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COMMUNICATION, CULTURE AND REPRODUCTION: ANALYSIS OF CONTRACEPTIVE ADOPTION IN KENYA

by

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Department of Sociology

Submitted in Partial Fulfilment of the Requirements for the Degree of Doctor of Philosophy

Faculty of Graduate Studies
The University of Western Ontario
London, Ontario
April 1996

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ABSTRACT

This dissertation explored the relationships between social communication, culture and reproductive behaviour. Drawing upon theories of structural and behavioral change, mechanisms or value formation and transformation over time were discussed and used to build upon Lesthaeghe and Surkyn's (1988) postulation linking the ideational system with reproductive behaviour. Accordingly, theories that posit reproductive choices in sub-Saharan Africa as primarily rooted in past practices and traditional value systems were questioned and, instead, interactionist bases of reproductive choice were suggested that accord with communication theories of behavioral innovation and social change.

The theories were tested using the 1989 Kenya Demographic and Health Survey data, and results of logistic regression analysis largely confirmed hypotheses linking the ideational system with reproduction in Kenya. In this regard, indicators of social communication and ideational factors rather than those of past demographic experience were found to be the most consistent and reliable predictors of contraceptive behaviour of ever-married Kenyan women.

As predicted, greater mass media exposure to family planning information lowered the likelihood that a woman was in a low contraceptive status (i.e., not knowing a contraceptive method or having never used any) and raised the probability of her being in a high contraceptive status (namely, a past or current user). Also, exposure to family planning information through friends and relatives lowered the likelihood of a woman being in a low contraceptive status and raised the odds for her being in a high
contraceptive status. In fact, unlike mass media impact, exposure through relatives and friends also increased the probability that a woman would be a never-user intending to use contraceptives in future and reduced the likelihood that she was a never-user not intending to contracept. Given the expectation that friends and relatives would be homophilous with respondents over reproductive norms and values, this finding confirms the contention that the ideational system in Kenya largely supported reproductive innovation.

Thus, consistent with this interpretation, indicators of the ideational component of reproductive culture (comprising mainly spousal communication, ideal number of children, education and literacy, and husband’s approval of family planing) lowered the likelihood of being in a low contraceptive status and raised the probability of being in a high one, while those of demographic experience (namely, children ever born, marital duration, age at first birth, child mortality experience, and age at first birth) were hardly associated with contraceptive behaviour.

Meanwhile, though ethnicity was a consistent predictor of contraceptive behaviour, its effects were substantially attenuated by inclusion of indices of mass media exposure into the analytical models. On the other hand, exposure through relatives and friends had no such impact on ethnicity effects, suggesting a high communality of perception around reproduction within interpersonal networks. The results also show that religion was an important influence on contraceptive behaviour in Kenya, with Christians being more likely to be in high contraceptive statuses relative to those with traditional or no religious affiliation.
To my family
ACKNOWLEDGEMENTS

I am eternally grateful to Professors Carl F. Grindstaff and Eddie G. Ebanks for their guidance and assistance during all stages of this work. Thanks are also due to members of my examining board, Drs. R.P. Beaujot, B.D. Singer, R.G. Cecil and S. Halli. I particularly wish to thank Professor Paul Maxim for guidance during the early stages of this work and Professor T R. Balakrishnan for introducing me to the field of demography and for much needed encouragement to continue in it when, during moments of despair, I was tempted to switch to more non-quantitative fields. Professors Eddie Ebanks, Jim Cote and Anton Allahar gave me their friendship and invaluable support without which I would have found it much harder to complete this project. The data used for this study are from the Kenya Demographic and Health Survey for which I sincerely thank the Government of Kenya and Macro International. The Canadian International Development Agency provided the fellowship and the University of Nairobi granted me extended study leave that have enabled me to complete this work. Professor Peter Desbarats of the Graduate School of Journalism at Western together with his able assistant, Judy La Forme, sought and managed the funding that sustained me during much of this work. I also received invaluable support from Sue Shields of the Population Studies Centre and the staff of the Social Science Computing Laboratory at The University of Western Ontario. Finally, my wife, Rosemary, and children, Emma, Douglas, Shem, Tracy and Sheila have made enormous sacrifices to see me through this project.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CERTIFICATE OF EXAMINATION</td>
<td>ii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>v</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>vi</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xv</td>
</tr>
<tr>
<td>LIST OF APPENDICES</td>
<td>xv</td>
</tr>
<tr>
<td>Chapter 1: INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.0 Setting for the Study</td>
<td>1</td>
</tr>
<tr>
<td>1.1 The Research Problem</td>
<td>3</td>
</tr>
<tr>
<td>1.2 Objectives of the Study</td>
<td>7</td>
</tr>
<tr>
<td>1.3 Organization of the Dissertation</td>
<td>8</td>
</tr>
<tr>
<td>Chapter 2: DETERMINANTS OF FERTILITY: THEORIES AND RESEARCH</td>
<td>14</td>
</tr>
<tr>
<td>2.0 Introduction</td>
<td>14</td>
</tr>
<tr>
<td>2.1 The Population Problem in Early Social Theory</td>
<td>15</td>
</tr>
<tr>
<td>2.2 Foundations of Causal Theories of Fertility</td>
<td>18</td>
</tr>
<tr>
<td>2.3 Theory of the Demographic Transition: A Modernization Approach</td>
<td>20</td>
</tr>
<tr>
<td>2.4 Paradigm Shift in Theory: Lessons from LDCs</td>
<td>25</td>
</tr>
<tr>
<td>2.4.1 Reproductive Rationality Theses and their Assumptions</td>
<td>30</td>
</tr>
<tr>
<td>2.5.1 Rounding Off Rationality Theses: Norms, Values and Power</td>
<td>37</td>
</tr>
<tr>
<td>2.6 In Search of Institutions Supporting High Fertility</td>
<td>40</td>
</tr>
<tr>
<td>2.6.1 Wealth Flows Theory: A Social Change Perspective</td>
<td>40</td>
</tr>
<tr>
<td>2.7 Toward Reproductive Interventionism: Family Planning Programmes</td>
<td>45</td>
</tr>
<tr>
<td>2.8 Summary</td>
<td></td>
</tr>
</tbody>
</table>
4.3.3 In Search of an Interactive Theory of
Motivation.............................................. 105

4.4 Toward an Interactive Theory of
Reproductive Behaviour........................ 108

4.4.1 Limitation of the Theory................ 113

4.5 Further Theoretical Development......... 114

4.5.1 Transforming the Ideational Order:
Communication-Culture Linkages.......... 114

4.6 Application: Communication, Culture and
and Family Planning............................ 119

4.6.1 Motivation: Family Planning as an
Existential Need................................. 124

4.7 Communication, Culture and Contraceptive
Behaviour: The Empirical Connections...... 127

4.8 Summary and Hypotheses.................... 130

Chapter 5: THE DATA, METHODS AND MEASUREMENT............. 135

5.0 Introduction..................................... 135

5.1 The Data......................................... 135

5.2 The Dependent Variable: Contraceptive
Behaviour........................................... 137

5.3 Independent Variables....................... 139

5.3.1 Social Communication: Nominal and
Ordinal Scales..................................... 139

5.3.2 Operationalizing Reproductive Culture:
Factor Analysis..................................... 144

5.3.3 Rationale for Selection of Empirical
Indicators of Reproductive Culture....... 145

5.3.4 The Common Factor Model............... 149

5.3.5 Preliminary Tests of the Factor Model.... 151

5.3.6 Factor Extraction............................ 153
5.3.7 Discovering Underlying Dimensions of Reproductive Culture........................ 159
5.4 Measures of Motivation........................................ 162
5.5 Summary..................................................... 164

Chapter 6: RESULTS AND DISCUSSION............................. 165
6.0 Introduction.................................................. 165
6.1 Bivariate Results.......................................... 166
6.1.1 Social Communication and Contraceptive Behaviour............................. 166
6.1.1 (a) Mass Media Exposure.................................. 166
6.1.1 (b) Interpersonal Networks.................................. 169
6.1.2 Motivation and Contraceptive Behaviour.............. 171
6.1.3 Socio-Cultural Factors and Contraceptive Behaviour............................. 176
6.1.4 Ethnicity and Contraceptive Behaviour............. 181
6.2 Multivariate Analysis...................................... 186
6.2.1 Modelling Communication Exposure and Culture.................................. 186
6.2.2 The Model: Logistic Regression......................... 187
6.2.3 Interpretation of the Fitted Logit Model........... 189
6.3 Multivariate Results....................................... 191
6.3.1 Correlates of Lack of Contraceptive Knowledge................................. 192
6.3.2 Correlates of being a Never-User Not Intending to Contracept............... 195
6.3.3 Correlates of being a Past User Not Intending to Contracept............... 199
6.3.4 Correlates of being a Never-User Intending to Contracept.................... 202
6.3.5 Correlates of being a Past User Intending to Contracept......................... 207
6.3.6 Correlates of Current Contraceptive Use...... 211
6.4 Discussion........................................... 215

Chapter 7: CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH........................................ 229
7.0 Introduction............................................ 229
7.1 Conclusions............................................. 232
7.2 Directions for Future Research...................... 236
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1:</td>
<td>Socio-economic Indicators for Kenya 1965-1993</td>
<td>58</td>
</tr>
<tr>
<td>3.2:</td>
<td>Population Size and Growth Rates, Kenya 1897-1995</td>
<td>64</td>
</tr>
<tr>
<td>3.4:</td>
<td>Measures of Birth, Kenya, 1962-1993</td>
<td>69</td>
</tr>
<tr>
<td>3.5:</td>
<td>Percentage Distribution of Current Use of Contraceptives by Married Kenyan Women 15-49, 1977/78-1993</td>
<td>83</td>
</tr>
<tr>
<td>5.1:</td>
<td>Indicators of Contraceptive Behaviour, KDHS 1989</td>
<td>138</td>
</tr>
<tr>
<td>5.2:</td>
<td>Sample Distribution of Ever-Married Women by their Contraceptive Behaviour, Kenya, 1989</td>
<td>138</td>
</tr>
<tr>
<td>5.3:</td>
<td>Indicators of Exposure to Social Communication, KDHS 1989</td>
<td>140</td>
</tr>
<tr>
<td>5.4:</td>
<td>Joint Distribution of Exposure to Family Planning Mass Media Messages by Ever-Married Women Aged 15-49, KDHS 1989</td>
<td>143</td>
</tr>
<tr>
<td>5.5:</td>
<td>Joint Distribution of Exposure to Family Planning Mass Media Messages by Ever-Married Women Aged 15-49, KDHS 1989</td>
<td>143</td>
</tr>
<tr>
<td>5.6:</td>
<td>Cumulative Mass Media Exposure Scale Ever-Married Women, Kenya, KDHS 1989</td>
<td>144</td>
</tr>
<tr>
<td>5.7:</td>
<td>Empirical Indicators of Reproductive Culture</td>
<td>146</td>
</tr>
<tr>
<td>5.8:</td>
<td>Preliminary and Final Statistics for Principal Axis Extraction of Factors Underlying Reproductive Culture</td>
<td>155</td>
</tr>
</tbody>
</table>
5.9: Factor Matrix Produced by Orthogonal Principal Axis Factor Rotation ............... 160

5.10: Factor Score Coefficient Matrix for Indicators of Reproductive Culture .......... 161

5.11: Indicators of Motivation for Contraceptive Use ........................................ 163


6.4: Percent Distribution of Contraceptive Behaviour by Religion and Type of Marital Union, Ever-Married Women, Kenya, 1989 .............................................. 177

6.5: Percent Distribution of Contraceptive Behaviour by Ethnicity, Ever-Married, Fecund Women, Kenya, 1989 .................................................. 183


6.7: Logit Estimates of the Likelihood of being a Never-User Not Intending to Use Contraceptives, Ever-Married Women, Kenya, 1989 .............................................. 197


6.9: Logit Estimates of the Likelihood of being a Never-User Intending to Use Contraceptives, Ever-Married Women, Kenya, 1989 .............................................. 204

# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>An interactive model of culture, communication and behaviour</td>
<td>129</td>
</tr>
<tr>
<td>6.1</td>
<td>Scree-test plot of eigenvalues</td>
<td>158</td>
</tr>
</tbody>
</table>

# LIST OF APPENDICES

Appendix Table 1: Indicators of Reproductive Culture

Appendix Table 2: Correlation Matrix for Empirical Indicators of Reproductive Culture

Appendix Table 3: Anti-Image Correlation Matrix for Measures of Reproductive Culture
CHAPTER ONE

INTRODUCTION

1.0 SETTING FOR THE STUDY

Until very recently demographic literature on Kenya focused almost exclusively on its sustained high, fertility-driven, population growth rate (e.g., Mott and Mott, 1980; Ayiemba, 1988; Ocholla-Ayayo, 1988; Frank and McNicoll, 1987). Then at the beginning of this decade, researchers' attention was drawn by the fact that, in fact, fertility decline had began in the country some time in the 1980s (Wortham, 1993; Brass, 1993; Brass and Jolly, 1993; Westoff and Rodriguez, 1993; Cross et al., 1991).

This recent change has raised several questions of theoretical and policy interest with regard to the character of the fertility transition in sub-Saharan Africa. For instance, will the Kenyan transition be similar to or substantially different from observed transitions elsewhere in the contemporary developing world? Is the Kenyan transition sustainable or will there be a reversal when the country's economic fortunes change? Does the Kenyan experience portend the onset of a general trend in the sub-continent? These and similar questions are likely to define sub-Saharan demographic scholarship for some time into the foreseeable future.

Two main explanations have been given for high fertility in Kenya, namely,
modernization and cultural lag hypotheses though, strictly speaking, they are inseparable in theory. Modernization explanations attribute high fertility in Kenya to declines in infant and maternal morbidity and mortality and to improvements in the health and nutritional statuses of mothers that have accompanied rapid socio-economic development since the country’s political independence from Britain in 1963, all of which have enhanced their reproductive capacities (Central Bureau of Statistics, 1980, 1984; Brass and Jolly, 1993; Wortham, 1993; Khasiani, 1988; Ayiemba, 1988; Muganzi, 1988). However, those who prefer cultural lag hypotheses stress the failure of Kenyan couples to respond appropriately to changes in the social, economic and technological environments that have assured greater infant and child survivorship, lowered maternal morbidity and mortality, expanded the reproductive life-spans of mothers, and reduced involuntary childlessness among women and men for much of this century (Anker and Knowles, 1982; Ocholla-Ayayo, 1985, 1988; Lesthaeghe, 1989).

Whichever hypothesis is preferred, as has been suggested for most of sub-Saharan Africa by others (e.g., Caldwell, 1980; Caldwell and Caldwell, 1977; Ntozi and Kabera, 1991; May et al., 1990; Frank, 1987; Goldberg et al., 1989, Lesthaeghe, 1989), Kenyan culture, it is stressed, is so strongly pronatal that it has retained many of its pre-modern patriarchal ethico-legal codes and institutions that were designed in the first place to assure ethnic and kinship survival under radically different social conditions. In short, high fertility in Kenya is said to be sustained largely by custom and tradition (Anker and Knowles, 1982; Ocholla-Ayayo, 1985; Lesthaeghe, 1989). Such a view has led some researchers to argue that fertility decline in the country will depend mainly on the degree
to which the "cultural codes of Kenya's ethnic communities allow for extensive use of contraceptives" (Ocholla-Ayayo, 1988: 61). Yet, in the light of the recent fertility decline the question may be posed as to how much of such allowance has actually taken place.

1.1 THE RESEARCH PROBLEM

Analyses of survey data from the early 1970s to 1990s show that Kenya's total fertility rate peaked around 1977/78 and then began to decline gradually up to the mid-1980s when the rate of decline appears to have picked up and has since become more sustained (Wortham, 1993; Westoff and Rodriguez, 1993; Brass and Jolly, 1993; Cross et al., 1991). A general consensus in the literature seems to be that the decline in the fertility rate is largely due to increased contraceptive use (Njogu, 1991; Wortham, 1993; Brass and Jolly, 1993; Westoff and Rodriguez, 1993), although other factors such as increases in women's education and in marital dissolution have also played significant roles (Khasiani, 1988; Ayiemba, 1988; Njogu, 1991).

Consequently, given recent trends in contraceptive adoption rates among Kenyan women, and given what is known about the impact of organized family planning on the fertility rate (Lapham and Mauldin, 1985; Bongaarts et al., 1990), the question of interest about the Kenyan experience is no longer the role that family planning can play in bringing about the fertility transition but why contraceptive use picked up among Kenyan women when it did and not earlier. In any case, Kenya was the first sub-Saharan African nation to establish organized family planning associations more than 40 years ago and,
since 1961, has had one national association with linkages to international family planning agencies (Kenya, 1966) that, presumably, could extend much needed technical and funding support. Yet in spite of intensified campaigns throughout the 1960s and 1970s, the national contraceptive adoption rate remained below 10.0 per cent until the mid-1980s. This, together with similarly dismal performance of family planning programmes in other sub-Saharan countries has led to scepticism among some researchers and policy makers who maintain that the resilience of pronatal cultural values might substantially delay the timing and pace of fertility decline in the sub-continent (Ntozi and Kabera, 1991; May et al., 1990; Frank, 1997; Goldberg et al., 1989).

No doubt such caution was informed by the general theoretical orientation in demography that focuses on how culture, operating through institutional processes, embeds familial relations and thereby determine the reproductive choices of individuals, couples and groups (Caldwell, 1976, 1978; Ocholla-Ayayo, 1985, 1988; Lesthaeghe, 1980, 1989; Lesthaeghe and Surkyn, 1988). For instance, Caldwell (1976) argues that fertility transition is fundamentally a social transition determined mainly by moral obligations between parents and their children in the form of wealth transfers. Hence, changes in fertility behaviour can only come about after widespread formal education and family nucleation both of which have the effect of redefining parent-child relationships. But Caldwell also suggests without elaboration that such familial relationships can be diffused through the mass media. In a subsequent study he adds that the cultural hold on reproductive behaviours of individuals and couples in high fertility countries is sustained by situational advantages that accrue to the old and to males generally through the
"familial mode of production" (Caldwell, 1978: 554). Therefore, whenever and wherever these conditions exist, high fertility will persist.

Lesthaeghe (1980) agrees that traditional society regulates reproductive choices of individuals through culturally prescribed practices whose true functional importance rests upon patterns of resource appropriation, social control and risk devolution. But he suggests that changes in reproductive behaviour occur with increased legitimation and ethical approval of secular individualism. This comes about as the cultural code becomes diversified in the process of modernization. Therefore, change in reproductive culture rests primarily on the ideational system (Lesthaeghe and Surkyn, 1988) which, in turn, is premised upon improvements in social conditions and opportunity structures that lead to the adaptation of morality to specific needs. Therefore, it is the "universes of meaning (defining) the object of economic utility" that ultimately shape people's motives for having children (Lesthaeghe and Surkyn, 1988:1).

The question may therefore be asked: To what extent have the structural transformations posited by these theories been responsible for the onset of Kenya's fertility transition given that, with 76.0 per cent of its population living in rural areas, the dominant mode of production is still predominantly familial, land ownership patterns are almost exclusively male, and the task of food production still weighs heavily mainly upon women and their children?

Unfortunately these theories merely allude to without fully acknowledging the importance of social communication in structural and behavioral change. Yet such acknowledgement is critical to understanding social and behavioral change in
contemporary developing societies, heavily influenced as they are by global mass media systems, massive technological diffusion, and transnational institutions. Specifically, reproductive behaviour in contemporary developing societies is so closely linked to family planning campaigns, imported reproductive technologies and international awareness of the population problem and pressures for control that any theory purporting to explain contemporary fertility transitions in such settings without modelling communication factors must necessarily be incomplete. This is particularly crucial for sub-Saharan Africa where socio-economic development may be premised fundamentally on prior occurrence of the fertility transition rather than the other way round.

Consequently, the on-going fertility decline in Kenya and, particularly, the timing of the onset of widespread contraceptive adoption among Kenyan women around the last third of the 1980s substantially re-defines questions that may be asked about preconditions for the onset of the fertility transition in general and poses new ones regarding the possibility of influencing similar transitions in other sub-Saharan countries whose socio-economic, demographic and family planning histories may not be similar to Kenya's. That is, the issues raised relate to demographic theory and research and to population policy.

Theory-wise the Kenyan experience locates contraceptive adoption rate firmly at the core of fertility transition modelling for contemporary developing societies. The empirical question is one of determining the necessary and sufficient conditions for an onset of widespread contraceptive adoption. Such determination leads logically to policy questions relating to family planning programme inputs such as relative investment levels
for information, education and communication programmes versus those for distributional strategies and infrastructures.

1.2 OBJECTIVES OF THE STUDY

This dissertation has two overarching objectives. The first one is to interrogate and clarify the contention that high fertility in Kenya and, by extension, in other sub-Saharan countries, is sustained primarily by traditional cultures. In this regard and, following Lesthaeghe and Surkyn (1988), *the focus is placed on ideational systems environing reproduction and on how such systems are transformed in historical time and space through social communication and structural transformation*. The second objective is an attempt to achieve theoretical unity between demographic theories which posit strong institutional controls over reproductive behaviour (i.e., cultural determinist theories) and those that stress greater reproductive individualism. Achievement of such unity is important because the current theoretical fragmentation in the discipline obscures the character of fertility behaviour as part of *social adjustment to historical change*--and we need such insight to fully grasp the meaning and significance of Kenya's contemporary fertility experience.

In the light of the above, the objectives of this dissertation may be restated in the form of two research questions as follows: (1) What are the relationships between social communication, culture and reproductive behaviours of individuals and groups at the onset of the fertility transition? (2) What roles have these factors played in the
contraceptive adoption patterns of ever-married Kenyan women in the recent past?

1.3 ORGANIZATION OF THE DISSERTATION

To achieve the above objectives and to answer the research questions, the rest of this dissertation has been organized into six chapters. Chapter Two presents a comprehensive survey of the literature on fertility and population change beginning with conceptions of the population problem in early social theory with emphasis on formulations relating to the need to achieve a balance between population and resources and on the social interest in fertility regulation. The epistemological roots of fertility theories are traced back to J.S. Mill and Arsene Dumont while the theory of the demographic transition is critically discussed with the view to identifying the causal phenomena associated with reproductive motivation and to grounding reproductive behaviours as responses to temporal and cosmic contingencies.

The chapter also explains the bases of the paradigm shift in theory from reproductive individualism associated with western European fertility transition to interventionist approaches associated with the transitions in contemporary developing societies. Not only do technological and social differences separate the two worlds thereby making experiences therein different, but theoretical developments to incorporate lessons learned from the developing world have become inevitable. Moreover, the interdisciplinary character of demography has meant that some assumptions based on rational choice models of behaviour have become increasingly questionable when applied
to low-literacy, rural societies. Consequently, decision making models of reproductive behaviour have perforce had to incorporate institutional and structural factors. At the same time it has become imperative to explicitly model the impact of organized family planning in thinking about the fertility transition in less developed societies as the anthology by Bulatao and Lee (1983) demonstrates.

Thus, the review of the literature closes with three general statements about the fertility transition in contemporary developing societies highlighting: (a) the effects of social interaction, the mass media and the ideational system in behavioral stasis and change; (b) the role of family planning programmes in the transformation of the ideational system through communicative and official interventions; and (c) the primacy of communication in the definition of normative regimes within which reproductive choices are made.

Chapter Three is a socio-demographic profile of Kenya providing an empirical backdrop for subsequent theoretical development and hypothesis testing. As a resource-poor developing country with among the highest population growth rates in the world, Kenya is a classic case of a nation facing a population crisis. After moderate to high economic growth rates in the late 1960s and 1970s, the country's economy has faced increasing difficulties over the last decade. As a result the population growth rate has outstripped economic growth despite sustained efforts to lower the birth rate through family planning campaigns and programmes.

As intimated above, improvements in socio-economic conditions, health and education had the effect of reducing mortality and improving the reproductive capacity
of Kenyans with the result that the total fertility rate has remained steadily high for over three decades. However, the latest surveys indicate that a sustained decline in the fertility rate has commenced that is driven mainly by a sudden rise in contraceptive adoption. On the other hand, Kenyan women still marry early, begin childbearing soon thereafter and, in general, remain married for most of their reproductive life-spans. Therefore, Kenya offers an excellent setting for examining the relationship between the ideational system and reproduction.

To this end, Chapter Four returns to the issue of the link between the ideational order and reproduction and probes the connection between social communication, shifts in the ideational system and fertility behaviour. The issue is joined with fertility theories that reify the concept of culture and attribute to it near absolute causal power over people's reproductive choices. By reworking Lesthaeghe's theories linking changes in the ideational system to reproduction and using Giddens's and Bourdieu's theories of structuration and behavioral motivation, it has been possible to retain the focus on the importance of ideational culture in influencing reproductive behaviour without supplanting the roles of social institutions and structures. This is achieved by conceptualizing culture as a dynamic symbolic superstructure referenced by individuals as they make such important lifecourse decisions as reproduction.

In this scheme, values and beliefs about contraception, for instance, are understood to be reproduced with reference to individuals' material, relational, and cognitive capacities at particular historical moments through communicative interaction. Accordingly, the chapter specifies in detail the relationships between social
communication, culture and behavioral change. It is posited that cultural embedding of communicated ideas and facts occurs through the influences of such communications on attitudes, understandings and perceptions of individuals and groups about the world in which they live. Such influences occur through socialization processes (e.g., mainstreaming, cultivation, etc.) during which things that people learn from the mass media or from interpersonal networks may become guides for their internal orientations, controls and understandings for meaningful interpretation of the world. It is in this sense and through these mechanisms that the ideational order determines reproductive choices of individuals and couples. The chapter closes with five hypotheses to be tested by quantitative methods.

Chapter Five describes the data and methods used to measure the concepts and relationships suggested by the research problem and to answer the two research questions of this dissertation. The data are from the Kenya Demographic and Health Survey (KDHS) conducted between December 1988 and May 1989. This data set is particularly suited to the research questions of the study because they relate to the period when Kenya’s fertility transition appears to have began on a sustained basis. It is from this survey that many researchers were able to establish for the first time that significant declines in marital fertility had occurred across all age groups and that contraceptive use had risen to almost 50.0 per cent among some population groups (NCPD and IRD, 1989; Njogu, 1991; Brass and Jolly, 1993; Westoff and Rodriguez, 1993; Omwanda, 1995).

Accordingly, the dependent variable in this study is contraceptive behaviour conceptualized as a cumulative variable ranging from knowledge of at least a method,
through future contraception intentions of never-users and discontinuers, to current use. The main independent variables are social communication and reproductive culture. Since social communication takes place either interpersonally or through the mass media, its measurement has been so divided. Interpersonal communication is nominally measured by exposure to family planning information through friends and relatives or through membership of women’s associations; mass media exposure is measured by a cumulative scale of exposure to family planning information through radio, the print media (namely, newspapers, magazines and posters), and television.

Reproductive culture is operationalized as a three-dimensional concept through factor analysis of 16 variables relating to respondents’ demographic histories and behaviours, socio-economic conditions, and their attitudes, aspirations and ideas around childbearing. The factor model confirms that the first factor captures information regarding demographic behaviour and experience, the second indicates the social condition, while the third captures the ideational dimension of reproduction.

The intervening variable in the analysis is motivation for contraceptive adoption, measured by two survey questions on fertility preferences and attitude toward pregnancy. Group-level behaviours are measured through ethnicity and religious affiliation, while compositional factors are measured by employment status and nuptiality type.

Chapter Six describes the analytical techniques used, reports the results of bivariate and multivariate analyses, and discusses the findings. Exposure to social communication about family planning and the ideational dimension of reproductive culture are found to be the most consistent and statistically important predictors of
contraceptive behaviour after age. The next variables in consistency are group-level factors of ethnicity and religion, and socio-economic conditions. The demographic experiences of the respondents are only important for contraceptive knowledge gain and for predicting the likelihood of having never used contraceptives but intending to do so in future. Hence, recent changes in contraceptive behaviour in Kenya were associated, not so much with traditional culture and practice, but with communicative and ideational factors (i.e., exposure to family planning information, spousal communication, approval of family planning, ideal number of children, education and literacy, etc.) as well as with compositional and structural characteristics of the population—notably age, work status and religion. Since on the whole the ideational and communicative factors were negatively correlated with desire for large families, they may be assumed to have been responsible for the increased contraceptive adoption.

Finally, Chapter Seven draws some conclusions from the findings of this study, discusses their theoretical and policy implications, and points to directions for future research suggested by the dissertation.
CHAPTER TWO

DETERMINANTS OF FERTILITY: THEORIES AND RESEARCH

2.0 INTRODUCTION

For nearly all developing countries, births, not migration or deaths, is the most important component of population change, and their primary population policy task is lowering the birth rate. This is mainly because of the close connection between population growth and economic development.

This chapter reviews theories linking fertility with the social well-being with the broad objective of highlighting the connections between individual reproductive choices and societal interest in influencing those choices. In particular, the aim is to advance our knowledge of the connection between family planning programmes in developing societies and behavioral responses at the individual level given various combinations of socio-economic and cultural factors that bear on people's reproductive decisions.

After a brief outline of perspectives on the "population problem" in early social theory and identification of important sources of causal theories of fertility change, this chapter critically discusses the theory of the demographic transition. Theoretical developments following observation of the character and pace of fertility decline in contemporary LDCs are reviewed, after which assumptions and varieties of reproductive
rationality theses in the literature are critically discussed using the role of norms, culture, and power relations in behavioural stability and change. This sets the stage for a discussion of the literature on determinants of the relatively high reproductive stability in some developing countries with a focus on Caldwell's (1976) wealth flow theory and his (1978) relative advantage hypothesis both of which have had immense influences on the research agenda around the social control of fertility behaviours in LDCs. Finally, Bulatao and Lee's version of the fertility transition theory linking family planning programmes to demographic homeostasis in LDCs is evaluated.

2.1 THE POPULATION PROBLEM IN EARLY SOCIAL THEORY

The fundamental parameters of the main issues in contemporary demographic theory and policy were established early in the history of modern social thought. Such was the case, for instance, with the need to achieve a balance between population and resources and the question of societies' interest in the regulation of reproductive behaviours of their members. We find, for instance, some early mercantilist theorists such as Sussmilch attaching great social value to large and growing populations. Yet others, notably physiocratic thinkers such as Condorcet, maintained that growing populations were potential sources of poverty and social strife (Keyfitz, 1972). According to Condorcet ([1795] 1955), the appropriate reproductive behaviour is that which promotes human welfare. Implicitly, therefore, the necessity for birth control when limits to economic growth are reached was acknowledged that long ago.
However, a more explicit connection between population growth and the economy was not established until Thomas Malthus (1798) advanced his argument to the effect that food shortage constitutes the final barrier to population growth. Malthus reasoned that availability or otherwise of "means of subsistence" was a function of land, technology for its exploitation (the "arts"), and patterns of land ownership (or "social organization"). Yet, despite such recognition of the potential adverse effects of overpopulation on the social well-being, Malthus declined to endorse contraception as an option for birth control on moral grounds, advising instead moral restraint and delayed marriage to lower fertility. This position is held to this day by some religious groups, notably the Catholic church.

Another important Malthusian bequest to modern demographic theory is one strand of the rational choice perspective on reproductive decision making and behaviour. Following John Locke, Malthus (1798: 359) proposed that it is the avoidance of pain "rather than the pursuit of pleasure (that) is the great stimulus to action in life." Accordingly, rational thinking demands that individuals should foresee the inevitable disadvantages of large families and take actions to limit their family size to levels they can afford. It is such ability to plan rationally and to project the future welfare of one’s family that determines how individuals make decisions and modify behaviours that affect the supply of children, such as the age at which to marry, to begin childbearing, and whether or not to use contraceptives to space or stop births.

However, Karl Marx (1906) rejected Malthus’ universal law of population proposing instead a historical materialist thesis which bestows causal primacy for
population dynamics to social relations and structure. According to this view, each society historically evolves specific laws of population that determine the consequences of population growth. It follows that for capitalist societies such consequences are overpopulation and poverty, outcomes which Marxian theory considers impossible in socialist societies where population growth would be wholly absorbed by the socialized economy. The reason population growth leads to poverty in capitalist societies is that capitalist production causes rampant unemployment as workers get replaced by machinery (Engels, 1953).

These seminal Malthusian and Marxian postulates on the causes and outcomes of population growth define and determine the boundaries of most contemporary debates in demographic theory; they also constitute a major subtext of the politics of population and development along with their associated policy disputes. It is theoretically significant, however, that both philosophical orientations take as fundamental the assumption that social action is necessary to influence population dynamics, particularly fertility outcomes; where they differ is the locus of such action. Thus, while neomalthusians propose social policies that intervene directly on individuals’ reproductive choices, neomarxists favour indirect intervention via the restructuring of the social space and social relations that bracket such choices. Accordingly, for the former, control of fertility by individuals and couples is the solution to the population problem, while for the latter it is a structural and relational problem which calls for redistribution of societal resources and promotion of greater equity for women and men.

Yet, inasmuch as these perspectives have defined the population problem, they
have not provided answers to the key sociological questions as to why and when human fertility rises or falls in the first place—that is, they do not address the issue of motivation. Yet we need to grasp why individuals and groups in historical time and space control their reproductive behaviours.

2.2 FOUNDATIONS OF CAUSAL THEORIES OF FERTILITY

Formulation of general theories about the causes of fertility decline date from the philosophical writings of J.S. Mill and demographer, Arsene Dumont. Premised on the notion that people’s aspirations and desires can enable them to change the circumstances which determine their characters and thereby reorder their future behaviours, Mill (1929: Bk. 1, ch. 1) proposed that "population is restrained by fear of want, rather than by want itself" and by individuals’ "apprehension of losing what have come to be regarded as the decencies of life." Moreover, individuals "are capable ... of being withheld by prudence of social affections, from giving existence to beings born only to misery and premature death" (Mill, 1929: Bk. 1, ch. 7).

Mill argued further that since, in general, women do not want as many children as do men, if their opinions were sought, there would be lower fertility and stable populations in which people could progress socially, morally, and culturally. Although he recognized the potential of population growth to outstrip food supply, Mill maintained that whenever that happened it could easily be solved, for instance, through food imports or emigration. These “solutions” are not unknown in contemporary social history.
In a related way, Dumont (1890) proposed a theory of population called "social capillarity," or the notion that people desire to raise their social status, gain social recognition, and increase their wealth. In order to achieve these objectives people make sacrifices which often include having few or no children. In Spengler's (1979: 158) account, Dumont's thesis was that,

The bulk of the population ... not only (strives) to ascend politically, economically, socially, and intellectually, but (experience) an imperative urge to climb and a palsyng fear of descent. Consequently, since children (impede) individual and familial ascension, their number (is) limited.

Therefore, according to Mill and Dumont, fear of social slippage and social aspiration, respectively, are the main motivations for family size limitation, and both operate at the individual level or family unit. Mill's propositions have been echoed in contemporary demographic theory by Kingsley Davis, Richard Easterlin and Harvey Leibenstein in their analyses of population decline in industrial societies, while John Caldwell and Ron Lesthaeghe, in elaborating theories of fertility in LDCs, sometimes echo the theories of Dumont as well as some of Mill. These formulations of the causes of fertility decline provide the epistemological underpinnings of contemporary fertility theories and point to the basic policy options in the population growth-development nexus. Elaborations of these propositions, in turn, have led to the formulation of general statements about population growth and decline in historical time and space. The demographic transition perspective constitutes a collection of hypotheses derived from such elaborations.
2.3 THEORY OF THE DEMOGRAPHIC TRANSITION: A MODERNIZATION APPROACH

The theory of the demographic transition is conventionally regarded as the core explanatory account for changes in population growth rates. It evolved from an attempt to describe the transformations that took place over time in western European fertility.

Warren Thompson (1929) proposed that nations may be classified according to their rates of natural increase and grouped them into three categories. In the first group (A) he placed countries whose rates of natural increase had moved from very high to very low; in the second one (B) were those in which there was some evidence of decline in birth and death rates, and in the third (C) he placed countries in which there was little or no control over births and deaths. Thompson (1929: 268) concluded that in group C countries, population growth would continue to be "determined largely by the opportunities they have to increase their means of existence."

Following Thompson, Frank Notestein (1945) described the countries of group A as being in "incipient decline," those of group B as experiencing "transitional growth," while those of group C had "high growth potential." Subsequently, the concept demographic transition came to denote the period of high natural increase during which a country moves from high birth and death rates to low birth and death rates—that is, from a state of high growth potential to one of incipient decline. Concern for rapid population growth from the mid-1940s to 1960s in industrialized societies helped to focus attention on the theory and, especially, on the causal phenomena associated with fertility decline over historical time. Emphasis was placed on such factors as the decline in infant
mortality, increasing cost and falling value of children, and substitution of market relationships for kinship networks that accompanied industrialization and urbanization in Europe (e.g., Notestein, 1953).

The demographic transition perspective has been extensively discussed in the literature (Robinson, 1968; Demeny, 1968; Teitelbaum, [1975] 1987; Caldwell, 1976; Coale and Watkins, 1976). Very briefly, the theory maintains that in "traditional societies fertility and mortality are high. In modern societies fertility and mortality are low. In between there is fertility transition" (Demeny, 1968: 502).

Two major transformations accompanied the European fertility transition: one was a shift from agrarian systems to economies defined predominantly by industrial production; the other was a breakdown of the extended family system based on kin groups and the rise of nuclear family formations characterized by closer emotional bonds between couples and between parents and their children.

Consistent with classical sociological theories of Aguste Comte, Emile Durkheim, Karl Marx and Max Weber, modernization was generally assumed in the standard demographic transition theory to be the underlying determining factor for changes in fertility rates. Thus, the transition occurred when death (especially infant mortality) rates declined in the course of industrialization and urbanization (and concomitant expansion of educational, health, and other social services), followed by a lagged fall in birth rates. The birth rates remained high initially because social and economic institutions which support high fertility took time to disintegrate in the course of modernization. Such institutions (or props as they are sometimes called), include "religious doctrines, moral
codes, laws, education, community customs, marriage habits and family organizations (which were) all focused on maintaining high fertility” (Notestein, 1945: 39). Eventually birth rates began to fall as the props were undermined. Concomitantly, the importance of the family and kinship networks were eroded by urban, industrial, and market-based relationships, further weakening the pressure for large families.

Intuitively appealing as it is, the standard theory of the demographic transition cannot predict levels of mortality and fertility decline or account for variations in the timing of the fall in levels of fertility across regions and nations. Also, the theory is too general and lacks any "mechanism of causation” (Teitelbaum, 1987: 30). More seriously, following the findings of the Princeton studies on European demographic history (Coale and Watkins, 1976), the assumption that economic development was a sufficient cause of fertility decline posited by the theory turned out to be inaccurate. In fact, fertility rates declined in Europe in widely divergent socio-economic contexts (Van de Walle and Knodel, 1967; Coale, 1973); this has led some researchers to conclude that economic development is a sufficient but not a necessary cause of fertility decline (Coale, 1973).

Further, reanalyses and reinterpretation of European demographic history data have established that the timing of fertility transition was confined to a relatively short period and was only weakly correlated with the often hypothesized socio-economic variables. In fact these socio-economic factors were more loosely associated with regional fertility patterns than cultural, linguistic and ethnic variations which appeared to more closely mirror regional fertility trends (Knodel and Van de Walle, 1979). Interestingly,
the Kenyan fertility transition (see Chapter Three) closely mirrors these European models of fertility change.

Kingsley Davis ([1963] 1987: 37) has noted the tendency of the theory of the demographic transition to oversimplify the population issue: either population growth is conceptualized as a function of "two capacities" whereby a "reproductive urge" is counterpoised against "means of subsistence" (Thompson, 1929), or demographic behaviour is regarded as an outcome of "traditional culture" or "value system" (e.g., Ocholla-Ayayo, 1988). Davis argues that demographic behaviours like contraception, sterilization, infanticide, migration or marriage postponement, in fact, represent a "multiphasic response" to social and economic conditions, and that such response patterns have characterized all societies that have completed the demographic transition. The stimulus for these demographic behaviours is the decline in mortality and the sustained natural increase to which it gives rise.

The multiphasic response is not a reaction to poverty; rather it is the realization that existing demographic behaviour had become restrictive and did not allow for the possibility of taking advantage of opportunities made available by expanding economy that sets off changes in behaviour. The process is a psychological one: individuals perceive the possibility to "get ahead and appear respectable" (Davis, 1963: 40) and proceed modify to their behaviours accordingly to achieve these ends. Davis emphasizes that as far as is known from demographic history, "[w]henever and wherever mortality declined on a sustained basis, there the continuation of old demographic patterns brought a train of disadvantages." Therefore, "[t]he fear of invidious deprivation ... has greater
force, and hence the absolute level of living acts more as an environmental condition than as a subjective stimulus" (Davis, 1987: 40).

This formulation represents an important advance beyond the previous generalizations in that it links individual motivation to situational factors. By postulating fear of social slippage and social aspiration as the causes of behavioral change within the context of a changing social order, Davis provides us at once with a theory of social change, a framework for a theory of structuration (i.e., of individuals competing for class locations in the social order), and with a theory of action based on reflexive monitoring of behaviour—that is, with an interactionist theory of reproductive change (see Chapter Four). But at what point in the course of social change does such reflexive monitoring of behaviour and the realization of the “possibility to get ahead” by individuals and couples become so generalized as to engender such widespread birth control? What concomitant social and psychological adjustments are necessary and sufficient during the course of social change to trigger such generalized behavioural responses? And what institutional (or cultural) factors quicken or delay such adjustments?

A common thread linking the observed contexts of fertility decline is generally taken to be secularization (Lesthaeghe, 1980) and the emergence of reproductive individualism (Lesthaeghe and Surkyn, 1988). According to Notestein (1945: 40-41), large families became “progressively ... expensive and difficult for a population increasingly freed from older taboos and ... willing to solve its problems rather than accept them.” Secularization is understood as a process of attitudinal shift from belief in being under the control of hypostatized forces to one where individuals have the sense
that they have control of their own destinies, and as having causal precedence over changes in demographic behaviour.

Recent empirical evidence indicates that although it is usually linked to development, secularization can, nevertheless, be diffused through communication processes and can, therefore, occur without industrialization, urbanization, and economic growth—that is, without those factors which the standard demographic transition theory assumes to define modernity. In this connection, the roles of education and the mass media in spreading "the small family norm" and the advantages to women of delayed marriage and late commencement of childbearing have been particularly emphasized, especially in developing countries (Van de Walle and Knodel, 1980; Caldwell, 1980).

