

**KENYA POPULATION CENSUS
1989**

**ANALYTICAL REPORT:
VOLUME IV**

FERTILITY AND NUPTIALITY

TABLE OF CONTENTS

	Page
List of Tables	viii
List of Figures	xi
Foreword	xiii
Acknowledgement	xv
Executive Summary	xvii
CHAPTER 1: FERTILITY LEVELS AND TRENDS IN KENYA	1
1.1 Background	1
1.1.1 Data Collection Procedures	1
1.1.2 Types of Data Collected	1
1.1.3 Data Quality	2
1.1.4 Methodology	3
1.1.5 Outline of the Report	4
1.2 Fertility Levels and Trends	4
1.2.1 Average Parities	4
1.2.2 Parity Distributions	8
1.2.3 Parity Progression Ratios	11
1.2.4 Current Fertility	16
1.2.5 Fertility Models	16
1.2.6 Cohort Parity Progression Ratios	20
CHAPTER 2: FERTILITY DIFFERENTIALS IN KENYA	28
2.0 Introduction	28
2.1 Fertility by District	28
2.1.1 Crude Birth Rates	36
2.2 Fertility by Place of Residence	36
2.3 Fertility by Level of Education Attained	37
2.4 Fertility by Marital Status	39
2.5 Parity Progression Ratios	42
2.5.1 Parity Progression Ratios by Region	42
2.5.2 Parity Progression Ratios by Place of Residence	46
2.5.3 Parity Progression Ratios by Educational Attainment	47
2.5.4 Parity Progression Ratios by Marital Status	49
CHAPTER 3: NUPTIALITY	52
3.0 Introduction	52
3.1 Distribution of Population by Marital Status, Sex and Age	52
3.1.1 Proportion Single	52
3.1.2 Proportion Married	53

CONTENTS (Cont'd)		Page
3.1.3	Proportion of Married Persons in Polygyny	53
3.1.4	Proportion Divorced/Separated	53
3.1.5	Proportion Widowed	54
3.2:	Estimates of Singulate Mean Age at Marriage (SMAM)	54
3.2.1:	Singulate Mean Age at Marriage at District Level	54
3.2.2	Singulate Mean Age at Marriage by Education	59
3.3	Trends in Marital Status by Age	59
3.3.1	Trends in Proportion Single by Age and Sex	59
3.3.2	Trends in SMAM	60
3.3.3	Trends in Proportion of Women Childless	60
3.3.4	Trends in Mean Age at First Birth (MAB)	61
3.3.5	The Link Between Trends in SMAM and MAB	63
3.3.6	Trends in Proportion Married by Age	64
3.3.7	Trends in Proportion Divorced or Separated by Age	64
3.3.8	Trends in Proportion Widowed by Age	65
 CHAPTER 4: SUMMARY AND CONCLUSION		 66
4.0	Introduction	66
4.1	Data Quality and Methodology	66
4.2	Fertility	66
4.2.1	Fertility by District	67
4.2.2	Fertility by Place of Residence	67
4.2.3	Fertility by Level of Education Attained	67
4.2.4	Fertility by Marital Status	68
4.3	Nuptiality	68
4.3.1	Proportion Single	68
4.3.2	Proportion Married	68
4.3.3	Proportion Married in Polygamy	69
4.3.4	Proportion Divorced or Separated	69
4.3.5	Proportion Widowed	69
4.3.6	Estimate of Singulate Mean Age at Marriage	69
4.3.7	Singulate Mean Age at Marriage by Education	69
4.3.8	Trends in Percent Single by Age and Sex	70
4.3.9	Trends in Proportion of Women Childless	70
4.4	Relationship Between Fertility and Nuptiality	70
4.5	Conclusion	71
4.6	Recommendations	71
 REFERENCES		 73
 APPENDIX I: The 1989 Population and Housing Census Questionnaire		 77
 APPENDIX II: The Relational Gompertz Fertility Model		 79

CONTENTS - (Cont'd)	Page
APPENDIX III: Hajnal's Formula for Estimation of SMAM	81
APPENDIX IV: Projection of Cohort Parity Progression Ratios	82
APPENDIX V: Reported Average Parities for Kenyan Women Aged 15-49, 1969-89 ...	84
APPENDIX VI: Reported Average Parities by Level of Education and District, 1989	87
APPENDIX VII: Reported Average Parities by Marital Status and District, 1989	93
APPENDIX VIII: Hypothetical Cohort Average Parities (without El Badry correction) by District, 1969-79	102
APPENDIX VIII(A): Model Age-Specific Fertility Rates by District, 1969-79	103
APPENDIX IX: Incomplete Provincial PPR's	104
APPENDIX X: Incomplete PPR's by Type of Residence	128
APPENDIX XI: Incomplete PPR's by Educational Attainment	131
APPENDIX XII: Incomplete PPR's by Marital Status	140
APPENDIX XIII: Per cent Single and Singulate Mean Age at First Marriage by Sex and District	152
APPENDIX XIV: Per cent Single and Singulate Mean Age at First Marriage for Females by District	155
APPENDIX XV: Per cent Childless and Mean Age at First Birth by District	158
APPENDIX XVI: Proportion of Childless Women and MAB by Level of Education and Marital Status, and Proportions Single and SMAM by Level of Education	161
APPENDIX XVII: Contributors to Census Analytical Reports	162

LIST OF TABLES

	Page
Table 1.0: Percent of Women who did not state their Parities by Age and Type of Residence, 1979 and 1989.	3
Table 1.1. Average Number of Children Ever Born by Kenyan Women 1962 - 1993	4
Table 1.1.1. Mean Births per Mother by Age Group, 1962 - 1993	5
Table 1.1.2. Percentage of Childless Women in each Age Group, 1962-1993	5
Table 1.1.3 Average Parities adjusted with the El Badry Correction, 1969-89'	8
Table 1.2. Percentage Distribution of Women in Each Age Group by Parity, 1979 and 1989.	10
Table 1.3. Incomplete Parity Progression Ratios from the 1962, 1969, 1979, and 1989 Censuses.	12
Table 1.4. Age-Specific and Age-Order-Specific Fertility Rates based on Births Reported as Occurring in the Last 12 Months.	16
Table 1.5. Relational Gompertz Fertility Models fitted to Data on Current Fertility and Average Parities	17
Table 1.5.1. Average Parities of Hypothetical Cohorts, 1969-79 and 1979-89 with Fitted Relational Gompertz Fertility Models	18
Table 1.6. Cohort Parity Progression Ratios	21
Table 1.6.1. Regression Coefficients of Cohort PPR's	26
Table 1.6.2. Regression Estimates of Cohort Parity Progression Ratios and Total Fertility Rates	27
Table 2.1a. Kenya 1979 Population Census, El Badry Corrected Average Parities for Women aged 15-49 by District/Province	30
Table 2.1b. Kenya 1989 Population Census, El Badry Corrected Average Parities for women aged 15-49 by District/Province	31
Table 2.2. El Badry-Corrected Hypothetical Cohort Average Parities for Women aged 15-49 by District, 1979-89	32
Table 2.3. Model Age-Specific Fertility Rates for Women aged 15-49 by District, 1979-89	34

LIST OF TABLES - (Cont'd)	Page
Table 2.3a: Crude Birth Rates and Total Fertility Rates by District/Province, 1979-1989	35
Table 2.4: Reported, El Badry-corrected and Hypothetical Cohort Average Parities, and Model Age Specific Fertility Rates by Type of Residence, 1979-89	38
Table 2.5: Reported, Corrected and Hypothetical Cohort Average Parities and Model Age-Specific Fertility Rates by Educational Attainment, 1969, 1979 and 1989	40
Table 2.6: Reported and Hypothetical Cohort Average Parities and Model Age-Specific Fertility Rates for Women aged 15-49 by Marital Status, 1979-89	41
Table 2.7: Parity Progression Ratios for Women aged 20-49 by Province, 1979 and 1989	44
Table 2.8: Parity Progression Ratios for Women aged 20-49 by Type of Residence, 1979 and 1989	47
Table 2.9: Parity Progression Ratios for Women aged 20-49 by Educational Attainment, 1969, 1979 and 1989	48
Table 2.10: Parity Progression Ratios for Women aged 20-49 by Marital Status, 1979 and 1989	50
Table 3.1: Percentage Distribution of Population Aged 12 and above by Marital Status and District, 1989 Census	56
Table 3.2: Estimates of Singulate Mean Age at Marriage (SMAM) by District and Province, 1989 Census	58
Table 3.3: Percent Single and Singulate Mean Age at First Marriage by Sex, 1962-89	60
Table 3.4: Percent Childless by Age and Mean Age at First Birth, 1969-89	61
Table 3.5: Estimates of SMAM and MAB and the Corresponding Percentage Changes during 1979-89 by Region	62
Table 3.6: Estimates of SMAM and MAB and the Corresponding Percentage Changes during 1979-89 by Education and Marital Status	63

LIST OF TABLES - (Cont'd)		Page
Table 3.7: Percent of Males and Females who were Married by Age group 1969, 1979 and 1989		64
Table 3.8: Percent of Males and Females who were Divorced/Separated by Age group		65
Table 3.9: Percent of Males and Females who were Widowed by Age group		65

LIST OF FIGURES

	Page.
Figure 1: El Badry's Correction	7
Figure 2: Incomplete Parity Progression Ratios	13
Figure 3: Kenya Cohort Parity Progression Ratios	22

Foreword

The 1989 Population and Housing Census was carried out on a de facto basis with the midnight of 24/25 August as the reference date under the provisions of the Statistical Act (Cap. 112) of the Laws of Kenya and as per Legal Notice No. 466 of 4 November, 1988.

The census was taken to determine: the size, composition and distribution of the population; the levels and trends of fertility, mortality, migration and urbanisation; and to obtain information on housing, education, and employment.

The analytical work involved collaborative efforts of both local and external experts, a number of institutions and the Central Bureau of Statistics (CBS). The recruitment of the professional experts was done on a competitive basis, ensuring that in addition, such experts had adequate knowledge and involvement in the Kenyan demographic scene.

The production of the tabulations for the analyses was preceded by a rigorous programme of validation and editing to ensure internal consistency and to minimise errors. The analysis was therefore carried out on cleaned data files, and the population projections, in particular, are based on the census figures adjusted for errors of coverage. Should there be any discrepancies between the basic data in Volumes I and II and the cleaned data in the new volumes, the latter are preferred.

The observed fertility transition was more pronounced in urban than rural areas, with the highest decline recorded among the better educated women. However, the encouraging observation was that the period 1979-1989 witnessed a significant decline in fertility among women with primary and without education, particularly those in the younger and middle age groups in the rural areas. The decline in fertility was also associated with a general increase in age at first birth and marriage for both males and females. This confirms that the government policy of integrating population issues in socio-economic planning is achieving some positive results.

M. K. CHEMENGICH

DIRECTOR OF STATISTICS

Acknowledgement

The 1989 Population and Housing Census was the fifth census after those of 1948, 1962, 1969, and 1979. The census collected more information that was comprehensively analysed than any previous censuses.

The 1989 census was a strenuous and costly exercise which was accomplished through concerted efforts of many organisations, institutions, government ministries and individuals who assisted in a variety of ways in preparing, collecting, compiling, processing, analysing and publishing the census results. The Office of the Vice President and Ministry of Planning and National Development and in particular, the Central Bureau of Statistics (CBS), wish to thank all of them and pay special tribute to the late Director of Statistics, Mr. P.P. Kallaa.

Further, the Ministry wishes to thank UNFPA, UNDP, CIDA, ODA, UNDTCD, UNECA and the Government of Netherlands for their material, financial and technical support at all stages of preparing and conducting the census. Special commendation go to UNFPA and ODA for providing further support for the detailed analysis of the 1989 census. In particular, the Ministry wishes to acknowledge contributions from the authors, technical support staff and professionals who individually and collectively gave comments and advice in the process of writing the various volumes.

EXECUTIVE SUMMARY

The evolution of fertility in Kenya during the 1960s and the 1970s was one of rapid increase, culminating in the highest ever recorded total fertility rate of 8.0 in 1979. This was attributed to improvement in the standard of living, low contraceptive use, low age at marriage and high value accorded to children. These demographic trends posed diverse challenges to the government in so far as provision of basic needs was concerned. The introduction of SAPs in the course of the 1980s compounded these challenges. The government, in realising the adverse socio-economic consequences of the rapid population growth, formulated an integrated population policy guidelines in 1984 which accorded fertility reduction utmost priority. The family planning programme was enhanced and integrated in the District Focus for Rural Development Strategy.

These efforts have no doubt begun to bear fruits. The fertility transition in Kenya has begun. The innovators of this transition were predominantly educated women and those residing in urban areas, for whom age at marriage rose remarkably.

The momentum of this transition appears to have been more pronounced in urban areas and in Central province. However a number of districts in Nyanza and Western provinces and a majority of districts in Rift Valley province, not to mention all districts in North Eastern province, remained corridors of high fertility although fertility declined in most of them.

The total fertility rate for the 1979-89 inter-censal period was 6.6, down from about 7.8 during the 1969-79 inter-censal period. Incomplete parity progression ratios showed that fertility rose in the 1960-70 decade and fell during the 1980-90 decade. It declined mainly for women aged between 20 and 39. Cohort parity progression ratios from the 1962, 1969, 1979 and 1989 censuses were remarkably consistent, suggesting fairly good quality data. They showed a rising trend in fertility at higher parities for cohorts of women born between the late 19th century and the 1940s and a declining trend for the younger women.

Lower TFR was recorded in the urban areas, being 4.5 compared to 7.0 in the rural areas during the period 1979-89. Average parity changed from 5.9 to 5.4 in urban areas and from 7.4 to 7.3 in rural areas from 1979 to 1989 respectively, for women aged 40-44.

North Eastern, Nyanza, Rift Valley and Western provinces all recorded high TFRs of over 7 births per woman, while Nairobi had the lowest (3.8). Among the districts (excluding Nairobi), Mombasa had the lowest TFR (4.3) and Bungoma the highest (8.1).

Women who had attained secondary and above level of education had a much lower TFR of 5.4 and 5.0, compared with 7.8 and 7.5 for women with no education, and 7.9 and 7.1 for those with primary education for 1969-79 and 1979-89 respectively. The largest fall was recorded for women with primary education where it affected all age groups.

Single women continued to exhibit the lowest TFR of 4.3, while married women had the highest of 7.3. The divorced or separated women reported two births per woman less than their widowed counterparts.

The singulate mean age at marriage in Kenya has steadily increased since 1962 for both males and females. It was estimated at 21.6 years for females and 26.0 for males in 1989, up from 18.5 and 23.9 years respectively in 1962. Among the districts, the highest singulate mean age at marriage was registered in Nyeri (23.7 years) while the lowest was in Narok (18.6 years).

The mean age at first birth also increased from 19.6 years in 1969 to 20.0 years in 1989. It however declined for a number of districts.

CHAPTER 1: FERTILITY LEVELS AND TRENDS IN KENYA

1.1 BACKGROUND

The 1989 population census was the fifth to be carried out since 1948 and the third since Independence. This national exercise was carried out under the provision of the Statistics Act CAP 112 of the laws of Kenya and Legal Notice No. 466 of 4th November 1988. As in previous censuses, the 1989 census was undertaken on a defacto basis. The reference night was 24th/25th August.

The main objectives of the 1989 census were:

- * To provide information on the size, composition and distribution of the population.
- * To collect information on trends and current levels of fertility, mortality and migration.
- * To ascertain the rate and pattern of urbanisation.
- * To determine the size and composition of the labour-force.
- * To provide information on availability of various social amenities.

1.1.1 DATA COLLECTION PROCEDURES

House to house canvassing was used to enumerate persons in households to provide personal details as per the questionnaire (see Appendix I). Vagrants and institutional populations were covered on the census night (midnight of 24th August, 1989) while the household based population was covered during the period 24th/25th August to 2nd September 1989.

1.1.2 TYPES OF DATA COLLECTED

The 1989 population and housing census collected diverse data at individual and household levels. Types of data collected include: relationship to head of household; sex; age; marital status; ethnicity; place of birth; previous residence; orphanhood; literacy and educational attainment; economic activity; and fertility.

This volume focuses on the analysis of data collected on fertility and nuptiality cross-classified with some of the above characteristics.

All women aged 12 years and over were asked particulars regarding the number of children they had borne alive by whether they were living in the household, living elsewhere or dead and the date, sex and the survival status of the last live birth. A live birth was defined simply as any child who showed any sign of life at birth. This was to avoid the inclusion of still births and late foetal deaths amongst those who were born alive.

In spite of the concerted efforts made to generate complete and accurate data on fertility, problems of under-reporting of live births by older women, age misreporting and wrong dating of events had to be tackled in this analysis.

To elicit information on nuptiality, individuals were asked to state whether they were either single, monogamously or polygamously married, widowed, divorced or separated. In light of the social-cultural diversities prevalent in the country, no standard concepts on nuptiality were used. Responses were recorded as given by the respondents.

1.1.3 DATA QUALITY

The quality of data on fertility and nuptiality hinges squarely on the ability of respondents to provide accurate answers to the questions which were posed to them and the ability of the interviewers to scrutinize the responses to the various questions and probe for missing information.

The data on life-time fertility were collected by asking each woman aged 12 years and over to give the total number of children born alive, broken down into those living with her, those living elsewhere and those who had died. Data on current fertility was collected by asking each woman to indicate the date (month and year) when she had the most recent birth. Several errors affect the quality of the above data. First, data on life-time fertility suffer from errors of omission, particularly of dead children due to recall lapse by older women, and sometimes from wrongful inclusion of still births or late foetal deaths as live births. Second, data on current fertility are affected by wrong dating of events; omissions of children who died in infancy; and non-response.

Substantial improvements have been made to minimize the above errors over time. However the percentage of younger women who did not state their parities was significantly high as shown in Table 1.0.

The quality of data on nuptiality on the other hand is influenced by individual perceptions and hence could not be precisely ascertained. The major challenge as far as the validation of the data on nuptiality is concerned is embedded in the cultural norms which dictate the way people perceive the issue. Hence the data were utilised as reported. The most consoling feature is that only a very small proportion of the respondents, less than 1 per cent, did not state their marital status.

Percent of Women who did not State their Parities by Age and Type of Residence, 1979 and 1989

Table 1.0

Age Group	1979			1989		
	Rural	Urban	Total	Rural	Urban	Total
15-19	9.1	7.4	8.8	34.3	30.4	33.7
20-24	5.3	5.1	5.2	14.2	15.8	14.6
25-29	3.2	3.7	3.3	7.0	8.5	7.3
30-34	3.0	3.8	3.1	5.4	6.5	5.6
35-39	2.8	3.8	2.9	4.5	5.6	4.7
40-44	3.0	4.4	3.2	4.5	6.0	4.7
45-49	2.9	4.4	3.1	4.3	6.0	4.5

1.1.4 METHODOLOGY

Kenya, like many other developing countries and particularly sub-saharan African countries, does not have a complete, reliable and accurate vital registration system. It is estimated that only about 40 per cent of births are registered. This has resulted in the use of demographic surveys and population censuses to collect lifetime and current fertility data in terms of children ever born to women within the reproductive ages and the date of the last live birth, respectively. Several analytical models have been developed to convert the above data into fertility rates. An attempt to infer fertility levels based on direct methods proved worthless as the levels so obtained were implausibly low. Use of some of the indirect techniques to ascertain fertility levels also proved futile as the basic assumptions had been violated by the changes experienced in the Kenya demographic arena in the recent past. Thus this analysis employed the use of the Relational Gompertz model (UN 1983, Brass 1981 and Zaba 1981) applied to average parities of the inter-censal hypothetical cohort to generate the age specific fertility rates. The methodology has been portrayed by various studies to augur well for averagely or rapidly changing fertility situations similar to that observed in Kenya. Details of this methodology are given in Appendix II.

Investigations indicated that enumerators apparently did not fill in zeros in appropriate columns when a respondent indicated that she had never given birth. This was coded as "NOT Stated" during data processing. Since the majority of the women whose parity was not stated are believed to be actually childless, a method devised by El Badry (1961) was used to correct the average parities, details of which are given in section 1.2.1. Data on lifetime fertility had to be re-edited as very young women were reported to be having very high parities, an observation that was thought to be incredible.

For nuptiality analysis, Hajnal's method (Hajnal, 1953:111-135) has been applied on both proportions single (for both males and females) and those childless (females) by age group to produce summary indices for Singulate Mean Age at first Marriage (SMAM) and Mean Age at first Birth (MAB) respectively. The proportions of women childless were obtained as the ratio of women reported as childless to those whose parities were stated.

1.1.5 OUTLINE OF THE REPORT

This report is divided into four chapters. The first chapter to which this section belongs provides background information on the objectives of the 1989 population census, the type of data collected, the methodology used in the analysis and quality of the data. It ends with a presentation of fertility levels and trends at the national level.

The second chapter discusses the levels and differentials in fertility by regions (provinces and districts), type of residence (rural and urban), educational attainment and marital status. The chapter ends by attempting to discuss trends and differentials in fertility using Parity Progression Ratios(1979 and 1989).

Chapter 3 presents results on nuptiality and the linkages between fertility and nuptiality with regard to the observed indicators. The final chapter gives a summary of the key findings, conclusions and recommendations.

1.2. FERTILITY LEVELS AND TRENDS

1.2.1 AVERAGE PARITIES

In columns P40 to P45 of the census form (appendix I), all females aged 12 and over were asked to state the number of children they had ever borne, by sex of the children, and by whether they were still living at home, living elsewhere, or had died. Table 1.1 shows the average number of children ever born, by age group of mothers, derived from these data, compared with the corresponding figures from the 1962, 1969 and 1979 censuses, and from the Demographic and Health Surveys of 1989 and 1993.

Average Number of Children Ever Born by Kenyan Women, 1962 - 1993

Table 1.1

Age Group	Census	Census	Census	Census	DHS	DHS	Ratio
	1962	1969	1979	1989	1989	1993	1989/79 Census
15-19	0.357	0.355	0.321	0.265	0.28	0.20	0.83
20-24	1.652	1.882	1.853	1.560	1.58	1.36	0.84
25-29	3.009	3.653	3.652	3.252	3.74	3.13	0.89
30-34	4.204	5.112	5.388	4.891	5.01	4.53	0.91
35-39	5.072	6.002	6.470	6.052	6.48	6.13	0.94
40-44	5.608	6.441	7.021	6.871	7.36	6.95	0.98
45-49	5.902	6.687	7.173	7.207	7.63	7.87	1.00

The average parities from the 1989 census show a consistent fall on those of 1979 for all age groups except 45-49. They are also somewhat lower than those obtained from the 1989 DHS. A partial explanation for this discrepancy may be found in the fact that in the census there were appreciable numbers of women in all age groups whose parity was not stated as to the numbers of children they had borne; these women were assumed to be childless, when calculating the

average parities in Table 1.1, and although there is a reason to believe that most of them were indeed childless, some of them may in fact have borne children which the enumerators, for various possible reasons, had failed to record. Thus the average parities will have been biased downwards, and a more meaningful comparison may be made if both the childless and the "not stated" women are excluded from the denominators so as to give the mean births per mother (i.e. women who had borne at least one child), as shown in Table 1.1.1.

Mean Births per Mother by Age Group, 1962 - 1993

Table 1.1.1

Age Group	Census 1962	Census 1969	Census 1979	Census 1989	DHS 1989	DHS 1993
15-19	1.71	1.45	1.48	1.62	1.31	1.19
20-24	2.61	2.50	2.52	2.37	2.01	1.93
25-29	3.87	4.11	4.10	3.79	3.66	3.32
30-34	5.11	5.46	5.85	5.41	5.16	4.74
35-39	5.99	6.50	6.96	6.59	6.63	6.29
40-44	6.55	6.99	7.59	7.48	7.53	7.14
45-49	6.84	7.26	7.76	7.85	7.85	7.96

After this adjustment the 1989 census figures are slightly higher than those from the 1989 DHS for all women under 35. But they still show a consistent fall on the 1979 figures for all age groups between 20 and 45.

The problem of the childless and "not stated" women is further illustrated by the figures in Table 1.1.2, which shows the percentages of childless women in each age group, both including and excluding the "not stated".

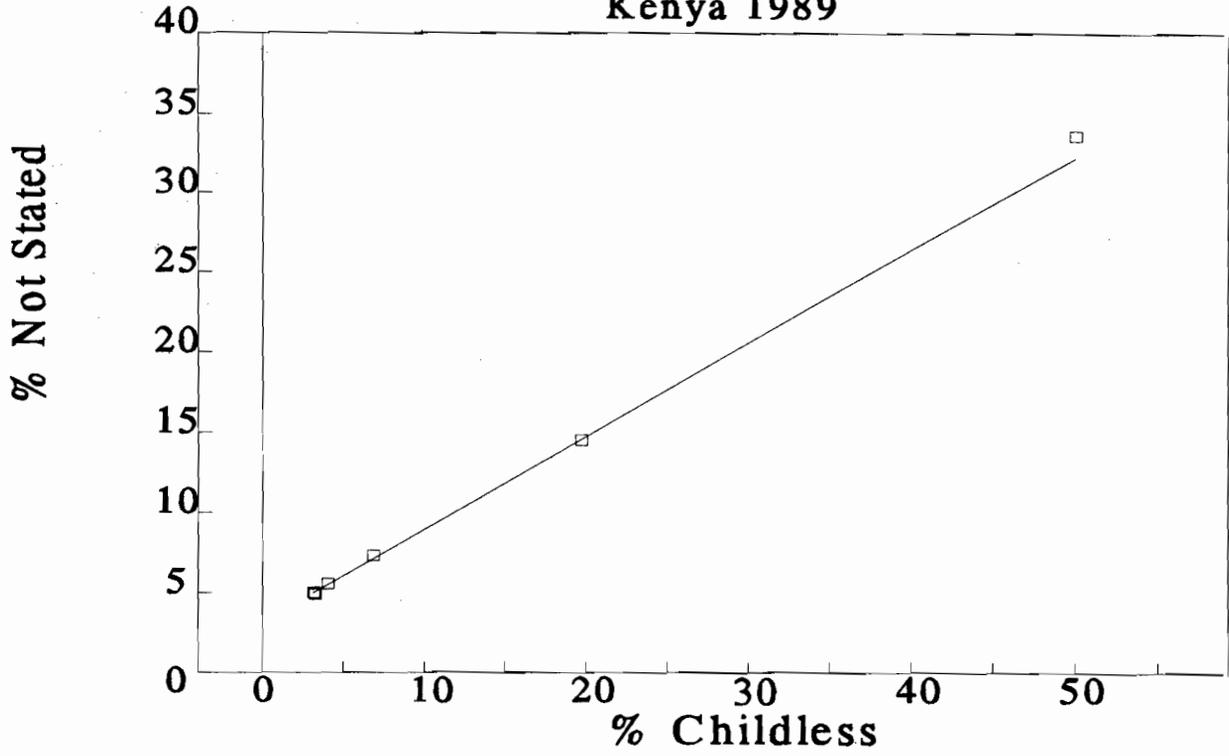
Percentage of Childless Women in Each Age Group

Table 1.1. 2

Age Group	Census 1962	Census 1969	Census 1979	Census 1989	DHS 1989	DHS 1993
(a) Including "Not Stated"						
15-19	79.1	75.5	78.4	83.7	78.6	83.2
20-24	36.8	24.7	26.6	34.3	21.5	29.5
25-29	22.3	11.1	10.9	14.2	5.3	5.8
30-34	17.8	8.2	7.9	9.6	2.9	4.5
35-39	15.3	7.6	7.0	8.2	2.2	2.5
40-44	14.4	7.8	7.5	8.2	2.3	2.7
45-49	13.7	8.0	7.6	8.2	2.8	1.1
(b) Excluding "Not Stated"						
15-19	34.1	65.7	69.4	50.0	78.6	83.2
20-24	11.7	16.7	21.4	19.7	21.5	29.5
25-29	7.2	6.2	7.6	6.9	5.3	5.8
30-34	5.9	4.0	4.8	4.1	2.9	4.5
35-39	4.8	3.6	4.1	3.3	2.2	2.5
40-44	4.8	3.6	4.3	3.2	2.3	2.7
45-49	4.9	3.8	4.5	3.3	2.8	1.1

Most of the "not stated" women were in the 15-19 and 20-24 age groups; when they are included with the childless the percentages in these age groups are higher than those shown by the 1989 DHS (where there were no "not stated" women); when they are excluded they are lower.

Figure 1. El Badry's Correction.
Kenya 1989



A possible solution to this problem may be found in the correction procedure devised by El Badry (1961). If the percentage not stated in each age group is plotted against the corresponding percentage childless, and the points are found to lie approximately on a straight line, the intercept of the fitted regression line will represent a fixed percentage of women, constant in all age groups, whose parity was not stated for reasons other than childlessness. This proportion should therefore be subtracted from the denominators when calculating the average parities. The application of this method to the 1989 census data is illustrated in Figure 1. The points clearly lie on a reasonably straight line, and the regression line (fitted by least squares to the points of the age groups from 20-24 up to 45-49) has an intercept of 3.1 per cent. Thus the average parities shown in Table 1.1 should be adjusted upwards by dividing them by 1-0.031. The results are shown in Table 1.1.3 in comparison with the 1969 and 1979 census figures, likewise adjusted by the El Badry correction.

**Average Parities adjusted with the El Badry Correction,
1969 - 89**

Table 1.1.3

Age Group	1969	1979	1989
15-19	0.366	0.321	0.273
20-24	1.939	1.899	1.610
25-29	3.764	3.743	3.357
30-34	5.267	5.523	5.049
35-39	6.186	6.632	6.249
40-44	6.637	7.197	7.093
45-49	6.891	7.353	7.440

1.2.2 PARITY DISTRIBUTIONS

Further light is shed on the changes in fertility if we consider the full distributions of women by parity rather than just the means. Table 1.2 shows the percentage distributions of women in each age group by parity from the 1979 and 1989 censuses.

For all the age groups under 40 years of age, there was a consistent fall in the proportions with higher parities:

- of the women aged 20-24, the proportion with 2 or more children fell from 51.7% in 1979 to 43.4% in 1989;
- of the women aged 25-29, the proportion with 4 or more children fell from 52.3% in 1979 to 43.5% in 1989;
- of the women aged 30-34, the proportion with 6 or more children fell from 50.5% in 1979 to 41.8% in 1989;
- of the women aged 35-39, the proportion with 7 or more children fell from 53.6% in 1979 to 47.1% in 1989.

However even these changes were not unaffected by the problem of the childless/not stated women: since percentages must always add to 100, a change in the percentage of one category must cause compensating changes in the others. This difficulty may be obviated by the

calculation of "parity progression ratios" (PPR's) - i.e. the proportion of women with n children who go on to have $n+1$.

Table 1.2 Percentage Distribution of Women in Each Age Group by Parity, 1979 and 1989.

Age Group	Year	Total	0	1	2	3	4	5	6	7	8	9	10+	N.S.
15-19	1979	100.0	69.5	14.7	4.7	1.4	0.5	0.2	0.1	0.0	0.0	0.0	0.0	8.8
	1989	100.0	50.0	11.2	3.3	1.0	0.6	0.2	0.0	0.0	0.0	0.0	0.0	33.7
20-24	1979	100.0	21.4	21.7	21.5	15.1	8.1	3.6	1.6	0.8	0.4	0.2	0.5	5.2
	1989	100.0	19.7	22.4	20.3	12.6	5.8	3.4	1.2	0.0	0.0	0.0	0.0	14.5
25-29	1979	100.0	7.6	8.0	12.1	16.6	18.3	14.8	9.4	4.9	2.5	1.1	1.3	3.3
	1989	100.0	6.9	9.8	14.5	18.1	17.4	12.3	7.0	6.8	0.0	0.0	0.0	7.3
30-34	1979	100.0	4.8	3.9	5.5	7.6	10.8	13.9	15.1	13.2	9.4	5.7	7.1	3.1
	1989	100.0	4.1	4.4	6.7	9.6	12.9	15.0	14.7	15.9	11.2	0.0	0.0	5.6
35-39	1979	100.0	4.1	3.0	4.1	5.2	6.9	9.0	11.6	13.1	12.8	10.5	16.8	2.9
	1989	100.0	3.3	3.0	4.3	6.1	8.2	10.4	12.5	13.0	12.1	9.0	13.0	5.0
40-44	1979	100.0	4.3	3.0	3.7	4.5	5.7	7.2	9.1	10.8	11.6	11.2	25.6	3.2
	1989	100.0	3.2	2.7	3.6	4.7	6.0	7.7	9.5	11.0	11.8	10.9	24.0	5.0
45-49	1979	100.0	4.5	3.2	3.7	4.5	5.5	6.9	8.5	10.0	10.9	10.8	28.4	3.1
	1989	100.0	3.3	2.6	3.3	4.3	5.3	6.9	8.6	10.0	11.3	10.9	28.7	4.9

1.2.3 PARITY PROGRESSION RATIOS

These ratios are calculated by cumulating the women by parity so as to give the numbers with n or more children, and then dividing the numbers with $(n+1)$ or more by the number with n or more. Only the proportion going from parity 0 to parity 1 (i.e. from childlessness to first birth) is affected by the "not stated"; for the remainder of the ratios it may be assumed that both the numerators and denominators are affected in equal proportions, so that the errors cancel out.

The results are shown in Table 1.3, and illustrated in Figure 2 in comparison with the corresponding PPR's from the 1962, 1969 and 1979 censuses. They are described as "incomplete" since they are for women who are still of childbearing age and who may therefore still have more children.

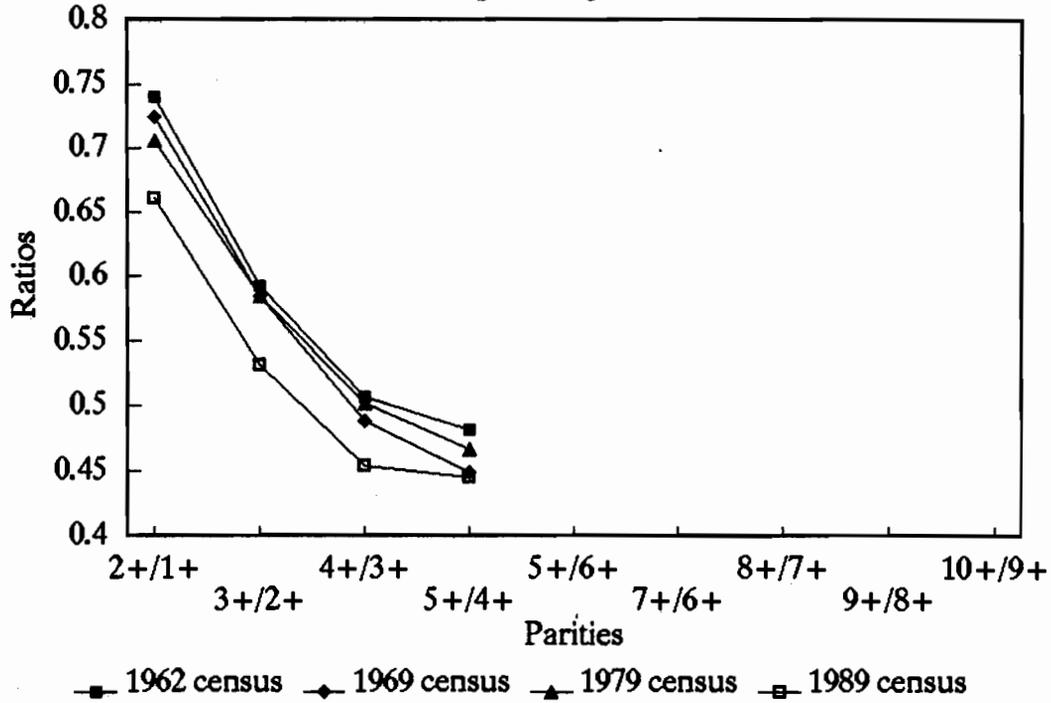
For women aged 20-24 and 25-29, the 1989 PPR's are below those from all the earlier censuses; for those aged 30-34 they are above the PPR's of the 1962 census but below those of 1969 and 1979; for those aged 35-39 they are close to the 1969 ratios but are still below those of 1979; for those 40-44 and 45-49 they move above the 1969 ratios and closer to those of 1979. These results therefore imply that fertility in Kenya was rising during the 1960's and 70's, and then fell during the 1980's. Thus the women in the older cohorts had done most of their childbearing at a time before the onset of the fertility transition.

**Incomplete Parity Progression Ratios from the 1962, 1969, 1979, and 1989
Censuses**

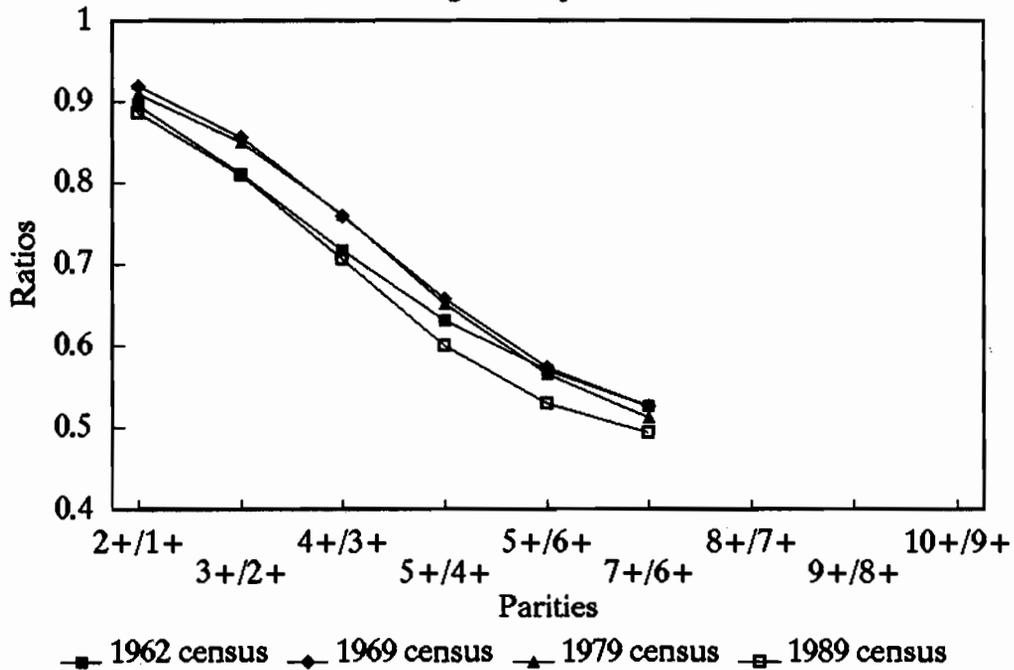
Table 1.3

1962	15-19	20-24	25-29	30-34	35-39	40-44	45-49
0 to 1	0.207	0.633	0.777	0.822	0.847	0.856	0.863
1 to 2	0.411	0.740	0.896	0.940	0.951	0.952	0.957
2 to 3	0.376	0.593	0.811	0.895	0.922	0.930	0.935
3 to 4	0.375	0.507	0.717	0.856	0.899	0.906	0.918
4 to 5		0.482	0.632	0.799	0.859	0.885	0.894
5 to 6			0.570	0.724	0.814	0.850	0.867
6 to 7			0.527	0.656	0.763	0.828	0.832
7 to 8				0.591	0.709	0.780	0.799
8 to 9				0.541	0.636	0.706	0.729
9 to 10				0.569	0.596	0.668	0.707
1969	15-19	20-24	25-29	30-34	35-39	40-44	45-49
0 to 1	0.245	0.753	0.889	0.919	0.924	0.922	0.921
1 to 2	0.335	0.724	0.920	0.953	0.961	0.957	0.957
2 to 3	0.305	0.585	0.857	0.935	0.949	0.951	0.955
3 to 4	0.280	0.489	0.760	0.901	0.930	0.937	0.938
4 to 5		0.449	0.658	0.844	0.899	0.906	0.919
5 to 6			0.574	0.759	0.850	0.883	0.892
6 to 7			0.527	0.674	0.793	0.839	0.854
7 to 8				0.599	0.724	0.795	0.813
1979	15-19	20-24	25-29	30-34	35-39	40-44	45-49
0 to 1	0.216	0.735	0.891	0.921	0.930	0.925	0.924
1 to 2	0.319	0.705	0.910	0.958	0.968	0.968	0.965
2 to 3	0.319	0.585	0.851	0.938	0.954	0.959	0.959
3 to 4	0.364	0.502	0.761	0.908	0.939	0.947	0.947
4 to 5		0.467	0.651	0.857	0.914	0.930	0.932
5 to 6			0.566	0.784	0.878	0.905	0.909
6 to 7			0.513	0.702	0.821	0.867	0.876
7 to 8				0.628	0.754	0.818	0.834
8 to 9				0.578	0.681	0.760	0.782
9 to 10				0.550	0.615	0.696	0.724
1989	15-19	20-24	25-29	30-34	35-39	40-44	45-49
0 to 1	0.163	0.657	0.858	0.904	0.920	0.921	0.922
1 to 2	0.311	0.660	0.886	0.951	0.967	0.971	0.972
2 to 3	0.347	0.532	0.810	0.922	0.951	0.960	0.963
3 to 4	0.437	0.454	0.706	0.879	0.928	0.945	0.950
4 to 5		0.445	0.600	0.815	0.895	0.926	0.935
5 to 6			0.529	0.736	0.852	0.898	0.911
6 to 7			0.494	0.649	0.791	0.859	0.877
7 to 8					0.725	0.810	0.837
8 to 9					0.649	0.748	0.780
9 to 10					0.595	0.691	0.728

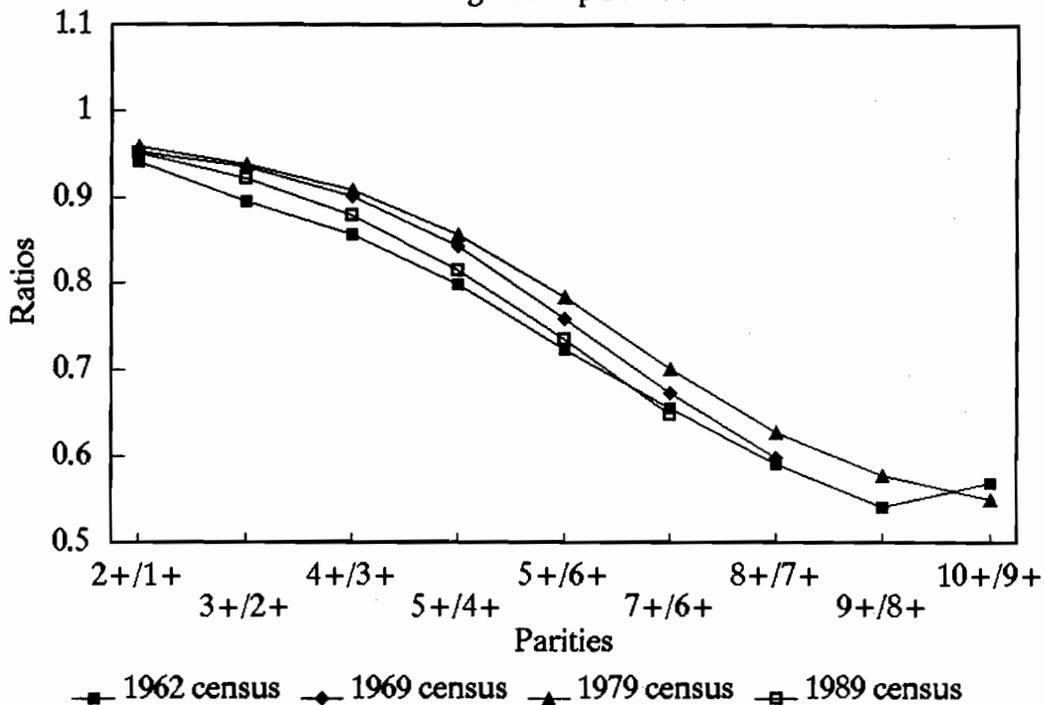
Figure 2 Incomplete Parity Progression Ratios 1962–1989
Age Group 20–24



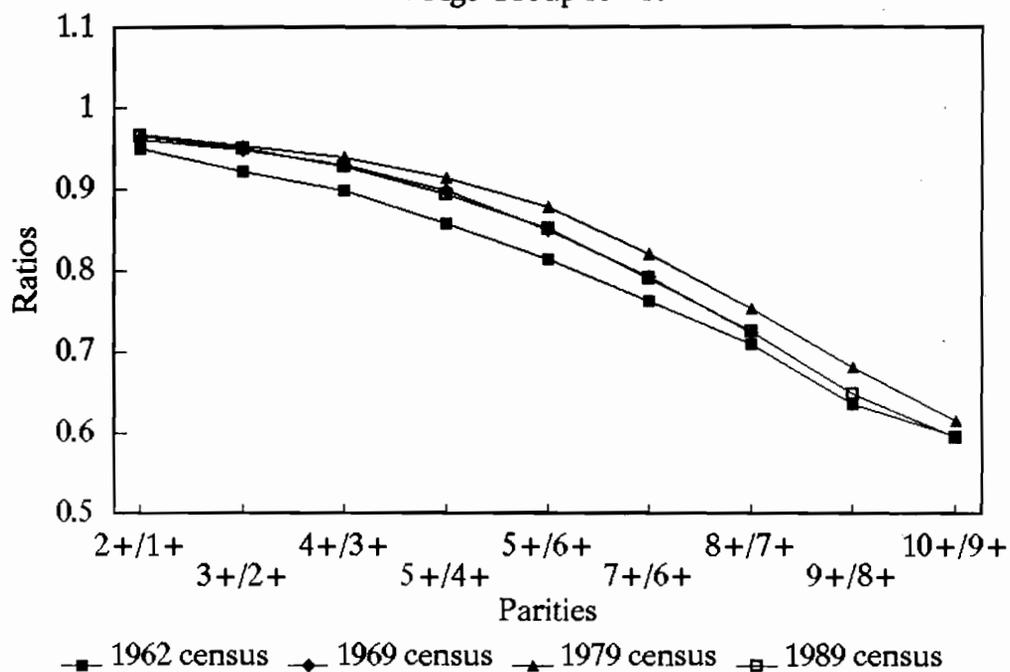
Incomplete Parity Progression Ratios 1962–1989
Age Group 25–29



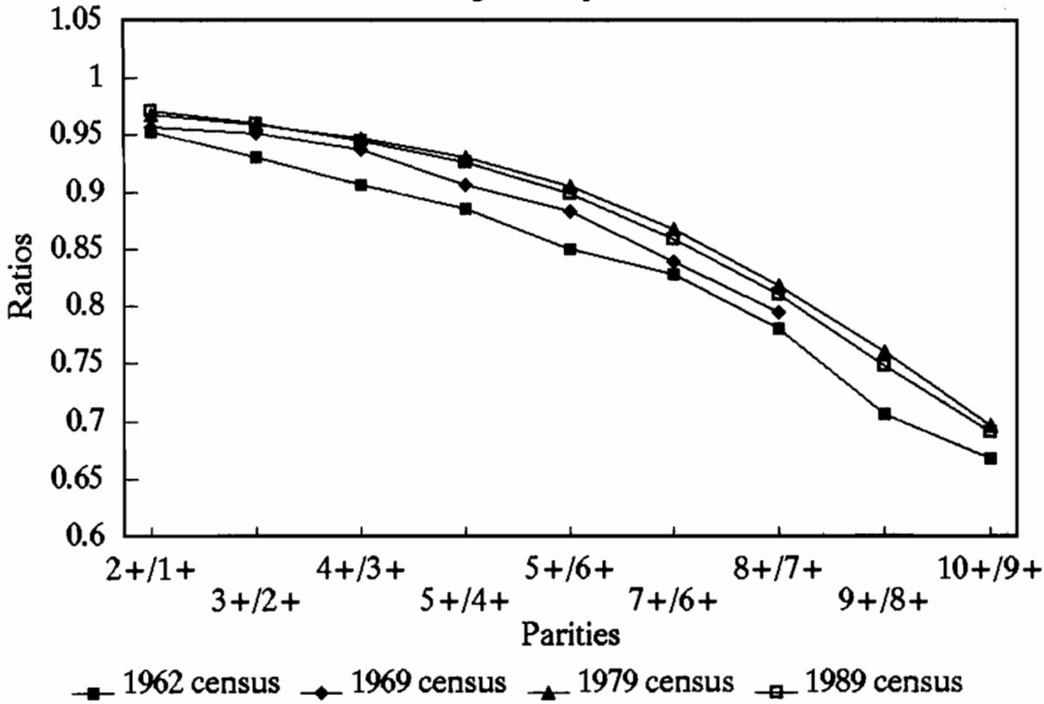
Incomplete Parity Progression Ratios 1962–1989
Age Group 30–34



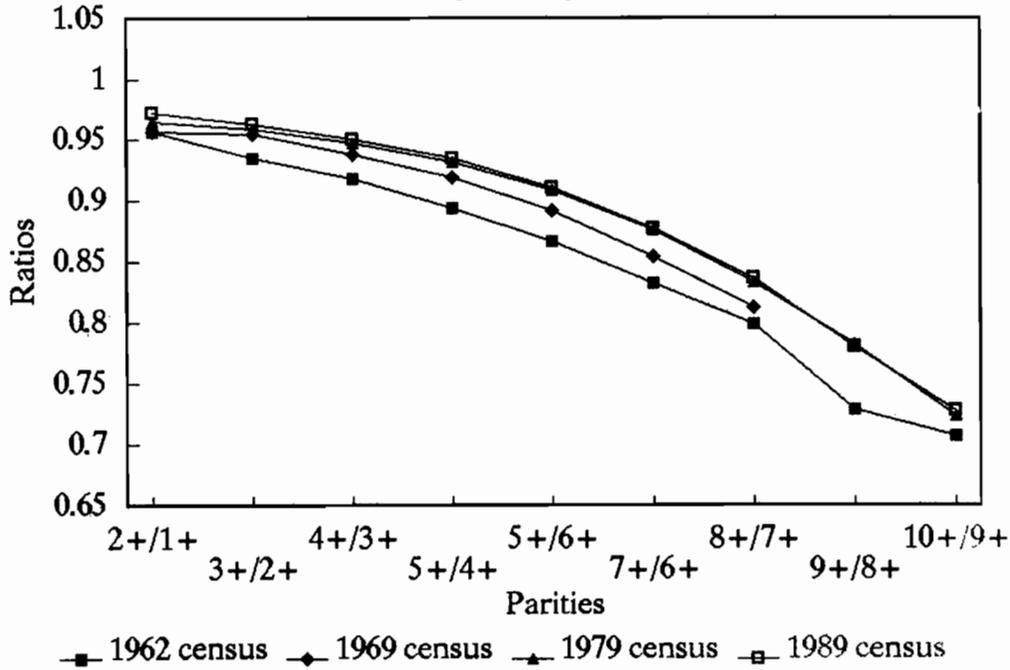
Incomplete Parity Progression Ratios 1962–1989
Age Group 35–39



Incomplete Parity Progression Ratios 1962–1989
Age Group 40–44



Incomplete Parity Progression Ratios 1962–1989
Age Group 45–49



1.2.4 CURRENT FERTILITY

In columns P46 and P47 of the census form, women who had been identified, in answer to the questions on life-time fertility, to have borne at least one child were asked for the month and year when their last child had been born. Women who were thus shown to have borne a child during the 12 months preceding the census were then tabulated by age group and parity, and the numbers so obtained were divided by the total numbers of women in the relevant age groups to give age-specific and age-order-specific fertility rates, shown in Table 1.4.

