000), *World Development Report: Attacking Poverty*. Washington D.C: The World Bank.

World Bank (1997), *Rural Development: From Vision to Action*. Washington, DC: The World Bank.

World Bank (1986), *Poverty and Hunger: Issues and Options for Food Security in Developing Countries*. Washington D.C: The World Bank.

World Bank (1980), *Poverty and Growth in Kenya*. World Bank Staff Working Paper No. 389. Washington: The World Bank.

World Bank, (1997), *Rural Development: From Vision to Action*. Washington, DC: World Bank.

Yin, R. K. (2003a), *Case Study Research Design and Methods* (3rd Edition Vol. 5). Thousand Oaks: Sage.

Yin, R. K. (2003b), *Applications of Case Study Research* (2nd Edition, Vol. 34). Thousand Oaks: Sage.

Yin, R. K. (1981), "The Case Study Crisis: Some Answers". *Administrative Science Quarterly* 26(1): 58-65.

Yumkella, K. et al (2011). *Agribusiness for Africa's Prosperity*. Geneva: United Nations Industrial Development Organisation (UNIDO).

Zaller, J. (2002), "The Statistical Power of Election Studies to Detect Media Exposure Effects in Political Campaigns". *Electoral Studies* 21 (2): 297-329.

Zoomers, A. E. B. and Kleinpenning, J. (1996), "Livelihood and Urban-Rural Relations in Central Paraguay". *Tijdschrift Voor Economische en Sociale Geografie* 87(2): 161-174.

Zoundi, J. S., Hitimana, L. and Hussein, K. (2005), *The Family Economy and Agricultural Innovation in West Africa: Towards New Partnerships*. Sahel and West Africa Club (SWAC) Secretariat.

APPENDICES

Study Title: Peasant Transformation in Rural Kenya: A Focus on Agricultural Entrepreneurship with Special Reference to Improved Fruit and Dairy Farming in Mbeere, Embu County, Kenya

(Appended hereby are 3 data collection tools for this study. They are one structured questionnaire to collect quantitative data from a dynamic panel of farmers and two interview guides for collecting qualitative information from the panel and from key informants respectively. These three instruments were used on the two groups of respondents during all the tree rounds of data collection. They appear as Appendices I, II and III)

APPENDIX I: STRUCTURED QUESTIONNAIRE FOR QUANTITATIVE INFORMATION FROM DYNAMIC PANEL OF 200 FARMER INNOVATORS IN MBEERE (administered in 1996/97; 2006/07 and 2013/14)

PART 1: IMPROVED FRUIT FARMING (IFF) AS AN ENTREPRENEURIAL INNOVATION

Part 1 A: From Innovation to Farm Enterprise: Basic Comparative Information

P1A.1 Number of improved fruit trees grown

Period	Number	TOTAL
1996/97		
2006/07		
2013/14		
TOTAL		

P1A.2 Size of land area planted with fruit (Ha)

Period	Number	TOTAL
1996/97		
2006/07		
2013/14		
TOTAL		

P1A.3 Main type of farming practised

Irrigated	1
Rain-fed	2

P1A.4 Why are you still engaged in improved fruit farming?

1. To supplement incomes from my other livelihoods
3. Out of peer pressure
4. To make money and escape from poverty
5. As a pastime of the middle and rich classes
6. Other (specify) _____

P1A.5 (a) Did you acquire further education since our last interview in 1996/97?

- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

P1A.5 (b) If yes, what kind of education and in what ways is it related to this farming activity?

P1A.6 Recurrent costs of improved fruit farming (Ksh)

Activity	Cost per Season	Cost per Year	Total
Land preparation			
Weeding			
Fertilizer			
Spraying			
Harvesting			
Transportation of produce to market			
TOTAL			

P1A.7 How much fruit do you harvest on average per season _____ (90 Kg bags).

P1A.8 (a) On seasonal average, how much of the fruit is consumed at home? _____ (90 Kg bags)

P1A.8 (b) How much is sold per season? _____ (90 Kg bags)

P1A.9 What were your improved fruit markets in the 1990s?

- Local market 1
- Embu Market 2
- Private buyer comes to farm 3
- Nairobi and other big towns 4
- Wholesalers 5
- Retailers 6
- Hotels 7
- Abroad 8
- Other (specify) _____

P1A.10 What are your improved fruit markets now?