The possibility of behavioural diffusion, then, provides one solution to the problem of how behaviours become generalized during social change. The other is the diffusion of modern technologies to societies in which such technologies are not endogenous, but where their adoption sets off behavioural transformation without concomitant structural changes. It has, in fact, been suggested that it is such diffusion that is responsible for the nature and pace of the fertility decline in contemporary LDCs.

2.4 PARADIGM SHIFT IN THEORY: LESSONS FROM LDC'S

As already indicated, an important underlying assumption of the standard theory of the demographic transition was that socio-economic development along with their concomitant, secularization, were sufficient to cause declines in natural fertility.
However, the very substantial historical, cultural, and technological differences between contemporary industrialized countries at the time of their demographic transitions and those of present-day LDCs clearly make such an assumption untenable (Teitelbaum, 1987, Caldwell, 1976; Cook and Repetto, 1982). As Teitelbaum (1987) observes, some circumstances of contemporary developing countries suggest that they may complete their fertility transitions over shorter time spans, while others, notably cultural ones, point to the possibility that "natural" fertility decline may be less likely to occur soon enough in these countries to avert considerable social and economic difficulties. Such concerns have been expressed also by various development agencies and the United Nations (World Bank, 1984, 1989; United Nations, 1993), and many governments of contemporary developing countries have taken them to heart.

A consensus in the literature is that fertility decline always follows or accompanies infant mortality decline, but the decline in infant mortality rates in Europe was more gradual than it is in the contemporary LDCs. In fact, the drop in mortality rates in Europe was very closely associated with socio-economic development and industrialization; in contemporary LDCs mortality decline tends to be more the result of transfer of medical and public health technologies, much of it occurring without noticeable structural and cultural changes (Teitelbaum, 1987).

The implication of demographic change without development for LDCs is that their population growth rates are unprecedentedly high, in fact so high that development itself may be blocked altogether. Compounding the problem of rapid population growth, and marking another important contrast with pre-transition Europe, is the fact that there
is much higher fertility in most LDCs than was the case in pre-transition Europe. In many ways this is because of cultural differences: marriage in many LDCs generally takes place very early and is almost universal whereas pre-transition European couples tended to marry later and celibacy was more widespread. Coupled with this is the ironical fact that structural changes in many LDCs are often accompanied by the diffusion of values which lead to even higher natural fertility (Ocholla-Ayayo, 1988), such as the breakdown of taboos prohibiting postpartum sexual intercourse and child-feeding norms which originally maintained longer child-spacing durations. Given the population momentum which high population growth rates in LDCs implies, and given that opportunities for exportation of "excess" population abroad through emigration are restricted for these countries, the expectation that natural fertility decline would occur with development is weak and may be achieved only in the distant future, perhaps after widespread hardships and disruption of the social well-being.

Fortunately, most LDC governments are now aware of the potential difficulties which unchecked population growth may pose for their economies and the social well-being of their people than were European governments; many of them are also willing to design and undertake policies to address the high fertility problem. At the same time, global consciousness about the population problem is at an all time high and some foreign governments and international agencies are ready and willing to come to the assistance of LDCs in this regard; above all, technology is now widely available for birth control almost all of which were unavailable for pre-transition European couples (Teitelbaum, 1987).
These considerations have led to a substantial paradigm shift in demographic theory and research—a shift away from the search for determinants of fertility decline per se toward the determination of conditions sustaining high fertility, as well as the factors which may lead to or hinder widespread fertility limitation. In a marked departure from Notestein (1945, 1953) and, following Henry's (1961) hypotheses and subsequent theoretical extensions in the works of Bongaarts (1982, 1983) and Easterlin (1978, 1983), the thinking around structural and socio-economic determinants of natural fertility decline have undergone considerable down-playing while the importance of modern family planning technology has been accorded more prominence in theoretical formulations (Bulatao and Lee, 1983; Coale, 1973).

Specifically, and more importantly for this dissertation, high fertility has come to be seen as a function of unplanned, natural reproduction and low fertility as a consequence of "rational planning" through widespread use of birth control technologies to avert undesired births and achieve "target" family size. Thus, "fertility transition is defined by reference from 'natural' to 'target' fertility as women apply techniques to regulate supply and truncate their childbearing period at increasingly earlier ages" (Handwerker, 1986: 5). This has entailed a paradigm shift that locates contraceptive behaviour as the core of fertility transition theorizing.

Consistent with such a paradigm shift, whether a society has natural fertility or not may be determined by an examination of its age-specific fertility rates since, among non-contracepting populations, these rates are determined by only two factors: the proportion of women who are sterile; and the rate of interuterine mortality. Both these
factors are relatively constant and independent of human behaviour (Bongaarts, 1983). Therefore, in such natural fertility regimes we expect to see a rising tempo of childbearing from menarche up to approximately age 30 when age-specific fertility rates begin to fall slowly until menopause at about age 49. Consequently the fertility curve among such populations describes a characteristic concave shape, and the ratio of the observed age-specific fertility schedules and the Coale-TRussell (1974) index of fertility is near unity.

Following Bongaarts (1983), we can expect that the only proximate determinants of fertility in non-contracepting populations will be the proportion of married women and postpartum infecundability (i.e., the average anovulatory period after childbirth before the normal pattern of ovulation resumes) which may depend on breastfeeding and postpartum abstinence practices. Easterlin (1978) has argued that the parameters of the intermediate determinants of fertility and the number of children who survive to adulthood are determined by income and cost considerations (see below) and, hence, will depend on couples' demand for children. Thus, Handwerker (1986) suggests that high fertility regimes may be defined as well by "excess demand" for children in the sense that the actual number of children who survive to adulthood are more than parents can raise. Therefore, contraception is not an important determinant of the supply of children in high fertility regimes.

On the other hand, among low fertility populations, childbearing is a calculated behaviour which reflects an orientation toward achievement and universalistic norms. Since age-specific fertility rates echo the effectiveness of contraceptive use and the rate
of abortion, there will be significant deviation from unity in the ratio of observed age-specific fertility schedules and the Coale-Trussell fertility index; in addition, the fertility curve will display a characteristic scallop at its tail after age 30 (Handwerker, 1986).

Total fertility among contracepting populations is, therefore, a function of the proportion of married women, the average duration of postpartum infecundability, abortion rate, and effectiveness of contraception. Income and cost (following Easterlin, 1978) determine the number of children who survive to adulthood and the intermediate variables, both of which are now a function of parents' demand for children, supply of children, and application of supply-regulating techniques. Consequently, in target fertility regimes fewer children are born than parents can actually raise to adulthood and, so, contraception is an important determinant of supply in low fertility regimes. The transition from high to low fertility may, therefore, be conceptualized simply as a transition from non-contracepting to contracepting behaviours. However, what constitutes reproductive rationality must still be investigated.

2.4.1 REPRODUCTIVE RATIONALITY THESES AND THEIR ASSUMPTIONS

A major cleavage separates theories of fertility of industrialized societies and those of LDCs. At the centre of this cleavage is the notion of reproductive rationality. For instance, Ansley Coale (1973: 65) has summarized the fertility transition theory in terms of three "preconditions" that are necessary for marital fertility decline to occur:
1. Fertility must be within the calculus of conscious choice. Potential parents must consider it an acceptable mode of behaviour to balance advantages and disadvantages before deciding to have another child—unlike, for example, most present-day Hutterites or Amish, who would consider such calculations immoral, and consequently do not control marital fertility.

2. Reduced fertility must be advantageous. Perceived social and economic circumstances must make reduced fertility seem an advantage to individual couples.

3. Effective techniques of fertility reduction must be available. Procedures that will in fact prevent births must be known, and there must be sufficient communication between spouses and sufficient sustained will, in both, to employ them successfully.

In other words, reproductive rationality requires a calculating predisposition among a population, situational awareness, and the ability to use available means to achieve one's ends—in short, a generalized sense of personal efficacy and instrumental reason. As Kingsley Davis (1963) argued using the example of Japan, couples in industrialized societies adopted a wide variety of methods to reduce their family size when they perceived the advantages of reduced fertility.

Another variant of the notion that fertility behaviour is a rational response to the social environment is Easterlin's relative income hypothesis which he applied to the study of demographic swings in the United States (Easterlin, 1978). The similarity of the Easterlin hypothesis, Davis' multiphasic response formula, and the Coale generalizations is obvious: individuals perceive opportunities offered by, and threats to, their material conditions and adjust their demographic behaviour accordingly. On what evidence, however, are claims to such rationality premised?

It has not generally been obvious in many contemporary LDCs that fertility limitation is a rational demographic response to material conditions as suggested by
Davis, Coale and Easterlin. In fact, other props, much of it cultural rather than structural, have seemed to sustain high fertility in some regions of the world well beyond what simple rational choice theories would suggest; indeed, this behavioural pattern was already apparent to some students of European fertility transition (e.g., Van de Walle and Knodel, 1967). It is worthwhile, therefore, to pause and contemplate the sources, assumptions and varieties of these rational choice models of reproductive behaviour before discussing other approaches that have developed additional hypotheses to account specifically for socio-economic and cultural determinants of reproductive behaviours in contemporary developing countries.

To recapitulate a point made earlier, speculations about the causes of fertility decline drew inspiration from existential philosophy, especially as reflected in the writings of J.S. Mill and Arsene Dumont. This intellectual tradition is characterized by its adherence to certain standard assumptions about human nature, such as that: humans always anticipate the consequences of their actions; they always act in their own best interest; and, in general, they will always strive to maximize their satisfaction and happiness.

Building on these assumptions, microeconomic theorists have constructed decision making models that posit consumers as rational allocators of scarce resources in ways that maximize total satisfaction. That is, consumers are conceptualized as being involved in a balancing act in which the point of maximization of satisfaction (or equilibrium) is reached when the demand (or preference) for a particular good is equal to the demand for an additional unit of any other good, subject only to the constraint of income, tastes
and prices. In other words, a rational consumer increases his/her demand and consumption of a given good as the price of that good decreases, or as his/her income or taste for the good or the prices of other goods competing with that good increase (Gould and Ferguson, 1980). In demographic literature, psychologists and social psychologists have modified these assumptions somewhat to account for motivations, psychic costs, and uncertainty in reproductive decision making.

Several versions of rational choice theories of reproductive behaviour can be identified in demographic literature, five of them with greater frequency: those that regard children as a household consumption good—which might be classified as representing the strong rationality argument (e.g., Becker, 1960, 1976; Becker and Lewis, 1973; DeTray, 1973); those that incorporate the rationality thesis in broad socio-economic models of reproductive decision making and fertility (e.g., Easterlin, 1966, 1968, 1969, 1978; Easterlin, et al., 1980); and social psychological variants such as value of children theory associated with Arnold et al. (1975), Fawcett and Arnold (1973) and Hoffman and Hoffman (1973), the theory of reasoned action advanced by Davidson and Jaccard (1975, 1976) and Fishbein et al. (1980), and the subjective expected utility theory elaborated by Beach et al. (1979). All these social psychological approaches may be said to represent softer strands of the reproductive rationality argument.

Applying the microeconomic decision making model to reproductive behaviour, Becker (1960) argued that parents' demand for children would increase as the price of children decreased or as the parents' income, taste for children, or the prices of other household goods increased. In a subsequent conceptualization, Becker (1965) added the
value of time to the equation so that parenting time, as well as income, tastes and prices together determine outcomes of reproductive decision making. However, only wives' time is often factored into the model since it is assumed that husbands do not contribute significantly to childrearing (Becker and Lewis 1973; DeTray, 1973).

Results of empirical studies of the relationship between income and family size have been mixed (e.g., Blake, 1968; DeTray, 1973; Simon, 1974), while those examining the correlation between reproductive behaviour and wives' labour force participation or education have found consistently negative effects (Cain and Dooley, 1976; DeTray, 1973; Michael, 1973).

Easterlin (1978) has suggested that in addition to income, taste and price, a general theory of reproductive decision making should incorporate fertility regulation and birth and death functions, though births and deaths must be regarded as being outside the decision-making process. In this view, parents' education, income, social status and religion are particularly important in shaping their adult children's taste for children. Focusing on income, Easterlin has argued that the higher the parents' income, the higher will be their adult children's aspirations for material goods and the lower will be their taste and, hence, demand for children.

Fertility regulation becomes an important factor in the Easterlin model after couples have reached their desired family size and, therefore, wish to avert unwanted births. Two sets of costs determine fertility regulation behaviour: market costs (i.e., time and expense spent on obtaining and learning to use a method), and psychic costs of fertility regulation. Consequently, the closer these costs approach zero, the more likely
couples will adopt fertility limitation practices—as in a perfect contracepting society. The relative income hypothesis—which further illustrates how individual behaviours may be generalized—is a special case of Easterlin’s general economic theory of reproductive decision making.

Easterlin (1978) suggests that the birth rate is determined by the relative standard of living which individuals have become accustomed to. He argues that it is specifically the standard of living which one experienced in late childhood that provides the benchmark for evaluating one’s chances as an adult; but such evaluation is affected by two factors: the size of one’s cohort; and the business cycles through which that cohort must pass. These factors determine the labour market and the relative income especially of young males in contrast to that of older males because

a cohort carries its fortunes, good or bad, depending on its size, throughout its life cycle....[A]s a scarce cohort ages it carries with it relatively favourable wage and employment conditions (Easterlin, 1978: 404).

It follows that a large cohort’s fortunes will be less favourable as it passes through its life cycle.

Easterlin suggests as well that the relatively rapid and widespread adoption of contraceptives after 1960 in the United States of America may be explained by the relative income postulation: the relative deterioration in the labour market position of young men in the large cohort of the 1960s exerted pressure on them to restrict their family size (Easterlin, 1978: 415), and they reacted by using every means of birth control available.
Social psychological approaches to the rationality thesis generally elaborate on the concept of an underlying distribution of utilities or preferences at the individual level. For instance, in the value of children theory (Arnold et al., 1975; Fawcett and Arnold, 1973; Hoffman and Hoffman, 1973), children are regarded as having satisfactions (positive values) and costs (negative values) to potential parents which combine in various configurations to form a net worth of children to a couple. This net value affects couples' motivations and decisions to have children such that the higher the value of children for a couple the more likely they will have a child and vice versa. The value of children is the most important variable in reproductive decision making in this view, among other variables such as alternatives to, costs of, and barriers and facilitators to achieving those values. Typically, the list of values includes factors such as opportunities for self-enhancement, economic utility, opportunity costs of having children, and physical and emotional demands of childrearing.

Fawcett (1983), in a review of the literature on the value of children perspective, identifies three major areas of empirical research focus: (a) studies that attempt to measure the actual economic benefits and costs of children, especially in rural households; (b) those that focus on the roles of children in the family and community generally and concentrate mainly on their social and cultural functions to parents; and (c) others that focus on people's "perceptions of the economic, social, and emotional satisfactions and costs of children" (Fawcett, 1983: 429).

In developing countries, research on perceptions about satisfactions and costs of children have addressed two basic questions: the conditions that facilitate the observed
patterns, that is, the effects of historical, cultural and socio-economic factors on individuals' perceptions of the value of children; and the impact of such perceptions on fertility preferences and behaviour.

Another variant of the social psychological approaches is the theory of subjective expected utilities which involves estimating perceived positive and negative outcomes resulting from the hypothesized birth of a child (Davidson and Jaccard, 1975; Beach et al., 1979) and, therefore, recognizes the *dimension of uncertainty in reproductive decision making*. Closely similar to the Davidson-Jaccard model is the theory of reasoned action which has been elaborated by Fishbein et al. (1980), among others. In this view, individuals' behavioral and normative beliefs conjointly determine their intentions to act; the "behavioral intention", then, becomes the only direct determinant of the act. Thus, the more positive the behavioral and normative beliefs, the greater the intention and, therefore, the higher the likelihood of the behaviour (Davidson and Jaccard, 1975; Fishbein et al., 1980).

In summary, it is apparent that in all these rational choice perspectives the locus of decision making and choice is at the individual or household levels and such macro dimensions as history, culture, social structure, and the political environment are epiphenomenal to reproductive behaviour, except as period or cohort effects.

2.5.1 Rounding Off the Rationality Theses: Norms, Values and Power

A general weakness of such rational models is that they are applicable only under
very restrictive theoretical assumptions and social conditions; moreover, they all tend towards a reductionist bias. Smith (1978), for instance, has charged that these models are more appropriate for people with a high sense of efficacy and internal locus of control than for those with a low or external locus of control, while Leibenstein (1974) holds that only those who have achieved their desired family size will calculate the consequences of additional births, a point that was recognized as well by Easterlin (1978) who is a strong proponent of the approach.

Moreover, in many circumstances, reproductive decision making is often mediated by norms of family formation (Dusenberry, 1960; Ryder, 1973) such as those dictated by religion and marital status, while at other times the preferences of husbands and wives may differ (Bean, 1975; Namboodiri, 1975). In yet other situations, reproductive decision making may be a matter of habit and, as Leibenstein (1981) suggests, may be routinized to provide an alternative basis for making decisions. The realization of the lack of fit between rational choice theories and the fertility experience of LDC populations has led to a wide-ranging search for determinants of fertility in general, and to those determinants that seem to fit more closely the realities of developing societies in particular; it has led as well to many important modifications and reformulations of the demographic transition theory.

The search for determinants of fertility other than the forces of mortality and socio-economic development was already suggested by functionalist historical demographers studying pre-industrial Europe. Following anthropological works of students of non-European societies, these demographers discovered whole bundles of
institutional, belief and symbolic systems which seemed to function to regulate demographic parameters in such a way that, in the long run, there was always a balance between population and resources. In Malthus's language, such a self-regulatory or homeostatic demographic regime is maintained through "positive checks" to population growth such as war, famine and other causes of widespread mortality, and "preventive checks" such as delayed marriage, contraception, and other forms of birth regulation, as well as migration. Other studies, particularly of sub-Saharan African societies, subsequently established that other sets of preventive checks also exist, the most studied being postpartum taboos prohibiting sexual intercourse with a lactating mother, the effect of which was to lengthen child-spacing durations, lower child mortality, and improve maternal health (Carr-Saunders, 1936; Page and Lesthaeghe, 1981; Oppong, 1983).

Such ingenious collective behaviour: have led some neodarwinian, functionalist students of the phenomenon of demographic homeostasis to suggest the existence of a form of "unconscious rationality" among preliterate, traditional societies (e.g., Wrigley, 1978). By this account, reproductive strategies which specific communities adopt maximize the welfare of their individual members without those members being aware of it.

In fact, Bulatao and Lee (1983: 235) have wondered whether the concept of "demand" for children was meaningful in the context of LDCs—that is, whether couples in such regions "develop a sense of what (family) sizes are too large or too small, based on their individual circumstances and sociocultural context." But others such as Lesthaeghe (1980), Caldwell (1976, 1978), and Caldwell and Caldwell (1977) have
rejected the unconscious rationality thesis, with Lesthaeghe arguing that "long term demographic homeostasis is the result of enforced, rather than self-imposed restraint" (Lesthaeghe, 1980: 530) and is, therefore, explicitly and expressly rational. Enforced reproductive restraint arises from social stratification and the subsequent unequal access to, and appropriation of, resources that necessitate the emergence of whole sets of social controls and proprietary safeguards.

Lesthaeghe's theoretical contributions to the question of reproductive decision making is discussed in detail in Chapter Four. Suffice it to say for now that, in his view, in traditional societies reproductive choice is understood as a factor in a matrix of power relations within communities; these relations are legitimated in structures buttressed by belief systems which bracket the behaviours of individuals in cultural and normative frameworks. It is in this sense, for instance, that the postpartum sexual taboo may be seen as an element in a system of societal organization pivoted on allocation of resources, a system in which demographic homeostasis stands as only one "logical ingredient in a broader homeostasis relating to the entire social system" (Lesthaeghe, 1980: 530). And so are the systems of gerontocratic, patriarchal production relations and familial forms characterizing many LDCs which Caldwell discusses.

2.6 IN SEARCH OF INSTITUTIONS SUPPORTING HIGH FERTILITY

2.6.1 Wealth Flows Theory: A Social Change Perspective

Caldwell's intergenerational wealth flow theory (Caldwell, 1976) represents a synthesis of what is known about the European fertility transition (and the lessons learnt
from it) with the more contemporary experiences brought to light by empirical research in LDCs. More importantly, it attempts to capture the essential logic or "rationality" of high fertility and to specify those social, economic, cultural, and power relations which differentiate high fertility regimes from low fertility ones, and which, therefore, sustain high demand for children.

The key elements in the Caldwellian theory are contained in two works published in 1976 and 1978. In the first work which he based on a study of groups which he identified as "primitive," "traditional," and "transitional" among the Yoruba of Nigeria, Caldwell (1976) suggests that there are only two fertility regimes, one where individuals would get no economic gain from restricting their fertility, and the other where they would gain. In both these regimes fertility behaviour is economically rational.

Similarly, there are only two situations of economic rationality in all societies, one where economic rationality dictates having an indefinitely large number of children, and the other where the rational thing to do is to have no children at all, but the actual family size in every situation is dictated, not by economic considerations, but by "personal, social and psychological reasons" (Caldwell, 1976: 322). Therefore, the transition from economically unrestricted to restricted fertility is a function of social rather than economic change, albeit with economic ramifications. According to Caldwell, the juncture at which the change occurs is marked by a "social revolution" in familial relationships, particularly in the flow of wealth between generations as dictated by familial obligations. The reversal of such flow from the old to the young follows "family nucleation"—both economic and emotional.
In high fertility regimes, the net flow of wealth is from children to parents: children are a source of labour and provide support for parents in old age; moreover they cost very little and begin working at an early age. At the same time, individuals in high-fertility societies are outward-oriented toward their kin-groups rather than to their immediate family, hence the emotional bond between spouses and between parents and their children is weak. But "the supports for unlimited fertility finally crumble" in transitional society "where rapid change in way of life toward that followed by people in lands with a 'modern' economy" is taking place (Caldwell, 1976: 322-323). Yet even here high fertility remains economically rational because economic returns from educated children are high, as are the status benefits and power derived from children in high-paying jobs.

According to Caldwell, innovative parents in transitional society who practice birth control are those who have more Western-style education, who work in non-manual occupations, and whose parents also work(ed) in similar jobs. But, even more importantly, the innovators are different from the non-innovators in their attitude toward family and children because

They have emotionally nucleated their families; they are less concerned with ancestors and extended family relatives than they are with their children, their children's future, and even the future of their children's children (Caldwell, 1976: 352).

The reason emotional nucleation occurs, according to Caldwell, is "Westernization," or the transmission of ideals and values of the Western nuclear family through formal,
Western-type school system and the mass media.

In the second paper, Caldwell (1978) broadens the scope of his argument about the nature of the family and fertility transition from the particularities of the Yoruba of Nigeria to cover "the high fertility belt extending from Morocco to Bangladesh," that is, from North Africa to South Asia. In these regions, according to Caldwell, high fertility is a function of the situational advantages that accrue to the old and to males in general. The dominant system of production in these regions is the "familial mode of production," defined by "relations of production between kin that give the more powerful or the decision makers material advantage" (Caldwell, 1978: 554). Given these conditions, high fertility will persist in these regions for as long as patriarchal control of family labour continues, and as long as males maintain situational advantages over females. Such advantages include consumption goods and patterns, power and access to services, and family labour rights, all of which, though, will be eradicated by economic transformation--particularly by a change from familial to non-familial methods of production. But even without economic transformation the situational advantage of patriarchs may be undermined by exogenous "social and ideological change," since already

Existing differentials in advantage by age and sex are under attack from the same forces that brought change in nineteenth-century Europe: education of children, relative rise in the position of females, and the lure of household consumption goods (Caldwell, 1978: 571).

According to Caldwell, then, high fertility in contemporary LDCs is a function of lack
of family nucleation and widespread formal education on the one hand, and the prevalence of patriarchal family relationships on the other. These social structural impediments will everywhere be, and are already being, eliminated by the spread of Western familial morality through formal education and the mass media or by economic transformation.

Caldwell has come under attack from some demographers on the ground that his theory adduces very slim empirical support. Cain (1982), for instance, has argued that Caldwell overstated the magnitude of the economic benefits provided by children and exaggerated the significance of sex stratification for fertility, particularly the situational advantage of elderly males and of extended family networks.

Other writers have charged that Caldwell largely ignores the primacy of economic forces over social forces. Moreover his theory does not account either for the absence of extremely high fertility in pre-transition Western Europe and the persistence of moderate rather than minimum fertility there for many generations after the transition (Thadani, 1978; Hawthorn, 1978). Willis (1982) has even suggested that Caldwell reversed the direction of causation between family change and economic development. Caldwell’s emphasis of the role of formal education has also drawn criticism from those who maintain that education may in fact be an intervening factor in fertility determination rather than a causal one (Graff, 1979). For instance, Handwerker (1986: 18) argues that the "linkage between education and fertility is contingent upon opportunity structure."

However, some researchers working among diverse populations in sub-Saharan Africa and elsewhere have found some support for the wealth flows theory (e.g., Ross,
1986; Cleveland, 1986; Weil, 1986; Handwerker, 1986; Odell, 1982), while the role of education in predicting fertility is firmly established in fertility literature in both industrialized and non-industrialized settings. Other components of Caldwell's model, however, have received little empirical attention, notably the roles of culture and social communication.

2.7 TOWARD REPRODUCTIVE INTERVENTIONISM: FAMILY PLANNING PROGRAMMES

Bulatao and Lee (1983) have edited a collection of perspectives on the theory and research on demand, supply, and regulation factors which define fertility behaviours in LDCs. In a summary article (in vol. 2: 757-787), they provide a conceptual framework on how these factors "work" to influence fertility and conclude with a theory of fertility transition which they believe fits better the experience of LDCs.

In their theoretical scheme, demand factors pertain to family-size and compositional considerations of couples such as child-spacing, sex, and number of surviving children, while supply factors involve the quantity of surviving children that couples would expect under natural fertility conditions; these supply factors depend on biological and socio-economic conditions as well as the mortality and nuptiality patterns among specific populations.

Bulatao and Lee discuss fertility regulation factors in terms of their cost characteristics, for instance, the cost of obtaining contraceptives as well as information on them, moral and religious attitudes toward fertility regulation, and perceptions about
health consequences of contraception. Demand and supply factors are conceptualized as
interacting to determine fertility outcomes for couples such that "[a]t the community and
societal level, fertility is the sum of outcomes for numerous couples" (Bulatao and Lee

The determinants of the demand for children include direct economic
considerations such as costs and benefits of children, opportunities forgone by parents
who decide to have children, income and wealth, and the prevailing norms and tastes
around children. Those of supply follow the Henry’s (1961) and Davis- Blake’s (1956)
intermediate determinants framework, viz., waiting time to conception, postpartum
infecundability, involuntary interuterine mortality, onset of permanent infertility, and age
at marriage. As well, the supply of children is influenced by survivorship of children
which, in turn, depends on parents’ socio-economic status (particularly on their education
and income), health and sanitation conditions, as well as child and maternal nutritional
statuses. Therefore, culture, contraception and socio-economic conditions are the
principal determinants of fertility in contemporary LDCs.

Bulatao and Lee argue that fertility decisions may fall on two extreme poles of
a continuum: either couples may adopt passive strategies which imply that they do
nothing about their reproductive behaviour (such as when the birth of a child is regarded
as due to fate or the will of God--an attribute of traditional culture); or couples can adopt
an activist strategy, meaning that they are ready and willing to control their reproductive
behaviour—for instance, through the efficient use of contraceptives.

Adoption of one or the other of these strategies depends on the supply-demand
calculus: when couples perceive supply to have exceeded demand, they will adopt an activist strategy and regulate their fertility; this is the strategy that characterizes modernizing societies in which individuals have a strong sense of personal efficacy and future orientation. On the other hand, the character of institutions environing couples may condition them to adopt more passive strategies, as in traditional familial production relations which predispose couples to do nothing about the supply of children.

Two other factors are of prime importance with regard to fertility outcomes in developing countries: one is nuptiality patterns and the other is social institutions. Nuptiality patterns differ in their stability, composition, as well as the manner of their formation and dissolution, each of which will independently determine the tempo and magnitude of childbearing. In this regard, the compositional factors to consider are whether a marital union is polygynous or monogynous, and whether the family is nucleated or extended.

At the same time, in addition to such institutional factors as education and rural/urban residence, three other social institutional types operate in LDCs that are known to influence fertility outcomes: the first are those that may determine the economic value or contributions of children, for example, whether the mode of production is familial or industrial; the second are institutions that influence the taste for children; and, lastly, political institutions may operate either at the community level where they may directly manipulate incentives for children among couples, or they may operate at the national level and, thus, define population goals for the whole society as well as mobilize resources to meet such goals as in the case of family planning
programmes. It is at this level that overt reproductive interventionism emerges and becomes embedded as a norm by the modern welfare state and its collaborating agencies.

Social institutions that determine the economic value of children include norms and values that prescribe whether children should provide for their parents' old-age security, welfare, and insurance against risk. Since they tend to increase parents' dependence on children, such institutions are associated with high fertility. Moreover, those institutions tend to depend on particular land-ownership patterns and, hence, determine, to a large extent, an important complementary factor of production which, depending on the nature of the labour market, might require child labour.

On the other hand, those social institutions which shape people's taste for children include, among others: (a) religion which tends to legitimize pronatalist ideational culture thereby increasing psychic and normative costs of fertility regulation; (b) the consumer economy and its complements, mass media and advertising, which generate material expectations and embed ideational templates that directly compete with traditional family ideals; and (c) education which promotes secularism and, therefore, tends to downgrade traditional family values.

Amidst all this architectonic theory building, Bulatao and Lee advance a fertility transition theory based on an underlying force of modernization and an interventionist fertility regulation strategy for developing countries whose object is to map the dynamics of demographic homeostasis in LDCs. In this postulation, premodern social environments are characterized by early and almost universal marriage as well as a preference for large families. During the early stages of modernization, the marriage age begins to rise, but
abandonment of breastfeeding and the decline in infant and child mortality keep the supply of children high, even rising. At some point the supply of children outstrips demand as children's economic contributions fall and, given the secularism that accompanies modernization, the taste for children begins to fall too.

Then it becomes relevant to consider fertility regulation. The costs of regulation have been declining simultaneously, not only because of family planning programs but also because of increased secularization; eventually, a threshold is reached at which these costs are sufficiently low, and the desire to limit families sufficiently strong for substantial numbers to adopt fertility regulation. This complements the effects of marriage delay, and also accelerates the fall in regulation costs; in addition, demand continues to decline, as opportunity costs of childbearing rise late in the transition, until an eventual equilibrium is reached (Bulatao and Lee, 1983: 785, my emphasis).

They argue that with this conceptual framework, fertility decline in developing countries becomes an outcome of the interrelationship between development factors and family planning which breaks down pronatalist cultural values. But where is the space for human agency in this theoretical structure? We join issue with this line of thinking in Chapter Four where the role of family planning is discussed.

2.8 SUMMARY

In reviewing the major theories of fertility decline, it has become clear that cultural, structural, demographic, and psychological phenomena are inextricably intertwined in their effects on fertility behaviour. Moreover, the classical problem of the relationship between population growth and resource availability has become even more
acute for LDCs where technological innovation has not kept pace with population growth.

Epistemologically, demographic theory has its roots in existential philosophy and, hence, the criticisms of that tradition of social theory, especially its reliance on strong assumptions about human rationality, legitimately applies to a large segment of contemporary demographic literature. In fact, the interaction of social history, social structure, and culture usually forges enduring norms that provide clear road maps for individuals to follow (Davis, 1963; Lesthaeghe, 1980; Caldwell, 1976, 1978).

At the same time, it is clear that the instrumentalist orientation of much demographic work has concealed the need for critical scrutiny of the discipline’s major postulates about human reproductive behaviour. What does demographic theory tell us, for instance, about the possibility of routinization of reproductive decision making, or of legitimation of emergent reproductive moralities? How can we predict from Davis’ multiphasic response formula, or from Easterlin’s relative income hypothesis how couples learn about other couples’ responses to changed empirical conditions? That is, where is the space for human interaction, for sociality, in these theories that purport to explain the social act of reproduction? What role does social communication play in demographic phenomena?

In fact, we face even more serious difficulties with Caldwell’s postulation of a trouble-free westernization of familial morality through education and the mass media in LDCs, not only because of the weakness of these institutions in many such environments, but precisely because behavioural innovations are often apt to encounter legitimation crises (Habermas, 1980). More seriously, theories based on notions of traditional society
are seriously dated since virtually every corner of the globe has undergone considerable modernization through the forces of capitalism and the influence of the mass media. Lack of observable modern institutions and structures in some social settings does not mean that people living in those settings don’t have “modern” notions in their heads. Nay, ideational forces play powerful roles in determining behaviour.

On balance, it is not altogether very clear from our review of the literature on determinants of fertility decline that so many fundamental behavioral differences separate early Western European fertility transition from contemporary transitions in LDCs that may not be accounted for by differences in the temporal circumstances of family building in these distinct historical periods; for, as Caldwell (1978) points out, what remains of cultural props in LDCs are already under attack from the joint forces of capitalism and the mass media. In fact, even such enduring nuptiality practices as early and near universal marriage in LDCs are showing signs of giving way under the weight of rapid social change (see Chapter Three on Kenya). Thus, there are grounds for seeking theoretical unity between theories of fertility applied to industrialized societies, and those that are applied to developing countries.

Technologically, the widespread availability of new fertility regulation devices, especially through family planning programmes, makes investigation of human response patterns in changing material circumstances of great theoretical and policy interest. However, it is apparent from our literature review that theories developed to explain the gradualist response patterns that characterized the European fertility transition have floundered mainly because they have failed to factor in the influence of new technologies
of cultural legitimation and normative diffusion, especially the mass media. The seriousness of such neglect in an epoch when, and in environments where, interventionist state policies continually impinge not only on matters of sexuality, but also of marriage and family building cannot be overstated.

Based on the foregoing discussion—and to focus the discussion more narrowly—we may summarize conditions for fertility decline in contemporary developing societies in the following three general statements:

1. Fertility decline in contemporary LDCs occurs when the factors that determine the demand for children (which are mainly structural and psychological but also cultural) are transformed through modernization, social stratification, and communicative interaction so that new ideational cultures emerge that impel couples to regulate the supply of children through widespread adoption of contraceptives.

2. Family planning programmes hasten contraceptive adoption by providing a pool of information on new reproductive technologies and familial moralities as well as opportunities for change in reproductive behaviour that form the subject matter for widespread communication interpersonally and through the mass media.

3. Both interpersonal and mediated forms of communication function to generate, further embed and legitimate emergent reproductive and familial moralities as norms, thus establishing new ideational regimes around reproduction and family life. These lead finally to generalized perceptions of contraceptive technologies as basic necessities by individuals and couples who look to them as means for maintaining social and ontological well-being. These statements anchor the discussion in the rest of this dissertation.
CHAPTER THREE

A SOCIO-DEMOGRAPHIC PROFILE OF KENYA

3.0 INTRODUCTION

This chapter provides socio-economic and demographic synopses of Kenya. In view of the importance accorded culture, socio-economic conditions and contraceptive use in the transition from high to low fertility regimes by the foregoing fertility theories in Chapter Two, this chapter aims to establish a basis for the argument developed and tested in subsequent chapters that, ceteris paribus, reproductive behaviours in contemporary developing societies are more closely associated with modern communicative contexts and ideational factors than with traditional reproductive practices. In the Kenyan context such an argument is important for three main reasons.

First, Kenya has attained one of the highest total fertility rates in recent history at over 8.15 around 1984 (Khasiani, 1988; Henin, 1979, 1983; Wortham, 1993; Brass and Jolly, 1993). This makes it an interesting context within which to investigate factors which sustain high fertility such as traditional culture (Caldwell, 1976; Lesthaeghe, 1980) and those that contribute to its decline such as changes in the ideational system and contraceptive use.

Second, Kenya is among the first four sub-Saharan countries other than South
Africa to enter unequivocally stage three of a four-stage model of the fertility transition of sustained decline in the birth rate and where a decline in the mortality rate and increased use of contraceptives are thought to have played demonstrably important roles—the other countries being Zimbabwe and Botswana and some regions of Nigeria (Brass and Jolly, 1993; Wortham, 1993; Westoff and Rodriguez, 1993). Third, the fertility transition in Kenya is coming this late despite the fact that it was the first country in sub-Saharan Africa where some form of organized family planning programme began almost two generations ago. Thus, it offers an excellent context within which to examine the roles of social communication, changes in the ideational order and culture in transforming reproductive behaviour.

Wortham (1993: 202) suggests that further declines in Kenya’s population growth rate will probably depend on "the nature of the modernization and development path pursued," the annual rate of economic development and the impact of family planning programmes. Therefore, the discussion in this chapter is organized around these themes. It is assumed throughout that migration has played a negligible role in Kenya’s contemporary population dynamics (Brass and Jolly, 1993).

3.1 A SOCIO-ECONOMIC SYNOPSIS OF KENYA

3.1.1 Land, People and the Economy

The history of modern Kenya begins around 1895, the year the country became a British protectorate and, fortunately, that year also marks the beginning of its modern
demographic history.

Kenya gained political independence from Britain on December 12, 1963 and became a republic the following year. It has an area of 580,367 km.$^2$ (224,080 miles$^2$) or 2.5 times the size of the United Kingdom, and a 1995 estimated population of 28.5 million (Population Reference Bureau, 1995). Administratively, the country is divided into seven provinces and 42 districts, the latter being the smallest units of economic planning and implementation. Kenya is a multi-party democracy in which citizens enjoy relatively extensive freedoms, though current economic difficulties facing the country have lately led to more stringent political rhetoric by President Daniel arap Moi and his cabinet colleagues, and to frequent violations of human and political rights of individuals and groups perceived to be opposed to the policies of the ruling Kenya African National Union party.

In terms of economic resources, Kenya is a poor, oil-importing country, being still mainly an agricultural economy, with around 76.0 per cent of its population working 17.0 per cent of the land. Only 17.0 per cent because almost three-fifths of the country is semi-arid or arid, and the rest is under lakes, national parks or too mountainous to farm. Yet Kenya is a country of extensive geographic and cultural diversity. In terms of elevation, it lies between the sea-level on the Indian Ocean coast in the east and the permanently snow-covered Mount Kenya at 5,200 meters (17,060 feet) in the south-centre of the country. It is located approximately between latitudes 4°21' north and 4°28' south, and between longitudes 34° and 42° east.

The country may be divided into five regions: (a) the Lake Victoria basin forms
a well-drained lacustrine environment for rich and diversified agriculture; (b) the central rift valley and associated highlands--characterized by a central north-south rift valley flanked by imposing escarpments and plateau areas that generally slope away from the rift--is the bread-basket of the nation; (c) the eastern plateau, made up of ancient rocks that slope gently eastward, constitutes the land of wild life and lush ranches; (d) coastal lowlands extending along the seaboard on the Indian Ocean, and (e) semi-arid northern, northeastern and southern plains form the most extensive geographical subdivision of the country and is characterized by high temperatures and low and erratic rainfall patterns (Ominde, 1984). Thus, these geographic divisions naturally demarcate land-use patterns.

There are over 42 distinct ethnic entities in Kenya who belong mainly to Bantu, Nilotic, Nilo-Hamitic and Cushitic language communities. A vast majority of Kenyans are Christians, but a sizeable proportion of the population is Muslim; a number of traditional religions also coexist with these two, but it is not clear what proportion of the population practice them.

3.1.2 The Economy

Within the context of the developing world and, particularly, among sub-Saharan countries, Kenya has been considered a "success story" (Hazelwood, 1979, Killick, 1981; Brass and Jolly, 1993). This characterization was, however, more accurate during the first 20 years of independence as recent trends point toward worsening social and economic conditions. Sustained political stability and modest economic gains during the
first two decades of independence made it possible to raise the living standards of the people despite rapid population growth—albeit only slightly (World Bank, 1983; Kelley and Nobbe, 1990) because high inflation rates tended to dampen the gains reflected in macroeconomic growth indicators. Table 3.1 shows some of those indicators for Kenya up to 1993.

After a long-drawn political struggle against British colonialism, the economic prognosis for Kenya at independence was bleak indeed (Forester, 1962). Capital flight from the country, Kenyanization of key administrative and professional positions in government and parastatal corporations, and uncertainty about the new nation’s political future all presaged poor developmental prospects. But skilful political and economic stewardship by the post-independence government of Jomo Kenyatta led to the World Bank "hailing Kenya's 'remarkable achievements' and holding it up as a model for other African states" (Brass and Jolly, 1993: 11). Consequently, between 1965-1980 Kenya's gross domestic product (GDP) grew at an annual rate of 6.8 per cent; its agricultural production during the same period grew at 5.0 per cent, industrial production at 9.7 per cent, manufacturing at 10.5 per cent and services at 7.2 per cent (World Bank, 1992, 1995). The domestic savings rate ranged between 15.0-20.0 per cent during the period 1965-1970, while money supply was tightly controlled (World Bank, 1975).

Like leaders of many of the newly-independent African nations, the Kenyan political leadership espoused socialist rhetoric, but unlike them the Kenya government opted for a pragmatic market-oriented approach to development guided by five-year development plans. In foreign policy the country remained close to Western democracies,
Table 3.1: Socioeconomic Indicators for Kenya, 1965-1993.

1. GROWTH OF PRODUCTION  
Annual Growth Rate (%)  

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<thead>
<tr>
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<tr>
<td>GDP</td>
<td>6.4</td>
<td>4.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Agricultural production</td>
<td>4.8</td>
<td>3.3</td>
<td>2.6</td>
</tr>
<tr>
<td>Industrial production</td>
<td>8.6</td>
<td>3.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>9.9</td>
<td>4.9</td>
<td>6.8</td>
</tr>
<tr>
<td>Services</td>
<td>6.8</td>
<td>4.9</td>
<td>4.7</td>
</tr>
</tbody>
</table>

2. STRUCTURE OF PRODUCTION  

| GDP (US$ millions) | 920 | 7,540 | 4,690 |
| Percent distribution of GDP | | | |
| Agriculture | 35  | 28    | 29    |
| Industry    | 18  | 21    | 18    |
| Manufacturing | 11  | 11    | 10    |
| Services    | 47  | 51    | 54    |

3. GROWTH OF INVESTMENT & CONSUMPTION  
Average Annual Rate (%)  

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Government consumption</td>
<td>10.6</td>
<td>3.4</td>
</tr>
<tr>
<td>Private consumption</td>
<td>5.4</td>
<td>4.7</td>
</tr>
<tr>
<td>Gross domestic investment</td>
<td>2.4</td>
<td>-0.7</td>
</tr>
</tbody>
</table>

4. GOVERNMENT EXPENDITURE  
Percent of Total Expenditure  

<table>
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<tr>
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<tbody>
<tr>
<td>Defense</td>
<td>6.0</td>
<td>16.4</td>
<td>7.8</td>
<td>6.2</td>
</tr>
<tr>
<td>Education</td>
<td>21.9</td>
<td>19.6</td>
<td>19.8</td>
<td>18.8</td>
</tr>
<tr>
<td>Health</td>
<td>7.9</td>
<td>7.8</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Housing, amenities, social security and welfare</td>
<td>3.9</td>
<td>5.1</td>
<td>3.6</td>
<td>1.9</td>
</tr>
<tr>
<td>Economic services</td>
<td>30.1</td>
<td>22.7</td>
<td>26.6</td>
<td>14.9</td>
</tr>
<tr>
<td>Total expenditure as % of GDP</td>
<td>21.0</td>
<td>26.1</td>
<td>31.4</td>
<td>28.9</td>
</tr>
<tr>
<td>Overall deficit as % of GNP</td>
<td>-3.9</td>
<td>-4.6</td>
<td>-6.8</td>
<td>-3.8</td>
</tr>
</tbody>
</table>

Sources: Compiled from World Bank (1992, 1995).
particularly to Britain and its allies. As it turned out, this was a smart move that earned the country many development partners abroad and respect, if not great admiration, within a radicalized sub-Saharan Africa.