Age-Specific and Age-Order-Specific Fertility Rates based on Births Reported as Occurring in the Last 12 Months

Table 1.4

Age Group	Birth Order											
	Total	1	2	3	4	5	6	7	8	9	10+	
10-14	0.0019	0.0016	0.0003									
15-19	0.0755	0.0507	0.0173	0.0048	0.0022	0.0006						
20-24	0.2388	0.0613	0.0756	0.0549	0.0273	0.0148	0.0048					
25-29	0.2549	0.0147	0.0301	0.0485	0.0576	0.0474	0.0291	0.0273				
30-34	0.2128	0.0033	0.0071	0.0134	0.0227	0.0337	0.0412	0.0522	0.0391			
35-39	0.1599	0.0013	0.0023	0.0046	0.0075	0.0126	0.0184	0.0249	0.0277	0.0237	0.0370	
40-44	0.0784	0.0007	0.0010	0.0016	0.0023	0.0036	0.0053	0.0076	0.0104	0.0116	0.0345	
45-49	0.0325	0.0005	0.0007	0.0009	0.0010	0.0015	0.0022	0.0030	0.0037	0.0043	0.0148	
Total (X5)	5.2696	0.6674	0.6708	0.6433	0.6027	0.5701	0.5050	0.5753	0.4046	0.1977	0.4313	

It is at once clear that the current births were seriously under-reported. The total fertility rate of 5.3 births per woman is clearly incompatible with the average parities shown in Tables 1.1 and 1.1.3, as well as with the estimates derived from other sources such as the 1989 Demographic and Health Survey. Furthermore the age-order rates represent the proportion of women in each age group who bore their nth child during the 12 months. Thus the total order rates shown in the bottom line of the table should represent the proportion of women who would go through life having n or more children. It can be seen that the total order rate for first births was 0.667, implying that only two-thirds of women in Kenya had one or more children, leaving one-third childless. But it was shown in Table 1.1.2 that the proportion of women aged over 35 who were childless was probably between 3 and 8 per cent.

1.2.5 FERTILITY MODELS

The data on current fertility however are still of value if it can be assumed that the under-reporting of the current births is not systematically related to the age or parity of the mother. They will then provide information on the shape of the age-specific fertility distribution which can be used in conjunction with the data on average parities for younger women to give corrected age-specific and total fertility rates for the recent past. The procedure, which involves the graduation of the current rates by fitting a relational Gompertz fertility model, is described in Appendix II. The results are shown in Table 1.5, together with those from the 1979 census using the same procedure. The difference

between the two suggests that total fertility had fallen by about one birth during the inter-censal decade.

Relational Gompertz Fertility Models fitted to Data on Current Fertility and Average Parities

Table 1.5

Age Group	1979	1989
10-14	0.0023	0.0021
15-19	0.1646	0.1496
20-24	0.3656	0.3300
25-29	0.3836	0.3450
30-34	0.3263	0.2928
35-39	0.2395	0.2145
40-44	0.1117	0.0999
45-49	0.0147	0.0131
Total (x5)	8.0420	7.2349

However, the precise time location of these estimates is problematic. Although the shape of the fitted model is calculated from the births reported as occurring during the last 12 months, the level is determined by the average parities of women between the ages of 20 and 35. Although most of the children borne by these women will have been born during the last two or three years prior to the census, some might have been born as far as 20 years before. Thus, since fertility was clearly falling rapidly during the 1980's, the TFR of 7.2 cannot be taken as representing the level of fertility in 1988-89.

An alternative approach for estimating fertility for the inter-censal period is to construct a "hypothetical cohort" from the differences between the average parities in 1979 and 1989 for the same cohorts of women. Thus the women who were aged 15-19 in 1979 are the same women (mortality and migration apart) as those aged 25-29 in 1989. Their corrected average parity was 0.321 in 1979 and 3.252 in 1989; therefore the average number of children borne by them between 1979 and 1989 was $3.357 - 0.321 = 3.036$. Thus by adding these differences together for the various cohorts of women, a series of average parities can be constructed for a hypothetical cohort of women who would go through life having children at the current rates during the inter-censal period. A Gompertz model can then be fitted to these average parities which will not only smooth irregularities and provide us with the required age-specific fertility rates, but will also minimise the effect of possible errors in the parities reported by older women, which are often thought to be unreliable.

The average parities of the hypothetical cohorts for both the 1969-79 and the 1979-89 inter-censal periods, constructed from the adjusted average parities given in Table 1.1.3 above, are shown in Table 1.5.1, together with the fitted Gompertz models.

**Average Parities of Hypothetical Cohorts, 1969-79 and 1979 - 89 with Fitted
Relational Gompertz Fertility Models**

Table 1.5.1

Age Group	Hypothetical Cohort Average Parities		Fitted Models Age-Specific Fertility Rates		
	1969-79	1979-89	Age Group	1969-79	1979-89
			10-14	0.0033	0.0019
15-19	0.3210	0.2730	15-19	0.1883	0.1583
20-24	1.8990	1.6100	20-24	0.3745	0.3344
25-29	3.6980	3.3090	25-29	0.3688	0.3231
30-34	5.4830	4.7600	30-34	0.3006	0.2522
35-39	6.5660	5.8130	35-39	0.2132	0.1685
40-44	7.4130	6.3310	40-44	0.0963	0.0697
45-49	7.7330	6.6220	45-49	0.0122	0.0077
			Total (x5)	7.7858	6.5789

Comparison of the estimates shown in Tables 1.5 and 1.5.1 reveal substantial differences: the model fitted to the 1989 data on current births shown in Table 1.5 gives a total fertility rate of 7.2; that fitted to the 1979-89 inter-censal hypothetical cohort gives 6.6. In fact both figures are subject to substantial margins of error. Thus the number of points included in the Gompertz fitting makes an appreciable difference: the figure of 6.6 from the hypothetical cohort is obtained when the line is fitted to 4 points; if fitted to 5, the estimated TFR is reduced to 6.4, though it should be observed that the fit to the original figures is less good. Furthermore, the TFR of 7.2 from the Gompertz fitted to current births uses the uncorrected parity values; adjustments using the El Badry correction would increase it to 7.5. Hence before deciding on a "best" estimate, it is necessary to consider other evidence on fertility in Kenya during the 1980's.

The 1989 Demographic and Health Survey collected complete birth histories from the 7,150 women interviewed which enabled fertility rates to be reconstructed for various time periods prior to the survey. They gave a total fertility rate of 6.7 for the five years preceding the survey, and Brass (1993), after a rigorous examination of the data, found no reason to modify this figure. The TFR for the period 5-9 years before the survey - i.e. 1979-84 - was 7.6, but this time Brass's adjustments reduced the figure to about 7.3. These estimates would therefore suggest an average TFR of about 7.0 for the 1979-89 decade. The construction of a hypothetical cohort using the average parities from the 1977-78 Kenya Fertility Survey and the 1989 DHS gives a mean parity for the 45-49 age group of 6.9. Relational Gompertz models have been fitted, but the line of points is irregular, so that the estimated TFR's vary from 6.6 to 7.1, depending on how many points are included and the method of fitting the line.

The 1993 Demographic and Health Survey likewise collected complete birth histories, which this time gave a TFR of 5.4 for a 3-year period prior to the survey, thus implying a dramatic decline in fertility since 1989. However the 1993 data have not been subjected to the stringent consistency tests which Brass imposed on those of 1989. If the age-specific rates for the series of 4-year periods shown in the report (KDHS 1993:p.26, Table 3.6) are

summed and the blank cells completed with the rates from the nearest neighbouring time period, the following TFR's are obtained: 1990-93 5.6; 1986-90: 7.1; 1982-86 8.2; before 1982: 9.0. The trend is neither plausible nor consistent with other sources, and there is little doubt that the rates have been distorted by dating errors, with appreciable numbers of births being displaced backwards in time, thus inflating the fertility rates in the earlier periods and depleting the more recent ones.

In summary, the evidence from the Demographic and Health Surveys is inconclusive. They give a range of values for the TFR which were just as wide as those from the census data, but we are left with the impression that the figures of 6.6 obtained from the hypothetical cohort fitted to the 1979-89 censuses was at the lower end of this range.

Finally, we need to consider the relationship between the various estimates of fertility for the 1979-89 inter-censal decade and the numbers of children under 10 enumerated in the 1989 census. This question is examined in greater detail in Chapter 6 of Volume III (Population Dynamics of Kenya); this simply tries to summarise the main conclusions in so far as they relate to fertility. Given the model age-specific fertility rates obtained by the procedures described above and the number of women of child-bearing age enumerated in the 1979 and 1989 censuses (suitably adjusted where necessary), the number of births occurring between the censuses can readily be calculated, and hence the number of children under 10 in 1989. This projected number can then be compared with the number of children enumerated in the 1989 census.

Such calculations immediately suggest that there had been an appreciable under-enumeration of such children. In order to bring the projected numbers into agreement with the enumerated, the average total fertility during the inter-censal decade would have to be reduced to about 6 births per woman or less. Thus, the higher the assumed level of fertility, the larger is the implied under-count of children. The TFR of 6.6 derived from the inter-censal hypothetical cohort would imply an under-count of between 7 and 11 per cent; that of 7.2 obtained from the Gompertz model fitted to current births and unadjusted parities raises it to between 15 and 18 per cent; that of 7.5 from the Gompertz and the adjusted parities increases it to some 18 to 21 per cent.

Unfortunately there are no objective criteria by which it can be decided on what would be an acceptable level of under-count, and one is forced back to the subjective assessment of plausibility. However, in this respect, the choice between the methodologies and their implications is sharpened when they are applied at sub-national level.

In the case of Central Province, the model fitted to the 1979-89 hypothetical cohort gave a total fertility rate of 5.8; that fitted to data on current fertility and the unadjusted 1989 parities gave 6.6. Given the relatively high socio-economic development in Central Province, - reflected in the high educational levels of the population, good communications, etc., - one could reasonably expect a high level of efficiency in the conduct of the censuses. This expectation is borne out where the adult population is concerned. When the unadjusted 1979 population is projected, by sex and age, to 1989,

and the enumerated population aged 10 and over is compared with the projected survivors from 1979, the former falls short of the latter by some 94,000 out of 2.2 million, or less than 5 per cent. This discrepancy can easily be attributed to out-migration, and is in fact rather less than the estimate of net out-migration obtained from the birthplace data collected in the 1979 and 1989 censuses. In contrast, the enumerated numbers of children under 10 fall short of the projected by 11 per cent using the lower fertility rate of 5.8, and this is increased to nearly 18 per cent with the higher figure of 6.6. That the Central Province enumerators, who had clearly achieved an excellent coverage of the adult population, should have been omitting more than 1 in 6 of the children under 10 is, to many people, unacceptable.

For these reasons, therefore, the lower estimates of fertility derived from the inter-censal hypothetical cohorts were adopted.

1.2.6 COHORT PARITY PROGRESSION RATIOS

From the foregoing, it will have become apparent that the evidence on fertility trends is much stronger than that on the precise level of fertility in 1989, or during the 1979-89 decade. The incomplete parity progression ratios shown above in Table 1.3 and Figure 2, suggested that fertility had been rising during the 1960's and early 1970's but had then turned the corner and had started to fall in the 1980's.

A more elegant and convincing way of examining these trends is to plot the PPR's on a cohort basis, so as to show whether the proportions going from n births to $n+1$ among younger women was greater or less than that among older. This approach has the added advantage of testing the internal consistency of the data, and seeing whether the PPR's derived for a given cohort of women from one census are in agreement with those for the same cohort derived from another - e.g. women aged 50-54 in 1969, 60-64 in 1979, and 70-74 in 1989. The procedure is essentially that devised by Feeney (1988), but in his formulation it could only be applied to women who had completed, or virtually completed, their childbearing - i.e. those aged 40 and over. In the present case, however, it has been extended to younger women using a method developed by Brass (1985) for projecting the incomplete PPR's shown in Table 1.3 up to the end of childbearing using the data on current fertility by birth order (Table 1.4); a fuller description of the method is outlined in Appendix IV.

This projection procedure was used with the data from the 1969, 1979 and 1989 censuses, but could not be applied to those of 1962, since the current births from that census had not been tabulated by birth order, so the calculations had to be restricted to women past child-bearing age. For the 1969 census data, PPR's could not be calculated for parities higher than 8 since the tabulations of both children ever born and current births had been truncated at 8 and over. The results are shown in Table 1.6 and are illustrated in Figure 3. Three principal features were noted.

Cohort Parity Progression Ratios

Table 1.6

1989 Census

Age Group	Birth Cohort	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9
20-24	1964 - 69	0.921							
25-29	1959 - 64	0.944	0.923	0.889					
30-34	1954 - 59	0.966	0.953	0.924	0.902	0.872			
35-39	1949 - 54	0.971	0.960	0.938	0.918	0.887	0.849	0.811	
40-44	1944 - 49	0.972	0.962	0.947	0.931	0.907	0.872	0.829	0.773
45-49	1939 - 44	0.972	0.963	0.950	0.935	0.910	0.876	0.836	0.778
50-54	1934 - 39	0.968	0.960	0.948	0.934	0.912	0.878	0.838	0.787
55-59	1929 - 34	0.967	0.959	0.948	0.933	0.910	0.879	0.840	0.792
60-64	1924 - 29	0.960	0.953	0.940	0.922	0.898	0.866	0.825	0.776
65-69	1919 - 24	0.960	0.953	0.939	0.920	0.896	0.862	0.825	0.775
70-74	1914 - 19	0.955	0.948	0.933	0.910	0.883	0.850	0.809	0.766
75+	Before 19	0.954	0.946	0.928	0.902	0.871	0.831	0.795	0.749

1979 Census

Age Group	Birth Cohort	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9
20-24	1954-59	0.933							
25-29	1949-54	0.961	0.953	0.935					
30-34	1944-49	0.972	0.967	0.963	0.948	0.932			
35-39	1939-44	0.972	0.965	0.959	0.944	0.925	0.894	0.840	0.791
40-44	1934-39	0.968	0.963	0.955	0.939	0.918	0.888	0.843	0.791
45-49	1929-34	0.965	0.959	0.948	0.932	0.908	0.876	0.834	0.782
50-54	1924-29	0.959	0.952	0.942	0.923	0.899	0.866	0.828	0.779
55-59	1919-24	0.958	0.951	0.939	0.921	0.897	0.863	0.827	0.779
60-64	1914-19	0.951	0.946	0.934	0.912	0.886	0.851	0.813	0.768
65-69	1909-14	0.951	0.948	0.932	0.910	0.883	0.845	0.812	0.763
70-74	1904-09	0.946	0.945	0.929	0.904	0.880	0.841	0.805	0.756
75+	Before 19	0.944	0.940	0.919	0.893	0.858	0.813	0.774	0.729

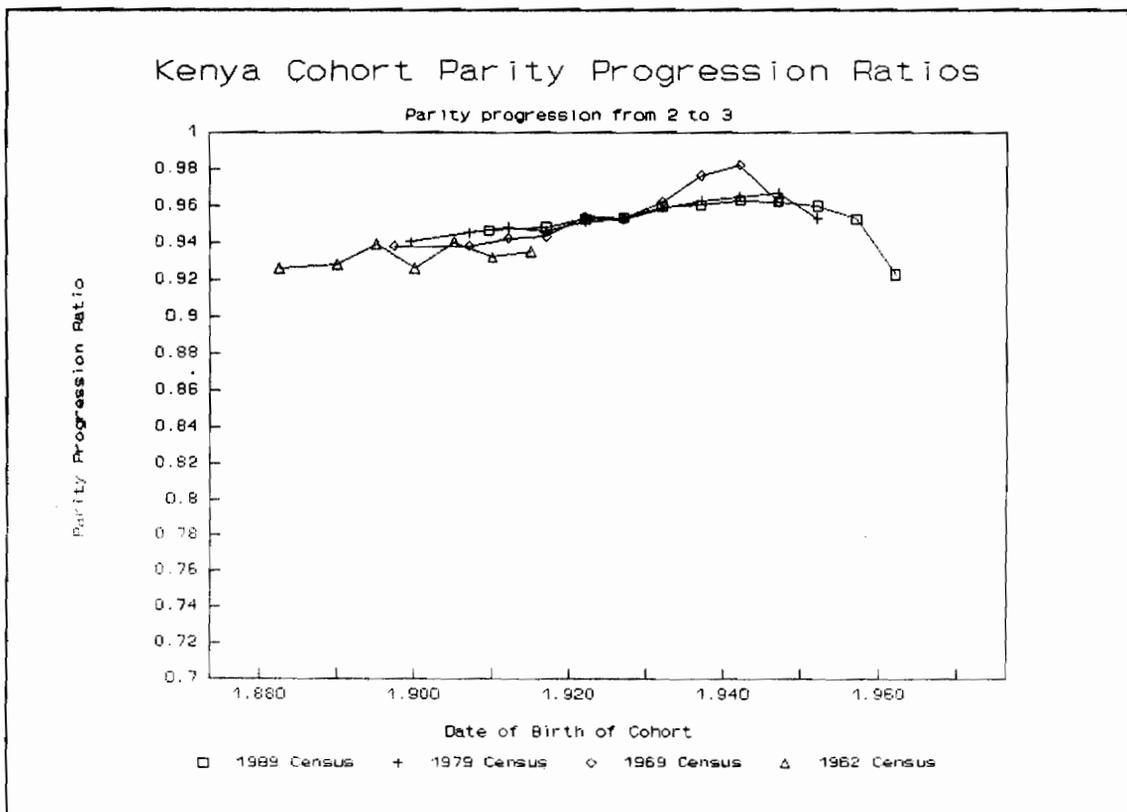
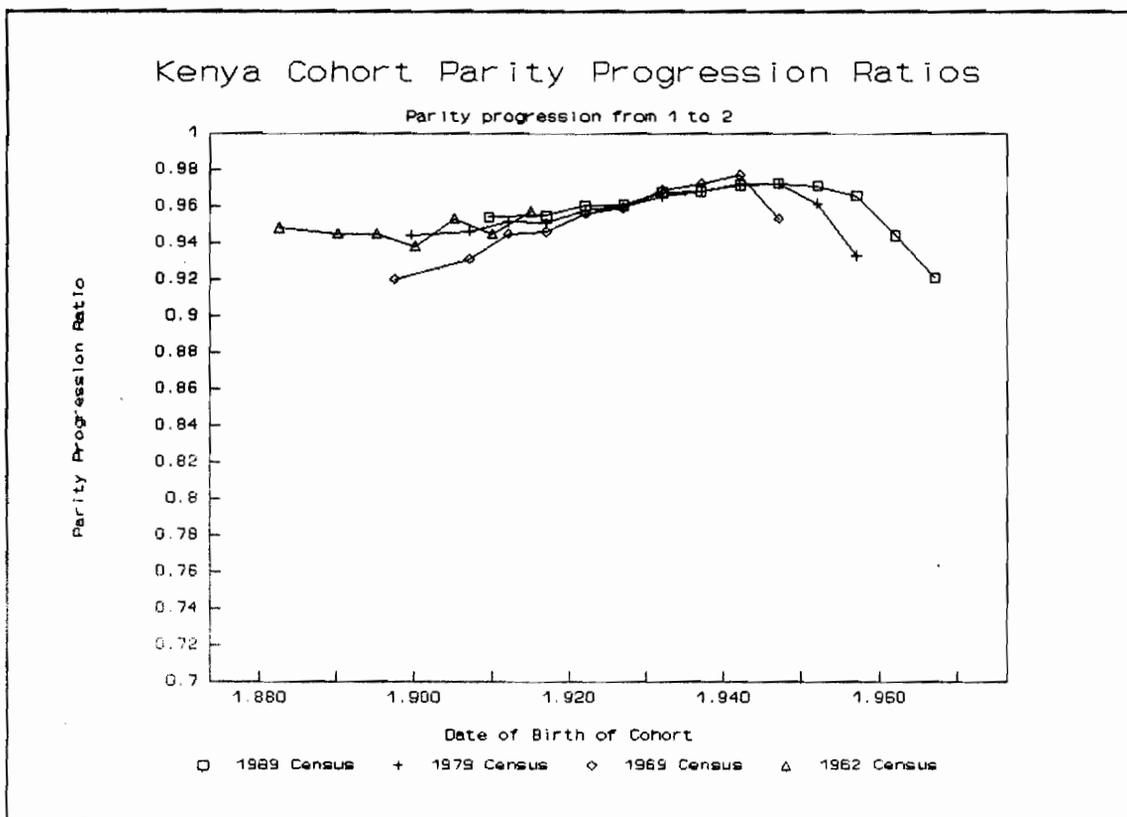
1969 Census

Age Group	Birth Cohort	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8
20-24	1944-49	0.953	0.962					
25-29	1939-44	0.977	0.982	0.955	0.957			
30-34	1934-39	0.972	0.976	0.966	0.966	0.916		
35-39	1929-34	0.969	0.962	0.955	0.944	0.914	0.881	
40-44	1924-29	0.959	0.953	0.944	0.919	0.904	0.868	
45-49	1919-24	0.956	0.954	0.940	0.910	0.887	0.857	0.815
50-54	1914-19	0.946	0.943	0.927	0.908	0.884	0.836	0.804
55-59	1909-14	0.945	0.942	0.926	0.907	0.882	0.850	0.804
60-64	1904-09	0.931	0.938	0.921	0.900	0.873	0.836	0.804
65+	Before 19	0.920	0.938	0.920	0.884	0.852	0.808	0.762

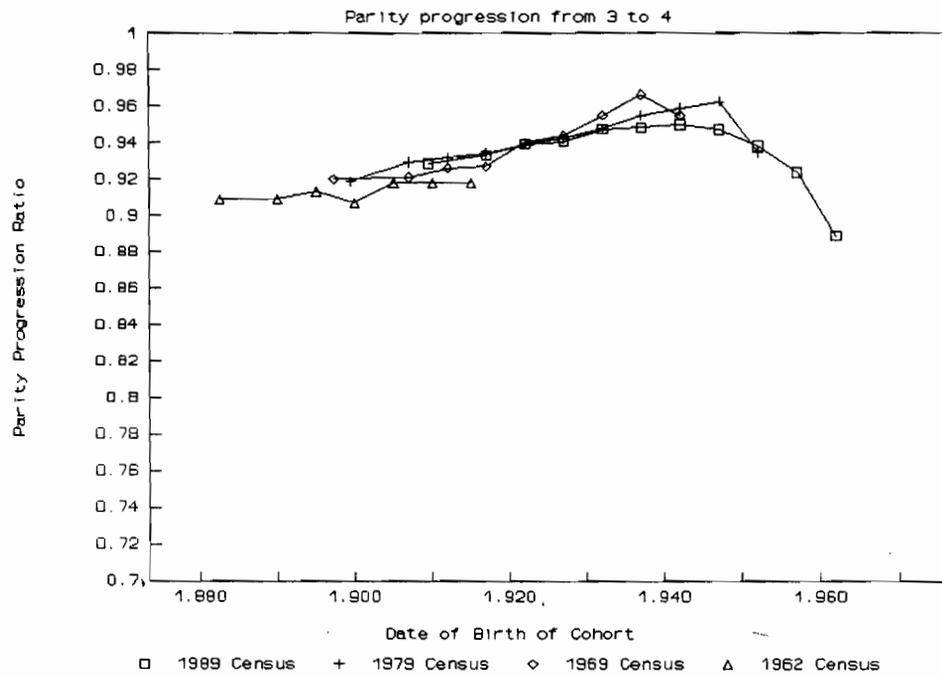
1962 Census

Age Group	Birth Cohort	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9
45-49	1912-17	0.957	0.935	0.918	0.894	0.867	0.832	0.799	0.729
50-54	1907-12	0.945	0.932	0.918	0.894	0.858	0.833	0.806	0.742
55-59	1902-07	0.953	0.940	0.918	0.911	0.878	0.838	0.824	0.773
60-64	1897-1902	0.938	0.926	0.907	0.892	0.850	0.829	0.807	0.729
65-69	1892-97	0.945	0.939	0.913	0.891	0.867	0.836	0.797	0.742
70-74	1887-92	0.945	0.928	0.909	0.873	0.858	0.791	0.797	0.705
75+	Before 18	0.948	0.926	0.909	0.875	0.848	0.787	0.772	0.714

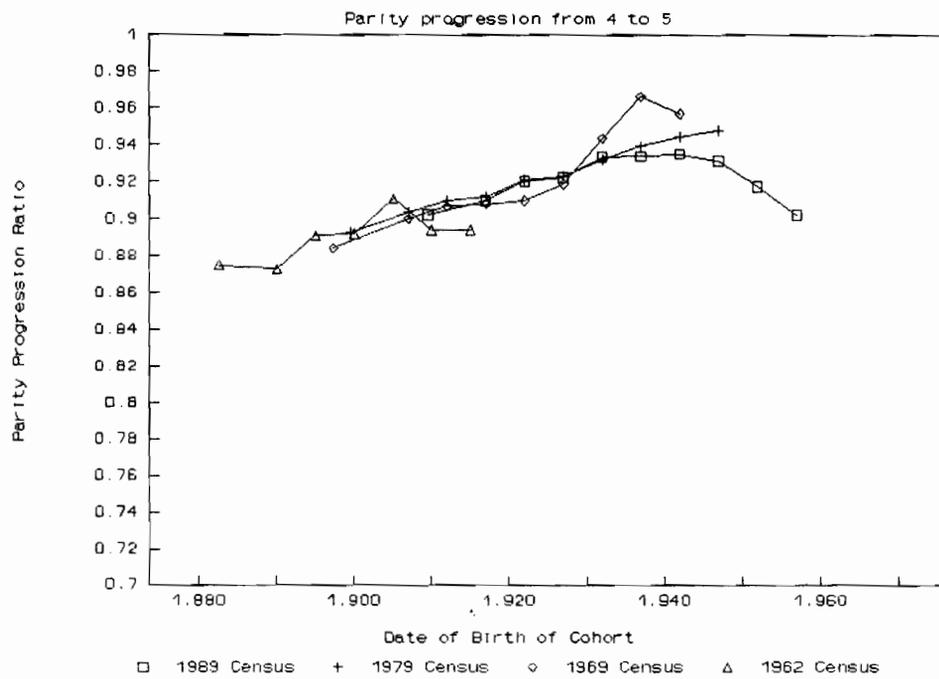
Figure 3



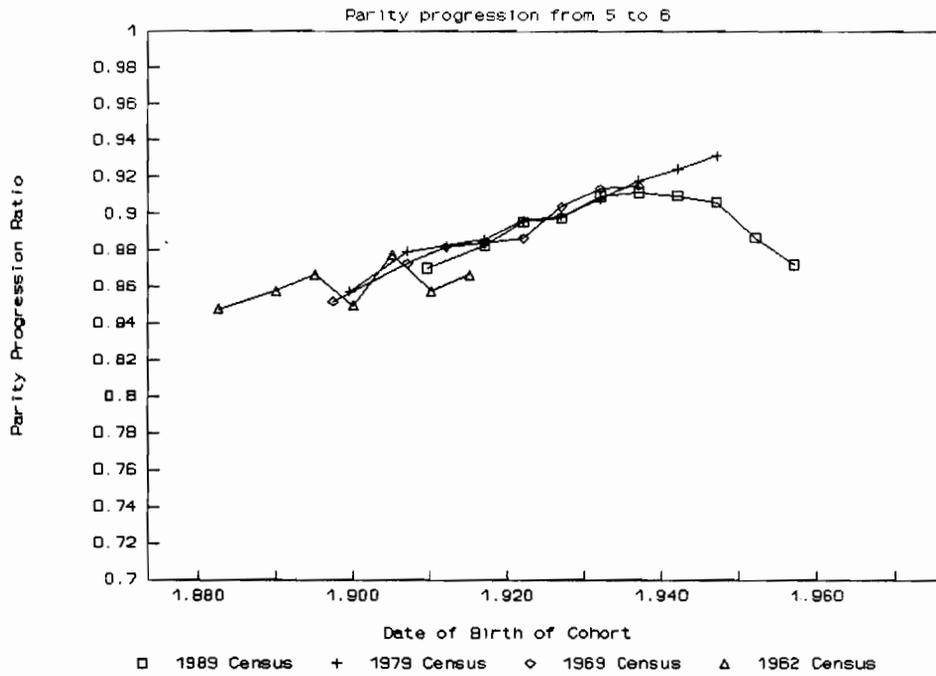
Kenya Cohort Parity Progression Ratios



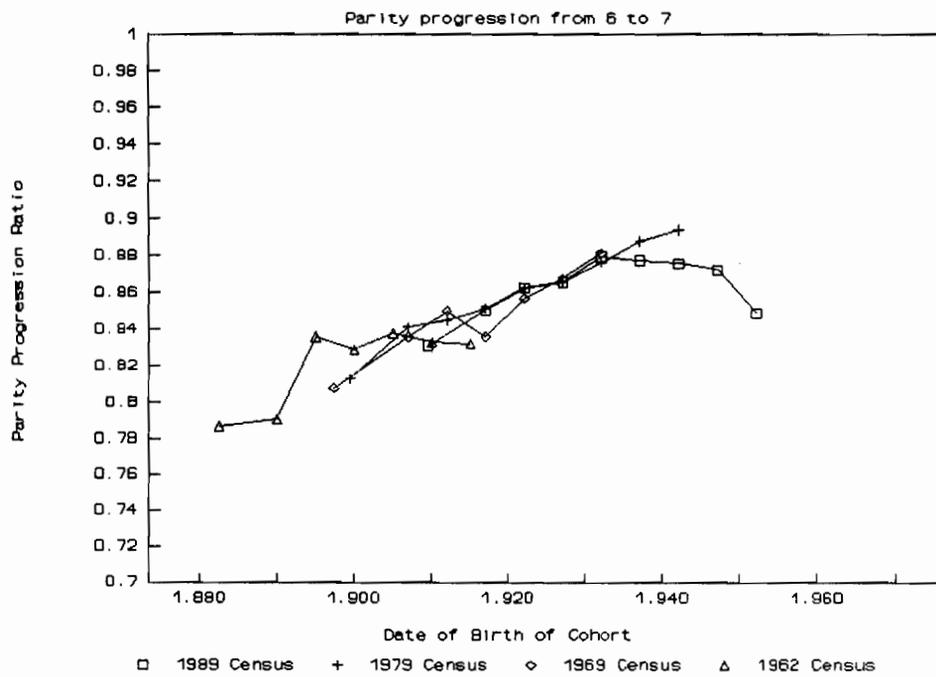
Kenya Cohort Parity Progression Ratios



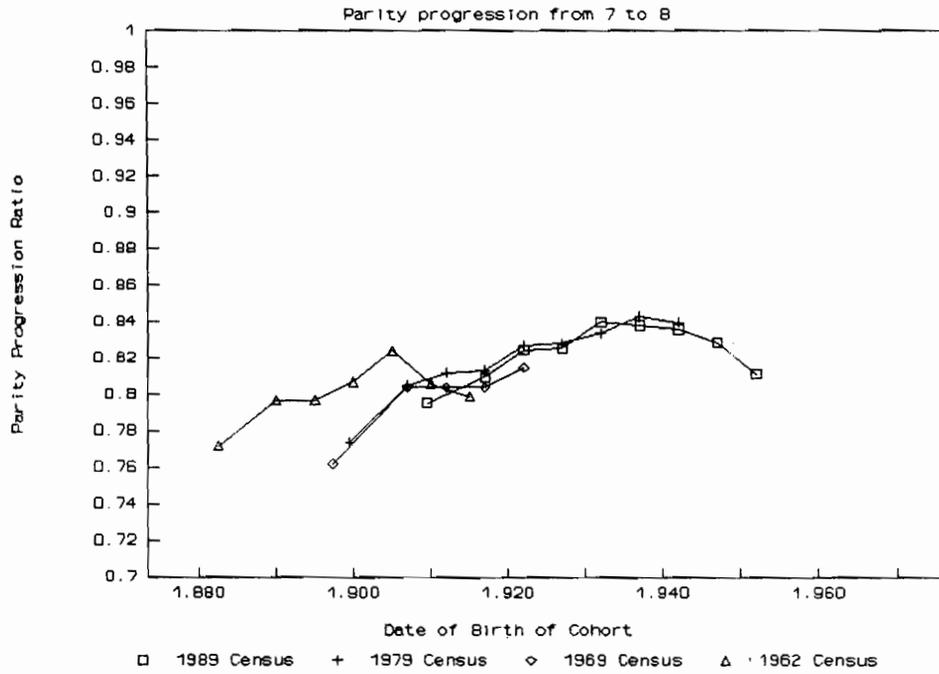
Kenya Cohort Parity Progression Ratios



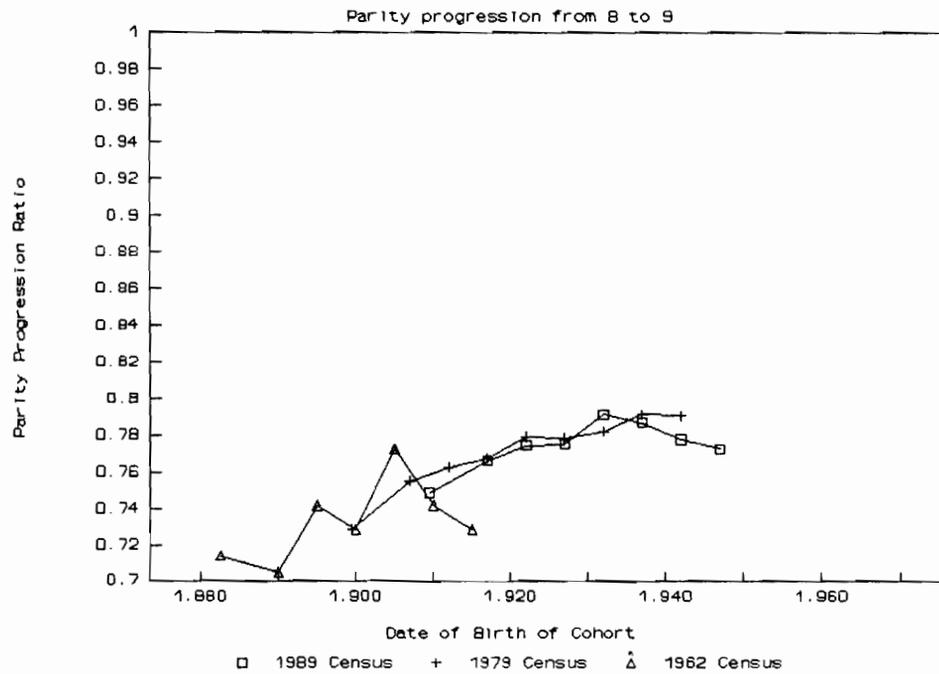
Kenya Cohort Parity Progression Ratios



Kenya Cohort Parity Progression Ratios



Kenya Cohort Parity Progression Ratios



(I) The consistency of the PPR's from the four censuses is remarkable, and boosts our confidence in the validity of the data. The trends shown by the youngest cohorts of mothers tend to be rather more erratic, since they were based largely on projected data rather than achieved fertility.

- (ii) There was a general rise in the PPR's, starting with the earliest cohorts of women covered by the data - those born in the late 19th century - and increasing steadily up to those born in the 1940's. These increases were minimal at the lower parities, and the lines of points for the proportions of women going from a first to a second birth, and from a second to a third are almost flat; but they then get steeper with increasing parity.
- (iii) There was a marked down-turn in the PPR's for the women in the youngest cohorts shown by the 1989 census. This down-turn was apparent at all parities, even those going from a first to a second birth. This feature confirms Brass's similar finding from the DHS data, not only for Kenya, but also for Botswana, Nigeria and Zimbabwe, and provides a contrast to the patterns of change in most Asian and Latin American countries when they embarked on their fertility transitions (Brass, 1993, pp 75-78).

In order to quantify the rise in fertility noted in (ii) above, regression lines were fitted by least squares to the various sets of ratios for each parity progression obtained from the four censuses shown in Table 1.6. Data for cohorts of women born after that of 1939-44 were excluded. The regression coefficients (intercepts and slopes) are shown in Table 1.6.1. It may be noted that the slopes increase with parity up to the PPR from 6 to 7 births and then fall away slightly.

Regression Coefficients of Cohort PPR's

Table 1.6.1

Parity Progression	Intercept	Slope
1 to 2	0.94287	0.00067
2 to 3	0.93538	0.00075
3 to 4	0.91700	0.00095
4 to 5	0.89093	0.00129
5 to 6	0.86284	0.00136
6 to 7	0.82202	0.00163
7 to 8	0.78781	0.00139
8 to 9	0.73785	0.00138

Model parity progression ratios were then calculated from these regression equations for birth cohorts of women born at five-yearly intervals from 1900 to 1945 as shown in Table 1.6.2. Total fertility rates were then obtained from these PPR's using the formula:

$$TFR = p(0) + p(0).p(1) + p(0).p(1).p(2) + \dots$$

where $p(0)$, $p(1)$, $p(2)$ etc are the parity progression ratios from 0 to 1, 1 to 2, 2 to 3, .. etc respectively. (Feeney 1988). But before this formula could be applied it was necessary to have estimates of the PPR's both from 0 to 1 and at higher parities

above 9. The latter were estimated by fitting parabolas to the series of PPR's for each birth cohort and extrapolating them up to the PPR 16 to 17; beyond that the addition of extra terms in the formula made negligible differences to the estimated TFR's.

The estimation of the trend in PPR's from 0 to 1 is more problematic, and the evidence is conflicting. The Demographic and Health Surveys of 1989 and 1993 showed extremely low proportions of childless women over 35 (see Table 1.1.2) - indeed so low as to be questionable. The 1993 DHS recorded only 1.1 per cent of women aged 45-49 as childless. The census data are confounded by the problem of the "not stated" women, but when adjusted with the El Badry correction the 1969, 1979 and 1989 censuses all showed proportions childless in the neighbourhood of 5 per cent for women aged 35-49. All three censuses also show the percentages both childless and not stated increasing at older ages, but the El Badry correction cannot be used with any confidence above age 50, and when it was applied to the 1962 census it gave manifestly misleading results. The increasing trend at older ages may well be spurious, and, except perhaps in the Coast districts, there is little evidence that there was a higher prevalence of sterility among earlier generations of women in Kenya. The East African Medical Survey, conducted in the early 1950's, showed nearly 10 per cent of women aged 35 and over to be childless in Msambweni at the Coast, but less than 1 per cent in Kisii (Brass, 1958). We have therefore assumed only a very modest increase in the PPR from 0 to 1: from 0.94 for the 1900 birth cohort to 0.95 for that of 1940.

The trend in the cohort TFR's shown in the left-hand column of Table 1.6.2 suggest that prior to the 1945 cohort the TFR had been rising by about 2.5 per cent per annum. It is reassuring to note that the TFR for the 1945 cohort, who will have done most of their child-bearing between 1965 and 1980, agrees closely with the estimated TFR for 1969-79 inter-censal hypothetical cohort.

Regression Estimates of Cohort Parity Progression Ratios and Total Fertility Rates

Table 1.6.2

Birth Cohort	Parity Progression Ratio								
	TFR	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9
1900	6.2319	0.9429	0.9354	0.9170	0.8909	0.8628	0.8220	0.7878	0.7379
1905	6.3752	0.9462	0.9391	0.9217	0.8974	0.8696	0.8302	0.7948	0.7447
1910	6.5240	0.9495	0.9428	0.9265	0.9039	0.8764	0.8383	0.8018	0.7516
1915	6.6786	0.9528	0.9466	0.9312	0.9104	0.8832	0.8464	0.8087	0.7585
1920	6.8392	0.9562	0.9503	0.9360	0.9168	0.8900	0.8546	0.8157	0.7654
1925	7.0061	0.9595	0.9540	0.9407	0.9233	0.8968	0.8627	0.8227	0.7722
1930	7.1797	0.9628	0.9578	0.9455	0.9298	0.9036	0.8708	0.8297	0.7791
1935	7.3603	0.9661	0.9615	0.9502	0.9362	0.9105	0.8790	0.8366	0.7860
1940	7.5481	0.9695	0.9652	0.9550	0.9427	0.9173	0.8871	0.8436	0.7929
1945	7.7100	0.9728	0.9690	0.9597	0.9492	0.9241	0.8952	0.8506	0.7997

In conclusion therefore, fertility increased during the decade of 1969-79 and declined during 1979-89. The total fertility rate dropped from 7.8 during the 1969-79 decade to 6.6 during 1979-89.

CHAPTER 2: FERTILITY DIFFERENTIALS IN KENYA

2.0 INTRODUCTION

As already highlighted in Chapter 1, quality of fertility data is greatly undermined by several errors particularly under-reporting of births as well as mis-dating of events. Direct estimates of age specific fertility rates are, therefore, generally low (Brass, 1968). Thus the procedures used to derive estimates of fertility at national level (Chapter 1) were also applied to the study of fertility differentials, namely by district, type of residence, educational attainment and marital status. Information for all these subgroups, save for education, was not available for 1969. Hence an attempt was only made to analyse data using the available 1989 and 1979 information.

Much as a number of studies have underscored the influence of modern sector employment on the fertility of women, this study could not do the same for reasons pertaining to data quality. The data collected on the labour force was fraught with inconsistencies which could not readily be resolved. Consequently, evidence on the variations in fertility levels with mother's employment was not conclusive and was left out altogether.

2.1 FERTILITY BY DISTRICT

Table 2.1a and Table 2.1b show variations in average parities of women of reproductive age (15-49 years) by districts and provinces for the 1979 and 1989 censuses respectively. These average parities have been adjusted using the El Badry correction procedure described in chapter 1 to overcome the problem of women with parity "not stated", which biases average parities downwards. The uncorrected average parities for 1969, 1979 and 1989 censuses are provided in Appendix V (Also, the reported diverse parities by education and marital status are shown in Appendix VI and VII respectively).

Bearing in mind that the mean births for women aged 45-49, even with El Badry correction, would invariably under-estimate the level of fertility due to memory lapse, the mean parity of women aged 40-44 was used to indicate levels of lifetime fertility.

The provincial estimates of average parity in 1989 ranged from 4.8 children ever born per woman in Nairobi to 7.9 in Western. On the other hand, the district estimates ranged from 4.8 in both Nairobi and Mombasa to 8.3 in both Kisii and Bungoma. The same pattern was portrayed in 1979, with provincial estimates ranging from 5.3 in Nairobi to 8.3 in Western, while the district estimates ranged from 4.8 in Mombasa to 8.8 and 8.9 in Bungoma and Kisii respectively. Other districts that exhibited high fertility, in excess of 8

children ever born per woman, include Trans-Nzoia (8.1) in 1989, and Kakamega (8.4), Trans-Nzoia (8.3), Nyandarua (8.1) and Kisii (8.9) in 1979.

The majority of the districts showed plausible declines in average parities in 1989, while some either showed a rise or just no change. Declines in the average number of children ever born were recorded in Nairobi, Central and Nyanza Provinces, changing from 5.3, 7.4 and 7.8 in 1979 to 4.8, 7.1 and 7.5 in 1989 respectively. Sharp declines were registered in Nairobi, Kiambu, Kisii, Kisumu, South Nyanza, Kakamega and Bungoma districts. Coast, Eastern and Rift Valley Provinces showed only minimal rise in the average number of children ever born while it was constant in North Eastern province. A considerable rise was recorded in Nandi and Narok Districts in Rift Valley province. In North Eastern Province only Garissa District showed a decline in the average number of children ever born, while it rose slightly in Mandera and Wajir. In Coast Province, only Taita Taveta and Tana River Districts had a decline, while Kilifi and Lamu both had a rise. No change was observed in Mombasa and Kwale.