- Local market 1
- Embu Market 2
- Private buyer comes to farm 3
- Nairobi and other big towns 4
- Wholesalers 5
- Retailers 6
- Hotels 7
- Abroad/overseas 8
- Other (specify) _____

P1A.11 How did you come learn of and access each market outlet? _____

P1A.12 How do you supply the market(s)

- By myself 1
- By agent 2
- By middlemen 3
- Through co-operative 4
- Through government organ/agent 5
- Other (specify) _____

PIA.13 (a) What constraints do you and other improved fruit farmers in Mbeere face now?

1. _____
2. _____
3. _____
4. _____
5. _____

PIA.13 (b) What coping methods have you developed to tackle these constraints?

1. _____
2. _____
3. _____
4. _____
5. _____

P1A.14 Explain the evolution of improved fruit farming as an innovation in the 1990s to the farm enterprise it is today, citing the major landmarks _____

Part 1 B: Impact of Improved Fruit Farming on Household Incomes and Wellbeing

P1B.1 Income from improved fruit farming (Ksh)

Period	Estimated Annual Gross Income	Estimated Annual Production Costs	Net Income
1996/97			
2006/07			
2013/14			

P1B.2 How much money do you get from the sale of the fruits per crop season? (Ksh.) ____

P1B.3 Is the income from IFF adequate for your household's needs?

1. Adequate
2. Not adequate

P1B.4 Would you say that improved fruit farming is now your best income earner?

P1B.5 How has this farming activity changed the quality of your own life and that of your household members?

1. For the better
2. For the worse
3. No change at all

P1B.4 What impact has improved fruit farming had on your own social standing?

P1B.5 What impact has improved fruit farming had on the wellbeing of your household?

P1B.6 What impact has the activity had on the larger community?

P1B.7 Have you ever taken a loan to grow this farming activity?

1. Yes
2. No

P1B.8 If Yes, Who gave you this loan?

1. Commercial bank
2. Merry-go-round/ROSCA
3. NGO or other microfinance institution
4. Individual lender ("shylock")
5. Investments group in which I am a member
6. Agricultural Finance Corporation (AFC)
7. Private credit group
8. SACCO
9. Friend/relative
10. Other (specify)

P1B.9 What are your current loan sources?

1. Commercial bank
2. Merry-go-round/ROSCA
3. NGO or other microfinance institution

4. Individual lender ("shylock")
5. Investments group in which I am a member
6. Agricultural Finance Corporation (AFC)
7. Private credit group
8. SACCO
9. Friend/relative
10. Other (specify)

P1B.10 (a) Has this activity helped in getting a more regular water supply for your household?

Yes 1

No 2

P1B.10 (b) Please explain.

Part 1 C: Impact of Improved Fruit Farming on Employment Creation

P1C.1 Number of workers employed on your farm in 1996/97: Casual ____ Permanent ____

P1C.2 Number of workers employed on your farm in 2006/07: Casual ____ Permanent ____

P1C.3 Mention 4 tasks that your farm employees carry out?

1. _____
2. _____
3. _____
4. _____

P1C.4 How much were you paying each category of workers?

Year	Casual	Permanent
1996/97		
2006/07		
2013/14		

P1C.5 Where do you get the money to pay them?

1. Farm returns
2. Non-farm sources
3. A household member pays them
4. Other (specify) _____

Part 1 D: Impact of Improved Fruit Farming on Household Accumulation, Poverty Reduction and Social Differentiation

P1D.1 Which assets have you acquired using incomes from improved fruit farming and what is the current estimated market value of each?

	Asset	Estimated value (Ksh)	Cents
1.	Land		
2.	Livestock		
3.	Rental house(s)		
4.	Radio		
5.	Bicycle/motor cycle		
6.	Motor-vehicle		
7.	Ox-drawn plough		
8.	Water pump		
9.	Other (specify)		

P1D.2 Has this activity grown/expanded, stagnated or declined in the last 10 years?

1. Grown/expanded
2. Stagnated
3. Declined
4. Not sure what to say

P1D.3 In case of increased or better incomes from improved fruit farming, name 5 ways in which this income has helped you and your household?