The key role of the new government was defined as eradication of poverty, ignorance and disease. To this end, the government embarked on extensive redistribution of land to families and communities that were displaced by the Mau Mau socio-political struggle in the 1940s and 1950s. Simultaneously, free and universal medical cover was extended to citizens as more health facilities were established in rural areas. Further, educational opportunities and facilities were expanded to more areas of the country previously neglected by colonial authorities and at all levels, leading to the decreeing of free universal primary education for all children in early 1970s by president Kenyatta.

Kenya’s startling successes from the mid-1960s through the 1970s were due mainly to export-driven commercial agriculture and agro-industry, particularly the export of coffee and tea. The other key sectors of the economy have been tourism, import-substitution manufacturing, and growth of Nairobi as an important African regional centre for international organizations and multinational corporations. The recent downturn in the economy may be blamed in part on worsening international terms of trade for agricultural products, and partly on disenchantment of Kenya’s traditional trade and development partners with its current political leadership, economic direction and level of corruption among bureaucrats and politicians close to the president.

However, increased pressure from The World Bank and the International Monetary Fund for roll-backs in government spending, liberalization of the economy and
tight fiscal control has not made it any easier for the government to meet its declared commitments to citizens and to maintain existing infrastructures and institutions in efficient functioning conditions against a background of declining revenues; and neither have these macroeconomic policies helped spur the export trade on which the country has traditionally depended. A combination of these factors have undermined consumer and investor confidence in the ability of the economy to perform reasonably under president Moi's leadership and eroded domestic savings.

As table 3.1 shows, all macroeconomic indicators for the country point to a deterioration in performance. The GDP which grew at an average annual rate of 6.4 per cent in the decade 1970-1980 declined by 2.6 percentage points to 3.8 per cent per year in the period 1990-1993. At the same time industrial production declined by 45.8 per cent from an annual growth rate of 4.8 per cent in the period 1970-1980 to 2.6 per cent during the 1990-1993 period; industrial output plummeted by 55.8 per cent from 8.6-3.8 per cent, while manufacturing output plunged by 31.3 per cent from 9.9-6.8 per cent during the corresponding periods.

Similar declines were recorded for growth of investment and consumption: while the average annual growth rate of government consumption was 10.6 per cent in the 15-year period 1965-1980, it was a paltry 3.4 per cent during the 13-year period from 1980-1993, a drop of 62.3 per cent; worse still, gross domestic investment declined at an average rate of -0.7 per cent per year in the 1980-1993 period compared to a growth rate of 2.4 per cent per year in the earlier period. Naturally, the sharp decline in government consumption was reflected in corresponding drops in government expenditures in health;
education; housing, amenities, social security, and welfare, as well as economic services
despite the fact that the country's total population more than doubled between 1965 and
1993 (see panel 4 of Table 3.1).

The structure of production has also changed although it is not clear what these
changes may mean for the future growth of Kenya's economy (Table 3.1 panel 2).
Overall, total production from all sectors of the economy peaked in the 1980-1990 decade
when the gross domestic production (GDP) averaged US$ 7,540 million but this declined
in 1993 to only US$ 4,691 million (World Bank, 1995). Early indications pointed to a
declining share of earnings from agriculture--from an annual average of 35.0 per cent of
the GDP during the period 1965-1980 to 28.0 per cent during 1980-1990 with only a
very slight increase in 1993. However, while the share of earnings from industry and
manufacturing have remained relatively stable since the mid-1960s, the services sector
has become increasingly more important to the Kenyan economy, bringing in 54.0 per
cent of the GDP in 1993 compared to an annual average of 47.0 per cent during the
1965-1980 period.

In a growing economy, decline in the importance of agriculture to overall
production may be a reflection of relative increases in the importance of industrial and
manufacturing sectors and may simply signal a normal evolutionary shift from agriculture
to manufacturing and industry. In the Kenyan case, however, the shift may very well be
reflecting low agricultural productivity resulting from increased population pressure on
agricultural land. Such a trend might presage increased dependence on food imports and
a delayed deepening of the country's underdevelopment. This interpretation is supported
by the fact that the shares of industrial and manufacturing sectors did not increase appreciably during the 28-year period; in fact, the annual growth rates of industrial production and manufacturing declined dramatically between 1970-1980 and 1990-1993 periods (see panel 2 of Table 3.1).

However, compounding the internal social and economic problems are steep declines in international terms of trade for the traditional exports of coffee and tea, and a slow-down in the tourist sector as recession-hit traditional European visitors stayed home or found new destinations in Eastern Europe. Some of these problems may remain or even worsen in the immediate to medium term future; others such as the down-turn in the tourist sector may improve as soon as the international economic climate changes.

3.2 A DEMOGRAPHIC SYNOPSIS

3.2.1 Data Sources and National Population Trends

Compared to most sub-Saharan countries, Kenya has relatively good demographic data stretching back to the beginning of this century. From 1901 to around 1931 population estimates were made based on crude administrative counts from male tax returns. Kuczynski (1977) reports that the colonial administration estimated indigenous population figures on the assumption that females constituted 53.0 per cent and children 37.0 per cent of the total population. However, the non-native population of Arabs, Indians and Europeans were enumerated in 1911, 1921, 1926, and 1931, but they remained relatively few during this whole period.
From 1931 to the end of World War II, partial population counts of all population groups were carried out on the assumption that the annual growth rate of the indigenous population was 1.5 per cent. Given the shaky foundation of these estimates, Kuczynski (1977) suggests that the indigenous population of Kenya at the turn of the century was probably somewhere between 2.9 and 3.7 million. In 1940 and 1944 official estimates placed the native population at 3,453,763 and 3,825,533, respectively, though Harding's estimates (in Ominde, 1984) were 3.5 million for 1897, 2.3 million for 1921, and 3.8 million for 1944.

These numbers suggest that the abolition of the slave trade might have reduced slave raids while a relative improvement of communications at the start of colonial administration may have reduced famine deaths; and both these factors may have provided conditions for an increase of the population during the second half of the nineteenth century. However, outbreaks of small pox and trypanosomiasis seem to have ravaged the population in the early part of the twentieth century. This may explain partly the indigenous population's decline at the start of colonial rule (Goldthorpe, 1975; Ominde, 1984).

Official estimate of the indigenous population in 1946 put their number at 4,055,000, but the first national census in 1948 found that the indigenous population was 5,405,966. Commenting on the census data, Goldthorpe (1955) suggested that earlier estimates understated the native population by 25.0 per cent, but the government thought the underestimate was probably as high as 30.0 per cent. The 1948 census recorded ages only in broad categories (age groups), and no information was collected on births or
deaths. However, from each district a 10.0 per cent non-probability sample of women was selected from whom records of children born, the number who had died, and deaths of children under 1 year were collected. Table 3.2 shows Kenya’s population size and growth rates from 1897. Underestimation of the population growth rate was brought into sharper focus following analysis of the 1962 census results which put the population at over 8.6 million with an annual intercensal growth rate of 3.0 per cent.


<table>
<thead>
<tr>
<th>Estimation/Census Year</th>
<th>Population</th>
<th>Annual Intercensal Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1897(^a)</td>
<td>3,500,000</td>
<td>--</td>
</tr>
<tr>
<td>1921(^b)</td>
<td>2,300,000</td>
<td>1.50</td>
</tr>
<tr>
<td>1940(^b)</td>
<td>3,453,762</td>
<td>1.50</td>
</tr>
<tr>
<td>1944(^b)</td>
<td>3,825,533</td>
<td>1.50</td>
</tr>
<tr>
<td>1946(^b)</td>
<td>4,055,000</td>
<td>1.50</td>
</tr>
<tr>
<td>1948</td>
<td>5,405,966</td>
<td>2.25(^c)</td>
</tr>
<tr>
<td>1962</td>
<td>8,636,263</td>
<td>3.00</td>
</tr>
<tr>
<td>1969</td>
<td>10,942,705</td>
<td>3.90</td>
</tr>
<tr>
<td>1979</td>
<td>15,327,061</td>
<td>3.43</td>
</tr>
<tr>
<td>1989</td>
<td>24,100,000</td>
<td>3.80</td>
</tr>
<tr>
<td>1990</td>
<td>24,600,000</td>
<td>3.80</td>
</tr>
<tr>
<td>1991</td>
<td>25,200,000</td>
<td>3.80</td>
</tr>
<tr>
<td>1992</td>
<td>26,400,000</td>
<td>3.70</td>
</tr>
<tr>
<td>1993</td>
<td>27,000,000</td>
<td>3.70</td>
</tr>
<tr>
<td>1994</td>
<td>27,343,000</td>
<td>3.30</td>
</tr>
<tr>
<td>1995</td>
<td>28,500,000</td>
<td>3.10</td>
</tr>
</tbody>
</table>

Notes: \(^a\) Harding's estimate of the African population only (in Ominde, 1984), \(^b\) Official estimate of the African population only (in Ominde, 1984), \(^c\) Previous annual population growth rate of 1.5 was adjusted upwards based on census results in neighbouring Tanzania and Uganda (Ominde, 1984). The 1989-1995 figures are estimates from the Population Reference Bureau.
The 1962 and 1969 censuses represented vast improvements over the 1948 one in that in the general schedule information was collected on ethnicity, sex, and whether the respondent was an adult or a child. In addition, expanded questionnaires administered to probability samples nation-wide sought reports of age in years, births to women of childbearing ages, number of living children born to them who were currently living with them or elsewhere as well as those who had died. A question on whether the respondent’s parents were still alive was asked for the first time making it possible to estimate adult mortality. These questions were also included in the general schedule of the 1979 census which, in addition, collected reports on relationship with head of household, place of birth, marital status, education, and residence a year previously. Finally the 1989 census added to the general schedule questions on employment status the previous week, main occupation, and work status.

Although the main sources of data on fertility and mortality trends in Kenya are the censuses, a number of household surveys have also been conducted since the 1970s some of which, though, did not cover the whole country. However, there have been four nation-wide survey series that have made available ample data on fertility and mortality trends. These are the National Demographic Survey (NDS) held in 1977, 1978, and 1983; the Kenya Fertility Survey (KFS) of 1977/78; the Kenya Contraceptive Prevalence Survey (KCPS) held in 1984; and the Kenya Demographic and Health Survey (KDHS) of 1989 and 1993 (Central Bureau of Statistics, 1980, 1984; NCPD & IRD, 1990, 1994).

These surveys have all used the master sample frame of the Central Bureau of Statistics (CBS) which covers the whole country with the exception of four districts of
Samburu and Turkana in Rift Valley Province, and Isiolo and Marsabit in Northeastern Province. The omitted districts represent about 5.0 per cent of the total population of Kenya (National Council for Population and Development, 1990), but Brass and Jolly (1993: 14) report that an inspection of demographic measures for these districts based on earlier census counts suggests that their omission from national aggregates of the surveys does not significantly bias results.

3.2.2 Fertility Trends

For reasons of data inadequacy, and following the practice of others (Muganzi, 1988; Brass and Jolly, 1993; Wortham, 1993) who have analyzed Kenya's fertility trends, the discussion in this section is restricted to estimates from censuses and nationwide surveys conducted since 1962. Thus we discuss fertility measures based on 1962, 1969 and 1979 censuses as well as the Kenya Fertility Survey (KFS), Kenya Contraceptive Prevalence Survey (KCPS), National Demographic Survey (NDS 1977, 1984), and the Kenya Demographic and Health Survey (KDHS 1989, 1993), except when we briefly glance at population trends indicators in Table 3.3.

An examination of indicators of natural increase presented in Table 3.3 gives us an impression of Kenya's population trends and potential problems. Clearly fertility in Kenya has been high and fairly stable over nearly two generations. On the other hand, mortality levels have dropped drastically and monotonically from 25 deaths per thousand population around 1948 to between 7.0 and 9.0 per thousand in the 1990s. As a result
the rate of natural increase rose from 2.25 per cent at the end of World War II to nearly 4.0 per cent in the 1970s and 1980s before beginning to fall gradually in the 1990s. In other words, whereas in 1948 Kenya’s population would have doubled in about 28 years, in the 1970s through to 1990 the population doubling time ranged between only 17 and 21 years.

Unlike the crude death rate (CDR), the decline in fertility has not been monotonic as both its measures, the crude birth rate (CBR) and total fertility rate (TFR), show. It would appear that the CBR declined slightly in the mid-1950s, but it is impossible to tell if the decline was not an artifact of under-reporting of births or other errors in the data.

Table 3.3: Selected Indices of Population Growth, Kenya 1948-1995

<table>
<thead>
<tr>
<th>Year</th>
<th>Crude Birth Rate</th>
<th>Total Fertility Rate</th>
<th>Crude Death Rate</th>
<th>Natural Population Growth rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>50</td>
<td>6.0-7.0</td>
<td>25</td>
<td>2.25</td>
</tr>
<tr>
<td>1955</td>
<td>44</td>
<td>6.6</td>
<td>25</td>
<td>1.90</td>
</tr>
<tr>
<td>1962</td>
<td>50</td>
<td>6.8</td>
<td>20</td>
<td>3.00</td>
</tr>
<tr>
<td>1969</td>
<td>50</td>
<td>7.6</td>
<td>17</td>
<td>3.90</td>
</tr>
<tr>
<td>1977</td>
<td>53</td>
<td>8.1</td>
<td>14</td>
<td>3.90</td>
</tr>
<tr>
<td>1979</td>
<td>52</td>
<td>7.9</td>
<td>14</td>
<td>3.80</td>
</tr>
<tr>
<td>1989</td>
<td>54</td>
<td>6.7</td>
<td>13</td>
<td>3.90</td>
</tr>
<tr>
<td>1990</td>
<td>46</td>
<td>6.7</td>
<td>7</td>
<td>3.80</td>
</tr>
<tr>
<td>1991</td>
<td>45</td>
<td>6.7</td>
<td>7</td>
<td>3.80</td>
</tr>
<tr>
<td>1992</td>
<td>45</td>
<td>6.7</td>
<td>9</td>
<td>3.70</td>
</tr>
<tr>
<td>1993</td>
<td>45</td>
<td>6.5</td>
<td>9</td>
<td>3.70</td>
</tr>
<tr>
<td>1994</td>
<td>44</td>
<td>6.3</td>
<td>10</td>
<td>3.60</td>
</tr>
</tbody>
</table>

What is clear is that there was definitely an increasing trend in the birth rate from the early 1960s through the 1970s before an onset of a gradual decline at the end of the 1980s that has shown signs of acceleration in pace in the 1990s. This trend is consistent with the interpretation that the fertility level of Kenyan women rose first during stage two of a four-stage model of the fertility transition before the country’s recent entry into stage three of sustained decline in general fertility (Wortham, 1993; Westoff and Rodriguez, 1993; Brass and Jolly, 1993, Cross et al., 1991).

A more detailed grasp of fertility trends may be gained by examining the ratios of children ever born to age-specific proportions of women (Brass and Jolly, 1993). The birth measures presented in Table 3.4 are based on population estimates from national censuses and surveys since 1962. Panel 1 shows the ratio of the average number of children ever born to a woman to the total number of women in her age group; panel two shows the proportion of women who remain childless in each age group, while panel 3 corrects for the bias introduced into the birth indices when these childless women are included in the denominator for calculating the measures and, therefore, presents only average births per mother in each age group.

It is clear from the top panel that there was little change in the average number of children born to women in their teens and twenties until early 1980s apart from periodic variations which may be due to sampling errors. However, older women aged 30 years and above have had monotonically more children, on average, from the 1960s and throughout the 1970s and early 1980s with a definite fall in age-specific fertility level in 1989 and further in 1993. Thus, we have evidence that fertility levels in Kenya
increased until around 1984 before beginning to decline in the second half of the 1980s. This finding is corroborated by an analysis of birth histories from 1977/78 Kenya Fertility Survey data by Henin et al. (1982).

Table 3.4: Measures of Birth, Kenya 1962–1993

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<tbody>
<tr>
<td>15–19</td>
<td>0.36</td>
<td>0.35</td>
<td>0.33</td>
<td>0.35</td>
<td>0.32</td>
<td>0.29</td>
<td>0.35</td>
<td>0.28</td>
<td>0.25</td>
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<tr>
<td>20–24</td>
<td>1.65</td>
<td>1.88</td>
<td>1.83</td>
<td>1.84</td>
<td>1.85</td>
<td>1.75</td>
<td>1.96</td>
<td>1.58</td>
<td>1.50</td>
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<tr>
<td>25–29</td>
<td>3.01</td>
<td>3.65</td>
<td>3.72</td>
<td>3.76</td>
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<td>3.56</td>
<td>3.96</td>
<td>3.47</td>
<td>3.20</td>
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<tr>
<td>30–34</td>
<td>4.20</td>
<td>5.11</td>
<td>5.55</td>
<td>5.55</td>
<td>5.38</td>
<td>5.36</td>
<td>5.70</td>
<td>5.01</td>
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<td>35–39</td>
<td>5.07</td>
<td>6.00</td>
<td>6.67</td>
<td>6.82</td>
<td>6.47</td>
<td>6.66</td>
<td>7.04</td>
<td>6.48</td>
<td>6.04</td>
</tr>
<tr>
<td>40–44</td>
<td>5.61</td>
<td>6.44</td>
<td>7.25</td>
<td>7.59</td>
<td>7.02</td>
<td>7.34</td>
<td>7.84</td>
<td>7.36</td>
<td>7.10</td>
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<td>45–49</td>
<td>5.90</td>
<td>6.69</td>
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<td>7.17</td>
<td>7.65</td>
<td>8.15</td>
<td>7.63</td>
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2. PROPORTION OF WOMEN WITHOUT CHILDREN

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<td>15–19</td>
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<td>75.5</td>
<td>77.3</td>
<td>73.9</td>
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<td>77.8</td>
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<td>4.6</td>
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<td>3.9</td>
<td>4.2</td>
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<td>2.2</td>
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<td>4.1</td>
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<td>7.6</td>
<td>2.8</td>
<td>3.3</td>
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3. MEAN BIRTHS PER MOTHER

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<td>15–19</td>
<td>1.71</td>
<td>1.45</td>
<td>1.45</td>
<td>1.34</td>
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<td>1.32</td>
<td>1.31</td>
<td>1.31</td>
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<tr>
<td>20–24</td>
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<td>2.41</td>
<td>2.27</td>
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<td>6.93</td>
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<td>7.87</td>
<td>8.43</td>
<td>7.85</td>
<td>7.26</td>
</tr>
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</table>

Sources: Brass and Jolly (1993); KDHS 1993.

Another way of scrutinizing trends in fertility levels is to examine proportions of women who remain childless from year to year either by choice or involuntarily. Results of such an analysis are presented in the second panel of Table 3.4 from which we can
see that there was a precipitous decline in childlessness among older women from the beginning of the 1960s to early 1980s, almost none among teenage women, and a relatively moderate fall among women in their early twenties.

The relative stability of the proportion of younger women in the age-group 15-24 who remained childless over a whole generation from 1962-1984 probably reflects the effect of choice in the timing of entry into motherhood due to increased school attendance and effective use of contraceptives in the more recent past, as well as delayed marriage. However, the monotonic decline in childlessness among older cohorts of women may reflect both changes in values regarding childbearing outside marriage and improvement in the health status of Kenyan women which has made it possible for women who wish to have children to do so at will. Indeed, previous research shows that, although the proportion of Kenyan women never-marrying has been increasing since the 1970s (Ayiemba, 1988), their mean parities have also increased and are not too different from those of ever-married women (Ocholla-Ayayo, 1988). According to Ocholla-Ayayo (1988), the traditional destiny of premarital mothers was to marry a polygynous or a much older man, a destiny that has apparently changed extensively.

Further insight into fertility trends in Kenya is gained by examining the average number of children mothers in each age group have had over time. The bottom panel of Table 3.4 reflects a clear demarcation in fertility trends between mothers aged 29 years and younger and those 35 years of age and above. While younger mothers have had a relatively stable average number of children from the 1960s and throughout the 1970s and most of the 1980s, older mothers have had increasingly more and more children that
peaked at the time of the 1984 KCPS at 8.43 children, on average, for mothers aged 45-49. Recent analyses of Kenyan fertility trends using parity progression ratios (PPRs) (Brass, 1985) generally corroborate the finding that there has been a cohort effect in the pattern of fertility change (Feeney, 1988; Brass and Jolly, 1993). As a fertility index, PPRs are more robust since they are sensitive to fluctuations in fertility levels even when data errors such as time mislocation of births plague the data. The relatively low figures for the 1983 NDS estimates are likely the result of underestimation as has been suggested by others (Wortham, 1993; Brass and Jolly, 1993; Feeney, 1988).

3.2.3 Determinants of Fertility in Kenya

As is the case in all sub-Saharan countries, Kenya's high fertility is believed to be sustained largely by tradition and custom (Anker and Knowles, 1982; Lesthaeghe, 1989). According to Ocholla-Ayayo (1988), the pace of fertility decline in Kenya will depend mainly on the extent to which cultural codes of Kenya's ethnic communities allow for extensive use of contraceptives. Yet such change must inevitably be slow because it involves a gradual evolutionary transformation of whole bundles of institutions and social organizations regulating marriage, procreation, ethics and law. In this view, the reproductive culture of Kenyans patterns their behaviour juridically.

These institutions and organizations have roots deeply buried in antiquity and may not simply be legislated away by government. Consequently, society's values and norms have to change before any overt administrative programme can have any effect on
reproductive behaviour. In fact, according to Ocholla-Ayayo (1988), the Kenya family planning programme faces great difficulty precisely because of the disarticulation between past sexual and reproductive moralities which remain widespread and strong in rural communities and fertility regulation and family size norms being urged through family planning programmes.

Kenyans have cherished large families in the past because having a child was a moral good. It follows that the use of contraceptives to avert pregnancy was ethically wrong and, hence, illegitimate according to customary law (Ocholla-Ayayo, 1985). This explains Kenyans’ traditional aversion to childlessness within marriage and hostility toward barren women; it has also partially provided justification for, or ethical legitimation of, polygyny. Thus, according to Ocholla-Ayayo, the reproductive behaviours of Kenyans is culturally conditioned, that is, regulated through a "pattern of rights and duties, of social expectations that direct and constrain the behaviour of individuals" (Hammei, 1990: 462).

Ayiemba (1988) has observed that the contemporary Kenyan family organization is still characterized by high and almost universal nuptiality that is entered into early by women and which lasts throughout the lives of the couples, though the incidence of late marriage, divorce, re-marriage and single motherhood is increasing among recent cohorts. However, Ocholla-Ayayo (1988) argues that the proportion married among Kenyans remains high—and will continue to remain so well into the next century—because, paradoxically, rapid modernization and secularization of the country has undermined traditional parental and kin-group controls regarding when and whom to
marry. Traditionally these controls were exercised through the provision of brideswealth which guaranteed the rights of parents and kinsmen to have the final say in such decisions, but now brideswealth, if demanded, may be paid in cash which younger men are more likely to have than their parents.

Moreover, such parental and kin-group sanctioning regulated the proper queuing order in marriage among siblings, but changes in residential location of young people increasingly in cities and towns as well as expansion of modern education have made it more feasible for younger siblings to marry before older ones as long as they have independent incomes. Taboos regulating sexual conduct have similarly been shattered by the forces of modernization and secularization. However, the pattern of early marriage varies among ethnic groups and remains high among the Luo, Mijikenda, and Kalenjin ethnic groups and low among some pastoral and semi-nomadic communities where males are required by custom to accumulate enough livestock for brideswealth (Ayiemba, 1988: 50). Thus, there is a strong cultural component to changes taking place around Kenyan family formation. Early marriage, of course, means longer exposure to the risk of conception and tends to lead to higher completed fertility but it may also mean lower likelihood of contraceptive adoption as teenage brides are pressured to start childbearing immediately.

The other characteristic feature of the Kenyan family that has had a direct bearing on fertility and which varies by ethnic group membership is type of marital union or the incidence of polygyny. Ocholla-Ayayo (1985) explains that traditionally polygyny was practised either as a statement of a man’s status in that it bespoke his material and social
success, or as a result of marital difficulties such as barrenness of a wife or inability to bear a male heir. Today, however, polygyny is less culturally meaningful and has become more idiosyncratic, although it is still often justified by reference to customary or common law which continues to sanction it. Ayiamba (1988) has observed that there is a definite change towards monogynous marital unions in Kenya, and that now it is illiterate, rural and older women who are more likely to be in polygynous unions. However, strong ethnic and regional variations in the frequency of polygyny are evident.

The connection between type of marital union and fertility is that, on average, monogyny tends to increase the frequency of sexual intercourse and has a direct bearing on fertility by reducing the duration of postpartum infecundability of women. Thus although polygynous unions lead to larger households for men, they reduce the overall fertility levels of women and, hence, of social groups. The duration of postpartum sexual abstinence among Kenyan women varies by age, rural-urban residence, region of residence, and level of education, but has generally declined over time. And so does postpartum amenorrhoea.

A number of authors have argued that high fertility in post-independence Kenya was due largely to the relative strength of the country's economy (Brass and Jolly, 1993; Wortham, 1993; Khasiani, 1988; Ayiamba, 1988; Muganzi, 1988). Related to this is a dramatic fall in the incidence of involuntary childlessness, spontaneous abortion as well as maternal morbidity and mortality as a result of expansion and improvements in pre- and post-natal health care.

It may be recalled that Kenya's economic growth rate remained higher than its
population growth rate for almost 25 years after independence. Rapid economic growth made it possible for government to expand social programmes, especially in health and education and, thus, practically shield many parents from bearing the direct costs of childbearing. Theoretically, then, government policy indirectly buttressed institutions that sustained high fertility from the forces of modernization long after these institutions had lost their social relevance. For instance, not-so-wealthy urban men could continue having large families through polygynous marriages by simply establishing two or more households, one in town where they worked and the other(s) in the countryside, even though such polygynous unions may no longer have had demographic or social bases.

Studies in Kenya have consistently shown that education of women beyond the primary school level is negatively correlated with high fertility, mainly because of the positive correlation between education and modern contraceptive use (Jones, 1974; Lesthaeghe et al., 1983; Njogu, 1991; Brass and Jolly, 1993; Khasiani, 1988), but also because of the connection between education and lifecourse opportunities such as partner selection and entry into the modern labour market which tend to enhance the socio-economic statuses of women. For instance, Kenyan women tend to marry men who are older, more educated, and who have higher incomes than themselves. At times education may exert a downward pressure on fertility by raising the age at marriage (Grindstaff et al., 1991); on the other hand, rather than influencing the tempo of subsequent births, it may delay the timing of entry into parenthood (DeWit, 1993).

In 1992 female enrolment in Kenyan secondary schools was 25.0 per cent compared to 29.0 per cent male enrolment; the corresponding proportions in 1970 were
7.0 and 9.0 per cent, respectively. In fact, the ratio of females to males enrolled in primary schools has increased from 71 females per 100 males in 1970 to 95 females per 100 males in 1992; the corresponding female-to-male ratios in secondary schools were 42 and 75 for the same years. However, the share of women in the labour force declined from 42.0 per cent in 1970 to 39.0 per cent in 1992 (World Bank, 1995).

Fertility in Kenya also varies by rural/urban residence (Khasiani, 1988; Brass and Jolly, 1993; Kenya, 1990, 1994). In 1970, only 10.0 per cent of the Kenyan population was urban; in 1993 the proportion of the urban population was 26.0 per cent, although the annual average growth rate of the urban population declined from 8.1 per cent in the 1970-1980 decade to 7.0 per cent between 1980-1993 (World Bank, 1995). Some studies have shown that variations in overall fertility based on factors affecting the timing and tempo of childbearing such as higher education and age at first birth or marriage may disappear with widespread use of contraceptives (Balakrishnan, et al., 1988; Wineberg, 1988). Urbanization effects on fertility tend to be associated with late family formation due to more years of education of women and longer birth intervals both of which are achieved mostly via widespread and efficient use of modern contraceptives. Extensive family planning programmes may, therefore, reduce direct urbanization or education effects on fertility in developing countries such as Kenya where the urban population tends to be younger.

3.2.4 Family Planning Programmes

Kenya has a very long history of organized family planning relative to other sub-
Saharan countries. In 1955 it became the first nation in the region to have some form of organized family planning following the formation of family planning associations in Nairobi and Mombasa, the country’s major cities. These associations initiated limited population awareness campaigns and provided contraceptive services to clients. In 1961 a national family planning association was officially launched and the following year the Family Planning Association of Kenya (FPAK) became the first sub-Saharan association to affiliate with the International Planned Parenthood Federation thus tapping a potential source of programme funding (Kenya, 1966).

A national family planning programme was launched in 1967 under the assumption that high fertility was merely a function of mother and child morbidity and mortality. Since then the Kenya family planning programme has operated within the framework of maternal and child health services provision (Khasiani, 1988), and no demographic targets were specified in the first ten years of the programme's work. It turns out that there were touchy cultural reasons as well for this approach.

Ocholla-Ayayo (1988) has argued that contraception has been a thorny issue in Kenya and, therefore, government as well as FPAK opted to achieve fertility reduction through persuasion as part of a policy that emphasizes choice. Hence, family reduction was to be achieved through birth-spacing and -stopping through the use of contraceptives rather than through legislative or administrative measures. Undergirding the sensitivity of birth control in Kenya and, perhaps, other sub-Saharan countries as well is a fundamental ethical dilemma relating to the disarticulation between past reproductive practices and expectations and the moral bases of family planning programmes since,
Throughout the history of mankind, at least in present-day Kenya, there has never been a situation or need to control or restrict women from producing many children. ... There are no traditional norms or ethics of custom (sic) that can handle (the problem of family planning) the way it is presented (Ocholla-Ayayo, 1988: 60).

Given the weight of this moral question, the government did not specify demographic targets for population programmes until the third development plan period, 1975-1980, when an intention to reduce the population growth rate from 3.3 per cent in 1975 to 3.0 in 1979 and further down to 2.8 per cent in the year 2000 was announced (Kenya, 1975). These targets were to be achieved through the recruitment of more family planning acceptors, a strategy that was continued in the fourth development plan period, 1980-1984. Up to that point no reference was made to the need to limit family sizes. In 1982 the National Council for Population and Development (NCPD) was established to more precisely formulate population policies, set growth targets to be achieved, and coordinate family planning programme efforts of the disparate agencies and not-for-profit organizations which were by now working in the family planning sector. It is from this time that reference began to be made to the need for smaller families, but the voluntary nature of birth control and the maternal and child health orientation of the Kenyan family planning programme remained unchanged.

Briefly, the three key programme measures in Kenya have been provision of clinical services, motivational efforts for birth control, and dissemination of family planning and population information. It was hoped that these measures would help achieve both developmental and demographic goals in the foreseeable future. The developmental objective was improvement of socio-economic conditions of Kenyan
families, while the demographic one was lowering the population growth rate. In fact, the government hoped that the family planning programme would help achieve "a more balanced population structure" by the end of this century (Faruqee et al., 1980).

The principal executing agency of these measures has been the Ministry of Health which operates the programme in two components—a health component and a family planning component (Khasiani, 1988). The health component has concentrated on treatment of women's infertility problems as well as infant and child diseases according to targets set out in government development plans. The family planning component, on the other hand, has undergone a number of strategic and operational changes, though the objective remains the provision of contraceptives to those who want them.

Because government itself seemed unsure about the safety of some of the contraceptives available in the market and, in order to avert moral criticism, contraceptives were at first issued only under the supervision of doctors to married women of childbearing ages. However, from 1962 the government publicly announced its support for the use of contraceptives for birth control thus paving the way for open campaigns for the use of contraceptives to avert births. In 1969 the government itself began involvement in the provision of family planning services when Ministry of Health clinics started providing clinical services to family planning clients. Since 1979 contraceptives have been available to all who require them irrespective of age and marital status (Kenya, 1979) though parental compliance is required in the case of unmarried teenage clients.

Access to various contraceptive methods continues to be strictly regulated by the
Ministry of Health: non-clinic based methods such as foams, jellies, creams and condoms are distributed through health centres, pharmacies and grocery stores; pills, intrauterine devices as well as injectible methods are subject to strict controls and may be dispensed only with a doctor's prescription. But some of these controls are being relaxed. According to Khasiani (1988: 42),

To meet the expanding demand, non-clinic based contraceptives and re-supply of oral contraceptives are being distributed (sic) through nontraditional outlets within communities using opinion leaders, shop-keepers and extension workers. The contraceptives which remain clinic-based are sterilization, injectibles and Depo Provera. Sterilization which is carried out in Ministry of Health hospitals is restricted to women with 4 or more children. Depo Provera is available in district and community hospitals. Norplant is still at the experimental stage.

In fact, sterilization is available to men too, though it remains relatively unpopular among Kenyan males. It may be recalled that sterilization became relatively widespread in some Indian states only when cash incentives began to be extended to acceptors (Rogers, 1973), but in Kenya family planning remains strictly volitional.

The voluntary approach to family planning in Kenya has not gone down well with everyone. Its critics attribute its prolonged "negligible success" (Jones, 1974; Frank and McNicoll, 1987) in reducing the birth rate up to the end of the 1970s to limited government support. In fact, Njogu (1991: 84) argues that apart from lack of government commitment to family planning, another problem of the Kenya family planning programme is its "emphasis on the supply side of family planning rather than on efforts towards changing norms regarding family size."

Such criticism would appear unwarranted, however, in the light of well-known
financial constraints and strategies adopted by government to handle this culturally volatile subject. In fact, the Kenya family planning programme has an interagency information, education and communication programme involving the Ministry of Health and FPAK designed to research and disseminate issues on population and family planning with the prime object of motivating informed support for, and participation in, population and family planning activities (Khasiani, 1988). The programme utilizes family health field educators based at grass-roots health facilities who spend most of their working time in the field visiting current and potential clients. Their job is to persuade such clients to adopt modern contraceptives and encourage them to visit health facilities for the purpose.

Additionally, the mass media such as cinema, television, radio, newspapers, posters, and word-of-mouth communications from opinion leaders and government officials have been involved since the early 1970s in the dissemination of family planning messages and advocacy for small families. The campaign intensified in the 1980s when it became clear, following knowledge, attitude and practice (KAP) surveys carried out in the mid- to late-1970s that public perceptions about family planning had become more supportive and that there was less ideological or moral opposition to family planning in Kenya and several other sub-Saharan countries. In fact, current knowledge of contraceptives and support for family planning is almost universal in Kenya (NCPD and IRD, 1989, 1994). At the same time, population education has been incorporated into the curricula of teacher training colleges and some schools (Khasiani, 1988). But facilities and services remain inadequate.

Family planning research shows that there has been a large and growing unmet
need for family planning services to space or stop births for some time now (Central Bureau of Statistics, 1984), though contraceptive use has increased steadily over the past 15 years. Table 3.5 shows the proportion of married women currently using contraceptives according to selected social and demographic characteristics. The age distribution of contraceptive users indicates that Kenya is beginning to show the characteristic high use of the more effective modern contraceptives among older age cohorts when women begin to adopt measures to stop childbearing. Contraceptive use rises monotonically with age and peaks among women aged 25-44 years when spacing and stopping needs are greatest for women who have already had some children. This interpretation is supported by the low contraceptive use among younger wives and by the fact that since Kenyan women tend to marry early—their median age of marriage being only 19 years—by age 25 many of them may have achieved or may be approaching their desired parity level.

Rural/urban differences in contraceptive use persist although rural women more than tripled their use of modern contraceptives between 1977/78 and 1993 thereby reducing somewhat the gap between their rate of contraceptive adoption and that of urban women. A similar trend is reflected in the contraceptive adoption pattern of women without formal education relative to those with secondary education and above, but their adoption curve had a very low intercept. In 1977/78 there was a six-fold difference between the proportions using modern contraceptives among these population groups; in 1993 the difference in use between women with no education and those with secondary education and above was only three-fold.
The tendency toward convergence in contraceptive use across levels of education may reflect a general secular trend in reproductive culture (Balakrishnan et al., 1988), or may simply indicate the success of family planning campaigns for smaller families.

<table>
<thead>
<tr>
<th>Type of Method</th>
<th>1977/78 KFS</th>
<th>1989 KDHS</th>
<th>1993 KDHS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any</td>
<td>Modern</td>
<td>Any</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-24</td>
<td>6</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>25-29</td>
<td>10</td>
<td>7</td>
<td>32</td>
</tr>
<tr>
<td>35-44</td>
<td>11</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>45-49</td>
<td>13</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td><strong>Desire for children</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wants more</td>
<td>7</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>Wants no more</td>
<td>21</td>
<td>17</td>
<td>39</td>
</tr>
<tr>
<td>Undecided</td>
<td>8</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td><strong>Type of marital union</strong></td>
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<tr>
<td>Monogamous</td>
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<td>7</td>
<td>33</td>
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<tr>
<td><strong>Type of residence</strong></td>
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</tr>
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<td>13</td>
<td>35</td>
</tr>
<tr>
<td>Rural</td>
<td>9</td>
<td>5</td>
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<tr>
<td><strong>Education</strong></td>
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<td></td>
</tr>
<tr>
<td>None</td>
<td>6</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>1-4 years</td>
<td>10</td>
<td>6</td>
<td>28</td>
</tr>
<tr>
<td>5-8 years</td>
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<td>33</td>
</tr>
<tr>
<td>Over 9 years</td>
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<td>19</td>
<td>48</td>
</tr>
<tr>
<td><strong>Region of residence</strong></td>
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<td></td>
</tr>
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<td>21</td>
<td>19</td>
<td>39</td>
</tr>
<tr>
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</tr>
<tr>
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<tr>
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<td>6</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Rift Valley</td>
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</tr>
<tr>
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<td>16</td>
</tr>
<tr>
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<td>46</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>9</td>
<td>6</td>
<td>30</td>
</tr>
</tbody>
</table>

*Sources: Njogu (1991); NCPD and IRD (1994).*

In fact, the proportion of women who are using contraceptives to stop childbearing has more than doubled since 1977/78, though those using them for spacing have nearly tripled as the indices for desire for more children show. But these trends might also simply reflect one response option of Kenyan couples to trends in the economy, or they
may be a reflection of a shift in ideational culture.

Overall, the use of modern contraceptives increased 4.5 times in 15 years by 1993, but significant regional variations remain that need to be examined further. For instance, adoption of modern contraceptives has been highest in Central province where 50.0 per cent of married women were using contraceptives in 1993 and lowest in Coast province with only 17.0 per cent of married women using modern methods. Apart from Eastern province, there were only small regional variations in contraceptive use. This raises the central question of this dissertation regarding the roles of culture and social communication in contraceptive adoption patterns.

As Khasiani (1988) points out, the Kenya family planning programme has faced both operational problems and structural constraints. The most intractable problem of all is shortage of financial resources which is reflected in unavailability of family planning services to many women and couples in some districts. Indicators of this inadequacy are the many births that still take place at home without professional care, the exceedingly long distances which clients have to travel to obtain services, and the disproportionate distribution of service delivery points.

Structural constraints of the programme are reflected in poor quality of services given to clients in existing facilities. These manifest themselves in poorly trained staff, inconvenient clinic hours and lack of privacy for clients (Khasiani, 1988). It may be expected that the pace of fertility decline currently under way in Kenya may be slowed if solutions to these problems are not found.
3.3 SUMMARY

This chapter has reviewed trends in Kenya’s social and political life, its economy, and its demographic patterns. Its three principal findings are worth reiterating.

First, the socio-economic gains made early in the nation’s history are now under serious threats from forces both within and without. Although there is strong evidence of fertility decline in Kenya, the huge population momentum gathered over three decades of rapid growth has overtaken the rate of economic growth and helped force the economy into a tailspin in recent years. Coupled with this is relative inefficiency in the political and economic management of the country by current political leadership which has squandered local and international material and political good-will needed to grapple with hard economic choices.

These problems have not been helped by a virtual collapse of prices of Kenya’s traditional exports of tea and coffee in the international market, the effects of which have reverberated in other sectors of the economy, notably in the manufacturing and industrial sectors where rates of growth show signs of rapid decline. A corresponding decline in agricultural production perhaps signals the possibility that Kenya may be entering the dark alley of dependence on food imports and handouts from industrialized nations as are scores of other poor nations.

Second, Kenya has fairly good demographic data stretching to the beginning of this century which make estimates of its population trends reasonably plausible. The picture that emerges from analysis of trends based on these estimates is one of a country that has had one of the fastest fertility-driven growth rates in contemporary history of
mankind, but where fertility decline once begun shows strong indications of very rapid decline. Moreover, the recent pattern of Kenya's fertility decline closely follows recent increases in contraceptive use; however, different regional patterns in the adoption of contraceptives are suggestive of the existence of cultural lags in adoption rates in some regions and among some population groups.

Third, Kenya has had a relatively long and purely voluntary family planning programme whose coverage of the country is variable from region to region. Whether the recent declines in fertility levels can be attributed to changes in the level of government commitment to family planning is impossible to determine. What is clear is that there has been a dramatic transformation in values around the family and childbearing in Kenya in the past couple of decades which may account for the changes in contraceptive use patterns of Kenyan women.

What has been the role of social communication in bringing about these changes? In fact, what has been the relative role of ideational culture (i.e., husband-wife communication about family planning, approval of contraceptive use, female education, approval of public discussion of family planning, family size norms, etc.) in the transformation of Kenya's reproductive regime? Have such changes been engineered through family planning programmes or have individuals ultimately responded to social engineering essentially at their own pace? These are important questions for theories of the fertility transition and for public policy formulation in Kenya and other sub-Saharan countries. The fertility profile of Kenya given its voluntary model of family planning programming offers an excellent opportunity to explore such questions.
CHAPTER FOUR

STABILITY AND CHANGE IN IDEATIONAL CULTURE: THE CASE OF REPRODUCTIVE BEHAVIOUR

4.0 INTRODUCTION

The review of the literature on fertility in Chapter Two raised the issue of culture as an important determinant of fertility behaviour in the course of social change. For instance, the onset of the fertility transition in developing societies was found to depend fundamentally on the interaction between past and existing reproductive cultures, socio-economic conditions, and changes in contraception behaviour. The importance of such factors is demonstrated by Kenya's socio-economic and fertility experiences. Hence, there is a need to further interrogate fertility theories which posit an opposition between social institutions and the choices of individuals in family building.