Kenya 1979 Population Census, El Badry Corrected Average Parities for Women aged 15-49 by District/Province
Table 2.1a

Age Group	KENYA										Mombasa																					
	KENYA RURAL		KENYA URBAN		Nairobi		Central		Kiambu		Kirin-yaga		Muranga		Nyeri		COAST		Kilifi		Kwale		Lamu		Mombasa		Taveta		T/River			
15-19	0.329	0.328	0.343	0.300	0.210	0.210	0.210	0.210	0.210	0.220	0.220	0.220	0.240	0.190	0.410	0.480	0.460	0.350	0.390	0.250	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	
20-24	1.900	1.986	1.598	1.380	1.720	1.720	1.720	1.720	1.720	1.770	1.770	1.750	1.910	1.670	1.990	2.260	2.060	1.950	1.680	1.810	1.910	1.910	1.910	1.910	1.910	1.910	1.910	1.910	1.910	1.910	1.910	
25-29	3.745	3.890	3.166	2.860	3.770	3.770	3.770	3.770	3.770	3.940	3.940	3.840	4.150	3.730	3.590	3.870	3.760	3.720	3.060	3.740	3.600	3.600	3.600	3.600	3.600	3.600	3.600	3.600	3.600	3.600	3.600	
30-34	5.525	5.701	4.598	4.110	5.620	5.620	5.620	5.620	5.620	5.850	5.850	5.640	6.120	5.520	5.040	5.300	5.150	5.040	4.200	5.640	5.380	5.380	5.380	5.380	5.380	5.380	5.380	5.380	5.380	5.380	5.380	
35-39	6.635	6.797	5.522	4.950	6.790	6.790	6.790	6.790	6.790	6.970	6.970	6.710	7.490	6.670	5.710	5.780	5.870	5.980	4.740	6.570	6.330	6.330	6.330	6.330	6.330	6.330	6.330	6.330	6.330	6.330	6.330	
40-44	7.200	7.370	5.885	5.260	7.390	7.390	7.390	7.390	7.390	7.410	7.410	7.380	8.080	7.130	6.000	6.000	6.160	5.590	4.800	7.270	6.950	6.950	6.950	6.950	6.950	6.950	6.950	6.950	6.950	6.950	6.950	
45-49	7.356	7.503	6.010	5.320	7.490	7.490	7.490	7.490	7.490	7.490	7.490	7.410	8.160	7.180	6.030	5.960	6.190	6.030	4.840	7.330	6.930	6.930	6.930	6.930	6.930	6.930	6.930	6.930	6.930	6.930	6.930	
Age Group	EAST-ERN		Macha-kos		N-EAST-ERN		Marsabit		Meru		N-EAST-ERN		Garissa		Mandera		Wajir		NYANZA		Kisii		Kisumu		Siaya		S/Nyanza					
15-19	0.250	0.180	0.270	0.300	0.210	0.210	0.200	0.200	0.320	0.160	0.160	0.160	0.190	0.140	0.140	0.440	0.390	0.490	0.400	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500		
20-24	1.770	1.650	1.710	1.940	1.740	1.740	1.450	1.820	1.820	1.440	1.440	1.440	1.700	1.270	1.350	2.170	2.160	2.160	2.120	2.220	2.220	2.220	2.220	2.220	2.220	2.220	2.220	2.220	2.220	2.220	2.220	
25-29	3.680	3.800	3.160	3.810	3.740	3.740	2.750	3.650	3.650	3.150	3.150	3.150	3.440	2.860	3.080	4.130	4.490	3.920	3.850	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	
30-34	5.530	5.810	4.580	5.640	5.760	5.760	3.890	5.370	5.370	4.730	4.730	4.730	5.220	4.340	4.600	6.070	6.720	5.770	5.580	5.990	5.990	5.990	5.990	5.990	5.990	5.990	5.990	5.990	5.990	5.990	5.990	
35-39	6.500	6.870	5.410	6.450	6.780	6.780	4.830	6.300	6.300	5.850	5.850	5.850	6.340	5.510	5.640	7.200	8.090	6.880	6.530	7.080	7.080	7.080	7.080	7.080	7.080	7.080	7.080	7.080	7.080	7.080	7.080	
40-44	6.840	7.380	5.760	6.570	7.240	7.240	5.380	6.680	6.680	6.650	6.650	6.650	7.120	6.360	6.490	7.790	8.870	7.550	6.970	7.680	7.680	7.680	7.680	7.680	7.680	7.680	7.680	7.680	7.680	7.680	7.680	
45-49	6.840	7.290	6.080	6.480	7.190	7.190	5.560	6.690	6.690	7.190	7.190	7.190	7.520	7.030	7.010	7.890	9.040	7.670	6.970	7.930	7.930	7.930	7.930	7.930	7.930	7.930	7.930	7.930	7.930	7.930	7.930	
Age Group	R-VALLEY		Mara-kwet		Kajiado		Kericho		Laikipia		Nakuru		Nandi		Sambur		T/Nzoia		Turkana		U/Gishu		W/Pokot		WEST-ERN		Kaka-mega		Bungo-ma		Busia	
15-19	0.380	0.360	0.260	0.510	0.410	0.410	0.340	0.330	0.330	0.440	0.440	0.440	0.530	0.250	0.400	0.250	0.360	0.410	0.320	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	0.310	
20-24	2.060	2.180	1.960	2.180	2.110	2.110	2.020	1.890	1.890	2.280	2.280	2.280	2.130	1.530	2.240	1.470	2.090	2.120	2.000	1.960	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	
25-29	3.870	4.210	3.820	3.750	4.000	4.000	3.950	3.720	3.720	4.120	4.120	4.120	3.770	3.040	4.130	2.810	3.960	3.910	3.950	3.940	4.020	4.020	4.020	4.020	4.020	4.020	4.020	4.020	4.020	4.020	4.020	
30-34	5.580	5.950	5.360	5.740	5.980	5.980	5.470	5.510	5.510	5.880	5.880	5.880	5.210	4.640	6.050	4.110	5.640	5.480	6.000	6.020	6.060	6.060	6.060	6.060	6.060	6.060	6.060	6.060	6.060	6.060	6.060	
35-39	6.660	6.880	6.270	6.990	7.260	7.260	6.740	6.710	6.710	6.850	6.850	6.850	6.070	5.350	7.460	4.820	6.780	6.440	7.440	7.520	7.690	7.690	7.690	7.690	7.690	7.690	7.690	7.690	7.690	7.690	7.690	
40-44	7.200	7.240	6.590	6.110	7.990	7.990	6.990	7.350	7.350	7.320	7.320	7.320	6.330	6.080	8.260	5.430	7.150	7.010	8.320	8.430	8.750	8.750	8.750	8.750	8.750	8.750	8.750	8.750	8.750	8.750	8.750	
45-49	7.290	7.140	6.490	6.070	8.130	8.130	7.460	7.530	7.530	7.120	7.120	7.120	6.570	6.240	8.520	5.690	7.190	7.020	8.590	8.750	9.050	9.050	9.050	9.050	9.050	9.050	9.050	9.050	9.050	9.050	9.050	

Kenya 1989 Population Census, El Badry Corrected Average Parities for Women aged 15-49 by District/Province
Table 2.1b

Age Group	KENYA										Mombasa									
	KENYA	RURAL	URBAN	Nairobi	Central	Kiambu	Kirin-yaga	Muranga	Nyandarua	Nyeri	COAST	Kilifi	Kwale	Lamu	asa	T/Taveta	T/River			
15-19	0.273	0.273	0.271	0.223	0.172	0.196	0.17	0.166	0.167	0.15	0.337	0.386	0.406	0.272	0.296	0.201	0.329			
20-24	1.61	1.713	1.257	1.046	1.315	1.292	1.255	1.386	1.479	1.218	1.608	1.845	1.847	1.711	1.264	1.372	1.798			
25-29	3.357	3.581	2.587	2.236	2.982	2.816	2.829	3.255	3.254	2.868	3.175	3.48	3.493	3.37	2.577	3.126	3.49			
30-34	5.049	5.327	3.856	3.312	4.677	4.356	4.629	5.023	5.041	4.564	4.714	5.021	5.007	5.438	3.739	4.913	5.24			
35-39	6.247	6.523	4.803	4.217	6.003	5.544	6.048	6.333	6.719	5.854	5.667	5.938	5.925	6.266	4.519	6.254	6.377			
40-44	7.093	7.334	5.43	4.759	7.069	6.69	7.146	7.255	7.943	6.838	6.108	6.302	6.249	6.496	4.787	7.021	6.842			
45-49	7.44	7.632	5.73	5.03	7.553	7.301	7.595	7.534	8.425	7.374	6.253	6.309	6.34	6.645	4.847	7.41	7.162			
Age Group	EAST-ERN	Embu	Isiolo	Kitui	Machakos	Marsabit	Meru	N-EAST-ERN	Garissa	Mandera	Wajir	NYANZA	Kisii	Kisumu	Siaya	S/Nyanza				
15-19	0.178	0.133	0.302	0.204	0.14	0.244	0.213	0.195	0.177	0.216	0.194	0.395	0.289	0.435	0.36	0.515				
20-24	1.431	1.164	1.698	1.562	1.393	1.505	1.473	1.542	1.451	1.586	1.588	2.039	1.844	2.04	2.01	2.243				
25-29	3.232	2.889	3.191	3.541	3.251	3.039	3.202	3.239	3.191	3.247	3.284	3.904	3.955	3.828	3.764	3.948				
30-34	4.97	4.809	4.84	5.303	5.036	4.334	4.875	4.683	4.729	4.578	4.741	5.586	5.973	5.385	5.266	5.497				
35-39	6.243	6.26	5.544	6.495	6.445	5.096	6.029	6.15	6.357	5.972	6.097	6.682	7.299	6.392	6.261	6.531				
40-44	7.092	7.5	6.267	7.161	7.386	5.223	6.871	6.699	6.898	6.562	6.642	7.453	8.27	7.163	6.952	7.247				
45-49	7.281	7.816	6.24	7.149	7.6	5.518	7.076	7.153	7.254	7.123	7.08	7.745	8.746	7.447	7.138	7.522				
Age Group	R-VALLEY	Baringo	Mara-kwet	Kajiado	Kericho	Laikipia	Nakuru	Nandi	Narok	Sambur	T/Nzoia	Turkana	U/Gishu	W/Pokot	WEST-ERN	Kaka-mega	Bungoma	Busia		
15-19	0.321	0.238	0.249	0.464	0.383	0.216	0.253	0.29	0.522	0.269	0.323	0.236	0.27	0.368	0.277	0.255	0.276	0.353		
20-24	1.755	1.701	1.666	1.85	1.881	1.507	1.557	1.867	2.14	1.563	1.854	1.47	1.598	1.968	1.808	1.741	1.841	1.948		
25-29	3.593	3.823	3.65	3.423	3.796	3.243	3.28	3.874	3.905	3.296	3.841	2.965	3.479	3.808	3.743	3.679	3.846	3.732		
30-34	5.336	5.756	5.432	4.977	5.626	4.976	4.997	5.655	5.456	4.743	5.719	4.336	5.345	5.537	5.582	5.539	5.736	5.409		
35-39	6.513	6.959	6.538	5.939	6.888	6.303	6.28	6.944	6.511	5.632	7.126	5.035	6.648	6.359	6.88	6.85	7.171	6.451		
40-44	7.301	7.484	6.871	6.476	7.911	7.17	7.32	7.742	7.125	6.326	8.073	5.754	7.271	6.983	7.923	7.933	8.305	7.271		
45-49	7.556	7.539	7.002	6.725	8.21	7.446	7.845	7.69	7.166	6.09	8.479	5.966	7.629	7.15	8.349	8.375	8.775	7.606		

EI Badry-Corrected Hypothetical Cohort Average Parities for Women Aged 15-49 by District, 1979-89

Table 2.2

Age Group	KENYA- KENYA-										Nyanza-			Mombasa					
	RURAL	URBAN	NAIROBI CENTRAL	Kiambu	Kirinyaga	Muranga	arua	Nyeri	COAST	Kilifi	Kwale	Lamu	asa	T/Taveta	T/River				
15-19	0.273	0.273	0.271	0.223	0.172	0.196	0.170	0.166	0.167	0.150	0.337	0.337	0.386	0.406	0.272	0.296	0.201	0.329	
20-24	1.610	1.713	1.257	1.046	1.315	1.292	1.255	1.386	1.479	1.218	1.608	1.608	1.845	1.847	1.711	1.264	1.372	1.798	
25-29	3.301	3.527	2.515	2.160	2.944	2.801	2.779	3.201	3.181	2.828	3.102	3.386	3.439	3.291	3.291	2.482	3.077	3.509	
30-34	4.759	5.054	3.514	2.977	4.272	3.997	4.114	4.659	4.610	4.112	4.331	4.606	4.794	4.199	4.199	3.323	4.476	5.128	
35-39	5.804	6.160	4.153	3.516	5.178	4.765	4.887	5.694	5.750	4.952	5.178	5.454	5.604	5.838	5.838	3.942	5.592	6.285	
40-44	6.328	6.687	4.347	3.627	5.721	5.278	5.410	6.274	6.433	5.430	5.399	5.607	5.893	6.654	6.654	3.910	5.856	6.590	
45-49	6.609	6.996	4.361	3.597	5.940	5.476	5.512	6.517	6.685	5.656	5.721	5.983	6.074	6.503	6.503	4.048	6.432	7.118	
Age Group	EAST-ERN	Embu	Isiolo	Kitui	Machakos	Marsabit	Meru	N-EAST	Garissa	Mandera	Wajir	NYANZA	Kisii	Kisumu	Siaya	S/Nyanza			
15-19	0.178	0.133	0.302	0.204	0.140	0.244	0.213	0.195	0.177	0.216	0.194	0.395	0.289	0.435	0.360	0.515			
20-24	1.431	1.164	1.698	1.562	1.393	1.505	1.473	1.542	1.451	1.586	1.588	2.039	1.844	2.040	2.010	2.243			
25-29	3.160	2.841	3.223	3.445	3.181	3.084	3.095	3.274	3.178	3.322	3.338	3.859	3.854	3.773	3.724	3.963			
30-34	4.631	4.323	4.828	4.925	4.689	4.389	4.528	4.785	4.480	4.894	4.979	5.455	5.657	5.265	5.156	5.520			
35-39	5.723	5.301	5.608	6.130	5.886	5.429	5.474	6.274	6.095	6.435	6.355	6.411	6.663	6.245	6.135	6.433			
40-44	6.193	6.013	6.515	6.445	6.315	5.722	6.029	6.755	6.158	7.116	7.021	6.839	7.207	6.658	6.527	6.777			
45-49	6.504	6.247	6.438	6.829	6.706	6.117	6.250	7.577	7.008	8.048	7.795	6.956	7.319	6.813	6.743	6.875			
Age Group	R-VALLEY	Baringo	Mara-kwet	Kajiado	Kericho	Laikipia	Nakuru	Nandi	Narok	Sambu-ru	T/Nzoia	Turkana	U/Gishu	W/Pokot	WEST-ERN	Kaka-mega	Bungo-ma	Busia	
15-19	0.321	0.238	0.249	0.464	0.383	0.216	0.253	0.290	0.522	0.269	0.323	0.236	0.270	0.368	0.277	0.255	0.276	0.353	
20-24	1.755	1.701	1.666	1.850	1.881	1.507	1.557	1.867	2.140	1.563	1.854	1.470	1.598	1.968	1.808	1.741	1.841	1.948	
25-29	3.534	3.700	3.638	3.377	3.772	3.119	3.203	3.724	3.897	3.315	3.764	2.950	3.389	3.767	3.700	3.624	3.813	3.695	
30-34	5.030	5.277	5.138	4.647	5.396	4.463	4.664	5.243	5.466	4.776	5.333	4.336	4.853	5.385	5.390	5.320	5.577	5.247	
35-39	6.177	6.450	6.356	5.566	6.670	5.472	5.763	6.548	6.638	5.907	6.760	5.175	6.077	6.216	6.630	6.534	6.963	6.316	
40-44	6.751	6.812	6.649	5.883	7.327	6.162	6.475	7.104	7.381	6.461	7.357	5.980	6.484	6.888	7.313	7.232	7.821	6.668	
45-49	7.072	7.109	7.088	6.301	7.620	6.178	6.899	7.387	7.734	6.648	7.779	6.321	6.926	6.926	7.539	7.389	8.049	7.053	

Table 2.2 presents the hypothetical cohort average parities derived from the El Badry corrected average parities of 1979 and 1989. These values were fitted with the Brass Relational Gompertz model to generate the Age Specific Fertility Rates (ASFRs) and the Total Fertility Rates (TFRs) for the period 1979-89 shown in Table 2.3 (corresponding values for the 1969-79 inter-censal period using non-El Badry adjusted average parities are shown in Appendix VIII).

Highest TFRs were recorded in North Eastern, Nyanza, Rift Valley and Western Provinces with over 7 births per woman, while the lowest was observed in Nairobi Province (3.8). Among districts, the highest TFRs in each province were recorded in Nyandarua in Central Province (6.6), Tana River in Coast Province (7.2), Kitui in Eastern Province (7.0), Mandera in North Eastern Province (7.9), Kisii in Nyanza Province (7.2), Trans-Nzoia in Rift Valley Province (8.0) and Bungoma in Western Province (8.1); lowest TFRs were in Kiambu in Central Province (5.2), Mombasa in Coast Province (4.3), Embu in Eastern Province (5.9), Garissa in North Eastern province (7.5), Siaya in Nyanza Province (6.8), Turkana in Rift Valley Province (5.7) and Busia in Western Province (7.1).

In Rift Valley province, Laikipia and Kajiado also recorded relatively low TFR's, being 6.2 and 6.3 births per woman respectively, while in Eastern province, Isiolo, Meru, and Marsabit Districts also recorded relatively low rates, being 6.0, 6.1 and 6.2 births per woman respectively.

Model Age Specific Fertility Rates for Women aged 15 - 49 by District, 1979 - 89

Age Group	KENYA- KENYA-										Mombasa									
	RURAL	URBAN	NAIROBI	CENTRA	Kiambu	Kirinyaga	Muranga	arua	Nyeri	COAST	Kilifi	Kwale	Lamu	Taveta	T/River					
10-14	0.0019	0.0017	0.0022	0.0017	0.0005	0.0007	0.0004	0.0004	0.0003	0.0033	0.0041	0.0038	0.0005	0.0032	0.0011	0.0030				
15-19	0.1581	0.1653	0.1354	0.1133	0.1193	0.1237	0.1145	0.1222	0.1086	0.1700	0.1958	0.1987	0.1618	0.1410	0.1288	0.1790				
20-24	0.3342	0.3596	0.2458	0.2094	0.3075	0.2889	0.2953	0.3352	0.2972	0.3032	0.3296	0.3378	0.3729	0.2332	0.3118	0.3538				
25-29	0.3223	0.3460	0.2173	0.1847	0.3016	0.2692	0.2818	0.3371	0.3433	0.2730	0.2839	0.2888	0.3136	0.2016	0.3208	0.3435				
30-34	0.2512	0.2664	0.1598	0.1347	0.2248	0.1949	0.2032	0.2538	0.2127	0.2066	0.2072	0.2083	0.2020	0.1486	0.2589	0.2758				
35-39	0.1674	0.1742	0.1016	0.0847	0.1383	0.1175	0.1204	0.1565	0.1267	0.1363	0.1320	0.1306	0.1068	0.0960	0.1762	0.1923				
40-44	0.0691	0.0700	0.0401	0.0328	0.0504	0.0421	0.0418	0.0569	0.0441	0.0565	0.0525	0.0509	0.0322	0.0390	0.0737	0.0849				
45-49	0.0076	0.0074	0.0041	0.0033	0.0045	0.0037	0.0035	0.0051	0.0037	0.0063	0.0055	0.0052	0.0022	0.0043	0.0082	0.0104				
Total	6.5587	6.9469	4.5442	3.8231	5.7349	5.2040	5.3042	6.3357	5.4224	5.7761	6.0532	6.1204	5.9597	4.3347	6.3976	7.2134				
Age Group	EAST-										S/Nyanza									
	ERN	Embu	Isiolo	Kitui	Machakos	Marsabit	Meru	N-EAST	Garissa	Mandera	Wajir	NYANZA	Kisii	Kisumu	Siaya					
10-14	0.0007	0.0003	0.0016	0.0009	0.0004	0.0018	0.0009	0.0014	0.0015	0.0011	0.0029	0.0010	0.0046	0.0029	0.0059					
15-19	0.1268	0.0998	0.1684	0.1418	0.1152	0.1459	0.1371	0.1361	0.1279	0.1381	0.2101	0.1767	0.2163	0.2024	0.2431					
20-24	0.3307	0.3007	0.3414	0.3536	0.3373	0.3104	0.3235	0.3345	0.3158	0.3498	0.3894	0.4052	0.3699	0.3752	0.3870					
25-29	0.3369	0.3167	0.3018	0.3578	0.3583	0.3042	0.3127	0.3672	0.3562	0.3747	0.3407	0.3725	0.3256	0.3308	0.3258					
30-34	0.2619	0.2442	0.2145	0.2801	0.2819	0.2412	0.2358	0.3192	0.3200	0.3128	0.2460	0.2668	0.2428	0.2410	0.2352					
35-39	0.1688	0.1529	0.1291	0.1832	0.1812	0.1639	0.1489	0.2367	0.2466	0.2200	0.1526	0.1594	0.1583	0.1511	0.1491					
40-44	0.0653	0.0561	0.0468	0.0725	0.0690	0.0694	0.0566	0.1106	0.1211	0.0956	0.0581	0.0565	0.0648	0.0583	0.0592					
45-49	0.0064	0.0050	0.0042	0.0074	0.0066	0.0079	0.0054	0.0145	0.0171	0.0112	0.0057	0.0049	0.0072	0.0058	0.0063					
Total	6.4873	5.8782	6.0388	6.9865	6.7491	6.2237	6.1045	7.6011	7.5304	7.5170	7.0276	7.2154	6.9474	6.8384	7.0575					
Age Group	R- VALLEY										WEST- Kaka-mega									
	Baringo	kwet	Mara-	Kajiado	Kericho	Laikipia	Nakuru	Nandi	Narok	Sambur	T/Nzoia	Turkana	U/Gishu	W/Pokot	ERN	Bungoma	Busia			
10-14	0.0028	0.0010	0.0014	0.0074	0.0043	0.0012	0.0018	0.0024	0.0087	0.0020	0.0033	0.0012	0.0022	0.0019	0.0017	0.0014	0.0030			
15-19	0.1765	0.1582	0.1588	0.2054	0.1951	0.1405	0.1500	0.1783	0.2331	0.1544	0.1828	0.1412	0.1569	0.2008	0.1709	0.1621	0.1724			
20-24	0.3509	0.3804	0.3665	0.3160	0.3671	0.3216	0.3255	0.3752	0.3679	0.3309	0.3701	0.3082	0.3363	0.3888	0.3805	0.3758	0.3904			
25-29	0.3381	0.3714	0.3622	0.2806	0.3580	0.3132	0.3234	0.3690	0.3386	0.3285	0.3742	0.2886	0.3392	0.3303	0.3755	0.3732	0.3965			
30-34	0.2685	0.2816	0.2826	0.2185	0.2937	0.2406	0.2590	0.2948	0.2734	0.2641	0.3134	0.2147	0.2779	0.2271	0.2957	0.2925	0.3219			
35-39	0.1846	0.1785	0.1862	0.1523	0.2117	0.1558	0.1776	0.2025	0.1986	0.1822	0.2291	0.1349	0.1962	0.1324	0.1981	0.1936	0.2228			
40-44	0.0799	0.0681	0.0750	0.0691	0.0982	0.0615	0.0759	0.0871	0.0950	0.0786	0.1074	0.0513	0.0872	0.0461	0.0819	0.0784	0.0699			
45-49	0.0095	0.0066	0.0079	0.0090	0.0130	0.0063	0.0088	0.0102	0.0134	0.0092	0.0144	0.0050	0.0107	0.0039	0.0090	0.0083	0.0112			
Total	7.0544	7.2293	7.2030	6.2909	7.7058	6.2030	6.6096	7.5977	7.6434	6.7497	7.9736	5.7254	7.0332	6.6569	7.5665	7.4267	8.0653			

**Crude Birth Rates and Total Fertility Rates by District/Province,
1979-1989**

Table 2.3a

District/Province	Crude Birth Rate	Total Fertility Rate
Kenya	48.0	6.6
Kenya-urban	39.1	4.5
Kenya-rural	49.5	7.0
Nairobi Province	35.8	3.8
Kiambu	39.9	5.2
Kirinyaga	38.1	5.3
Muranga	41.6	6.3
Nyandarua	43.1	6.6
Nyeri	37.7	5.4
Central Province	40.2	5.7
Kilifi	49.2	6.1
Kwale	49.4	6.1
Lamu	44.5	6.0
Mombasa	42.8	4.3
Taita-Taveta	43.4	6.4
Tana River	52.8	7.2
Coast Province	46.2	5.8
Embu	40.4	5.9
Isiolo	46.6	6.0
Kitui	48.6	7.0
Machakos	44.7	6.7
Marsabit	45.1	6.2
Meru	45.4	6.1
Eastern Province	45.3	6.5
Garissa	45.4	7.5
Mandera	49.6	7.9
Wajir	52.8	7.5
North Eastern Province	52.2	7.6
Kisii	53.7	7.2
Kisumu	53.6	6.9
Siaya	56.8	6.8
South Nyanza	55.7	7.1
Nyanza Province	53.9	7.0
Baringo	53.9	7.2
E.Marakwet	49.7	7.2
Kajiado	46.9	6.3
Kericho	51.9	7.7
Laikipia	42.0	6.2
Nakuru	47.5	6.6
Nandi	50.3	7.6
Narok	53.9	7.6
Samburu	49.4	6.7
Trans-Nzoia	53.4	8.0
Turkana	50.3	5.7
Uasin Gishu	49.4	7.0
West Pokot	52.7	6.7
Rift Valley Province	50.0	7.1
Bungoma	55.3	8.1
Busia	54.4	7.1
Kakamega	51.6	7.1
Western Province	53.3	7.6

2.1.1 CRUDE BIRTH RATES

Conventionally, the Crude Birth Rate (CBR) measures the proportion of births occurring annually to women aged 15-49 to the mid-year (period) population. The measure is referred to as crude because the denominator (mid-period population) used in its derivation usually includes men, children and old people who are not at risk of giving birth. However, it still suffices as a good summary indicator showing the changes in the total population in respect of births that have taken place over a given period of consideration.

As already discussed in Chapter 1, the observed general under-reporting of births occurring to women within the 12 months prior to the census made it difficult to derive CBRs directly from the reported births. Hence the model age specific fertility rates for the inter-censal period 1979-89 were used to

generate the mid period annual births, whose ratio to the total mid-period population gave the crude birth rate. The results are shown in Table 2.3a

The crude birth rate declined from about 54 per 1000 population during 1969-79 to 48 per 1000 population during 1979-89. It was higher in rural areas than in urban, being 49.5 per 1000 compared to 39.1 per 1000 respectively.

A number of provinces including North-Eastern, Nyanza, Rift-Valley and Western recorded rates well above the national figure. These ranged from 50.0 in Rift Valley to 53.9 in Nyanza. The provinces with rates below the national rate were Central (40.2), Coast (46.2) and Eastern (45.3).

Among the districts, Kirinyaga District emerged with the lowest rate (38.1) while Siaya had the highest (56.8), followed closely by Bungoma (55.3). High crude birth rates were also evidently associated with high total fertility rates.

2.2 FERTILITY BY PLACE OF RESIDENCE

Urbanisation is significantly correlated with fertility. Low levels of fertility are often found to be associated with high levels of urbanisation and vice-versa. Table 2.4 shows the reported and El Badry-corrected average parities for 1979 and 1989 population censuses, the 1979-89 hypothetical cohort average parities constructed from the corrected ones, and the Relational Gompertz Model age specific fertility rates fitted to the 1979-89 hypothetical cohort average parities. Comparison of the corrected average parities indicate lower fertility for women in urban areas both in 1979 and 1989, being 5.9 and 5.4 children ever born per woman, compared with 7.4 and 7.3 respectively for their rural counterparts, for women aged 40-44. Clearly, the average parities for 1989 showed a consistent fall on those of 1979 for all age groups of women for both urban and rural, save for the 45-49 age group in the rural areas where it increased slightly from 7.5 to 7.6. As already mentioned, this particular age group, more often than not, presents a peculiar case whereby the reported average parity is invariably lower than the expected, usually due to recall lapse by the women in this age category. Children who died in infancy or who have grown up and are living elsewhere are normally omitted by these older women.

It is also noteworthy that the observed fall in fertility, aside from affecting all age groups of women, was sharper in urban areas, particularly for women aged 25-39.

The model age specific fertility rates based on the hypothetical cohort average parities for the period 1979-89 gave a higher fertility in the urban than in the rural areas. For example, the TFR was 4.5 and 7.0 births per woman for the urban and rural women respectively. This pattern was consistent in all the age groups. Both rural and urban women depicted a typical early fertility peak with half of the births occurring to those aged 20-29. Teenage women (aged 15-19) apparently contributed a higher proportion of births in urban areas than in rural areas, being 15 and 12 per cent respectively.

The relatively lower fertility observed in urban areas was expected and has been revealed in a number of studies. Generally, urban women marry later, tend to be more educated and thus are more prone to social change, including use of more contraception, especially the more effective ones (Hill et al, 1994).

2.3 FERTILITY BY LEVEL OF EDUCATION ATTAINED

Education is one of the socio-economic factors that influence fertility. Extended formal education has been found to be one of the main reasons for the postponement of marriage among educated women (Kpedekpo, 1982).

Table 2.5 (and Appendix VI) show fertility differentials by education by comparing the fertility levels during the 1969-79 and 1979-89 decades. The average parities from the hypothetical cohorts show a consistent fall in fertility for all age groups and education categories. Similarly the total fertility rates declined from 7.8 to 7.5 for uneducated women, and from 7.9 to 7.1 for those with primary education, and 5.4 to 5.0 for those with secondary and above education. Clearly, women with secondary and above level of education had the lowest fertility, but it is interesting to observe that women with primary education recorded the sharpest fall in total fertility rate.

Relative age specific fertility rates define a broad type fertility peak. However, there was a consistent drop in proportions of births contributed by women aged under 30 and a subsequent rise in the same for those above 30, for 1969 to 1979 and 1979 to 1989 respectively, except for women with secondary and above level of education where the proportions hardly changed.

The proportion of births contributed by teenagers evidently dropped for all categories of education. It changed from 16.2 to 14.5 per cent for women with no education; from 11.8 to 11.2 per cent for women with primary education; and from 8.9 to 8.5 per cent for those with secondary and above level of education.

Thus, there were clear cut differences in fertility especially between women with little or no education and those with secondary and above level of education. While little education may not have much effect on the number of children a woman bears, secondary education is normally associated with reduced fertility. Part of the explanation for the lower fertility of better educated woman is that it delays not only marriage but also the first birth. The relative age specific fertility rates buttresses this observation with the proportion of births contributed by women aged 15-19 with secondary education substantially lower (by half) than that of their counterparts with no education.

Reported, El Badry-corrected and Hypothetical Cohort Average Parities, and Model Age Specific Fertility Rates by Type of Residence, 1979-89

Table 2.4

Age Group	REPORTED AVERAGE PARITIES				EL BADRY CORRECTED AVERAGE PARITIES				HYPOTHETICAL COHORT AVERAGE PARITIES		MODEL AGE SPECIFIC FERTILITY RATES		RELATIVE AGE SPECIFIC FERTILITY RATES	
	1979 Census		1989 Census		1979 Census		1989 Census		1979-89		1979-89		1979-89	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
15-19	0.319	0.330	0.265	0.262	0.327	0.343	0.273	0.271	0.273	0.271	0.165	0.135	0.119	0.149
20-24	1.936	1.537	1.660	1.213	1.982	1.595	1.713	1.257	1.713	1.257	0.360	0.246	0.259	0.272
25-29	3.796	3.053	3.470	2.496	3.885	3.169	3.581	2.587	3.528	2.515	0.346	0.217	0.249	0.240
30-34	5.567	4.430	5.163	3.721	5.698	4.598	5.327	3.856	5.059	3.518	0.266	0.160	0.192	0.177
35-39	6.644	5.322	6.322	4.635	6.801	5.524	6.523	4.803	6.165	4.150	0.174	0.102	0.125	0.113
40-44	7.197	5.674	7.108	5.240	7.367	5.889	7.334	5.430	6.694	4.350	0.070	0.040	0.051	0.044
45-49	7.326	5.793	7.397	5.530	7.499	6.013	7.632	5.730	6.997	4.356	0.007	0.004	0.005	0.005
TFR											7.0	4.5	1.000	1.000

2.4 FERTILITY BY MARITAL STATUS

Table 2.6 (and Appendix VII) presents variations in age specific fertility rates for the 1979-89 intercensal period by marital status. As for the other cases, these rates were derived by fitting a Relational Gompertz model to the hypothetical cohort average parities built from the 1979 and 1989 average parities of women aged 15-49. No El Badry adjustment was done on the marital status data since an attempt to do so proved as worthless as it was misleading, with the factors being implausible, especially for the widowed and separated or divorced women.

It is observed from Table 2.6 that single women continued to exhibit the lowest fertility with a TFR of 4.3, while married women had the highest TFR of 7.3. The divorced or separated women reported two births per woman less than their widowed counterparts.

Reported, El Badry Corrected and Hypothetical Cohort Average Parities and Model Age-Specific Fertility Rates by Educational Attainment, 1969, 1979 and 1989

Table 2.5

Educational Attainment	Reported average parity			Corrected average parity			Hypothetical Cohort Average Parity		Model Age Specific Fertility Rates		Relative Age Specific Fertility Rates	
	1969	1979	1989	1969	1979	1989	1969-79	1979-89	1969-79	1979-89	1969-79	1979-89
	Census	Census	Census	Census	Census	Census						
NONE												
15-19	0.457	0.571	0.476	0.469	0.583	0.484	0.583	0.484	0.249	0.216	0.162	0.145
20-24	2.051	2.194	1.990	2.104	2.240	2.024	2.240	2.024	0.383	0.324	0.248	0.217
25-29	3.701	3.840	3.621	3.796	3.922	3.681	4.035	3.583	0.344	0.313	0.223	0.210
30-34	5.090	5.519	4.933	5.221	5.637	5.016	5.773	4.799	0.272	0.274	0.176	0.183
35-39	5.970	6.498	6.399	6.124	6.637	6.506	6.876	6.168	0.193	0.221	0.125	0.148
40-44	6.403	6.987	7.087	6.568	7.137	7.206	7.689	6.367	0.090	0.123	0.058	0.082
45-49	6.648	7.126	7.374	6.819	7.279	7.498	8.031	7.028	0.012	0.022	0.008	0.015
TFR									7.8	7.5	1.000	1.000
PRIMARY												
15-19	0.268	0.285	0.227	0.274	0.293	0.236	0.293	0.236	0.186	0.159	0.118	0.112
20-24	1.744	1.965	1.650	1.786	2.020	1.714	2.020	1.714	0.418	0.340	0.266	0.239
25-29	3.683	3.779	3.333	3.773	3.885	3.462	3.904	3.405	0.398	0.343	0.253	0.242
30-34	5.465	5.473	4.775	5.598	5.627	4.960	5.861	4.653	0.300	0.281	0.191	0.198
35-39	6.496	6.717	6.232	6.654	6.906	6.472	7.037	5.992	0.191	0.198	0.121	0.139
40-44	7.221	7.497	7.089	7.396	7.708	7.363	7.971	6.389	0.073	0.088	0.046	0.062
45-49	7.754	7.727	7.452	7.942	7.944	7.739	8.327	6.825	0.007	0.011	0.005	0.008
TFR									7.9	7.1	1.000	1.000
SECONDARY PLUS												
15-19	0.082	0.146	0.119	0.086	0.153	0.124	0.153	0.124	0.096	0.085	0.089	0.085
20-24	0.678	0.960	0.898	0.709	1.007	0.936	1.007	0.936	0.261	0.245	0.241	0.246
25-29	1.790	2.383	2.302	1.873	2.499	2.399	2.567	2.369	0.278	0.262	0.257	0.263
30-34	2.930	3.482	3.566	3.066	3.651	3.717	3.949	3.646	0.226	0.209	0.209	0.210
35-39	3.506	3.984	4.435	3.668	4.178	4.622	4.872	4.492	0.152	0.136	0.141	0.137
40-44	3.333	4.237	4.796	3.487	4.443	4.999	5.327	4.993	0.062	0.053	0.057	0.053
45-49	3.197	3.903	4.719	3.344	4.093	4.918	5.297	5.232	0.007	0.005	0.006	0.005
TFR									5.4	5.0	1.000	1.000

Reported and Hypothetical Cohort Average Parities and Model Age-Specific Fertility Rates for Women aged 15 - 49 by Marital Status, 1979 - 89

Table 2.6

Marital Status	Reported average parity		Hypothetical Cohort Average Parity 1979-89	Model Age Specific Fertility Rates 1979-89	Relative Age Specific Fertility Rates 1979-89
	1979 Census	1989 Census			
SINGLE					
15-19	0.084	0.108	0.108	0.060	0.070
20-24	0.701	0.612	0.612	0.152	0.176
25-29	1.620	1.562	1.586	0.187	0.217
30-34	2.686	2.604	2.515	0.187	0.217
35-39	3.248	3.447	3.413	0.164	0.190
40-44	3.430	3.953	3.782	0.095	0.110
45-49	3.477	4.281	4.446	0.017	0.020
TFR				4.3	1.000
MARRIED					
15-19	0.911	0.949	0.949	0.259	0.183
20-24	2.239	2.083	2.083	0.278	0.197
25-29	3.897	3.581	3.619	0.255	0.180
30-34	5.611	5.175	5.019	0.232	0.164
35-39	6.698	6.313	6.035	0.209	0.148
40-44	7.293	7.155	6.563	0.143	0.101
45-49	7.462	7.476	6.813	0.038	0.027
TFR				7.3	1.000
WIDOWED					
15-19	1.224	1.264	1.264	0.300	0.232
20-24	2.791	2.488	2.488	0.265	0.205
25-29	4.166	3.926	3.966	0.223	0.172
30-34	5.473	5.198	4.895	0.193	0.149
35-39	6.252	6.028	5.828	0.169	0.131
40-44	6.583	6.628	6.050	0.114	0.088
45-49	6.707	6.883	6.459	0.030	0.023
TFR				6.9	1.000
DIVORCED/SEPARATED					
15-19	1.010	1.024	1.024	0.238	0.257
20-24	1.983	1.942	1.942	0.203	0.220
25-29	3.148	2.922	2.936	0.162	0.175
30-34	4.199	3.879	3.838	0.133	0.144
35-39	4.923	4.581	4.369	0.108	0.117
40-44	5.184	5.049	4.688	0.066	0.071
45-49	5.340	5.175	4.621	0.015	0.016
TFR				4.9	1.000

Evidence deriving from average parities shows that fertility fell marginally during 1979-1989 for the married and divorced or separated women but rather rose for single women. The average parities for women aged 40-44 for these respective categories changed from 7.3, 5.2 and 3.4 in 1979 to 7.2, 5.0 and 4.0 in 1989. No change in lifetime fertility was noted for widowed women. However, the fall and rise in fertility for the various categories of marital status did not occur universally and in the same direction across all age groups. For instance, for women who were single, average parities rose slightly for

women under 20, followed by a fall for those aged 20-34 and a rise again for women aged 40 and above; for married and widowed women, average parities rose for those under 20, then fell for those aged 20-44 and rose again for women aged 45-49; for the divorced or separated women, it rose for those under 20 and fell for the rest of the age groups.

In general, significant falls in fertility were observed for women aged 20-39 for all classes of marital status, save for the single women.

However, the errors pertaining to non-response by women as to their parity were inherent in these data. This was apparent from the large contributions to overall births by women aged under 25, who were widowed and divorced or separated. Hence the results need to be interpreted with caution. This may also partially explain why El Badry adjustment could not be achieved in this particular case.

2.5 PARITY PROGRESSION RATIOS

Further insights into trends in fertility differentials are derived from incomplete Parity Progression Ratios (PPR's) described in chapter 1. These ratios were computed for 1979 and 1989 censuses for regions, type of residence and marital status, and for 1969, 1979 and 1989 censuses for educational attainment. As already stated earlier on in this chapter, the 1969 parity distribution data was not available for the other sub-groups except levels of educational attainment. Also, the PPRs from childlessness (parity zero) to first birth was deleted in this analysis as it was evidently suffering from errors pertaining to "not stated" women, the majority of whom are believed to be childless.

This method of looking at fertility trends is usually advantageous, especially in cases where there are other changes in fertility confusing the interpretation, for instance, increasing age at marriage or shortening of birth intervals, because of less intensive breast feeding, among others (Brass, 1985). Experience, Brass adds, has shown that total births of medium orders are generally well recorded for women in the relevant age groups who report children. Nevertheless, most common failures of this method are the erroneous classification of mothers as childless as well as omission of children at very high birth orders. Thus, trends in the middle PPRs, most indicative of the adoption of family limitation on a considerable scale, can then be measured.

2.5.1 PARITY PROGRESSION RATIOS BY REGION

This analysis attempted to study trends in variations in fertility by regions up to provincial level only. It was thought that analysis by districts would produce unmanageably vast information. The age group 15-19 was also disregarded in the analysis since it exhibited irregular oscillations indicating high presence of errors.

Table 2.7 shows that generally, the 1989 PPRs were lower than those of 1979 for all provinces except North Eastern. This drop in (fertility) did not cut across all age groups, as women who were aged 40 and above showed the contrary except in Nairobi and Western provinces where the drop cut across all age groups of women, and in Nyanza where the PPRs remained more or less the same. Drops in PPRs were mild for lower birth orders (3

or less) but more pronounced at higher parities. Marked drops in PPRs were however recorded for women aged 25-39, most noticeably 30-34. (See also graphs in Appendix IX).

Specific provinces

Nairobi Province: The PPRs for 1989 were consistently lower for all age groups of women. No clear cut trend was observed concerning the magnitude of change vis-a-vis age. However, major changes were more common to women aged 25-39, especially at high parities.

Central Province: The 1989 PPRs were generally lower for women under 44 years and slightly higher for women aged above 44. They were markedly lower for women aged 30-34 especially for middle order ratios. The same was observed for women aged 25-29 and 35-39.

Coast Province: The 1989 PPRs were marginally higher for women aged 45-49. For women aged 30-44, the 1989 PPRs were higher at lower parities - that is - 2 or less for women aged 30-34; 3 or less for women aged 35-39; and 4 or less for women aged 40-44. But at high birth orders, the PPRs consistently dropped in 1989, except for women aged 45-49. However, the drop in PPRs was, on average, less than 5 per cent or thereabouts.

Eastern Province: All women aged over 40 showed higher PPRs in 1989 while ratios were lower in 1989 for women below 40 years. The 1979 and 1989 PPRs were closer at lower parities (3 or less), although the latter were lower. However the differences were much larger at higher parities with the latter being remarkably lower than the former. Largest drops were recorded for women aged 25-34.

North-Eastern Province: The 1989 PPRs remained higher at all ages except 45-49 where they were more or less the same as 1979 ones. The largest increase in PPRs for all birth orders was registered for women aged 20-29, that is, these women were largely responsible for the fertility increase observed in North Eastern province. Mixed performances by women aged 40-44 and 45-49 are suspect and could be attributed to errors relating to misreporting (most probably under-reporting) of children ever borne. Evidence elsewhere indicated high level of under-coverage of population in this province.

Nyanza Province: The 1989 PPRs were lower at all birth orders for all age groups of women except 45-49 where they were more or less the same as the 1979 ones at higher parities, and slightly higher at lower parities. For women aged 35-44, the differences between the PPRs were small except for women aged 35-39 with 7 or more children, where the differences were larger. Thus fertility drop in Nyanza Province was experienced in all age groups albeit more marked for women aged 20-34.

Rift-Valley Province: 1989 PPRs were lower for women aged 20-39 although the differences were in most cases less than 5 per cent. For women aged 40-49, the 1989 PPRs were higher by under 2 per cent. Larger drops were observed for women aged 20-34, at birth order 5 or more for women 30-34, 3 or more for women aged 25-29 and 1 or more for women 20-24.

Parity Progression Ratios for Women Aged 20-49 by Province, 1979 and 1989

Table 2.7

NAIROBI		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.6067	0.5119	0.4467	0.4146					
	1989	0.5335	0.4432	0.4186	0.4303					
25-29	1979	0.8365	0.7429	0.6616	0.5712	0.5244				
	1989	0.7575	0.6505	0.5757	0.5083	0.5091				
30-34	1979	0.9155	0.8396	0.7968	0.7385	0.7003	0.6378			
	1989	0.8776	0.7875	0.7152	0.6495	0.6215	0.5589			
35-39	1979	0.9386	0.8733	0.8404	0.8135	0.7983	0.7475	0.6978	0.6499	0.5956
	1989	0.9201	0.8538	0.7934	0.7198	0.6994	0.6508	0.6371	0.6013	0.5917
40-44	1979	0.9299	0.8821	0.8529	0.8451	0.8310	0.8072	0.7496	0.7139	0.6585
	1989	0.9356	0.8800	0.8359	0.7731	0.7514	0.7161	0.6947	0.6533	0.6350
45-49	1979	0.9326	0.8864	0.8483	0.8309	0.8382	0.8209	0.7753	0.7076	0.6953
	1989	0.9387	0.8776	0.8503	0.8096	0.7965	0.7604	0.7324	0.7046	0.6751
CENTRAL		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.6672	0.5223	0.4329	0.4165					
	1989	0.5783	0.4416	0.3796	0.4074					
25-29	1979	0.9247	0.8615	0.7515	0.6142	0.4999				
	1989	0.8600	0.7580	0.6212	0.5034	0.4501				
30-34	1979	0.9721	0.9546	0.9257	0.8642	0.7640	0.6538			
	1989	0.9492	0.9141	0.8510	0.7537	0.6559	0.5662			
35-39	1979	0.9759	0.9697	0.9560	0.9327	0.8879	0.8156	0.7213	0.6200	0.5353
	1989	0.9708	0.9554	0.9255	0.8765	0.8160	0.7383	0.6688	0.5873	0.5493
40-44	1979	0.9746	0.9710	0.9596	0.9465	0.9153	0.8688	0.8064	0.7263	0.6453
	1989	0.9763	0.9683	0.9544	0.9265	0.8900	0.8412	0.7804	0.7120	0.6492
45-49	1979	0.9718	0.9671	0.9580	0.9413	0.9167	0.8786	0.8239	0.7572	0.6772
	1989	0.9765	0.9721	0.9603	0.9444	0.9128	0.8763	0.8239	0.7562	0.7005
COAST		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.7135	0.6085	0.5488	0.5081					
	1989	0.6735	0.5520	0.4721	0.4765					
25-29	1979	0.8837	0.8274	0.7565	0.6686	0.6023				
	1989	0.8707	0.7960	0.7004	0.6112	0.5598				
30-34	1979	0.9283	0.9051	0.8793	0.8314	0.7772	0.7189			
	1989	0.9367	0.9017	0.8524	0.8002	0.7306	0.6563			
35-39	1979	0.9352	0.9158	0.9023	0.8767	0.8414	0.8040	0.7389	0.6807	0.6272
	1989	0.9499	0.9291	0.8992	0.8740	0.8335	0.7765	0.7239	0.6594	0.6069
40-44	1979	0.9315	0.9209	0.9059	0.8914	0.8728	0.8398	0.7876	0.7496	0.6918
	1989	0.9474	0.9322	0.9116	0.8991	0.8712	0.8314	0.7846	0.7264	0.6799
45-49	1979	0.9274	0.9184	0.9067	0.8941	0.8741	0.8383	0.8070	0.7486	0.7058
	1989	0.9436	0.9306	0.9129	0.9044	0.8822	0.8442	0.8134	0.7576	0.7050
EASTERN		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.6589	0.5425	0.4787						
	1989	0.6119	0.4712	0.4102						
25-29	1979	0.9098	0.8378	0.7312	0.6178	0.5394				
	1989	0.8910	0.7959	0.6570	0.5399	0.4719				
30-34	1979	0.9608	0.9433	0.9099	0.8480	0.7608	0.6759			
	1989	0.9608	0.9336	0.8743	0.7888	0.6849	0.5870			

Parity Progression Ratios for Women Aged 20-49 by Province, 1979 and 1989
Table 2.7 (cont.)

35-39	1979	0.9702	0.9591	0.9429	0.9105	0.8623	0.7890	0.7094	0.6332	0.5705
	1989	0.9749	0.9626	0.9355	0.8961	0.8379	0.7616	0.6753	0.6019	0.5498
40-44	1979	0.9662	0.9590	0.9466	0.9219	0.8850	0.8372	0.7696	0.7041	0.6255
	1989	0.9752	0.9675	0.9506	0.9325	0.8947	0.8507	0.7841	0.7132	0.6500
45-49	1979	0.9661	0.9585	0.9418	0.9181	0.8808	0.8363	0.7788	0.7171	0.6503
	1989	0.9751	0.9686	0.9511	0.9367	0.9047	0.8595	0.8096	0.7404	0.6814
N-EAST		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.5966	0.4953	0.4257						
	1989	0.6713	0.5344	0.4887						
25-29	1979	0.8779	0.7735	0.6385	0.5389					
	1989	0.8996	0.8009	0.6802	0.5814					
30-34	1979	0.9472	0.9122	0.8434	0.7541	0.656	0.587			
	1989	0.9581	0.9214	0.8641	0.7855	0.6924	0.6129			
35-39	1979	0.9753	0.9522	0.9097	0.8628	0.7851	0.6918	0.6316	0.5661	0.5347
	1989	0.9771	0.9628	0.9323	0.8812	0.8141	0.7371	0.6626	0.5791	0.5393
40-44	1979	0.9766	0.9646	0.939	0.9035	0.8494	0.7861	0.727	0.647	0.5779
	1989	0.9758	0.9619	0.9415	0.9149	0.8612	0.8084	0.7511	0.6598	0.5895
45-49	1979	0.9822	0.9719	0.9527	0.9292	0.886	0.8456	0.7543	0.6924	0.6235
	1989	0.9844	0.9677	0.9513	0.9347	0.8787	0.8297	0.7711	0.705	0.6855
NYANZA		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.7729	0.6466	0.5401	0.4896					
	1989	0.7532	0.6173	0.5060	0.4638					
25-29	1979	0.9293	0.8915	0.8164	0.7175	0.6198	0.5609			
	1989	0.9249	0.8759	0.7917	0.6777	0.5853	0.5194			
30-34	1979	0.9630	0.9533	0.9351	0.9009	0.8462	0.7660			
	1989	0.9597	0.9451	0.9229	0.8798	0.8072	0.7157			
35-39	1979	0.9710	0.9658	0.9560	0.9394	0.9112	0.8667	0.8098	0.7359	0.6613
	1989	0.9671	0.9615	0.9496	0.9314	0.8995	0.8454	0.7757	0.6931	0.6289
40-44	1979	0.9719	0.9687	0.9623	0.9485	0.9312	0.9009	0.8553	0.8004	0.7341
	1989	0.9716	0.9664	0.9563	0.9454	0.9257	0.8944	0.8530	0.7903	0.7272
45-49	1979	0.9701	0.9673	0.9602	0.9494	0.9305	0.9042	0.8666	0.8170	0.7593
	1989	0.9734	0.9679	0.9588	0.9472	0.9286	0.9025	0.8693	0.8102	0.7538

Parity Progression Ratios for Women Aged 20-49 by Province, 1979 and 1989
Table 2.7 (cont.)

RIFT-VALLEY		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.7299	0.5984	0.5061	0.4669					
	1989	0.6820	0.5396	0.4500	0.4292					
25-29	1979	0.9194	0.8551	0.7606	0.6530	0.5689	0.5079			
	1989	0.9063	0.8292	0.7278	0.6094	0.5242	0.4826			
30-34	1979	0.9624	0.9392	0.9017	0.8480	0.7761	0.6894			
	1989	0.9610	0.9337	0.8930	0.8277	0.7480	0.6531			
35-39	1979	0.9713	0.9547	0.9346	0.9036	0.8662	0.8082	0.7483	0.6791	0.6173
	1989	0.9745	0.9582	0.9345	0.9015	0.8571	0.8005	0.7311	0.6487	0.5935
40-44	1979	0.9715	0.9580	0.9430	0.9181	0.8937	0.8542	0.8110	0.7587	0.7080
	1989	0.9773	0.9644	0.9497	0.9268	0.8979	0.8583	0.8080	0.7507	0.6960
45-49	1979	0.9660	0.9566	0.9413	0.9222	0.8935	0.8606	0.8208	0.7783	0.7281
	1989	0.9749	0.9656	0.9532	0.9333	0.9059	0.8726	0.8341	0.7792	0.7337
WESTERN		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.7263	0.5933	0.4951						
	1989	0.7042	0.5715	0.4711						
25-29	1979	0.9236	0.8785	0.7918	0.6608	0.5580				
	1989	0.9168	0.8590	0.7581	0.6391	0.5424				
30-34	1979	0.9654	0.9554	0.9364	0.8932	0.8227	0.7252			
	1989	0.9612	0.9467	0.9186	0.8637	0.7837	0.6852			
35-39	1979	0.9752	0.9693	0.9610	0.9417	0.9171	0.8692	0.8016	0.7343	0.6583
	1989	0.9707	0.9633	0.9512	0.9321	0.8957	0.8390	0.7754	0.6892	0.6192
40-44	1979	0.9776	0.9753	0.9682	0.9545	0.9396	0.9125	0.8800	0.8211	0.7531
	1989	0.9765	0.9704	0.9600	0.9501	0.9306	0.8983	0.8642	0.8015	0.7396
45-49	1979	0.9758	0.9744	0.9691	0.9593	0.9450	0.9198	0.8862	0.8404	0.7825
	1989	0.9788	0.9729	0.9647	0.9531	0.9373	0.9094	0.8791	0.8337	0.7797

Western Province: The 1989 PPRs were lower at all birth orders and for all age groups of women. The drop was however very slight (less than 1 per cent) for women aged above 40 and about 5 per cent for women aged 25-34, especially at higher parities. These are the women who were largely responsible for the fertility decline observed in Western Province.

2.5.2 PARITY PROGRESSION RATIOS BY PLACE OF RESIDENCE

Table 2.8 (and graphs in Appendix X) provides the incomplete PPRs for Kenyan women by place of residence, according to 1979 and 1989 censuses.

Urban areas: The PPRs of urban women in 1989 showed a fall on those of 1979 for all age groups, albeit lesser for women above age 45. Gravity of the drop was greater for women aged 20-34 for all birth orders. For women aged 35-39, the drop was greater for women of middle birth orders (parity 3 to 6, say), where it was above 4 per cent. The

same was true for women aged 40-44 at higher parities (5 and above). **Rural areas:** Unlike in urban areas, the PPRs did not drop for all age groups. They dropped for women aged 30-34 at all birth orders; for women aged 35-39 at parity 5 and above; and for women aged 40-44 at parity 6 and above. The drop in PPRs at lower parities (3 or less) was marginal, except for women aged 20-24 where it was greater.