1. _____
2. _____
3. _____
4. _____
5. _____

P1D.4 Do you consider yourself better off or worse off now, as compared to 1996/97 when you started this farming activity/enterprise?

1. Better off
2. Worse off
3. The same

P1D.5 In what ways have you been affected by the Government's decision to reduce subsidies to the agricultural sector?

1. _____
2. _____
3. _____
4. _____
5. _____

P1D.6 How do people in this locality regard you with respect to being an improved fruit farmer?

- | | |
|---------------------|---|
| Pioneer innovator | 1 |
| Rich entrepreneur | 2 |
| Local leader | 3 |
| Middle class person | 4 |
| Low class person | 5 |

P1D.7 Do you think that this activity (IFF) has taught the Mbeere people to be more individualistic than before?

P1D.8 Are the people in this locality more aware and alert to profit opportunities in farming than before?

P1D.9 Can you say that improved fruit farming has contributed to the emergence of a class of entrepreneurs in Mbeere?

P1D.10 Has improved fruit farming contributed to more social equality or inequality in the Mbeere society?

Part 1 E: Impact of Improved Fruit Farming on Social Change and Local Development

P1E.1 (a) Has improved fruit farming contributed to the establishment of a school or dispensary in this area in any way?

1. Yes
2. No

P1E.1 (b) Please explain _____

P1E.3 (a) Has this farming activity contributed to the improvement of roads in this area?

1. Yes
2. No

P1E.3 (b) Please explain _____

P1E.4 (a) How far is your farm from the road? (Km) _____

P1E.4 (b) Type of road

1. Bitumenised
2. Murram
3. Earth

P1E.5 Is your house or farm connected to electricity?

1. Yes
2. No

P1E.6 If yes, what is the source?

1. National grid
2. Private supplier
3. Own supply
4. My own solar panels
5. Other (specify)

P1E.7 If yes, what do you use the electricity for?

1. _____
2. _____
3. _____
4. _____

P1E.8 Do you add any value to your fruit? _____

P1E.9 Did improved fruit farming contribute in any way to your getting connected to electricity?

P1E.10 Would you say that improved fruit farming has now grown into a farm enterprise?

P1E.11 What new management demands and challenges are associated with IFF as an enterprise and how do you deal with them?

P1E.12 (a) Has your IFF enterprise influenced (directly or indirectly) the rise or growth of other businesses in this locality?

1. Yes
2. No

P1E.12 (b) If yes, name 3 such businesses and explain how they are linked to your own farm enterprise.

Business	Linkages with my Business
1.	
2.	
3.	

P1E.13 On average, how much of your IFF income (during last 3 years) has been going to:

1. Paying school fees (Ksh) _____
2. Medical expenses (Ksh) _____
3. Recurrent household needs (Ksh) _____
4. Household development (Ksh) _____
5. Asset purchases (Ksh) _____
6. Farm re-investment (Ksh) _____
7. Non-farm investment (Ksh) _____

P1E.14 How many non-farm businesses have you started with profits earned from this farming activity and what is their estimated value?

	Non-farm Business	Estimated value (Ksh)
1.		

2.		
3.		
4.		
5.		

PART 1 F: ROLE OF IMPROVED FRUIT FARMING ON PEASANT TRANSFORMATION IN MBEERE

P1F.1 What changes has improved fruit farming brought to you as an individual?

P1F.2 What changes has improved fruit farming brought to your household?

P1F.3 What changes has improved fruit farming brought to your immediate locality?

P1F.4 In what ways do you think improved fruit farming has transformed the livelihoods of the Mbeere people in the last 17 years?

P1F.5 Please explain what you were in the 1990s compared to what you are today:

- (a) Socially
- (b) Economically
- (c) Politically

PART 2: IMPROVED DAIRY FARMING (IDF) AS AN ENTREPRENEURIAL INNOVATION

Part 2 A: From Innovation to Farm Enterprise: Basic Comparative Information

P2A.1 Number of improved animals owned by farmer

Item	1996/97	2006/07	2013/14	Total
Improved cows				
Improved goats				
Total				

P2A.2 Size of land set aside for improved dairy farming (Ha)

Period	Improved Animals	TOTAL
1996/97		
2006/07		
2013/14		
TOTAL		

P2A.3 Why are you still engaged in improved dairy farming?