Kenya, it may be recalled, has had very high, fertility-driven population growth rates and an absolutely voluntary family planning programme. So the question arises as to how we may explain the recent onset of fertility decline in the country. What suddenly happened to Kenya's strongly pronatal culture so graphically portrayed by Ocholla-Ayayo (1988) and others?

In this chapter the focus is narrowed to key questions relating to the culture problem in demographic theory and research and the connection between social communication, shifts in the ideational system and reproductive behaviour. Drawing upon
sociological theories of structuration and the Lesthaeghe-Surkyn (1988) formulation linking ideational culture to reproductive behaviour, this chapter advances an interactive theory of change in reproductive behaviour that recognizes the primacy of social institutions in shaping behaviours of individuals while, at the same time, recognizes the place of choice in behavioral innovation.

Advances in fertility theory and research exemplified by the contributions of Coale (1973), Coale and Watkins (1976), Caldwell (1976, 1978, 1980, 1982), Lesthaeghe (1980, 1983), Lesthaeghe and Surkyn (1988), Bulatao and Lee (1983), Bongaarts (1978, 1982), and Ocholla-Ayayo, (1988) have focused attention on how culture, operating through institutional and psychological processes, embeds traditional familial forms and relations. However, these approaches have left unexamined critical links among several key variables, for instance: the role of social communication as a factor in cultural stability and change; family planning programmes as strategies for influencing human conduct which, nevertheless, empower women and couples in developing societies; reproduction as a meaningful social act negotiated and legitimated in social interaction; and individual agency.

The consequences of these omissions is vagueness about the exact timing of the onset of the fertility transition and a sense that changes in reproductive culture are, or can be, determined mechanistically. Moreover, based on a cultural evolution model such as that advanced by Ocholla-Ayayo (1988), Caldwell (1978) and, to a limited extent, Lesthaeghe (1980), the fertility transition currently under way in Kenya must necessarily remain inexplicable.
The broad objective of this chapter is to elucidate the connection between social change and fertility behaviour through an approach that posits the links between ideational culture, socio-economic conditions, family planning programmes and reproduction as problematic and, therefore, requiring theoretical justification. Specifically, an attempt is made to specify more concretely the connection between culture change and fertility behaviour in LDCs through a theory of motivation based on the role of social communication in cultural and behavioral dynamics.

4.1 THE CULTURE PROBLEM IN DEMOGRAPHY

Demographers have found anthropological definitions of culture as "systems of agreed-upon meanings" (Barrett, 1991: 55) or as symbolic systems that guide behaviour useful but problematic. But this need not be the case. For, in almost all reformulations of the fertility transition theory, a supposed role of culture has been found useful in providing theoretical explanations for variations in fertility behaviour not accounted for by socio-economic and demographic factors (cf., Van de Walle and Knodel, 1967; Coale, 1973; Caldwell, 1976). In addition, cultural explanations have recently become the point of convergence in, and justification for, the rejection of rational choice, economic, or demand theories of fertility behaviour (e.g., Anderson, 1976; Carter, 1988; Clark, 1988; Hammel, 1985, 1990; Hammel and Howell, 1987; Hull, 1983; Johanson, 1988; LeVine and Scrimshaw, 1983; Watkins, 1986, 1987, 1990; Cleland and Wilson, 1987).

Unfortunately, however, such realization of the importance of culture in
demographic behaviour has sometimes been purchased at the cost of serious conflationary tendencies in fertility theory: if some early theoretical formulations placed too much weight on socio-economic explanations of fertility change, many recent "cultural" or "institutional" explanations have tended to overweight the contribution of culture to fertility behaviour. This problem may have been exacerbated by lack of precision in the conception of culture. As Thomas Burch (1996) observes, lack of precision in the specification of concepts used and problems under investigation in fertility transition research may be at the root of at least some of the disciplinary disputes.

Demographers have also faced the problem of how to measure the culture concept (Lesthaeghe, 1989; Watkins, 1987). However, it is generally supposed that cultural differences may explain why some demographic behaviours vary by language or tradition even when economic conditions are similar, or why some demographic behaviours persist among populations living in particular geographic or linguistic areas long after they have disappeared elsewhere, or why patterns of change in demographic behaviour tend to vary according to linguistic, ethnic, racial, or geographic clusters (Kintner, 1985; Lesthaeghe, 1977, 1989; Knodel, 1988). Yet, the concept of culture in demography still remains problematic in that there is not a single usage that is universally applicable. The problem is partly conceptual but largely the result of data requirements for quantitative demographic analysis—that is, of measurement.

4.1.1 Anthropological Conceptions of Culture

According to Hammel (1990: 457), anthropologists use the concept of culture to
identify social groups, refer to autonomous tradition, as patterned behaviours, as a determinant of action, as art, and as symbols communicatively negotiated among actors. Some of these usages commonly appear in demography literature.

Usage of the culture concept as identifier of social groups in demography may be traced to the work of William Leasure (1962) and its thematization to the Princeton European Fertility Project. Labelling of a group by ethnicity, region, or nationality, though methodologically nominal and trivial in itself nevertheless has important and interesting theoretical implications for the study of fertility behaviour: members of the group are assumed to belong to "a communicative system, sharing the (demographic) pattern and transmitting it, one to another" (Hammel, 1990: 459). Such transmission may occur across generations through the process of socialization, or laterally across age peers or different population groups through diffusion. This use of the culture concept carries no assumption of active social agents in culture change: it is silent "about the process of communication, the direction of flow, (and) the entropy of the transmissions' (Hammel, 1990: 459). Also, this usage implies that demographic behaviour is only a part of a whole repertoire of learned behaviours that occur among social groups.

The notion of culture as tradition is due to E.B. Taylor (1958) and Franz Boas (1940) and their followers. It holds that culture is learned and is contextually specific. As part of the social context, however, culture is viewed as being embedded in social organization and institutions and, therefore, independent of individual volition or biology. Thus, culture may be seen as the underlying factor for similarities observed among social groups. In fertility theory, this view has led to cultural determinism whereby some
reproductive behaviours are said to be due largely or entirely to cultural conditioning. For instance, Polgar (1972: 209) has argued that the limitation of family size is a reflection of cultural dictates "concerning who should have children, when childbearing should start, what is a desirable interval between children, and what juncture in social aging childbearing should cease." Therefore, according to Handwerker (1986: 10), "fertility transition reflects a cultural transition." The problem with such cultural determinism is that it leads to theoretical fragmentation and relativism.

Alfred Kroeber (1917) and Leslie White (1959) are credited with conceiving of culture "as a thing sui generis" independent of biological and psychological factors (Hammel, 1990: 460). For social anthropologists working in this tradition culture is viewed as patterned behaviour, that is, as a system of symbols with patterned relationships although no necessary literal connection is suggested between the symbols and the things symbolized. This reified view of culture has had limited application in demography. However, in anthropology Bronislaw Malinowski (1962 [1937]) and Radcliffe-Brown pursued the possible connection between culture as ideational and material patterning and human behaviour, leading subsequently to the idea of culture as determinant of behaviour. Hammel (1990: 462) reports that these social anthropologists took the notion of culture as a "pattern of rights and duties, of social expectations that direct and constrain the behaviour of individuals." Thus, while in Radcliffe-Brown (1952) cultural patterning of individual action takes place juridically through the application of social sanctions and pressures, in Malinowski (1962) cultural control occurs at the psychological level through utilitarian considerations. But they share a common ground:
the common point for both is the notion of a set of expectations as proximate causes of behaviour, shared between members of a social group. These expectations are felt to be primary, rooted in the fundamental relations of the family, with social action flowing naturally along a social typology pre-set by underlying structures of kinship, or, in nontribal societies, by other structures of organization (Hammel, 1990: 462).

Based on the structural-functionalist tradition in sociology, particularly as developed and synthesized with Weberian sociology by Talcott Parsons (1968 [1937]), the conception of culture as determinant of behaviour has had profound influence in demographic theory and research. For instance, Davis and Blake established the tradition of, and parameters for, the study of social structure and fertility when they identified their "intermediate variables" as proximate causes of fertility behaviour, calling them the "factors ... through which, and only through which, cultural conditions can affect fertility" (Davis and Blake, 1956: 211). Some of Lesthaeghe's work discussed shortly hereafter tend toward this genre of the culture concept in demography.

As the discussion in Chapter Two makes clear, a large body of the literature on fertility behaviour in the developing world seeks to identify or measure the impacts of social institutions that presumably sustain high fertility, as well as psychological states (or motivations) of culturally situated individuals and couples toward childbearing and family size restriction (e.g., Caldwell, 1976, 1978, 1982, 1988; Davis, 1963; Dyson and Moore, 1983; Handwerker, 1986 Knodel et al., 1984, 1987; LeVine and Scrimshaw, 1983; Lesthaeghe, 1989; McNicoll, 1980). Considered as a whole, this body of work represents a theoretical system in which questions relating to fertility behaviour reflect an unresolved disjuncture in the relationship between social expectation and individual
aspirations, or between questions of morality and those of individual freedom. Thus, in terms of causation, the central problematic in fertility research based on this body of literature becomes one of estimating differences in motivation or the degree to which reproductive choices are volitional or preconditioned.

There is a need, therefore, to probe further the extent to which social institutions constrain individual reproductive choices and, hence, how much freedom individuals and couples may be expected to have for choosing "deviant" reproductive behaviours. Ron Lesthaeghe's works (Lesthaeghe, 1980, 1983; Lesthaeghe and Surkyn, 1988) represent important attempts to address the micro-macro disjuncture in behavioral motivation and choice, but also demonstrate the tenuousness in demographic theory of the notion that society is an unmitigated constraining force on its members. Of immediate relevance to this study, this tenuousness is reflected in his recent work, *Reproduction and Social Organization in Sub-Saharan Africa* (Lesthaeghe, 1989), and on Calwell's (1982) generalizations about conditions sustaining high fertility in contemporary LDCs.

4.2 LESTHAEGHE ON THE SOCIAL CONTROL OF REPRODUCTION

4.2.1 Culture as Constraint on Reproductive Choice

Ron Lesthaeghe (1980) suggests that traditional society regulates reproductive choices of individuals through culturally prescribed practices whose true functional import rests upon patterns of resource appropriation, social control and risk devolution. This is substantially a restatement of Caldwell's hypotheses discussed in Chapter Two
of this dissertation and which are approvingly cited in a later work (viz., Lesthaeghe, 1989). In this scheme, during the transitional phase social controls are progressively delegitimated and individual choice, informed by manifest rationality and premised on the desire to maximize child utilities and minimize disutilities, is enhanced by cultural diversification that comes with modernization. The underlying dimension of social and demographic change is increased legitimation and ethical approval of secular individualism. That is why diversification of the cultural code is so crucial for change in reproductive behaviour (Lesthaeghe, 1980: 535).

Such diversification which progresses in lock-step with the modernization process arises dialectically: it results from the manoeuvring of individuals "seeking more room for choice in response to new conditions" against "the inheritance of the past operating on the level of the moral code and traditional forms of control" (Lesthaeghe, 1980: 534). In the process the cultural code is segmented along political, ideological and religious dimensions. This enables individuals to find space for conformity to their "pillar" while simultaneously deviating from the norms of the other "pillars." Applied to fertility behaviour, individuals who wish to practice birth control can find spaces for reproductive "deviance" in the early stages of the fertility transition but their number remains small until increased secular individualism expands the legitimacy of birth control. Therefore, issues in fertility transition concern:

(1) how individuals take note of institutional arrangements and their changes when evaluating the utility-cost structure of alternative childbearing strategies and (2) how the cultural system is modified and diversified under the greater pressure of a greater need for individualized decision making (Lesthaeghe, 1983: 534).
However, the actual mechanisms by which the cultural system gets modified are not specified until their 1988 work with Johan Surkyn.

4.2.2 Ideational Change as Determinant of Reproductive Choice

Of particular interest to this dissertation is the contention that change in reproductive culture rests primarily on the "ideational system" (Lesthaeghe and Surkyn, 1988). Changes in the ideational system occur when improvements in social conditions and opportunity structures facilitate the emergence of cost-benefit balancing of choices that lead, finally, to adaptation of morality to specific needs. In the end morality comes to be seen as "a flexible script" whose transmission through socialization and "through individuals’ search for meaning-giving beacons in life" defines the content of "utility." Therefore, it is the "universes of meaning (which specify) the object of economic utility" that ultimately shape motivations (Lesthaeghe and Surkyn, 1988: 1).

The actual mechanism by which universes of meaning are formed is closely associated with Maslow’s (1954) theoretical construct of "hierarchy of needs." By this Maslow meant that human needs are so arranged that lower order physiological needs such as food and shelter must be satisfied first before higher order ones such as safety and security are considered. As applied in Lesthaeghe and Surkyn’s (1988) theory, the effect of economic expansion is to shift needs from lower to higher order ones. Social differentiation simultaneously facilitates diffusion of these "ideational goals" from higher to lower social strata.
In a related way, cultural dynamics are the product of relative wealth which fuels rising aspirations and specifies new needs, and "political alienation (fostering) counter-institutional ideology" (Lesthaeghe and Surkyn, 1988: 5). Thus, the content of ideational goals and the manner of their transmission are deeply implicated in culture change, and both are dependent upon social stratification and preference structures. Drawing on the work of Tarde (1890) and Sorokin (1947), Lesthaeghe and Surkyn (1988: 5) suggest that: (1) innovation in culture occurs among members of the upper classes because they are more privileged, have higher education, and have more resources, while lower social classes "adopt new preferences through imitation"; and (2) the absence inter-class interaction prevents downward cultural transmission with the result that "each stratum articulates its own preference map and ideology." Education is seen not simply as a human capital asset in the labour market (as in economic theories) but as a "proxy for early cultural endowment" (Lesthaeghe and Surkyn, 1988: 17), that is, as cultural capital. This is because it shapes young people's values, preferences, and aspirations (i.e., gives them a world view) well before they make such important decisions of adult life as family formation and building.

Lesthaeghe and Surkyn have been criticized for uncritical over-dependence on Maslow's hierarchy of needs conception (Hall, 1993) and on the subjective expected utilities (SEU) constructs of the N W Home Economics school. For instance, empirical findings in psychology suggest that ego-related and self-actualization needs can widely prevail in society before, or even without lower order needs being satisfied (Ignatief, 1984). Moreover, rational choice models are largely unsupported empirically (Eiser and
Plight, 1988). Yet these criticisms themselves lack full veracity because they generally ignore the important role social communication plays in social and ideational change. For, how is society possible without a symbolic superstructure? Specifically, how has the ubiquitousness of the mass media in contemporary society impacted ideational and cultural spaces of decision making?

That the performance of Lesthaeghe and Surkyn's theory may have been undermined somewhat by these over-dependencies is a legitimate critique. But in all fairness, their expansion of the content of what actors understand by utility beyond those assumed by rational choice models deserves acknowledgement, for it directs attention to other areas in which to seek a solution for the problem of behavioral motivation—for instance, to the realm of "unacknowledged conditions of action" or hidden motivational factors (Giddens, 1979; Bourdieu, 1977). In addition, by stressing the primacy of the ideational system in behavioral innovation, the theory frees demography at least partially from the mechanistic causation implicit in cultural determinism.

However, the Lesthaeghe-Surkyn formulation is more seriously undermined by its sublimation of human motivation as purely ideational and its exclusion of the role of communication and social interaction in cultural dynamics. In fact, it is these weaknesses of the theory that hampers its complete transcendence of the conception of culture as an unmitigated constraint on choice thus preventing their full achievement of a dialectical formulation of cultural change. Worse still, Lesthaeghe is working with two separate theories of motivation, one for developing and the other for more advanced societies—a strategy for which neither a scientific nor logical basis is provided. Incorporating social
communication into his causal models should help toward achievement of theoretical unity.

In order to retain the focus on the importance of ideational culture in the transformation of reproductive behaviour without supplanting the role of institutions and social structures, we may view culture as a meaning (ideational) system that is historically and interactively constituted. That is, it is important to recognize that culture cannot exist as a time-invariant, autonomous causal factor, since it is social actors interacting against a backdrop of institutional and situational factors that are the agents of its constitution and practice. Such conceptualization allows the focus to remain on the actors themselves and how they interact in historical time and space, rather than on a reified notion of culture. In fact, culture then becomes a superstructure of meanings to which individuals, in transacting their lives, make reference.

According to Hammel (1990: 446), as a symbolic superstructure culture may be defined as "the commonality of perception that emerges between actors as they establish and conduct their social relations." This notion of culture is crucial to the study of reproduction because a comprehensive theory of motivation must specify how such commonalities of perception with regard to fertility norms emerge and change historically. Yet, even then such a conception of culture would not permit us to adequately account for variations in behaviour within cultures, hence, the need for a general theory of motivation and action that also takes into account individual innovation as well as uncertainty.

Insights from structuration theory developed in the work of Anthony Giddens
(1975, 1979, 1981) and Pierre Bourdieu (1977, 1984) permit both the conceptualization of social institutions as at once constraints and media of action as well as an accounting for unacknowledged conditions of behaviour. Advantage is, thus, taken of these insights to rework Lesthaeghe's (1980) and the Lesthaeghe-Surkyn's (1988) models of change in reproductive regimes and to specify an interactive theory of motivation for the adoption of contraceptives in the course of social change.

4.3 INSTITUTIONS AS CONSTRAINTS AND MEDIA

4.3.1 Moral and Material Bases of Social Constraint: Durkheim and Marx

The idea that group life constrains the conduct of lay actors may be traced to Durkheim's characterization of "social facts" as things sui generis (Durkheim, 1964) and, hence, as external to the psychological dispositions of actors. But in The Division of Labour in Society, Durkheim (1984) also argued that social phenomena are essentially moral and, hence, involve the possibility of sanctions. This led to his making a distinction between utilitarian sanctions which constrain individual behaviour "mechanically" and moral sanctions that relate to the conscience collective and which bind groups together "organically." It follows that it is adherence to the moral ideals of group life that leads to purposive action. A disjunction occurs between the interests of an actor and the moral demands of the conscience collective either when one's egocentric impulses clash with the demands of society or from anomic lack of social integration.

Following Durkheim, Parsons (1951: 81) argued that the actions of individuals
are integrally linked to their cultural universes which "means essentially integration of motivational and cultural or symbolic elements." In this view of social order, "strain" or conflict in social life can result from: absence of "binding value standards"; disarticulation between individual need-dispositions and an established "value orientation pattern"; or when an actor wrongly perceives the "conditional elements" of his/her action.

On the other hand, in his theory of social change Karl Marx analyzes two forms of dialectical relation both of which are linked to the transformation of history and culture. One is the dialectic between humanity and nature and the other is the dialectic between social classes. The first arises from humans' lack of instinctual power of adaptation to their environment thereby necessitating creative transformation of their environment for survival, during which process humans change themselves as well. In his words, "As individuals express their life, so they are. What they are, therefore coincides with their production, both with what they produce and with how they produce" (Marx, 1968: 32). Therefore, it is in the manner of engagement of humans with their material production that the character of their society and culture is moulded and transformed. It follows that people will be free to the degree that they are creatively engaged in the reproduction of their own lives, yet, in capitalist societies, such freedom is often denied by the character of class-based relations of production.

Consequently, according to Marx (and Marxists), people are constrained both by their relations of production and by their class location both of which determine their material and cultural conditions. However, concerned only with the analysis of capitalist
societies, Marx did not discuss how individual interests may be accommodated in non-capitalist social formations.

4.3.2 Beyond Unmitigated Constraint: Giddens and Bourdieu

One of the central concerns in Anthony Giddens's work on "structuration" was the attempt to transcend the structure-action dichotomy in social theory. "Structures" in Giddens's theory are sets of "generative rules and resources" which are routinely drawn upon by people and expressed in practice; action or agency means "lived-through experience" or, more formally, "the stream of actual or contemplated causal interventions of corporeal beings in the ongoing process of events-in-the-world" (Giddens, 1993: 81). Agency leads to "structuration" which is defined as "conditions governing the continuity or transformation of structures and, therefore, the reproduction of social life" (Giddens, 1984: 25). Structuration theory is, therefore, a time-dependent theory of social, ideational and behavioral change. Thus, the central problematic of fertility research may be restated in Giddens's terminology as follows: What conditions govern continuity or transformation in reproductive behaviours of individuals and couples in the course of social change?

Giddens set out to explain how social structures can both constrain and mediate individual behaviours or, as he put it, how "the structural properties of social systems are both medium and outcome of the practices that constitute those systems" (Giddens, 1979: 36-7). His approach to the "problem of order" in social theory hinges on Marx's
postulation regarding the dialectical nature of historical movement and culture change and, more specifically, on "the fundamental idea of the production and reproduction of social life" (Giddens, 1993: 105). According to this idea, the production (or constitution) of society is a "skilful accomplishment" of society's members often without their full intentionality or comprehension. This is because social acts carry seeds of change and, especially, those actions associated with the "re-production of the species and transformation of nature" (Giddens, 1993: 105).

According to Giddens, meaningful social life is only possible to the degree that members of society possess skills for its constitution; but they must also have the ability to explain these skills as forms of action; moreover, settings that are conducive to the exercise of such capacities must exist. Accordingly, in social interaction, members of society seek meaning, moral order, and a recognition that they are involved in relations of power.

Regarding the meaningfulness of social interaction, Giddens (1993: 111) says:

It is essential to any adequate analysis of interaction as a product of the constituting skills of actors to recognize that its 'meaningfulness' is actively and continually negotiated, not merely programmed communication of already established meanings. (my emphasis)

Thus, each competent member of society is an active agent in the production of social life. Given that social interaction is temporally and spatially situated, society's members draw upon past experience as well as anticipate others' responses. It is in this sense that social life is a reflexive activity.
Along with the reflexive monitoring of behaviour, members of society draw upon a stock of mutual knowledge in the course of communication. Mutual knowledge is "taken-for-granted 'knowledge' which actors assume others possess" and which are used as "interpretative schemes" for creating and sustaining "contexts of communication" (Giddens, 1993: 113). These interpretative schemes can be understood analytically as "a series of generative rules" for grasping the full range of meanings of communicated messages (Giddens, 1993: 113).

The idea of social norms as both constraining and enabling emerges with regard to the constitution of social interaction as a moral order. Giddens captures the dialectical character of norms by treating normative elements during an interaction as a series of "claims" the realization of which depends on reactions of others. Hence, normative claims must be acknowledged as moral commitments. However, when a normative claim is acknowledged by an actor as binding, not as a moral commitment but to avoid anticipated sanctions, then that actor has acted in pursuance of self interest. That is, the actor has weighed the options available in the action and decided to avoid expected sanctions. However, because sanctions imply the responses of other people, "there is some 'free space' for the transgressor ... to negotiate the sanction to follow" (Giddens, 1993: 115). Thus, the moral character of interactions means that everyday life involves both choice and obligation, and skilful balancing of the two is the sine qua non of social relations.

Sanctions which actors can face in interactions may arise either internally or externally. Internal sanctions are those associated with an actor's personality or
psychological make-up such as anxiety, fear, or guilt; external sanctions relate to the context of action and may involve threat of force and, conceivably, even material deprivation. But what role does power play in social relations and individual actions?

Giddens (1993: 116) argues that the notion of "'action' ... is logically tied to that of power." This is so because action requires that people have "means" to secure the outcomes they desire. In other words, power is "the capacity of the agent to mobilize resources to constitute those 'means'" or "the transformative capacity of human action" (Giddens, 1993:116-7). Such means, then, may include human capital factors such as education and skills as well as resources and facilities such as information, authority, or force which people bring into the constitution of social relations. And all such factors are intimately linked to motivations.

4.3.3 In Search of an Interactive Theory of Motivation

Giddens (1979: 58) provides a theory of motivation for action that assumes both "conscious and unconscious aspects of cognition and emotion." In this scheme, motivations refer to people's wants, defined as sets of "organic needs" which expand their "involvement in a definite social world" (Giddens, 1993: 122). According to psychoanalytic theory, wants may be assumed to be hierarchically arranged in time and space. Thus, people learn early to accommodate their wants against the expectations and demands of others through socialization in order that they may achieve a "basic security system" (Giddens, 1993: 124). Maintaining and legitimating such a system of
"ontological security" is a routine accomplishment of individuals in the conduct of their lives. Sometimes, however, routine grounding may be impossible such as in "critical situations ... (where) the constituting skills of actors (may) no longer mesh with the motivational components of their action". Then ambivalence or conflicts could arise "within and between 'layers'" in the hierarchy of wants (Giddens, 1993: 124-5).

As already intimated, "unknowability of motivation" (Hammel, 1990: 469) is a major problem in demographic research. Subjects often rationalize their behaviours, motives and values in retrospective surveys, so it is legitimate theoretically to inquire into the nature of knowledgeable ability of subjects.

Giddens recognizes that some people may at times be unaware of their wants such that their "behaviour (is) influenced by sources not accessible to their consciousness" (Giddens, 1993: 92). When actors are unable to verbalize reasons for their actions yet they know that their behaviour is right in a particular situation, they may be said to possess "practical consciousness" (Giddens, 1979: 24). Two barriers to discursive penetration of conditions of action are the taken-for-granted nature of much of the knowledge that individuals routinely draw upon in the course of their lives, and unconscious sources of motivation which prevent reflection upon motives. Unfortunately, Giddens's theory of unacknowledged conditions of action is vague and tautological. This may be partly due to what others consider to be an exaggeration of the importance of the enabling nature of social structures (Livesay, 1989: 273; Habermas, 1982: 268). Pierre Bourdieu advances a more intuitively appealing explication of the phenomenon of unacknowledged conditions of behaviour.
Bourdieu (1977) approaches the question of unknowability of motivation via his concept of "habitus" which means internalized dispositions of individuals that mediate between the objective conditions of their existence and their behaviour. Thus, structures which create social environments, such as social conditions of specific groups, produce habitus. As internalized psychological states, habitus are "systems of durable, transposable dispositions, ... predisposed as structuring structures" (Bourdieu, 1977: 72). Habitus are therefore the generative principles of the practical activities of social life equivalent to Giddens's structures; they are structured along socio-economic variables and, hence, may be understood as boundaries of behaviour imposed by material, relational and ideational constraints. This is conceptually important because, as Bourdieu (1977: 21) argues,

only by constructing the objective structures (price curves, chance of access to higher education, laws of the matrimonial market, etc.) is one able to pose the question of the mechanisms through which the relationship is established between the structures and the practices of the representations which accompany them, instead of treating these 'thought objects' as 'reasons' or 'motives' and making them the determining cause of practices.

In other words, we don't need a purely sublimated conception of human motivation for reproductive behaviour or the brute force of traditional authority and gerontocratic rule: social conditions impose limits to the generative schemes of the internalized dispositions which individuals possess and which, ultimately, give shape and direction to the choices they make.

Therefore, knowability of individuals may be limited by ideology which, as
false consciousness, may lead one to give objectively wrong reasons for behaviour. Alternatively, individuals may be unaware of the true motivations for their action because they lack cultural capital, such as education and skills, or material facilities (e.g., access to the mass media) with which to accurately monitor their social environment. As such, behaviour may become routinized by ideology and not as explicitly reflexive as Giddens suggests. Ideologies may include philosophical orientations and values of dominant members of society which may be internalized by all or most members of a social group; or they may be taken-for-granted general rules that are understood and followed by members of a group which they routinely live by that, in the process, knowingly or otherwise pattern their behaviour—including their reproductive choices.

Accordingly, whether or not we are aware of the specific motives that function as proximate causes of our behaviour, we nevertheless reflexively monitor our actions routinely in the conduct of our lives and in interaction with others. But the probability of realizing wants varies by socio-economic and cognitive resources which individuals possess. It follows that reproductive choices are everywhere just that—choices of actors made within the context of their temporal conditions and guided by a need structure constrained by both those objective conditions and their internal cognitive states.

4.4 TOWARD AN INTERACTIVE THEORY OF REPRODUCTIVE BEHAVIOUR

A number of lessons may be drawn from structuration theory that may be useful in understanding reproductive behaviour and, specifically, in thinking about changes in
the reproductive regimes of contemporary developing societies.

First, structuration theory allows for the possibility of reflexive monitoring of behaviour in a way that permits clear recognition of the existence of moral spaces of action—that is, room for behavioral innovation—even in traditional societies. Conceptually granting such a context of behaviour has interesting implications for a theory of reproductive decision making. For, even though structuration theory parallels Lesthaeghe's (1980) postulate regarding the liberalization of reproductive morality through diversification of the cultural code in that both theories allow for "some 'free space' for the transgressor," the former theory is free of the tautology-generating developmental assumptions of the latter. It also avoids evolutionary underpinnings of Lesthaeghe and Surkyn's (1988) and Lesthaeghe's (1980) models by positing changes in individual behaviour and in culture as fundamentally premised on communicative interaction.

In other words, reproductive behaviours may be seen partly as outcomes of social communication and, as such, are of necessity rationally and morally grounded, sometimes in terms of narrow self interest as in rational choice models, but more often because they are deemed appropriate in a definite social world. This implies that a moving equilibrium always exists between individual reproductive choices and preferences and group expectations as both are transformed over time without necessarily requiring strong means-ends rationality assumptions premised on realization of economic growth. Such a theory may explain why it is that even though the Kenyan economy has been declining in recent years, the fertility rate has also continued to fall; for it may be ideational more
than socio-economic factors that may be driving the decline at this historical juncture. This would be more consistent with Davis’s (1963) theory of change and response and with Lesthaeghe and Surkyn’s (1988) liberalization of the ideational space thesis than with Caldwell’s (1976) Westernization or wealth flows models. It also accords with a cohort-effects explanation of reproductive behaviour (e.g., Easterlin, 1978).

Conceptualization of reproductive behaviour as an outcome of communicative interaction allows as well for the possibility of unifying socio-economic models of fertility (e.g., Davis, 1963; Easterlin, 1968, 1978; Lesthaeghe and Surkyn, 1988) and their cultural variants often proposed for developing countries (e.g., Caldwell, 1976, 1978; Handwerker, 1986; Davis and Blake, 1956) with rational choice models that require assumptions about more generalized sense of personal efficacy and instrumental reason usually suggested for industrialized societies (e.g., Becker, 1976; Arnold et al., 1975; Fawcett and Arnold, 1973; Davidson and Jaccard, 1976; Beach et al., 1979). Achievement of such theoretical unity does not imply that motivation or fertility behaviour are uniform everywhere. On the contrary, it permits theoretical generalization about those sets of conditions that are sufficient to set fertility decline in motion (e.g., Davis’s theory of change and response), and a search for those that are necessary to assure completion of the fertility transition (e.g., Caldwell’s "Westernization" hypothesis) but in non-ideological terms.

Second, the concept of power as transformative capacity is important to our theoretical scheme and to demographic theory generally because, as Giddens (1993: 118) explains, "it is the 'can' which mediates between intentions or wants and the actual
realization of the outcomes sought after." This comes as a boon to demographers who are often wont to restrict the meaning of power to its relational usage in interaction, that is, power as domination. Yet it is clear, particularly in studies of reproductive behaviour in developing countries, that the lack of fit between reproductive intentions or preferences in surveys and subsequent behaviour may sometimes be understood more clearly by reference to respondents' lack of means (power) to realize such preferences rather than attributing them to cultural norms or pronatalist patriarchal values (e.g., Caldwell, 1978; Pebley and Mbugua, 1989). Birth control technologies and family planning programmes may then be appropriately regarded as empowering to women and couples. Such a conception of power does not, however, deny the relevance of the domination argument in theories of reproductive decision making; in fact, it merely adds to our explanatory arsenal.

Third, our reworked theory of motivation may help us to understand the bases of some inconsistencies in demographic theory and research. For instance, by allowing for the possibility of unacknowledged motivation through practical consciousness, we need not question any more the appropriateness of making reference to the notion of demand for children in the context of developing countries merely because of our inability to reconcile apparent contradictions between stated intentions of subjects and their behaviour (e.g., Bulatao and Lee, 1983: 235; Wrigley, 1978). We can, in fact, accept the argument that in whatever social setting and production relations, reproductive behaviours are normally meaningful as well as rationally and morally grounded whatever ideological reasons prevent verbalization of such legitimation claims. In any case parents and would-
be parents everywhere can wrongly perceive the conditional elements of their actions.

Fourth, by defining motivation as wants that are organized hierarchically, structuration theory affirms the heuristic value of Maslow’s hierarchy of needs postulate as applied in the Lesthaeghe-Surkyn (1988) theory, but needs are concretized as existential necessities rather than sublimated as ideational states. Its immediate empirical applicability is that it allows us the possibility of conceptually regarding birth control technologies as important existential needs of individuals or couples who must stop or space childbearing to maintain ontological security in a context of rapid social change.

Finally, a communication-based theory of human conduct, while encompassing the notion of behavioral diffusion, requires neither mechanistic conceptual schemes like "imitation" nor ideological ones such as "Westernization" because cultural change is understood as a dialectic interpenetration of diverse values and preferences of competent social agents achieved through talking and listening. In any case, imitation implies the absence of ideological barriers to action; yet, the "Westernization" hypothesis, for instance, cites traditional ideology as a major impediment to diffusion of Western familial norms—obviously a vicious tautology. On the other hand, communicative interaction implies either that ideological obstacles have been, or can be, overcome or circumvented as a way of establishing ontological security if there is strong motivation to do so, and as part of the dialectic of ideational change. Family planning programmes in LDCs may then be correctly understood as ideological struggles for reproductive preference structures.
4.4.1 Limitation of the Theory

A serious limitation of the theory outlined so far is that it is based almost entirely on interpersonal interaction and the role of language in social and cultural change. This is because the role of mediated communication is only parenthetically acknowledged in Giddens’s work. Though fertility researchers have long been cognisant of the importance of the mass media in disseminating alternative reproductive norms, family life models and birth control technologies to developing countries (cf. Caldwell, 1976, 1978; Cleland and Wilson, 1987), demographers have yet to formulate comprehensive theories of how the mass media accomplish these tasks; and neither is there a general framework in demographic literature of how mass mediated information and other art forms are interpersonally communicated in everyday interaction as talk.

Yet the involvement of the mass media in the constitution of social life and in influencing behaviour has been the focus of a long tradition in mass communication and public opinion research as well as psychological experiments. Lowery and DeFlower (1988) provide a comprehensive historical review of the literature in the area. Therefore, the nature of the linkages between mass media communication, interpersonal interaction, ideational culture and population dynamics requires more detailed specification than has been the practice in demographic modelling. It is informative that such specification has long been the focus of public opinion and marketing research where mass media campaigns have proved to be invaluable tools for social engineering.
4.5 FURTHER THEORETICAL DEVELOPMENT

4.5.1 Transforming the Ideational Order: Communication-Culture Linkages

It is in the important connection between communication and the ideational order that we, in fact, find the clearest link between communication and culture. For, if the domain of culture is one of meaningful human activity, that of communication is one of the "intended exchange of meanings between social/cultural agents" (Kress, 1988: 2). Thus, the concepts of culture and communication are inextricably linked by that of meaning since, in the same way that communication produces meanings, so cultural objects and activities are meaningful.

According to Carey (1989: 44), the link between the study of communication and of culture is simple and direct: "what is called the study of culture can be called the study of communications, for what we are studying ... are the ways in which experiences are worked into understanding and then disseminated and celebrated." Paraphrasing Carey we could say that the study of reproductive culture is the study of communications about reproduction or the way in which people's reproductive experiences and intentions are worked into understanding. In addition to this connection, it is a truism, but an important one for this study, that communication is more facile among socially and culturally homogenous groups. This is a central assumption of an interactionist theory of reproductive decision making.

Intersubjective communication takes place only through two channels, directly from person to person (i.e., interpersonally), or in mediated form (Omwanda, 1995). In
contemporary society mediated communication has become more widespread as a concomitant of capitalist social organization, and the mass media have become important sources of topics for everyday talk—the arena for meaning creation and constitution of society. Therefore, changes in ideational culture may be viewed in terms of the degree to which mass media content are embedded in social practice. Such embedding is dialectical and involves cultural transference and ideational transformation. Conceptually the process may be captured through theories of mass media influence.

Harold Lasswell (1948) established the parameters for the study of mass media influence by postulating its three functions as surveillance, correlation, and transmission of ideas. Wright (1986) added entertainment as the fourth function. Surveillance refers to the tasks which media institutions perform of collecting and distributing information; correlation refers to interpretation of information so collected through editorializing by journalists who thereby attempt to influence the understanding, attitudes, and conduct of those exposed to the media. In this sense, the mass media are an important expert system in modern society alongside the educational system, government agencies, and the commercial sector among other institutions. Although all these functions are important in shaping the ideas and psychological orientations of those exposed to mass media content, it is in their role as interpreters and transporters of ideas that the mass media probably influence the course of human conduct and social change more profoundly, particularly as agents of socialization.

To speak of the role of the mass media in socialization is to address the issue of whether the media are implicated as guides for "internal orientations, controls and
understandings that make it possible to interpret the world around us in meaningful ways" (DeFleur and Ball-Rokeach, 1989: 208). The relevant questions in this regard are: (1) Do the mass media equip individuals with subject matter for meaningful and effective communication, and to think and solve problems in an ever-changing world? (2) Do the media help social groups to creatively conform to expectations so as to assure order, predictability and continuity, and to maintain ontological security in a world in flux?

Implicit in the concept of socialization is the assumption that societies contain definitions of social expectations or roles as well as conceptions of self which new members are expected to work at learning. But these expectations, role definitions and conceptions of self must of necessity constantly change with changes in the social and material environment. Sociologists maintain that the mass media offer images or models of proper conduct or deviance which those exposed to media content may learn from (Ericson et al., 1987; Geertz, 1973). This takes place in accordance with modelling theory of social learning.

Following Albert Bandura (1977), psychological experiments on social learning have found that social situations offer stimulus conditions which individuals must link with stable patterns of action. Such linkages (or habits), when rewarded, get reinforced and, subsequently, become stable (habitual) responses for dealing with similar situations whenever they arise. Related to modelling or social learning theory is operant conditioning or unplanned habitual response patterns for specific sets of stimulus-response linkages.

A fundamental postulate of sociological explanation, however, is that what gives
direction to human conduct is stable patterning of social interaction. Therefore, along with these psychological theories, the nature of mass media impact on ideational order may be understood from social expectations theory of mass media influence. According to DeFleur (1970: 129), individuals gain insights into patterned social expectations from the mass media because:

the mass media, through selective presentations and emphasis of certain themes, create impressions among their audiences that common cultural norms concerning the emphasized topics are structured or defined in some specific way.

The key term here is "impressions": it is not necessary in this view that media content is true; what matters is what those exposed to mass media content think (and come to believe) about their contents and meaning. The socializing potential of the mass media as well as their order-creating potential are, therefore, well grounded in social theory. The degree to which they actually succeed in doing so is the subject matter of effects research that abound in mass communication literature and is not without controversy (cf. Lowery and DeFleur, 1988). What, however, are the theoretical grounds for the notion that the mass media define meanings of the social world?

The idea that the media do not just describe but actually construct the social world may be traced to a tradition in the sociology of knowledge which points to the social bases of conventions of meaning (e.g., Berger and Luckman, 1963). By this is meant that knowledge of the world derives not just from empirical experience but also from what are collectively agreed upon by social groups. It is such conventions that act as referents for intended actions and render the world intelligible. After all communication is possible
only because language is such a system of conventions. In fact it stands to reason that if conduct is determined by knowledge of reality, then, to a degree, conduct too is a consequence of conventions at particular historical junctures.

More pointedly, Walter Lippmann (1922) established the research tradition on the meaning construction function of the mass media when he found that beliefs which people hold about the world have little relationship to the way the world actually is. He found that the way the mass media present events often alter radically the way people interpret reality and their subsequent actions and concluded that people's actions are often based on media reality rather than objective or empirical experience.

At least two theories developed to explain this phenomenon are relevant to this study: one is cultivation theory associated with George Gerbner (1971) and Gerbner and Gross (1976); the other is agenda-setting theory formulated by MacCombs and Shaw (1972). Cultivation theory is based on the idea that people's beliefs and subsequent conduct is "cultivated" by the media to conform to those portrayed through the process of mainstreaming. That is, mass media depictions of reality create pressures on individuals to conform to certain expectations supposedly presented by the media as the norm (DeFleur, 1970; Herman and Chomsky, 1988). Agenda-setting theory of the mass media simply states that there is a correlation between issues presented by the media and the order of priority and importance accorded those issues by the people exposed to media reports of them. That is, the media can determine the order of saliency of issues and act as pointers to what people will talk about and, sometimes, even what they will say about them.
Thus, the link is easily established between a discursively constituted basis of human conduct such as that suggested in structuration theory and a mass mediated one, namely, that the mass media are a foremost source of subjects for everyday talk in modern society. In fact, Carey (1989) has distinguished between two views of communication which roughly correspond to these channels, namely, a ritual view of communication and a transportation one. The ritual view associates communication with such notions as "sharing," "participating," "communion," or "community" (Carey, 1989: 18), while the transportation view defines communication in such terms as "imparting," "sending," "transmitting," or "giving information to others" (Carey, 1989: 15; Omwanda, 1995). Hence, changes in ideational culture may be viewed in terms of the ease with which these two analytically distinct but empirically inseparable forms of social communication interpenetrate one another in the constitution of everyday life.

4.6 APPLICATION: COMMUNICATION, CULTURE AND FAMILY PLANNING

A crucial area of life where changes in the ideational order may be examined is the reproductive behaviour of individuals, couples and social groups. In fact, the study of changes in contraceptive behaviour and their relationship to the family size norms which couples come to hold can be strong indicants not only of cultural and ideational changes in specific social settings, but also of the extent to which such changes may or may not be macroscopically influenced within specific time frames through public policies and programmes. It is in this sense that family planning efforts in LDCs may be
understood as attempts to socially construct a specific form of reproductive regime legimated by a "small family norm" through macroscopically designed communicative interaction—that is, as ideological struggles against existing reproductive preference structures. Such social construction of familial morality is usually approached through family planning information, education, and communication (IEC) strategies based on standard theories of persuasion and diffusion (cf. Kline and Harman, 1976; Johnson et al., 1973; Rawson-Jones and Salkeld, 1971; Bogue, 1967).