Comparison between corresponding urban and rural PPRs confirmed lower fertility in the former, with PPRs significantly lower than in the latter both in 1979 and 1989, and the gaps being larger.

Parity Progression Ratios for Women Aged 20-49 by Type of Residence, 1979 and 1989
Table 2.8

URBAN		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.6481	0.5513	0.4838	0.4486					
	1989	0.5776	0.4815	0.4415	0.4475					
25-29	1979	0.8591	0.7843	0.7037	0.6138	0.5523	0.5030			
	1989	0.7962	0.6978	0.6236	0.5521	0.5260	0.5104			
30-34	1979	0.9254	0.8782	0.8457	0.7920	0.7436	0.6700			
	1989	0.9009	0.8329	0.7708	0.7097	0.6681	0.6067			
35-39	1979	0.9426	0.9046	0.8812	0.8609	0.8337	0.7840	0.7263	0.6718	0.6190
	1989	0.9333	0.8880	0.8413	0.7883	0.7572	0.7158	0.6826	0.6279	0.6020
40-44	1979	0.9354	0.9131	0.8941	0.8795	0.8679	0.8287	0.7824	0.7411	0.6845
	1989	0.9429	0.9079	0.8765	0.8437	0.8119	0.7750	0.7484	0.6994	0.6604
45-49	1979	0.9347	0.9176	0.8957	0.8827	0.8663	0.8404	0.8020	0.7588	0.7112
	1989	0.9426	0.9068	0.8882	0.8659	0.8465	0.8135	0.7800	0.7420	0.7047
RURAL										
20-24	1979	0.7179	0.5905	0.5040	0.4694					
	1989	0.6798	0.5429	0.4568	0.4447					
25-29	1979	0.9220	0.8641	0.7702	0.6572	0.5674	0.5119			
	1989	0.9101	0.8356	0.7224	0.6079	0.5295	0.4913			
30-34	1979	0.9633	0.9473	0.9177	0.8660	0.7899	0.7040			
	1989	0.9624	0.9407	0.8986	0.8313	0.7453	0.6537			
35-39	1979	0.9712	0.9618	0.9475	0.9214	0.8835	0.8256	0.7563	0.6820	0.6145
	1989	0.9731	0.9625	0.9417	0.9108	0.8640	0.7998	0.7292	0.6505	0.5943
40-44	1979	0.9710	0.9646	0.9535	0.9349	0.9085	0.8710	0.8209	0.7615	0.6963
	1989	0.9750	0.9671	0.9536	0.9355	0.9067	0.8671	0.8152	0.7517	0.6929
45-49	1979	0.9682	0.9627	0.9526	0.9363	0.9120	0.8791	0.8362	0.7842	0.7265
	1989	0.9748	0.9687	0.9562	0.9417	0.9159	0.8814	0.8412	0.7820	0.7294

2.5.3 PARITY PROGRESSION RATIOS BY EDUCATIONAL ATTAINMENT

Parity Progression Ratios by Educational Attainment were computed for 1969, 1979 and 1989 censuses. Unlike other characteristics, data on education were available also for 1969, thus enabling analysis at the three points of time.

Parity progression ratios were for women with no education, primary education and secondary and above, as shown in Table 2.9 (see also graphs in Appendix XI).

No Education: The PPRs increased during 1969-79 and 1979-89 above age 40 and at all birth orders; an increase was also recorded over the entire period for women aged 25-39 at birth order 2 or less. The PPRs also increased during 1969-79 and then dropped during 1979-89 for women aged 20-39 who had 3 or more children. However the rise in

**Parity Progression Ratios for Women aged 15 - 49 by Educational Attainment,
1969, 1979 and 1989**

Table 2.9

NONE		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+
15-19	1969	0.3723	0.3275	0.3008	0.2673			
	1979	0.4035	0.3703	0.3780	0.4269			
	1989	0.4183	0.4273	0.4508	0.2032			
20-24	1969	0.7486	0.6130	0.5185	0.4734			
	1979	0.7567	0.6337	0.5419	0.4983			
	1989	0.7616	0.6329	0.5354	0.5050			
25-29	1969	0.9178	0.8539	0.7624	0.6680	0.5877	0.5377	
	1979	0.9158	0.8599	0.7781	0.6835	0.6032	0.5435	
	1989	0.9252	0.8664	0.7756	0.6711	0.5864	0.5310	
30-34	1969	0.9495	0.9303	0.8919	0.8346	0.7558	0.6776	0.6096
	1979	0.9562	0.9394	0.9098	0.8626	0.7992	0.7231	0.6531
	1989	0.9595	0.9399	0.9040	0.8516	0.7762	0.6889	0.4246
35-39	1969	0.9586	0.9452	0.9257	0.8924	0.8449	0.7869	0.7230
	1979	0.9660	0.9558	0.9404	0.9142	0.8775	0.8229	0.7572
	1989	0.9683	0.9575	0.9371	0.9117	0.8698	0.8125	0.7457
40-44	1969	0.9544	0.9484	0.9323	0.9007	0.8785	0.8335	0.7903
	1979	0.9654	0.9590	0.9469	0.9269	0.9009	0.8630	0.8146
	1989	0.9706	0.9622	0.9479	0.9313	0.9039	0.8655	0.8169
45-49	1969	0.9539	0.9517	0.9351	0.9146	0.8860	0.8504	0.8069
	1979	0.9634	0.9584	0.9476	0.9300	0.9046	0.8717	0.8291
	1989	0.9709	0.9644	0.9514	0.9361	0.9120	0.8776	0.8384
PRIMARY		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+
15-19	1969	0.2764	0.2422	0.2259	0.2500			
	1979	0.2890	0.2791	0.3270	0.3820			
	1989	0.2866	0.3089	0.4189	0.2151			
20-24	1969	0.7126	0.5648	0.5156	0.5683			
	1979	0.7173	0.5697	0.4690	0.4166			
	1989	0.6819	0.5254	0.4303	0.4116			
25-29	1969	0.9261	0.8600	0.7516	0.6182	0.5284	0.4841	
	1979	0.9282	0.8717	0.7676	0.6315	0.5258	0.4655	
	1989	0.9155	0.8396	0.7168	0.5861	0.4999	0.4625	
30-34	1969	0.9644	0.9375	0.9121	0.8507	0.6788	0.5932	0.1409
	1979	0.9673	0.9502	0.9223	0.8636	0.7693	0.6631	0.5730
	1989	0.9594	0.9378	0.9009	0.8282	0.7314	0.6280	0.4055
35-39	1969	0.9761	0.9585	0.9408	0.9225	0.8693	0.8181	0.7314
	1979	0.9759	0.9661	0.9513	0.9262	0.8872	0.8239	0.7465
	1989	0.9712	0.9600	0.9394	0.9077	0.8580	0.7856	0.7091
40-44	1969	0.9720	0.9655	0.9581	0.9383	0.9088	0.8707	0.8227
	1979	0.9768	0.9704	0.9601	0.9467	0.9243	0.8866	0.8301
	1989	0.9758	0.9675	0.9528	0.9326	0.9025	0.8595	0.8048
45-49	1969	0.9800	0.9760	0.9530	0.9450	0.9240	0.8830	0.8590
	1979	0.9760	0.9680	0.9570	0.9460	0.9280	0.9200	0.8550
	1989	0.9770	0.9680	0.9570	0.9430	0.9150	0.8820	0.8380

**Parity Progression Ratios for Women aged 15 - 49 by Educational Attainment,
1969, 1979 and 1989**

Table 2.9 (cont.)

SECONDARY PLUS		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+
15-19	1969	0.2270	0.3409	0.1833	0.4545			
	1979	0.1874	0.2202	0.3623	0.4696			
	1989	0.2358	0.3516	0.5144	0.2850			
20-24	1969	0.9347	0.4538	0.5246	0.6038			
	1979	0.5036	0.4064	0.3659	0.3905			
	1989	0.5072	0.4120	0.3816	0.4252			
25-29	1969	0.7335	0.5959	0.5521	0.6051	0.5505	0.4556	
	1979	0.8072	0.6889	0.5714	0.4775	0.4385	0.4342	
	1989	0.7906	0.6724	0.5576	0.4686	0.4446	0.4622	
30-34	1969	0.8747	0.6797	0.6443	0.6624	0.7372	0.5834	0.6111
	1979	0.9088	0.8120	0.7501	0.6592	0.6058	0.5540	0.5429
	1989	0.9135	0.8422	0.7513	0.6478	0.5734	0.5039	0.3662
35-39	1969	0.9210	0.7626	0.6832	0.7409	0.7806	0.7541	0.7055
	1979	0.9310	0.8068	0.7705	0.7612	0.7557	0.6826	0.6728
	1989	0.9453	0.8890	0.8308	0.7394	0.6850	0.6271	0.5951
40-44	1969	0.8988	0.7591	0.6995	0.6492	0.7694	0.7659	0.7743
	1979	0.9301	0.8199	0.7853	0.8024	0.7974	0.7584	0.7483
	1989	0.9498	0.8875	0.8515	0.7916	0.7417	0.7088	0.6825
45-49	1969	0.8889	0.7465	0.7093	0.7459	0.7363	0.8090	0.8708
	1979	0.9206	0.8085	0.7395	0.7637	0.8172	0.8173	0.8086
	1989	0.9417	0.8650	0.8371	0.8155	0.7833	0.7408	0.7284

PPRs during 1969-79 outstripped the drop during 1979-89. Thus in general fertility dropped in 1989 but remained at a level higher than in 1969 for women under 45. The PPRs at the three points of time were more or less the same at all birth orders for women aged 45-49.

Primary Education: The 1989 PPRs remained well below the 1969 and 1979 ones for women under 45, but more or less the same for women aged 45-49. In virtually all cases, the drop in PPRs increased with increasing birth order. However the fall during 1979-89 was less in magnitude than the rise during 1969-79.

Secondary and above Education: These women were characterised by irregular PPRs especially for 1969, largely attributed to the relatively fewer numbers of women in this category then. Nonetheless, it emerged that the PPRs have been declining since 1969, especially for women under age 35, but increasing for women aged 40 and above.

2.5.4 PARITY PROGRESSION RATIOS BY MARITAL STATUS

Table 2.10 shows the incomplete parity progression ratios by marital status for Kenyan women in 1979 and 1989. The various categories considered include single, married, widowed and divorced or separated (see also graphs on Appendix XII).

Single: The age group 20-24 presented rather unusual findings; the PPRs increased rather than decreased with increasing birth order. The 1989 PPRs fell below those for 1979 for women aged 25-44, although the gap was much wider for women aged 30-39. The decrease in PPRs by age was more rapid for women aged 25-29. For women aged

Parity Progression Ratios for Women aged 20 - 49 by Marital Status, 1979 and 1989
Table 2.10

SINGLE		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.4287	0.4066	0.4756	0.5914					
	1989	0.3914	0.3581	0.4119	0.5117					
25-29	1979	0.7226	0.6524	0.5777	0.5056	0.4810	0.4908			
	1989	0.6611	0.5830	0.5292	0.4854	0.5144	0.5514			
30-34	1979	0.8581	0.8147	0.7689	0.7068	0.6683	0.6179	0.5984		
	1989	0.8157	0.7543	0.7058	0.6512	0.6080	0.5453	0.3794		
35-39	1979	0.8837	0.8696	0.8465	0.7928	0.7669	0.7199	0.6764	0.6227	0.6024
	1989	0.8807	0.8356	0.7858	0.7513	0.7159	0.6667	0.6364	0.6010	0.6080
40-44	1979	0.8853	0.8832	0.8812	0.8482	0.8258	0.7943	0.7422	0.6906	0.6807
	1989	0.9061	0.8792	0.8436	0.8223	0.7868	0.7497	0.7096	0.6674	0.6366
45-49	1979	0.8927	0.8813	0.8800	0.8568	0.8254	0.7836	0.7522	0.7318	0.6929
	1989	0.9155	0.9064	0.8733	0.8617	0.8175	0.7822	0.7551	0.7060	0.6681
MARRIED		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.7456	0.5997	0.5021	0.4582					
	1989	0.7237	0.5557	0.4580	0.4387					
25-29	1979	0.9251	0.8631	0.7699	0.6571	0.5679	0.5104			
	1989	0.9166	0.8334	0.7209	0.6074	0.5301	0.4911			
30-34	1979	0.9635	0.9438	0.9155	0.8645	0.7908	0.7046	0.6288		
	1989	0.9638	0.9360	0.8916	0.8256	0.7440	0.6539	0.4145		
35-39	1979	0.9719	0.9590	0.9445	0.9210	0.8850	0.8287	0.7591	0.6853	0.6165
	1989	0.9738	0.9598	0.9374	0.9047	0.8610	0.7988	0.7306	0.6514	0.5961
40-44	1979	0.9718	0.9634	0.9521	0.9355	0.9115	0.8750	0.8252	0.7666	0.7006
	1989	0.9762	0.9660	0.9519	0.9335	0.9057	0.8675	0.8179	0.7545	0.6953
45-49	1979	0.9700	0.9627	0.9524	0.9379	0.9157	0.8843	0.8423	0.7899	0.7322
	1989	0.9760	0.9674	0.9555	0.9416	0.9180	0.8849	0.8447	0.7869	0.7345
WIDOWED		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.8027	0.6974	0.6212	0.6057					
	1989	0.8099	0.6521	0.5413	0.5819					
25-29	1979	0.9312	0.8779	0.7840	0.6913	0.6255	0.5773			
	1989	0.9362	0.8636	0.7476	0.6460	0.5853	0.5299			
30-34	1979	0.9582	0.9423	0.9050	0.8464	0.7759	0.7004	0.6375		
	1989	0.9644	0.9359	0.8903	0.8140	0.7357	0.6501	0.4327		
35-39	1979	0.9659	0.9512	0.9346	0.8989	0.8500	0.7857	0.7231	0.6582	0.6056
	1989	0.9693	0.9518	0.9244	0.8851	0.8304	0.7684	0.6990	0.6354	0.5796
40-44	1979	0.9609	0.9521	0.9355	0.9101	0.8794	0.8332	0.7783	0.7194	0.6559
	1989	0.9700	0.9569	0.9385	0.9112	0.8760	0.8283	0.7733	0.7058	0.6564
45-49	1979	0.9583	0.9532	0.9373	0.9154	0.8840	0.8466	0.7978	0.7471	0.6903
	1989	0.9689	0.9569	0.9440	0.9206	0.8878	0.8438	0.8018	0.7412	0.6855
DIVORCED/SEPARATED		2+/1+	3+/2+	4+/3+	5+/4+	6+/5+	7+/6+	8+/7+	9+/8+	10+/9+
20-24	1979	0.6883	0.5351	0.4615	0.4291					
	1989	0.7039	0.5025	0.4278	0.4355					
25-29	1979	0.8725	0.7971	0.6842	0.5823	0.5058	0.4798			
	1989	0.8754	0.7492	0.6186	0.5173	0.4752	0.4898			
30-34	1979	0.9183	0.8871	0.8362	0.7663	0.6865	0.6041	0.5496		
	1989	0.9159	0.8690	0.7967	0.7154	0.6306	0.5587	0.3666		
35-39	1979	0.9260	0.9124	0.8879	0.8472	0.8029	0.7199	0.6621	0.5922	0.5674
	1989	0.9286	0.9024	0.8571	0.8060	0.7463	0.6836	0.6233	0.5892	0.5487
40-44	1979	0.9184	0.9124	0.8985	0.8705	0.8339	0.7763	0.7336	0.6829	0.6299
	1989	0.9302	0.9131	0.8884	0.8543	0.8173	0.7608	0.7037	0.6627	0.6217
45-49	1979	0.9115	0.9128	0.8987	0.8790	0.8496	0.8104	0.7642	0.7242	0.6674
	1989	0.9250	0.9131	0.8958	0.8687	0.8344	0.7849	0.7490	0.6801	0.6455

45-49, the PPRs for 1979 and 1989 were almost coincident, but the latter were slightly higher for birth orders of 2 or less and 8 or more.

Married: Like for those women who were single, the PPRs for married women dropped consistently in 1989 for women under 45, but increased only marginally for women aged 45-49 during the same period. The gaps between the 1979 and 1989 PPRs were much wider for women aged 20-34, but became narrower with increasing age of women, nearly vanishing for women aged 45-49 whose PPRs in 1989 surpassed their counterparts' in 1979. Like all the other sub-groups of the population, the gap between the 1979 and 1989 PPR's increased with birth order for each age group. The smooth nature of PPR curves for married women of all ages heightens the credibility of the data collected on this category of women, and is a further proof of consistency between data collected in 1979 and 1989.

Widowed: Vast similarities emerged between the PPRs for the widowed and married women. This was not surprising as the former group of women, at least until very recently, belonged to the latter group, and to a large extent, still exhibited most of their marital characteristics. This may explain why their (fertility) except at younger age groups (20-29) was very similar. It is also for this group of women that the gaps between the PPRs for 1979 and 1989 were noticeably larger for the widowed, especially at birth order 3 and above.

Divorced or Separated: the PPRs for 1989 were generally well below those of 1979, although the gaps diminished with increasing age for women aged 25 and above, albeit not as much as observed for the other marital status groups. Except for those aged above 35, divorced or separated women were hardly noticed to aspire for parities beyond 7.

CHAPTER 3: NUPTIALITY

3.0 INTRODUCTION

The distribution of the population by marital status provides an implicit reflection of the impact biological, social, economic, legal, cultural and sometimes religious factors have had on nuptial patterns in any country (UNECA, 1983). Nuptiality patterns have tremendous impact on fertility and hence constitute an important demographic characteristic.

Although the collection, processing and interpretation of nuptiality data are confronted by problems of definition and categorization, their utility in demographic analyses has been of profound importance in Kenya. All the past population censuses have endeavoured to solicit data on nuptiality. The data collection has entertained individual declaration of his/her marital status without further probing for its legal or religious or customary rules and regulations. Hence the data analysed in this chapter should be taken as a pragmatic response to the question on marital status as perceived by the respondents.

This chapter provides the results on patterns, levels and trends of nuptiality; estimates of Singulate Mean Age at Marriage (SMAM) and Mean Age at first Birth (MAB); and differentials in SMAM and MAB by regions, type of residence, level of education attained and marital status.

3.1 DISTRIBUTION OF POPULATION BY MARITAL STATUS, SEX AND AGE

3.1.1 PROPORTION SINGLE

About 38 per cent of the females aged 12 and above were single. This proportion was higher in urban areas than in rural areas (43.2 per cent in urban and 36.7 per cent in rural areas) as shown in table 3.1.

The areas which reported a high proportion (above 40 per cent) of their females aged 12 and above as single included: Nairobi Province, all Districts in Central province, Taita Taveta, Embu, Machakos, Kisii, Uasin Gishu, Laikipia and Nakuru Districts. The reasons for these districts having high proportions of their females in the single state are related to the high age at marriage as documented later in this chapter and high enrolment of girls in school. The districts with a low proportion (below 30 per cent) of the females aged 12 and above who declared themselves as single were: South Nyanza, Kilifi, Kwale, Isiolo, Marsabit, Mandera, Wajir, Busia and West Pokot. These districts are characterised by a low Singulate Mean Age at first Marriage (SMAM), high rates of polygyny and low school enrolment rates for females.

A high proportion of males reported themselves as single (51.2 per cent) at the national level. The proportion of males who were single was higher in rural areas (52.3 per cent) than in urban centres (45.1 per cent). This finding could be related to the fact that the males who migrate to cities tend to be adults who are probably married thus lowering the proportion of those who are single. The districts which reported a high proportion of their males as single (above 54 per cent) were Kiambu, Muranga, Nyeri, Nyandarua, Kitui, Machakos Taita Taveta, Samburu and Turkana. These districts also exhibited high singulate mean age at marriage shown in Table 3.2. Those that reported low proportions

of their males as being single (below 50 per cent) were: Nairobi, all coastal districts (except Taita Taveta), Kisumu, South Nyanza, Busia, Elgeyo Marakwet, Kericho, West Pokot, Narok and Isiolo. These districts also had low SMAMs.

3.1.2 PROPORTION MARRIED

Fifty five per cent of the females aged 12 and above were married; 46 per cent were in monogamous marriages and 9 per cent were in polygamous marriages. The proportion of the women who were married was slightly higher in rural areas (56 per cent) than in urban areas (51 per cent). Districts which reported high proportions of their females aged 12 and above married (above 60 per cent) were: Kilifi, Tana River, Marsabit, Mandera, Kisumu, South Nyanza, Samburu, West Pokot, Kajiado, Narok and Busia. These districts are characterised by low age at marriage. The districts which reported low proportion of their women in marriage (below 50 per cent) were: Nairobi, Taita Taveta, Embu and all districts in Central Province. These districts exhibited high SMAMs.

About 47 per cent of the males aged 12 and above in the country were married. The proportion was higher in urban areas (54 per cent) than in rural areas (45 per cent). Nairobi province, Kisumu and West Pokot districts had the highest percentage (above 50 per cent) married. The districts which reported low proportion married (below 45 per cent) included all districts in Central province (excluding Kiambu), Embu, Kitui, Machakos, Kisii, Baringo, Samburu, Turkana, Laikipia and Kakamega.

3.1.3 PROPORTION OF MARRIED PERSONS IN POLYGYNY

The 1989 census data indicate that 8.54 per cent of the women in Kenya aged 12 and above were married in polygamous unions. The proportion was higher in rural areas (9.4 per cent) and lower in urban areas (3.7 per cent). Kilifi district had the highest proportion of its women in polygamous unions (22.3 per cent). Other districts which had a high proportion of their women in polygamy (above 10 per cent) were: Kwale, Tana River, Kisumu, Siaya, South Nyanza, Kajiado, Narok, Samburu, Trans-Nzoia, Turkana, West Pokot, Bungoma and Busia. On the other hand, Nairobi, all districts in Central Province, Lamu, Mombasa and Nakuru Districts had less than 4 per cent of their females aged 12 and above in polygamous unions. Kiambu District had the lowest proportion of its women in polygamous union (2.6 per cent). The districts which had a high proportion of their women in polygamous unions also had high proportions of their males in polygyny, the highest being Kilifi (9.5 per cent). The other districts included: Kwale, Tana River, Isiolo, Mandera, Kisumu, Siaya, South Nyanza, Kajiado, Narok, Samburu, Trans-Nzoia, Turkana and West Pokot, all with more than 3 per cent of their males in polygamous unions. Nyeri District had the lowest proportion of its men in polygyny (1.1 per cent). All the other districts in Central Province, Lamu, Taita Taveta, Embu, Machakos, Nakuru and Kakamega had less than 2 per cent of their men in polygamous unions.

3.1.4 PROPORTION DIVORCED/SEPARATED

Lamu District had the highest percentage of females divorced or separated (7.5 per cent), while others also with more than 4 per cent included: Kwale (5.7 per cent), Mombasa (4.8 per cent), Isiolo, Garissa (4.0 per cent), Mandera and Wajir (4.7 per cent). Those that had very low proportions of their females divorced or separated (below 2 per cent) were:

Muranga, Nyeri, all districts in Nyanza province, Kericho, Nandi, Narok, Samburu, Uasin Gishu, West Pokot, Busia and Kakamega.

Amongst males, Lamu and Kwale Districts had a significant proportion divorced or separated whereas Nairobi, Nyandarua, Nyeri, Narok, Uasin Gishu and West Pokot were among the districts with less than 1 per cent.

3.1.5 PROPORTION WIDOWED

Apparently, widowhood affects females more than males. Less than 1 per cent of the males in all districts except Muranga, Lamu, Isiolo, Siaya, Busia and Kakamega, reported being as widowed. This is because men tend to remarry more often than women. Also survival rate of women is higher at older ages hence their numbers tend to dominate. The districts which had more than 6.0 per cent of the females aged 12 and above widowed included: Muranga, Kitui, Marsabit, all the districts in North Eastern province (except Garissa), Kisumu, Siaya, South Nyanza, Samburu, Turkana, Busia and Kakamega.

3.2 ESTIMATES OF SINGULATE MEAN AGE AT MARRIAGE (SMAM)

Singulate mean age at marriage is an estimate of the average number of years lived in the single state by those who marry before age 50. A high singulate mean age at marriage means a high age at marriage.

According to the 1989 population census, the SMAM for females was estimated at 21.6 years whereas that of males was 26.0 years. It was higher in urban centres than in rural areas. Apparently the SMAM has been rising since 1962 as shown in table 3.3. For females it was 18.5 years in 1962, 19.2 in 1969, 20.2 in 1979 and 21.6 in 1989; for males it was 23.9 in 1962, 25.1 in 1969, 25.3 in 1979 and 26.0 in 1989. Thus there was a minimal but appreciable change in the SMAM for both sexes between 1969 and 1979 but an appreciable increase between 1962 and 1989.

3.2.1 SINGULATE MEAN AGE AT MARRIAGE AT DISTRICT LEVEL

Table 3.2 (see Appendix XIII for proportions single by sex and district) shows that among females, the district with the highest SMAM was Nyeri (23.7 years), while Narok had the lowest (18.6 years). Kiambu, Kirinyaga, Muranga, Nyandarua, Nyeri, Taita Taveta, Embu and Machakos Districts had high SMAM's for females (23 years or thereabouts) while Narok, South Nyanza, West Pokot, Kwale, Marsabit, Kilifi, Tana River, Kajiado, Mandera and Wajir Districts had below 20 years. For males, the highest SMAM was in Samburu (29 years) whereas the lowest was Busia (24 years). Other districts with high SMAM for males (27 years or thereabouts) were Marsabit, Taita Taveta, Nyeri, Isiolo, Muranga Mombasa, Embu, Garissa and Turkana. The districts which had low SMAM of below 25 years were Busia, Narok, West Pokot, Kisii and South Nyanza. SMAM for other districts fell between these extremes.

The largest differences between the male and female SMAM was recorded in Samburu and Marsabit (8.9 and 8.8 years respectively). Others with differences above 6 years were: Turkana (6.3), Isiolo (6.6), Tana River (6.6), Kajiado (6.3), Narok (6.1) and all districts in North-Eastern Province; the smallest differences were in Kirinyaga (3.1), Kisii (3.3), Kiambu, Nyandarua and Embu (3.4 each), and Nyeri (3.7) Districts.

Apparently, there seemed to be a strong association between SMAM and polygyny. Generally, most districts which reported low SMAM especially among females also exhibited a higher prevalence of polygyny. For example, women in Narok, South Nyanza, Kwale and Kilifi districts among others had their SMAM below 20 years, while the same

had a relatively high proportion of their females (above 10 per cent) in polygamous unions. Conversely, most of the districts which had SMAM of over 23 years such as Kiambu, Kirinyaga, Muranga and Nyeri had relatively lower proportion of their women (less than 4 per cent) in polygamous unions.

Percentage Distribution of Population Aged 12 and above by Marital Status and District, 1989 Census

Table 3.1

FEMALES	Single	Married Monogamy	Married Polygamy	Married Total	Widowed	Divorced Separated	N/S
KENYA TOTAL	37.69	46.18	8.54	54.72	5.14	2.20	0.24
KENYA RURAL	36.66	46.11	9.39	55.50	5.60	1.99	0.25
KENYA URBAN	43.23	46.57	3.97	50.54	2.67	3.32	0.23
Nairobi	46.05	46.32	2.67	48.99	1.93	2.79	0.24
Kiambu	45.15	44.42	2.57	46.99	4.80	2.75	0.30
Kirinyaga	41.92	45.79	3.62	49.42	5.79	2.53	0.35
Muranga	41.52	47.21	2.75	49.96	6.48	1.76	0.27
Nyandarua	43.98	45.40	3.07	48.47	4.59	2.53	0.44
Nyeri	46.16	43.89	2.64	46.52	5.63	1.51	0.17
CENTRAL	43.82	45.36	2.82	48.18	5.54	2.18	0.29
Kilifi	28.70	40.17	22.30	62.47	5.99	2.62	0.22
Kwale	29.96	43.77	14.70	58.47	5.63	5.76	0.18
Lamu	35.75	48.67	2.73	51.40	5.23	7.50	0.12
Mombasa	37.41	50.31	3.65	53.96	3.88	4.64	0.11
Taita Taveta	41.69	44.76	4.73	49.49	5.61	3.03	0.17
Tana River	30.41	45.15	16.12	61.27	5.64	2.58	0.10
COAST	32.91	44.49	13.15	57.65	5.32	3.96	0.17
Embu	42.41	44.69	5.28	49.97	4.74	2.67	0.21
Isiolo	29.98	47.62	9.12	56.74	3.82	4.32	0.14
Kitui	37.35	44.88	9.15	54.03	6.02	2.38	0.24
Machakos	40.74	46.97	5.45	52.43	4.49	2.10	0.25
Marsabit	26.38	52.06	7.97	60.03	10.49	3.01	0.09
Meru	39.77	46.66	6.39	53.06	4.30	2.60	0.27
EASTERN	39.34	46.46	6.53	52.99	5.01	2.42	0.24
Garissa	33.04	48.33	9.01	57.34	5.36	4.04	0.23
Mandera	28.06	53.13	7.31	60.43	6.30	5.07	0.14
Wajir	28.98	51.53	7.37	58.90	7.23	4.73	0.16
N. EASTERN	30.04	50.99	7.90	58.89	6.29	4.61	0.18
Kisii	40.57	46.26	7.50	53.77	4.16	1.17	0.33
Kisumu	30.97	47.51	13.48	60.99	6.52	1.32	0.21
Siaya	28.64	42.15	16.55	58.70	11.17	1.34	0.15
S. Nyanza	25.47	45.87	20.77	66.64	6.63	1.06	0.19
NYANZA	31.81	45.55	14.45	60.01	6.75	1.20	0.23
Baringo	37.54	46.48	8.31	54.79	5.46	2.05	0.16
E. Marakwet	37.23	49.17	7.03	56.20	3.98	2.33	0.25
Kajiado	32.08	47.85	12.68	60.53	4.63	2.48	0.29
Kericho	37.76	50.76	6.28	57.04	3.49	1.50	0.20
Laikipia	41.51	47.53	4.54	52.07	3.78	2.44	0.20
Nakuru	41.77	47.67	3.31	50.98	3.70	3.15	0.40
Nandi	39.54	48.39	4.98	53.37	5.06	1.84	0.20
Narok	28.80	48.73	15.51	64.24	4.69	1.95	0.32
Samburu	31.33	40.58	19.96	60.54	6.78	1.27	0.08
Trans Nzoia	38.10	46.28	10.31	56.59	2.90	2.17	0.23
Turkana	33.56	40.62	15.33	55.95	6.48	3.76	0.25
Uasin Gishu	41.70	46.42	6.73	53.14	3.01	1.91	0.23
West Pokot	28.58	47.83	17.95	65.78	3.79	1.82	0.22
R. VALLEY	37.37	47.66	8.38	56.05	4.12	2.21	0.25
Bungoma	36.23	41.72	15.06	56.78	4.66	2.09	0.23
Busia	30.34	47.72	12.39	60.11	7.06	1.76	0.23
Kakamega	36.80	47.56	7.67	55.23	6.11	1.60	0.26
WESTERN	35.68	46.11	10.32	56.42	5.90	1.75	0.25

Percentage Distribution of Population Aged 12 and above by Marital Status and District, 1989 Census

Table 3.1 (cont.)

MALES	Single	Married Monogamy	Married Polygamy	Married Total	Widowed	Divorced Separated	N/S
KENYA TOTAL	51.19	44.03	2.75	46.77	0.68	1.11	0.25
KENYA RURAL	52.85	42.15	2.78	44.93	0.76	1.19	0.26
KENYA URBAN	45.06	50.95	2.61	53.56	0.35	0.81	0.21
Nairobi	43.95	52.65	2.30	54.95	0.26	0.63	0.20
Kiambu	54.11	42.31	1.26	45.84	0.60	1.05	0.32
Kirinyaga	41.92	42.31	1.29	43.60	0.75	1.19	0.35
Muranga	55.94	40.56	1.14	41.70	6.98	1.07	0.32
Nyandarua	56.39	40.56	1.11	41.67	0.62	0.84	0.49
Nyeri	57.50	35.66	1.07	40.73	0.77	0.82	0.18
CENTRAL	54.86	41.89	1.18	43.07	0.75	1.01	0.31
Kilifi	48.76	39.57	9.47	49.03	0.83	1.19	0.19
Kwale	48.02	42.89	5.80	48.70	0.83	2.28	0.17
Lamu	49.77	44.23	1.57	45.81	1.10	3.26	0.07
Mombasa	45.74	49.52	2.92	52.43	0.51	1.21	0.11
Taita Taveta	54.72	40.70	1.81	42.51	0.95	1.66	0.15
Tana River	48.75	43.77	5.52	49.29	0.83	1.05	0.08
COAST	48.32	43.96	5.31	49.28	0.75	1.51	0.14
Embu	53.81	42.46	1.63	44.09	0.68	1.24	0.18
Isiolo	48.93	44.72	3.07	47.78	1.18	1.96	0.15
Kitui	54.88	39.25	2.94	42.19	0.93	1.80	0.20
Machakos	56.70	39.12	1.81	40.93	0.73	1.39	0.25
Marsabit	51.40	44.44	2.52	46.96	0.69	0.85	0.11
Meru	50.70	44.88	2.17	47.05	0.75	1.27	0.24
EASTERN	53.88	41.59	2.14	43.73	0.77	1.39	0.23
Garissa	52.23	43.31	2.70	46.00	0.64	0.82	0.31
Mandera	53.30	42.93	3.33	46.26	0.45	0.79	0.16
Wajir	51.17	44.70	2.37	47.07	0.59	0.97	0.21
N. EASTERN	51.92	43.64	2.80	46.44	0.56	0.86	0.23
Kisii	53.93	42.60	1.98	44.58	0.47	0.65	0.36
Kisumu	47.21	46.37	3.96	50.33	0.86	1.39	0.22
Siaya	50.96	41.92	3.69	45.16	1.32	1.94	0.17
S. Nyanza	47.75	44.20	5.77	49.97	0.83	1.24	0.21
NYANZA	50.15	43.74	3.83	47.57	0.81	1.21	0.25
Baringo	52.75	42.62	2.17	44.98	0.98	1.10	0.18
E. Makwet	49.99	45.36	2.63	48.00	0.70	1.02	0.29
Kajiado	52.26	42.41	3.64	46.05	0.36	0.81	0.52
Kericho	49.87	46.90	2.11	49.00	0.36	0.57	0.20
Laikipia	53.79	42.27	2.14	44.41	0.55	0.99	0.26
Nakuru	50.73	45.59	1.74	47.32	0.52	1.02	0.41
Nandi	51.44	47.08	1.55	46.63	0.68	1.07	0.18
Narok	49.59	44.50	4.41	48.91	0.34	0.80	0.36
Samburu	57.07	38.42	3.78	42.20	0.29	0.32	0.12
Trans Nzoia	51.30	43.90	3.08	46.98	0.42	1.04	0.26
Turkana	54.83	39.07	4.64	43.71	0.46	0.74	0.25
Uasin Gishu	50.69	45.52	2.33	47.85	0.41	0.81	0.24
West Pokot	48.06	46.54	3.89	50.43	0.47	0.82	0.22
S. VALLEY	51.08	44.70	2.58	47.28	0.50	0.87	0.28
Uasin Gishu	52.14	41.91	4.31	46.22	0.47	0.95	0.23
Uasin Gishu	49.23	44.00	3.96	47.96	1.05	1.47	0.29
Uasin Gishu	52.87	42.57	1.91	44.48	1.05	1.32	0.28
S. EASTERN	52.10	42.61	2.88	45.50	0.89	1.24	0.27

**Estimates of Singulate Mean Age at Marriage (SMAM) by
District/Province, 1989 Census**

Table 3.2

	SMAM FOR MALES	SMAM FOR FEMALES	GAP BETWEEN MALE & FEMALE SMAM
KENYA TOTAL	26.0	21.6	4.4
KENYA RURAL	25.9	21.3	4.6
KENYA URBAN	26.2	22.1	4.1
Nairobi	26.5	22.5	4.0
Kiambu	26.5	23.1	3.4
Kirinyaga	26.2	23.1	3.1
Muranga	26.7	22.8	3.9
Nyandarua	26.2	22.8	3.4
Nyeri	27.4	23.7	3.7
CENTRAL	26.6	23.1	3.5
Kilifi	25.8	19.9	5.9
Kwale	25.5	19.6	5.9
Lamu	25.5	20.5	5.0
Mombasa	26.6	21.5	5.1
T. Taveta	27.4	23.1	4.3
T. River	26.0	19.4	6.6
COAST	26.2	20.6	5.6
Embu	26.6	23.2	3.4
Isiolo	26.9	20.3	6.6
Kitui	26.0	21.8	4.2
Machakos	26.7	22.7	4.0
Marsabit	28.4	19.6	8.8
Meru	26.4	22.5	3.9
EASTERN	26.6	22.4	4.2
Garissa	26.7	20.0	6.7
Mandera	26.2	19.2	7.0
Wajir	26.3	19.4	6.9
N. EASTERN	26.4	19.5	6.9
Kisii	24.9	21.6	3.3
Kisumu	25.5	20.1	5.4
Siaya	25.9	20.4	5.5
S. Nyanza	24.7	18.8	5.9
NYANZA	25.1	20.3	4.8
Baringo	26.2	21.5	4.7
E. Marakwet	25.1	21.3	3.8
Kajiado	26.1	19.8	6.3
Kericho	25.6	21.2	4.4
Laikipia	26.5	22.1	4.4

**Estimates of Singulate Mean Age at Marriage (SMAM) by
District/Province, 1989 Census**

Table 3.2 (cont.)

	SMAM FOR MALES	SMAM FOR FEMALES	GAP BETWEEN MALE & FEMALE SMAM
Nakuru	25.9	21.9	4.0
Nandi	25.9	21.7	4.2
Narok	24.7	18.6	6.1
Samburu	28.9	20.0	8.9
T. Nzoia	25.3	21.0	4.3
Turkana	27.8	21.5	6.3
U. Gishu	25.9	21.9	4.0
W. Pokot	24.9	19.4	5.5
R. VALLEY	25.8	21.1	4.7
Bungoma	25.0	20.6	4.4
Busia	24.4	20.1	4.3
Kakamega	25.4	21.2	4.2
WESTERN	25.1	20.8	4.3

3.2.2 SINGULATE MEAN AGE AT MARRIAGE BY EDUCATION

The variation of singulate mean age at marriage by level of education attained is given in table 3.6 for females in 1989. Data were not available to compute similar indices for 1979 or earlier censuses.

The table shows that women who had attained secondary and above level of education stayed longest in the single status (23.5 years) while those with No education stayed shortest (19.0 years).

3.3 TRENDS IN MARITAL STATUS BY AGE

3.3.1 TRENDS IN PROPORTION SINGLE BY AGE AND SEX

As shown in table 3.3, the proportion of single females has been rising in all age groups particularly those aged 15-19, 20-24, 25-29 and 30-34. This has resulted in a steady rise in the SMAM from 18.5 years in 1962, to 19.2 in 1969, 20.2 in 1979 and 21.6 in 1989 for females. There was a sharp rise in the proportions single in all age groups during the 1962-69 inter-censal period and a minimal rise during the 1969-79 period. The 1979-89 inter-censal period witnessed yet another sharp rise in the proportion of single females in nearly all age groups. This indicated that the rise in the proportion single over time was mainly due to the rising age at marriage. (See also Table 3.5). (Trends in proportion of females single for 1979 to 1989 are shown in Appendix XIV).

Males showed a less dramatic change in the proportion single from 1962 to 1989. During 1962-69, there was a rise in the proportions single in all age groups. This rise was also reflected in the rise in the singulate mean age at marriage (from 23.9 to 26.0 years). Unlike the females, there was no major rise in the proportions single between 1969 to

1979. There was however, a slight increase in the proportions single in all age groups between 1979 and 1989.

Percent Single and Singulate Mean Age at First Marriage by Sex, 1962-89

Table 3.3

Age Group	1962		1969		1979		1989	
	Male	Female	Male	Female	Male	Female	Male	Female
15-19	89.2	55.3	95.6	63.6	97.4	71.2	97.9	81.2
20-24	56.8	12.6	71.8	18.4	72.0	24.5	79.1	35.3
25-29	26.4	4.6	32.1	6.4	32.1	9.3	38.3	15.8
30-34	12.7	2.9	13.5	3.8	13.1	4.9	14.4	9.0
35-39	8.2	2.3	9.0	3.2	8.5	3.4	8.6	6.3
40-44	5.8	1.9	6.6	2.8	6.2	2.7	6.9	5.1
45-49	4.5	1.9	6.6	2.8	5.2	2.2	6.1	4.1
SMAM	23.9	18.6	25.1	19.2	26.3	20.2	26.0	21.6

3.3.2 TRENDS IN SMAM

Further insights into change in proportions single is provided by the variation in estimates of SMAM by type of residence, regions and level of educational attainment.

Table 3.5 shows that, overall, singulate mean age at marriage for Kenyan women increased by 7 per cent during 1979-89. Major changes were observed in Kilifi (12.7 per cent), Nandi (12.0 per cent) and Uasin Gishu (10.1 per cent). Other districts reporting considerable changes (above 8 per cent) in SMAM included Kiambu (8.4 per cent), Kirinyaga (8.7 per cent), Nyandarua (8.4 per cent), Kitui (9.7), Baringo (9.6 per cent), Kericho (9.0 per cent), and Trans-Nzoia (8.7 per cent). Districts that had a decline in SMAM were Mandera (-0.7 per cent) and Kajiado (-1.1 per cent). Turkana and Wajir showed no change. Actually, North-Eastern Province recorded the least rise in SMAM (1.2 per cent), with Garissa being largely responsible for the rise (3.9 per cent). Districts in Coast Province showed, on average, relatively higher rise in SMAM, except Tana River and, to a lesser extent, Lamu where the rise was much less.

3.3.3 TRENDS IN PROPORTION OF WOMEN CHILDLESS

Proportions of childless women by age and their Mean Age at first Birth (MAB) is presented in table 3.4 for 1969, 1979 and 1989. The proportion of childless women rose during 1969-79 and fell during 1979-89 for all age groups except 20-24. However the 1989 ones remained higher than 1969 for women under 30 and lower for women above 30.

Consequently, the mean age at first birth, the number of years lived, on average, by women in the childless state for women who give birth before age 50, rose albeit marginally, from 19.6 years in 1969 to 20.0 years in 1989. No sharp changes were noted in the proportions childless. (Trends in proportion childless by regions from 1979 to 1989 are provided in Appendix XV).

Percent Childless by Age and Mean Age at First Birth, 1969 - 89

Table 3.4

Age Group	1969 Census	1979 Census	1989 Census
15-19	73.3	76.3	75.4
20-24	19.0	22.5	23.1
25-29	6.9	7.8	7.4
30-34	4.5	4.9	4.3
35-39	4.1	4.2	3.4
40-44	3.9	4.4	3.3
45-49	4.2	4.6	3.4
MAB	19.6	19.9	20.0

NOTE: Proportions exclude women whose parity was not stated

3.3.4 TRENDS IN MAB

The Mean Age at first Birth for Kenyan women by regions, level of education attained, and marital status is shown in Table 3.5 and 3.6 for 1979 and 1989, as well as trends in MAB by these background characteristics.

A slight difference was noted in Mean Age at first Birth between rural and urban areas. Women in urban areas, on average, had their first birth ten months later (20.5 years) than their rural counterparts (19.8 years).

All districts in Central, Eastern (except Kitui) and North Eastern Provinces, had a MAB of over 20 years in 1989. The most notable were Garissa (21.0), Nyeri (20.9) and Embu (20.8). On the other hand districts in Nyanza, Rift Valley and Western Provinces, save for Kisii, Baringo, Elgeyo Marakwet, Laikipia, Samburu, Turkana and Kakamega, reported MAB of less than 20 years, the lowest being South Nyanza and Narok with 18.2 and 18.4 respectively. Highest MAB was recorded in Turkana (21.1), followed by Garissa (21.0).

During the period 1979-89 MAB increased, although marginally, in most districts, while it declined in quite a number. The largest increase was recorded in Baringo (5.4 per cent) followed by Nandi (5.0 per cent). The least increase was observed in Embu (0.1 per cent). The national MAB increased by only 0.5 per cent, by 1.9 per cent in urban areas and only 0.3 per cent in rural areas.

North Eastern, Nyanza and Western Provinces all showed declines in MAB (see Table 3.5). The largest declines in MAB were recorded in South Nyanza (-6.5 per cent), Wajir (-3.9 per cent) and Mandera (-3.5 per cent) Districts.

Women who had secondary and above level of education reported the highest MAB (21.3 years) while those with no education had the least (18.7 years) in 1989. Single women also had the highest MAB (22.1 years) whereas the divorced or separated had the lowest (16.0 years).

MAB increased by 3.4 per cent for women with secondary and above level of education, while it declined by -0.5 per cent for those with no education, during 1979-89. It also increased by 8.0 per cent for widowed women and remained the same for divorced or separated women during the same period.

**Estimates of SMAM and MAB and the Corresponding Percentage Changes
during 1979 - 89 by Region**

Table 3.5

District/ Province	SMAM (Years)			MAB (Years)		
	1979	1989	% change	1979	1989	% change
Nairobi Province	21.4	22.5	5.3	-	21.1	-
Kiambu	21.3	23.1	8.4	20.5	20.7	1.2
Kirinyaga	21.2	23.1	8.7	20.3	20.6	1.6
Muranga	21.2	22.8	7.5	20.0	20.6	2.9
Nyandarua	21.0	22.8	8.4	20.1	20.3	1.1
Nyeri	22.4	23.7	5.9	20.4	20.9	2.6
Central Province	21.6	23.1	7.1	20.3	20.7	2.1
Kilifi	17.6	19.9	12.7	18.5	19.1	3.4
Kwale	18.3	19.6	6.9	19.0	18.7	-1.4
Lamu	19.5	20.5	5.5	19.5	19.7	0.8
Mombasa	19.9	21.5	7.9	19.7	20.1	2.0
Taita Taveta	21.6	23.1	6.7	20.5	20.7	1.0
Tana River	18.7	19.4	3.5	19.7	19.5	-0.8
Coast Province	18.9	20.6	9.2	19.5	19.6	0.5
Embu	21.5	23.2	7.8	20.8	20.8	0.1
Isiolo	19.1	20.3	6.3	20.2	20.1	0.4
Kitui	19.9	21.8	9.7	19.3	19.9	3.2
Machakos	21.4	22.7	6.4	20.2	20.5	1.5
Marsabit	19.3	19.6	1.3	21.1	20.5	-2.8
Meru	21.4	22.5	5.2	20.0	20.2	0.8
Eastern Province	21.0	22.4	7.0	20.1	20.3	1.1
Garissa	19.3	20.0	3.9	20.8	21.0	0.8
Mandera	19.3	19.2	-0.7	21.4	20.7	-3.5
Wajir	19.4	19.4	0.1	21.6	20.7	-3.9
North Eastern Province	19.3	19.5	1.2	21.3	20.8	-2.3
Kisii	20.2	21.6	6.8	19.8	20.0	0.9
Kisumu	18.8	20.1	7.3	19.2	18.8	-2.2
Siaya	19.2	20.4	6.1	19.2	19.1	-0.5
South Nyanza	18.6	18.8	1.2	19.5	18.2	-6.5
Nyanza Province	19.3	20.3	5.0	19.4	19.0	-2.2
Baringo	19.7	21.5	9.6	19.5	20.5	5.4
Elgeyo Marakwet	19.9	21.3	7.2	19.8	20.1	1.3
Kajiado	20.0	19.8	-1.1	19.0	18.8	-0.9
Kericho	19.4	21.2	9.0	19.3	19.8	2.5
Laikipia	20.4	22.1	8.0	19.5	20.1	3.2
Nakuru	20.6	21.9	6.8	19.6	19.9	1.4
Nandi	19.4	21.7	12.0	18.8	19.8	5.0
Narok	17.8	18.6	4.7	18.7	18.4	-1.6
Samburu	19.2	20.0	4.0	20.6	20.3	-1.7
Trans-Nzoia	19.3	21.0	8.7	19.2	19.6	2.1
Turkana	21.5	21.5	0.0	21.7	21.1	-2.6
Uasin Gishu	19.9	21.9	10.1	19.8	19.9	0.7
West Pokot	18.9	19.4	2.3	19.4	19.1	-1.5
Rift Valley Province	19.7	21.1	7.4	19.5	19.7	1.1

**Estimates of SMAM and MAB and the Corresponding Percentage Changes
during 1979 - 89 by Region**

Table 3.5 (cont.)

District/ Province	SMAM (Years)			MAB (Years)		
	1979	1989	% change	1979	1989	% change
Bungoma	19.5	20.6	5.0	19.7	19.9	0.8
Busia	19.0	20.1	5.6	19.3	18.8	-2.6
Kakamega	20.2	21.2	6.0	20.1	19.9	-1.2
Western Province	19.8	20.8	5.4	19.9	19.7	-0.9
Kenya	20.2	21.6	6.9	19.9	20.0	0.5
Kenya Rural	-	21.3	-	19.7	19.8	0.3
Kenya Urban	-	22.1	-	20.1	20.5	1.9

3.3.5 THE LINK BETWEEN TRENDS IN SMAM AND MAB

Tables 3.5 and 3.6 shed further light on the link between singulate mean age at marriage and mean age at first birth and their trends. Regions and education categories where high SMAM were recorded also realised high MAB. All districts in Central Province and Eastern Province recorded relatively high SMAM and MAB. But in North Eastern Province, the relatively low SMAM were countered with relatively high MAB largely because all (or most) births take place inside marriage.

**Estimates of SMAM and MAB and the Corresponding Percentage Changes
during 1979-89 by Education and Marital Status**

Table 3.6

Level of Education	SMAM (Years)			MAB (Years)		
	1979	1989	% change 1979 - 89	1979	1989	% change 1979 - 89
None	-	19.0		18.8	18.7	-0.5
Primary	-	21.1		19.7	19.8	0.5
Secondary and above	-	23.5		20.6	21.3	3.4
Marital Status						
Single	N/A	N/A		21.4	22.1	3.3
Married	N/A	N/A		17.3	17.0	1.7
Widowed	N/A	N/A		16.3	17.6	8.0
Divorced/Separated	N/A	N/A		16.0	16.0	0.0
KENYA	20.2	21.6	6.9	20.0	20.0	0.0

Note: - Data not available

N / A Not Applicable

It appeared that women in all Provinces except North Eastern gave their first birth before they married. This was attested to by the relatively lower mean age at first birth compared to their age at marriage.