- 1. To supplement incomes from my other livelihoods
- 3. Out of peer pressure
- 4. To make money and escape from poverty
- 5. As a pastime of the middle and rich classes
- 6. Other (specify) _____

P2A.4 (a) Did you acquire any additional dairy animals since our last interview in 1996/97?

- Yes 1
- No 2

P2A.4 (b) If yes, why did you decide to acquire additional dairy animals?

- To do farming as a business 1
- To provide a good example to the community 2
- To emulate people of my class 3
- To prove that improved dairy farming could succeed in a hostile environment 4
- To change my status and that of my household 5
- Other (specify) _____

P2A.4 (c) Where did you get most of the additional animals from?

- Bought 1
- Given as gift 2
- From bride price 3
- Other (specify) _____

P2A.5 How much land have you set aside for improved dairy farming (including land for growing animal feeds)? _____ (ha)

P2A.6 Estimates of recurrent costs of improved dairy farming (Ksh)

Item/Activity	Cost per Milking Cycle	Cost per Year	Total
Animal feeds			
Water			
Veterinary care			
Milking			
Transport of milk to market			
TOTAL			

P2A.7 (a) What is the average milk production per cow per day? _____ litres

P2A.7 (b) How much milk do you get on average per milking cycle from all animals _____ litres

P2A.8 (a) How much of the milk is consumed at home daily? _____ litres

P2A.8 (b) How much is sold per day? _____ litres

P2A.9 (a) What was the price of milk per litre in the mid 1990s? (Ksh) _____

P2A.9 (b) What is the price of milk per litre today? (Ksh) _____

P2A.9 (c) What has been the price trend (per litre) in the last five years (Ksh)?

- 2014 _____
- 2013 _____
- 2012 _____
- 2011 _____
- 2010 _____

P2A.10 What was your main milk market in the 1990s?

- Local market 1
- Embu Market 2
- Private buyer comes to farm 3
- Nairobi and other big towns 4
- Wholesalers 5
- Retailers 6
- Hotels 7
- Abroad 8
- Other (specify) _____

P2A.11 (a) What is your main milk market nowadays?

- Local market 1
- Embu Market 2
- Private buyer comes to farm 3
- Nairobi and other big towns 4
- Wholesalers 5
- Retailers 6
- Hotels 7
- Abroad/overseas 8

Other (specify) _____

P2A.11 (b) What are your other milk markets nowadays?

	Buyer	Amount sold per year (litres)
1.		
2.		
3.		
4.		
5.		

P2A.12 How did you come learn of and access each market outlet? _____

P2A.13 How do you supply the market(s)

- By myself 1
- By agent 2
- By middlemen 3
- Through co-operative 4
- Through government organ/agent 5
- Other (specify) _____

P2A.14 Do you do sell your produce raw or processed?

- 1. Raw
- 2. Semi-processed
- 3. Fully processed

P2A.15 If processed, where do you do the processing?

- 1. On-farm
- 2. At depot/away from farm
- 3. At nearest market
- 4. Other (specify)

P2A.16 If produce is processed, name 3 finished products.

- 1. _____
- 2. _____
- 3. _____

P2A.17 Name 5 ways in which you add value to your milk.

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

P2A.18 (a) Do you deal with middlemen in the course of marketing your product?

- 1. Yes
- 2. No

P2A.18 (b) If yes, what role do they play? _____

P2A.18 (c) According to you, are middlemen necessary or not necessary?

- 1. Necessary
- 2. Not necessary

P2A.19 Rank your means of accessing information about milk markets?

- 1. Self-initiative
- 2. Middlemen
- 3. Formal co-operative
- 4. Informal co-operative

5. Kenya National Chamber of Commerce and Industry
6. Kenya Horticultural Crops Development Authority
7. Friend(s)
8. Neighbour(s)
9. Internet
10. Other (specify) _____

P2A.20 Rank the methods of transporting your milk to the market.

1. On head/back
2. Own bicycle
3. Hired bicycle
4. Self-hired vehicle
5. Group hired
6. Own vehicle
7. Own mkokoteni
8. Hired mkokoteni
9. Own donkey/ox cart
10. Hired donkey/ox cart
11. Hired porter(s)
12. Own children
13. Other (specify) _____

P2A.21 (a) What constraints do you and other improved dairy farmers in Mbeere face now?