In terms of persuasion, the theoretical bases of IEC are the psychodynamic and social expectations theories (Miller, 1987; O'Donnell and Kable, 1982; Kline and Harman, 1976; Larsen, 1986; DeFleur and Ball-Rokeach, 1989; Lowery and DeFleur, 1988). Psychodynamic theories of persuasion are based on the belief that human behaviour occurs in response to stimuli in the social environment. The responses are triggered by psychological states of individuals whose behaviours are also affected by intervening biological, social and cognitive factors unique to them. Strategies of persuasion accordingly aim at manipulating either emotional or cognitive factors such as drives, needs, interests, anxieties, etc. (Kline and Harman, 1976; Johnson et al., 1973).

Festinger (1957), for instance, suggested that since humans have a basic need for consistency in their experienced world, any inconsistency of beliefs, attitudes, or behaviour will bring about "cognitive dissonance" which those affected will promptly try to correct through changes in behaviour, belief, or attitude. Of particular interest to this dissertation is the fact that psychodynamic or cognitive approach to persuasion "emphasizes that internal structuring of the psyche is a product of learning" (DeFleur and
Sociocultural strategies of persuasion, on the other hand, assume that social and cultural factors provide important bases for behaviour. Hence, strategies using this model of persuasion aim at providing definitions of culturally approved conduct with emphasis on the definition of norms and consensual messages. In a related way, family planning programme officials also use the mass media to try to "cultivate" new meanings of family life and to set the agenda of topics for people to think and talk about with the hope that media images would be models for individuals and groups.

Family planning IEC are also based on diffusion theory. The "classical diffusion model" (Solo and Rogers, 1972) emerged as an important paradigm in rural sociology in the 1940s. In particular, it was the Bryce Ryan and Neal Gross (1943) study of the diffusion of hybrid corn among Iowa farmers in the U.S.A. that marked the beginning of the application of the model in such disciplines as anthropology, education, communication, marketing and medical sociology and geography. Its application in demography started with the knowledge, attitude and practice (KAP) surveys of contraceptive adoption in developing countries in the 1960s and 1970s. Berelson and Freedman’s (1964) field experiment on the diffusion of family planning ideas in Taiwan was the first important successful application of the model to the study of family planning in developing countries and spurred its popularity as the model of choice in the field.

Rogers (1962) has synthesized the field of diffusion research and argued that diffusion is a general process through which innovations are spread. By the beginning of the 1970s, Rogers and Shoemaker (1971) concluded that diffusion research had emerged
as a "single, integrated body of concepts and generalizations" (quoted in Rogers, 1973: 73). Significantly, for Bogue (1965), all family planning research is based on the diffusion approach since such studies are primarily concerned with finding out how family planning practices are diffused among populations and identifying factors which retard or facilitate their diffusion. The diffusion of innovations model has since expanded to cover what is now known as network analysis in geography, anthropological demography as well as family planning research in sociology and demography (e.g., Rogers and Kincaid, 1981).

The model itself is a description of the process by which innovations are communicated through specific channels to members of society. According to Rogers (1973: 71-2), the classical diffusion model

specifies (1) the stages in the innovation-diffusion process, and the relative importance of various channels of each stage, (2) the way in which perceived characteristics of innovations affect their rate of adoption, (3) the characteristics of "early" and "late" adopters, (4) the role of opinion leaders in diffusing innovations, and (5) factors in the relative success of change agents.

Characteristics which facilitate rapid adoption of innovations include their relative advantage, compatibility, complexity, triability, and observability (Rogers, 1973). Relative advantage of an innovation refers to the extent to which potential adopters perceive the innovation to be better in cost, convenience, or prestige relative to what it is intended to replace. Innovations which are perceived to be relatively advantageous will be adopted faster than those perceived to be less advantageous. Compatibility refers to the perceived consistency of the innovation with "existing values, past experiences, and
needs" of would-be adopters (Rogers, 1973: 77). If an innovation is inconsistent with
current norms then prior adoption of a new value system is often necessary. For instance,
the adoption of birth-stopping contraceptive behaviour may require prior adoption of the
small family norm (Rogers, 1973; Ocholla-Ayayo, 1988) while the observed tendency
of sub-Saharan women to adopt modern contraceptives for birth spacing (Ware, 1976;
Caldwell and Caldwell, 1977) may be explained in terms of their relative advantage
(convenience) compared to traditional methods.

Complexity of an innovation refers to whether or not would-be adopters perceive
it to be easy or difficult to understand and use. For instance, the rhythm method of
family planning requires some knowledge of the reproductive process and menstruation
cycles. Triability of an innovation means that would-be adopters can experiment with its
use before finally adopting it. For example, the pill is triable while vasectomy is not; this
is an important distinction which may determine their rates of adoption and the
characteristics of those who are likely to opt for either method. Finally, observability
refers to whether or not the consequences of the innovation are immediately apparent to
adopters. The results of family planning adoption are often not immediately apparent to
couples and families, especially among farm populations in developing nations where
advantage may not necessarily be taken of small families to accumulate wealth or enter
the modern labour market.

Diffusion channels may be word-of-mouth or mass mediated communication.
According to Rogers (1973) mass media communication is more suitable for initial
knowledge gain about innovations while interpersonal communication is more effective
for subsequent persuasion to adopt. In fact, because of the personal and taboo nature of birth control behaviour (Rogers, 1972), mass media may be used to create a favourable public opinion about family planning by placing it on the public agenda for everyday talk. Subsequently, change agents who may not be homophilous (i.e., similar to their clients in relevant socio-demographic factors) may find it easier to broach the subject with their clients. In fact, although homophily assures safety credibility of change agents, it is often a barrier to innovation adoption in interpersonal interaction when the dominant values among group members are inconsistent with the innovation (Rogers and Bhowmik, 1971).

Recent research in family planning in developing countries have tended to estimate separately the roles of culture and of the mass media in reproductive behaviour—and have all but ignored interpersonal networks. The theoretical scheme developed here suggests that there is an underlying dimension linking the two factors which determines how changes in either factor ultimately impact contraceptive behaviour. It is proposed in this thesis that the underlying factor is motivation which is a function of communication in that it is through communicative interaction that people come to learn about and get to regard contraceptives as important in their lives—that is, to conform or depart from group expectations.

4.6.1 Motivation: Family Planning as an Existential Need

One of the basic assumptions of the classical diffusion model was that innovations
were advantageous to all adopters and that, therefore, all relevant population groups 
"should adopt, that diffusion rates should be rapidly increased, and that rejection is 
'bad'" (Rogers, 1973: 98). This implies that innovations constitute felt needs of would-be 
adopters. If that were the case, then there would be strong motivation to adopt the 
innovation. In fact, this assumption underlies the disappointment often expressed with 
family planning efforts in many developing nations (May et al., 1990; Frank, 1987; 
Ntozi and Kabera, 1991) and might have spurred the interest in recent studies aimed at 
gauging programme strength and their relationship to declines in the fertility rate (e.g., 
Lapham and Mauldin, 1985; Bongaarts et al., 1990). To what extent is such an 
assumption, in fact, justified?

Rogers (1973) argues that this assumption is a reflection of communicator or pro-
change bias in that it takes the innovation to be equally useful to all who receive 
messages. In addition, our theory suggests that felt needs which act as motives for 
behaviour are contingent phenomena; they are determined by situational, relational, 
cognitive and cultural factors pertinent at the time an innovation is introduced. Their 
saliency often arises through communicative interaction with others or through the mass 
media. It follows that to study the contraceptive adoption behaviour of a population is to 
estimate and explain the relative strength of these contingencies at specific historical 
junctures, or to trace trends in their relative strength over time.

Philosophical questions relating to the problem of needs or behavioural 
motivation in social theory have been addressed extensively in the literature (Soper, 
speak of wants as the determinants of consumption behaviour, a term that demographers have tended to be more inclined towards such as when they discuss the issue of demand for contraceptives. Thus, for example, fecund women who express the desire to have no more children but who are currently not using contraceptives are said to have "unmet need" for contraception (Westoff and Ochoa, 1991; Bongaarts, 1991). Therefore, for demographers, the problem of unmet need for contraceptives—or KAP-gap as it is sometimes called (Westoff, 1991)—is usually one of estimating potential demand for contraceptives.

Springborg (1981) offers a critical history of need theory. Marx’s use of the concept in his critique of capitalism marked the watershed in the use of the concept to refer to existential necessities for human well-being. In Marx’s theory of human nature, man is viewed as a perfectible being whose unlimited reach is always attainable given a humane environment. The perfectibility of man comes about "in a ceaseless striving in which needs represent both a teleological imperative and a motivational mechanism. That is to say, needs represent both an ought and an is simultaneously" (Springborg, 1981:). Thus the concept was used by Marx both to point to man’s powers for self-improvement and as a value judgement on the alienating forces of capitalism that suppress these powers, and it is upon this value dimension of human needs that capitalism stands condemned.

Abraham Maslow, on the other hand, used the concept of needs to synthesize Freud’s instinct-based theory of human motivation with a theory of actors as goal-oriented. What emerged was a taxonomy of needs following a logical order of
"prepotency" and the order in which they are satisfied. In terms of prepotency the needs were ranked in a hierarchy beginning with (1) physiological needs for food, shelter, reproduction, etc.; (2) safety needs to do with survival and security; (3) needs for affection and belonging; (4) needs for social approval and self-esteem; and ending with (5) needs for self-actualization and development. Maslow rejected cultural relativism arguing that, generally basic needs (or ends) are far less relative to cultural determinants than instrumental behaviours (means).

4.7 COMMUNICATION, CULTURE AND CONTRACEPTIVE BEHAVIOUR: THE EMPIRICAL CONNECTIONS

Based on the twin Marxian conception of needs as basic existential necessities as well as an expression of a quest for self-fulfilment and dignity (i.e., as empowerment), and on the Maslowian notion of needs as hierarchically ordered proximate causes of behaviour, it may be argued that at certain points in the lives of individuals and groups, birth control technology emerges as a basic (lower order) need for individuals and couples who must plan or restrict their births to increase their involvement in a definite social world and to maintain ontological security. Unavailability of birth control technologies for such individuals and couples may give rise to a sense of social or emotional deprivation and may engender any number of behavioural responses to restore ontological security. Such responses may include difficult and dangerous methods of family size limitation such as abstention from sexual relations, abortion and infanticide.

Moreover, if, in fact, it is true that needs are strong enough motivations to
determine behaviour, then the most important generalization that can be made about change in birth control behaviour is that widespread adoption of contraceptive practice in any population at any time is impossible until contraceptives are perceived as lower order needs by individual women and couples in that population net of socio-economic and demographic factors. It is not necessary that such a perception be based on objective factors; it should suffice that individuals and couples think that they need to plan or limit their reproduction for their own and their families' well-being and that contraceptive use is perceived to be the reasonable option for such planning. It is when such a perception is generalized widely enough in society for whatever reason and from whatever sources that we may speak of normative transformation of the reproductive regime. Therefore, ideational factors comprising mainly communicative and aspirational elements rather than reproductive experience or socio-economic conditions may be the most important predictors of reproductive behaviour.

It is important to recognize, however, that situational factors such as past practices, socio-economic conditions, and individuals' reproductive experiences as well as relational considerations will accentuate and reinforce such perceptions; or these factors may undermine some people's confidence in their likelihood to realize their reproductive needs and preferences. Whether such perceptions can be socially constructed through cultivation, macroscopic resocialization, taught, or imposed is the domain of empirical investigation of which this study is a part.
Figure 4.1: An interactive model of culture, communication and behaviour.

A simple, non-recursive, causal model suggested by such a theory is presented in Figure 4.1. The model has two components, one at the group level and the other at the individual level. At the group level are such macro factors as (1) culture (i.e., values, norms, practices and the ethico-legal order) that may impinge on reproductive choices of people all of which are defined and practised mainly within, but often across national, subnational or ethnic communities, and (2) structural characteristics such as institutions of governance and control (modern and/or traditional), production relations and the economy, and family organization. At the individual level are the ideational templates of actors, their motivations (i.e., needs, desires, preferences, etc.) and actions.
Ordinarily culture and structure influence the reproductive behaviour of individuals through intersubjective communicative interaction, conceptualized here as a second-tier, group-level component in that individuals often have significant inputs in communicative interactions. Socialization into reproductive culture and familial relations occurs through everyday talk or via the mass media by mainstreaming or cultivation and, often, the saliency of issues regarding reproductive life are determined by the mass media which set the agenda for interpersonal discussions. However, individual socio-demographic characteristics such as age, cognitive ability, educational attainment, employment status, marital status and past reproductive experience influence the form and content of discussions of reproductive norms, values, moral life and familial relations as well as how they are subsequently understood as meaningful guides for behaviour. In real life, such a model is fully recursive and historical though only the non-recursive version is tested in this study.

4.8 SUMMARY AND HYPOTHESES

Issue has been joined in this chapter with theories of change in reproductive behaviour which reify the notion of culture and attribute to it almost absolute causal force over individuals’ reproductive behaviours. By reworking Lesthaeghe’s theories linking changes in ideational culture to reproduction using the theory of structuration, the focus has been retained on the importance of ideational culture in influencing reproductive behaviour without supplanting the role of social institutions and organization by
conceptualizing culture as a dynamic symbolic superstructure referenced by individuals as they make important lifecourse decisions.

Accordingly, cultural values, beliefs and practices around reproduction and contraceptive use are understood to be reproduced according to individuals' material, relational, and cognitive capacities at particular historical junctures. By this is meant that there is always room in any social group, however traditional and conservative, for some free space for "deviant" reproductive behaviour by individuals and couples that is limited only by their material conditions, social relations, and ability to correctly monitor their temporal conditions and decide what it would mean to them materially and emotionally--and to those around them--to have another child.

Further, this chapter has extended the above argument by specifying in detail the relationship between social communication and behavioral and cultural change. In particular, it posits that cultural embedding of communicated ideas and facts occurs through the influences of such communication on attitudes, understandings and perceptions of individuals about the world in which they live. Such influences occur through socialization processes during which what people learn from the mass media or from friends and relatives may become guides for their internal orientations, controls and understandings for meaningful interpretation of the world. For instance, individuals may learn from such communications not only available options for changing their reproductive behaviours if they so wished, but also what others are doing and what the social expectations about reproductive behaviour are in their own group or among other groups to whom they may aspire.
Thus, through mainstreaming, the mass media may cultivate conformist or deviant reproductive attitudes and behaviours. They may also provide subjects for, and expand the boundaries of, discussion of issues relating to reproduction and contraceptive use which may subsequently become "normalized" as emergent reproductive culture. Such routine grounding or legitimation of behaviour may be expected to take place at different rates in different social settings because of differential salience of motivating factors.

Therefore, notwithstanding the intensity of mass media family planning campaigns and however widespread the knowledge of contraceptive methods, in some social settings and among some social groups there will be limited and slow diffusion of contraception because of restrictions on individuals imposed by the contingencies of power, material means, cognitive abilities, and the priority placed on the ends that birth restriction are supposed to serve. Citation of gods or other hypostatized forces (fate) as determinants of childbearing is false consciousness and often falls in the domain of rationalization arising from unacknowledged conditions of behaviour. In other words, until contraceptives are perceived as an immediate felt need by individuals and couples, their adoption will be limited. Yet, since family planning campaigns manipulate the proximate stimuli of behaviour such as people's needs, drives, interests, fears, values, etc.,

*Hypothesis 1:* There will be a non-negligible positive association between mass media exposure to family planning information and knowledge, intention to use contraceptives in future, and current contraception net of cultural, relational, socio-economic and demographic factors. That is, the more frequent the exposure to mass mediated family planning information, the higher will be the probability of contraceptive adoption, *ceteris paribus*.

On the same basis, and since significant others may be expected to be involved with and/or sympathetic to individuals' reproductive troubles and aspirations,
Hypothesis 2: There will be significant positive associations between exposure to family planning information through such interpersonal networks as friends or relatives and membership of women's associations and the probability of contraceptive adoption net of the influence of other factors.

However, mass mediated information are normally received, interpreted and understood through cultural filters which may also change according to the frequency of exposure to such information and the tenacity of the original values and beliefs about family planning as well as reproductive norms. Yet to the degree that family planning campaigns are effective, women who wish to stop or delay childbearing may be expected to turn increasingly to the use of contraceptives at the onset of normative transition in order to avert unwanted births. Therefore,

Hypothesis 3: There will be negative correlations between such motivational factors as desire for children and attitudes toward pregnancy with the probability of contraceptive adoption.

Since, theoretically, ethnic or religious group memberships imply belonging to communicative systems (Hammel, 1990), and since ethnic communities and religious affiliations are media for cultural and ideological transmission and normative diffusion, it follows that, although contraceptive behaviour will vary by ethnic and religious group memberships net of other factors,

Hypothesis 4: Exposure to family planning information through the mass media will, in general, tend to attenuate ethnic and religious group membership effects; however, interpersonal networks will not have such effects due to the homophily of such networks.

Moreover, given the expected compositional differences between women in monogynous and polygynous unions as well between women in modern sector employment and those
who are not employed,

**Hypothesis 5**: Contraceptive knowledge and use will be higher among women in monogynous unions than those in polygynous unions and among those in the work force than those not in the work force, *ceteris paribus*.

Finally, it follows from the above predictions that, overall,

**Hypothesis 6**: Ideational and social communication factors more than past demographic behaviour or socio-economic conditions will be, as a group, the most consistent and statistically important predictors of contraceptive behaviour, other factors being equal.

Chapter Five describes the data used to test these hypotheses, measurement of the variables and the methods used for analyses.
CHAPTER FIVE

THE DATA, METHODS AND MEASUREMENT

5.0 INTRODUCTION

This chapter describes the data and methods used to measure the concepts and relationships suggested by the research problem of this dissertation and to test hypotheses derived from the foregoing theory. Section 5.1 describes the data, section 5.2 deals with the operationalization of contraceptive behaviour, while section 5.3 scales the independent variables, namely, social communication, reproductive culture, ethnicity, polygyny, religious affiliation, and motivation.

5.1 THE DATA

The Kenya Demographic and Health Survey (KDHS) was a national survey conducted from December 1988 to May 1989 by the National Council for Population and Development (NCPD) in collaboration with the Central Bureau of Statistics (CBS) and the Institute for Resource Development (IRD). A specific objective of the survey was "to provide data on family planning and fertility behaviour of the Kenyan population" (NCPD and IRD, 1989: 3). The KDHS sample was based on the National Sample Survey
Evaluation Programme (NASSEP) master sample maintained by the CBS which covered seven of Kenya's eight provinces or 95.0 per cent of its population. It was designed to produce interviews with 7,500 women and 1,000 husbands of a subsample of these women.

The NASSEP master sample is a two-stage design stratified by rural-urban residence and, within the rural stratum, by district. The first stage of sampling involved selection of 1979 census enumeration areas with probability proportional to size. Then one census enumeration area was randomly selected from the enumeration areas previously segmented into the expected number of standard-sized clusters. Household listings made between 1984-1985 were used to select rural households while survey staff relisted households in selected urban clusters.

Altogether about 9,836 households were selected for the survey out of which 8,173 were successfully interviewed. The respondents for the individual interview were women aged 15-49 years who had spent the night before the interview in the selected households; 7,424 women were identified as eligible out of whom 7,150 were successfully interviewed for a response rate of 96.31 per cent. Marital fertility being the most important component of overall fertility in most developing countries and, given a high remarriage rate of women who experience marital dissolution in Kenya (Ayiemb, 1988), the subsample for this dissertation was restricted to 5,296 ever-married women.

Three questionnaires were used in the survey: a household questionnaire to list members of the selected households; another to record information from the women; and the third to record information from husbands of a subsample of these women. All the
questionnaires were administered in local languages as well as one national language, Kiswahili.

5.2 THE DEPENDENT VARIABLE: CONTRACEPTIVE BEHAVIOUR

The dependent variable was contraceptive behaviour which was conceptualized as a cumulative state ranging from knowing no contraceptive method to adoption and current use of modern methods. The five survey questions used to measure contraceptive behaviour are listed in Table 5.1. The question relating to knowledge of contraceptives (item V301) elicited yes/no answers which were dummy-coded 1 for those who reported having heard of any method and 0 otherwise. Ever-use of contraceptives (item V302) elicited three response categories: "never used" (coded 0), "used only traditional method" (coded 1) and "used modern method" (coded 2). Similarly questions relating to respondents' past and current patterns of contraceptive behaviour and their future intentions (items V312 and V362) were recoded and nominally scaled and recoded so that positive answers were coded 1 or 2 depending on the number of response categories, while negative responses were coded 0.

Consistent with communication theories elaborated in Chapter Four and, particularly, with Rogers's (1973) discussion of diffusion of family planning innovation in developing countries, responses to these questions may be viewed as forming a cumulative behavioral variable ranging from complete lack of knowledge of any contraceptive method to adoption and practice of contraception. Such a conception of the
contraceptive behaviour variable was suggested by Bertrand et al. (1982) in their study of information, education and communication (IEC) programmes in Guatemala, El Salvador and Panama and was recently refined by Westoff and Rodriguez (1993) for analysis of DHS data. The sample distribution of the dependent variable is shown in Table 5.2.

**Table 5.1: Indicators of Contraceptive Behaviour, KDHS 1989**

<table>
<thead>
<tr>
<th>Variable Code</th>
<th>Survey Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>V301</td>
<td>There are various ways or methods that a couple can use to delay or avoid pregnancy. Which of these ways or methods have you heard about?</td>
</tr>
<tr>
<td>V302</td>
<td>Have you ever used any of the methods with any partner?</td>
</tr>
<tr>
<td>V312</td>
<td>Are you currently doing something or using any method to avoid getting pregnant?</td>
</tr>
<tr>
<td>V362</td>
<td>Do you intend to use a method to avoid pregnancy at anytime in the future?</td>
</tr>
</tbody>
</table>

**Table 5.2: Sample Distribution of Ever Married Women by their Contraceptive Behaviour, Kenya, 1989.**

<table>
<thead>
<tr>
<th>Contraceptive Status</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knows no method</td>
<td>411</td>
<td>7.8</td>
</tr>
<tr>
<td>2. Knows method, never used, no intention to use</td>
<td>1115</td>
<td>21.1</td>
</tr>
<tr>
<td>3. Never used, intend to use in future</td>
<td>1409</td>
<td>26.6</td>
</tr>
<tr>
<td>4. Used before, do not intend to use</td>
<td>329</td>
<td>6.2</td>
</tr>
<tr>
<td>5. Used before, intend to use in future</td>
<td>622</td>
<td>11.8</td>
</tr>
<tr>
<td>6. Currently using</td>
<td>1402</td>
<td>26.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5289</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*Source: KDHS, 1989.*
5.3 INDEPENDENT VARIABLES

5.3.1 Scaling Social Communication: Nominal and Ordinal Scales

The main independent variable in this study was exposure to social communication about family planning. Recalling discussions in the previous chapters, intersubjective or social communication occurs through two channels--via the mass media or by word-of-mouth. Table 5.3 is a list of survey questions that were used to measure exposure to social communication.

In Kenya, the idea of family planning is understood fairly widely to include the use of contraceptives to delay or stop childbearing, the idea of limitation of family size generally, as well as notions about the advantages of small families. This is because the more widely acceptable term, "planned parenthood" (as opposed to birth control), translates in Kiswahili as "Upangaji wa uzazi" which means the same as "birth spacing," and connotes as well with "responsible parenthood".

The mass media exposure questions elicited yes/no answers which were dummy coded 1 for exposure and 0 otherwise. Item V132 is a summary variable containing information regarding membership or otherwise in women's associations and, together with item S317A5, were used to estimate the effects of exposure to interpersonal communication or social networks.

Although membership in women's associations or organizations per se may tell us nothing directly about reproductive behaviour or one's attitude toward family planning, past research indicates that, as social networks, these associations may be
Table 5.3: Indices of Exposure to Social Communication, KDHS, 1989.

<table>
<thead>
<tr>
<th>Var. Code</th>
<th>Survey Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>V365</td>
<td>In the last six months, have you heard about family planning on the radio?</td>
</tr>
<tr>
<td>S317A2</td>
<td>In the last six months, have you heard about family planning on television?</td>
</tr>
<tr>
<td>S317A3</td>
<td>In the last six months, have you read about family planning in a newspaper or magazine?</td>
</tr>
<tr>
<td>S317A4</td>
<td>In the last six months have you read about family planning from a poster?</td>
</tr>
<tr>
<td>S317A5</td>
<td>In the last six months, have you heard about family planning from friends or relatives?</td>
</tr>
<tr>
<td>V132</td>
<td>To which women’s organization or association do you belong?</td>
</tr>
</tbody>
</table>

Important sources of ideas, norms, and values regarding birth control (Rogers and Kincaid, 1981); this is particularly relevant in contexts like Kenya’s where family planning programme officials often target such groups for campaigns and information dissemination (Ahlberg, 1991, 1993; Omwanda, 1995).

Exposure to family planning messages through significant others (item S317A5) and wider social networks (item V132) may serve to reinforce or undermine previously held beliefs about reproductive behaviour. In addition, these social networks may serve as links for those with no direct access to the mass media either because of illiteracy, non-ownership, or both—all of which are widespread conditions in Kenya. In fact, Lazarsfeld and Merton (1975) have argued that exposure through interpersonal channels such as significant others are part of a “supplementation” process which is necessary for
effective mass communication. The same argument may be made for social networks.

The items regarding exposure to family planning messages through radio, television, newspapers or magazines, and posters (items V365, S317A2, S317A3, and S317A4) may not allow for direct causal inference regarding the relationship between mass media campaigns and contraceptive behaviour. Yet they can facilitate a rich analysis of exposure effects as well as permit some indirect inference about media influence. Consistent with prior theoretical postulation, namely, the expectation that reproductive behaviour would covary positively with frequency of exposure to family planning information, ceteris paribus, an exposure scale was constructed because postulation of the exposure variable in terms of intensity suggests at least ordinal scaling and is consistent as well with the notion of family planning programmes as campaigns.

Construction of the mass media scale involved a three-step procedure suggested in Westoff and Rodriguez (1993). The first step involved examination of the joint distribution of the sample of ever-married women by their exposure to mass media messages. Since available computer software displays four-way tables as unwieldy series of two-way tables, a three-digit code was used to combine exposure to family planning messages through the mass media:

\[
\text{Mass Media Index} = 100 \times V365 + 10 \times S317A3 + S317A4,
\]

where 100 and 10 are not weights but simply computer programming codes for combining the media variables, V365 is exposure through radio, S317A3 represents
exposure through newspapers and magazines and S317A4 is exposure through posters. The combined index was then cross-tabulated with exposure through television (S317A2) to produce Table 5.4. The pattern of joint exposure to these mass media channels revealed that most of the sample fell into only a few categories. Therefore in the second step of scale construction, exposure through newspapers and magazines and exposure through posters were combined into one variable, PRINT, and the index recomputed as follows:

\[ \text{Mass Media Index} = 100 \times V365 + 10 \times \text{PRINT} + S317A2. \]

Table 5.5 is a three-way marginal frequency distribution of the resulting index of exposure to family planning messages. It was clear that most of the responses fell into categories 8, 4, 2 and 1, and it turned out that the distribution of exposure of the women to mass media messages practically formed a cumulative (Guttman) scale. Following this result, the third and final stage of scale construction involved simply counting those who answered "yes" to the exposure questions. The result is reported in Table 5.5 which gives the percentage distribution of the sample along the scores of the mass media exposure scale.

Guttman scaling, or scalogram analysis (Guttman, 1950) is based on the simple notion of unidimensionality of ordered items in the scale variable, implying that items are "scalable" if the scale scores form a cumulative step function. When scale items are successfully ordered in such a cumulative distribution, the resulting scale achieves two
Table 5.4: Joint Distribution of Exposure to Family Planning Mass Media Messages by Ever-Married Women Aged 15-49, KDHS 1989.

<table>
<thead>
<tr>
<th>Heard About FP Through Radio, Papers, Posters</th>
<th>Exposed to FP Through Television</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>304</td>
<td>293</td>
<td>0</td>
<td>711</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>90</td>
<td>293</td>
<td>0</td>
<td>383</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>28</td>
<td>364</td>
<td>0</td>
<td>392</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>44</td>
<td>1921</td>
<td>1</td>
<td>1966</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>0</td>
<td>41</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>7</td>
<td>27</td>
<td>3</td>
<td>51</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>2</td>
<td>134</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>2</td>
<td>1600</td>
<td>0</td>
<td>136</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>1607</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>486</td>
<td>4795</td>
<td>15</td>
<td>5296</td>
</tr>
</tbody>
</table>

Table 5.5: Joint Distribution of Exposure to Family Planning Mass Media Messages by Ever-Married Women Aged 15-49, KDHS 1989.

<table>
<thead>
<tr>
<th>Heard FP Through Radio, Papers, Posters</th>
<th>Freq.</th>
<th>Percent</th>
<th>Cumulative Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>423</td>
<td>8.0</td>
<td>8.0</td>
</tr>
<tr>
<td>2</td>
<td>1068</td>
<td>20.2</td>
<td>28.2</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
<td>.8</td>
<td>29.0</td>
</tr>
<tr>
<td>4</td>
<td>1924</td>
<td>36.3</td>
<td>65.3</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
<td>.2</td>
<td>65.5</td>
</tr>
<tr>
<td>6</td>
<td>206</td>
<td>3.9</td>
<td>69.4</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>.1</td>
<td>69.6</td>
</tr>
<tr>
<td>8</td>
<td>1612</td>
<td>30.4</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>5296</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
desirable properties of ordinality and unidimensionality. Consequently, even though the size of the intervals between scale scores may be unknown, each scale score reflects "the relative position (rank) along the underlying dimension" (Rossi et al., 1983) of the concept being measured. Guttman (1950) recommended that a coefficient of scalability (R) of .90 may be considered acceptable as evidence that the scale is unidimensional and ordinal. Since our mass media scale had R = .945, we had 95.0 per cent confidence that the scale scores were monotonic functions of frequency of exposure to mass media communication about family planning.


<table>
<thead>
<tr>
<th>Score</th>
<th>Exposed to</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No medium</td>
<td>1612</td>
<td>30.4</td>
</tr>
<tr>
<td>1</td>
<td>Radio only</td>
<td>2137</td>
<td>40.4</td>
</tr>
<tr>
<td>2</td>
<td>Radio and print media</td>
<td>1124</td>
<td>21.2</td>
</tr>
<tr>
<td>3</td>
<td>Radio, print media and television</td>
<td>423</td>
<td>8.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>5296</td>
<td>100.0</td>
</tr>
</tbody>
</table>

5.3.2 Operationalizing Reproductive Culture: Factor Analysis

Recall that the broad theoretical focus of this dissertation is on understanding conditions underlying the connections between social changes in the ideational order and fertility behaviour. Consequently, we argued that reproductive choice is a function of, among personal and biological conditions, the prevailing values and norms around sexuality, childbearing, and childrearing—that is, of reproductive culture. A major
methodological task of this dissertation was therefore to find valid and reliable measures of the temporal setting of reproduction, or reproductive culture.

Since the KDHS did not set out specifically to measure norms and values regarding reproduction in Kenya, evidence of their expression had to be teased out of the data by examining answers to retrospective questions regarding attitudes, demographic history and social conditions of the respondents. Based on the theoretical arguments proffered previously, Appendix Table 1 lists questions in the survey instrument that were initially selected as possible measures of reproductive culture; Table 5.7 lists the variable codes and the items to which they refer.

5.3.3 Rationale for the Selection of the Empirical Indicators

At the nominal level, and consistent with Hammel (1990) and others in demographic literature (e.g., Leasure, 1962), ethnic groups may be viewed as representing cultural entities because they constitute "a communicative system" (Hammel, 1990: 459) in which reproductive norms and values are learned, shared and transmitted through socialization and diffusion.

Item V131 in the survey instrument is a question about ethnic group membership. Previous studies (Westoff and Rodriguez, 1993; Nyblade and Menken, 1993; Omwanda, 1995) have shown that region of residence is a consistent predictor of contraceptive behaviour in Kenya, partly because of the clustering of Kenya’s ethnic groups in particular provinces (see Omwanda, 1995 for the sample distribution of ethnic groups by
Table 5.7: Empirical Indicators of Reproductive Culture

<table>
<thead>
<tr>
<th>Code</th>
<th>Variable Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>V131</td>
<td>Ethnicity</td>
</tr>
<tr>
<td>V119</td>
<td>Has electricity in house</td>
</tr>
<tr>
<td>V108</td>
<td>Literacy</td>
</tr>
<tr>
<td>V610</td>
<td>Husband approves family planning</td>
</tr>
<tr>
<td>V106</td>
<td>Education</td>
</tr>
<tr>
<td>V201</td>
<td>Children ever born</td>
</tr>
<tr>
<td>V212</td>
<td>Age at first birth</td>
</tr>
<tr>
<td>V511</td>
<td>Age at first marriage</td>
</tr>
<tr>
<td>V611</td>
<td>Talked with partner about family planning</td>
</tr>
<tr>
<td>V614</td>
<td>Ideal number of children</td>
</tr>
<tr>
<td>V513</td>
<td>Marital duration</td>
</tr>
<tr>
<td>S121E</td>
<td>Owns land</td>
</tr>
<tr>
<td>S121F</td>
<td>Owns livestock</td>
</tr>
<tr>
<td>S121G</td>
<td>Owns cash crops</td>
</tr>
<tr>
<td>S121H</td>
<td>Owns a permanent house</td>
</tr>
<tr>
<td>CHMORT</td>
<td>Child mortality</td>
</tr>
<tr>
<td>V612</td>
<td>Place of residence</td>
</tr>
<tr>
<td>V130</td>
<td>Religion</td>
</tr>
<tr>
<td>V505</td>
<td>Type of marital union</td>
</tr>
<tr>
<td>V714</td>
<td>Work status</td>
</tr>
</tbody>
</table>

province), and partly because of regional differentials in socio-economic development. However, in this dissertation ethnic group membership rather than region of residence was used as a more valid indicator of reproductive culture because of the theoretical interest on communicative and ideational aspects of ethnicity. Nine ethnic clusters comprising language communities were identified in the data, namely, Kelenjin, Kamba, Kikuyu, Kisii, Luhya, Luo, Meru/Embu, Mijikenda/Swahili, and Somali-and-others.

Recalling the discussion in Chapter Four, Polgar (1972: 209) has argued that reproductive behaviour is regulated by cultural values "concerning who should have children, when childbearing should start, what is a desirable interval between children, and what juncture in social aging childbearing should cease." It is evident from Table
5.7 that 6 of the items fall directly within the ambit of reproductive and nuptiality behaviours that may be culturally regulated, namely, those relating to age at first birth (V212), age at first marriage (V511), polygyny (V505), ideal number of children (V614), discussion of fertility regulation among spouses (V611), and fertility level (V201). The remaining items pertained to respondent's socio-economic conditions with particular emphasis on their domestic and family environment.

The rationale for combining socio-economic conditions with attitudes and behaviours that may be regarded as culturally regulatable rests on previous studies that have established the existence of strong causal connections between indicators of socio-economic status and culturally-based proximate determinants of fertility in sub-Saharan Africa (Lesthaeghe and Eelens, 1989; Page, 1989; Lesthaeghe, 1989).

It may be recalled that, drawing upon cultural materialist (Barrett, 1991; Handwerker, 1986) and structuration (Giddens 1979, 1981, 1984, 1993; Bourdieu, 1977, 1984) theories, the argument was made that cultural beliefs and understandings about childbearing are reproduced in practice by individuals and couples based on their material, relational and cognitive conditions at particular historical junctures. In other words, reproductive culture as a temporally- and historically-based phenomenon is a factor of social conditions, past experience, current knowledge, and future aspirations. It follows, then, that at least four underlying factors were required to validly measure reproductive culture, namely, past reproductive behaviours and experiences, exposure to relevant information and communication, the social and economic conditions of respondents, and their attitudes and aspirations toward childbearing. Exclusion of the
information factor which was already used as a separate independent predictor let. at least three factors for which empirical indicators were sought.

In Kenya, ownership of electricity in the household (V119), a permanent house (S121H), land (S121E) and livestock (S121F) may classify one as either a rich peasant, farmer, or as a member of the lower middle class such as a teacher or government operative. Thus these measures speak to the class location of the respondent more validly than the mere fact of wage labour employment since they indicate relative wealth. In addition, however, since work status (item V714) has been widely found to be strongly associated with low fertility behaviour and a higher likelihood of contraceptive use, it was included in an initial attempt to measure reproductive culture, but was found to be unfactorable. Work status was subsequently included as a control.

Finally, studies of the effects of nuptiality regimes in sub-Saharan Africa (Goldman and Pebley, 1989; Lesthaeghe et al., 1989) have found mixed results regarding the effects of polygyny (V505) on reproductive behaviour. Polygyny is consistently associated with lower completed fertility, but also with a lower probability of contraceptive use. Pebley and Mbugua (1989) thought that the fertility inhibiting effect of polygyny operates via the tendency of younger women (generally higher order wives) to marry much older men with diminished sexual drives but they found no support for this hypothesis in Kenya where first (older) wives likewise had lower completed fertility levels than women in monogamous unions. They, however, found some support for the hypothesis in Cote d’Ivoire (West Africa).

On the other hand, polygyny has been found to be a consistent predictor of the
likelihood of low contraceptive use in Kenya (Westoff and Rodríguez, 1993; Nyblade and Menken, 1993). Despite such uncertainties about the part polygyny plays in influencing the reproductive regime, it was modelled initially but found to be an invalid measure of reproductive culture. However, it was retained as a separate predictor as was religious affiliation (V130) with four categories coded 1 Catholic, 2 Protestant, 3 Muslim and 4 no religion).

The multidimensional conceptualization of reproductive culture implied that no individual item in the survey instrument could adequately measure the latent factors underlying it. Therefore, factor analysis was employed to discover the required common factors. This study therefore belongs with previous ones that have used the common factor model to link the components of reproductive regimes in sub-Saharan Africa and other developing societies with their social and cultural determinants (e.g. Lesthaeghe and Eelens. 1989; Goody, 1976).

5.3.4 The Common Factor Model.

Factor analysis is a statistical technique for determining the existence of a set of latent dimensions underlying a particular set of intercorrelations. Such interconnections are discovered in the covariance and correlation matrices of empirical measures thought to constitute the semantic space of a concept such as culture. As such it operates on the twin postulates of factorial causation and analytical parsimony. The former postulate means that the factor analytical model permits the measurement of dimensions that are
not observable with accuracy due to complexity and multidimensionality; the latter that it facilitates the reduction of a large number of variables into a few latent factors underlying the observed covariance or correlational structure of the original variables (Anderson et al., 1983).

A concept such as reproductive culture as defined in this dissertation is appropriate for factor analysis because it occupies a vector space with dimensionality more than unity—in this case of at least four. Moreover, if each of the 20 items initially selected to measure reproductive culture measured different concepts, we would have 20 different scales with different matrices and would lose the multidimensionality assumption posited by the theory. Therefore, on grounds of parsimony, if a number of the items were found to have some variance in common so that they correlate highly with one or the other of the hypothesized underlying dimensions, the dimension would appear as a factor and could be considered a scale. Furthermore, since only the factors rather than their empirical indicators are scaled, the factor analytical model offers a reliable and largely error-free measurement of individual differences among respondents.

Thus, two further assumptions undergird the factor analytical model. The first is that the observed variables are a linear combination of underlying factors, such that some of the factors are shared in common by a set of observed variables while others are unique to each indicator. The second assumption is that the unique factors are orthogonal to each other. Hence, only the common factors contribute to the covariance structure of the empirical measures. These assumptions have raised some doubt concerning the suitability of the common factor model for dichotomous variables (Kim and Mueller,
1978; Susmilch and Johnson, 1975). However, a study of factor analysis by McDonald (1985) concludes that its use with dichotomous variables is generally appropriate. Goody (1976) studied the domestic dimension of reproduction using phi rather than Pearson correlation coefficients as measures of association between social production and reproduction; Hall (1993) recently used the common factor model with dichotomous data in a study of reproductive individualism in Canada. Given the concerns in the literature and the fact that some of the empirical indicators of reproductive culture sought dichotomous responses, preliminary analysis was carried out to determine the appropriateness of the model in the hope that should the model adequately fit the data, then the gains from its parsimony and analytical elegance would more than compensate for the expected increase in error variance.

5.3.5 Preliminary Tests of the Factor Model

Since the model assumes that the observed correlations between variables are due to their sharing some common factor(s), the notion of empirical confirmation of the factor analytical model was central to the preliminary testing of its suitability. Several ways of empirical confirmation have been suggested in the literature (Kim and Mueller, 1978; Levine, 1977). However, in general, the degree of empirical confirmation is greater, other things equal, if the number of variables increases relative to the number of common factors, when the uniqueness of the individual factors decrease, and the greater the degree of factorial determination.
Factor analysis accordingly begins with the preparation and examination of the correlation matrix. Variables are "factorable" if they correlate strongly with each other. Appendix Table 2 displays the correlation matrix for 16 empirical indicators of reproductive culture that were finally selected. Most of the variables correlated moderately to strongly with at least two others yielding coefficients near or greater than .30 in absolute value. In addition, the Bartlett test of sphericity was highly significant. This statistic tests the hypothesis that the correlation matrix is an identity matrix (i.e., with 1s in the main diagonal and 0 off-diagonals)—which would make it unfactorable. Moreover, the determinant of the correlation matrix of .011 showed that the matrix was non-singular and that multicollinearity was not a serious problem.

The usual measure of strength of relationships among variables is the Pearson correlation coefficient or, equivalently for dichotomous variables, phi. Small values of the coefficients between pairs of variables when the effects of other variables have been removed are an indication that the variables share common factors; conversely large coefficient values indicate that their uniqueness is greater and that no parsimony would be achieved through factor analysis. Thus, partial correlations may be viewed as representing estimates of correlations between unique factors and should approach zero under the common factor model assumptions.

The SPSS-X-FACTOR software produces a matrix of the negative of the partial correlation coefficient—the anti-image correlation coefficient. The matrix of anti-image correlations provides additional information about the suitability of the data for the common factor model in that if the proportion of large coefficients in the matrix is large,
then the common factor model is unsuitable for the data. Appendix Table 3 gives the anti-image correlation matrix for the data. The absence of large coefficients indicated that we could confidently factor analyze the data.