Trends in SMAM and MAB indicated mixed signals. It is only in Baringo and Nandi districts where the large gains in SMAM were coupled with relatively large gains in MAB. Generally, there were many districts showing declines in MAB than SMAM. A number of

districts which had realised averagely good gains in SMAM showed declines in MAB; some of these include Kwale, Tana River, Isiolo, Kisumu, South Nyanza, Narok and Samburu.

Thus, whereas most districts realised good gains in SMAM, the gains in MAB were only slight and not commensurate. Consequently, the tremendous decline in fertility that may have resulted from late marriage was likely to have been suppressed by declining age at first birth in most districts thus slowing down the overall pace of fertility decline.

3.3.6 TRENDS IN PROPORTION MARRIED BY AGE

Table 3.7 shows that the proportions of men who were married in 1989 was significantly lower than in 1969 for age groups 15-19, 20-24 and 25-29. This was due to the fact that the age at marriage had been on the increase. The proportion of males married beyond age 34 years generally remained above 80 per cent and seemed to have increased by 1989.

Percent of Males and Females who were Married by Age group 1969, 1979 and 1989

Table 3.7

Age Group	Male			Female		
	1969	1979	1989	1969	1979	1989
15-19	3.4	2.3	1.5	33.4	27.1	17.7
20-24	26.0	26.9	20.0	75.6	71.1	61.2
25-29	64.4	65.6	60.3	86.6	84.5	76.7
30-34	81.9	83.6	83.7	87.6	86.4	84.5
35-39	86.0	87.5	88.8	86.2	86.0	85.7
40-44	87.8	89.4	89.9	80.1	82.8	84.0
45-49	87.8	89.9	90.2	80.1	79.1	82.9
50-59	85.8	70.8	90.5	52.5	56.3	78.7

The proportion married among the females was lower for all age groups in 1989 as compared to 1979 (except those aged 40 and above). This trend could be due to the increase in age at marriage as stated earlier, enhanced spousal survival and stability of marriages.

3.3.7 TRENDS IN PROPORTION DIVORCED OR SEPARATED BY AGE

Table 3.8 gives the proportion of males and females who had been divorced or separated. This proportion had slightly declined since 1979 for both males and females as is reflected by all age groups. This could be due to the fact that individuals are free to choose whom to marry as compared to the past when forced and child marriages prevailed.

Percent of Males and Females who were Divorced/Separated by Age group
Table 3.8

Age Group	Male			Female		
	1969	1979	1989	1969	1979	1989
15-19	0.2	0.1	0.1	1.9	1.1	0.5
20-21	1.0	0.8	0.4	4.1	3.4	2.1
25-29	2.1	1.9	1.0	4.2	4.4	3.2
30-34	2.8	2.7	1.7	3.8	4.7	3.9
35-39	2.9	3.1	2.1	3.4	4.4	4.0
40-44	3.1	3.1	2.4	3.3	4.1	3.9
45-49	3.1	3.3	2.6	3.3	3.7	3.5
50-59	2.9	3.3	2.4	3.1	3.5	3.2

3.3.8 TRENDS IN PROPORTION WIDOWED BY AGE

Widowhood apparently affects females more especially those aged 40 years and above as shown in Table 3.9. This is a reflection of both higher male mortality as compared to that of females and age differences at marriage between females and males, in addition to re-marriage of males who have been widowed.

Percent of Males and Females who were Widowed by Age group
Table 3.9

Age Group	Male			Female		
	1969	1979	1989	1969	1979	1989
15-19	0.1	0.0	0.1	0.3	0.2	0.1
20-21	1.2	0.1	0.1	1.1	0.7	0.4
25-29	0.4	0.2	0.2	2.0	1.1	1.0
30-34	0.7	0.4	0.3	4.2	3.8	2.3
35-39	0.9	0.7	0.4	6.6	6.1	3.8
40-44	1.5	1.1	0.7	13.2	10.3	6.7
45-49	1.5	1.4	1.0	13.2	14.8	9.3
50-59	5.3	4.5	1.5	39.7	37.2	14.1

CHAPTER 4: SUMMARY AND CONCLUSION

4.0 INTRODUCTION

Fertility has been and still is a major determinant of population growth in Kenya. Its evolution during the 1960s and 1970s was one of rapid increase culminating in the highest ever recorded total fertility rate of 8.0 in 1979 (CBS 1980 and 1982). The natural population growth rate increased from 3.0 per cent in 1962 to 3.3 per cent in 1969 and 3.8 per cent by 1979. The population size also almost doubled from 8.6 million in 1962 to 15.3 million in 1979. The rapid increase in fertility was attributed to improvements in the standard of living, particularly health, low contraceptive prevalence rate, low age at marriage and high value accorded to children (Dow et al 1983).

The above demographic trends posed diverse challenges to the Government in so far as the provision of basic needs - health, education, food, employment and housing - was concerned. Rapid urbanisation and environmental degradation began to emerge as developmental issues. The introduction of Structural Adjustment Programmes (SAPs) in the course of the 1980s compounded the above challenges.

The Government, in realising the adverse socio-economic consequences of the rapid population growth rate, formulated an integrated population policy in 1984 (NCPD, 1984) which accorded the reduction in fertility utmost priority. The family planning programme was enhanced and integrated in the District Focus for Rural Development Strategy. Initial evidence of a fertility decline was noted by 1989 (NCPD 1989, Kelly and Bobbe, Cross et al 1991). The contraceptive rate increased to 27 per cent by 1989. The 1989 population and housing census was therefore carried out at a time when diverse socio-economic and demographic structural changes were taking place. Thus, the findings with regard to fertility levels and nuptiality patterns provide useful insights into the state of the population by then.

4.1 DATA QUALITY AND METHODOLOGY

The percentage of younger women who did not state their parities was significant. Thus a method devised by El Badry was used to correct the average parities, details of which are given in section 1.2.1. Due to gross under-reporting observed for children born within the 12 months prior to the census, data on current births were disregarded. Average parities, fitted with the Relational Gompertz fertility model, were used instead to derive fertility levels. The Crude Birth Rates were indirectly generated by applying the resulting intercensal age specific fertility rates to obtain the mid period annual births.

4.2 FERTILITY

The total fertility rate during the 1979-89 inter-censal period was 6.6, down from about 7.8 during 1969-79 intercensal period. Incomplete parity progression ratios showed that fertility rose in the 1960-70 decade and fell during the 1980-90 decade. It declined mainly for the women aged between 20 and 39. Cohort parity progression ratios from the 1962, 1969, 1979, and 1989 censuses were remarkably consistent, suggesting fairly good quality data. They showed a rising trend in fertility at higher parities for cohorts of women born between the late 19th century and the 1940's. For the younger women, fertility declined at all parities.

4.2.1 FERTILITY BY DISTRICT

The provincial average parities in 1989 ranged from 4.8 children ever borne per woman in Nairobi, to 7.9 in Western Province, for women aged 40-44. The districts average parities ranged from 4.8 in both Nairobi and Mombasa to 8.3 in both Kisii and Bungoma respectively. The same pattern was portrayed in 1979, with provincial estimates ranging from 5.3 in Nairobi to 8.3 in Western, while the district estimates ranged from 4.8 in Mombasa to 8.8 and 8.9 in Bungoma and Kisii respectively.

Inter-censal cohort TFRs for the period 1979-89 indicate that North Eastern, Nyanza, Rift Valley and Western Provinces had the highest rates- over 7 births per woman- while Nairobi Province had the lowest (3.8). Among the districts, the highest TFRs were recorded in Nyandarua in Central Province (6.6), Tana River in Coast Province (7.2), Kitui in Eastern province (7.0), Mandera in North Eastern province (7.9), Kisii in Nyanza Province (7.2), Trans-Nzoia in Rift Valley Province (8.0) and Bungoma in Western Province (8.1); the lowest TFRs were in Kiambu in Central Province (5.2), Mombasa in Coast Province (4.3), Embu in Eastern Province (5.9), Wajir in North Eastern Province (7.5), Siaya in Nyanza Province (6.8), Laikipia in Rift Valley Province (6.2), and Busia in Western Province (7.1).

4.2.2 FERTILITY BY PLACE OF RESIDENCE

Urbanization is clearly correlated with fertility. Lower fertility was observed for women in urban areas both in 1979 and 1989, being 5.9 and 5.4 children ever born per woman, compared with 7.4 and 7.3 children ever born respectively in rural areas, for women aged 40-44. The fall in fertility, aside from affecting all age groups of women, was sharper in urban areas, particularly for women aged 25-39. Teenage fertility was observed to be slightly higher in rural areas, with about one birth for every 6 women aged 15-19, compared with one birth for slightly over 7 women in urban areas. The TFR during 1979-89 was 4.5 and 7.0 in urban and rural areas respectively.

In the urban areas the parity progression ratios of 1989 showed a fall on those of 1979 for all age groups, albeit marginally, for women aged 45-49. In the rural areas, the PPRs dropped for women aged 30-34 at all parities; for women aged 35-39 at parity 5 and above; and for women aged 40-44 at parity 6 and above. Larger drops in PPRs were manifest in urban areas.

4.2.3 FERTILITY BY LEVEL OF EDUCATION ATTAINED

As shown in table 2.5, the distribution between the fertility of women with no education and those with primary education was not clear cut. However, women who had attained secondary and above level of education had a much lower fertility with a TFR of 5.4 and 5.0 for the periods 1969-79 and 1979-89 respectively, compared with 7.8 and 7.5 for women with no education, and 7.9 and 7.1 for those with primary education.

Further evidence indicated that the fertility decline did not affect all age groups; for women with no education, it rose during 1969-79 and fell during 1979-89 for those aged 15-39, while it rose during both periods for those aged 40 and above; for those with primary education, it rose during 1969-79 and fell during 1979-89 for all age groups; for those with secondary and above level of education, it rose during 1969-79 and fell during 1979-89 for

women under 30, but rose over the entire period for women above 30. These observations were also confirmed by PPRs.

4.2.4 FERTILITY BY MARITAL STATUS

It was observed from Table 2.6 that single women continued to exhibit the lowest fertility with a TFR of 4.3, while married women had the highest TFR of 7.3. The divorced or separated women reported two births per woman less than their widowed counterparts.

Evidence deriving from average parities showed that fertility fell marginally during 1979-89 for the married and divorced or separated women but rather rose for the single women.

The average parities for women aged 40-44 for the respective categories changed from 7.3, 5.2 and 3.4 in 1979 to 7.2, 5.0 and 4.0 in 1989. No change in lifetime fertility was noted for the widowed women.

Like for the women who were single, the PPRs for the married women dropped consistently in 1989 for those aged under 45. The widowed similarly exhibited the same pattern observed for the married. Except for those aged above 35, the divorced or separated women were hardly noticed to have parities beyond 7.

In general, significant fall in fertility was observed for women aged 20-39 for all classes of marital status except for the single women.

4.3 NUPTIALITY

Nuptiality as a demographic factor has undergone changes which reflect the socio-economic and socio-cultural developments that have taken place in the country. These changes have had significant impact on levels of fertility as discussed later on in this chapter.

4.3.1 PROPORTION SINGLE

About 38 per cent of the females aged 12 and above were single. This proportion was higher in urban areas than in rural areas (43.2 per cent in urban and 36.7 per cent in rural). Nairobi and Central Provinces, Taita Taveta, Embu, Machakos, Kisii, Uasin Gishu, Laikipia and Nakuru Districts all recorded more than 40 percent for single female population aged 12 and above .

A high proportion of males reported themselves as single (51.2 per cent) at the national level. This was higher in rural areas (52.3 per cent) attributed to the fact that males migrating to cities tend to be adults who are probably married thus lowering the proportion of those who are single.

4.3.2 PROPORTION MARRIED

Fifty five percent of the females aged 12 and above were married; 46 per cent were in monogamous marriages and 9 per cent in polygamous marriages. The proportion of women who were married was slightly higher in rural areas (56 per cent) than in urban

areas (51 per cent). The proportion of the married males (47 per cent) fell below that of females (55 per cent). While the proportion of married females was higher in rural areas, that for males was higher in the urban areas.

4.3.3 PROPORTION MARRIED IN POLYGAMY

The 1989 census data indicated that 8.54 per cent of the women in Kenya aged 12 and above were married in polygamous unions. The proportion was higher in rural areas (9.4 per cent) than in urban areas (3.7 per cent). While Kilifi District had the highest proportion of its women in polygamous unions (22.3 per cent), Kiambu District had the lowest (2.6 per cent).

4.3.4 PROPORTION DIVORCED OR SEPARATED

Lamu district had the highest percentage of females divorced or separated (7.5 per cent). On the other hand Murang'a, Nyeri and all districts in Nyanza, among others, had the lowest, all below 2 per cent. The urban women were more likely to be divorced or separated (3.3 per cent) than their rural counterparts (2.2 per cent).

4.3.5 PROPORTION WIDOWED

Less than one per cent of the males in most districts were reported widowed. The females on the other hand reported cases above 6 per cent in a number of districts.

4.3.6 ESTIMATE OF SINGULATE MEAN AGE AT MARRIAGE

The mean age at marriage for females was estimated as 21.6 years whereas that of males was 26.0 years in 1989, up from 18.5 and 23.9 years respectively in 1962. It was higher in urban areas (22.1) than in rural areas (21.3).

District analysis indicated that, among females, Nyeri recorded the highest SMAM (23.7 years) and Narok the lowest (18.6 years). The largest difference between the male and female SMAM was recorded in Samburu (8.9) and Marsabit (8.8). The smallest differences between male and female SMAM were in Kirinyaga (3.1), Kisii (3.3), Kiambu (3.1), Nyandarua (3.1) and Embu (3.7).

A strong association between SMAM and polygamy was apparent. Most districts which reported low SMAM, especially among females, also exhibited a higher proportion of their females in polygamy.

4.3.7 SINGULATE MEAN AGE AT MARRIAGE BY EDUCATION

Women with secondary and above level of education stayed the longest in single status (23.5 years) while those with primary level of education stayed shortest (19.0 years).

4.3.8 TRENDS IN PERCENT SINGLE BY AGE AND SEX

The proportion of single females has been rising in all age groups particularly those aged 15-19, 25-29 and 30-34. This has resulted in steady rise in SMAM from 18.5 years in 1962 to 19.2 in 1969, 20.2 in 1979 and 21.6 in 1989 for females.

Males showed a relatively less dramatic change in the proportion single from 1962 to 1989. However, the period, there was a rise in SMAM from 23.9 to 26.0 years.

Overall, SMAM for Kenyan women grew by 7 per cent over the period 1979-1989. Major changes were observed in Kilifi (12.7 per cent), Nandi (12.0 per cent) and Uasin Gishu (10.1 per cent). Districts that depicted a decline were Mandera (-0.7 per cent) and Kajiado (-1.1. per cent)

4.3.9 TRENDS IN PROPORTION OF WOMEN CHILDLESS

The proportion of childless women rose during 1969-79 and fell during 1979-89, but the 1989 levels remained higher than those of 1969. Consequently, there was a marginal rise in MAB from 19.9 years in 1969 to 20.0 years in 1989.

Women with secondary and above level of education reported the highest MAB (21.3 years) while those with no education had the least (18.7 years) in 1989.

4.4 RELATIONSHIP BETWEEN FERTILITY AND NUPTIALITY

The results have highlighted independently the levels and trends of fertility and indicators of nuptiality without underscoring exhaustively the intricate relationship between the two processes. A number of less developed countries particularly in Asia (Cho and Retherford, 1973; Signefield and Sungkono, 1979; Hull et al., 1977; Fernando, 1976 and Kabayashi, 1979) initiated their fertility transition through postponement of marriage and hence a rise in age at marriage as one of the major strategies.

Since the majority (about 95 per cent) of women in Kenya stay married during their reproductive period, age at marriage becomes an important milestone in their reproductive history. Regions and education categories where high SMAM were recorded similarly realised high MAB. All districts in Central Province recorded relatively high SMAM and MAB.

The steady increase in the estimates of SMAM since 1962 has been paralleled by the rapid increase in the school enrolment ratios for both boys and girls. This has significantly contributed to the delay in marriage which, in turn, should have had a depressing effect on fertility. Apparently, its optimum impact on fertility may not have been realised since it has, to some extent, been counteracted by a merely marginal rise in mean age at first birth or a decline altogether in the same.

It appeared that the majority of women in all Provinces except North Eastern most had their first birth before they married.

4.5 CONCLUSION

As documented by Kelly and Nobbe (1990), Cross A. et al (1991) and Robinson W. (1991), the long-awaited demographic transition has begun to take place. However, the determinants of its momentum are still to be precisely ascertained. The innovators are predominantly educated women and those residing in urban areas. Improvements in the family planning programme and Government's policy of integrating population planning in socio-economic planning have provided the means to curtail fertility.

The total fertility rate of 6.6 derived during the 1979-89 inter-censal period re-affirms findings from the Demographic and Health Surveys that Kenya has begun to experience a demographic transition. While the momentum of this transition appears to have been more pronounced in urban areas and in Central Province, all the districts in Nyanza and Western Provinces and a majority of the districts in Rift Valley Province remained corridors of high fertility, although fertility declined in most of them.

Female education comes out as a strategic motivator toward low fertility as evidenced by the low fertility portrayed by those who had attained secondary school and above education.

In conclusion therefore, fertility increased in the decades of 1960s and 1970s and declined in the 1980s. The TFR rose to about 7.8 during the period 1969-79 but dropped to 6.6 during 1979-89. The rise in fertility was to women born between the late 19th century and 1940s who had attained high parities, while the decline was to younger women aged mainly between 20 and 39 years and was affecting all parities.

Marriage was almost universal and the majority stayed in a married state. Age at marriage rose remarkably. The high proportion of single persons below age 20 was most likely due to substantial increase in school enrolment ratios both at primary and secondary levels. There was an increased prevalence of divorce/separation in 1989 as compared to 1979, and a decline in prevalence of widowhood. Polygamous unions were predominantly a rural phenomenon and particularly prevalent in Coast, Nyanza and Western Provinces. However, its survival in future appears to be threatened by socio-economic development forces which make it less preferred.

4.6 RECOMMENDATIONS

Kenya's future demographic trend is mainly going to be determined by trends in fertility than by trends in mortality. The results presented in the preceding chapters have raised diverse issues and challenges which the Government has to ponder about in the context of socio-economic, social-cultural and socio-political development.

In spite of the revelation that the TFR had appreciably declined from 7.8 during 1969-79 to 6.6 during 1979-89, the in-built population momentum will be a key determinant of the country's future population size. This is evidenced by the current young age structure of the population which is a derivative of past demographic trends. This means that the demand for basic needs: health, education, housing, food and employment will continue to increase. The above trend will by necessity require more resources to sustain the population.

The fertility transition appears to have been pronounced in districts in Central Province and urban areas. It is of paramount importance that a conducive environment be created in the remaining districts to accelerate the fertility decline.

Several factors appear to have played a crucial role in the reduction of fertility during the 1979-89 inter-censal period. Female education; late age at marriage; rapid urbanisation; and levels of contraceptive use have turned out to be critical factors. Hence the government should look into ways of enabling further female access to higher levels of education and job opportunities in both the modern and informal sectors as these have a great potential of enhancing the culture of small family size.

Trends and patterns of nuptiality appear to have been substantially influenced by trends in socio-economic and socio-cultural developments particularly in education and health. Although the SMAM increased for both sexes, the contribution of adolescents to fertility is still high (NCPD 1989 and 1994). There is urgent need for the Government to address the needs of this vital group.

REFERENCES

Brass, W. (1958), "Model of Births Distributions in Human Populations", Bulletin de Institut International de Statistique, Tome 36 - 2 e Livraison, Stockholm.

Brass, W., et al. (1968), The Demography of Tropical Africa, Princeton.

Brass, W. (1969). "Disciplining Demographic Data". International Population Conference, London 1969, Vol. 1, pp. 183-204.

Brass, W. (1981), "The Use of the Gompertz Relational Model to Estimate Fertility", International Population Conference, Manila 1981, Vol. 3, pp.345-362.

Brass, W. (1985), "P-F Synthesis and Parity Progression Ratios", in w. Brass, Advances in Methods for Estimating Fertility and Mortality from Limited and Defective Data, London School of Hygiene and Tropical Medicine.

Brass, W., and Jolly, C.L. (eds.) (1993) Population Dynamics of Kenya, National Research Council, Washington D.C.

Caldwell, J.C. et al (1980), "Interrelationships between Nuptiality and Fertility: the evidence from the World Fertility Survey". A Paper presented at the World Fertility Survey Conference, London, 7th to 11th July 1980.

Central Bureau of Statistics, (n.d), 1969 Population Census Volume.

Central Bureau of Statistics, (n.d), 1979 Population Census Volume II Analytical Report, Nairobi.

Central Bureau of Statistics, (1980): "Kenya Fertility Survey 1977/78: First Report Vol. I".

Central Bureau of Statistics, (1983), Population Projections for Kenya 1980 - 2000, Nairobi.

Cho, L.J. and Retherford, R.D (1973). "Comparative analysis of recent fertility trends in East Asia". IUSSP International Population Conference, Liege, Vol. II: pp.163-181.

Cross, A.R. et al (1991). "Evidence of a Transition to lower fertility in Kenyan". International Family Planning Perspective, Vol. 17, Number 1772.

Dow, T.E., Jr., ed and Linda, H.W., (1983). "Prospects of fertility decline in Rural Kenya". Population and Development Review, Vol. 9, Number 1, pp.77-97.

El Badry, M.A. (1961), "Failure of Enumeration to make Entries of Zero: Errors of Recording Childless Cases in Population Censuses", American Statistical Association Journal, December 1961.

Feeney, G. (1988), "The Use of Parity Progression Models in Evaluating Family Planning Programmes", African Population Conference, Dakar 1988, Vol. 3 pp.7.1.17-30.

Hill, K, et al, (1994) The Population Dynamics of Sub-Saharan Africa: Summary of the Indepth studies conducted by the National Research Council from 1990 to 1993, National Academy Press, Washington DC.

Hull, T.H., and Hull, V.J., (1977) "The relation of economic class and fertility: An analysis of some Indonesia data". Population studies, 31(1) pp.43-57.

Kelly, A.C. and Nobbe, C.E., (1990). "Kenya at the Demographic turning point? Hypotheses and proposed Research Agenda". World Bank Discussion Paper No. 107. Washington D.C.

Kpedekpo, G.M.K., (1982), Essentials of Demographic Analysis for Africa, Heinmann, London.

Kubavashi, K. (1979). "Fertility implications of nuptiality trends in Japan". A paper presented at IUSSP seminar on nuptiality and fertility, Bruges, 8-11 January, 1979.

Livingstone I, (1981). "Rural Development, Employment and Incomes in Kenya". University of East Anglia, Norwich, U.K.

National AIDS Control Programme and National Council for Population and Development (1994), AIDS in Kenya: Background, Projections Impact, Interventions, Nairobi.

National Council for Population and Development, (1984), "Population Policy Guidelines", Sessional Paper No. 4 of 1984.

National Council for Population and Development and Institute for Resource Development/Macro Systems Inc. (1989). Kenya Demographic and Health Survey 1989, Nairobi & Columbia, Md.

National Council for Population and Development, Central Bureau of Statistics, and Macro International Inc., (1994), Kenya Demographic and Health Survey 1993, Nairobi and Calverton, Md.

Newell, C, (1988), Methods and Models in Demography, London. Republic of Kenya:

1994: "Recovery and sustainable Development to the year 2010". Sessional Paper No. 1 of 1994.

1986: "Economic Management for Renewed Growth". Sessional Paper No. 1 of 1986.

United Nations (1983), Manual X: Indirect Techniques for Demographic Estimation, ST/ESA/SER.A/81, New York.

UNECA, (1983): Nuptiality and Fertility: A comparative analysis of WFS data) African Population Studies Series No. 5, E/ECA/SER.A/3.

Zaba, B., (1981) "Use of the Relational Gompertz Model in Analysing Fertility Data collected in Retrospective Surveys", CPS Working Paper 81-2, London School of Hygiene and Tropical Medicine.

APPENDIX II: THE RELATIONAL GOMPERTZ FERTILITY MODEL

Like the logit life table system, the relational Gompertz fertility model consists essentially of a standard schedule of fertility by age which is modified mathematically until it fits the observed distribution. The modification is made with three parameters, two of which determine the relative shape of the age-specific distribution, and the third the level of fertility. The first of the shape parameters, alpha, controls the general location of the curve on the age scale, and the second, beta, the width of the distribution, the third parameter is the total fertility rate. Further descriptions of the model may be found in U.N. Manual X (1983, pp.25-26), and in Newell (1988, pp.175-8).

The model was used to estimate fertility from the data on current births (children born in the last 12 months) and average parities and from the average parities of the inter-censal hypothetical cohorts. The fitting procedures used was that devised by Zaba (1981) and described by Brass (1981); Brass's notation has been used. The steps of the calculations for the first of these applications were as follows:

- i) The current age-specific fertility rates, $f(x)$, were cumulated (multiplying by 5), to the upper end of each age group, $f(x)$. As the rates were based on births occurring during the previous 12 months, the women were, on average, half a year younger when the births occurred).
- ii) The cumulated fertilities at age x , $f(x)$, were divided by those at age $x+5$, and the Gompertz transformations or "Gompits" (double negative logarithms) of these ratios calculated, $z(x)$.
- iii) A set of standard values, $e(x)$, were subtracted from the Gompits and the results plotted against another set of standard values, $g(x)$. After the exclusion of deviant points at the upper end of the distribution, a straight line was fitted by least Squares. The slope of this line gives the beta parameter of the model, and the intercept, after a small modification¹, alpha.
- iv) Similar calculations were carried out using the average parities in place of the cumulated current fertilities, and the points plotted on the same graph. These points were not used in the computation of the parameters. These points configuration of the two sets of points can throw light on the trends in fertility and the patterns of errors in the data.
- v) The Gompits of the average parities of the standard fertility distribution, $Ys(i)$, were multiplied by beta and added to alpha; and "anti-Gompits" (double negative exponential) calculated. These values represented the model relative parities: the proportion which each average parity would form of the total fertility, $P(i)/F$ where F is the total fertility rate.

¹* The modification consists of subtracting $0-48 (B-1)$ from intercept. When B is close to 1, this correction can be ignored.

- vi) Division of the reported average parities by these model relative parities gives the "implied TFR's", which were inspected for consistency, and those for the 20-24, 25-29 and 30-34 age groups were averaged to give the best estimate of the TFR.
- vii) Model age-specific fertility rates were then obtained by repeating step (v) with the model Gompits at ages 15,20, etc., calculating first differences and multiplying them by the estimated TFR.

The use of the model with the inter-censal hypothetical cohorts followed essentially the same procedure except that only the average parities were used, and the parameters were obtained from the slope and intercept of the line to the "P" points. The line need not necessarily be fitted by least squares, and the "group average" method can sometimes be used with advantage.

Lotus spreadsheets were constructed to carry out these calculations.

APPENDIX III: HAJNAL'S FORMULA FOR ESTIMATION OF SMAM

The assumption is that a cohort of women are passing through life, and the proportions single among them at each age group is as given in the percentage distribution of single women by age. It is further assumed that no woman dies between age 15 and age 55. The task is to calculate the mean age at first marriage of women marrying before they reach age 50. The steps are as follows:

1. Add the proportions single up to and including the age group 45-49 and multiply the sum by 5.
2. Add 1500 (number of years lived by 100 women up to and including age 15).
3. Average the proportions for 45-49 and 50-54 (to find out those who never marry).
4. Multiply the result by 50 and subtract it from (2) (to estimate the number of years lived by those who marry).
5. Subtract the result of (3) from 100 (to get the number that marry)
6. Divide the result of (4) by the result of (5) (to get the average number of years lived in the single state by women who marry).

This gives the final result (Hajnal, 1953:130)

APPENDIX IV: PROJECTION OF COHORT PARITY PROGRESSION RATIOS

The procedure used is that described by Brass in his paper "P-F Synthesis and Parity Progression Ratios" (Brass 1985). The rationale of the method can be summarised briefly.

The parity distributions of women under the age of 50 are "incomplete" in that they are still of childbearing age and some of them will have more children. Of those who have reached parity n by the time of the census, how many more will go on to have $n+1$ before they are 50? The current age-order-specific fertility rates, calculated from the numbers of women bearing children in the 12 months before the census, represent the proportions of women in each age group who bore their n th child during that year. Thus cumulation of the rates by age (multiplying by 5 if 5-year age groups are used), will show how many women can be expected to have n children by various ages among a cohort going through life having children at the current rates. Thus if we subtract the number who have had n children by age a from the number living n children at age 50, we get the extra number to be added on to those who have already had n children by age a , and we can calculate the complete PPRs. Two technical points may be noted.

First, the data on children ever born give us the number with n children at the mid-points of the age-groups. The cumulated current rates give the numbers at the ends of the age groups. The latter must therefore be interpolated to bring them in line with the mid-points. This is done by linear interpolation of the Gompits.

Second, it is recognised that the data on current births are often seriously under-reported. But if the under-reporting is independent of parity, the errors will tend to cancel out.

The steps of the calculations were as follows:

- i) From the table of women by age group and parity, the distribution in each age group were cumulated by parity so as to show the numbers with 0 or more,1 or more, and division of these numbers by the total women in the age group gives the proportions in each age groups with 0+.....10+.
- ii) From the table of women bearing children in the 12 months before the census by age group and parity, the numbers in each age-parity cell were divided by the total number in the age group to give age-order-specific fertility rates.
- iii) The age-order rates were cumulated by age, multiplying by 5, to the upper end of each age groups - 19.5, 23.5.... 49.5 (remembering that the women were on average half a year younger when they bore their children), and the numbers so obtained were divided by the cumulated number at age 49.5.
- iv) The Gompits (double negative logarithms) were obtained, and linear interpolations made between neighbouring pairs so as to give the values at the mid-points of the age groups (22.5, 27.7...42.5). The anti-Gompits (double negative exponential of these values therefore gave the relative cumulated age-order rates at these age points).

- v) The results of step (iv) were subtracted from 1 and multiplied by the cumulated age-order rates at age 49.5. This gives the proportions of women who could be expected to progress to the parity concerned between the age point and the end of reproduction.
- vi) Since the results of step (1) give the proportions of women who have already reached the parity concerned by that age, the addition of the results of (i) and (v) gives the proportion of all women in the age group who can be expected to reach that parity.
- vii) The division of the results of (vi) for parity $n+1$ by those for parity n gives the parity progression ratios from n to $n+1$.

APPENDIX V:

REPORTED AVERAGE PARITIES FOR KENYAN WOMEN AGED 15 - 49, 1969 - 89
1969 KENYA POPULATION CENSUS REPORTED AVERAGE PARITIES BY DISTRICT

Age Group	KENYA- RURAL		KENYA- URBAN		NAIROBI		CENTRAL		Kirin-yaga		Muranga		Nyanjarua		Nyeri		COAST		Kilifi		Kwale		Lamu		Mombasa		Taveta/River	
	KENYA	RURAL	KENYA	URBAN	NAIROBI	RAI	KIAMBU	YAGA	MURANGA	ARUA	NYERI	COAST	KILIFI	KWALE	LAMU	MOM- BASA	TAVETA/RIVER											
15-19	0.350	-	0.320	0.270	0.260	0.310	0.260	0.330	0.240	0.470	0.510	0.520	0.600	0.440	0.270	0.460												
20-24	1.880	-	1.510	1.740	1.650	1.830	1.720	2.020	1.710	1.850	1.950	1.850	1.650	1.720	1.760	2.210												
25-29	3.650	-	3.050	3.560	3.460	3.560	3.580	3.690	3.610	3.060	3.090	3.090	2.760	2.980	3.110	3.210												
30-34	5.110	-	4.000	5.140	5.250	5.030	5.050	5.370	5.080	4.210	4.450	4.160	3.470	3.740	4.560	4.460												
35-39	6.000	-	4.640	6.140	6.370	5.920	5.980	6.300	6.120	4.700	4.640	4.810	4.300	4.210	5.630	4.580												
40-44	6.440	-	4.830	6.710	7.050	5.890	6.790	7.590	6.790	4.820	4.930	5.060	3.280	4.130	6.210	3.950												
45-49	6.690	-	4.640	7.090	7.620	6.270	7.010	7.320	6.830	4.870	4.820	5.230	3.770	4.130	5.970	4.060												

Age Group	EAST-ERN		MACHAKOS		MARSABIT MERU		N-EAST		GARISSA		MANDERA WAJIR		NYANZA KISII		KISUMU		SIAYA		S/NYANZA	
	ERN	MACHAKOS	MARSABIT MERU	N-EAST	GARISSA	MANDERA WAJIR	NYANZA KISII	KISUMU	SIAYA	S/NYANZA										
15-19	0.310	0.340	0.280	0.330	0.320	0.240	0.290	0.120	0.170	0.110	0.090	0.400	0.290	0.470	0.390	0.470				
20-24	1.800	1.930	1.610	1.850	1.780	1.590	1.790	1.380	1.710	1.220	1.310	2.090	1.940	2.170	2.020	2.220				
25-29	3.500	3.930	3.070	3.590	3.460	3.080	3.450	3.070	3.310	2.850	3.080	4.080	4.190	4.100	3.800	4.140				
30-34	4.880	5.280	4.430	4.650	4.980	4.150	4.910	4.700	4.980	4.430	4.770	5.810	6.170	5.800	5.340	5.810				
35-39	5.490	6.120	4.850	5.310	5.520	4.550	5.500	5.800	5.740	5.510	6.190	6.780	7.480	6.400	6.140	6.910				
40-44	5.950	6.880	5.670	5.620	6.040	4.420	5.970	6.310	6.280	6.190	6.470	7.440	8.480	6.970	6.590	7.640				
45-49	5.870	6.800	5.600	5.680	5.730	3.740	6.120	6.880	6.250	6.860	7.480	7.670	8.820	7.170	6.890	7.810				

Age Group	R-VALLEY		MARA-KWET		KERICHO		LAIKIPIA		NAKURU		NANDI		NAROK		SAMBUR		T/NZOIA		TURKANA		U/GISHU		WEST-POKOT		KAKA-MEGA		BUNGO-MA	
	VALLEY	MARA-KWET	KERICHO	LAIKIPIA	NAKURU	NANDI	NAROK	SAMBUR	T/NZOIA	TURKANA	U/GISHU	WEST-POKOT	KAKA-MEGA	BUNGO-MA														
15-19	0.390	0.500	0.240	0.420	0.370	0.500	0.370	0.500	0.370	0.460	0.450	0.200	0.490	0.140	0.360	0.350	0.360											
20-24	1.900	2.090	1.590	1.750	1.830	1.880	3.040	2.130	1.930	1.620	2.750	1.060	1.990	2.050	2.070	2.090	1.980											
25-29	3.610	3.730	3.080	3.050	3.870	3.920	3.900	3.760	3.040	2.770	4.660	2.200	3.930	3.380	4.240	4.270	4.100											
30-34	4.730	5.080	4.150	4.360	5.460	4.580	5.170	4.600	3.790	3.270	6.040	2.960	5.120	4.670	6.090	6.190	6.030											
35-39	5.620	5.410	4.550	4.670	6.630	5.800	6.010	5.390	5.170	4.560	6.900	4.000	5.930	5.600	7.350	7.440	7.640											
40-44	5.860	6.010	4.420	4.430	7.190	4.270	6.740	5.630	4.700	4.680	8.600	4.230	5.890	6.110	8.130	8.110	8.470											
45-49	6.050	5.560	3.740	5.120	6.830	6.700	6.930	5.910	5.190	5.170	7.740	4.810	6.230	5.910	8.220	8.150	8.700											

1979 KENYA POPULATION CENSUS REPORTED AVERAGE PARITIES BY DISTRICT

Age Group	CENT-										Mach-		Nyan-										Mom-																
	KENYA- RURAL	KENYA- URBAN	NAIROBI	RAL	Kiambu	Kirin- yaga	Muranga	arua	Nyeri	COAST	Kilifi	Kwale	Lamu	basia	T/Taveta	T/River	East-	ERN	Embu	Isiolo	Kitui	kos	Marsabit	Meru	N-EAST	Garissa	Mandera	Wajir	NYANZA	Kisii	Kisumu	Siaya	S/Nyanza	West-	WEST- ERN	Kaka- mega	Bungo- ma	Busia	
15-19	0.321	-	-	0.287	0.205	0.210	0.208	0.233	0.182	0.401	0.473	0.450	0.341	0.373	0.247	0.315																							
20-24	1.853	-	-	1.338	1.668	1.612	1.709	1.885	1.633	1.935	2.220	2.015	1.928	1.594	1.760	1.907																							
25-29	3.652	-	-	2.774	3.665	3.507	3.801	3.668	4.091	3.641	3.807	3.669	3.675	2.912	3.637	3.596																							
30-34	5.388	-	-	3.995	5.458	5.304	5.641	5.384	6.032	4.912	5.211	5.031	4.971	3.999	5.477	5.382																							
35-39	6.470	-	-	4.809	6.593	6.461	6.729	6.410	7.385	5.561	5.685	5.730	5.906	4.510	6.385	6.323																							
40-44	7.022	-	-	5.106	7.175	7.213	7.154	7.046	7.973	5.843	5.882	5.996	5.512	4.569	7.063	6.938																							
45-49	7.174	-	-	5.164	7.272	6.640	7.231	7.073	8.048	5.873	5.862	6.042	5.947	4.609	7.125	6.914																							
Age Group	East-	ERN	Embu	Isiolo	Kitui	kos	Marsabit	Meru	N-EAST	Garissa	Mandera	Wajir	NYANZA	Kisii	Kisumu	Siaya	S/Nyanza	West-	WEST- ERN	Kaka- mega	Bungo- ma	Busia																	
15-19	0.247	0.180	0.268	0.292	0.201	0.198	0.303	0.158	0.192	0.142	0.140	0.140	0.427	0.377	0.463	0.396	0.482																						
20-24	1.725	1.623	1.675	1.910	1.688	1.730	1.745	1.421	1.675	1.258	1.338	1.338	2.099	2.084	2.052	2.075	2.157																						
25-29	3.580	3.714	3.101	3.756	3.635	3.715	3.500	3.111	3.389	2.819	3.055	3.055	3.989	4.343	3.724	3.774	3.945																						
30-34	5.372	5.697	4.491	5.559	5.599	5.847	5.149	4.666	5.143	4.284	4.559	4.559	5.869	6.490	5.473	5.462	5.827																						
35-39	6.316	6.745	5.309	6.359	6.595	6.779	6.044	5.778	6.255	5.442	5.589	5.589	6.967	7.814	6.538	6.393	6.885																						
40-44	6.647	7.246	5.651	6.475	7.029	6.318	6.397	6.562	7.019	6.274	6.428	6.428	7.536	8.575	7.172	6.832	7.475																						
45-49	6.647	7.158	5.968	6.381	6.979	6.500	6.415	7.100	7.414	6.943	6.947	6.947	7.635	8.735	7.291	6.823	7.711																						
Age Group	R- VALLEY	Baringo	kwet	kajiado	Kericho	Lakipia	Nakuru	Nandi	Narok	Sambur	T/Nzoia	Turkana	U/Gishu	Pokot	West- ERN	Kaka- mega	Bungo- ma	Busia																					
15-19	0.370	0.353	0.253	0.493	0.399	0.331	0.324	0.423	0.514	0.241	0.380	0.237	0.348	0.393	0.300	0.309	0.384																						
20-24	1.995	2.122	1.924	2.088	2.055	1.977	1.881	2.219	2.052	1.505	2.150	1.404	2.034	2.040	1.915	1.976	2.089																						
25-29	3.746	4.108	3.751	3.621	3.905	3.865	3.692	4.005	3.647	2.989	3.970	2.684	3.851	3.751	3.869	3.966	3.788																						
30-34	5.404	5.805	5.265	5.055	5.829	5.349	5.482	5.725	5.038	4.553	5.812	3.935	5.487	5.259	5.872	5.979	5.786																						
35-39	6.451	6.720	6.162	5.788	7.080	6.595	6.573	6.665	5.871	5.241	7.163	4.608	6.589	6.189	7.297	7.335	6.795																						
40-44	6.981	7.066	6.477	5.900	7.792	6.847	7.309	7.124	6.121	5.971	7.934	5.197	6.950	6.734	8.157	8.628	7.415																						
45-49	7.062	6.986	6.371	5.794	7.925	7.097	7.474	6.931	6.357	6.126	8.181	5.440	6.993	6.753	8.425	8.924	7.579																						

1989 KENYA POPULATION CENSUS REPORTED AVERAGE PARITIES BY DISTRICT

Age Group	KENYA- URBAN		CENT- NAIROBI		KIRIN- yaga		NYAND- arua		COAST Kilifi		Kwale	Lamu	Mom- basa	T/Taveta	T/River	
	KENYA	RURAL	RAL	NAIROBI	Kiambu	yaga	Muranga	arua	Nyeri	COAST	Kilifi	Kwale	Lamu	Mom- basa	T/Taveta	T/River
15-19	0.265	0.262	0.168	0.217	0.190	0.166	0.162	0.161	0.146	0.322	0.373	0.384	0.250	0.282	0.193	0.316
20-24	1.560	1.660	1.282	1.015	1.254	1.229	1.357	1.432	1.187	1.537	1.782	1.747	1.571	1.206	1.318	1.729
25-29	3.252	3.470	2.907	2.170	2.733	2.771	3.187	3.150	2.795	3.036	3.362	3.304	3.094	2.458	3.003	3.356
30-34	4.891	5.163	4.559	3.213	4.228	4.534	4.919	4.880	4.447	4.508	4.850	4.737	4.993	3.567	4.719	5.039
35-39	6.052	6.322	5.852	4.091	5.381	5.924	6.202	6.504	5.704	5.419	5.735	5.605	5.754	4.311	6.008	6.132
40-44	6.871	7.108	6.891	4.618	6.494	6.999	7.105	7.688	6.663	5.841	6.087	5.911	5.964	4.566	6.744	6.579
45-49	7.207	7.397	7.362	4.881	7.087	7.439	7.378	8.156	7.185	5.980	6.094	5.998	6.102	4.623	7.118	6.887

Age Group	EAST- ERN		Macha- kitui		Marsabit Meru		N-EAST Garissa		Mandera Wajir		NYANZA Kisii		Kisumu	Siaya	S/Nyanza	
	ERN	Embu	Isiolo	Kitui	kos	Marsabit	Meru	N-EAST	Garissa	Mandera	Wajir	NYANZA	Kisii	Kisumu	Siaya	S/Nyanza
15-19	0.172	0.128	0.291	0.199	0.136	0.234	0.204	0.190	0.171	0.211	0.190	0.387	0.279	0.428	0.357	0.509
20-24	1.383	1.128	1.633	1.521	1.344	1.441	1.416	1.502	1.402	1.551	1.554	1.996	1.782	2.005	1.989	2.220
25-29	3.124	2.799	3.069	3.449	3.136	2.910	3.079	3.154	3.082	3.174	3.213	3.821	3.823	3.762	3.725	3.908
30-34	4.804	4.660	4.656	5.165	4.858	4.150	4.687	4.560	4.567	4.476	4.639	5.468	5.774	5.291	5.211	5.441
35-39	6.034	6.066	5.333	6.326	6.217	4.879	5.796	5.989	6.139	5.840	5.966	6.540	7.056	6.281	6.196	6.464
40-44	6.854	7.268	6.028	6.974	7.125	5.001	6.606	6.524	6.662	6.416	6.499	7.295	7.994	7.039	6.880	7.173
45-49	7.036	7.574	6.002	6.963	7.331	5.283	6.803	6.966	7.005	6.965	6.928	7.581	8.454	7.318	7.064	7.445

Age Group	R- VALLEY		Mara- kwet		Kericho kajjado		Nandi		Narok Sambur		T/Nzoia Turkana		West- Pokot		Kaka- mega		Bungo- ma	Busia
	VALLEY	Baringo	kwet	kajjado	Kericho	Laikipia	Nakuru	Nandi	Narok	Sambur	T/Nzoia	Turkana	U/Gishu	Pokot	ERN	WEST- mega	Bungo- ma	Busia
15-19	0.313	0.233	0.243	0.450	0.375	0.212	0.247	0.283	0.504	0.263	0.313	0.227	0.263	0.360	0.266	0.245	0.263	0.345
20-24	1.710	1.666	1.625	1.791	1.841	1.484	1.522	1.825	2.066	1.527	1.796	1.420	1.554	1.922	1.734	1.675	1.751	1.902
25-29	3.502	3.744	3.559	3.313	3.719	3.192	3.206	3.787	3.770	3.221	3.721	2.862	3.384	3.719	3.591	3.539	3.658	3.645
30-34	5.200	5.638	5.298	4.817	5.507	4.897	4.885	5.528	5.267	4.635	5.540	4.186	5.199	5.407	5.355	5.328	5.455	5.282
35-39	6.347	6.816	6.376	5.749	6.753	6.204	6.139	6.788	6.285	5.504	6.903	4.862	6.467	6.209	6.601	6.590	6.819	6.300
40-44	7.115	7.330	6.702	6.268	7.744	7.056	7.155	7.568	6.878	6.182	7.820	5.566	7.072	6.819	7.601	7.631	7.898	7.100
45-49	7.363	7.384	6.830	6.509	8.037	7.329	7.668	7.517	6.917	5.952	8.213	5.761	7.420	6.982	8.010	8.056	8.346	7.428

APPENDIX VI:
REPORTED AVERAGE PARITY BY LEVEL OF EDUCATION AND DISTRICT, 1989

Education Level	Age Group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
KENYA							
Never	0.475	1.986	3.615	4.925	6.215	6.870	7.131
Std 1 - 4	0.231	1.810	3.492	4.840	6.207	7.063	7.423
Std 5 - 8	0.226	1.619	3.283	4.739	5.959	6.684	6.873
Form 1 - 4	0.121	0.956	2.385	3.675	4.460	4.867	4.907
Form 5 & Over	0.099	0.367	1.431	2.553	3.249	3.548	3.759
NAIROBI							
Never	0.416	1.630	2.762	3.637	4.524	4.071	5.410
Std 1 - 4	0.232	1.552	2.719	3.692	4.457	5.261	5.284
Std 5 - 8	0.246	1.359	2.668	3.750	4.525	4.914	5.137
Form 1 - 4	0.111	0.794	1.910	2.924	3.566	3.820	3.770
Form 5 & Over	0.050	0.248	1.092	2.029	2.488	2.758	2.780
CENTRAL							
Never	0.055	1.783	3.476	4.922	6.162	6.935	7.235
Std 1 - 4	0.183	1.676	3.382	4.861	6.088	6.921	7.282
Std 5 - 8	0.154	1.482	3.166	4.601	5.610	6.385	6.589
Form 1 - 4	0.080	0.865	2.260	3.521	4.234	4.860	5.116
Form 5 & Over	0.048	0.235	1.267	2.591	3.583	4.124	4.957
Kiambu							
Never	0.491	1.827	3.299	4.601	5.949	6.779	7.258
Std 1 - 4	0.234	1.691	3.287	4.700	5.883	6.906	7.233
Std 5 - 8	0.179	1.455	3.044	4.342	5.373	6.202	6.339
Form 1 - 4	0.062	0.891	2.144	3.328	4.059	4.778	5.004
Form 5 & Over	0.060	0.277	1.319	2.481	3.231	3.549	4.690
Kirinyaga							
Never	0.431	1.895	3.476	4.995	6.133	6.953	7.141
Std 1 - 4	0.195	1.653	3.212	4.684	5.762	6.731	7.231
Std 5 - 8	0.148	1.359	2.863	4.283	5.298	6.019	6.491
Form 1 - 4	0.069	0.726	1.997	3.241	3.981	5.126	4.786
Form 5 & Over	0.032	0.211	1.157	2.516	3.830	3.600	5.250
Muranga							
Never	0.438	1.730	3.614	5.119	6.369	7.081	7.212
Std 1 - 4	0.160	1.710	3.564	3.037	6.338	7.060	7.400
Std 5 - 8	0.144	1.545	3.355	4.927	5.984	6.749	6.952
Form 1 - 4	0.073	0.882	2.559	3.919	4.669	5.204	5.609
Form 5 & Over	0.054	0.205	1.313	3.167	4.513	6.229	5.441
Nyandarua							
Never	0.478	1.829	3.716	5.236	6.268	7.105	7.460
Std 1 - 4	0.162	1.830	3.565	4.919	6.066	6.900	7.140
Std 5 - 8	0.147	1.569	3.293	4.792	5.532	6.304	6.700
Form 1 - 4	0.075	0.925	2.403	3.700	4.068	4.610	4.436
Form 5 & Over	0.048	0.238	1.263	2.631	3.273	4.944	4.321
Nyeri							
Never	0.401	1.571	3.370	4.730	6.053	6.770	7.139
Std 1 - 4	0.156	1.481	3.252	4.918	6.134	6.836	7.263
Std 5 - 8	0.140	1.459	3.196	4.589	5.617	6.352	6.478
Form 1 - 4	0.077	0.853	2.245	3.513	4.312	4.674	4.978
Form 5 & Over	0.031	0.206	1.188	2.367	3.660	3.808	5.179

APPENDIX VI: (cont.)