1. _____
2. _____
3. _____
4. _____
5. _____

P2A.21 (b) What coping methods have you developed to tackle these constraints?

1. _____
2. _____
3. _____
4. _____
5. _____

P2A.22 Explain the evolution of improved dairy farming as an innovation in the 1990s to the farm enterprise it is today, citing the major ndmarks _____

Part 2 B: Effects of Improved Dairy Farming on Household Income and Wellbeing

P2B.1 Income from improved dairy farming (Ksh)

Period	Estimated Annual Gross Income	Estimated Annual Production Costs	Estimated Annual Net Income
1996/97			
2006/07			
2013/14			

P2B.2 How much money do you get from the sale of milk per milking cycle? (Ksh.) _____

P2B.3 Is the income from IDF adequate for your household's needs?

1. Adequate

2. Not adequate

P2B.4 Would you say that improved dairy farming is now your best income earner?

P2B.5 How has this farming activity changed the quality of your own life and that of your household members?

1. For the better
2. For the worse
3. No change at all

P2B.4 What impact has improved dairy farming had on your own social standing?

P2B.5 What impact has improved dairy farming had on the wellbeing of your household?

P2B.6 What impact has the activity had on the larger community?

P2B.7 Have you ever taken a loan to grow this farming activity?

1. Yes
2. No

P2B.8 If Yes, Who gave you this loan?

1. Commercial bank
2. Merry-go-round/ROSCA
3. NGO or other microfinance institution
4. Individual lender (“shylock”)
5. Investments group in which I am a member
6. Agricultural Finance Corporation (AFC)
7. Private credit group
8. SACCO
9. Friend/relative
10. Other (specify)

P2B.9 What are your current loan sources?

1. Commercial bank
2. Merry-go-round/ROSCA
3. NGO or other microfinance institution
4. Individual lender (“shylock”)
5. Investments group in which I am a member
6. Agricultural Finance Corporation (AFC)
7. Private credit group
8. SACCO
9. Friend/relative
10. Other (specify)

P2B.10 How much money do you spend on animal feeds (Ksh.)

Time Unit	In good season(s)	Drought
Per week		
Per month		
Whole year		

P2B.11 How many litres of milk are consumed by your family daily _____

P2B.12 How many litres of milk are sold daily _____

P2B.13 Estimated Profit margins from Improved Dairy Farming (Ksh)

Year	Production Costs	Gross Profit	Net Profit
1990s			
2000s			
2013/14			

TOTAL			
--------------	--	--	--

P2B.14 (a) Has this activity contributed in getting a more regular water supply for your household?

Yes 1
No 0

P2B.14 (b) Please explain.

Part 2 C: Effects of Improved Dairy Farming on Employment Creation

P2C.1 Number of workers employed on your farm in 1996/97: Casual ____ Permanent ____

P2C.2 Number of workers employed on your farm in 2006/07: Casual ____ Permanent ____

P2C.3 Mention 4 tasks that your farm employees carry out?

1. _____
2. _____
3. _____
4. _____

P2C.4 How much were you paying each category of workers?

Year	Casual	Permanent
1996/97		
2006/07		
2013/14		

P2C.5 Where do you get the money to pay them?

1. Farm returns
2. Non-farm sources
3. A household member pays them
4. Other (specify) _____

Part 2 D: Effects of Improved Dairy Farming on Accumulation, Poverty Reduction and Social Differentiation

P2D.1 Which assets have you acquired using incomes from improved dairy farming and what is the current estimated market value of each?

	Asset	Estimated value (Ksh)	Cents
1.	Land		
2.	Livestock		
3.	Rental house(s)		
4.	Radio		
5.	Bicycle/motor cycle		
6.	Motor-vehicle		
7.	Ox-drawn plough		
8.	Water pump		
9.	Other (specify)		

P2D.2 Has this activity grown/expanded, stagnated or declined in the last 10 years?

1. Grown/expanded
2. Stagnated
3. Declined
4. Not sure what to say

P2D.3 In case of increased or better incomes from improved dairy farming, name 5 ways in which this income has helped you and your household?