The degree of factorial determination may be viewed from the point of view of sampling adequacy because, *ceteris paribus*, overall factorial determination will increase with an increase in the number of variables and in the magnitude of their correlations. Kaiser (1974) has suggested an index or measure of sampling adequacy (MSA) ranging from 0 to 1. The index equals 1 when every variable can be predicted without error from other variables in the set and 0 when none of the variables can predict each other (Kim and Mueller, 1978: 54). Kaiser suggests that MSA in the .90s may be regarded as marvellous, in the .80s as meritorious, in the .70s as middling, in the .60s as mediocre, in the .50s as miserable, and below the .50s as unacceptable. The reproductive culture measures yielded MSA of .76 which is not far from "meritorious" thus lending further support to the appropriateness of the common factor model for the data. Measures of sampling adequacy for individual variables in the model are printed on the main diagonal of the anti-image matrix (Appendix Table 3) and, again, given their high values, they confirmed the suitability of the empirical measures of reproductive culture for factor analysis.

5.3.6 Factor Extraction

The second stage of factor analysis involved extraction of common factors to
determine the minimum number which presumably gave rise to the observed covariance structure. In theory, an exact correspondence can be found between the minimum number of common factors responsible for the observed covariance structure if there are no measurement errors and the assumption of factorial causation is met by the data. However, it is unrealistic to expect such perfection in sample survey data, hence the objective of the extraction stage was to locate a criterion for identifying the minimum number of common factors. Thus, the problem at this stage was a statistical one of establishing when to stop factor extraction (Kim and Mueller, 1978: 13).

Methods of factor extraction for the appropriate model include the maximum likelihood method of Lawley and Maxwell (1971) and Joreskog and Lawley (1968) and the least squares method of Thomson (1934). In the maximum likelihood method, it is assumed that the distribution of variables including the factors is multivariate normal and that the exact configuration of the factor loadings on each variable is known. Thus, the objective was to figure out the underlying population parameters that would have the greatest likelihood of producing the observed correlation matrix.

The least squares approach--specifically principal axis factoring with reiterated communalities--was used to extract the factors and to calculate the requisite statistics. The basic principle behind this method of extraction is minimization of the residual correlation between reproduced correlations under the model and observed correlations.
Table 5.8: Preliminary and Final Statistics for Principal Axis Extraction of Factors Underlying Reproductive Culture.

<table>
<thead>
<tr>
<th>PANEL A: INITIAL STATISTICS</th>
<th>PANEL B: FINAL STATISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>Eigenvalue</td>
</tr>
<tr>
<td>1</td>
<td>3.91095</td>
</tr>
<tr>
<td>2</td>
<td>2.07279</td>
</tr>
<tr>
<td>3</td>
<td>1.66355</td>
</tr>
<tr>
<td>4</td>
<td>1.13030</td>
</tr>
<tr>
<td>5</td>
<td>1.05138</td>
</tr>
<tr>
<td>6</td>
<td>.88915</td>
</tr>
<tr>
<td>7</td>
<td>.79896</td>
</tr>
<tr>
<td>8</td>
<td>.73693</td>
</tr>
<tr>
<td>9</td>
<td>.70074</td>
</tr>
<tr>
<td>10</td>
<td>.60369</td>
</tr>
<tr>
<td>11</td>
<td>.56894</td>
</tr>
<tr>
<td>12</td>
<td>.53032</td>
</tr>
<tr>
<td>13</td>
<td>.45320</td>
</tr>
<tr>
<td>14</td>
<td>.41975</td>
</tr>
<tr>
<td>15</td>
<td>.24306</td>
</tr>
<tr>
<td>16</td>
<td>.22127</td>
</tr>
</tbody>
</table>

Panel A of Table 5.8 gives the results of initial factor extraction using the principal axis extraction method in SPSS-X-FACTOR procedure. The main statistical task involved the solution of the characteristic equation (or eigenequation) that yields eigenvalues and eigenvectors associated with the correlation matrix. The general form of the characteristic equation in matrix notation is:

$$RV = \lambda V$$  \hspace{1cm} (1)

where $R$ is the correlation matrix for which a solution is sought, $V$ is the eigenvector to be solved for, and $\lambda$ is an eigenvalue. Usually a simpler determinantal form of the characteristic equation is used of the form:
\[ \text{Det} \ (R = I\lambda) = 0 \]  

(2) 

where \( I \) is an identity matrix. In fact, equation (2) translates into the bivariate matrix,

\[ \text{Det} \begin{bmatrix} 1 - \lambda & r_{12} \\ r_{12} & 1 - \lambda \end{bmatrix} = 0, \]  

(3) 

which makes it possible to solve the characteristic equation and find the eigenvalues.

The eigenvalues associated with the 16 factors in the model are listed in panel A (of Table 5.8); alongside them are the proportions of overall variance explained by each factor. As a rule, the largest eigenvalue represents the amount of variance explained by the first principal axis (or factor); the second eigenvalue by the second principal axis, and so on (Kim and Mueller, 1978; Levine, 1977). The number of eigenvalues is the same as the number of variables (or factors) in the equation, hence the proportion of the total variance explained by each factor is obtained by dividing each eigenvalue by the number of variables (i.e., 16 in this case). As Table 5.8 shows, the first factor is associated with an eigenvalue of 3.911 and therefore accounts for 24.4 per cent of the total variance. The second factor has an eigenvalue of 2.073 and accounts for 13.0 per cent of the total variance, etc.

Among the criteria that have been proposed for selecting the number of factors to extract is that only factors with eigenvalues greater than unity (i.e., variances greater than 1) should be extracted; those that do not meet this criterion are no better in predictive power than the original variables (Kaiser, 1974). Based on this criterion, five factors explaining 61.4 per cent of the total variance were initially extracted. However,
this criterion sometimes results in more factors being extracted than are theoretically justifiable.

A substantive criterion that may be used is to set a minimum value of variance explained for the last factor to be extracted (Kim and Mueller, 1978; Tucker et al., 1969) at, say, 5.0 or 10.0 per cent, etc. With 16 variables in the model, and given that about three factors were posited by the theory, a factor was considered to be substantively important if it had an eigenvalue equal to or more than 1.5. Based on this criterion of substantive importance, three factors were extracted accounting for 47.8 per cent of the total variance. This degree of fit was considered satisfactory for dichotomous data.

Further, Cattell (1966) has suggested the scree-test criterion as a further aid to solving the number of factors problem. The scree-test is simply a plot of the eigenvalues on the Y-axis and the factors on the X-axis with the decision rule that one stops factoring at the spot where the curve begins to level off. Figure 5.1 is a scree-test plot of the 16 factors representing the original variables. Again, on the basis of this test, it was evident that no more than three factors would provide an adequate measure of reproductive culture.

Panel B of Table 5.8 gives the communalities of the variables in a three factor model of reproductive culture. These are the respective proportions of each variable explained by the common factors. The range of a communality is from 0 when none of the variance in the variable is explained by the common factors to 1 when the factors explain all the variance in the variable. For instance, the common factors explained 69.5 per cent of the variance in children ever born and 29.0 per cent of ideal number of
Figure 5.1: Scree-test plot of eigenvalues.

The communalities are obtained by squaring and adding factor loadings which are zero-order correlation coefficients between the original standardized variables and the factors. A large absolute value of a factor weight associated with a variable means that the particular factor is closely related to the variable, and vice versa. Hence, the value of a communality of a variable speaks to the relative statistical importance of the variable in explaining individual differences.
5.3.7 Discovering Underlying Dimensions of Reproductive Culture

The question of the number of factors to retain thus resolved, the third and final stage of factor analysis involved the rotation of the factors so that they may load meaningfully onto the three factors. The main purpose of factor rotation is to find a simple factor structure that is easy to interpret while keeping the values of the communalities and number of factors fixed. Simplicity of factorial structure means that each variable should load on only one factor in orthogonal rotation (i.e., when the factors are assumed to be uncorrelated). In addition, Thurstone (1947) suggested that as an empirical test of simplicity of factorial structure, at least three variables should load on each factor. As Table 5.10 shows, this requirement was met. However, it was not clear that the assumption of orthogonality would hold in the population even if it could be imposed on the data. Therefore, both orthogonal and oblique rotational methods were used. Table 5.9 is a matrix of the rotated factors using varimax for orthogonal rotation; the results of oblique rotation using direct oblimin are not shown, but they indicated that results of the two rotational methods were virtually identical even though they use different criteria of achieving factorial simplicity.

The varimax method of orthogonal rotation maximizes the variance of the squared loadings of each factor such that factorial simplicity is achieved by minimizing the number of variables that load highly on a factor. This facilitates the interpretability of the factors. On the other hand, methods of oblique rotation as a rule do not impose orthogonality restriction upon the factors by allowing them to correlate, but they often
introduce complications regarding how to explain high correlations among factors. Hence, it is sometimes necessary to assume higher order factorial causation to explain

Table 5.9: Factor Matrix Produced by Orthogonal Principal Axis Factor Rotation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children ever born</td>
<td>.61802</td>
<td>-.14389</td>
<td>.07560</td>
</tr>
<tr>
<td>Marital duration</td>
<td>.80612</td>
<td>-.04278</td>
<td>-.03347</td>
</tr>
<tr>
<td>Age at first birth</td>
<td>-.58733</td>
<td>.09484</td>
<td>-.19616</td>
</tr>
<tr>
<td>Child mortality</td>
<td>.55444</td>
<td>-.00817</td>
<td>-.11526</td>
</tr>
<tr>
<td>Age at first marriage</td>
<td>-.54358</td>
<td>-.00795</td>
<td>.14471</td>
</tr>
<tr>
<td>Owns land</td>
<td>-.03780</td>
<td>.75514</td>
<td>.01817</td>
</tr>
<tr>
<td>Owns livestock</td>
<td>.02290</td>
<td>.73350</td>
<td>-.09940</td>
</tr>
<tr>
<td>Place of residence</td>
<td>.20176</td>
<td>-.71135</td>
<td>-.20262</td>
</tr>
<tr>
<td>Has electricity in house</td>
<td>-.15207</td>
<td>.57227</td>
<td>.35613</td>
</tr>
<tr>
<td>Has cash crops</td>
<td>.01600</td>
<td>.55324</td>
<td>-.23106</td>
</tr>
<tr>
<td>Spoke with spouse about fp.</td>
<td>.02657</td>
<td>-.06657</td>
<td>.72053</td>
</tr>
<tr>
<td>Education</td>
<td>-.54502</td>
<td>.12800</td>
<td>.57765</td>
</tr>
<tr>
<td>Literacy</td>
<td>-.50742</td>
<td>.11031</td>
<td>.57240</td>
</tr>
<tr>
<td>Husband approves fp.</td>
<td>-.15859</td>
<td>.09693</td>
<td>-.51696</td>
</tr>
<tr>
<td>Has permanent house</td>
<td>.12170</td>
<td>-.37686</td>
<td>-.45482</td>
</tr>
<tr>
<td>Ideal number of children</td>
<td>.36518</td>
<td>-.07637</td>
<td>-.38795</td>
</tr>
</tbody>
</table>

such intercorrelations (Kim and Mueller, 1978). The main purpose of oblique rotation in this study was simply to test the existence and magnitude of factorial correlation.

The rotated factor matrices permitted the identification of the three factors underlying reproductive culture. The six variables which loaded on factor one relate to number of children ever born, marital duration, age at first birth, child mortality experience, age at first marriage and ideal number of children. Thus, factor one essentially seized information concerning demographic behaviour and experience. The second factor captured information from questions regarding ownership of land, livestock, and cash crops; place of residence, and whether the respondent had a permanent house and electricity in the house and may be said to indicate the socio-
economic condition. The counterfactual question, ideal number of children, together with spousal discussion of family planning, education, literacy, and husband’s approval of family planning loaded on factor three and may, therefore, said to have captured the ideational dimension of reproduction.

The final goal of factor analysis was to obtain factor scores for each of the underlying dimensions of reproductive culture. These scores are coefficients equivalent to regression weights that may be used in subsequent analyses. The default method for calculating factor scores in SPSS-X-FACTOR produces regression scores with a mean

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has electricity in house</td>
<td>.03455</td>
<td>.21939</td>
<td>.14264</td>
</tr>
<tr>
<td>Literacy</td>
<td>-.10949</td>
<td>-.01965</td>
<td>.23281</td>
</tr>
<tr>
<td>Husband approves fp.</td>
<td>-.11784</td>
<td>.05279</td>
<td>-.29789</td>
</tr>
<tr>
<td>Education</td>
<td>-.12156</td>
<td>-.01527</td>
<td>.22997</td>
</tr>
<tr>
<td>Children even born</td>
<td>.30653</td>
<td>.00067</td>
<td>.15082</td>
</tr>
<tr>
<td>Age at first birth</td>
<td>-.23886</td>
<td>.00234</td>
<td>-.18289</td>
</tr>
<tr>
<td>Age at first marriage</td>
<td>.18726</td>
<td>-.05426</td>
<td>.07586</td>
</tr>
<tr>
<td>Spoke with spouse about fp.</td>
<td>.09646</td>
<td>-.05969</td>
<td>.38726</td>
</tr>
<tr>
<td>Ideal # of children</td>
<td>.08210</td>
<td>.01435</td>
<td>.15500</td>
</tr>
<tr>
<td>Marital duration</td>
<td>.29636</td>
<td>.04852</td>
<td>.08703</td>
</tr>
<tr>
<td>Owns land</td>
<td>.04945</td>
<td>.32343</td>
<td>-.02979</td>
</tr>
<tr>
<td>Owns livestock</td>
<td>.05560</td>
<td>.32437</td>
<td>-.08321</td>
</tr>
<tr>
<td>Owns cash crops</td>
<td>.02156</td>
<td>.25170</td>
<td>-.14542</td>
</tr>
<tr>
<td>Owns permanent house</td>
<td>-.04271</td>
<td>-.13265</td>
<td>-.20762</td>
</tr>
<tr>
<td>Child mortality</td>
<td>.19380</td>
<td>.04611</td>
<td>.01013</td>
</tr>
<tr>
<td>Place of residence</td>
<td>-.00755</td>
<td>-.28267</td>
<td>-.04880</td>
</tr>
</tbody>
</table>

of 0 and a standard deviation of 1 even with oblique rotation. Table 5.10 displays the factor score coefficient matrix for each of the principal axis.

The factor scores are obtained by regressing each factor on its empirical indicator. For instance, the factor three score of .38726 associated with spousal discussion
represents the weight which a woman who reported having discussed family planning with her partner would receive in the third dimension of the culture variable which captured the ideational dimension of reproduction. The same respondent would receive a weight of -.05969 in factor two relating to socio-economic conditions and .09646 in factor one relating to past demographic experience and behaviour.

Thus, each of the three factors receives weights which are proportional to the contribution of each empirical indicator. This means that a coefficient-weighted sum of scores for the variables represents a continuous factor score for each respondent. Such a score is an estimate of the score the respondent would have obtained had it been possible to measure the underlying dimension directly (Tabachnick and Fidell, 1989).

5.4 Measures of Motivation

A theory of motivation was advanced in Chapter Four that women make reproductive choices in the context of their objective social conditions and, in so doing, are guided by a need structure constrained by both these conditions and their cognitive powers. It follows that motivation can be measured by expressed preferences and attitudes toward childbearing. In any case, estimation of demand or unmet need for contraception is simply the aggregate-level equivalent of measuring individual motivations, hence, both estimates may be based on the same survey questions relating to fertility preferences, preferred waiting time before (the next) conception, attitudes towards pregnancy, and desire for more children.
Table 5.11: Indicators of Motivation for Contraceptive Use, KDHS, 1989.

<table>
<thead>
<tr>
<th>Var. Code</th>
<th>Survey Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>V602</td>
<td>Would you like to have a (another) child or would you prefer not to have any (more) children?</td>
</tr>
<tr>
<td>V604</td>
<td>How long would you like to wait from now before birth of a (another) child?</td>
</tr>
<tr>
<td>V605</td>
<td>Desire for more children: a constructed variable from V602 and V604 and relates to how soon the respondent wanted another child.</td>
</tr>
<tr>
<td>V606</td>
<td>If you became pregnant in the next 1-5 weeks, would you feel happy, unhappy, or would it not matter very much?</td>
</tr>
</tbody>
</table>

Table 5.11 lists four questions in the KDHS that were used to measure motivation for observed contraceptive behaviour. The item relating to fertility preferences (V602) sought a three-category response—"have another" dummy coded 1, "no more" coded 2, and "undecided" or "don't know" which was coded 0. Preferred waiting time before the birth of a(nother) child V604 is continuously measured in years starting with < 1 year to 6+ years. Desire for more children (V605) was constructed from V602 and V604 as a probe to women who reported wanting another child. It has four categories coded 1 for those who want a child within two years, 2 for those who want after two years, 3 for those unsure of timing for the next birth, and 4 for the undecided. Finally, the question regarding attitude toward becoming pregnant asked the women whether they would be happy (coded 1) or unhappy (coded 2) if they were to become pregnant, or if did not matter (coded 3).
5.5 SUMMARY

This chapter has described the data used for testing the hypotheses and theories developed in this dissertation. Detailed accounts have been given of how the dependent variable, the two independent variables and a number of control variables were measured. In particular, the methodology for the construction of a cumulative index of mass media exposure has been discussed in detail. The chapter also describes how the common factor model was used to discover the underlying dimensions of reproductive culture.
CHAPTER SIX

RESULTS AND DISCUSSION

6.0 INTRODUCTION

This chapter reports the results of the study. It is organized in four sections: section 2.0 reports results of bivariate analyses of the relationship between reproductive behaviour and family planning communication exposure, desire for children, attitude to pregnancy, ethnicity, religious affiliation, type of marital union, and employment status; section 3.0 discusses the multivariate techniques used and reports results obtained therefrom; and section 4.0 discusses those results in relation to the theoretical foci of this dissertation.

The dependent variable in this work, contraceptive behaviour, was conceptualized and measured in six levels of contraceptive status ranging from not knowing any method of contraception to adoption and current practice. In order to achieve a rich analysis and meaningful interpretation of the results, binary categories were formed for each contraceptive status for a multichotomous dependent variable. This analytical strategy has not, however, detracted from the conceptually cumulative nature of contraceptive behaviour as operationalized in the last chapter.
6.1 BIVARIATE RESULTS

6.1.1 SOCIAL COMMUNICATION AND CONTRACEPTIVE BEHAVIOUR

6.1.1 (a) Mass Media Exposure

Table 6.1 shows the percentage distribution of the sample by contraceptive status and exposure to mass mediated family planning information. Over 30.0 per cent of the total sample were not exposed to family planning information through any mass medium out of whom 14.4 per cent did not know any method of contraception while only 13.2 per cent were currently using contraceptives; meanwhile, 12.5 per cent of them had used a method before. A large proportion of the non-exposed women (59.6%) had never used a method (never-users), though 32.2 per cent of such non-exposed women intended to contracept in future. In addition, non-exposed past users were divided almost evenly between those with future intentions of using contraceptives and those without such plans.

However, the majority of women in the sample were exposed to family planning information through some mass medium such as radio, newspapers, magazines, posters, or television. Out of the 2,135 women that were exposed through radio alone, only 2.1 per cent reported not knowing a contraceptive method, but 24.0 per cent were currently using contraceptives while 19.1 per cent others had done so in the past; of these latter, 12.6 per cent intended to resume using contraceptives in future and 6.5 per cent had no such intentions.

<table>
<thead>
<tr>
<th>Contraceptive Status</th>
<th>Not Exposed</th>
<th>Radio and Print</th>
<th>Total Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Radio</td>
<td>Television</td>
</tr>
<tr>
<td>Knows no method</td>
<td>14.4</td>
<td>2.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Knows, never used:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend</td>
<td>27.4</td>
<td>30.9</td>
<td>23.7</td>
</tr>
<tr>
<td>Intend to use</td>
<td>32.2</td>
<td>23.8</td>
<td>15.1</td>
</tr>
<tr>
<td>Used in the past:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend</td>
<td>6.1</td>
<td>6.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Intend to use</td>
<td>6.4</td>
<td>12.6</td>
<td>18.1</td>
</tr>
<tr>
<td>Currently using</td>
<td>13.2</td>
<td>24.0</td>
<td>36.1</td>
</tr>
<tr>
<td>Total</td>
<td>1610</td>
<td>2135</td>
<td>1122</td>
</tr>
<tr>
<td>Percent</td>
<td>30.4</td>
<td>40.4</td>
<td>21.2</td>
</tr>
</tbody>
</table>

Table 6.2: Distribution of Contraceptive Behaviour by Interpersonal Communication Networks, Ever-Married, Fecund Women, Kenya, 1989. (Weighted Percentages)

<table>
<thead>
<tr>
<th>Contraceptive Status</th>
<th>Exposed Through Friends and Relatives</th>
<th>Member of Women's Association</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Knows no method</td>
<td>1.5</td>
<td>15.3</td>
</tr>
<tr>
<td>Knows, never used:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend</td>
<td>26.8</td>
<td>26.4</td>
</tr>
<tr>
<td>Intend to use</td>
<td>19.6</td>
<td>29.2</td>
</tr>
<tr>
<td>Used in the past:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend</td>
<td>6.4</td>
<td>6.4</td>
</tr>
<tr>
<td>Intend to use</td>
<td>13.7</td>
<td>7.9</td>
</tr>
<tr>
<td>Currently using</td>
<td>32.5</td>
<td>14.3</td>
</tr>
<tr>
<td>Total</td>
<td>3540</td>
<td>1736</td>
</tr>
<tr>
<td>Percent</td>
<td>67.1</td>
<td>32.9</td>
</tr>
</tbody>
</table>

Even then, a large proportion of women that were exposed to family planning through radio had never used any method of contraception out of whom more than one-half did not intend doing so in future. Nevertheless, additional exposure through the print media and television seems to have cumulatively increased the probability of
contraceptive adoption. It is evident that contraceptive knowledge was almost universal among women who were exposed through such additional mass media channels while the proportion currently using contraceptives rose from 24.0 per cent among those exposed through radio alone to 36.1 per cent among women exposed through both radio and the print media and, further, to nearly 50.0 per cent among those exposed through all the three mass media.

In addition, the proportion of past users intending to resume contraception rose from 12.6 per cent among the radio-exposed to 18.1 per cent among the radio and print media-exposed, but dropped slightly to 17.3 per cent among the radio, print media, and television-exposed women. However, the proportion of past users not intending to resume contraception remained relatively low and stable, but additional mass media exposure appeared to decrease the proportions of never-users not intending to contracept as well as those intending to do so. At the same time, the proportion of never-users as a group also declined monotonically with more channels of mass media exposure.

Overall, therefore, mass media exposure appears to have not only increased the likelihood of contraceptive adoption among ever-married Kenyan women but did so cumulatively. Specifically, as predicted, knowledge of contraceptives increased with frequency of exposure to family planning information and so did current use of contraceptives. Moreover, the more channels the women were exposed through the higher was the proportion of past users intending to contracept later and the lower was the propotion of never-users not intending to contracept. These strong positive correlations are consistent with theoretical expectations and past empirical findings and
support to the hypothesis that the higher the intensity of mass media exposure the higher the probability of behavioral change.

However, mass media exposure seemed to have negative effects on never-users and past users with no intentions to use contraceptives. For instance, even though the proportions of never-users declined monotonically with more channels of family planning exposure, the proportions of such women with no intention of using contraceptives also increased as the number of channels they were exposed through increased.

6.1.1 (b) Interpersonal Communication Networks

It was suggested previously that family planning information may be gained through such interpersonal networks as friends and relatives as well as membership in women's associations though only scant attention has been paid to network studies in demography since the work of Rogers and Kincaid (1981) in Taiwan. Table 6.2 shows the percentage distribution of the sample by contraceptive status and exposure to family planning information through the interpersonal networks of friends and relatives and membership of women's associations.

About two-thirds of the total sample was exposed through friends and relatives. As expected, contraceptive knowledge and current use were proportionately higher among those who reported exposure through friends and relatives than those who did not: only 1.5 per cent of the 3,540 women who were so exposed did not know a method while 32.5 per cent of them were current contraceptors. In addition, nearly twice as
many exposed women were past users intending to resume the use of contraceptives as past users not intending to do so. In contrast, of the 1,736 non-exposed women, wholly 15.3 per cent did not know any method and only 14.3 per cent of them were currently using contraceptives. At the same time, while 7.9 per cent of the non-exposed women were past users intending to use contraceptives, 6.4 per cent of them were past users with no such intentions.

Meanwhile, proportionately more exposed women were never-users who did not intend using contraceptives than never-users who intended to do so; at the same time, relatively fewer non-exposed women were never-users not intending to use contraceptives than those intending. Such a reversal of interpersonal exposure effects is inexplicable in light of the strong evidence that friends and relatives seemed to strongly and positively influence contraceptive knowledge and adoption. On the whole, the effects of exposure to family planning information through friends and relatives closely mirrored those of mass media exposure in this sample of ever-married Kenyan women.

Table 6.2 also shows the percentage distribution of the sample by contraceptive status and association membership. Only 3.9 per cent of the 2,130 association members did not know a contraceptive method while 32.2 per cent of them were current users. Meanwhile, a higher proportion of association members were past users intending to resume contraceptive use than those not intending to do so, while proportions of association members who were never-users with and without intentions to adopt contraceptive use were more or less even. In contrast, among non-association members, a higher proportion of women were never-users not intending to contracept than never-
users intending to do so. However, there was no clear distinction between the likelihood of being a never-user intending to use contraceptives and a never-user not intending to use contraceptives by membership of women’s association.

In contrast, nearly 8.0 per cent of the 3,157 non-members of women’s associations did not know a contraceptive method while only 22.7 per cent of them were current users. Moreover, 29.0 per cent of them were never-users with no intention of using contraceptives compared to 26.6 per cent intending to do so. However, more non-members were past users intending to resume contraception than past users not intending to do so. It appears, therefore, that membership of women’s associations increased the chances for contraceptive knowledge and actual use among the women despite claims that opposition to family planning is often expressed during meetings of such associations (e.g., Ahlberg, 1991).

6.1.2 Motivation and Contraceptive Behaviour

Consistent with theories in previous chapters of this study, an important way in which communication functions in the adoption-decision process is to motivate would-be contraceptors to adopt the practice. Those who are highly motivated to stop childbearing or delay the next birth may be expected to be more inclined toward current or future use of contraceptives; and so will those who would not like to be pregnant.

Table 6.3 shows the percentage distribution of the women by contraceptive status and the motivational factors of desire for children and attitude toward getting pregnant.
Over 50.0 per cent of some 4,684 women who answered the survey question on desire for more children wanted to stop childbearing while another 28.1 per cent of them wanted to delay birth for more than two years. That is, potentially at least 78.1 per cent of the women needed contraceptives either for stopping or spacing births. On the other hand, 9.1 per cent of this sample of women were unsure of their feelings about having children while 12.6 per cent of them wanted a child immediately—that is, only 21.7 per cent of the women did not need contraceptives.

Nearly 6.0 per cent of the women who wanted no more children did not know a contraceptive method and, of those who knew a method, 41.1 per cent had never used any. Another 19.0 per cent of such women who had used contraceptives in the past had discontinued doing so by the time of the survey though a higher proportion of them (12.2%) were past users intending to resume contraception in future while 6.8 per cent were past users with no intentions of using contraceptives again. Nevertheless, 35.3 per cent of the women who wanted to stop childbearing were currently using contraceptives. Meanwhile, a slightly higher proportion of women who wanted to space childbearing (7.3%) did not know a contraceptive method; wholly 53.2 per cent of them who knew at least a method had never used any while 18.5 per cent had discontinued contraception. Of this latter group, a higher proportion (13.3%) intended to resume contraceptive use in future, but 5.2 per cent of the spacers had no such intentions. Over 22.0 per cent of the spacers were, however, currently contrcepting.

In contrast, 11.0 per cent of women who were undecided about childbearing did not know a contraceptive method, wholly 64.7 per cent knew but had never used a
method before. Of the undecided women, 7.2 per cent were past contraceptors who had no intention of using contraceptives; 8.2 per cent intended to resume contraception while only 11.8 per cent were currently using contraceptives. Meanwhile, 10.0 per cent of women who wanted children immediately did not know a contraceptive method, as many as 60.6 per cent of them knew but had never used a method before, 17.3 per cent of them had discontinued contraception while only 12.8 per cent were current users. Thus as a group, women whose motivations were to stop or space childbearing were more likely to know and to be currently using contraceptives. But a large proportion of such women had still never used contraceptives despite knowing a method and the proportions who had discontinued contraception were not substantially different from among those who wanted to have children soon. In fact, a higher proportion of women with stopping and spacing intentions were never-users not intending to adopt contraceptive practice than those intending to do so. This contrasts with future intentions of the undecided and of women wishing to have children soon of whom relatively higher proportions intended to adopt contraception than those who did not intend.

The fact that undecided women and those who wanted children soon but had never used any contraceptives were more likely to report intending to use contraceptives in future may mean that this group of women were younger and were still in the process of building their families. In contrast, women who wanted no more children and those who wanted to space childbearing but had never used contraceptives and had no intentions of doing so in future may either have been opposed to family planning on religious or ideological grounds, inadequately informed about contraception, feared real
Table 6.3: Distribution of Contraceptive Behaviour by Motivational Factors, Ever-Married, Fecund Women, Kenya, 1989. (Weighted Percentage)

<table>
<thead>
<tr>
<th>1. DESIRE FOR CHILDREN</th>
<th>Wants No More</th>
<th>Wants After 2 yrs</th>
<th>Does Not Matter</th>
<th>Wants Soon</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraceptive Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knows no method</td>
<td>5.7</td>
<td>11.0</td>
<td>10.0</td>
<td>332</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td>Knows, never used:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend</td>
<td>24.2</td>
<td>30.4</td>
<td>22.7</td>
<td>1267</td>
<td>27.1</td>
<td></td>
</tr>
<tr>
<td>Intend to use</td>
<td>16.9</td>
<td>34.3</td>
<td>37.9</td>
<td>1000</td>
<td>21.3</td>
<td></td>
</tr>
<tr>
<td>Used in the past:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend</td>
<td>6.8</td>
<td>3.5</td>
<td>5.9</td>
<td>276</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>Intend to use</td>
<td>12.2</td>
<td>11.2</td>
<td>11.4</td>
<td>573</td>
<td>12.2</td>
<td></td>
</tr>
<tr>
<td>Currently using</td>
<td>35.3</td>
<td>11.8</td>
<td>12.8</td>
<td>1236</td>
<td>26.4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2352</td>
<td>424</td>
<td>592</td>
<td>4684</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent</td>
<td>50.2</td>
<td>9.1</td>
<td>12.6</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. ATTITUDE TOWARD PREGNANCY</th>
<th>Happy</th>
<th>Not Happy</th>
<th>Does Not Matter</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraceptive Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knows no method</td>
<td>12.9</td>
<td>12.8</td>
<td>264</td>
<td>9.4</td>
<td></td>
</tr>
<tr>
<td>Knows, never used:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend</td>
<td>28.7</td>
<td>38.8</td>
<td>967</td>
<td>34.6</td>
<td></td>
</tr>
<tr>
<td>Intend to use</td>
<td>44.0</td>
<td>36.3</td>
<td>948</td>
<td>34.0</td>
<td></td>
</tr>
<tr>
<td>Used in the past:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend</td>
<td>7.4</td>
<td>7.2</td>
<td>261</td>
<td>9.3</td>
<td></td>
</tr>
<tr>
<td>Intend to use</td>
<td>8.5</td>
<td>8.2</td>
<td>356</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>Currently using</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>925</td>
<td>160</td>
<td>2796</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Percent</td>
<td>33.1</td>
<td>5.7</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: KDHS, 1989 data.

or imagined side effects, or thought they faced little or no risk of pregnancy either due to age or infrequent exposure to sexual intercourse. On the other hand, they might simply have faced logistical problems in accessing family planning and contraceptive services.

What about the relationship between attitude toward becoming pregnant and
contraceptive behaviour? Results of cross-tabulation of this variable with contraceptive status are also shown in Table 6.3. A fairly large proportion of the 925 women who were happy with being pregnant did not know a contraceptive method, 72.7 per cent of them knew but had never used a method, while 15.9 per cent had discontinued contraceptive use. In fact, such women were very similar in their contraceptive behaviours to the 160 others who said getting pregnant didn’t matter to them. Of this latter group, 12.9 per cent did not know a contraceptive method, 75.1 per cent knew but had never used any contraceptive, while 15.4 per cent had used contraceptives before. In contrast, only 6.9 per cent of the 1,711 women who were unhappy about being pregnant did not know a method, though 66.8 per cent of them knew but never used a contraceptive before; at the same time, more than one-quarter of them had stopped the use of contraceptives.

Paradoxically, proportionately more women who were happy or didn’t care about being pregnant were intending to use contraceptives than those who did not intend to use. On the other hand, for those who were unhappy to be pregnant, the opposite was the case: more of them had no intentions of future contraceptive use than those who did. In addition, proportionately more women who were unhappy to be pregnant had discontinued contraceptive use than those who were happy.

Again these contradictions may partly have been due to age effects: women who were happy to be pregnant might have been younger wives who planned to use contraceptives after achieving their desired family sizes. But the same cannot be said of women who were unhappy to be pregnant. Whereas some age affects conceivably still applied among such women, the most likely explanation for their behaviours could have
been more cognitive, ideological and logistical than demographic. That is, such women may have been more vulnerable to real or imagined fear of side effects of contraception, or they may have been more religious or traditional and might, therefore, have been more opposed to family planning; on the other hand, they may simply have faced more difficulties in obtaining contraceptives due to financial and other logistical constraints such as distance to clinics, inconvenient clinic hours, or lack of privacy during consultations, etc. Further, it is not inconceivable that some of the women may have been in polygynous unions and might consequently have been reluctant to control their reproduction when their co-wives were not doing so. Some of these contradictions should be clarified somewhat through multivariate analysis with controls for some of these possible alternative or intervening explanations.

6.1.3 Socio-Cultural Factors and Contraceptive Behaviour

Among cultural institutions investigated for their possible influence on reproductive behaviour were the women’s religious affiliation and nuptiality patterns. Table 6.4 shows the percentage distribution of the sample by contraceptive status and religion, type of marital union, and employment status.

Catholics comprised 34.8 per cent of the sample, Protestants 56.7 per cent and Muslims 3.7 per cent, while women with traditional or no religious affiliation comprised another 4.8 per cent. Thus, the sample was 91.5 per cent Christian. Whereas only 4.4 per cent of Muslims did not know a contraceptive method, proportions without
Table 6.4: Percent Distribution of Contraceptive Behaviour by Religion and Type of Marital Union, Ever-Married Women, Kenya, 1989. (Weighted) (KDHS, 1989)

1. RELIGIOUS AFFILIATION

<table>
<thead>
<tr>
<th>Contraceptive Status</th>
<th>Catholic</th>
<th>Protestant</th>
<th>Muslim</th>
<th>Other</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knows method</td>
<td>8.7</td>
<td>5.9</td>
<td>4.4</td>
<td>21.4</td>
<td>399</td>
<td>7.6</td>
</tr>
<tr>
<td>Knows, never used</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend to use</td>
<td>28.4</td>
<td>26.6</td>
<td>20.4</td>
<td>19.5</td>
<td>1355</td>
<td>25.7</td>
</tr>
<tr>
<td>Intend to use later</td>
<td>22.8</td>
<td>20.6</td>
<td>38.4</td>
<td>28.8</td>
<td>1131</td>
<td>21.4</td>
</tr>
<tr>
<td>Used in the past</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend to use</td>
<td>6.0</td>
<td>6.2</td>
<td>7.9</td>
<td>10.4</td>
<td>377</td>
<td>7.1</td>
</tr>
<tr>
<td>Intend to use later</td>
<td>10.6</td>
<td>12.7</td>
<td>13.1</td>
<td>7.2</td>
<td>618</td>
<td>11.7</td>
</tr>
<tr>
<td>Currently using</td>
<td>25.6</td>
<td>28.8</td>
<td>16.6</td>
<td>13.8</td>
<td>1400</td>
<td>26.5</td>
</tr>
<tr>
<td>Total</td>
<td>1836</td>
<td>2994</td>
<td>197</td>
<td>253</td>
<td>5280</td>
<td>100.0</td>
</tr>
<tr>
<td>Percent</td>
<td>34.8</td>
<td>56.7</td>
<td>3.7</td>
<td>4.8</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

2. MARITAL UNION

<table>
<thead>
<tr>
<th>Contraceptive Status</th>
<th>Monogyny</th>
<th>Polygyny</th>
<th>Unstated</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knows no method</td>
<td>6.5</td>
<td>11.2</td>
<td>7.3</td>
<td>399</td>
<td>7.5</td>
</tr>
<tr>
<td>Knows, never used</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend to use</td>
<td>27.4</td>
<td>24.8</td>
<td>25.2</td>
<td>1377</td>
<td>26.0</td>
</tr>
<tr>
<td>Intend to use later</td>
<td>19.9</td>
<td>28.7</td>
<td>26.2</td>
<td>1152</td>
<td>21.8</td>
</tr>
<tr>
<td>Used in the past</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend to use</td>
<td>5.4</td>
<td>8.0</td>
<td>9.7</td>
<td>337</td>
<td>6.4</td>
</tr>
<tr>
<td>Intend to use later</td>
<td>12.4</td>
<td>10.7</td>
<td>9.6</td>
<td>622</td>
<td>11.8</td>
</tr>
<tr>
<td>Currently using</td>
<td>29.4</td>
<td>18.7</td>
<td>22.9</td>
<td>1402</td>
<td>26.5</td>
</tr>
<tr>
<td>Total</td>
<td>3643</td>
<td>1114</td>
<td>532</td>
<td>5289</td>
<td>100.0</td>
</tr>
<tr>
<td>Percent</td>
<td>68.9</td>
<td>21.1</td>
<td>10.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

3. EMPLOYMENT STATUS

<table>
<thead>
<tr>
<th>Contraceptive Status</th>
<th>Employed</th>
<th>Not Employed</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knows no method</td>
<td>4.3</td>
<td>7.9</td>
<td>394</td>
<td>7.5</td>
</tr>
<tr>
<td>Knows, never used</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend to use</td>
<td>14.4</td>
<td>28.1</td>
<td>1359</td>
<td>25.9</td>
</tr>
<tr>
<td>Intend to use later</td>
<td>16.5</td>
<td>23.2</td>
<td>1137</td>
<td>21.7</td>
</tr>
<tr>
<td>Used in the past</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend to use</td>
<td>5.5</td>
<td>6.4</td>
<td>328</td>
<td>6.3</td>
</tr>
<tr>
<td>Intend to use later</td>
<td>16.7</td>
<td>11.2</td>
<td>619</td>
<td>11.8</td>
</tr>
<tr>
<td>Currently using</td>
<td>43.5</td>
<td>24.4</td>
<td>1400</td>
<td>26.7</td>
</tr>
<tr>
<td>Total</td>
<td>570</td>
<td>4667</td>
<td>5237</td>
<td>100.0</td>
</tr>
<tr>
<td>Percent</td>
<td>10.9</td>
<td>89.1</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
contraceptive knowledge were higher among Catholics (8.7%) and Protestants (5.9%). But current contraceptive use was proportionately higher among Christian women than among Muslims. Contraceptive knowledge was, however, lowest among women with traditional or no religious affiliation and so was current use. Among Christians, contraceptive knowledge and current use were proportionately higher among Protestant women than among Catholics.

Other than women with traditional or no religious affiliation, Muslims were slightly more likely to be past users intending to use contraceptives than Protestants and Catholics, and Protestants were slightly more likely to be past users intending to contracept in future than Catholics. At the same time, Muslims were more likely to be never-users intending to use contraceptives than Protestants and Catholics. In fact, Catholics were more likely to be never-users with no intention of future contraception and to be never-users intending to contracept than women belonging to the other religious categories.

Hence, almost twice as many Muslims who were not currently using contraceptives had intentions of doing so in future as those who had no such intentions; in contrast, for Christians the distribution of such proportions was more or less even. Expressed differently, Christians as a group were more likely to be opposed to future contraceptive use than Muslims and others. Given that Kenya is over 90.0 per cent Christian, this finding could have grave implications for contraceptive adoption and fertility decline. However, it appears that Christians were also being secularized a lot faster than the other groups since they, more than the other groups, were more likely to
be currently using contraceptives.

Table 6.4 also reports the results of cross-tabulation of contraceptive behaviour with marital union type. A vast majority of the women (68.9%) were or had been in monogynous unions, but about one in every five women in the sample was or had been in a polygynous union. A higher proportion of women in monogynous unions knew at least a contraceptive method than those in polygynous unions; they were also more likely to be current contraceptors. At the same time, women in monogynous unions were more likely to be past users intending to contracept in future than those in polygynous unions. On the other hand, women in polygynous unions were more likely to be never-users intending to use contraceptives than those in monogynous unions.

A possible explanation for this reversal of future intentions is that women in monogynous unions are more likely to be strong Christians, probably Catholics whose doctrine and practices strictly prohibit polygyny. The other possible explanation is that there might have been a higher proportion of younger women with family building priorities among women in monogynous than polygynous unions. Ocholla-Ayayo, (1988) reports that widows and women who experience premarital births in Kenya usually marry older, polygynous men. In fact, the similarity of the pattern of future intentions of never-users in polygynous unions with those in the unstated category lends support to such speculation. If they are correct, then we can expect that marital union type would not predict future contraceptive intentions in multivariate models when controls for age and religion are introduced.

While these results confirm previous findings that have reported differences in
contraceptive use by marital union type, (e.g., Njogu, 1991; Westoff and Menendez, 1993), they go further to show that the impact of nuptiality patterns on contraceptive behaviour may be a factor of previous experience: women in polygynous unions are more likely to be never-users intending to adopt contraceptive use later while those in monogynous unions are more likely to be either current users or past users intending to resume contraception again later, and vice versa. This suggests that, in the Kenyan case, it may not be the fact of being in a polygynous relationship that influences contraceptive behaviour but, perhaps, the socio-demographic characteristics of women who enter into such unions.

Finally, Table 6.4 shows the percentage distribution of the sample by contraceptive behaviour and employment status. Only about 11.0 per cent (570) of the ever-married women were currently employed compared to 89.0 per cent (4,667) who had no jobs outside the home. As expected, the proportion of women with contraceptive knowledge was higher among employed women than the unemployed. At the same time, 43.5 per cent of working women were currently using contraceptives in contrast to 24.4 per cent of unemployed women who were currently using contraceptives. Nearly 17.0 per cent of working women were past users intending to use contraceptives in future in contrast to only 5.5 per cent who were past users who did not intend to do so. Working women were also more likely to be never-users intending to contracept than never-users not intending to contracept. On the other hand, unemployed women were more likely to be never-users not intending to contracept than never-users intending to do so.

Thus as predicted, employment status appears to have been a very consistent
predictor of Kenyan women's contraceptive statuses: working women were more likely to know about contraceptives than their unemployed counterparts; they were more inclined toward future contraceptive use; a smaller proportion of them were opposed to using contraceptives in future; and a higher proportion of employed women were currently using contraceptives than their unemployed compatriots. Yet being in modern sector wage employment may be a reflection of higher educational attainment or socio-economic status; but it may also lead to a greater sense of self-determination. Employment may also facilitate the purchase of better family planning services. Consequently, these associations indicate the need for multivariate analysis with controls for socio-economic conditions and ideational factors.