Education Level	Age Group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
COAST							
Never	0.527	1.912	3.355	4.544	5.654	5.952	6.023
Std 1 - 4	0.273	1.469	2.818	3.777	5.141	5.747	6.170
Std 5 - 8	0.212	1.378	2.750	4.014	5.117	5.549	5.765
Form 1 - 4	0.094	0.761	1.937	3.056	3.750	3.732	3.456
Form 5 & Over	0.101	0.285	1.118	2.074	2.602	2.715	2.579
Kilifi							
Never	0.578	1.974	3.453	4.658	5.774	6.076	6.046
Std 1 - 4	0.267	1.534	2.842	3.681	5.086	5.727	6.338
Std 5 - 8	0.174	1.370	2.807	4.144	5.534	5.983	6.162
Form 1 - 4	0.087	0.695	1.875	3.181	4.034	4.240	4.612
Form 5 & Over	0.159	0.343	1.056	2.183	2.620	2.585	2.454
Kwale							
Never	0.540	1.985	3.459	0.656	5.712	5.979	6.044
Std 1 - 4	0.298	1.446	2.661	3.371	4.674	4.462	4.670
Std 5 - 8	0.252	1.466	2.907	4.169	5.126	5.596	5.988
Form 1 - 4	0.079	0.813	1.972	3.268	4.404	3.400	3.421
Form 5 & Over	0.098	0.263	1.292	2.170	2.735	2.889	3.083
Lamu							
Never	0.348	1.544	3.070	4.515	5.761	5.735	6.015
Std 1 - 4	0.207	1.291	2.580	3.485	4.974	6.107	5.774
Std 5 - 8	0.192	1.522	3.145	4.991	6.415	7.959	7.543
Form 1 - 4	0.054	0.855	2.025	4.119	4.143	7.333	3.167
Form 5 & Over	0.000	0.444	0.733	1.375	1.250	2.000	2.000
Mombasa							
Never	0.543	1.682	2.794	3.739	4.661	4.797	4.762
Std 1 - 4	0.293	1.333	2.523	3.223	4.213	4.577	4.923
Std 5 - 8	0.251	1.318	2.557	3.626	4.494	4.689	4.949
Form 1 - 4	0.116	0.784	1.923	2.889	3.474	3.565	2.989
Form 5 & Over	0.092	0.270	1.093	1.993	2.480	2.500	2.402
Taita Taveta							
Never	0.514	1.909	3.515	4.806	6.180	6.704	7.111
Std 1 - 4	0.246	1.684	3.528	4.757	6.218	6.956	7.224
Std 5 - 8	0.160	1.381	2.902	4.456	5.763	6.566	6.778
Form 1 - 4	0.058	0.686	2.010	3.429	4.724	4.961	6.163
Form 5 & Over	0.000	0.309	1.289	2.460	4.150	5.710	5.750
Tana River							
Never	0.353	1.803	3.457	4.899	6.343	6.605	6.893
Std 1 - 4	0.276	1.565	2.702	4.223	5.720	6.394	6.932
Std 5 - 8	0.255	1.581	3.133	4.417	5.727	6.543	6.756
Form 1 - 4	0.083	0.786	2.026	3.380	4.714	4.538	9.500
Form 5 & Over	0.928	1.967	3.164	4.307	5.364	6.080	6.432
EASTERN							
Never	0.373	1.833	3.528	4.895	6.171	6.814	6.933
Std 1 - 4	0.155	1.545	3.264	4.714	6.048	6.991	7.332
Std 5 - 8	0.137	1.340	3.085	4.649	5.884	6.700	6.770
Form 1 - 4	0.080	0.839	2.335	3.709	4.595	5.350	5.388
Form 5 & Over	0.067	0.321	1.430	2.900	4.136	4.513	4.271
Embu							
Never	0.339	1.806	3.626	5.197	6.462	7.327	7.476
Std 1 - 4	0.117	1.381	3.104	4.684	5.945	7.122	7.149
Std 5 - 8	0.099	1.206	2.853	4.481	5.660	6.617	6.811
Form 1 - 4	0.049	0.618	1.929	3.253	4.102	4.937	5.336
Form 5 & Over	0.054	0.208	1.316	2.812	3.750	4.710	3.450

APPENDIX VI: (cont.)

Education Level	Age Group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Isiolo							
Never	0.384	1.843	3.302	4.657	5.552	6.026	6.059
Std 1 - 4	0.195	1.544	2.955	4.109	4.297	5.923	5.231
Std 5 - 8	0.141	1.311	2.601	3.890	4.571	5.390	4.182
Form 1 - 4	0.061	0.782	1.734	2.903	2.870	3.750	2.333
Form 5 & Over	0.111	0.355	0.750	3.444	2.000	0.250	2.333
Kitui							
Never	0.455	1.956	3.695	5.092	6.352	6.936	6.928
Std 1 - 4	0.140	1.613	3.415	4.687	6.167	7.159	7.339
Std 5 - 8	0.162	1.454	3.296	4.895	6.368	7.240	6.962
Form 1 - 4	0.101	0.909	2.552	4.080	5.249	0.000	4.512
Form 5 & Over	0.066	0.396	1.710	2.661	3.809	0.000	0.000
Machakos							
Never	0.274	1.642	3.539	4.991	6.438	7.141	7.247
Std 1 - 4	0.126	1.501	3.285	4.794	6.254	7.248	7.594
Std 5 - 8	0.117	1.406	3.151	4.757	6.116	6.988	7.073
Form 1 - 4	0.092	0.945	2.599	4.004	4.979	0.000	5.767
Form 5 & Over	6.184	0.413	1.570	3.008	4.434	0.000	0.000
Marsabit							
Never	0.232	1.425	2.888	4.024	4.831	4.978	5.252
Std 1 - 4	0.119	1.542	3.168	3.750	5.450	4.833	2.333
Std 5 - 8	0.109	1.188	2.985	4.093	5.265	5.143	5.833
Form 1 - 4	0.047	0.697	1.877	2.379	2.562	0.857	3.750
Form 5 & Over	0.000	0.777	1.583	1.200	2.333	0.000	2.000
Meru							
Never	0.484	2.062	3.643	4.911	6.056	6.681	6.729
Std 1 - 4	0.201	1.598	3.226	4.616	5.657	6.381	6.924
Std 5 - 8	0.164	1.398	2.979	4.412	5.357	6.016	6.131
Form 1 - 4	0.066	0.756	2.118	3.346	4.208	4.768	5.152
Form 5 & Over	0.080	0.250	1.285	2.928	4.161	4.158	4.404
NORTH EASTERN							
Never	0.205	1.562	3.217	4.586	5.983	6.481	6.941
Std 1 - 4	0.086	1.173	2.845	4.960	5.600	4.364	3.308
Std 5 - 8	0.098	1.297	2.839	4.142	5.034	6.615	4.143
Form 1 - 4	0.061	0.649	1.877	3.122	3.343	3.182	2.000
Form 5 & Over	0.231	0.447	1.552	2.539	5.000	5.333	3.000
Garissa							
Never	0.180	1.488	3.186	4.621	6.136	6.615	6.995
Std 1 - 4	0.082	1.043	2.979	5.650	5.357	3.500	2.900
Std 5 - 8	0.133	1.301	2.878	3.971	5.500	6.177	4.400
Form 1 - 4	0.103	0.708	1.880	2.979	3.444	3.889	2.000
Form 5 & Over	0.286	0.407	1.550	2.500	5.000	5.500	3.000
Mandera							
Never	0.229	1.588	3.204	4.488	5.833	6.401	6.935
Std 1 - 4	0.107	1.396	2.794	4.706	6.800	2.667	11.000
Std 5 - 8	0.064	1.274	2.865	4.364	4.545	5.333	-
Form 1 - 4	0.024	0.563	1.745	2.826	3.167	0.000	-
Form 5 & Over	0.200	1.333	2.500	6.000	-	5.000	-
Wajir							
Never	0.205	1.604	3.261	4.662	5.966	6.434	6.897
Std 1 - 4	0.069	1.143	2.706	4.231	5.167	8.333	1.500
Std 5 - 8	0.082	1.310	2.745	4.194	3.667	8.500	3.500
Form 1 - 4	0.032	0.578	1.947	3.828	2.500	9.000	-
Form 5 & Over	0.000	0.250	1.286	1.750	-	-	-

APPENDIX VI: (cont.)

Education Level	Age Group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
NYANZA							
Never	0.687	2.347	3.942	5.137	6.529	7.171	7.431
Std 1 - 4	0.311	2.131	3.809	5.037	6.506	7.325	7.743
Std 5 - 8	0.340	1.948	3.656	5.052	6.445	7.111	7.287
Form 1 - 4	0.214	1.324	2.951	4.280	5.354	5.703	5.558
Form 5 & Over	0.217	0.778	2.390	3.627	4.649	4.915	5.312
Kisii							
Never	0.581	2.383	4.264	5.677	7.263	8.015	8.398
Std 1 - 4	0.197	1.894	3.928	5.421	7.046	8.017	8.599
Std 5 - 8	0.238	1.748	3.701	5.328	6.659	7.304	7.355
Form 1 - 4	1.186	1.121	2.880	4.291	5.290	5.729	5.616
Form 5 & Over	0.118	0.630	2.328	3.864	5.057	5.243	5.216
Kisumu							
Never	0.747	2.463	3.933	5.057	6.275	6.982	7.284
Std 1 - 4	0.360	2.336	3.905	5.002	6.525	7.266	7.402
Std 5 - 8	0.403	2.091	3.746	5.023	6.375	7.037	7.337
Form 1 - 4	0.237	1.344	2.886	4.066	5.076	5.551	5.291
Form 5 & Over	0.221	0.785	2.127	3.357	4.030	3.627	5.000
Siaya							
Never	0.631	2.273	3.735	4.877	6.157	6.783	6.983
Std 1 - 4	0.299	2.074	3.660	4.825	6.109	7.050	7.351
Std 5 - 8	0.312	1.930	3.615	4.937	6.336	7.060	7.178
Form 1 - 4	0.193	1.352	3.020	4.369	5.362	6.048	6.011
Form 5 & Over	0.266	0.835	2.359	3.821	5.325	6.000	7.385
South Nyanza							
Never	0.767	2.347	3.788	4.880	6.311	6.883	7.099
Std 1 - 4	0.411	2.244	3.731	4.848	6.244	6.966	7.534
Std 5 - 8	0.438	2.055	3.571	4.894	6.355	7.025	7.298
Form 1 - 4	0.259	1.503	3.140	4.459	5.820	5.676	5.609
Form 5 & Over	0.386	1.027	2.833	3.657	4.849	5.221	5.026
RIFT VALLEY							
Never	0.493	2.001	3.697	5.060	6.305	6.992	7.093
Std 1 - 4	0.278	2.105	3.883	5.294	6.709	7.565	7.777
Std 5 - 8	0.261	1.732	3.477	5.010	6.354	7.024	7.204
Form 1 - 4	0.139	0.998	2.481	3.890	4.876	5.419	5.478
Form 5 & Over	0.133	0.449	1.657	2.959	3.976	4.361	4.642
Baringo							
Never	0.503	2.189	4.003	5.427	6.694	7.182	7.241
Std 1 - 4	0.206	2.086	4.065	5.626	7.195	7.554	7.765
Std 5 - 8	0.161	1.676	3.644	5.200	6.828	7.397	7.851
Form 1 - 4	0.069	0.746	2.321	3.880	5.474	6.208	7.294
Form 5 & Over	0.091	0.311	1.459	3.190	4.000	6.000	7.167
Elgeyo Marakwet							
Never	0.610	2.068	3.853	5.136	6.301	6.558	6.690
Std 1 - 4	0.195	2.143	3.822	5.338	6.353	7.177	7.393
Std 5 - 8	0.194	1.649	3.468	4.933	6.505	6.506	6.083
Form 1 - 4	0.107	0.884	2.243	3.814	5.051	5.550	5.400
Form 5 & Over	0.208	0.497	1.805	3.833	2.417	7.273	4.714
Kajiado							
Never	0.695	2.159	3.606	4.877	5.741	6.142	6.207
Std 1 - 4	0.299	1.959	3.380	4.833	5.913	6.622	7.058
Std 5 - 8	0.253	1.602	3.087	4.461	5.514	5.718	6.700
Form 1 - 4	0.104	0.917	1.622	3.324	4.263	14.515	5.530
Form 5 & Over	0.135	0.049	1.540	2.777	3.017	3.667	3.454

APPENDIX VI: (cont.)

Education Level	Age Group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Kericho							
Never	0.734	2.393	4.095	5.395	6.745	7.668	7.930
Std 1 - 4	0.320	2.259	3.989	5.335	6.766	7.827	7.957
Std 5 - 8	0.345	1.858	3.568	5.204	6.700	7.518	7.685
Form 1 - 4	0.208	1.051	2.537	4.067	0.508	6.425	6.253
Form 5 & Over	0.208	0.580	1.954	3.716	4.979	5.274	5.814
Laikipia							
Never	0.520	2.007	3.715	5.027	6.377	7.103	7.252
Std 1 - 4	0.230	1.825	3.616	5.308	6.397	7.209	7.454
Std 5 - 8	0.170	1.531	3.288	4.807	5.966	6.739	6.549
Form 1 - 4	0.093	0.971	2.389	3.694	4.594	5.035	5.804
Form 5 & Over	0.115	0.335	1.206	2.446	4.108	4.400	4.929
Nakuru							
Never	0.544	2.098	3.712	5.096	6.534	7.372	7.791
Std 1 - 4	0.283	1.991	3.712	5.050	6.385	7.394	7.667
Std 5 - 8	0.238	1.641	3.320	4.784	5.876	6.624	6.766
Form 1 - 4	0.123	1.010	2.382	3.678	4.640	4.909	4.726
Form 5 & Over	0.056	0.359	1.460	2.468	3.753	4.102	4.207
Nandi							
Never	0.615	2.466	4.188	5.429	6.752	7.377	7.312
Std 1 - 4	0.286	2.294	4.143	5.473	6.981	7.970	8.083
Std 5 - 8	2.559	1.838	3.669	5.269	6.751	7.564	7.727
Form 1 - 4	0.130	1.016	2.681	4.116	5.371	6.269	6.711
Form 5 & Over	0.197	0.575	2.072	3.560	5.907	5.774	4.900
Narok							
Never	0.667	2.202	3.826	5.051	6.154	6.721	6.743
Std 1 - 4	0.394	2.123	3.753	5.246	6.354	7.215	7.733
Std 5 - 8	0.346	1.840	3.509	4.993	6.436	6.843	7.171
Form 1 - 4	0.180	1.204	2.709	4.049	5.143	5.000	3.800
Form 5 & Over	0.223	0.905	1.705	3.460	3.965	3.786	4.167
Samburu							
Never	0.324	1.506	3.170	4.515	5.479	6.113	5.910
Std 1 - 4	0.174	1.765	6.500	4.100	5.276	6.115	7.600
Std 5 - 8	0.230	1.567	3.307	4.981	5.101	6.792	5.444
Form 1 - 4	0.155	0.877	2.387	3.341	4.148	5.167	3.200
Form 5 & Over	0.333	0.400	1.176	2.600	0.000	1.000	1.500
Trans Nzoia							
Never	0.605	2.212	3.923	5.292	6.796	7.586	8.001
Std 1 - 4	0.289	2.119	3.927	5.346	7.369	8.232	8.404
Std 5 - 8	0.252	1.753	3.655	5.298	6.954	7.778	8.332
Form 1 - 4	0.152	1.096	2.820	4.473	5.524	6.360	7.058
Form 5 & Over	0.128	0.404	1.900	3.367	4.021	4.308	3.667
Turkana							
Never	0.192	1.325	2.724	3.972	4.826	6.665	4.732
Std 1 - 4	0.179	1.659	3.081	4.425	4.818	5.176	9.200
Std 5 - 8	0.211	1.541	2.907	4.206	5.717	7.333	4.667
Form 1 - 4	0.124	1.034	2.300	3.907	4.750	2.875	9.000
Form 5 & Over	0.143	0.700	1.724	1.571	0.000	1.000	1.500
Uasin Gishu							
Never	0.549	2.079	3.754	5.185	6.611	7.081	7.393
Std 1 - 4	0.226	2.045	3.891	5.336	6.889	7.403	7.742
Std 5 - 8	0.238	1.732	3.497	5.023	6.370	6.898	7.082
Form 1 - 4	0.150	0.977	2.494	3.883	4.828	5.235	4.734
Form 5 & Over	0.122	0.450	1.710	2.878	4.081	3.562	3.639

APPENDIX VI: (cont.)

Education Level	Age Group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
West Pokot							
Never	0.391	1.930	3.675	5.067	6.109	6.646	6.878
Std 1 - 4	0.228	1.847	3.438	5.186	5.926	7.147	6.612
Std 5 - 8	0.247	1.656	3.466	4.953	6.081	6.637	6.024
Form 1 - 4	0.155	1.091	2.502	4.271	4.667	4.565	1.500
Form 5 & Over	0.500	0.533	1.580	2.842	1.938	2.667	2.700
WESTERN							
Never	0.572	2.207	3.842	5.207	6.631	7.583	7.934
Std 1 - 4	0.216	1.778	3.478	4.890	6.546	7.523	8.040
Std 5 - 8	0.217	1.734	3.529	5.117	6.117	6.617	7.573
Form 1 - 4	0.127	1.109	2.892	4.462	5.594	6.529	7.050
Form 5 & Over	0.087	0.441	1.813	3.594	4.761	5.473	6.154
Bungoma							
Never	0.564	2.235	3.852	5.390	6.936	7.953	8.284
Std 1 - 4	0.179	1.801	3.718	5.111	6.761	7.932	8.567
Std 5 - 8	0.226	1.809	3.699	5.304	6.912	7.896	8.394
Form 1 - 4	0.151	1.178	3.575	4.655	5.885	6.932	7.074
Form 5 & Over	0.090	0.486	1.772	3.714	4.947	5.840	6.192
Busia							
Never	0.593	2.200	3.756	5.037	6.231	7.064	7.336
Std 1 - 4	0.249	1.834	3.443	4.715	6.211	6.904	7.224
Std 5 - 8	0.272	1.779	3.430	4.914	6.266	7.111	7.562
Form 1 - 4	0.156	1.213	2.866	4.276	5.350	5.728	6.545
Form 5 & Over	0.135	0.500	1.627	3.721	4.441	4.875	5.727
Kakamega							
Never	0.563	2.199	3.889	5.240	6.674	7.664	8.034
Std 1 - 4	0.223	1.752	3.390	4.838	6.517	7.482	7.974
Std 5 - 8	0.201	1.688	3.469	5.071	6.544	7.499	7.803
Form 1 - 4	0.111	1.055	2.806	4.387	5.477	6.477	7.118
Form 5 & Over	0.072	0.402	1.746	3.497	4.667	5.394	6.122

**APPENDIX VII:
REPORTED AVERAGE PARITY BY MARITAL STATUS AND DISTRICT, 1989**

Region	Marital Status	Age Group						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Kenya	Single	0.094	0.579	1.502	2.505	3.368	3.856	4.183
	Monogamous							
	Marriage	0.893	1.975	3.455	4.902	6.253	7.124	7.469
	Polygamous							
	Marriage	0.813	2.065	3.495	4.726	5.911	6.546	6.762
	Widowed/ Separated/ Divorced	0.928	1.967	3.164	4.307	5.364	6.080	6.432
Nairobi	Single	0.041	0.078	0.134	0.018	0.191	0.331	0.386
	Monogamous							
	Marriage	0.792	1.593	2.607	3.581	4.323	4.758	5.034
	Polygamous							
	Marriage	0.624	0.663	2.707	3.556	4.431	8.894	5.178
	Widowed/ Separated/ Divorced	1.000	1.843	2.661	3.409	3.936	4.574	4.725
Central	Single	0.084	0.580	1.555	2.615	3.427	3.041	4.438
	Monogamous							
	Marriage	0.859	1.819	3.215	4.726	5.985	7.027	7.472
	Polygamous							
	Marriage	0.419	1.685	3.124	4.451	5.420	6.226	6.547
	Widowed/ Separated/ Divorced	0.905	2.088	3.207	4.370	5.203	6.150	6.511
Kiambu	Single	0.089	0.613	1.532	2.541	3.379	4.047	4.396
	Monogamous							
	Marriage	0.832	1.740	3.040	4.424	5.684	6.832	7.452
	Polygamous							
	Marriage	0.481	1.650	2.811	4.156	5.254	6.412	6.761
	Widowed/ Separated/ Divorced	0.967	2.596	3.014	4.276	5.072	6.421	6.855
Kirinyaga	Single	0.077	0.495	1.408	2.296	3.134	3.548	3.726
	Monogamous							
	Marriage	0.871	1.727	3.042	4.666	5.886	6.989	7.460
	Polygamous							
	Marriage	0.276	1.622	3.075	4.649	5.641	6.140	6.567
	Widowed/ Separated/ Divorced	1.000	1.960	3.050	4.281	5.232	6.160	6.306

APPENDIX VII: (cont.)

Region	Marital Status	Age Group						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Muranga	Single	0.084	0.560	1.586	2.675	3.436	3.921	4.083
	Monogamous Marriage	0.895	1.932	3.463	5.029	6.314	7.253	7.532
	Polygamous Marriage	0.481	1.650	2.812	4.156	5.254	6.412	6.761
	Widowed/ Separated/ Divorced	0.967	2.495	3.014	4.276	5.072	6.421	6.855
Nyandarua	Single	0.077	0.640	1.800	3.025	3.897	4.793	5.447
	Monogamous Marriage	0.842	1.897	3.393	4.972	6.056	7.089	0.762
	Polygamous Marriage	0.450	1.807	3.514	4.755	5.144	6.673	6.785
	Widowed/ Separated/ Divorced	0.791	2.119	3.599	4.753	4.408	5.909	6.168
Nyeri	Single	0.083	0.571	1.544	2.673	3.430	3.985	4.538
	Monogamous Marriage	0.874	1.819	3.163	4.653	5.946	6.937	7.365
	Polygamous Marriage	0.343	1.518	3.226	4.433	5.671	6.050	6.622
	Widowed/ Separated/ Divorced	0.851	2.029	3.256	4.319	5.034	6.215	6.719
Coast	Single	0.086	0.505	1.319	2.164	2.855	2.960	3.293
	Monogamous Marriage	0.823	1.867	3.193	4.498	5.698	6.206	6.407
	Polygamous Marriage	0.761	1.915	3.276	4.437	5.580	5.913	5.969
	Widowed/ Separated/ Divorced	1.028	1.865	2.853	3.814	4.617	4.996	5.114
Kilifi	Single	0.101	0.626	1.656	2.513	3.560	3.530	3.874
	Monogamous Marriage	0.816	2.011	3.458	4.800	6.039	6.458	6.586
	Polygamous Marriage	0.737	1.953	3.298	4.498	5.191	5.974	5.822
	Widowed/ Separated/ Divorced	0.969	1.956	3.040	4.053	4.973	5.310	5.325
Kwale	Single	0.105	0.677	1.653	2.531	3.127	3.385	3.434
	Monogamous Marriage	0.850	1.982	3.392	4.708	5.968	6.314	6.462
	Polygamous Marriage	0.767	1.923	3.295	4.393	5.469	5.964	6.143
	Widowed/ Separated/ Divorced	1.160	1.816	3.076	3.996	4.736	5.146	5.040

APPENDIX VII: (cont.)

Region	Marital Status	Age Group						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Lamu	Single Monogamous	0.055	0.375	1.081	1.925	3.271	3.348	4.605
	Marriage	0.826	1.840	3.195	4.699	6.027	6.343	6.573
	Polygamous Marriage	0.786	1.868	3.232	4.531	5.841	6.354	5.667
	Widowed/ Separated/ Divorced	0.867	1.769	2.674	4.218	4.575	4.781	4.731
Mombasa	Single Monogamous	0.075	0.371	0.980	1.635	2.033	2.116	2.406
	Marriage	0.798	1.648	2.714	3.702	4.617	4.951	4.957
	Polygamous Marriage	0.775	1.533	2.887	3.783	4.701	4.172	4.934
	Widowed/ Separated/ Divorced	0.907	1.845	2.487	3.200	3.871	3.993	4.082
Taita Taveta	Single Monogamous	0.075	0.560	1.449	2.413	3.151	2.889	3.379
	Marriage	0.923	1.875	3.362	4.944	6.373	7.231	7.579
	Polygamous Marriage	0.738	1.400	3.320	4.524	6.108	6.514	6.944
	Widowed/ Separated/ Divorced	1.109	2.041	3.220	4.439	5.439	5.794	6.300
Tana	River							
	Single Monogamous	0.049	0.440	1.371	2.740	3.740	4.064	3.610
	Marriage	0.776	1.916	3.401	4.967	6.340	7.020	7.351
	Polygamous Marriage	0.910	2.006	3.429	4.698	6.136	6.202	6.767
	Widowed/ Separated/ Divorced	0.946	1.697	2.777	4.097	5.264	5.760	1.975
Eastern	Single Monogamous	0.076	0.567	1.510	2.530	3.417	3.775	3.794
	Marriage	0.847	1.846	3.351	4.865	6.234	7.160	7.341
	Polygamous Marriage	0.572	1.864	3.344	4.670	5.800	6.321	6.424
	Widowed/ Separated/ Divorced	0.742	1.833	3.030	4.193	5.275	5.914	6.122
Embu	Single Monogamous	0.057	0.412	1.226	2.430	3.264	3.611	4.187
	Marriage	0.769	1.692	3.089	4.763	6.181	7.454	7.755
	Polygamous Marriage	0.177	1.556	3.159	4.844	5.877	6.699	6.619
	Widowed/ Separated/ Divorced	0.697	1.219	2.838	4.115	5.047	6.190	6.013

APPENDIX VII: (cont.)

Region	Marital Status	Age Group						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Isiolo	Single	0.063	0.516	1.190	2.661	3.056	4.410	3.258
	Monogamous Marriage	0.727	1.940	3.236	4.585	5.565	6.193	6.458
	Polygamous Marriage	0.594	2.020	3.316	4.563	5.575	6.141	6.159
Kitui	Widowed/ Separated/ Divorced	0.837	1.823	2.810	4.378	4.681	5.346	5.223
	Single	0.094	0.735	2.028	3.168	4.276	3.932	3.955
	Monogamous Marriage	0.788	1.856	3.586	5.142	6.579	7.406	7.438
Machakos	Polygamous Marriage	0.755	1.945	3.512	4.876	5.967	6.390	6.328
	Widowed/ Separated/ Divorced	0.807	1.842	3.342	4.541	5.765	6.271	6.121
	Single	0.072	0.622	1.720	2.763	3.781	4.253	4.112
Marsabit	Monogamous Marriage	0.759	1.761	3.329	4.915	6.406	7.392	7.577
	Polygamous Marriage	0.474	1.838	3.392	4.744	6.049	6.696	6.815
	Widowed/ Separated/ Divorced	0.731	1.848	2.981	4.354	5.636	6.341	6.792
Meru	Single	0.034	0.288	1.060	1.875	2.602	2.714	3.111
	Monogamous Marriage	0.578	1.653	3.015	4.174	5.059	5.252	5.470
	Polygamous Marriage	0.451	1.370	2.574	3.775	4.278	4.481	4.981
North	Widowed/ Separated/ Divorced	0.793	1.773	3.051	3.795	4.755	4.599	5.008
	Single	0.081	0.497	1.219	1.976	2.577	3.131	3.194
	Monogamous Marriage	1.059	2.014	3.384	4.803	6.004	6.896	7.069
North	Polygamous Marriage	0.602	1.995	3.378	4.596	5.632	6.050	6.232
	Widowed/ Separated/ Divorced	0.672	1.828	2.985	3.915	4.818	5.490	5.765
	Eastern							
North	Single	0.021	0.194	0.752	1.893	2.252	4.110	4.264
	Monogamous Marriage	0.584	1.817	3.376	4.754	6.198	6.716	7.224
	Polygamous Marriage	0.551	1.692	3.273	4.567	5.890	6.575	7.215
North	Widowed/ Separated/ Divorced	0.674	1.472	2.386	3.593	4.554	5.258	5.625

APPENDIX VII: (cont.)

Region	Marital Status	Age Group						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Garissa	Single	0.024	0.229	0.973	1.864	3.120	4.241	4.381
	Monogamous Marriage	0.595	1.731	3.324	4.748	6.345	6.839	7.193
	Polygamous Marriage	0.533	1.659	3.130	4.720	6.027	6.920	7.381
	Widowed/ Separated/ Divorced	0.557	1.508	2.438	3.715	4.685	5.392	5.623
Mandera	Single	0.015	0.146	0.618	1.889	1.321	3.932	4.294
	Monogamous Marriage	0.589	1.846	3.379	4.695	6.018	6.695	7.215
	Polygamous Marriage	0.560	1.737	3.381	4.431	5.843	6.148	6.910
	Widowed/ Separated/ Divorced	0.835	1.435	2.381	3.390	4.528	5.217	5.839
Wajir	Single	0.023	0.195	0.511	1.950	1.560	4.125	4.067
	Monogamous Marriage	0.560	1.871	3.427	4.818	6.217	6.731	7.261
	Polygamous Marriage	0.561	1.682	3.333	4.510	5.746	6.540	7.258
	Widowed/ Separated/ Divorced	0.600	1.486	2.341	3.746	4.409	5.181	5.475
Nyanza	Single	0.131	0.681	1.614	2.574	3.693	4.232	4.892
	Monogamous Marriage	0.992	2.225	3.840	5.242	6.708	7.488	7.754
	Polygamous Marriage	0.943	2.250	3.628	4.760	5.984	6.650	6.928
	Widowed/ Separated/ Divorced	1.071	2.210	3.592	3.856	6.314	6.894	7.177
Kisii	Single	0.122	0.639	1.595	2.582	3.906	4.298	5.495
	Monogamous Marriage	1.005	2.120	3.942	5.557	7.106	8.069	8.552
	Polygamous Marriage	0.798	2.170	3.760	5.220	6.700	7.679	7.980
	Widowed/ Separated/ Divorced	1.085	1.125	3.751	5.326	6.817	7.544	7.855
Kisumu	Single	0.151	0.696	1.562	2.436	3.136	4.083	4.113
	Monogamous Marriage	1.038	2.251	3.978	5.102	6.485	7.287	7.525
	Polygamous Marriage	1.058	3.364	3.729	18.397	5.811	6.526	6.860
	Widowed/ Separated/ Divorced	1.065	2.179	3.508	4.624	6.086	6.650	7.130

APPENDIX VII: (cont.)

Region	Marital Status	Age Group						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Siaya	Single	0.140	0.780	1.762	2.690	3.860	4.291	4.730
	Monogamous Marriage	1.003	2.196	3.834	5.058	6.420	7.186	7.305
	Polygamous Marriage	1.014	2.311	3.638	4.730	5.868	6.370	6.636
	Widowed/ Separated/ Divorced	1.143	2.238	3.512	4.750	6.013	6.935	6.980
South	Nyanza							
	Single	0.125	0.687	1.601	2.587	3.768	4.194	4.755
	Monogamous Marriage	0.958	2.248	3.783	5.065	6.577	7.235	7.471
	Polygamous Marriage	0.922	2.211	3.547	4.651	5.899	6.486	6.683
	Widowed/ Separated/ Divorced	1.000	2.298	3.545	4.684	6.308	6.606	6.948
Rift Valley	Single	0.107	0.686	1.796	3.032	4.068	4.534	4.641
	Monogamous Marriage	0.927	2.093	3.696	5.189	6.565	7.380	7.683
	Polygamous Marriage	0.811	2.052	3.570	4.901	6.003	6.689	6.819
	Widowed/ Separated/ Divorced	0.954	2.083	3.401	4.563	5.572	6.212	6.464
Baringo	Single	0.073	0.535	1.696	2.964	3.919	3.885	4.208
	Monogamous Marriage	0.988	2.170	3.916	5.516	7.170	7.529	7.640
	Polygamous Marriage	0.758	2.120	3.711	5.182	6.357	7.021	6.911
	Widowed/ Separated/ Divorced	1.081	2.098	3.771	4.943	5.960	6.356	6.759
Elgeyo	Marakwet							
	Single	0.081	0.597	1.805	2.706	3.594	3.310	3.577
	Monogamous Marriage	0.910	2.032	3.712	5.289	6.587	6.959	7.106
	Polygamous Marriage	0.897	2.057	3.676	4.970	6.122	6.092	6.159
	Widowed/ Separated/ Divorced	1.192	1.867	3.254	4.339	5.309	5.996	5.957
Kajiado	Single	0.117	0.740	1.842	3.108	3.984	4.639	4.864
	Monogamous Marriage	0.880	2.038	3.381	4.706	5.729	6.312	6.740
	Polygamous Marriage	0.907	2.226	3.577	4.866	5.862	6.210	5.766
	Widowed/ Separated/ Divorced	1.146	2.146	3.523	4.356	5.160	5.408	5.540

APPENDIX VII: (cont.)

Region	Marital Status	Age Group						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Kericho	Single	0.139	0.779	1.852	3.100	3.869	4.506	4.605
	Monogamous Marriage	0.968	2.217	3.935	5.484	6.949	7.932	8.205
	Polygamous Marriage	0.801	2.105	3.713	5.123	6.365	7.368	7.469
	Widowed/ Separated/ Divorced	0.802	2.096	3.594	4.743	5.894	6.853	7.204
Laikipia	Single	0.096	0.711	1.909	3.223	4.530	5.359	5.186
	Monogamous Marriage	0.844	1.911	3.429	4.975	6.290	7.248	7.583
	Polygamous Marriage	0.661	2.213	3.612	4.759	5.945	6.825	6.880
	Widowed/ Separated/ Divorced	0.960	2.147	3.321	4.710	5.550	6.069	6.247
Nakuru	Single	0.104	0.715	1.810	3.057	4.186	4.792	5.134
	Monogamous Marriage	0.873	1.946	3.457	4.940	6.386	7.440	8.020
	Polygamous Marriage	0.726	1.876	3.546	11.865	5.994	7.001	7.166
	Widowed/ Separated/ Divorced	0.027	2.166	3.319	4.468	5.474	6.337	6.731
Nandi	Single	0.131	0.808	2.161	3.408	4.619	4.587	4.230
	Monogamous Marriage	1.025	2.265	3.989	5.513	7.066	7.964	7.938
	Polygamous Marriage	0.680	2.141	3.731	5.115	6.093	6.631	6.862
	Widowed/ Separated/ Divorced	0.561	2.228	3.566	4.733	5.828	6.423	6.361
Narok	Single	0.110	0.834	2.109	3.445	4.366	4.942	4.723
	Monogamous Marriage	0.962	2.224	3.848	4.225	6.452	7.098	7.273
	Polygamous Marriage	0.838	3.160	3.625	4.762	5.809	6.323	6.379
	Widowed/ Separated/ Divorced	0.946	2.051	3.605	4.643	5.622	6.144	5.842
Samburu	Single	0.062	0.495	1.509	2.544	3.829	3.753	3.282
	Monogamous Marriage	0.682	1.868	3.425	4.662	5.754	6.428	6.238
	Polygamous Marriage	0.774	1.655	3.133	4.546	5.256	5.938	5.630
	Widowed/ Separated/ Divorced	0.905	2.220	3.000	4.270	4.955	6.004	5.863

APPENDIX VII: (cont.)

Region	Marital Status	Age Group						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Trans Nzola								
	Single	0.106	0.596	1.597	2.824	3.792	4.415	4.941
	Monogamous Marriage	0.964	2.140	3.815	5.385	7.055	7.959	8.363
	Polygamous Marriage	0.874	2.252	3.957	5.324	6.829	7.719	8.030
	Widowed/ Separated/ Divorced	1.015	1.932	3.244	4.466	5.701	6.472	7.394
Turkana								
	Single	0.066	0.377	1.058	2.207	3.017	3.775	3.884
	Monogamous Marriage	0.892	1.943	3.099	4.233	5.055	5.723	5.937
	Polygamous Marriage	0.738	1.571	2.894	3.963	4.735	5.489	5.841
	Widowed/ Separated/ Divorced	0.925	1.938	2.775	4.086	4.926	5.491	5.551
Uasin Gishu								
	Single	0.107	0.647	1.774	3.001	4.132	4.516	4.470
	Monogamous Marriage	0.955	2.018	3.586	5.188	6.669	7.338	7.724
	Polygamous Marriage	0.854	2.067	3.593	0.492	6.444	6.879	7.100
	Widowed/ Separated/ Divorced	0.927	2.060	3.623	4.808	5.715	6.049	6.885
West Pokot								
	Single	0.083	0.645	1.421	2.535	3.011	3.567	3.595
	Monogamous Marriage	0.816	2.069	3.751	5.172	6.221	6.839	7.142
	Polygamous Marriage	0.688	2.007	3.662	5.122	6.005	6.586	6.802
	Widowed/ Separated/ Divorced	1.100	1.935	3.142	4.357	5.650	6.352	6.162
Western								
	Single	0.085	0.556	1.475	2.301	3.168	3.530	4.263
	Monogamous Marriage	0.902	2.059	3.677	5.240	6.797	7.876	8.240
	Polygamous Marriage	0.835	2.094	3.621	4.976	6.328	7.254	7.630
	Widowed/ Separated/ Divorced	0.986	1.935	3.294	4.620	5.868	7.002	7.504
Bungoma								
	Single	0.073	0.465	1.477	2.253	3.153	3.483	4.088
	Monogamous Marriage	0.881	2.051	3.732	5.385	7.108	8.311	8.792
	Polygamous Marriage	0.814	2.112	3.704	5.084	6.626	7.675	8.000
	Widowed/ Separated/ Divorced	1.051	1.921	3.222	4.464	5.762	7.012	7.621

APPENDIX VII: (cont.)

Region	Marital Status	Age Group						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
Busia								
	Single	0.115	0.695	1.674	2.479	3.244	3.759	5.235
	Monogamous Marriage	0.908	2.138	3.677	5.117	6.433	7.393	7.557
	Polygamous Marriage	0.857	2.069	3.540	4.771	5.941	6.585	7.061
	Widowed/ Separated/ Divorced	1.091	2.021	3.232	4.470	5.678	6.485	7.066
Kakamega								
	Single	0.084	0.562	1.436	2.283	3.158	3.497	4.124
	Monogamous Marriage	0.912	2.038	3.653	5.216	6.761	7.868	8.267
	Polygamous Marriage	0.840	2.092	3.589	4.976	6.237	7.189	7.562
	Widowed/ Separated/ Divorced	0.916	1.901	3.363	4.744	5.978	7.193	7.613

APPENDIX VIII:

HYPOTHETICAL COHORT AVERAGE PARITIES (WITHOUT EL BADRY CORRECTION) BY DISTRICT, 1969 -1979

Age Group	KENYA- RURAL		KENYA- URBAN		NAIROBI		CENT- RAL		Kirin- yaga		Nyand- arua		Mora- basa		T/Taveta		T/River			
	ERN	Embu	Isiolo	Kitui	Kitui	Kitui	Kitui	Kitui	Marsabit	Meru	N-EAST	Garissa	Mandera	Wajir	NYANZA	Kisii	Kwale	Lamu	Siaya	S/Nyanza
15-19	0.321	-	-	0.287	0.205	0.21	0.208	0.208	0.233	0.182	0.401	0.473	0.45	0.341	0.373	0.247	0.315			
20-24	1.853	-	-	1.338	1.688	1.612	1.709	1.672	1.885	1.633	1.935	2.22	2.015	1.928	1.594	1.76	1.907			
25-29	3.623	-	-	2.741	3.6	3.456	3.698	3.616	3.994	3.584	3.428	3.771	3.599	3.416	2.846	3.613	3.451			
30-34	5.361	-	-	3.823	5.385	5.267	5.52	5.336	5.897	5.316	4.997	5.481	5.195	5.249	3.872	5.477	5.079			
35-39	6.443	-	-	4.501	6.634	6.457	6.867	6.446	7.689	6.49	5.929	6.366	6.239	6.562	4.376	6.888	6.564			
40-44	7.272	-	-	4.928	7.421	7.229	7.644	7.332	8.5	7.201	6.63	6.912	7.032	7.291	4.701	7.98	7.557			
45-49	7.616	-	-	5.024	7.765	6.727	8.178	7.539	9.438	7.39	7.102	7.588	7.471	8.209	4.775	8.383	8.898			
Macha-																				
Age Group	ERN	Embu	Isiolo	Kitui	Kitui	Kitui	Kitui	Marsabit	Meru	N-EAST	Garissa	Mandera	Wajir	NYANZA	Kisii	Kisumu	Siaya	S/Nyanza		
15-19	0.247	0.18	0.268	0.292	0.201	0.198	0.303	0.158	0.192	0.142	0.14	0.427	0.377	0.463	0.396	0.482				
20-24	1.725	1.623	1.675	1.91	1.688	1.43	1.745	1.421	1.675	1.258	1.338	2.099	2.084	2.052	2.075	2.157				
25-29	3.516	3.553	3.088	3.718	3.516	2.673	3.513	3.149	3.411	2.851	3.104	4.016	4.43	3.717	3.78	3.958				
30-34	5.298	5.39	4.556	5.62	5.507	3.686	5.104	4.708	5.108	4.322	4.587	5.879	6.634	5.354	5.517	5.764				
35-39	6.332	6.368	5.327	6.487	6.651	4.363	6.107	5.857	6.356	5.443	5.613	6.903	8.054	6.154	6.373	6.702				
40-44	7.065	7.356	5.776	7.445	7.557	4.855	6.591	6.57	7.146	6.167	6.245	7.605	9.038	6.727	7.01	7.429				
45-49	7.489	7.406	6.445	7.558	8.11	5.313	7.022	7.157	8.031	6.876	6.37	7.758	9.309	7.046	7.056	7.503				
Mara-																				
Age Group	VALLEY	Baringo	kwet	kajiado	Kericho	Laikipia	Nakuru	Nandi	Narok	Sambur	T/Nzoia	Turkana	U/Gishu	Pokot	WEST- ERN	Kaka- mega	Bungo- ma	Busia		
15-19	0.37	0.353	0.253	0.493	0.399	0.331	0.324	0.423	0.514	0.241	0.38	0.237	0.348	0.393	0.317	0.3	0.309	0.384		
20-24	1.995	2.122	1.924	2.088	2.055	1.977	1.881	2.219	2.052	1.505	2.15	1.404	2.034	2.04	1.962	1.915	1.976	2.089		
25-29	3.726	3.961	3.625	3.694	3.934	3.697	3.646	3.969	3.712	3.03	3.86	2.78	3.819	3.634	3.836	3.787	3.965	3.833		
30-34	5.499	5.837	6.009	5.393	6.054	5.446	4.323	5.814	5.16	4.437	5.212	4.279	5.53	5.249	5.776	5.697	5.975	5.745		
35-39	6.568	6.952	5.966	6.432	7.144	6.372	6.419	6.874	6.543	5.501	6.363	5.189	6.478	6.442	6.892	6.852	7.287	6.528		
40-44	7.75	7.823	7.676	6.933	8.386	7.707	6.462	8.338	7.491	7.138	7.106	6.516	7.36	7.313	7.844	7.727	8.572	7.26		
45-49	8.01	8.528	7.207	7.556	8.439	7.869	7.883	8.415	7.729	7.067	7.645	6.629	7.541	7.596	7.967	7.943	8.572	7.377		

APPENDIX VIII (A)

MODEL AGE - SPECIFIC FERTILITY RATES BY DISTRICT, 1969 -79

Age Group	KENYA- RURAL		KENYA- URBAN		NAIROBI		CENT- RAL		Kirin- yaga		Muranga arua		Nyeri		COAST		Kilifi		Kwale		Lamu		Mom- basa		T/Taveta T/River	
	KENYA	ERNA	KENYA	ERNA	NAIROBI	NAIROBI	CENT- RAL	CENT- RAL	Kirin- yaga	Kirin- yaga	Muranga arua	Muranga arua	Nyeri	Nyeri	COAST	COAST	Kilifi	Kilifi	Kwale	Kwale	Lamu	Lamu	Mom- basa	Mom- basa	T/Taveta	T/River
10-14	0.0022	-	-	-	0.0021	0.0008	0.0008	0.0008	0.0008	0.0006	0.0016	0.0005	0.0005	0.0045	0.0051	0.0062	0.0046	0.0029	0.0016	0.0046	0.0029	0.0046	0.0029	0.0016	0.0046	0.0046
15-19	0.1816	-	-	-	0.1447	0.1452	0.1432	0.1491	0.1479	0.1647	0.1392	0.1392	0.2003	0.2328	0.2129	0.1858	0.1767	0.1594	0.1804	0.1804	0.1858	0.1767	0.1594	0.1804	0.1804	0.1804
20-24	0.3746	-	-	-	0.2676	0.3823	0.3684	0.3909	0.3855	0.4119	0.3846	0.3457	0.3827	0.3533	0.3533	0.3534	0.2792	0.3781	0.3491	0.3491	0.3534	0.2792	0.3781	0.3491	0.3491	0.3491
25-29	0.3543	-	-	-	0.2361	0.3906	0.3764	0.4056	0.3780	0.4519	0.3879	0.3101	0.3254	0.3230	0.3230	0.3571	0.2157	0.3966	0.3630	0.3630	0.3571	0.2157	0.3966	0.3630	0.3630	0.3630
30-34	0.2718	-	-	-	0.1722	0.3045	0.2950	0.3219	0.2805	0.3903	0.2922	0.2359	0.2354	0.2547	0.2547	0.3052	0.1409	0.3298	0.3198	0.3198	0.3052	0.1409	0.3298	0.3198	0.3198	0.3198
35-39	0.1784	-	-	-	0.1082	0.1968	0.1924	0.2124	0.1715	0.2864	0.1802	0.1573	0.1489	0.1783	0.1783	0.2308	0.0794	0.2333	0.2502	0.2502	0.2308	0.0794	0.2333	0.2502	0.2502	0.2502
40-44	0.0724	-	-	-	0.0419	0.0764	0.0756	0.0846	0.0619	0.1317	0.0655	0.0664	0.0588	0.0807	0.0807	0.1141	0.0270	0.1029	0.1292	0.1292	0.1141	0.0270	0.1029	0.1292	0.1292	0.1292
45-49	0.0078	-	-	-	0.0042	0.0075	0.0076	0.0087	0.0055	0.0168	0.0058	0.0077	0.0062	0.0104	0.0104	0.0167	0.0022	0.0124	0.0201	0.0201	0.0167	0.0022	0.0124	0.0201	0.0201	0.0201
Total	7.2155	-	-	-	4.8849	7.5254	7.2972	7.8702	7.1569	9.2775	7.2794	6.6388	6.9770	7.0976	7.8382	4.6207	8.0699	8.0821	8.0821	7.8382	4.6207	8.0699	8.0821	8.0821	8.0821	8.0821

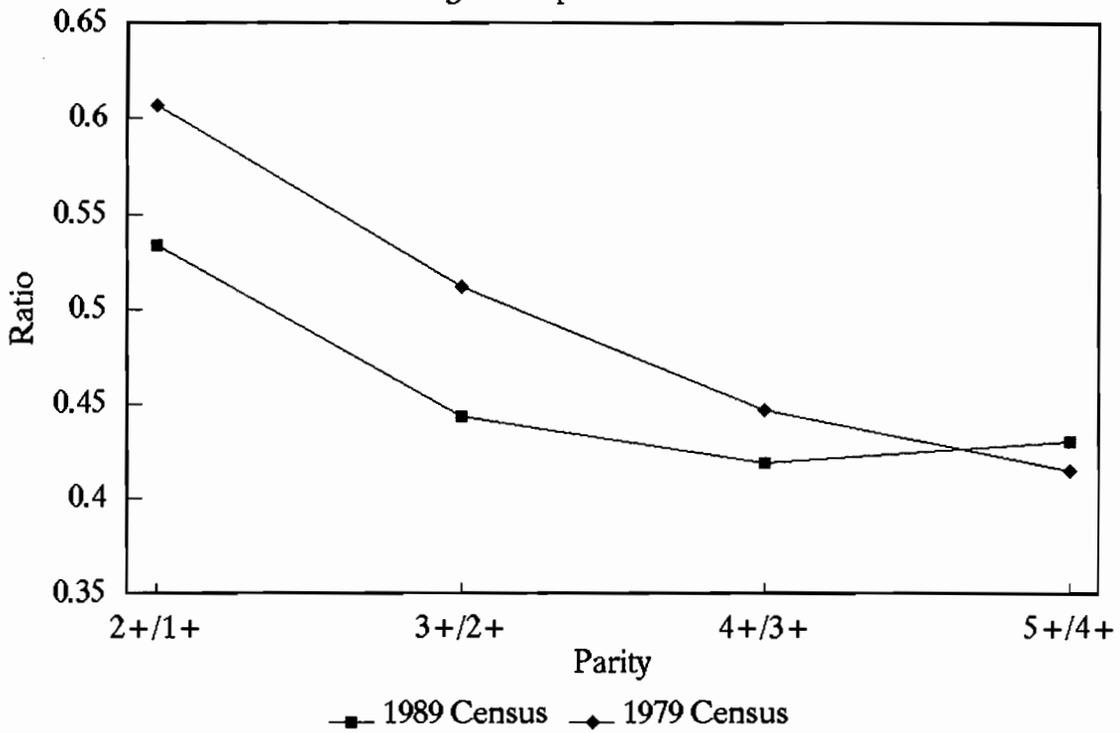
Age Group	EAST- ERN		Embu		Isiolo		Kitui		Macha- kos		Marsabit Meru		N-EAST		Garissa		Mandera		Wajir		NYANZA		Kisumu		Siaya		S/Nyanza	
	ERNA	ERNA	Embu	Embu	Isiolo	Isiolo	Kitui	Kitui	Macha- kos	Macha- kos	Marsabit Meru	Marsabit Meru	N-EAST	N-EAST	Garissa	Garissa	Mandera	Mandera	Wajir	Wajir	NYANZA	NYANZA	Kisumu	Kisumu	Siaya	Siaya	S/Nyanza	S/Nyanza
10-14	0.0010	0.0003	0.0014	0.0009	0.0006	0.0010	0.0018	0.0005	0.0008	0.0005	0.0005	0.0005	0.0003	0.0032	0.0024	0.0039	0.0025	0.0044	0.0044	0.0039	0.0025	0.0044	0.0039	0.0025	0.0044	0.0025	0.0044	0.0044
15-19	0.1587	0.1371	0.1605	0.1799	0.1446	0.1334	0.1726	0.1206	0.1430	0.1068	0.1121	0.2181	0.2081	0.2213	0.2310	0.2213	0.2113	0.2310	0.2310	0.2213	0.2113	0.2310	0.2213	0.2113	0.2310	0.2310	0.2310	0.2310
20-24	0.3764	0.3928	0.3301	0.4060	0.3880	0.2812	0.3599	0.3353	0.3670	0.3015	0.3316	0.4080	0.4500	0.3735	0.3972	0.3735	0.3936	0.3972	0.3972	0.3735	0.3936	0.3972	0.3735	0.3936	0.3972	0.3972	0.3972	0.3972
25-29	0.3606	0.3781	0.2923	0.3587	0.3910	0.2458	0.3359	0.3510	0.3776	0.3257	0.3395	0.3646	0.4431	0.3123	0.3358	0.3123	0.3358	0.3358	0.3358	0.3123	0.3358	0.3358	0.3123	0.3358	0.3358	0.3358	0.3358	0.3358
30-34	0.2684	0.2663	0.2072	0.2462	0.2971	0.1704	0.2526	0.2761	0.2986	0.2647	0.2547	0.2691	0.3515	0.2197	0.2348	0.2197	0.2348	0.2348	0.2348	0.2197	0.2348	0.2348	0.2197	0.2348	0.2348	0.2348	0.2348	0.2348
35-39	0.1668	0.1514	0.1241	0.1404	0.1859	0.0991	0.1618	0.1788	0.1969	0.1776	0.1548	0.1712	0.2384	0.1340	0.1591	0.1340	0.1591	0.1591	0.1591	0.1340	0.1591	0.1591	0.1340	0.1591	0.1591	0.1591	0.1591	0.1591
40-44	0.0921	0.0493	0.0446	0.0469	0.0689	0.0342	0.0634	0.0691	0.0785	0.0718	0.0548	0.0673	0.1005	0.0502	0.0629	0.0502	0.0507	0.0629	0.0629	0.0502	0.0507	0.0629	0.0502	0.0507	0.0629	0.0629	0.0629	0.0629
45-49	0.0058	0.0037	0.0040	0.0037	0.0063	0.0028	0.0065	0.0067	0.0081	0.0075	0.0047	0.0069	0.0114	0.0048	0.0066	0.0048	0.0046	0.0066	0.0066	0.0048	0.0046	0.0066	0.0048	0.0046	0.0066	0.0066	0.0066	
Total	6.9989	6.8946	5.8213	6.9131	7.4125	4.8395	6.7732	6.6902	7.3533	6.2802	6.2620	7.5422	9.0266	6.5985	7.2787	6.5985	6.8676	7.2787	7.2787	6.5985	6.8676	7.2787	6.5985	6.8676	7.2787	7.2787	7.2787	7.2787