1. _____
2. _____
3. _____
4. _____
5. _____

P2D.4 Do you consider yourself better off or worse off now, as compared to 1996/97 when you started this farming activity/enterprise?

1. Better off
2. Worse off
3. The same

P2D.5 In what ways were you affected by the Government's reduction of subsidies to the agricultural sector?

1. _____
2. _____
3. _____
4. _____
5. _____

P2D.6 How do people in this locality regard you with respect to being an improved dairy farmer?

- | | |
|---------------------|---|
| Pioneer innovator | 1 |
| Rich entrepreneur | 2 |
| Local leader | 3 |
| Middle class person | 4 |
| Low class person | 5 |

P2D.7 Do you think that this activity (IDF) has taught the Mbeere people to be more individualistic than before?

P2D.8 Are the people in this locality more aware or alert to profit opportunities in farming than before?

P2D.9 Can you say that improved dairy farming has contributed to the emergence of a class of entrepreneurs in Mbeere?

P2D.10 Has improved dairy farming contributed to more social equality or inequality in the Mbeere society?

Part 2 E: Impact of Improved Dairy Farming on Social Change and Local Development

P2E.1 (a) Has improved dairy farming contributed to the establishment of a school or dispensary in this area in any way?

1. Yes
2. No

P2E.1 (b) Please explain _____

P2E.2 (a) Has this farming activity contributed to the improvement of roads in this area?

1. Yes
2. No

P2E.2 (b) Please explain _____

P2E.3 (a) How far is your farm from the road? (Km) _____

P2E.3 (b) Type of road

1. Bitumenised

2. Murram
3. Earth

P2E.4 Is your house or farm connected to electricity?

1. Yes
2. No

P2E.5 If yes, what is the source?

1. National grid
2. Private supplier
3. Own supply
4. My own solar panels
5. Other (specify)

P2E.6 If yes, what do you use the electricity for?

1. _____
2. _____
3. _____
4. _____

P2E.7 In what ways do you add any value to your milk? _____

P2E.8 Did improved dairy farming contribute in any way to your getting connected to electricity?

P2E.9 Would you say that improved dairy farming has now grown into a farm enterprise?

P2E.10 (a) Has your enterprise (IDF) established any links with other businesses in this area?

1. Yes
2. No

P2E.10 (b) If yes, explain these links _____

P2E.11 (a) Has your IDF enterprise influenced (directly or indirectly) the rise or growth of other businesses in this locality?

1. Yes
2. No

P2E.11 (b) If yes, name 3 such businesses and explain how they are linked to your own farm enterprise.

Business	Linkage with my Business
1.	
2.	
3.	

P2E.12 On average, how much of your IDF income (during last 3 years) has been going to:

1. Paying school fees (Ksh) _____
2. Medical expenses (Ksh) _____
3. Recurrent household needs (Ksh) _____
4. Household development (Ksh) _____
5. Asset purchases (Ksh) _____
6. Farm re-investment (Ksh) _____
7. Non-farm investment (Ksh) _____

P2E.13 How many non-farm businesses have you started with profits earned from this farming activity and what is their estimated value?

	Non-farm Business	Estimated value (Ksh)
1.		
2.		

3.		
4.		
5.		

P2E.14. What new management demands and challenges are associated with improved dairy farming as an enterprise and how do you deal with them?

PART 2 F: ROLE OF IMPROVED DAIRY FARMING ON PEASANT TRANSFORMATION IN MBEERE

P2F.1 What changes has improved dairy farming brought to you as an individual?

P2F.2 What changes has improved dairy farming brought to your household?

P2F.3 What changes has improved dairy farming brought to your immediate locality?

P2F.4 In what ways do you think improved dairy farming has transformed the livelihoods of the Mbeere people in the last 17 years?

P2F.5 Please explain what you were in the 1990s compared to what you are today.