6.1.4 Ethnicity and Contraceptive Behaviour

Table 6.5 shows the sample distribution of contraceptive statuses by ethnicity. On the whole, lack of contraceptive knowledge was minimal among almost all ethnic groups except the Kalenjin, Mijikenda/Swahili, and Somali/other. A relatively high proportion of Kalenjin women did not know a contraceptive method. In addition, more than one in every two Kalenjin women had not used a contraceptive before while 11.5 per cent of them had discontinued contraception. Contraceptive knowledge was relatively low as well among Somali/other and Mijikenda/Swahili women, though the pattern of contraceptive behaviours of women from these latter groups were substantially different from those of Kalenjin women. In contrast, nearly all Kisii and Kikuyu women knew at least one
contraceptive method and proportions of women without contraceptive knowledge were relatively low as well among the remaining ethnic groups.

Overall, surprisingly high proportions of women from nearly all the ethnic communities knew but had never used any method of contraception, though the Mijikenda/Swahili (with 69.9%), Luo (65.4%), Luhya (56.9%) and Kisii (54.6%) stand out as groups with particularly high proportions of never-users. In contrast, 34.0 per cent and 35.5 per cent, respectively, of Embu/Meru and Kikuyu women had never used contraceptives. Ironically these figures compare reasonably well with those of Somali/other group who, despite having relatively high proportions of women without contraceptive knowledge, had only 38.2 per cent never-users. On the other hand, discontinuation of contraceptive use seemed to be relatively high among Somali/other and Kisii women compared to those from other ethnic groups.

Meanwhile, whereas 42.8 per cent, 40.1 per cent, and 38.5 per cent of Kikuyu, Embu/Meru and Kamba women, respectively, were currently using contraceptives, proportionately fewer Luo, and Mijikenda/Swahili women were current users (12.4% and 12.7%, respectively). In fact, the Kikuyu, Embu/Meru and Kamba groups stand out as ethnic entities which have distinctly departed from the rest of Kenyan communities in terms of contraceptive behaviour. For instance, only 1.8 per cent of Kikuyu women did not know a contraceptive method and, whereas 35.5 per cent of them had never used a method before, more of them intended to adopt contraception than did not intend. At the same time, 12.7 per cent of the Kikuyu women intended to resume contraception and only 5.6 per cent did not intend to do so. The contraceptive behaviour patterns of
Table 6.5: Percent Distribution of Contraceptive Behaviour by Ethnicity, Ever-Married, Fecund Women, Kenya, 1989. (Weighted)

<table>
<thead>
<tr>
<th>Ethic Group</th>
<th>Kalenjin</th>
<th>Kamba</th>
<th>Kikuyu</th>
<th>Kisii</th>
<th>Luhyा</th>
<th>Luo</th>
<th>Meru/Embu</th>
<th>Kij Kenda/Swahili</th>
<th>Somali and Others</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knows no method</td>
<td>16.2</td>
<td>4.3</td>
<td>1.8</td>
<td>1.1</td>
<td>6.8</td>
<td>7.5</td>
<td>4.8</td>
<td>8.9</td>
<td>10.8</td>
<td>411</td>
<td>7.8</td>
</tr>
<tr>
<td>Knows, never used:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend</td>
<td>34.7</td>
<td>19.7</td>
<td>17.0</td>
<td>35.2</td>
<td>36.3</td>
<td>33.7</td>
<td>20.7</td>
<td>19.1</td>
<td>20.7</td>
<td>1408</td>
<td>26.6</td>
</tr>
<tr>
<td>Intend to use</td>
<td>19.0</td>
<td>19.3</td>
<td>18.5</td>
<td>19.3</td>
<td>20.6</td>
<td>31.7</td>
<td>13.3</td>
<td>50.8</td>
<td>17.5</td>
<td>1115</td>
<td>21.1</td>
</tr>
<tr>
<td>Used in the past:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't intend</td>
<td>4.3</td>
<td>5.6</td>
<td>7.2</td>
<td>7.2</td>
<td>5.1</td>
<td>5.1</td>
<td>6.4</td>
<td>4.1</td>
<td>14.9</td>
<td>329</td>
<td>6.2</td>
</tr>
<tr>
<td>Intend to use</td>
<td>7.2</td>
<td>12.6</td>
<td>12.7</td>
<td>17.7</td>
<td>12.7</td>
<td>9.6</td>
<td>14.7</td>
<td>4.4</td>
<td>13.8</td>
<td>622</td>
<td>11.8</td>
</tr>
<tr>
<td>Currently using</td>
<td>18.6</td>
<td>38.5</td>
<td>42.8</td>
<td>19.4</td>
<td>18.5</td>
<td>12.4</td>
<td>40.1</td>
<td>12.7</td>
<td>22.2</td>
<td>1402</td>
<td>26.5</td>
</tr>
<tr>
<td>Total</td>
<td>451</td>
<td>655</td>
<td>1138</td>
<td>296</td>
<td>964</td>
<td>852</td>
<td>308</td>
<td>254</td>
<td>369</td>
<td>5289</td>
<td></td>
</tr>
<tr>
<td>Percent</td>
<td>8.5</td>
<td>12.4</td>
<td>21.5</td>
<td>5.6</td>
<td>18.2</td>
<td>16.1</td>
<td>5.8</td>
<td>4.8</td>
<td>7.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: KDHS 1989 data.
Embu/Meru and Kamba women were almost identical to those of Kikuyu women despite the relatively higher proportions of women from these two ethnic groups without contraceptive knowledge. Together with the Kikuyu, these communities may be said to represent ethnic entities among whom the contraceptive transition had unequivocally begun.

In contrast the Luo, Luhya and Mijikenda/Swahili represent ethnic communities among whom the contraceptive transition was just beginning at the time of the survey. Take the Mijikenda/Swahili group, for instance: nearly 9.0 per cent of the women from this group did not know a contraceptive method and wholly 69.9 per cent of them who knew a method had never tried any. In fact, even though a vast majority of this category of women intended to adopt contraception in future, only 12.7 per cent of their women in the sample were actually using contraceptives. Moreover, a higher proportion of Mijikenda/Swahili women were in the category of past users who did not intend to use contraceptives than past users who intended to do so.

This pattern of contraceptive behaviour is roughly similar to that of the Luo among whom 65.5 per cent had never used any method despite reasonably widespread knowledge of contraceptives. In fact, even though 31.7 per cent of Luo women were never-users who intended to contracept in future, a slightly higher proportion of them (33.7%) did not intend to do so while only 12.4 per cent were currently using contraceptives. This Luo pattern was observed as well among Luhya and Kalenjin women, except that a relatively higher proportion of women from these latter ethnic groups were current contraceptors. The similarity of their behavioral intentions,
characterized by higher proportions of women who were opposed to contraception also sets them apart from the pace-setters in contraceptive adoption such as the Kikuyu and Embu/Meru groups.

The contraceptive behaviour pattern of the Somali/other ethnic group differs somewhat from those of the other ethnic communities, particularly in the relatively high discontinuation rates among them as well as their relatively lower rates of contraceptive knowledge. This category comprises mainly pastoral and nomadic communities whose life-styles are characterized by constant movement in search of pasture and water for their cattle. It is conceivable, therefore, that such communities would be more difficult to reach with family planning services and, when reached, would be virtually impossible to retain as contraceptive adopters. This may be the explanation for the relatively high contraceptive discontinuation rate among their women. Other writers (Ayiemba, 1988) have also observed relatively low completed fertility levels among nomadic communities in Kenya and speculated that such behaviour may be due to late marriage for males in such communities who must accumulate enough cattle for brideswealth before marriage.

It may be concluded that, overall, ethnic variations in the contraceptive behaviour of ever-married Kenyan women were dominated by two distinct patterns—one that reflected clear evidence of a contraceptive transition, and the other in which such a transition was at best equivocal. The first group was typified by the Kikuyu, Kamba and Embu/Meru and was characterized by relatively low proportions of never-users not intending to adopt contraception in future; relatively few past users with no intentions of resuming the use of contraceptives, and relatively large proportions of current users. The
second group was exemplified by the Luo and Mijikenda/Swahili communities and characterized by very low current use of contraceptives, high proportions of never-users not intending to adopt contraception (Mijikenda/Swahili being an exception here) as well as relatively high proportions of women without knowledge of contraceptives (excepting of the Luo).

It is inherent in bivariate analyses that they permit us little confidence as to whether the observed relationships are real or spurious. So, although almost all the explanatory variables were significantly correlated with most of the contraceptive statuses, it cannot be determined as yet whether the observed associations would persist in multivariate models when controls are introduced. The rest of this chapter discusses the multivariate techniques used in subsequent analysis, reports the findings of the multivariate models and discusses the findings of this dissertation.

6.2 MULTIVARIATE ANALYSIS

6.2.1 Modelling Communication Exposure and Culture

Two measurement issues dictated the choice of multivariate techniques for this study. The first was dichotomous measurement of the dependent variable; also, most explanatory variables were operationalized dichotomously or polychotomously. The second issue related to the need to meaningfully interpret and draw practical inferences from estimated coefficients. These issues are briefly discussed to delineate more clearly the analytical techniques used.
6.2.2 The Logit Model

When the response variable is binary, the analytical technique of choice in sociological and demographic studies is the logistic regression model because of its ability to describe relationships between response probabilities and explanatory variables. The model is also appropriate for making predictions about the likelihood of outcomes given a set of covariates. Cox and Snell (1989), Agresti (1989), Hosmer and Lemeshow (1989) and Bishop et al. (1975) provide detailed discussion of the logistic regression model and its methodology. It has been widely used in demography, especially in studying determinants of population change such as fertility and contraceptive use (Njogu, 1991; Tan and Tey, 1994; Westoff and Rodriguez, 1993).

The logistic regression model belongs to a class of log-linear models in which the link function, \( g(x) \), of the mean response \( E(Y|X) = \pi(x) \) is assumed to be linearly related to explanatory variables as in the following equation:

\[
g(x) = \ln \frac{\pi(x)}{1 - \pi(x)} = \alpha + \beta'x \tag{1}
\]

where \( \alpha \) is a vector of intercept parameters, \( \beta \) is a vector of slope parameters, and \( x \) is a vector of explanatory variables. In particular, \( g(x) \) which is a logit transformation of \( \pi(x) \), is the function of interest in logistic regression because it has the desirable properties of being linear in its parameters, continuous or dichotomous, and may range
from minus to plus infinity depending on the range of \( x \). Moreover, with a binary response variable, the conditional distribution of the error term, \( \varepsilon \), is binomial such that for \( y = 1 \), \( \varepsilon = 1 - \pi(x) \) with probability \( \pi(x) \), and for \( y = 0 \), \( \varepsilon = -\pi(x) \) with probability \( 1 - \pi(x) \). Therefore, the distribution of \( \varepsilon \) has mean 0 and variance \( \pi(x) [1 - \pi(x)] \) rather than constant (Hosmer and Lemeshow, 1989, Cox and Snell, 1989, Netter et al., 1989). Hence, the conditional mean of the regression equation must be bounded between 0 and 1, a constraint which the logistic regression model satisfies.

The model is defined in terms of the logit by the following equation:

\[
\pi(x) = \frac{\exp[g(x)]}{1 + \exp[g(x)]} = \frac{\exp(\beta'x)}{1 + \exp(\beta'x)}
\]

(2)

where \( \pi(x) \) is a vector of conditional response probabilities given a vector of \( x \) explanatory variables, \( g(x) \) is a vector of logit transformations of \( \pi(x) \), and \( \beta \) is a vector of estimated slope parameters. Numerical search procedures are used iteratively to obtain solutions for the following likelihood equations that yield the parameters of the logistic regression model by the maximum-likelihood method:

\[
\sum_{i=1}^{n} Y_i - \sum_{i=1}^{n} \frac{\exp(b_0 + b_1x_i)}{1 + \exp(b_0 + b_1x_i)} = 0
\]

(3)

\[
\sum_{i=1}^{n} X_i Y_i - \sum_{i=1}^{n} \frac{X_i \exp(b_0 + b_1x_i)}{1 + \exp(b_0 + b_1x_i)} = 0
\]

(4)

Accordingly, selected coefficients are those that make observed results the most likely.
6.2.3 Interpretation of the Fitted Logit Model

The question of interest in the interpretation of estimated coefficients is what they tell us about our research problem. Since the interest in this study is on the meaning of slope coefficients, the primary task of modelling was to determine the link function, namely, the function of the dependent variables that yields linear functions of the independent variables (McCullagh and Nelder, 1983; Hosmer and Lemeshow, 1989). Fortunately, as specified in equation (1), in logistic regression that link function is the logit transformation, \( g(x) \), of the conditional mean, \( \pi(x) \) (Netter et al., 1989).

For dichotomous independent variables, the odds of the outcome variable being present among individuals with \( x = 1 \) is \( \pi(1) / [1 - \pi(1)] \), while the odds of the outcome being present among those with \( x = 0 \) is \( \pi(0) / [1 - \pi(0)] \). In terms of odds, the logit \( g(x) \), is defined as:

\[
 g(1) = \ln \frac{\pi(1)}{[1 - \pi(1)]} \tag{5}
\]

for \( x = 1 \) and

\[
 g(0) = \ln \frac{\pi(0)}{[1 - \pi(0)]} \tag{6}
\]

for \( x = 0 \). The ratio of the odds, denoted \( \psi \), for \( x = 1 \) to the odds for \( x = 0 \) is defined as:

\[
 \psi = \frac{\pi(1)/[1 - \pi(1)]}{\pi(0)/[1 - \pi(0)]} \tag{7}
\]

and the log of the odds ratio, or log odds, is defined as:
\[ \ln \psi = \ln \left[ \frac{\pi(1) / \left[ 1 - \pi(1) \right]}{\pi(0) / \left[ 1 - \pi(0) \right]} \right] \]  

(8)

It can be shown that for dichotomous independent variables, \( \psi = e^{\beta' x} \) and the log odds, \( \ln(\psi) = \ln \left[ e^{\beta' x} \right] = \beta' x \) (Hosmer and Lemeshow, 1989:41), demonstrating that coefficients of the logistic regression model are directly interpretable.

As a measure of association and prediction, the odds ratio approximates how much more likely or unlikely for the outcome to be present among those with \( x = 1 \) than among those with \( x = 0 \). In demography, the popularity of the logistic regression model rests on the fact that the odds ratio, \( \psi \), approximates the quantity, relative risk, \( \eta \), that is commonly estimated in proportional hazards models and other life-table-based estimation techniques. The approximation, \( \psi = \eta \left[ 1 - \pi(0) \right] / \left[ 1 - \pi(1) \right] = 1 \), holds especially when \( \pi(x) \) is small for \( x = 1 \) and \( x = 0 \) (Hosmer and Lemeshow, 1989).

Modelling polytomous independent variables requires the formation of appropriate sets of design variables to represent the categories of the variables. In this analysis, reference cell coding was used to create dummy variables. In such a coding scheme all design variables are set equal to zero for the reference category and 1 for each of the other groups. Consequently, the effects of each category of the independent variable on the dependent variable are interpreted in relation to those of the reference category. Estimation of coefficients, hypothesis testing, and model building were done using SPSS-X LOGISTIC procedure, with forward selection and backward elimination techniques to yield the most parsimonious modelling of the data. Point estimates greater than unity
mean that the odds for the outcome to be present are increased relative to the reference category; those less than unity imply that the odds are decreased. The focus in interpreting the findings is on odds ratio estimates printed in the last columns of the following tables.

6.3 MULTIVARIATE RESULTS

In addition to the explanatory variables discussed under bivariate findings, the following multivariate results include the effects the three underlying dimensions of reproductive culture, namely, past demographic experience, socio-economic conditions and ideational factors derived from factor analysis in Chapter Five.

The results of bivariate analyses indicated that the causal direction of mass media exposure effects appeared to differ by respondents' contraceptive experience, particularly with regard to future intentions. For instance, the proportions of never-users intending to contracept in future seemed to decline with additional channels of mass media exposure, and so were the proportions of those not intending to contracept. On the other hand, additional mass media exposure seemed to impact future intentions of past users positively whether or not they intended to use contraceptives. Whereas it may be argued that mass media exposure impact varied along the contraceptive behaviour scale, such an outcome raises the important substantive question relating to determinants of attitudes toward future contraceptive use.
6.3.1 Correlates of Lack of Contraceptive Knowledge

Table 6.6 shows logit estimates of the likelihood of not knowing a contraceptive method. Model 1, "the cultural model," contains only the socio-cultural factors that had significant effects on not knowing a contraceptive method and does not take into account social communication and motivational factors. Model 2 is the "best" full model containing all the explanatory variables with significant effects on the outcome variable.

Religion, ethnic group membership, past demographic experience (the most important components of which are age at first birth, age at first marriage, number of children ever born, and child mortality experience), as well as ideational factors (whose most important elements are spousal communication, educational attainment, literacy, ideal number of children, and husband's approval of family planning) all had significant effects on contraceptive knowledge. That is, without adjusting for the effects of communication exposure, prior demographic experience was associated with 33.0 per cent higher odds for not knowing a method (i.e., .33*100) and ideational factors with 65.0 per cent lower odds (1-0.35*100), while socio-economic factors were statistically insignificant. The model also shows that the effect of religion was to lower the likelihood of having no contraceptive knowledge by 58.0 per cent for Catholics, 63.0 per cent for Protestants and 67.0 per cent for Muslims relative to women with traditional or no religious affiliation.

Compared to the Luo, belonging to the Kalenjin group raised the odds of not knowing a contraceptive method by a factor of 3.3 (or 330.0 per cent); on the other hand
being a Kisii reduced such odds by 70.0 per cent (1-0.30*100). The likelihood of not knowing a contraceptive was significantly higher only for the Kalenjin and the Somali/other group and lower for the Kikuyu, Kisii and Mijikenda/Swahili women relative to Luo women. These findings confirm the results of bivariate tables which showed relatively lower contraceptive knowledge among Kalenjin and Somali/other communities and higher knowledge among the Kikuyu and Kisii. The surprising result is the relatively lower odds for not knowing contraceptives among the Mijikenda/Swahili communities: no doubt the bivariate results for these groups reflected the effects of intervening factors such as religion, socio-economic conditions and the local ideational order.

Turning to model 2, as expected all social communication factors other than membership of women’s associations (eliminated during model building) had strong negative effects on lack of contraceptive knowledge. Exposure to family planning information through radio lowered the odds for not knowing a method by 64.0 per cent relative to non-exposure (1-0.36*100). Additional exposure through the print media virtually eliminated lack of knowledge reducing its likelihood by 95.0 per cent while exposure through all the three channels lowered such odds by about 50.0 per cent relative to non-exposure. At the same time, women who were exposed through friends and relatives were 74.0 per cent less likely not to know a method than those not exposed (1-0.26*100).

<table>
<thead>
<tr>
<th>Explanatory Variable</th>
<th>1. CULTURAL MODEL</th>
<th></th>
<th>2. FULL MODEL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \beta )</td>
<td>S.E. (( \beta ))</td>
<td>Ratio</td>
<td>( \beta )</td>
</tr>
<tr>
<td>Mass media exposure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Radio</td>
<td>-1.0138***</td>
<td>.1967</td>
<td>.3628</td>
<td></td>
</tr>
<tr>
<td>2. Radio/print</td>
<td>-2.9728**</td>
<td>.9014</td>
<td>.0512</td>
<td></td>
</tr>
<tr>
<td>3. Radio/print/tv. (Not exposed)</td>
<td>-.7032</td>
<td>.8185</td>
<td>.4950</td>
<td></td>
</tr>
<tr>
<td>Friends/relatives (Not exposed)</td>
<td>-1.3540***</td>
<td>.1959</td>
<td>.2582</td>
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<tr>
<td>Religion</td>
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<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>-.8586**</td>
<td>.2442</td>
<td>.4237</td>
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<td>Protestant</td>
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<td>.2397</td>
<td>.3723</td>
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<td>Muslim</td>
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<td>.4105</td>
<td>.3304</td>
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<td>Ethnicity</td>
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<td>Kalenjin</td>
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<td>.1981</td>
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</tr>
<tr>
<td>Kikuyu</td>
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<td>.3048</td>
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<td>Kisii</td>
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<td>.5886</td>
<td>.3025</td>
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<td>Luhyia</td>
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<td>.2000</td>
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<td></td>
</tr>
<tr>
<td>Somali/Other</td>
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<td>.2328</td>
<td>1.9715</td>
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<tr>
<td>Meru/Embu</td>
<td>.4115</td>
<td>.2903</td>
<td>1.5090</td>
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<tr>
<td>Mijikenda/Swahili</td>
<td>-.7764*</td>
<td>.3389</td>
<td>.4600</td>
<td></td>
</tr>
<tr>
<td>(Luo)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demographic experience</td>
<td>.2825**</td>
<td>.0829</td>
<td>1.3264</td>
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<tr>
<td>Socioeconomic factors</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ideational factors</td>
<td>-1.0620***</td>
<td>.0751</td>
<td>.3458</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
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<td>.3362</td>
<td>-.9401**</td>
<td>.3026</td>
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<tr>
<td>-2 Log Likelihood ( \chi^2 )</td>
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<td></td>
<td>1010.116</td>
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<tr>
<td>Goodness-of-Fit ( \chi^2 )</td>
<td>4807.069</td>
<td></td>
<td>1999.724</td>
<td></td>
</tr>
</tbody>
</table>

Notes: \( \alpha = * \leq .05 \), \( ** \leq .005 \), \( *** \leq .0001 \). Reference categories are in parentheses. Controlled for age effects.

These results confirm the findings of bivariate analysis and suggest that exposure to family planning through radio and the print media was relatively more important for these women than either exposure through radio alone or exposure through all the three channels of mass media communication. Further, in this low literacy, low mass media developing society, interpersonal networks such as friends and relatives appear to have been just as important for family planning communication as modern mass media.
Inclusion of social communication in the analysis rendered religion and demographic experience insignificant, but made socio-economic conditions important for contraceptive knowledge; it also enhanced the effects of ideational factors from 35.0 per cent to 50.0 per cent. At the same time, ethnic variations were reduced. Significantly, Kisii and Mijikenda/Swahili women were no longer significantly different from Luo women in contraceptive knowledge but, compared to Luo women, Kalenjin women were now 2.5 times and women from the Somali/other group about twice as likely not to know a method. On the other hand, Kikuyu women were 73.0 per cent less likely not to know a method than Luo women.

Meanwhile, the social conditions of the women were associated with a 27.0 per cent rise in the likelihood of their not knowing a contraceptive method, but extant ideational factors lowered such a likelihood by 50.0 per cent. On the whole, controlling for mass media exposure enhanced the salience of socio-economic conditions and ideational factors, eliminated those of religion, and attenuated the effects of ethnic group membership on contraceptive knowledge.

It is noteworthy that neither desire for children, attitude toward pregnancy, employment status, nor polygyny were important factors for knowledge of contraceptives among this sample of Kenyan women and, consistent with this, neither were their demographic experiences when the other factors were accounted for.

6.3.2 Correlates of being a Never-User Not Intending to Contracept

Of great policy and programmatic interest, perhaps, are factors contributing to
reluctance to accept even the idea of contraception in future and, by extension, limitation of family size. Moreover, such factors are central to the theoretical debates around the fertility transition in LDCs, particularly in sub-Saharan Africa. Table 6.7 shows the relationships between some of those factors and being a never-user not intending to adopt contraception. Model 1 shows that they included religious affiliation, ethnicity, past demographic experience, ideational factors and age; model 2 shows that in addition, the mass media and the motivational factors of desire for children and attitudes toward being pregnant were important predictors on never-use of contraceptives. Since the patterns of association between the outcome variable and explanatory factors did not change substantially with the inclusion of mass media and motivational factors, the focus is placed on model 2 as Table 6.7 is interpreted. It is important to note, nevertheless, that taking into account mass media exposure attenuated significantly the effects of religion and ethnicity, rendered insignificant the effect of past demographic experience, and enhanced the effect of ideational factors on the likelihood of being a never-user not intending to adopt contraception.

Model 2 suggests that frequency of exposure to family planning information, as expected, progressively reduced the odds for being a never-user not intending to use contraceptives. For instance, while exposure to family planning information through radio alone was positively, though insignificantly, associated with the likelihood of being a never-user not intending to contracept, exposure through radio and newspapers appeared to reduce such odds even though its effect was not statistically significant. However, exposure through the three mass media together lowered the odds for being a never-user

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-2 Log Likelihood $\chi^2$  
Goodness-of-Fit $\chi^2$

|                   | 4353.215 | 2629.431 |
|                   | 4656.783 | 2354.882 |

Notes: * $\alpha$ $\leq$ .05, ** $\alpha$ $\leq$ .005, *** $\alpha$ $\leq$ .0001. Reference categories are in parentheses. KDHS 1989 data.
not intending to use contraceptives by 47.0 per cent (1-0.53*100) relative to unexposed women. This outcome is consistent with bivariate results and the theoretical expectation that frequent exposure to mass media messages may persuade people against their originally held positions.

As expected, women who wanted to stop childbearing were 43.0 per cent, and those with spacing intentions 22.0 per cent less likely to be never-users with no intention of using contraceptives in future than those who wanted to have a child soon. Consistent with this, women who were happy to be pregnant were 46.0 per cent more likely to be never-users not intending to use contraceptives than those for whom becoming pregnant didn't matter. Meanwhile, Catholics were more than twice as likely to be never-users with no intentions of using contraceptives in future as women with traditional or no religions while Protestants were 73.0 more likely to be in the same category. These results demonstrate the force of religion and its potential influence on reproduction.

With regard to the effect of ethnicity, there was generally a tendency for Luo women to be more likely to be never-users with no intention of using contraceptives than those from the other groups, with the exception of the Mijikenda/Swahili who were more than twice as likely to be never-users opposed to contraceptive use than the Luo. On the other hand, Kalenjin women were the least likely to be in the same category with an odds ratio of .44. While past demographic experience was not statistically important when mass media exposure effects were controlled for, ideational factors reduced the odds for being a never-user with no intention to use contraceptives by 26.0 per cent.

The strongest determinant of being a never-user with no intention of using
contraceptives appears to have been age. The odds for being in this category were lowest for younger age cohorts of women relative to those in the 45-49 age group. For instance, the likelihood that a woman in the 15-19 age group was a never-user with no intention of using a contraceptive was only 11.0 per cent while for those in the 35-39 age group it was 46.0 per cent relative to women in the 45-49 age group. These results tend to support the argument that ever-married Kenyan women rationally considered their reproductive desires and considered contraceptive use as an option only when they thought those desires would have been met. Consequently, the single most important factor impeding widespread adoption of contraceptives and, hence, faster decline in marital fertility appears to be the high proportion of young wives in the population most of whom, though not opposed to contraception, might have postponed contraceptive use until after achievement of desired family sizes.

6.3.3 Correlates of being a Past User Not Intending to Contracept

Model 1 of Table 6.8 shows that apart from age, religion and ethnicity were the only significant correlates of being a past user with no intention of using contraceptives. Taking mass media into account (model 2) enhanced the effects of religious affiliation, changed the direction and magnitude of associations with some ethnic groups, and made ideational factors significant for past users not intending to contracept.

For instance, in model 1 the effect of belonging to the Meru/Embú group was to increase three times the odds for being a past user not intending to use contraceptives relative to being Luo, and belonging to the Somali/other group to reduce by 65.0 per
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-2 Log Likelihood $\chi^2$ | 1992.149 | 1242.868 |
Goodness-of-Fit $\chi^2$   | 4725.507 | 2269.383 |

Notes: $a = * \leq .05$, $** \leq .005$, $*** \leq .0001$. Reference categories are in parentheses. KDHS 1989 data.

The odds for being in the same category; in model 2 the effect of belonging to Meru/Embu group is not statistically different from being Luo whereas belonging to Somali/o her group triples likelihood of being a past user with no intention of using contraceptives later. Again, in model 1 the Kamba and Luo were not statistically different but in model 2 belonging to the Kamba group raised the odds for being a past user not
intending to contrasept by 75.0 per cent relative to being Luo. Overall, however, ethnic variations on being past users with no intention to use contraceptives were not very strong.

Women who were exposed through radio alone and radio and the print media were, respectively, 37.0 per cent and 72.0 per cent more likely to be past users not intending to use contraceptives, while those that were exposed through radio, the print media and television were more than three times as likely to be in the same category relative to non-exposed women. Thus, the mass media appear to have cumulatively increased the odds for being past users not intending to use contraceptives, just the opposite of mass media exposure effects on the likelihood of being a never-user not intending to use contraceptives as Table 6.7 indicates.

Meanwhile, the effects of religion were strong and negatively related to being a past user with no intention of using contraceptives. Being Catholic reduced the odds for being a past user opposed to future contraception by 80.0 per cent, being Protestant by 76.0 per cent and being Muslim by 79.0 per cent relative to those with traditional or no religion. This is a surprising result, given that religious affiliation had a very strong positive correlation with being a never-user not intending to use contraceptives. Significantly, ideational factors were strongly associated with being a past user not intending to contrasept, raising the odds for being in this category by 50.0 per cent in sharp contrast to their impact on the likelihood of being in the category of never-users with no intention to contrasept where they lowered the odds by 27.0 per cent. On the other hand, even without controlling for communication effects, the women's
reproductive experience and socio-economic conditions were not significantly associated with being a past user with no intention of using contraceptives as was the case for being a never-user with similar orientation.

The pattern of the effects of age on past users with no intention to use contraceptives was very similar to that on never-users with no intentions of contracepting. Compared to women aged 45-49, younger women were less likely to be past users opposed to future contraceptive use. For instance, while women aged 15-19 were on average 87.5 per cent less likely to be past users with no intention of using contraceptives as those aged 45-49, women aged 40-49 were only 46.0 per cent less likely to be in the same category. It seems, therefore, that being a past user with no intention to use contraceptives had a lot to do with family building desires of younger women who probably thought that contraceptive use was inconsistent with achieving such desires. However, those among them who had some previous experience with contraception probably realized that it may not be so bad after all to consider resuming contraceptive use after achieving their family building aspirations as the age affects in Table 6.7 further illustrate.

6.3.4 Correlates of being a Never-User Intending to Contracept

An important question for policy and programming in family planning is what would make never-users adopt contraceptive practice in future. Table 6.9 shows logit estimates of the likelihood of being a never-user intending to use contraceptives in future.
Model 1 shows that without controlling for the effects of social communication and motivational factors, ethnic group membership, socio-economic conditions, employment status and ideational factors as well as age were significantly related to the likelihood of being a never-user intending to use contraceptives. Apart from Luhya women who had higher probabilities of being never-users intending to use contraceptives, women from most of the other ethnic groups other than the Kalenjin and Kisii were less likely to be in the same category relative to Luo women.

Again, these findings largely confirm the results of bivariate analysis except for those relating to Mijikenda/Swahili and Luhya communities. At the same time, the women’s socio-economic conditions lowered the odds for their being never-users intending to use contraceptives in future by 14.0 per cent. Meanwhile, women who were employed were 52.0 per cent less likely to be never-users intending to use contraceptives than those who were not working.

As model 2 shows, mass media exposure seemed to have played a relatively minor part in forging positive attitudes toward contraception among never-users intending to contrasept. In fact, the more frequent the mass media exposure the lower were the odds for being a never-user intending to use contraceptives. Consequently, while exposure through radio and the print media had no significant influence, women who were exposed through all the three mass media channels were 62.0 per cent less likely to be never-users intending to use contraceptives than unexposed women (1-0.38*100). On the other hand, the interpersonal networks of friends and relatives appear to have been very important for never-users intending to use contraceptives in future. Thus

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-2 Log Likelihood $\chi^2$ 4900.756 2677.325
Goodness-of-Fit $\chi^2$ 4750.723 2455.557

Notes: $\alpha = * \leq .05$, ** $\leq .005$, *** $\leq .0001$. Reference categories are in parentheses. KDHS 1989 data.
women who were exposed to family planning information through this channel were 87.0 per cent more likely to be never-users intending to use contraceptives than those who were not.

As predicted, desire for children was also an important positive influence for the women: women who wanted to stop childbearing were 79.0 per cent more likely to be never-users intending to use contraceptives than those who wanted to have a child soon, while the odds for those who wished to delay the next birth for over two years were 65.0 per cent higher. Consistent with this observation, women who were happy to be pregnant were 36.0 per cent less likely to be never-users intending to use contraceptives than those for whom becoming pregnant didn't matter.

These results suggest that even in this predominantly rural society with low educational attainment for women, reproductive decisions were made rationally on the basis of future aspirations. That is, reproductive decision making appeared to be within the calculus of conscious choice (Coale, 1963), if not in terms of long term contingencies assumed by subjective expected utility theories of reproductive behaviour (Becker, 19965, 1976; Becker and Lewis, 1973; DeTray, 1973) then, certainly, in terms of perceived values of children to parents (Arnold et al., 1975; Fawcett and Arnold, 1973; Fawcett, 1983).

The addition of social communication into the model did not alter significantly the ethnic variations on being a never-user intending to use contraceptives other than the effect of being Kalenjin or of being Meru/Embu as comparison of models 1 and 2 indicates. Compared to the Luo, belonging to the Kalenjin community now raised the
odds for being a never-user intending to use contraceptives by 67.0 per cent while the
difference between Meru/Embu and Luo ethnic groups in the bivariate table and in the
cultural model in Table 6.9 was apparently a factor of exposure to family planning
information and motivation. The only other ethnic entity with higher odds for being
never-users intending to use contraceptives was the Somali/other group; women from the
remaining ethnic groups were all less likely to be never-users intending to use
contraceptives than Luo women.

Future reproductive intentions of the women also differed by type of marital
union, with women in polygynous unions being 43.0 per cent less likely to be never-users
intending to use contraceptives in future than those who did not state their marital union
type. This is a reversal of the bivariate results where a higher proportion of women in
polygynous unions than in monogynous unions were in the category of never-users
intending to adopt contraception.

On the other hand, age was probably the most important determinant of future
contraception intentions, whether or not social communication and motivational
influences were taken into account. As expected, the younger the women the more likely
they were to be never-users intending to use contraceptives in future. As model 2 shows,
women aged 15-24 were more than 18 times as likely to be never-users intending to use
contraceptives later as those aged 45-49, but the likelihood of being in this category
declined monotonically with increasing age. This suggests that, in general, contraceptive
use may have been associated more with family-building desires of these women than
with pregnancy-free sexual conduct. It is also noteworthy that controlling for the effects
of social communication and motivational factors substantially enhanced the effects of age, suggesting the salience of cohort effects as differentials due to access to information are taken into account.

6.3.5 Correlates of being a Past User Intending to Contracept.

Table 6.10 displays logit estimates of the probability of being a past user intending to use contraceptives. Model 1 shows that religion, ethnicity, socio-economic conditions, ideational factors and age were important correlates of being past users intending to contracept. The only significant religious effect though was that of being Muslim which doubled the odds for being a past user intending to use contraceptives. This effect was in the expected direction based on the bivariate results, but its strength was surprising given that there was no significant association between being in this category and religious affiliation in bivariate results.

Meanwhile, whereas Kisii, Meru/Embu, a Somali/other women were, respectively, 51.0 per cent, 50.0 per cent and 48.0 per cent more likely to be past users intending to use contraceptives than Luo women, Mijikenda/Swahili women were 55.0 per cent less likely to be in the same category, reflecting a substantial change on the bivariate results. On the whole, ethnic variations on the likelihood of being past users intending to contracept were not very strong. Socio-economic conditions lowered the odds for being a past user intending to contracept by 14.0 per cent while ideational factors raised the odds for being in the same category by 73.0 per cent without
controlling for mass media effects. This is in contrast to the effects of ideational factors on the likelihood of being a never-user intending to contracept where they lowered the odds by 52.0 per cent without social communication and motivation controls (Table 6.9).

In contrast to being a never-user with contraception intentions, mass media exposure to family planning information had strong positive effects on the probability of being a past user intending to use contraceptives. The odds for exposure to family planning information through radio alone on the likelihood of being a past user intending to use contraceptives were 68.0 per cent higher than for non-exposure; exposure through radio and the print media more than doubled the odds while exposure through all the three channels raised the odds for being in the same category by a factor of 2.8. Again in contrast to being a never-user intending to use contraceptives, interpersonal networks had no significant influence on the probability of being a past user intending to contracept later, ceteris paribus. Meanwhile, inclusion of mass media exposure into the model rendered socio-economic conditions statistically unimportant for predicting the likelihood of being a past user with contraception intentions.

However, the influence of religious affiliation was positive and substantial with mass media effects controlled for. This is in contrast to the case for being a never-user intending to contracept where religion had no significant influence. There is some indication, however, that belonging to Catholic religion reduced the likelihood of being a past user intending to contracept in contrast to those with traditional or no religion though the relationship is within the margin of sampling error. However, compared to women with traditional or no religious affiliation, Muslims were about 2.8 times and
Protestants 2.5 times more likely to be past users intending to use contraceptives.

However, unlike for being a never-user intending to use contraceptives, desire for children and attitude toward pregnancy, surprisingly had no significant association with the likelihood of being a past user with similar intentions.


<table>
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<th>Explanatory Variables</th>
<th>1. CULTURAL MODEL</th>
<th>2. FULL MODEL</th>
</tr>
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<tr>
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Notes: * p < .05, ** p < .005, *** p < .0001. Reference categories are in parentheses. KDHS 1989 data.
It is also evident that taking into account the influence of the mass media enhanced the effects of ideational factors on the likelihood of being a past user with the intention of using contraceptives. Thus, ideational factors raised odds for being in this category by about 220.0 per cent with mass media influence controlled for compared to 73.0 per cent otherwise. In contrast, the impact of ideational factors on being a never-user intending to use contraceptives was relatively weak and in the opposite direction, reducing the odds for being in the category by 11.0 per cent.

As was the case for never-users intending to use contraceptives, being a past user intending to use contraceptives was strongly related to age. The odds for being in this class were high and positive for younger women in the peak family-building ages 15-34 but declined from around age 35 onwards in contrast to women aged 45-49. These age effects were practically independent of the influence of the mass media as comparison of point estimates for age effects in models 1 and 2 indicates.

Overall, these results suggest that information, communication and education (IEC) programmes can influence contraceptive behaviours irrespective of socio-economic, demographic, and ethnic circumstances. They also indicate that a strong ideational culture already existed in Kenya in 1989 that was generally amenable to contraceptive use, at least for past contraceptive users and suggest that some, if not all, of Coale’s (1963) preconditions for the onset of the fertility transition had been met. Evidence of the conservatism of Christianity in Kenya, exemplified by the well-known Catholic church’s anti-family planning position, is also discernible from these findings: without taking into account the impact of mass media exposure, the effect of being Catholic on the likelihood
of being a past user intending to resume contraception is negative (though not statistically significant). On the other hand, being Muslim was strongly and positively associated with being a past user intending to resume contraception, underscoring the fact that Kenyan Muslims have not generally adopted fundamentalist doctrines (Mzrui, 1986) with respect to reproductive behaviours.

6.3.6 Correlates of Current Contraceptive Use

According to diffusion theory, current use of contraceptives represents the completion of behavioral change and, doubtless, constitutes the object of family planning programmes in developing countries. In fact, as stated in Chapter Two, the fertility transition theory may be stated in terms of a change from non-contracepting to contraceptive behaviour (Handwerker, 1986). Therefore, the findings in Table 6.11 on the correlates of current contraceptive use are of great theoretical and policy interest.

Since addition of social communication and motivational factors in the analysis did not alter substantially the estimates for the determinants of current contraceptive use, the following interpretation focuses on model 2 of Table 6.11. It is worth noting, however, that Protestants were significantly more likely to be current contraceptive users, being 51.0 per cent more likely to be using them than women with traditional or no religion when social communication and desire for children were not controlled for.

Having said that, it is clearly evident that even after adjusting for the effects of the other factors in the model, women who were exposed to family planning information
through the mass media were significantly more likely to be current contraceptive users than the non-exposed, with the effects of the mass media increasing with intensity of exposure. Accordingly, women who were exposed to radio were 49.0 per cent more likely to be currently using contraceptives than the non-exposed; the odds for current use for women who were exposed to radio and the print media were 61.0 per cent higher, while those for exposure to all the three mass media channels were 66.0 per cent higher than the odds for the non-exposed. Moreover, exposure through friends and relatives was just as effective: the odds for current use for women who heard about family planning through friends and relatives were 79.0 per cent higher than those for women not exposed through this medium. Therefore, in terms of policy, it is important to explore the possibilities of increased utilization of such interpersonal communication networks for family planning campaigns.

Current contraceptive use was strongly influenced as well by desire for children. Women who wished to stop childbearing were 2.3 times more likely to be currently using contraceptives than those who wanted to have a child soon. Similarly those who wanted to delay the next birth for more than two years were 92.0 per cent more likely to be currently using contraceptives. Hence, both stopping and spacing intentions were important motivations for current contraceptive use among ever-married Kenyan women. Consistent with the bivariate results, current contraceptive use also varied widely by ethnic group membership. Whereas current use among women from all the groups in the study were significantly higher than for Luo women, ceteris paribus, the odds for current

<table>
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-2 Log Likelihood $\chi^2 = 4533.378$  
Goodness-of-Fit $\chi^2 = 4506.757$

Notes: $* = .05, ** = .005, *** = .0001$. Reference categories are in parentheses. KDHS 1989 data.
use for Kamba, Kikuyu, and Meru/Embu women were notably much higher, over four times higher. Meanwhile, consistent with theoretical expectation, labour force participation was an important factor in current use, with working women being 52.0 per cent more likely to be current contraceptors than unemployed women. At the same time, whereas socio-economic conditions were associated with 20.0 per cent higher odds for current contraceptive use, ideational factors raised such odds by 81.0 per cent. On the other hand, past reproductive experience was not significantly important for current use of contraceptives even in models without communication controls (model 1).

However, contrary to previous findings by others for currently married women in Kenya (Westoff and Rodriguez, 1993), this study finds neither religious affiliation nor nuptiality patterns to be significant correlates of current contraceptive use among ever-married Kenyan women when the effects of communication exposure are accounted for. However, in the cultural model religious affiliation was correlated with current contraceptive use, albeit somewhat weakly. In fact, only being Protestant had significant effects on current contraceptive use, raising the odds by 51.0 per cent relative to membership of traditional or no religion. Although not statistically significant, being Muslim appeared to lower the odds for current contraceptive use.