Age Group	R- VALLEY		Baringo		Mara- kwet		Kajiado		Kericho		Laikipia		Nakuru		Nandi		Narok		Sambur		T/Nzoia		Turkana		U/Gishu		West- Pokot		WEST- ERN		Kaka- mega		Bungo- ma		Busia		
	VALLEY	VALLEY	Baringo	Baringo	Mara- kwet	Mara- kwet	Kajiado	Kajiado	Kericho	Kericho	Laikipia	Laikipia	Nakuru	Nakuru	Nandi	Nandi	Narok	Narok	Sambur	Sambur	T/Nzoia	T/Nzoia	Turkana	Turkana	U/Gishu	U/Gishu	West- Pokot	West- Pokot	WEST- ERN	WEST- ERN	Kaka- mega	Kaka- mega	Bungo- ma	Bungo- ma	Busia	Busia	
10-14	0.0031	0.0024	0.0024	0.0026	0.0026	0.0026	0.0071	0.0029	0.0029	0.0018	0.0018	0.0100	0.0038	0.0121	0.0018	0.0018	0.0121	0.0018	0.0018	0.0044	0.0044	0.0016	0.0016	0.0020	0.0020	0.0052	0.0018	0.0018	0.0017	0.0019	0.0019	0.0017	0.0017	0.0017	0.0017		
15-19	0.1996	0.2054	0.1660	0.2241	0.2081	0.1924	0.1944	0.2243	0.2216	0.1437	0.1352	0.2051	0.1875	0.1875	0.1864	0.2097	0.1864	0.2097	0.2097	0.1864	0.2097	0.1864	0.2097	0.1864	0.2097	0.2097	0.2097	0.2097	0.2097	0.2097	0.2097	0.2097	0.2097	0.2097	0.2097	0.2097	0.2097
20-24	0.3832	0.4154	0.3929	0.3618	0.4107	0.3914	0.3143	0.4082	0.3397	0.3095	0.3808	0.2916	0.3993	0.3634	0.4114	0.3634	0.4056	0.3998	0.4114	0.4114	0.3998	0.4114	0.3998	0.4114	0.3998	0.4114	0.4114	0.4114	0.4114	0.4114	0.4114	0.4114	0.4114	0.4114	0.4114	0.4114	0.4114
25-29	0.3542	0.3821	0.4515	0.3281	0.3811	0.3475	0.3197	0.3653	0.3322	0.3090	0.3434	0.2873	0.3520	0.3449	0.3829	0.3449	0.3829	0.3829	0.3829	0.3829	0.3449	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	0.3829	
30-34	0.2704	0.2850	0.4215	0.2584	0.2896	0.2480	0.2909	0.2726	0.2923	0.2496	0.2610	0.2283	0.2507	0.2788	0.2885	0.2788	0.2885	0.2885	0.2885	0.2885	0.2610	0.2283	0.2507	0.2507	0.2788	0.2885	0.2885	0.2885	0.2885	0.2885	0.2885	0.2885	0.2885	0.2885	0.2885	0.2885	
35-39	0.1783	0.1816	0.3424	0.1814	0.1892	0.1499	0.2440	0.1763	0.2372	0.1731	0.1733	0.1553	0.1516	0.1993	0.1842	0.1993	0.1842	0.1842	0.1842	0.1842	0.1733	0.1553	0.1516	0.1993	0.1842	0.1842	0.1842	0.1842	0.1842	0.1842	0.1842	0.1842	0.1842	0.1842	0.1842	0.1842	0.1842
40-44	0.0733	0.0710	0.1813	0.0827	0.0766	0.0546	0.1418	0.0710	0.1327	0.0752	0.0726	0.0657	0.0553	0.0920	0.0717	0.0920	0.0717	0.0717	0.0717	0.0717	0.0726	0.0657	0.0553	0.0920	0.0717	0.0717	0.0717	0.0717	0.0717	0.0717	0.0717	0.0717	0.0717	0.0717	0.0717	0.0717	
45-49	0.0081	0.0072	0.0287	0.0108	0.0082	0.0050	0.0270	0.0076	0.0239	0.0089	0.0083	0.0075	0.0050	0.0122	0.0072	0.0122	0.0072	0.0072	0.0072	0.0083	0.0075	0.0050	0.0050	0.0122	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072		
Total	7.3512	7.7506	9.9342	7.2725	7.8328	6.9523	7.7109	7.6456	7.9585	6.3548	7.2973	5.8621	7.0802	7.5044	7.6469	7.6633	8.2711	8.2711	8.2711	7.6469	7.6633	8.2711	8.2711	7.6469	7.6633	8.2711											