- THE END -

APPENDIX II: INTERVIEW GUIDE FOR QUALITATIVE INTERVIEWS WITH DYNAMIC PANEL OF 200 FARMER INNOVATORS

Interview Guide for Study entitled: Peasant Transformation in Kenya: A Focus on Agricultural Entrepreneurship with Special Reference to Improved Fruit and Dairy Farming in Mbeere, Embu County, Kenya

PART ONE: ISSUES DURING FIRST ROUND OF DATA COLLECTION IN 1996/97

1. Basic information on individual farmer and household (household reference number; name of household head; age; gender; level of education; location of household in terms of administrative unit; number of household members).
2. Characteristics of peasant household livelihood portfolios (other sources of livelihood; crops grown; cultivation methods and technologies used; amount of produce per season; sale of labour; household asset base)
3. Type of innovation adopted (improved fruit or dairy farming) (date of adoption; sources of innovation; reasons for adoption; land, labour, financial and time resource mobilization; role of the state and market).
4. Level of use of embodied and disembodied innovations (new products, new methods of production; discovery and penetration of new market outlets, new sources of raw materials, and new organization of farm household as a business or firm).
5. Benefits and impact of improved fruit or dairy farming in terms of household incomes, wellbeing, employment, accumulation, poverty reduction, social differentiation and local development).
6. Constraints, coping mechanisms and lessons learnt.
7. Perceptions of change in a rural setting (at individual, household and community levels) attributable to agricultural entrepreneurship as understood in terms of IFF and IDF.

PART TWO: ISSUES DURING SECOND ROUND OF DATA COLLECTION IN 2006/07

1. Describe to us what changes your innovation has undergone since our last interview with you in 1996/97 and if you abandoned or thought about abandoning it, which other activity did you get involved in?
2. What necessitated these changes?
3. Tell us whether this innovation has had any impact on incomes, wellbeing, employment accumulation and change of social status at the household level.
4. To what extent has this innovation/activity alone been responsible for poverty reduction in your household?
5. Which assets have you acquired since 1996 as a result of this innovation/activity and what are their respective monetary values?
6. Tell us whether you commercialized your innovation, when and why. Are you making more money from this activity than you were in 1996/97?

7. Please explain to us how this farming activity has changed your life and those of your household members.
8. Please explain to us how this farming activity has affected the people around you and the households in your neighbourhood.
9. Would you consider yourself today: a successful farmer or a failure and why?
10. What constraints does your activity currently face and what coping mechanisms have you developed?
11. Which non-farm activities have you invested in and why?
12. How would you describe yourself today: an experimenter of new farming ideas or one who engages in agriculture as a business and makes money out of it and why?

- THE END -

APPENDIX III: INTERVIEW GUIDE FOR KEY INFORMANTS

Interview Guide for Study entitled: Peasant Transformation in Kenya: A Focus on Agricultural Entrepreneurship with Special Reference to Improved Fruit and Dairy Farming in Mbeere, Embu County, Kenya

This data collection tool was used by the researcher in the final round-up visit in Mbeere in 2013/14 to guide interviews with 24 key informants selected from among: state agents (District Agricultural Officer, District Horticultural Crops Officer, District Agricultural Extension Officer, District Livestock Development Officer; District Animal Production Officer, District Veterinary Officer, District Dairy Board Chairperson); input/output chain managers (input suppliers, middlemen, processors, transporters, produce buyers); and Community Based Organization officials (Kamurugu Project Manager; Anglican Church, Plan International, and Compassion International representatives). The intention was to collect qualitative data on the implications of agricultural entrepreneurship for peasant transformation in Mbeere.

1. Please describe your occupation to us.
2. In what ways is your occupation or office related to improved fruit and/or dairy farming and for how long have you been rendering your services in Mbeere District? What other new farming ideas have you disseminated to farmers here?
3. What services do you render to farmers and what type of farmers do you deal with?
4. Describe farmer receptivity to new farming ideas and levels of input use.
5. Tell us what you know about the evolution of improved fruit and/or dairy farming in this district.
6. Describe the various stages of value-adding that local fruit and/or milk farmers take their respective products through from production to sale.
7. Tell us about markets and marketing for these two commodities.
8. What benefits have fruit and dairy farmers brought to Mbeere during the last 5 years?
9. Is the number of improved fruit and dairy farmers rising or declining in this district and why?
10. Have the improved fruit and dairy farmers in the district been getting wealthier or poorer during the last 17 years? Describe their current status.
11. What constraints are the improved fruit and dairy farmers currently facing and what can or should be done about them?
12. What tangible socio-economic changes in the district may be attributed to improved fruit and dairy farming in the last 17 years?

- END -