The probability of current contraceptive use was lowest for the younger cohorts of women and highest for those aged 30 years and above. Thus, whereas the likelihood of current contraceptive use for women aged 15-29 was not significantly different from those aged 45-49, it was 64.0 per cent higher for women aged 30-34 years and only slightly lower for those aged 35-39. This age pattern of contraceptive use is consistent
with desire to stop childbearing by older women who have achieved their desired family size. It is also typical of populations in the early stages of the fertility transition still characterized by a rising tempo of childbearing from menarche to approximately age 30 (Handwerker, 1986).

6.6 DISCUSSION

These results confirm the findings of previous studies which have shown that contraceptive knowledge is widespread in Kenya (NCPD and IRD, 1989, 1993; Westoff and Rodriguez, 1993). But this study also finds that knowledge increases with additional channels of exposure thereby refuting the contention by some authors that because radio is the most accessible medium in developing societies it is necessarily the most effective channel for communicating social change and development (e.g. Rogers, 1973; Ansah, 1979; Ayensu, 1984). In fact, this study shows that interpersonal communication channels of exposure such as friends and relatives may be just as effective for contraceptive knowledge gain and current use.

An important finding was that mass media exposure and ideational factors had consistent impacts on contraceptive status. Greater media exposure reduced the likelihood that a woman would be in a low contraceptive status (i.e., having no contraceptive knowledge or knowing but never using a contraceptive method), and increased the probability that higher proportions of women would be in higher contraceptive statuses (namely, past and current users). Similarly, ideational factors reduced the probability that
the women were in low contraceptive statuses and increased the likelihood of their being in high contraceptive statuses. This finding provides strong confirmation of the theories linking mass media exposure and ideational factors with reproductive innovation. We discuss this finding further later on in this section.

The effects of exposure through the mass media as well as friends and relatives remained strong and in the expected direction even in multivariate analysis when the influence of other explanatory variables were controlled for. The influence of women's association membership in increasing contraceptive knowledge, on the other hand, though evident in bivariate analysis did not persist in multivariate analysis and might have been spurious. However, in a multivariate model containing only communication exposure factors with controls for age and education (not shown), membership of women's associations was positively and significantly related to contraceptive knowledge and current use as expected. Consequently the implications of using such networks for family planning campaigns remain unclear.

Logistic regression estimates show that exposure through radio alone reduced ignorance about contraceptives by 64.0 per cent while exposure through radio and newspapers reduced it by 95.0 per cent; exposure through friends and relatives reduced such ignorance by 74.0 per cent. This latter finding provides empirical confirmation for the hypothesis long advanced in development communication research in sub-Saharan Africa linking oral media to behavioral change in rural communities (Ayensu, 1984; Ugboajah, 1985, 1986; McAnany, 1980). As such, it has important policy implications for Kenya and other sub-Saharan countries with undeveloped mass media in that family
planning programmers could target such interpersonal networks for disseminating information especially in settings where access to modern mass media is limited as well as to supplement mass media efforts. Hence, a multi-media approach to IEC is clearly indicated.

Bivariate results show that contraceptive knowledge depends on women’s desire for children and on their attitude toward getting pregnant: those who want to stop or space childbearing and those who are unhappy to be pregnant are more likely to know a method than those who want to have children or those for whom pregnancy doesn’t matter. These findings are consistent with theoretical expectation since those who seriously wish to avert pregnancy may be expected to adopt active rather than passive strategies in reproductive behaviour (Bulatao and Lee, 1983)—in this case in seeking family planning knowledge through the mass media or significant others. The effects of these motivational factors were, however, not strong enough to show in multivariate models.

Contraceptive knowledge varied as well by religious affiliation with Muslims being more knowledgeable than Christians and, among Christians, Protestants being more knowledgeable than Catholics; the least knowledgeable group of women were those who had traditional or no religious affiliation, 21.4 per cent of whom knew no contraceptive method. The effect of religion was evident, though weak, as well in the multivariate cultural model, but disappeared when the effects of social communication and motivation were controlled for. In fact, without adjusting for the influences of social communication, membership of these three religious faiths reduced the odds for not knowing a
contraceptive method, suggesting no apparent constraining force of religion on contraceptive knowledge, though it could be argued that mere knowledge does not speak to attitudes held toward contraceptive use.

As expected, ideational factors among which the most important components are spousal communication, educational attainment, literacy, ideal number of children, and husband's approval of family planning lowered the likelihood that a woman did not know a contraceptive method. However, socio-economic conditions raised the likelihood of not knowing a method by 27.0 per cent reflecting, no doubt, the effects of low educational attainment of Kenyan women, their predominantly rural residence, and general poverty.

The fact that past demographic experience of the women (comprising age at first birth, age at first marriage, children ever born, and child mortality experience) raised the odds for not knowing a contraceptive method when communication effects were not controlled for reflects the force of these factors on reproductive choice in Kenya. In general, Kenyan women still tend to marry young, begin childbearing immediately thereafter and continue doing so for most of their reproductive life spans; high infant mortality in some communities, particularly among the Luo, Luhya and Mijikenda/Swahili also implies that families may be worried constantly about possible loss of children. Women living under such circumstances cannot be expected to actively seek ways of limiting births. It is not surprising, therefore, that past demographic experiences of these women became unimportant to knowledge of contraceptives when exposure factors were taken into account. This may suggest that family planning information, education and communication more or less levelled the odds for contraceptive knowledge.
across levels of demographic history.

That, however, was not the case with differences arising from ethnic group membership. The findings show that the Kalenjin and Somali/other groups were particularly disadvantaged with regard to contraceptive knowledge; on the other hand, the Kikuyu were the most advantaged. Since these ethnic groups tend to cluster in particular regions in Kenya (Omwanda, 1995), more research is needed to determine ethnic characteristics that militate against mere knowledge of contraceptive methods even when other factors have been taken into account. On the other hand, family planning services in some regions may have been particularly inadequate as suggested by others (Khasiani, 1988; Njogu, 1991).

The bivariate tables also indicate that type of marital union may influence contraceptive knowledge, but the difference seems to be spurious since it was undetectable in multivariate models; the same applies to work status. The observed differences in knowledge by type of marital union and work status at the bivariate level may, in fact, have been due to other factors.

Regarding future intentions, this study finds that the nature of the impact of mass media exposure to family planning information may differ depending on previous contraception experience of the women which, in turn, may be a factor of their composition. For instance, mass media exposure lowered the odds for being a never-user intending to use contraceptives and a never-user not intending to use contraceptives; in contrast, mass media exposure raised the odds for being a past user intending to use contraceptives and a past user not intending to use contraceptives. Similarly, the impact
of ideational factors followed the same pattern.

On the other hand, though exposure to family planning information through friends and relatives raised the probability of being a never-user intending to use contraceptives in future, it was not related to the likelihood of being a never-user not intending to use contraceptives in future, nor was it related to being a past user intending or not intending to use contraceptives. This suggests that women with no experience with contraception may, in fact, change their attitudes toward the practice by learning about contraceptives from significant others rather than the mass media, but not those who discontinued use after initial adoption.

The effect of religion also differed by respondents’ previous contraception history. Whereas belonging to Christian denominations raised the odds for being never-users opposed to contraception, being Christian or Muslim lowered the probability of being a past user not intending to use contraceptives, and raised the probability of being a past user intending to use contraceptives. That is, assuming that future adoption of contraceptives is the desired outcome, religion’s influence may be negative for those who have no experience with contraception and positive for those who have. The question is: Why should the mass media, religion, and ideational factors have opposite effects on never-users and past users? We return to this question shortly.

Meanwhile, women who wanted no more children or who wanted to delay the next birth for more than two years had higher odds for being never-users intending to use contraceptives in future and lower odds for being never-users opposed to future use as expected. Moreover, those who were happy to be pregnant had lower odds for being
never-users intending to contracept in future and higher odds for being never-users opposed to future contraceptive use. However, motivational factors had no significant influence on the likelihood of being past users with or without intentions to contracept in future, and neither was employment status, type of marital union, past demographic experience nor socio-economic conditions. Why?

Further, women in the labour force had lower odds for being never-users intending to use contraceptives than unemployed ones, while labour force participation was not a predictor of the likelihood of being a past user with or without intentions to use contraceptives. Women in polygynous unions also had lower odds for being never-users intending to use contraceptives later; at the same time, the women’s demographic experience lowered the odds that they would be never-users intending to contracept. On the other hand, the effect of socio-economic conditions was to lower likelihood of being both a never-user intending to contracept and a past user with the same intentions. These findings point to the possible reasons for observed differences in the direction of effects of the explanatory variables on never-users’ or past users’ future intentions.

It may be that past users with no intention of using contraceptives again may have stopped use in the first place because of fear of side effects. Alternatively they may have been pressured by significant others such as spouses, church ministers or other relatives to discontinue use. On the other hand, never users who expressed the same sentiments may have been expressing predispositions arising from ignorance, religious dogma or ideological convictions. Whatever their reasons, such never-users fall in the category of people whose conditions of behaviour may have been unacknowledged (Giddens, 1979,

The bases of information, education and communication (IEC) strategies of family planning programmes are social expectations and psychodynamic theories of persuasion (Miller, 1987; O'Donnell and Kable, 1982; Kline and Harman, 1976; DeFleur and Ball-Rokeach, 1989; Lowery and DeFleur, 1988). Psychodynamic theories are premised on the belief that human behaviour occurs in response to stimuli in the social environment such as desires or fears that are triggered by psychological states of individuals. But behaviours of individuals are also influenced by their biological, social and cognitive elements. Hence, strategies of persuasion which aim at manipulating either emotional or cognitive factors may set off the required responses (Kline and Harman, 1976; Johnson et al., 1973) though not with any certainty, because human conduct is always contingent upon situational factors, real and imagined.

Festinger (1957) suggested that since individuals have a basic need for consistency in their experienced world, any inconsistency of beliefs, attitudes, or behaviour will cause cognitive dissonance in those affected. In any case, sociocultural strategies of persuasion are premised on the assumption that social and cultural factors provide conducive bases as road-maps for behaviour. Such bases are the values and norms of society. It reasonable to suppose that in the real world behaviour is premised on social aspirations, psychological and ideological orientations and personality characteristics of individuals as suggested by the theory informing this dissertation. Hence, the results of this study suggest that the answer to questions raised above regarding differences between never-users and past users with respect to future contraceptive intentions may rest
primarily on compositional differences between the two population groups rather than on the content of exposure to family planning information or mere motivation to control childbearing.

Such compositional differences may mean that never-users and past users occupy different cognitive worlds where notions of sexuality and reproduction actually mean different things. Hence, the implications of what is learned from family planning campaigns may be radically different between the two groups. Compositional differences may also be the reason that expert systems that generate the ideational order of society, namely, social communication networks, religion and ideational factors (as defined in this dissertation) and, to a limited extent, socio-economic conditions, rather than demographic history were the most consistent predictors of contraceptive statuses of Kenyan women. In addition, they may explain why working women were less likely to be past users intending to use contraceptives than those who were not working.

Ocholla-Ayayo (1988) has argued that the pace of fertility decline in Kenya will depend mainly on the extent to which various cultural codes of Kenya's ethnic communities allow for extensive use of modern contraceptives. Though this is a cultural determinist argument, the ethnic composition of the women suggests that some ethnic groups such as the Mijikenda/Swahili and the Kikuyu tended to have higher proportions of never-users opposed to contraceptive use than others, e.g., the Kalenjin and Luhya. On the other hand, the Meru/Embu and Somali/other groups tended to have more past users intending to use contraceptives while others, notably the Kamba tended to have relatively higher proportions of past users opposed to future use, even though such
contraceptive experience and intentions were not necessarily reflected in ethnic pattern of actual contraceptive adoption.

Yet, contrary to theoretical expectation, whereas there may be commonalities of perception in some ethnic groups regarding contraception, it is more reasonable to suppose that attitudes toward future use of contraceptives among women in low contraceptive statuses may depend, not on their ethnicity, but largely on unacknowledged conditions of behaviour, such as ignorance or misconception of individuals with characteristics that have not been determined in this study. On the other hand, future intentions of women in higher contraceptive statuses may be formed mainly by their past experience with contraception. Moreover, ethnic groups with the highest proportions of women intending to use contraceptives in future tended also to be those among whom contraceptive prevalence was lowest (except for Kamba) while others, like the Kikuyu, who expressed more opposition to future use had among the highest contraceptive prevalence.

This interpretation suggests two further possible answers to the future intentions problem. First, it may be that as social pressure for family planning in Kenya has mounted over the decades, individuals from groups with strongly pronatalist values whose members have not began to adopt contraceptive practice in large numbers may be responding to survey questions with answers that they regard to be socially and/or politically acceptable so as to avoid real or imagined official censure (the cultivation argument); on the other hand, non-adopters from ethnic groups with high contraceptive prevalence may simply be ideologically opposed to family planning. Ahlberg (1991)
reports such deviousness among Kikuyu women’s group members who expressed pro-family planning sentiments in the presence of government officials in order to gain financial rewards for their development projects but criticized family planning as soon as the officials left.

Second, regional distribution of wealth and political opportunities in Kenya suggests that groups such as the Luo, the Luhya and the Mijikenda/Swahili may be disadvantaged in terms of access to family planning services (blocked opportunity argument) while others such as Kikuyu, Kamba and Meru/Embu may be benefiting from greater opportunities and access to such services (Khasiani, 1988) as well as more developed money economies. This latter argument accords with Caldwell’s (1990) thesis regarding the political bases of high fertility in some sub-Saharan societies.

The age composition of both never-users and past users shows that intentions of future use of contraceptives are strongest among young cohorts of women, while opposition toward future use of contraceptives is also weakest among younger women. Undoubtedly younger women can afford to put off contraceptive use to some undefined future period since their immediate concern, given no prospects for higher education and wage sector employment, may be with marriage and family building. On the other hand, they may be more vulnerable to anti-family planning pressures from family members or religious groups, hence their inconsistent contraceptive behaviour. For instance, the age pattern of current use of contraceptives shows that the younger the women the least likely they were to be using contraceptives, even though they were the least opposed to contraceptive use.
The sample distribution of religious affiliation shows that there were about 34.8 per cent Catholics, 56.7 per cent Protestants and 5.0 per cent Muslims, making the sample over 90.0 per cent Christian. Given the conservatism of Christian denominations in Kenya with regard to reproductive life and their extensive influence in the country’s educational system, it may be expected that Kenyan youth face strong contradictions over reproductive norms from religious sources. In fact, other than ethnicity and age, religion is among the most powerful factors influencing attitudes of past users toward future contraception as Table 6.8 shows.

Conflicts emanate as well from residual traditional authority structures in society (Caldwell, 1976, 1978; Ocholla-Ayayo, 1988; LeVine and Scrimshaw, 1983; Lesthaeghe, 1980; Lesthaeghe and Surkyn, 1989). In fact, according to Ocholla-Ayayo (1988), the problem facing family planning in Kenya is the disarticulation between past sexual and reproductive moralities which remain strong within communities and fertility regulation behaviours and family size norms being urged. These conflicts and contradictions militate directly against psychodynamic and social expectations theories of persuasion upon which IEC strategies have depended and, therefore, call for modification of approaches to family planning programming to strategies that will take into account differences in population composition and cultural backgrounds.

Finally, this study confirms some previous findings about the relationship between the mass media and current contraceptive use in Kenya (Westoff and Rodriguez, 1993; Omwanda, 1995). As already indicated, mass media exposure appears to cumulatively impact contraceptive behaviours. Yet such impacts are not restricted to the mass media,
for exposure to family planning information via friends and relatives may be just as influential for contraceptive adoption as via the mass media.

The findings also indicate that even though Christian churches in Kenya may be conservative with respect to reproductive life, they may be losing the argument against contraceptive use to the forces of secularism just as traditional authority is losing its grip on traditional ethico-legal codes that regulated sexual and reproductive life in the past (cf. Ocholla-Ayayo, 1988; Hammel, 1990; Caldwell, 1978). Such an interpretation is consistent with the fact that it is not previous demographic experience of Kenyan women that determined their contraceptive use but their social and economic conditions and the ideational culture both of which seem to have generally been conducive to contraceptive adoption. It is consistent as well with the argument that by 1989 in Kenya there may have been an emerging culture in which sexual intercourse was progressively being psychologically distanced from reproduction (Preston, 1986).

However, current contraceptive use varied widely by ethnic group membership. Contraceptive prevalence among Kikuyu, Kamba, and Meru/Embu women appear to have reached high enough levels to substantially impact the fertility rate. These are the ethnic groups among whom the contraceptive transition appears to have unequivocally began. On the other hand, current use among Luo, Luhya, and Mijikenda/ Swahili women is way too low and still reflects, perhaps, the fact that the contraceptive transition was yet to firmly establish itself among these communities. Policies focused toward ethnic group-specific programming may be required, not only to increase contraceptive prevalence within ethnic groups where prevalence is particularly low but to address as well the
problem of opposition to future adoption that may also have ethnic bases that are rooted in traditional ethico-legal codes.

Finally, there is clearly a need for youth-focused family planning programme efforts since young ever-married Kenyan women were hardly using contraceptives at all. Recent debates in Kenya about the appropriateness of introducing family planning education in Kenyan schools have revealed the strength of opposition of churches, religious groups and parents against youth-focused programmes, yet it is clear from the findings of this study that exposing youth to the realities of reproductive life may be a positive step toward fertility reduction. At the same time, it is possible that government regulations barring access to family planning services to the youth (Khasiani, 1988) without parental or husbands’ authority may be discouraging contraceptive adoption by younger women. Finally, the opposition of the Catholic church in particular to family planning education in schools, a position that was recently echoed publicly by the Minister for Education (Globe and Mail, 1996) does not enhance policies aimed at containing Kenya’s population problem.
CHAPTER SEVEN

CONCLUSIONS AND DIRECTIONS FOR FUTURE RESEARCH

7.0 INTRODUCTION

Kenya’s demographic experience in the late 1980s has provided an excellent setting for investigating the relationships between social communication, the ideational order and reproductive behaviour. Even though many previous studies have pointed to the importance of values and norms in shaping reproductive behaviours of individuals, couples and groups, there has always been some residual uncertainty as to what such values and norms consist of—that is, of what the notion of culture means in relation to reproduction.

Drawing upon the theory of structuration (Giddens, 1979, 1984, 1993), this study has comprehensively discussed the mechanisms of value formation and transformation in reproductive culture through communicative and social interactions at historical moments. As a result, by conceiving of reproductive culture as a concept having a vector space with dimensionality of at least three, it has been possible to identify those underlying dimensions and to estimate their relative effects at perhaps the most critical time in Kenya’s fertility transition—that is, at its virtual onset.

Further, the importance of social communication, often merely alluded to in
demographic literature and/or measured in terms of mass media exposure only, has here been comprehensively theorized and operationalized in its two necessary constitutive elements—namely, in mediated and non-mediated forms. In so doing, it has been possible to measure the relevance and relative importance of each aspect of social communication in predicting various aspects of contraceptive behaviour.

The impact of mass media exposure is found to be cumulative and consistent as expected, but exposure to interpersonal channels of communication is found to be important only for knowledge gain and for prediction of future contraception intentions of never-users and of current use. Therefore, interpersonal networks, apparently, may not be so important in influencing future contraception intentions of women who for any reason discontinue contraceptive use after initial adoption, perhaps because of the homophily of friends and relatives with respect to reproductive aspirations (Rogers, 1973). On the other hand, exposure to family planning information through such interpersonal networks is found to be relatively more influential for current use of contraceptives—no doubt due to the safety credibility of such sources of family planning information (Rogers, 1973). This finding underscores the importance of interpersonal networks in certain aspects of reproductive decision making and has important implications for family planning policy and programming.

Consistent with the findings regarding the impact of social communication, the ideational component of the temporal space of contraceptive adoption—namely, spousal discussion about family planning, education, ideal number of children, and husband's approval of family planning—is found to be the most consistent predictor of contraceptive
behaviour of the three dimensions of reproductive culture as predicted; it has strong and significant effects on all the six levels of the dependent variable. Following in predictive consistency is the social condition of women. In contrast, the reproductive experience of Kenyan women is found to be important only for contraceptive knowledge acquisition and for predicting future contraception intentions of never-users.

According to prediction and in accordance with the theory positing ethnic entities as communicative units (Hammel, 1991), ethnic group membership is found to be a consistent predictor of contraceptive behaviour though its effects are substantially mitigated by mass media exposure to family planning information. This result could mean that even though ethnic variations in some reproductive behaviours may remain important in future, during the transitional period at least, mass media campaigns minimize the salience and, hence, the impacts of some aspects of group norms. The fact that interpersonal networks don't have similar effects suggests that the mass media do not merely provide information but actually change people's beliefs around reproduction. This interpretation is consistent with the theoretical stipulations of this dissertation though causality may not be inferred from its design.

The findings suggest that religion plays an important, though contradictory role in Kenyans' reproductive life. Even though Christians, particularly Protestants, are more likely to use contraceptives than Muslims and people with traditional or no religious affiliations, they still hold very conservative notions about reproduction. For instance, Christians, more than Muslims or those with traditional or no religion, are more likely to be never-users opposed to future contraceptive use and to have no intentions of future
use whether or not they have tried a method in the past. This suggests that Christianity may slow somewhat the pace of fertility transition in Kenya and other sub-Saharan countries. Yet Christians rather than the other religious groups were more likely to be currently using contraceptives, suggesting that in spite of the conservatism of their religious dogma their secularization is, in fact, taking place at a faster rate than that of Muslims or people with traditional or no religious affiliation. Therefore, the impact of Christianity on Kenya’s contraceptive transition and, hence, on its pace of fertility decline will be greater to the degree that Christian denominations are able to influence policy choices of government than to the fact that individual Christians may be opposed to family planning.

7.1 CONCLUSIONS

This study has a number of theoretical and methodological advantages over previous research on reproductive behaviour. For instance, it makes an important theoretical departure from studies that narrowly focus on the search for determinants of fertility behaviour at the expense of comprehensive theoretical explanations for such behaviour, an issue that has been underscored by Burch (1995) among others. Consequently, based on strong theoretical justification, reproductive culture is conceptualized as a dynamic and multi-dimensional phenomenon constituted by at least three elements, namely, past reproductive behaviour, socio-economic conditions and the ideational order, the latter moulded via social communication.
In the process this dissertation has built upon and advanced previous work that have investigated determinants of reproductive behaviour by social setting in the context of change. For instance, it extends Caldwell’s (1976, 1978, 1990) works recognizing the forces of culture, economy and the moral order in sustaining high fertility in developing societies. But since Caldwell’s works have been severely criticized for adducing slim empirical evidence (Cain, 1982), this dissertation advances his efforts theoretically and methodologically by specifying and testing the effects of social communication as the crucial link in such relationships. Such a contribution is significant considering that Caldwell (1976) merely states as self-evident truth the fact that the mass media are among forces that advance the process of westernization without explaining how or providing evidence. In fact, an important finding of this dissertation is that some forces of westernization such as Christianity and the mass media can have contradictory effects on some aspects of reproductive behaviour.

Meanwhile, even though Lesthaeghe (1980) and Lesthaeghe and Surkyn (1988) correctly identified the role of ideational culture in the fertility transition, they did not show of what such culture was constituted. Later, however, Lesthaeghe and Eelens (1989) attempted to identify components of what they called sub-Saharan Africa’s "reproductive regime" through factor analysis but their model, perhaps because it covered too wide a region (the whole of sub-Saharan Africa), failed to explain the particularities of countries such as Kenya which were at a different stage of the fertility transition from the majority of sub-Saharan countries in the late 1980s. This study extends their effort (with data from the same period) by further theorizing the constitution and role of
ideational culture and, at once, estimating its relative importance in reproductive
behaviour and providing supportive empirical evidence for contraceptive adoption in
Kenya. The findings suggest that similar work is required for other sub-Saharan countries
such as Zimbabwe and South Africa that have departed from the so-called sub-Saharan
reproductive regime.

Further, this dissertation has attempted to achieve a measure of theoretical unity
in explaining reproductive behaviour, since difficulties faced by demographic studies that
Burch (1995) refers to demonstrate that bifurcation of theories of fertility into those for
developing and developed societies is obscurantist and afford us inadequate insight into
fluctuations in the dynamics of everyday life that bracket human conduct. For instance,
there is need to explain why, say, religious affiliation may be an important force in the
decision not to limit family size for some individuals and couples even in developed
country settings (Balakrishnan and Chen, 1990; Balakrishnan, Grindstaff and Ebanks,
1979; Hou and Omwanda, 1996), whereas the most salient factors in developing societies
such as Kenya tend to be socio-economic and moral ones that enhance husband and wife
communication over reproductive conduct (Omwanda, 1995; Doodoo, 1993; Nyblade and
Menken, 1993).

In addition, the desirability of unified theory is suggested by the fact that there
already exist other factors such as labour force participation and education of women that
tend to influence fertility choices in the same direction irrespective of social setting and
which, consequently, seem to speak more to the importance of stage of economic and
technological development than to individual or ideational characteristics for changes in
reproductive behaviour. Such theoretical unity has been attempted in this study through an interactionist conception of reproductive culture but the need for other approaches that recognize the relational and contingent character of human fertility behaviours are clearly indicated.

Previous studies of the role of communication in contraceptive adoption have been restricted primarily to mass media exposure (Rogers, 1973; Rogers and Kincaid, 1981; Olaleye and Bankole, 1994; Piotrow et al., 1990; Westoff and Rodriguez, 1993). Yet it makes more sense both theoretically and policy-wise to understand the role of the mass media in society as that of cultivation, agenda-setting and socialization, meaning that what are transmitted through the mass media are invariably passed on as talk before they impact behaviour. Therefore, one of this study’s contributions is that it advances our knowledge of communication dynamics in reproductive behaviour by suggesting and testing a supplementation theory to demographic analysis via an examination of the dual roles of interpersonal networks and the mass media in contraceptive behaviour. Hence, following Westoff and Rodriguez (1993), this study conceptualizes mass media exposure as a cumulative process and estimates its effects on behaviour with very interesting results while, simultaneously, modelling and testing the relative effects of interpersonal networks on the same aspects of contraceptive behaviour.

Therefore, following Bertrand et al. (1982) and Westoff and Rodriguez (1993), conceptualization of the dependent variable as a multi-status behavioral variable has permitted not only a more detailed examination of the patterns of contraceptive behaviour, but also revealed important conflicts and contradictions that seemed to
characterize changes in fertility behaviour in Kenya at the moment of its fertility transition. Since such contradictions pertain mainly to future contraception intentions, the need for more research is suggested in order to understand the dynamics of future reproductive forecasting at such historical moments. In addition, this methodological strategy has permitted examination of the role of communication in reproductive choice in greater detail by facilitating the testing of the consistency of its connection with each contraceptive status. It has also brought to the fore important questions regarding the role of religion in Kenya.

7.2 DIRECTIONS FOR FUTURE RESEARCH

A number of questions of interest to future research on family planning and contraceptive behaviour in Kenya and similar societies arise from this study. The first relates to the role of religion—especially Christianity. Given the growing power of religion in low income sub-Saharan countries on the one hand, and pressures to lower the fertility rate through family planning on the other, a conflictual scenario is, perhaps, unavoidable. Yet understanding how Christians, especially Catholics, cope with the contradictory forces of religious dogma and secularization is of theoretical and policy interest. In-depth ethnographic studies are therefore required in settings such as Kenya’s to facilitate formulation of appropriate programme measures that may assist individuals in coping with such powerful counter-pressures. Such studies may also illuminate how people in contemporary industrialized societies might have coped in similar situations
during their fertility transitions—particularly in strongly religious settings such as Quebec (Balakrishnan, Grindstaff and Ebanks, 1979; Balakrishnan and Chen, 1990).

The second area for future research indicated by this study relates to future contraceptive intentions of those not currently using contraceptives. Although recent DHS surveys have included this question, no previous analyses have been carried out for any sub-Saharan country on the data relating to it. The findings of this dissertation suggest that answers to the future contraceptive intentions question may be so contradictory as to be of somewhat limited predictive value at the moment.

In fact, related studies on future fertility intentions elsewhere in developing countries suggest that such questions have had limited predictive reliability in relation to completed fertility (Tan et al., 1988; Tan and Tey, 1994; Mukerjee, 1975; Vlassoff, 1990). Yet similar studies in the United States, Taiwan and South Korea were found to have high predictive reliability (Goldberg et al., 1959; Westoff et al., 1963; Westoff and Ryder, 1977; Hammerlin et al., 1979; Fireit and Suh, 1980). Therefore, even though the reliability of future contraception intention questions, unlike fertility intention questions may not be easy to verify in subsequent surveys other than through very expensive longitudinal approaches, the findings of this dissertation point to important questions for theory and policy. For instance, who are the resisters to change in contraceptive behaviour? Why and how do they resist change? In the Kenyan case answers to these questions may be obtained from in-depth qualitative studies such as focus-group sessions with, and event history studies of, such population groups to help in the interpretation of survey data.
Finally, a major problem area in family planning and contraceptive adoption in Kenya relates to young people, married or unmarried. How much access do they have to family planning and contraceptive services? Even more importantly, what are their attitudes toward family size limitation? Though this study was not designed to look into teenage contraceptive behaviours, age has emerged as the most important compositional factor in virtually every contraceptive status. Previous research found that Kenyan youth are ambivalent about contraceptive use (Khasiani, 1988) but this may be the result of strong cross-contextures from religion and traditional ideology on the one hand, and secularization and modernization on the other as was suggested earlier. Yet it is necessary to know if such ambivalence may not, in fact, be due to unacknowledged conditions of behaviour, in which case appropriate programme policies could be designed to address it. Moreover, the political influence of Christian denominations over family planning and population education in Kenya may increase as the frustrations of Kenyan youth mount as a result of lack of access to family planning services and translate into illegal abortions.

To reiterate what was said earlier, a country's fertility trajectory is mapped by reproductive attitudes and choices of its youth. The findings of this dissertation suggest that Kenyan youth may have been ready and willing for some time to regulate their fertility, yet social institutions and government policies may be continuing to constrain their efforts and aspirations. Speeding up the pace of the fertility transition in Kenya will require not only an expansion of efficient family planning services throughout the country but also the formulation of policies discouraging early childbearing. For instance,
simultaneously as family planning services are expanded to cover the youth (married or unmarried) legislation defining statutory rape beyond 14 years and raising the marriage age for women to at least 16 years may be necessary.
APPENDICES

Appendix Table 1: Indicators of Reproductive Culture.

<table>
<thead>
<tr>
<th>Variable Code</th>
<th>Survey Question</th>
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<tbody>
<tr>
<td>V131*</td>
<td>What is your ethnic group/tribe?</td>
</tr>
<tr>
<td>V119</td>
<td>Does your house have electricity?</td>
</tr>
<tr>
<td>V108</td>
<td>Can you read a letter or newspaper in any language easily, with difficulty, or not at all?</td>
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<tr>
<td>V611</td>
<td>Do you think your husband/partner approves or disapproves of couples using a method to prevent or delay a pregnancy?</td>
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<tr>
<td>V133</td>
<td>What was the highest level of school you attended: primary, secondary, higher or university? What was the highest (standard, form, year) you completed at that level?</td>
</tr>
<tr>
<td>V134</td>
<td>De facto place of residence: city, town or countryside?</td>
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<tr>
<td>V201</td>
<td>Children ever born: How many children have you had during your life?</td>
</tr>
<tr>
<td>V212</td>
<td>Age at first birth: calculated from the date of birth of the first child and date of birth of respondent.</td>
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<tr>
<td>V366</td>
<td>Is it acceptable or not acceptable to you that family planning information is provided on radio or television?</td>
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<tr>
<td>V511</td>
<td>How old were you when you married/started living with your (first) husband?</td>
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<tr>
<td>V611</td>
<td>How often have you talked to your husband/partner about using a method to prevent or delay pregnancy in the past year?</td>
</tr>
<tr>
<td>V612</td>
<td>In general, do you approve or disapprove of couples using a method to prevent or delay a pregnancy?</td>
</tr>
<tr>
<td>V614</td>
<td>If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?</td>
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<tr>
<td>CHMORT</td>
<td>Child mortality: Calculated from V206 and V207 regarding the number of children who have died by sex.</td>
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<td>S121E</td>
<td>Does any member of your household own land?</td>
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<tr>
<td>S121F</td>
<td>Does any member of your household own cattle, goats, or sheep?</td>
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<tr>
<td>S121G</td>
<td>Does any member of your household own cash crops?</td>
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<tr>
<td>S121H</td>
<td>Does any member of your household own a permanent house?</td>
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<tr>
<td>V714*</td>
<td>Are you currently working to earn money other than on a farm or in a business run by your family?</td>
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<td>V505*</td>
<td>Does your husband/partner have any other wives besides yourself? How many other wives does he have?</td>
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Notes: *Ethnicity, religion, work status and nuptiality type were used as independent regressors.
Appendix Table 2: Correlation Matrix for Indicators of Reproductive Culture.

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Determinant of correlation matrix = .0110770; Kaiser-Meyer-Olkin measure of sampling adequacy = .75563; Bartlett test = 21293.359, p = .00000.
Appendix Table 3: Anti-image Correlation Matrix for Measures of Reproductive Culture.

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Kaiser-Meyer-Olkin measures of sampling adequacy (MSA) are on the main diagonal.
REFERENCES

Ahlberg, Beth Maina

Agresti, A.

Anderson, Barbara

Anker, Richard and James C. Knowles

Anshah, P.A.V.

Arnold, F. et al.

Ayensu, Edward S.

Ayiemba, E.H.O.
Balakrishnan, T.R. and J. Chen  


Balakrishnan, T.R., K. Rao, E. Lapierre-Adamcyck and K.J. Karotki  

Bandura, Albert  

Bankole, Akinrinola and G. Rodriguez  

Barrett, Richard A.  

Bay, Christian  


Beach, L.R., B.D. Townes, F.L. Campbell, and G. Keating  

Beach L.R., F.L. Campbell, and B.D. Townes  

Bean, F.D.  

Becker, G.S.


Becker, G.S. and H.G. Lewis


Berelson, Bernard and Ronald Freedman


Berger, Peter L. and Thomas Luckman


Bertrand, J.T., R. Santiso, S.H. Linder, and M.A. Pinda


Bishop, Y.M.M., S.E. Feinberg, and P. Holland


Blake, J.


Boas, Franz


Bogue, Donald J.


Bongaarts, John


Bongaarts, John, W. Parker Maudin, and James F. Philips


Bourdieu, Pierre


Brass, W.


Brass, William and Carole L. Jolly (eds.)


Bulatao, R.A. and R.D. Lee (eds.)

(1983)  "An Overview of Determinants of Fertility in Developing Countries." In Bulatao and Lee (eds.) *The Determinants of Fertility in Developing

Burch, Thomas K.

Cain, M.
(1982) "Perspectives on Family and Fertility in Developing Countries," Population Studies 36, 2: 159-175.

Cain, G.G. and M.D. Dooley

Caldwell, John C.

Caldwell, John C. and Patricia Caldwell

Cairns-Saunders, M.
University Press.

Carey, James W.  

Carter, Anthony T.  

Central Bureau of Statistics  

Church, Cathleen A.  

Clark, Gregory  

Cleland, John and Christopher Wilson  

Cleveland, David A.  
(1986) "The Political Economy of Fertility Regulation: The Kusasi of Savana West Africa (Ghana)." In W.P. Handwerker (ed.) Culture and

Coale, Ansley J.

Coale, Ansley J. and Susan C. Watkins (eds.)

Coale, Ansley J. and T. James Trussell

Cook, Lengyel M.S. and R. Repetto

Condorcet, A.N.

Cox, D.R. and E.J. Snell

Cross, Anne R., Walter Obungu, and Paul Kizito

Davidson, A. and J. Jaccard


Davis, Kingsley
(1963) "The Theory of Change and Response in Modern Demographic History,"
Population Index 29: 345-366.

Davis, Kingsley and Judith Blake

Demeney, Paul

DeFleur, Melvin L.

DeFleur, Melvin L. and Sandra J. Ball-Rokeach

DeTray, D.N.

DeWit, Margaret

Dodoo, Nii-Aidoo F.

Dow, T.E. and L.H. Werner

Dumont, A.

Durkheim, Emile
Duesenberry, J.S.

Dyson, Tim and Mick Moore

Easterlin, R.A.


Easterlin, Richard A. and E.M. Crimmins


Eiser, J.R. and J. van der Plight
Ericson, Richard V., Patricia M. Baranek, and Janet L. Chan
Engels, F.
Faruqee, Rashid
Fawcett, J.T.
Fawcett, J.T. and F. Arnold
Feeney, G.
Festinger, Leon
Fishbein, M., J. Jaccard, A.R. Davidson, I. Ajzen, and B. Loken
Foreit, Karen G. and M.H. Suh
Forester, M.W.

Frank, Odile

Frank, O. and G. McNicoll

Geertz, C.

Gerbner, George

Gerbner, George and Larry Gross

Giddens, Anthony

Gilluly, Richard H. and Sidney H. Moore
(1986) "Radio--Spreading the Word on Family Planning," Population Reports
J(32): J844-886 (September-October).

Goldberg, David, H. Sharp, and Ronald Freedman

Goldthorpe, J.E.

Goode, William

Gould J.P. and C.F. Ferguson

Graff, Harvey

Grindstaff, C., T.R. Balakrishnan, and D.J. DeWit

Habermas, Jurgen


Hall, David Roy

Hammel, E.A.
(1985) "Cultural Receptivity to Fertility Control?" Paper presented at the seminar on Societal Influences on Family Planning Program Performance, organized by the IUSSP and the National Family Planning Board of
Jamaica, Ocho Rios, Jamaica, 10-13 April.

Hammel, E.A.

Hammel, E.A. and Nancy Howell

Handwerker, Penn W.

Hawthorn, Geoffrey

Hazelwood, A.

Henin, Roushdi A.

Henin, R. A., A. Korten, and L. Werner

Henry, Louis

Hermalin, Albert I, R. Freedman, Te-Hsiung Sun, and Ming C. Chang

Herman, Edwards S. and Noam Chomsky
York: Pantheon Books.

Hoffman, L.W. and M.L. Hoffman

Hou, Feng and Lewis O. Omwanda

Hosmer, D.W. and S. Lemeshow

Hull, Terence

Hyman H.H. and P.B. Sheatsley

Ignatief, Michael

Jaccard, J. and A. Davidson

Johanson, S. Ryan

Johnson, Bert W., Frank Wilder and Donald J. Bogue

Jones, A.P.

Kelley, A.C. and C. Nobbe


Kenya


Keyfitz, N.


Khasiani, Shanyisa A.


Killick, A. (ed.)


Kintner, Hallie


Kline, David


Kline, David and David Harman

Kline, David, John Middleton, and Lewis J. Perelman

Knodel, John

Knodel, John, Napaporn Havanon, and Anthony Pramualratana

Knodel, John, A. Chamratrithirong and Nibhon Debavalya

Knodel, J. and E. van de Walle

Kress, Gunther

Kroeber, Alfred L.

Kuczynski, R.R.

Lapham, Robert J. and W. Parker Mauldin

Larsen, Charles U.
Lasswell, Harold D.

Leasure, William

Leibenstein, H.

Lesthaeghe, Ron

Lesthaeghe, Ron and Frank Eelens

Lesthaeghe, Ron and Johan Surkyn

Lesthaeghe, Ron, C. Vanderhoeft, S. Becker, and M. Kibet

Lesthaeghe, Ron, G. Kaufmann, and Monique Meekers


Levine, M.S.


LeVine, Robert A. and Susan Scrimshaw


Livesay, Jeff


Lippmann, Walter


Lowery, Shearon A. and Melvin DeFleur


MacCombs, Maxwell E. and Donald L. Shaw


Malthus, Thomas R.


Malinowski, Bronislaw


Marx, Karl

(1968) The German Ideology. Moscow

Maslow, George


May, J. F. Monique Mukamazi, and Marcel Vakemans


Mazrui, Ali A.


McAnany, Emile G.


McGuire, W.J.


McCullagh, P. and J.A. Nelder


McNicoll, Geoffrey


Michael, R.T.


Mill, J.S.


Miller, Gerald R.

Publications.

Mott, F.L. and S.H. Mott

Muganzi, Z.

Mukherjee, Bishwa N.

Namboodiri, N.K.

National Council for Population and Development and the Institute for Resource Development (NCPD and IRD)


Neter, J., W. Wasserman, and M.H. Kunter

Njogu, Wamuci:

Notestein, F.W.

(1953) "Economic Problems of Population Change," 8th International Conference

Ntozi, James P.M. and John B. Kabera

Nyblade, Laura and Jane Menken

Ocholla-Ayayo, A.B.C.


Odell, M.

O'Donnell, Victoria and June Kable

Olaleye, David O. and Akinrinola Bankole

Ominde, Simeon H. (ed.)
Omwanda, Lw.. Odhiambo

Oppong, Christine

Page, Hillary J. and Ron Lesthaeghe (eds.)

Parsons, Talcott

Pebley, Anne R. and Wariara Mbugua


Polgar, Stephen

Population Reference Bureau

Radcliffe-Brown, A.R.


Rawson-Jones, Daphne and Geoffrey Salkeld (eds.)


Robinson, Warren C.


Rogers, Everett M.


Rogers, Everett M. and Dilip K. Bhowmik


Rogers, Everett M. and D.L. Kincaid


Rogers, Everett M. with F. Floyd Shoemaker


Ross, Eric B.

Rossi, Peter H., J.D. Wright, and A.B. Anderson

Rutenberg, Naomi, M. Ayad, L.H. Ochoa, and M. Wilkinson

Ryan, Bryce and Neal C. Gross
(1943) "The Diffusion of Hybrid Seed Corn in Two Iowa Communities," *Rural Sociology* 8: 15-24.

Ryder, N.B.

Simon, Julian L.

Solo, Robert A. and Everett M. Rogers

Soper, Kate

Sorokin, P.

Spengler, J.

Springborg, Patricia

Tabachnick, B.G. and Linda S. Fidell

Tarde, G.


Tan, Poo C. and Nai P. Tey


Tan, Poo C., B.A. Tan, Tey Nei Peng, and K.K. Kwok


Taylor, Edward B.


Teitelbaum, M.S.


Thadani, Veena N.


The World Bank


Thompson, W.

Ugboaja, F.O.

United Nations

Van de Walle, E. and J. Knodel

Vlassoff, Carol

Ware, Helen

Watkins, Susan C.

Weeks, John R.

Weil, Peter

Westoff, Charles F.


Westoff, Charles F. and Luis H. Ochoa


Westoff, Charles F. and G. Rodriguez


Westoff, Charles F., R.G. Porter, and P.C. Sagi


Westoff, Charles F. and Norman Ryder


White, Leslie


Willis, R.J.


Wineberg, H.


Wortham, Robert A.

Wright, Charles R.


Wrigley, E.A.