Appendix IX

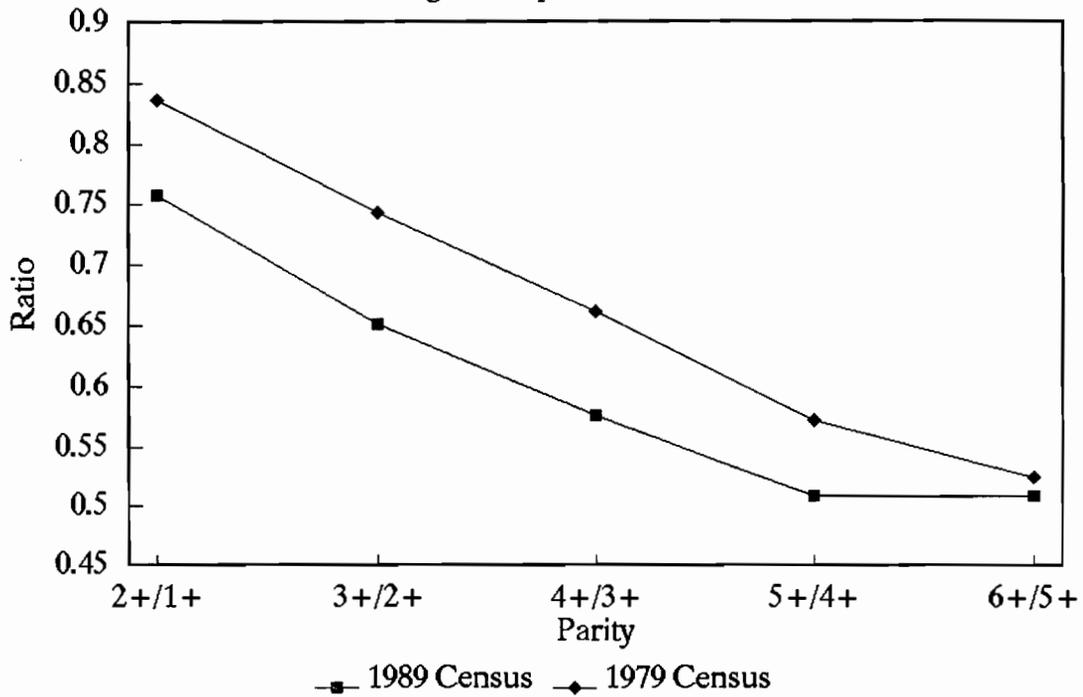
Incomplete Provincial PPR's

Age Group 20-24 - Nairobi



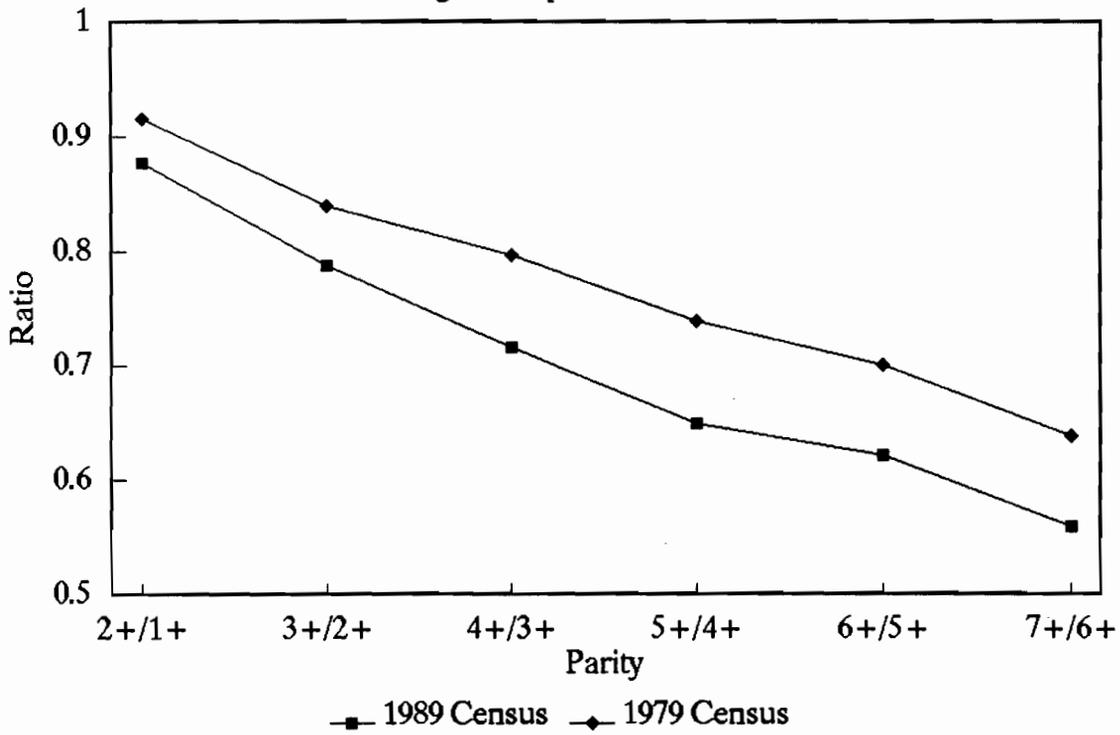
Incomplete Provincial PPR's

Age Group 25-29 - Nairobi



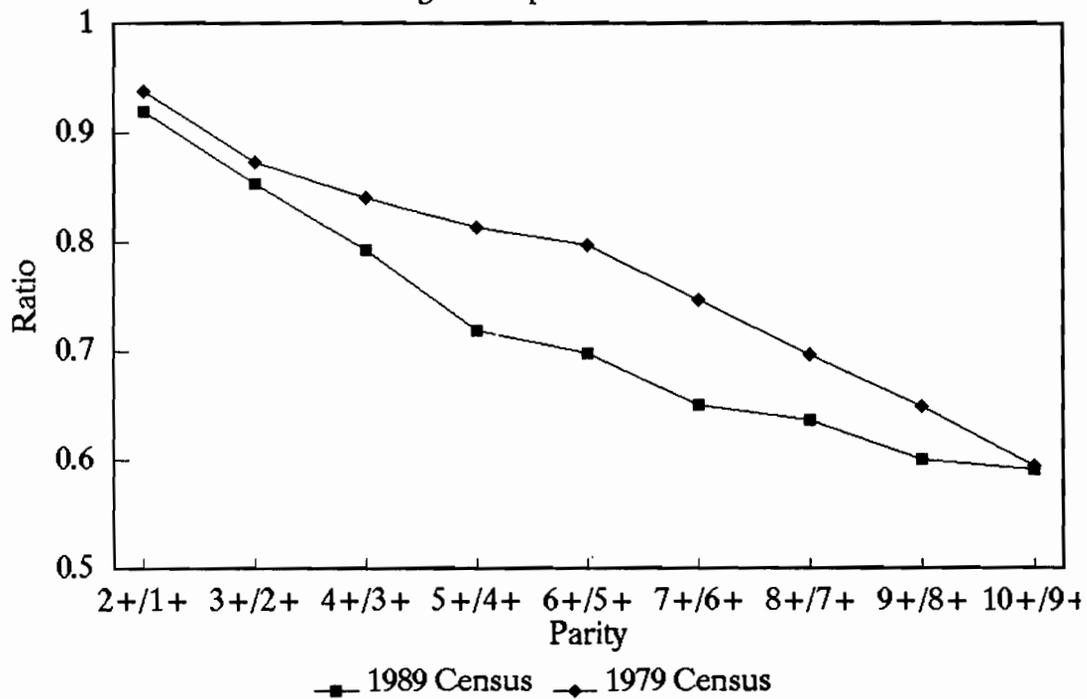
Incomplete Provincial PPR's

Age Group 30-34 - Nairobi



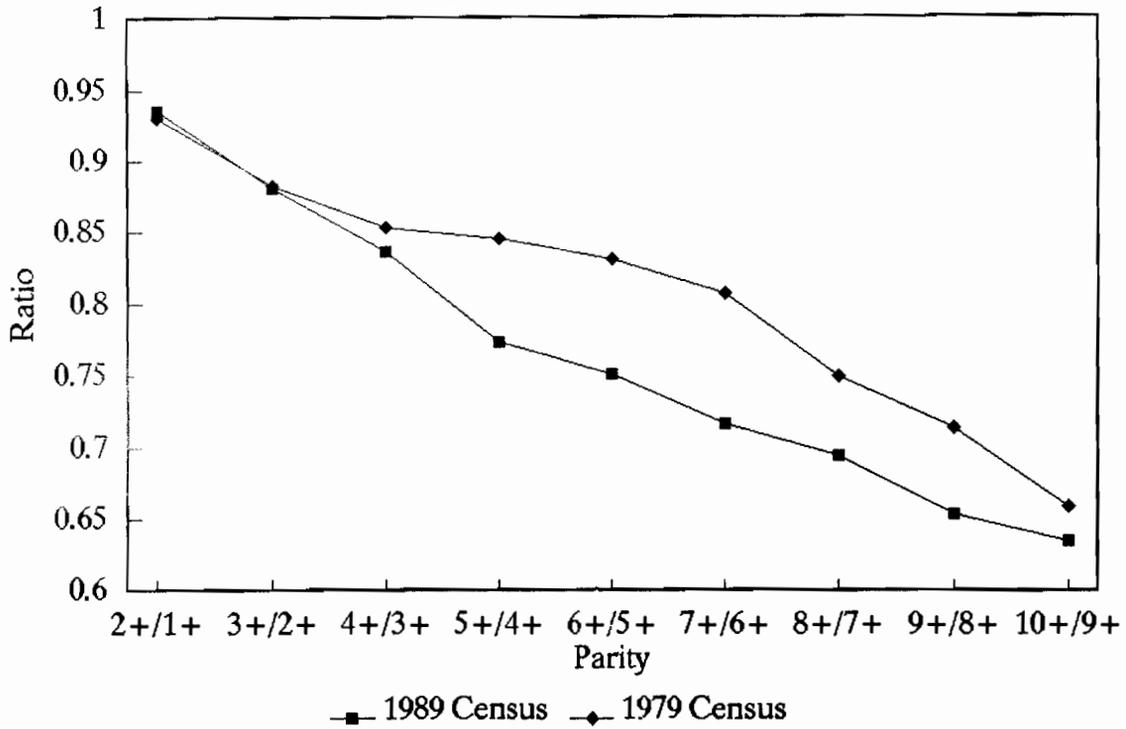
Incomplete Provincial PPR's

Age Group 35-39 - Nairobi



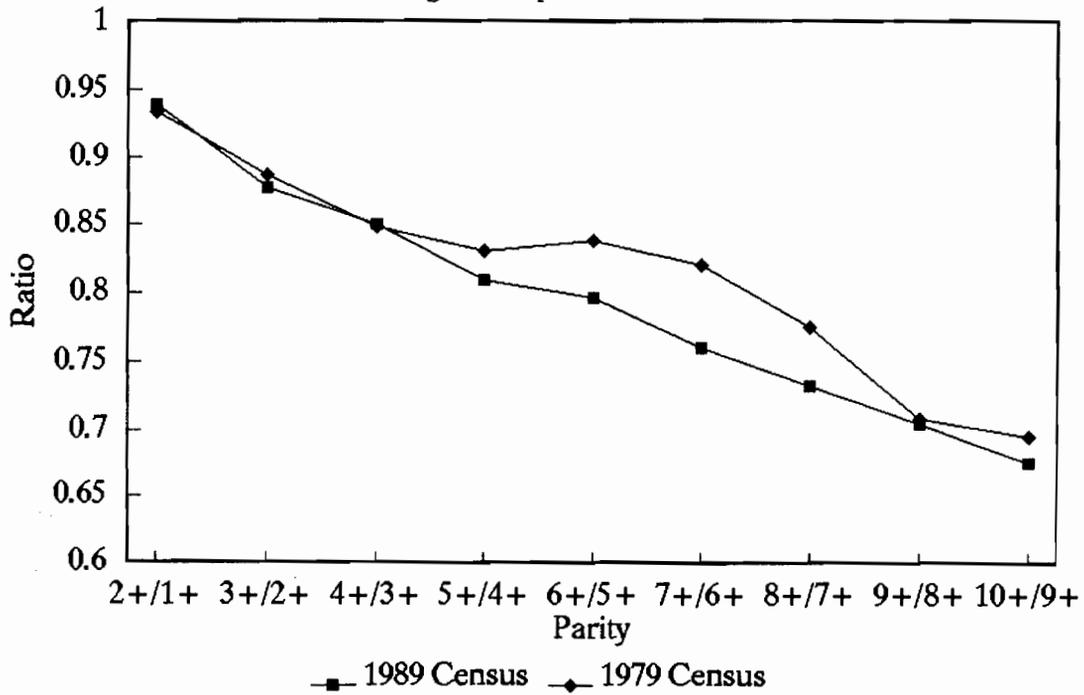
Incomplete Provincial PPR's

Age Group 40-44 - Nairobi



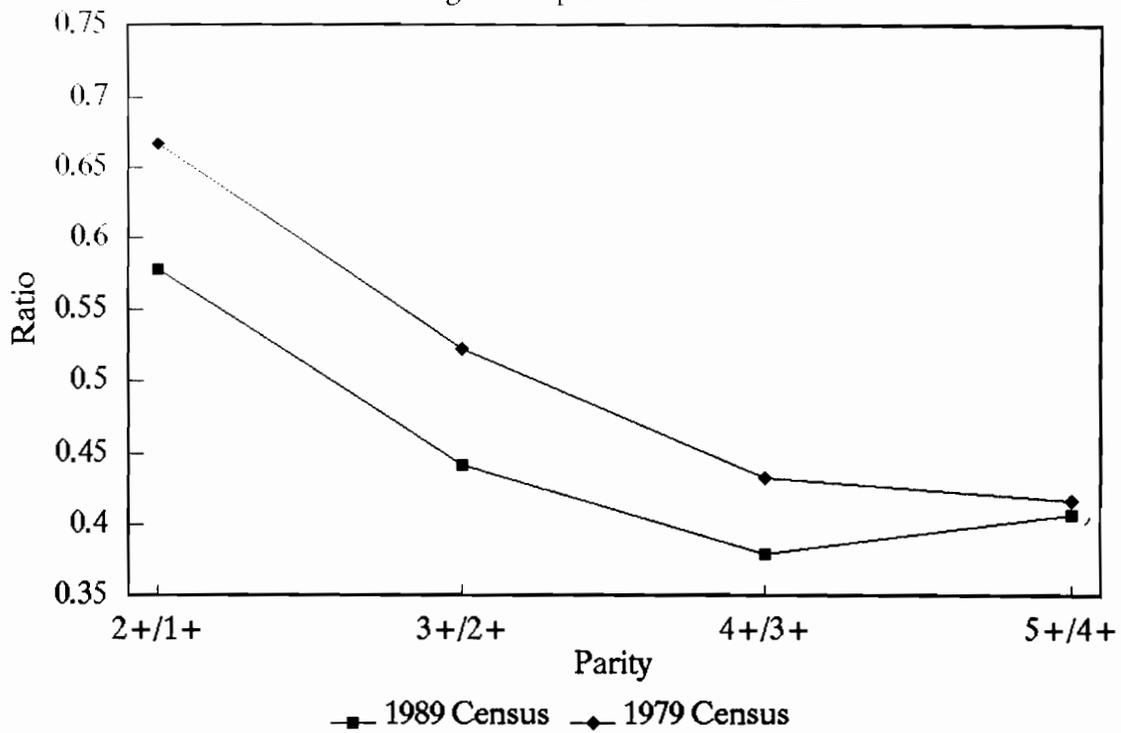
Incomplete Provincial PPR's

Age Group 45-49 - Nairobi



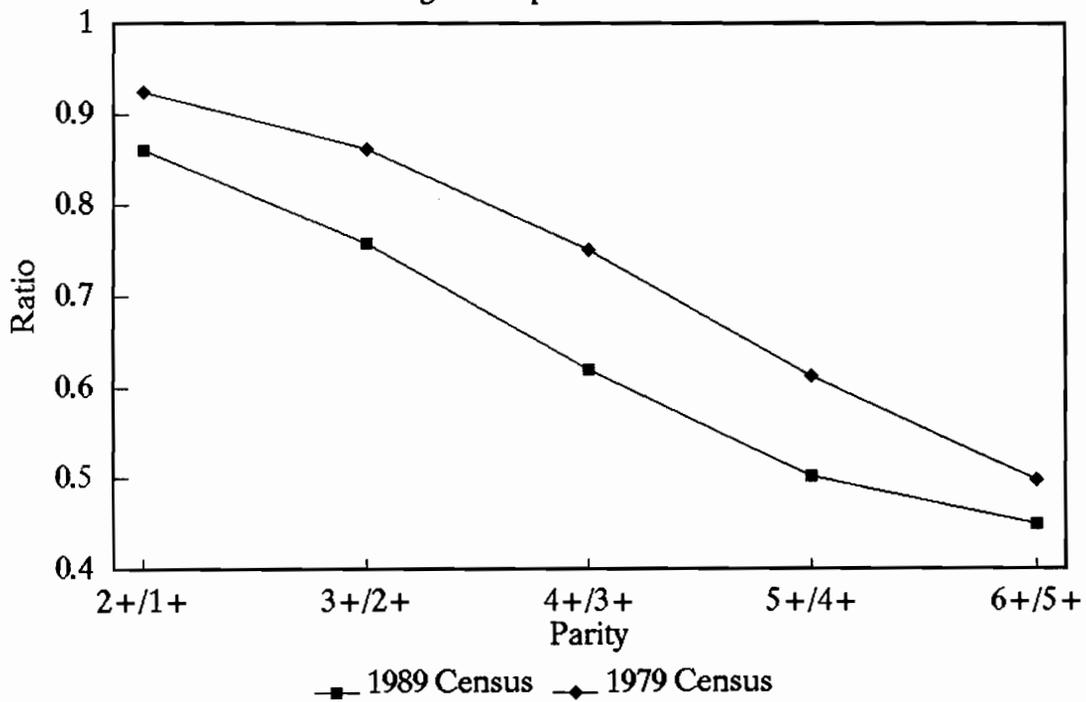
Incomplete Provincial PPR's

Age Group 20-24 - Central



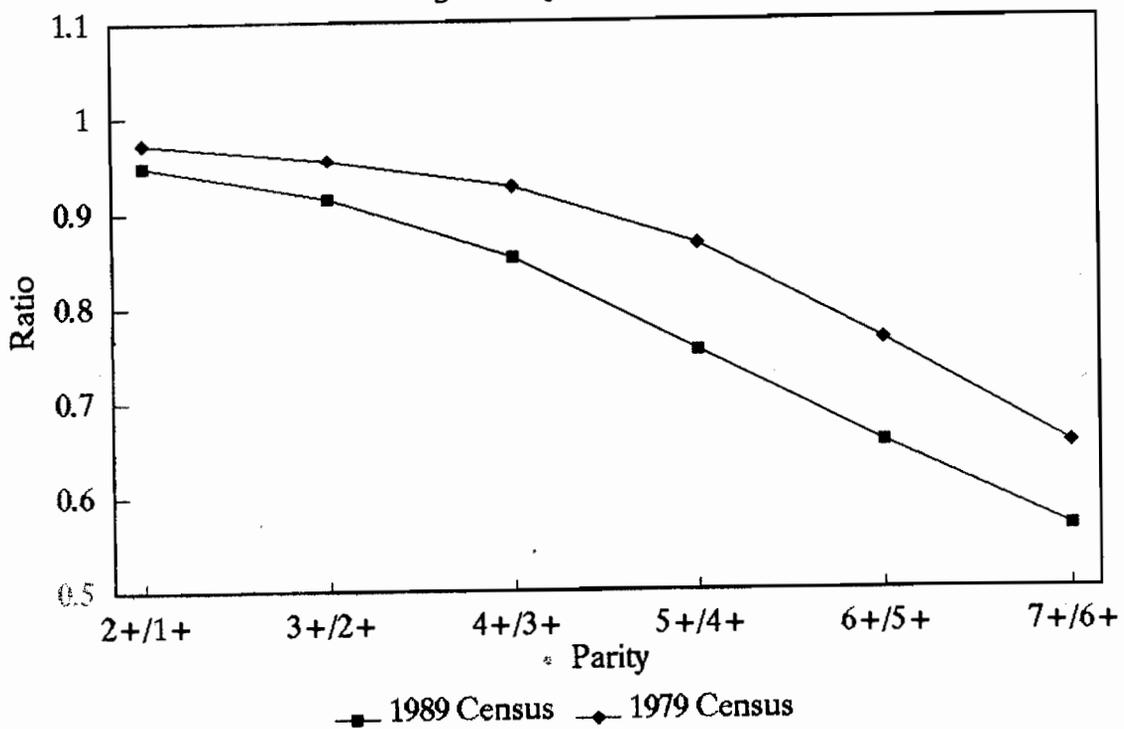
Incomplete Provincial PPR's

Age Group 25-29 - Central



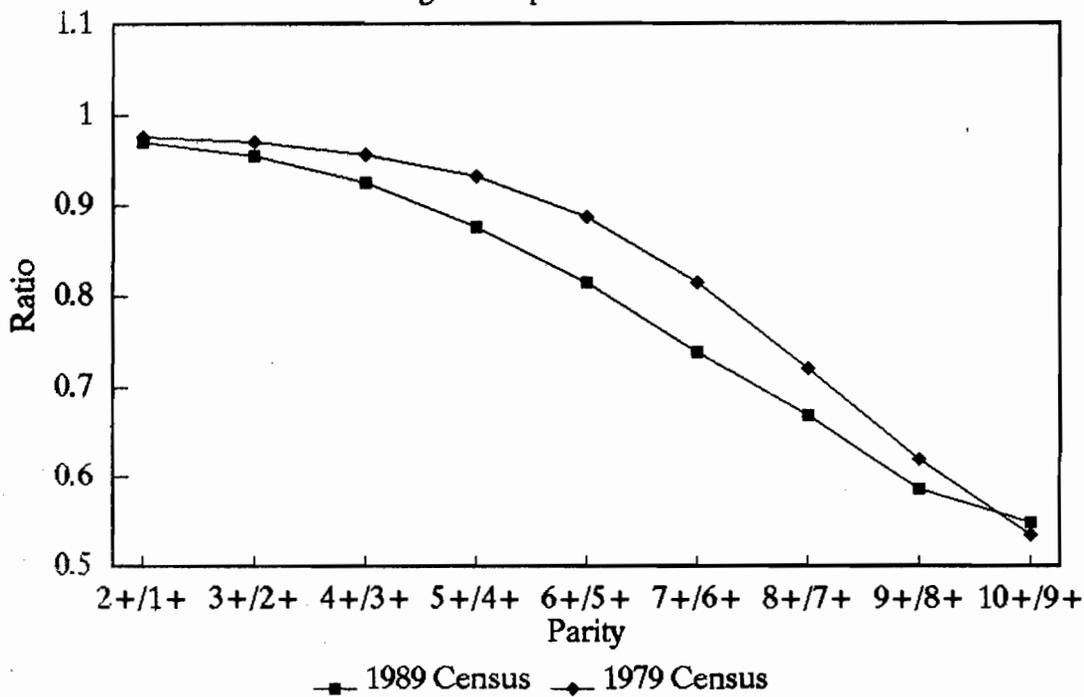
Incomplete Provincial PPR's

Age Group 30-34 - Central



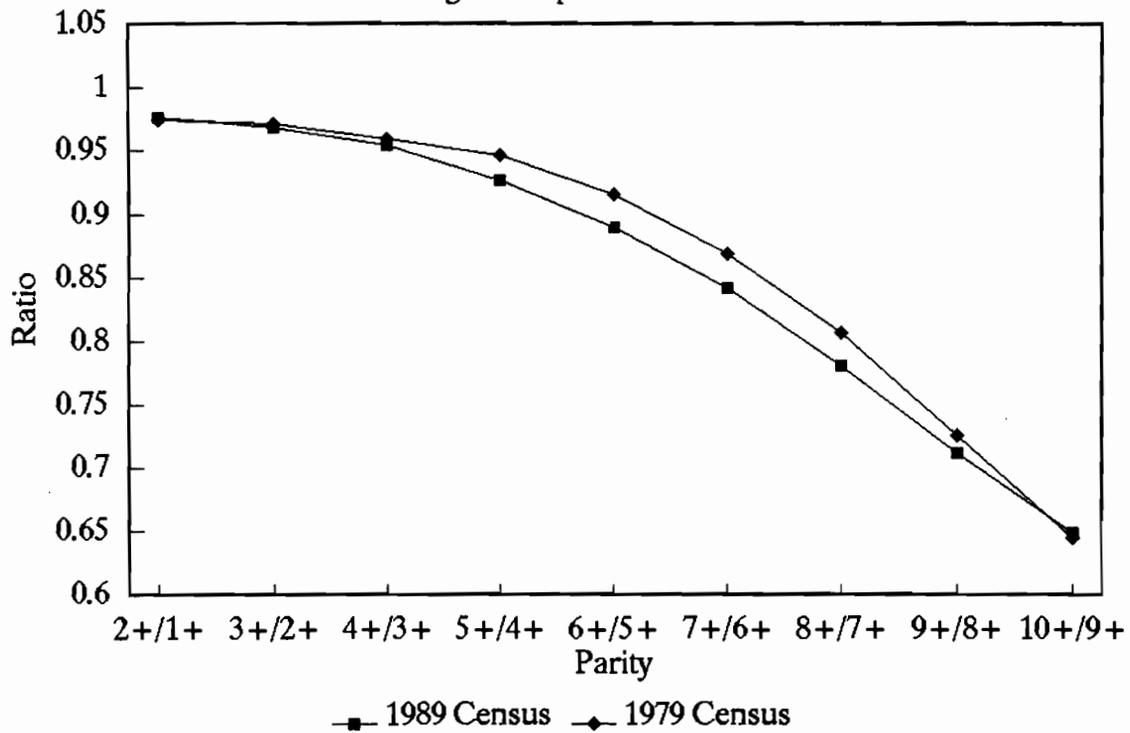
Incomplete Provincial PPR's

Age Group 35-39 - Central



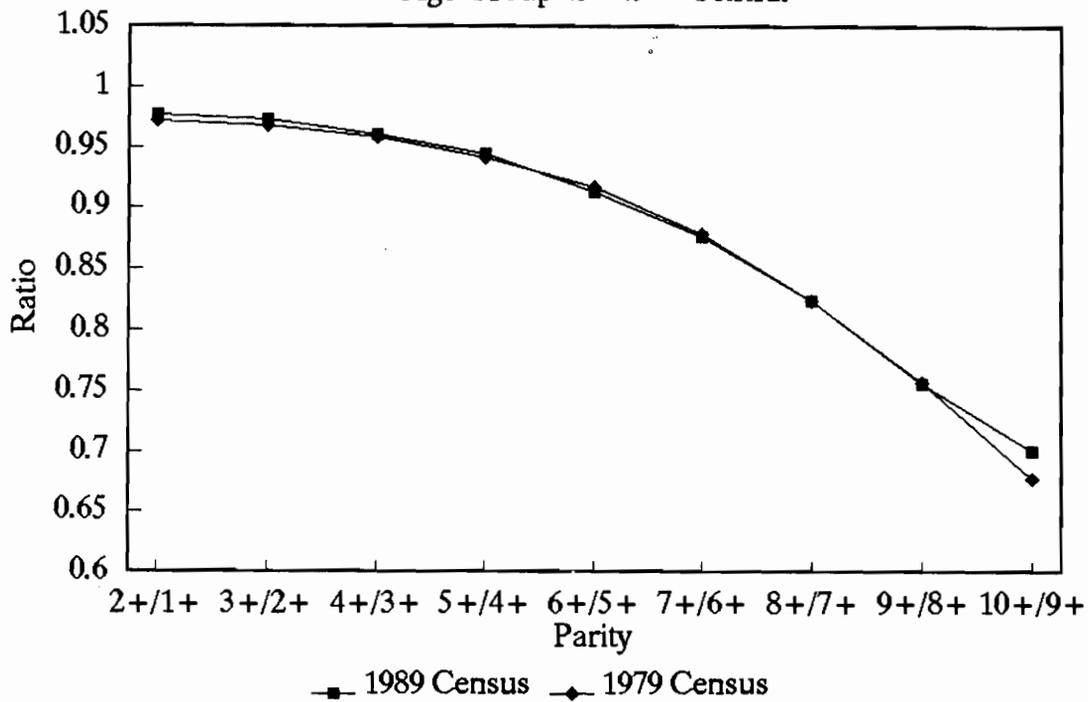
Incomplete Provincial PPR's

Age Group 40-44 - Central



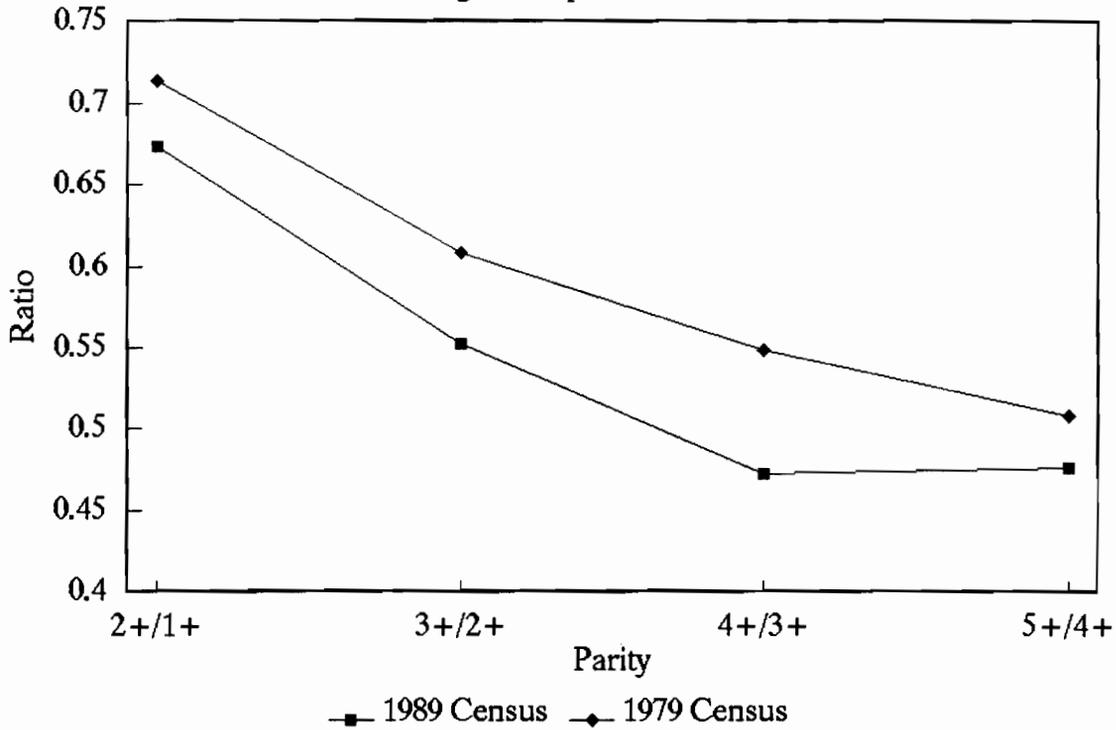
Incomplete Provincial PPR's

Age Group 45-49 - Central



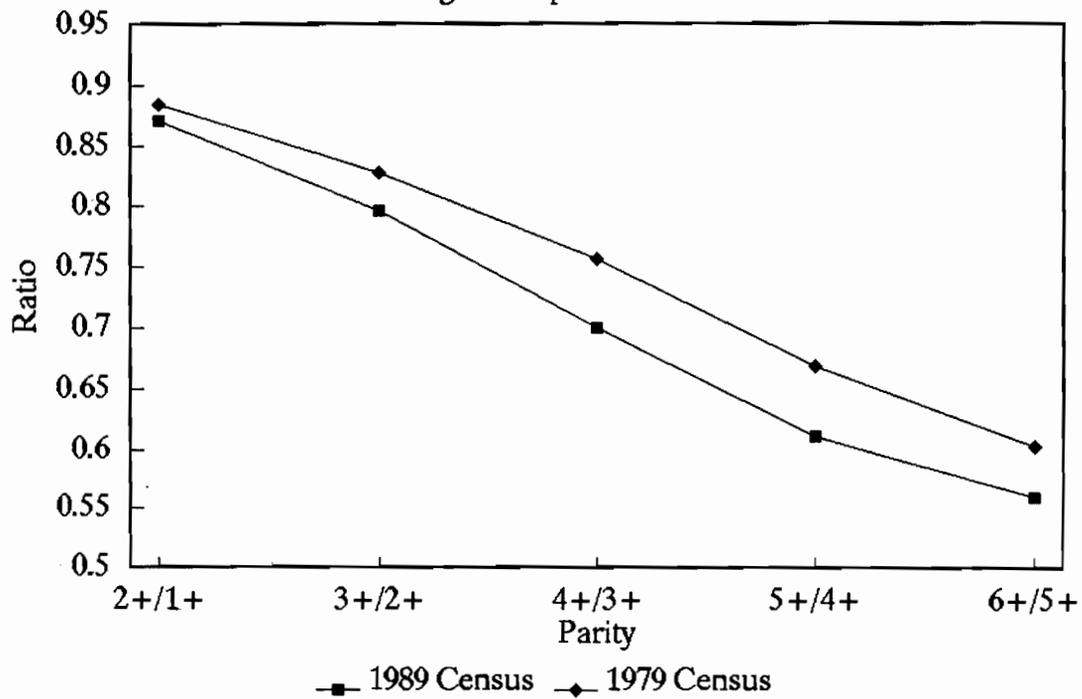
Incomplete Provincial PPR's

Age Group 20-24 - Coast



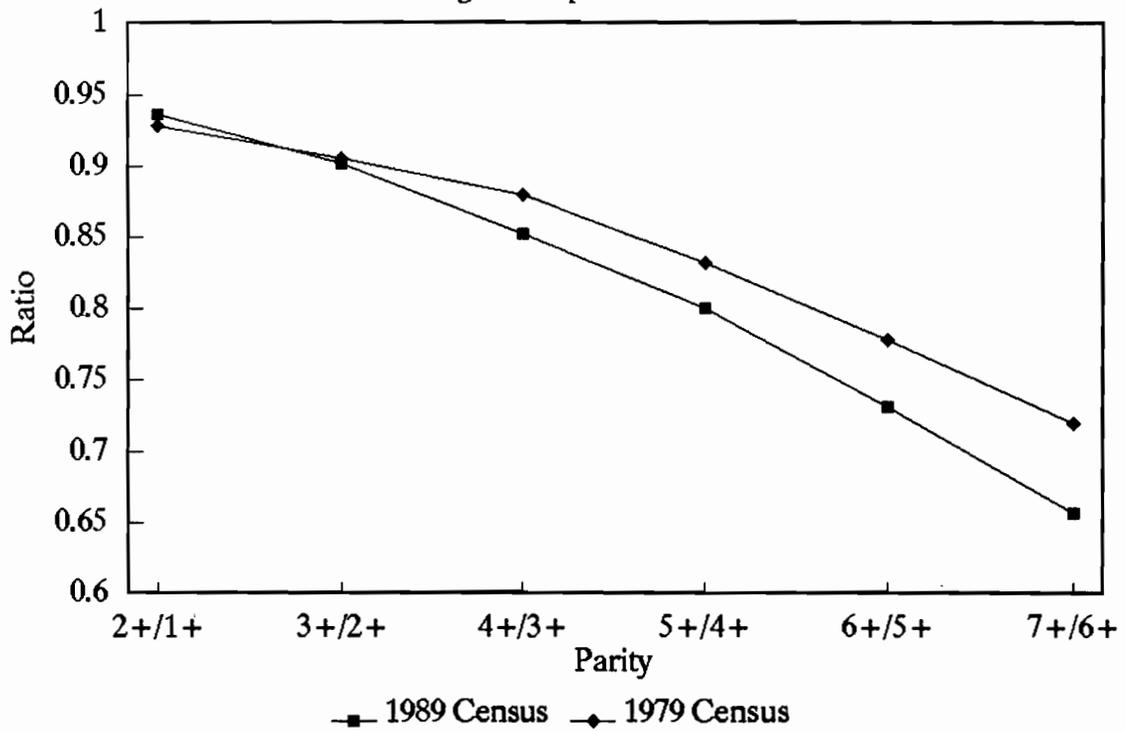
Incomplete Provincial PPR's

Age Group 25-29 - Coast



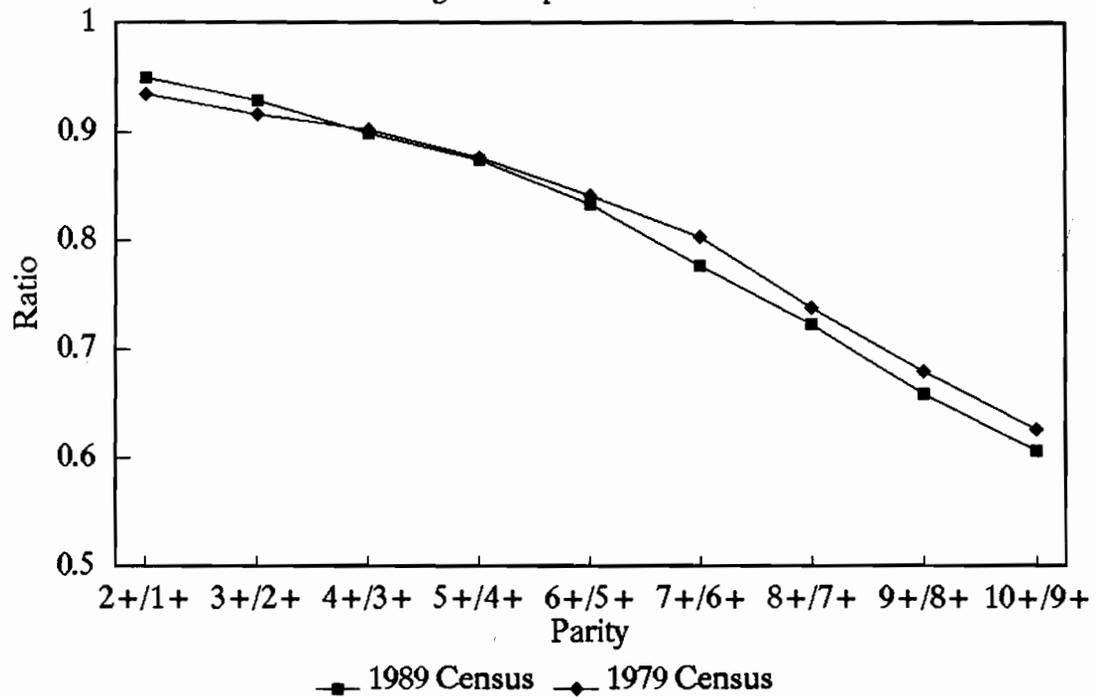
Incomplete Provincial PPR's

Age Group 30-34 - Coast



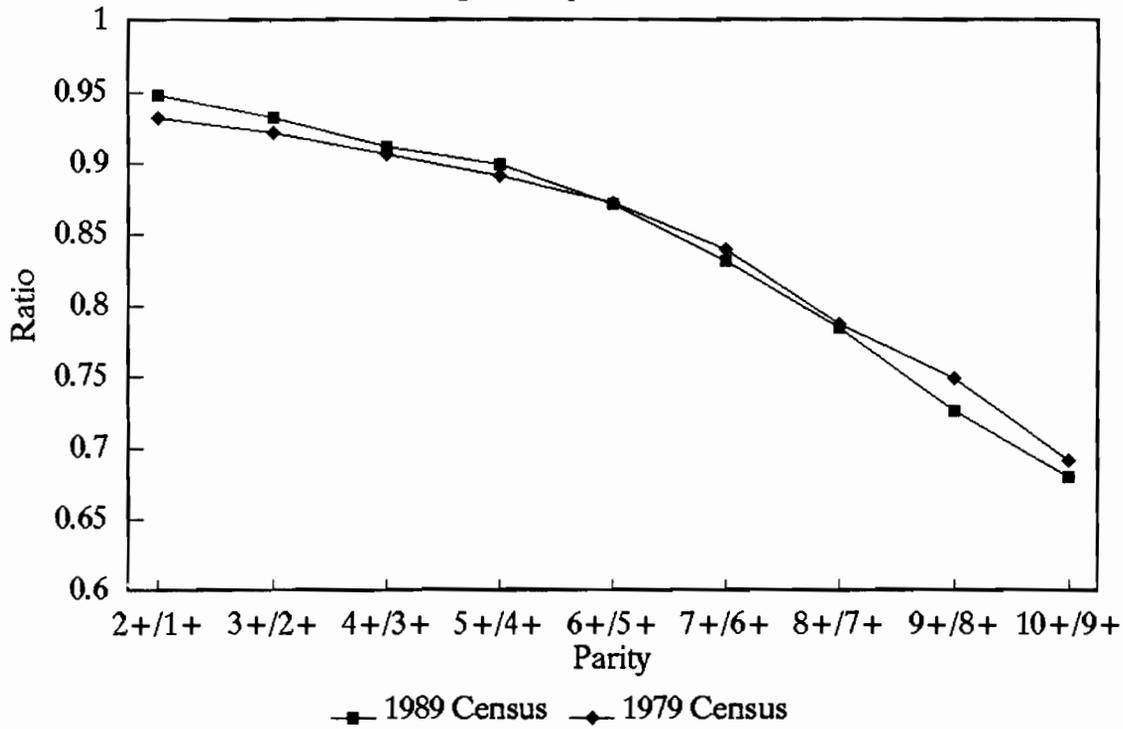
Incomplete Provincial PPR's

Age Group 35-39 - Coast



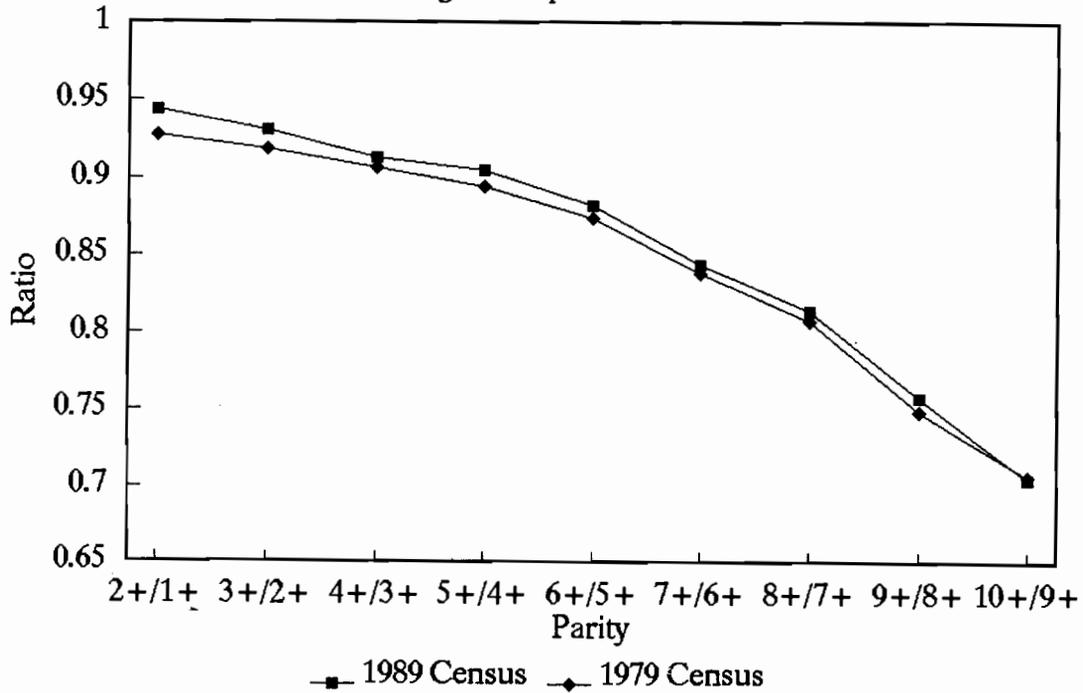
Incomplete Provincial PPR's

Age Group 40-44 - Coast



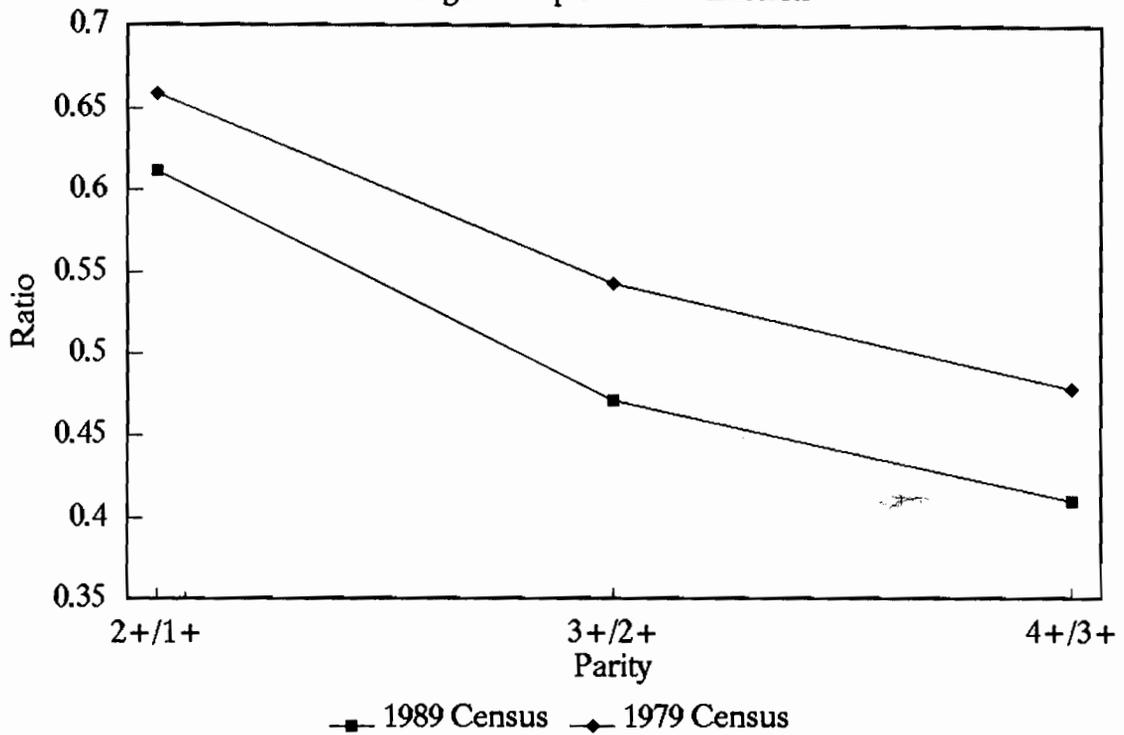
Incomplete Provincial PPR's

Age Group 45-49 - Coast



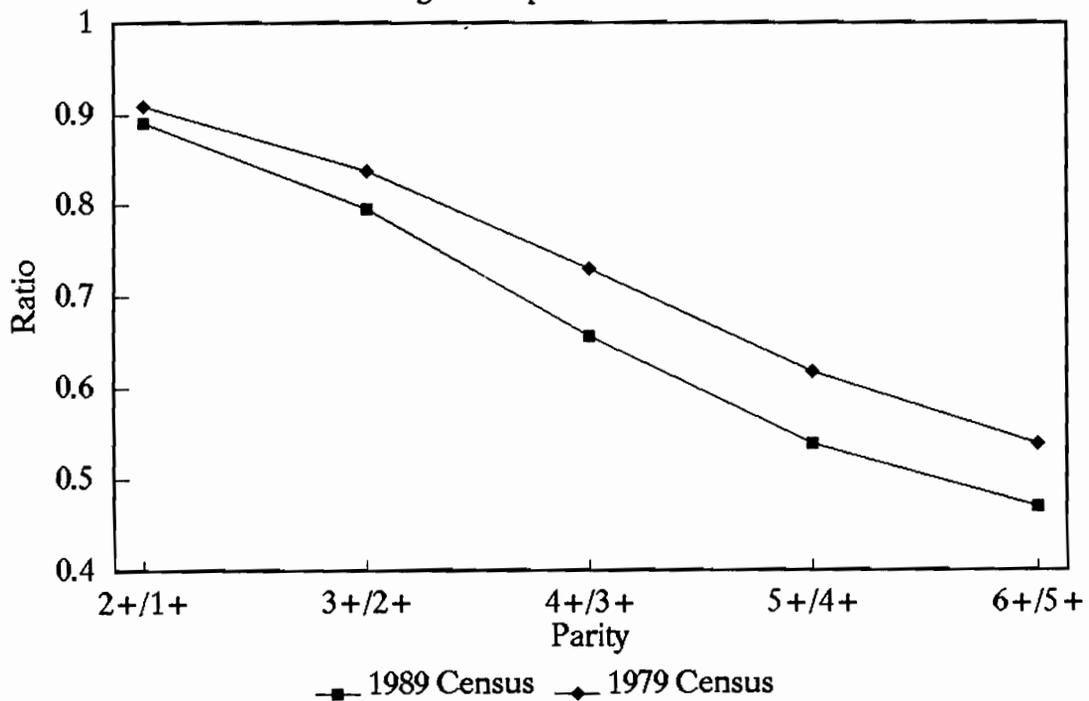
Incomplete Provincial PPR's

Age Group 20-24 - Eastern



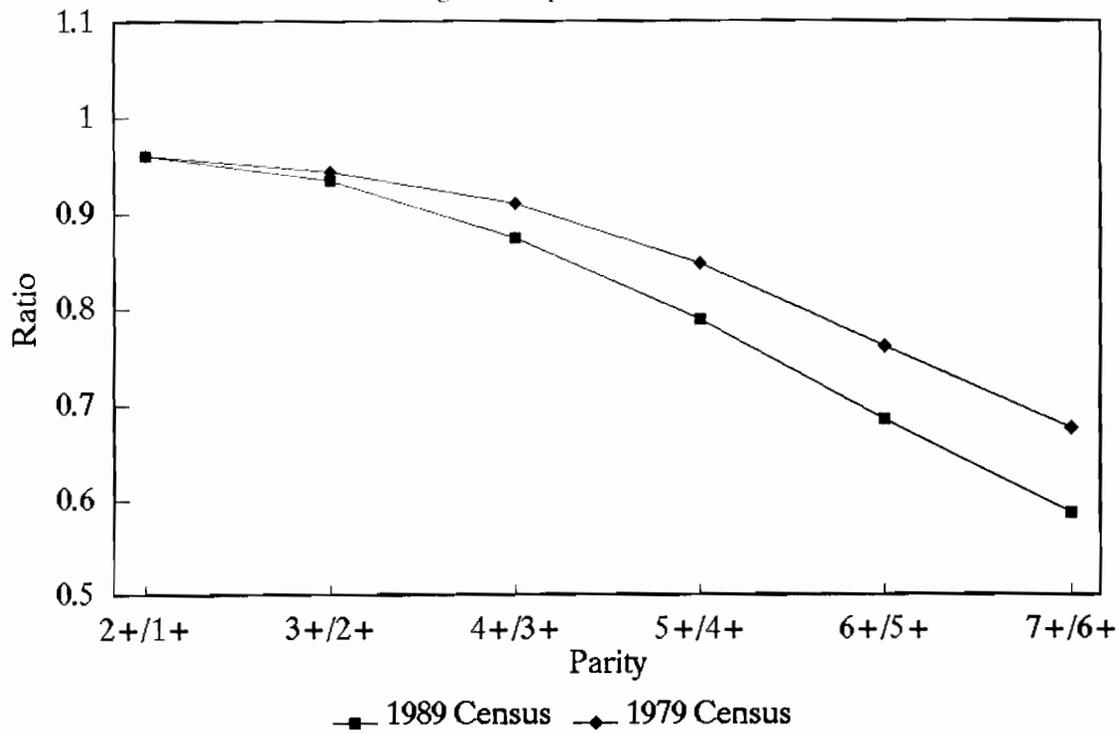
Incomplete Provincial PPR's

Age Group 25-29 - Eastern



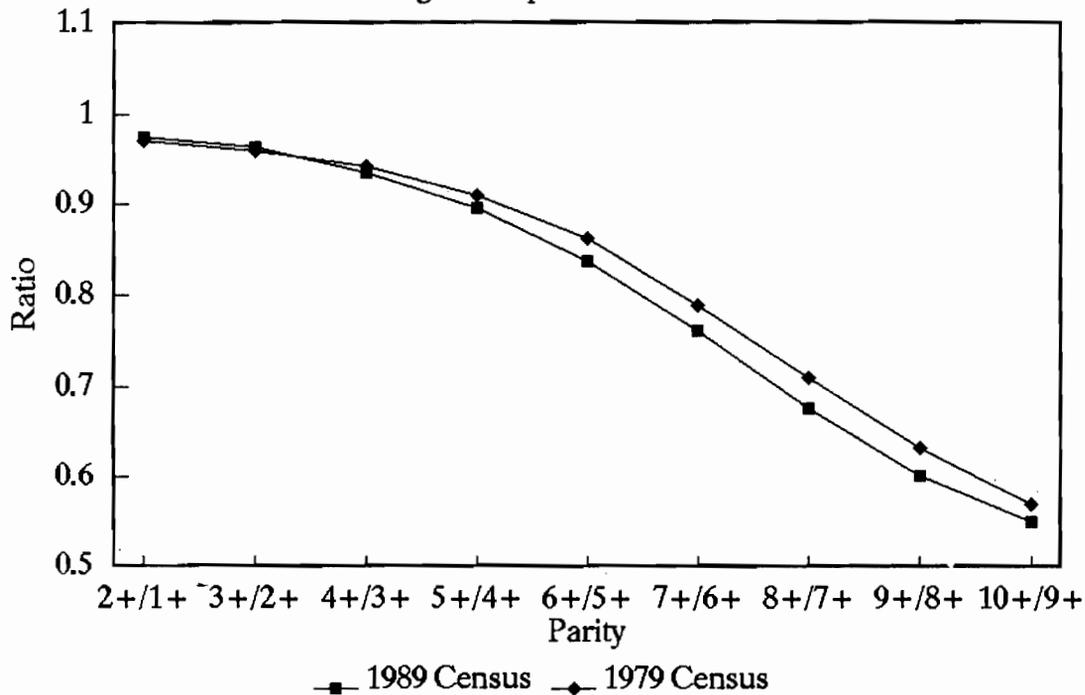
Incomplete Provincial PPR's

Age Group 30-34 - Eastern



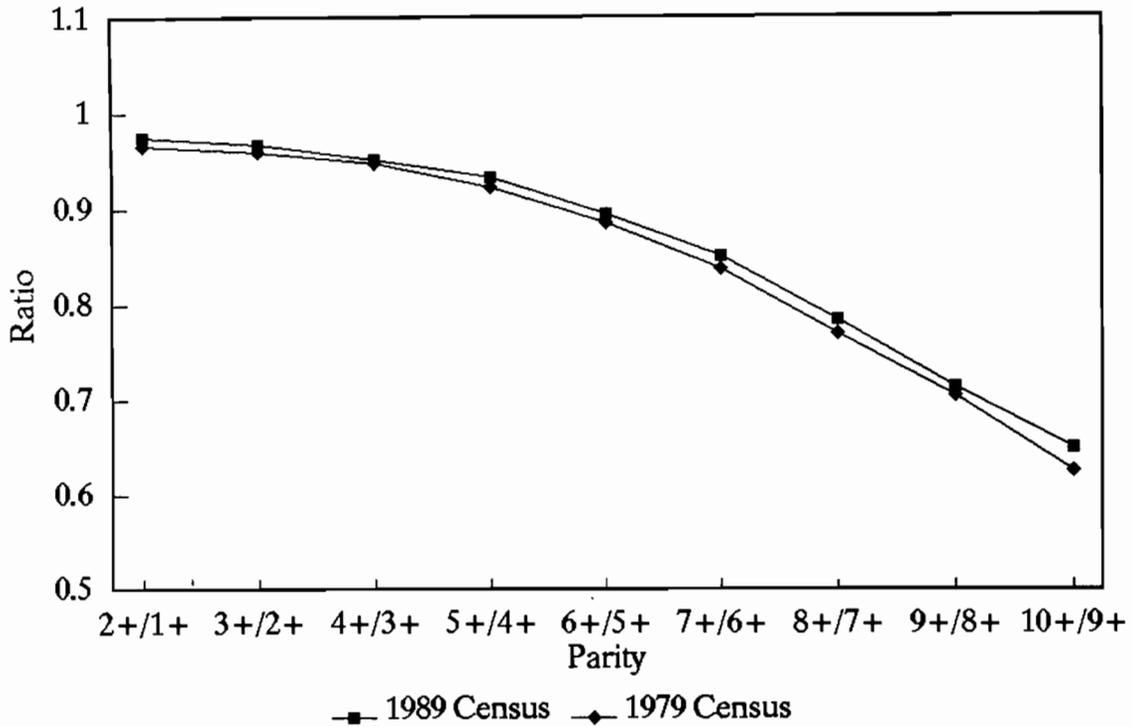
Incomplete Provincial PPR's

Age Group 35-39 - Eastern



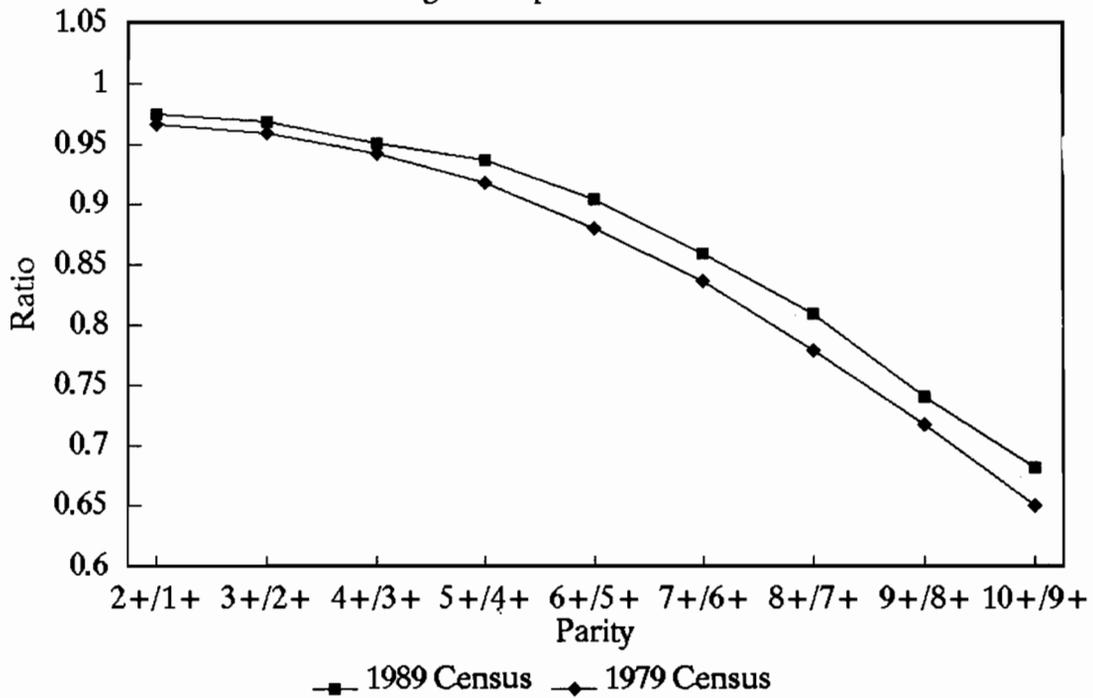
Incomplete Provincial PPR's

Age Group 40-44 - Eastern



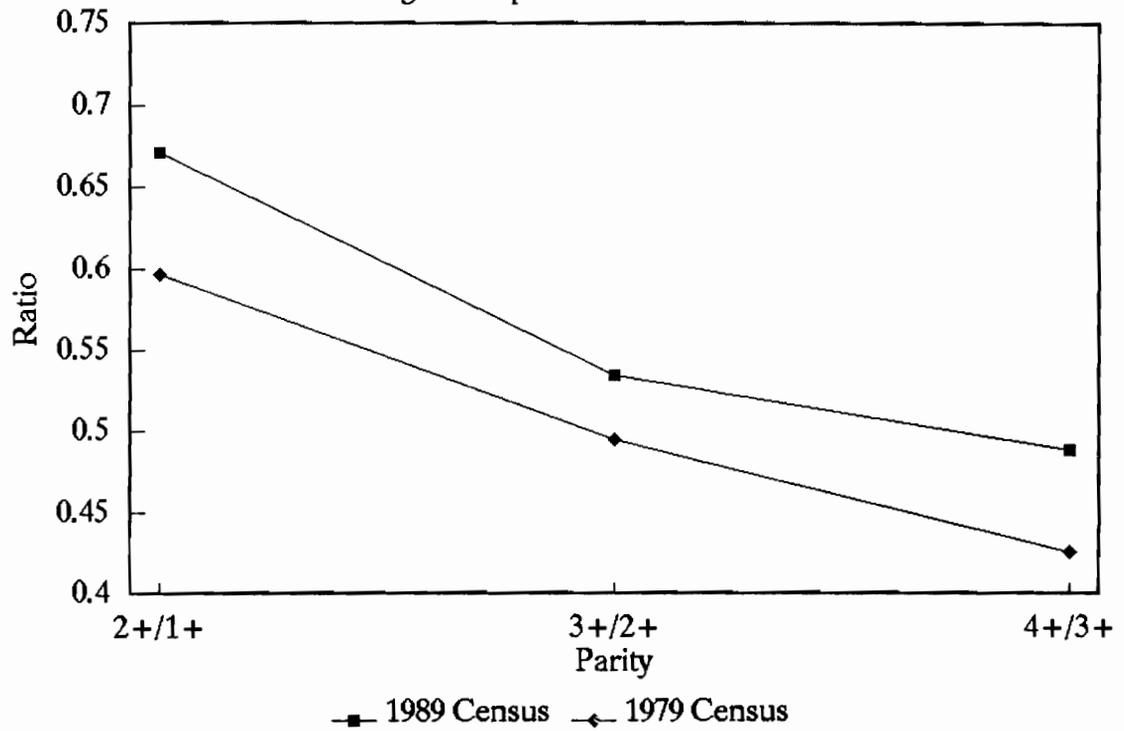
Incomplete Provincial PPR's

Age Group 45-49 - Eastern



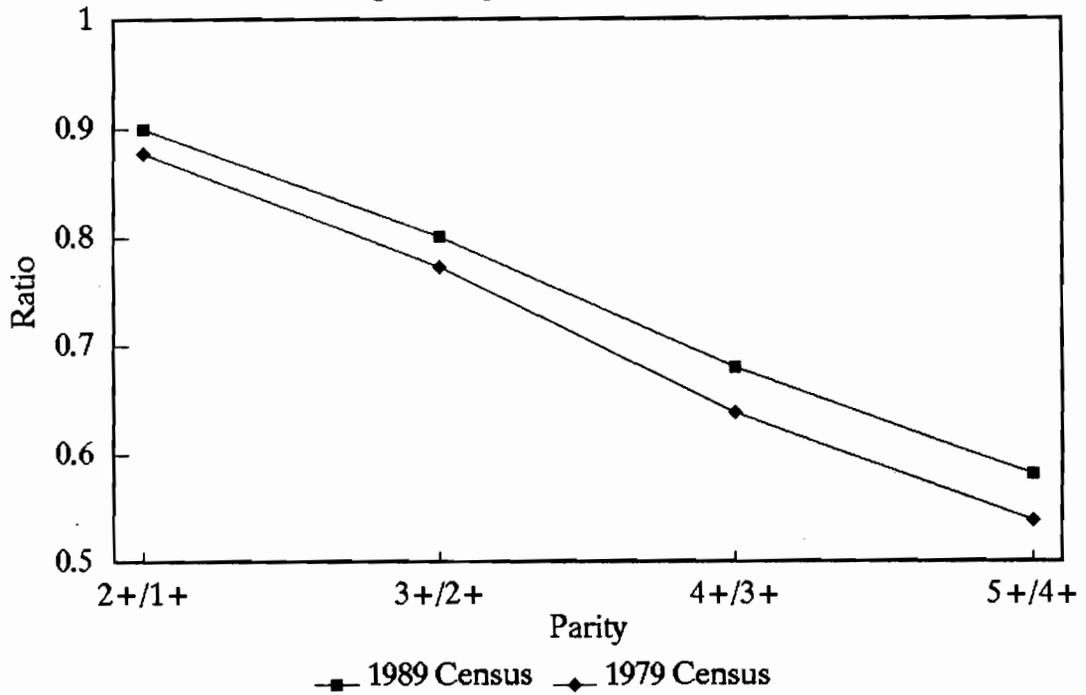
Incomplete Provincial PPR's

Age Group 20-24 - North Eastern



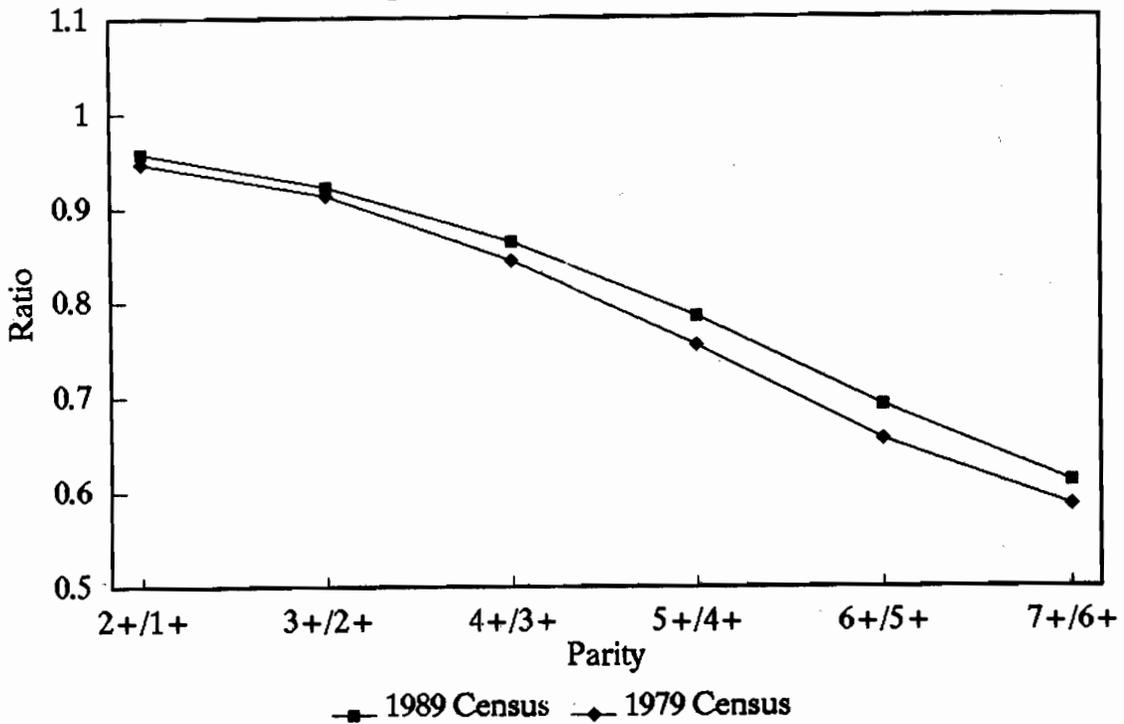
Incomplete Provincial PPR's

Age Group 25-29 - North Eastern



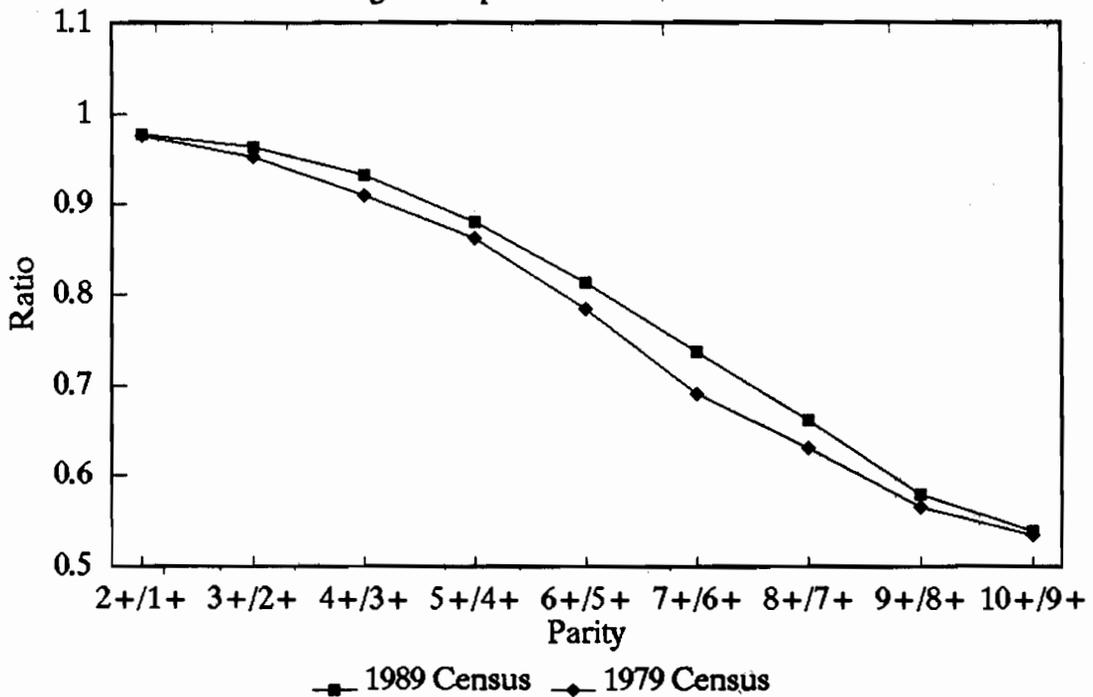
Incomplete Provincial PPR's

Age Group 30-34 - North Eastern



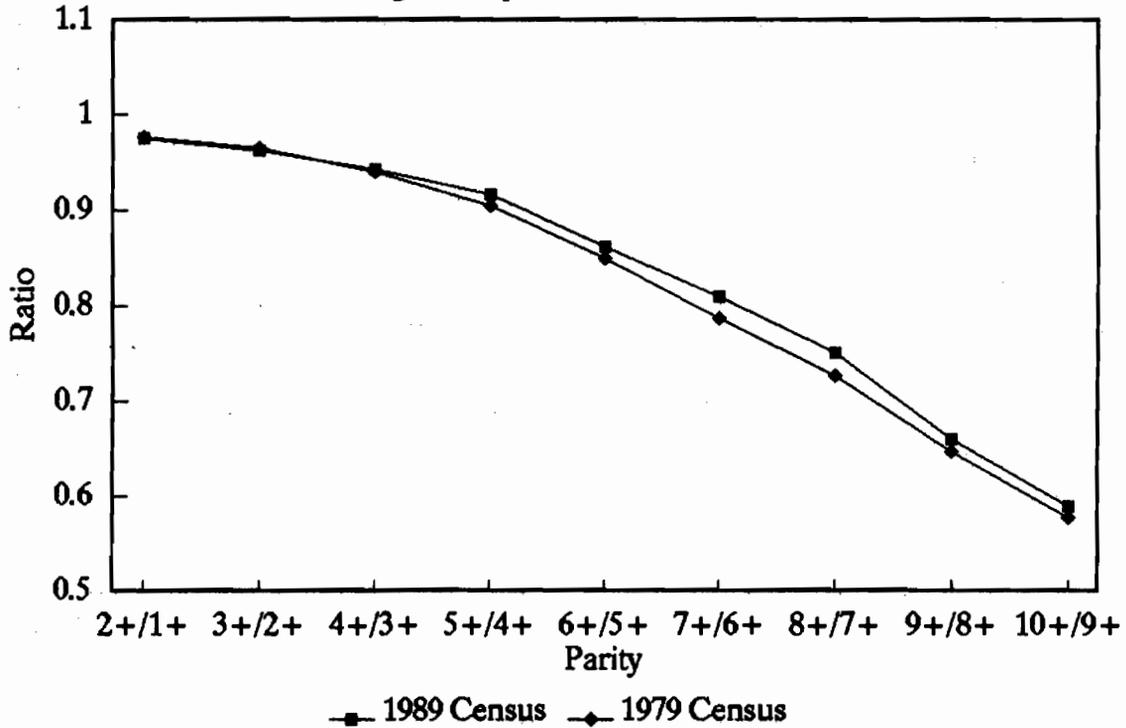
Incomplete Provincial PPR's

Age Group 35-39 - North Eastern



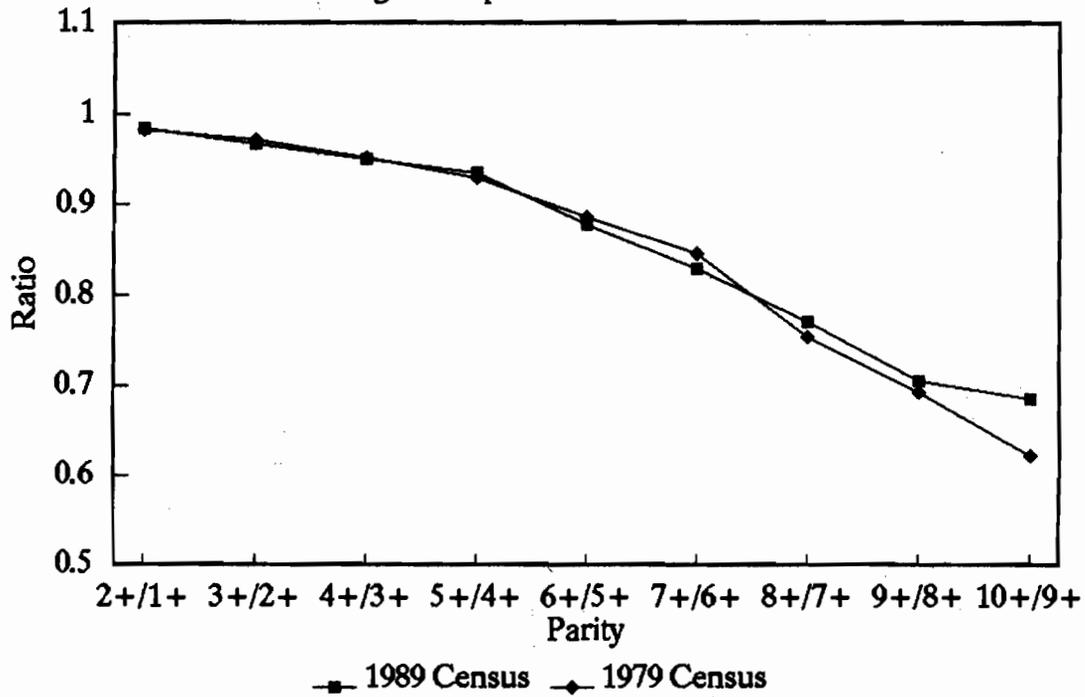
Incomplete Provincial PPR's

Age Group 40-44 - North Eastern



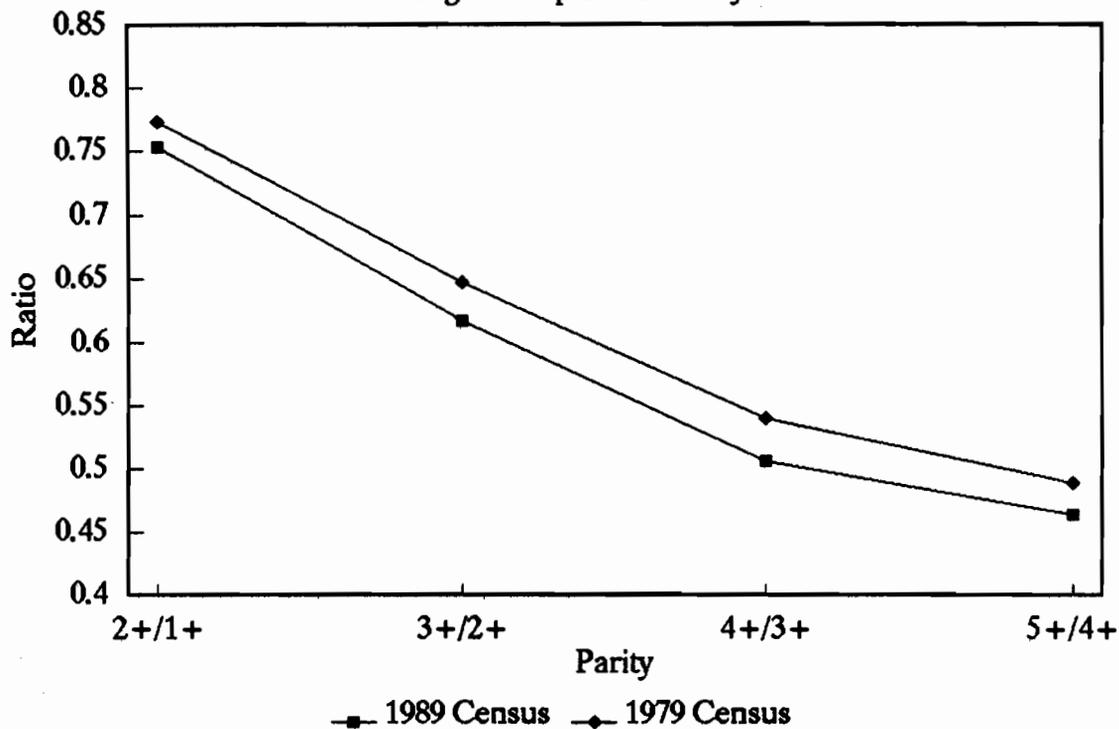
Incomplete Provincial PPR's

Age Group 45-49 - North Eastern



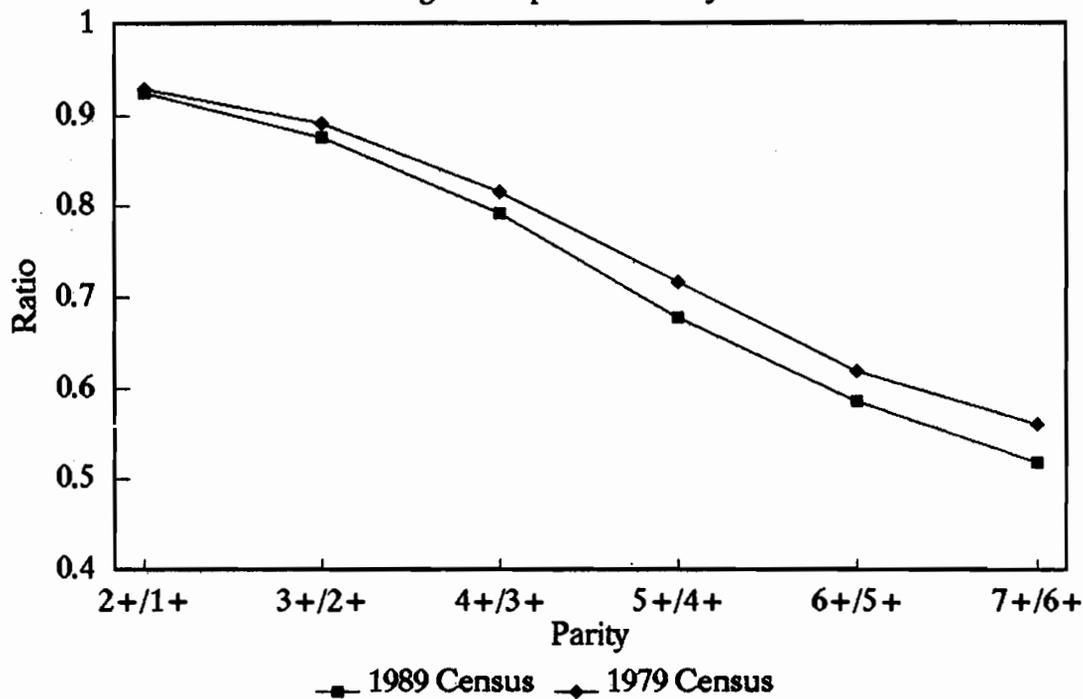
Incomplete Provincial PPR's

Age Group 20-24 - Nyanza



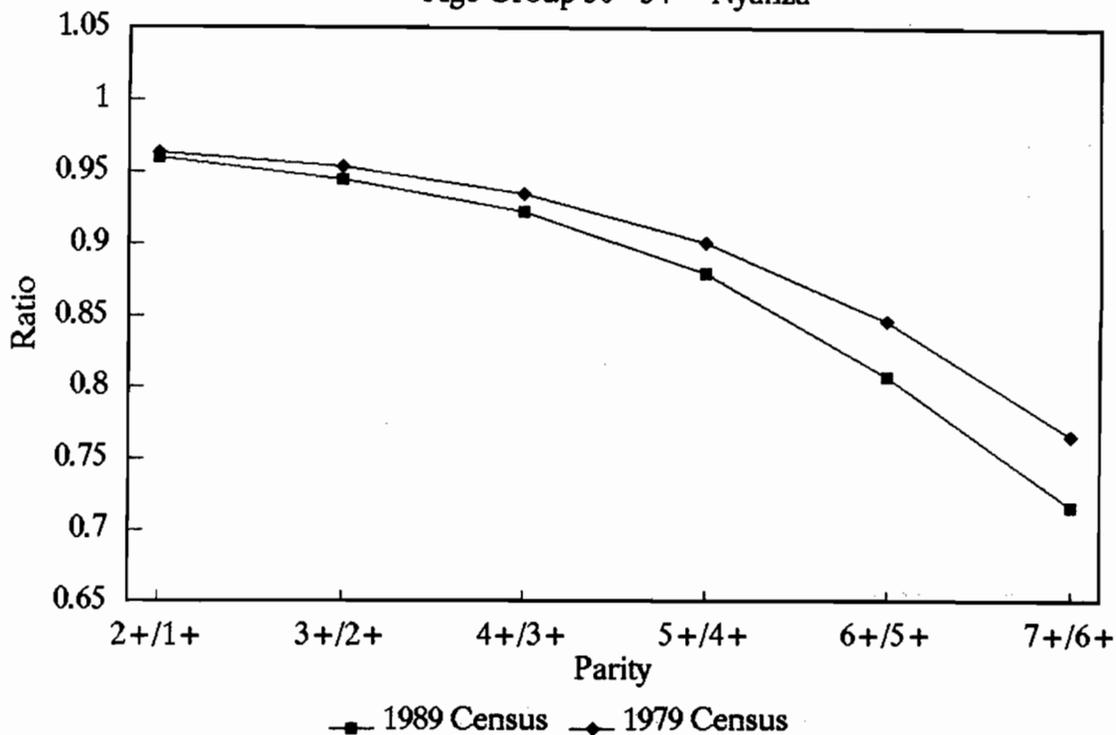
Incomplete Provincial PPR's

Age Group 25-29 - Nyanza



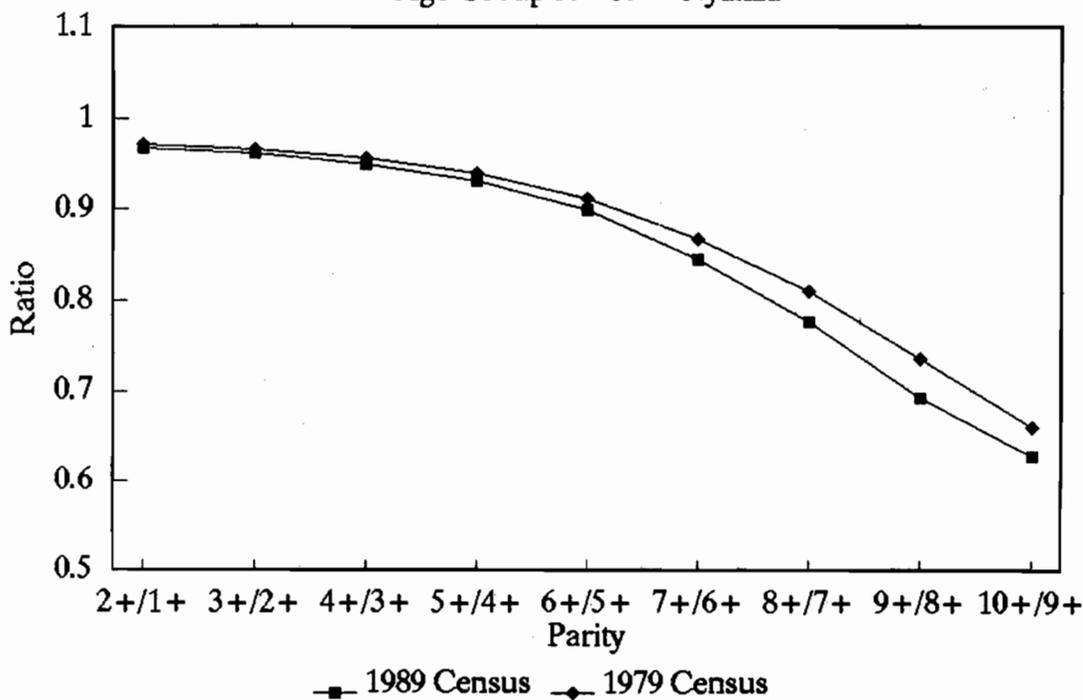
Incomplete Provincial PPR's

Age Group 30-34 - Nyanza



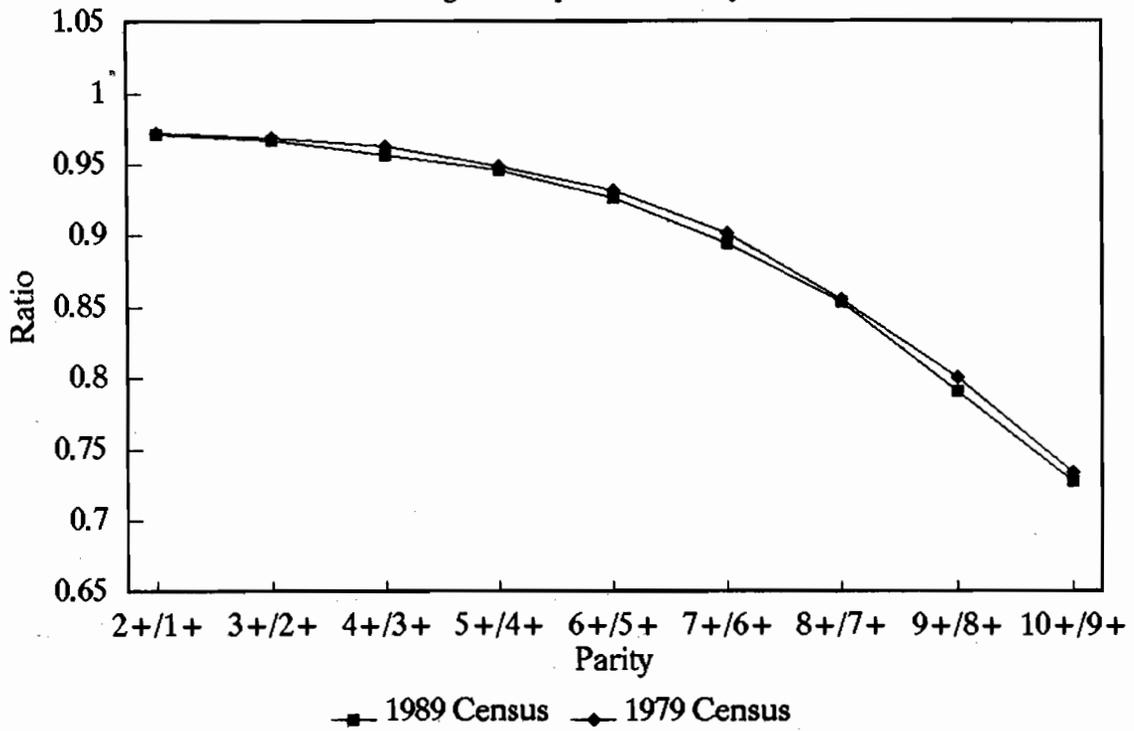
Incomplete Provincial PPR's

Age Group 35-39 - Nyanza



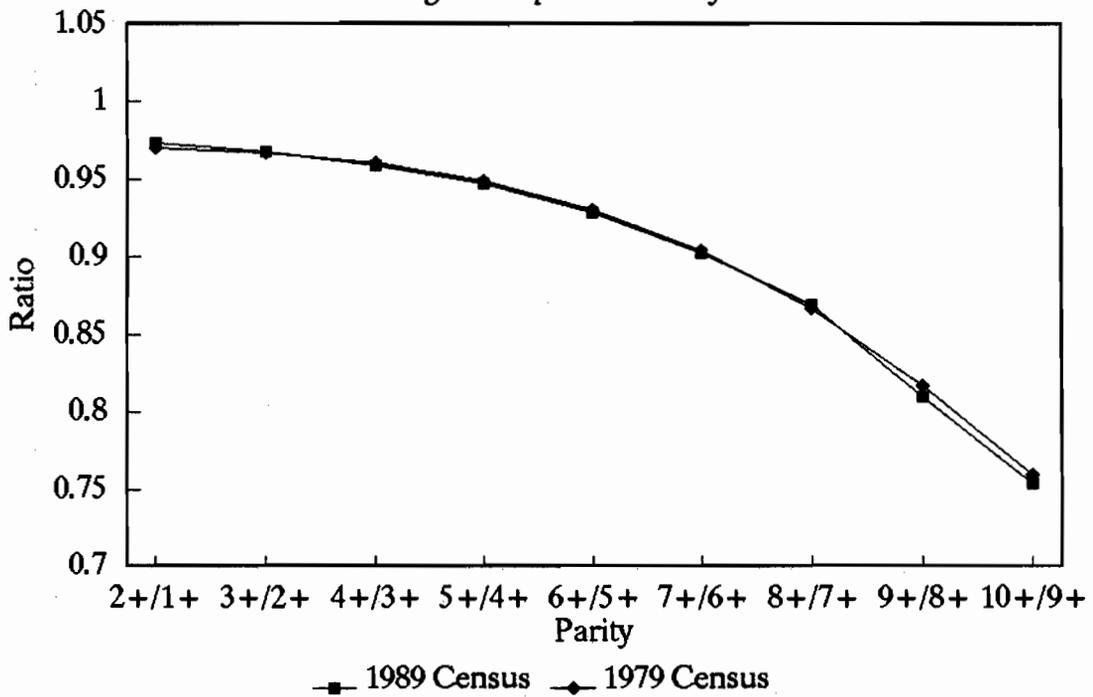
Incomplete Provincial PPR's

Age Group 40-44 - Nyanza



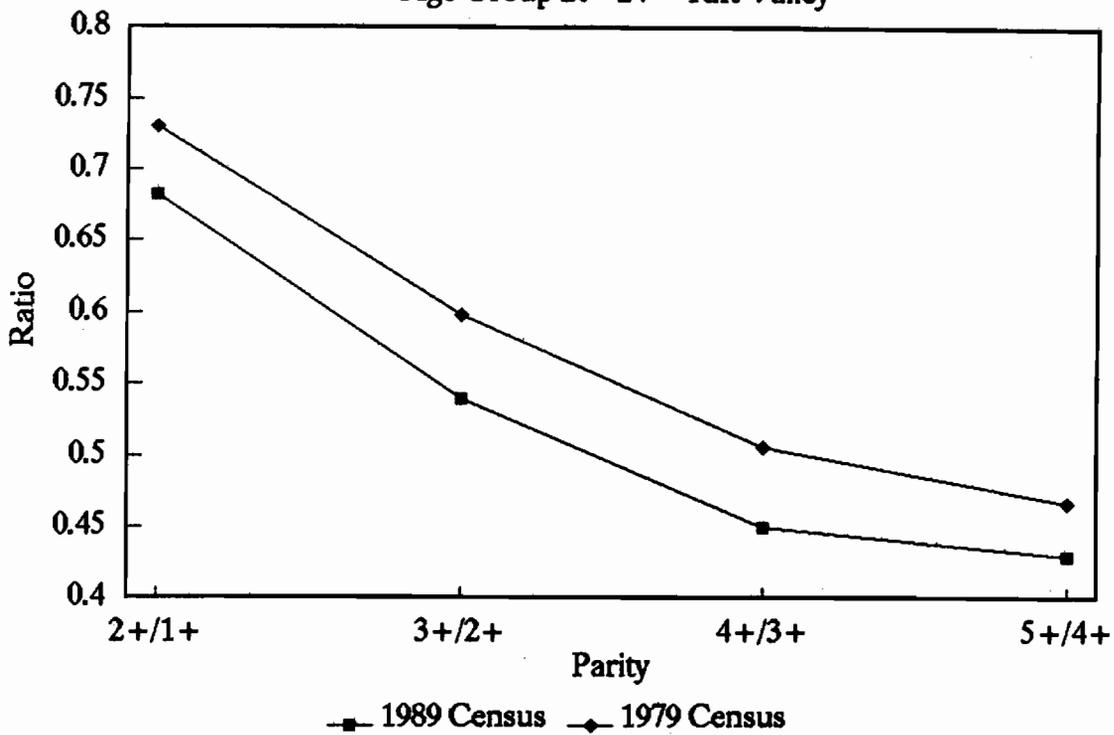
Incomplete Provincial PPR's

Age Group 45-49 - Nyanza



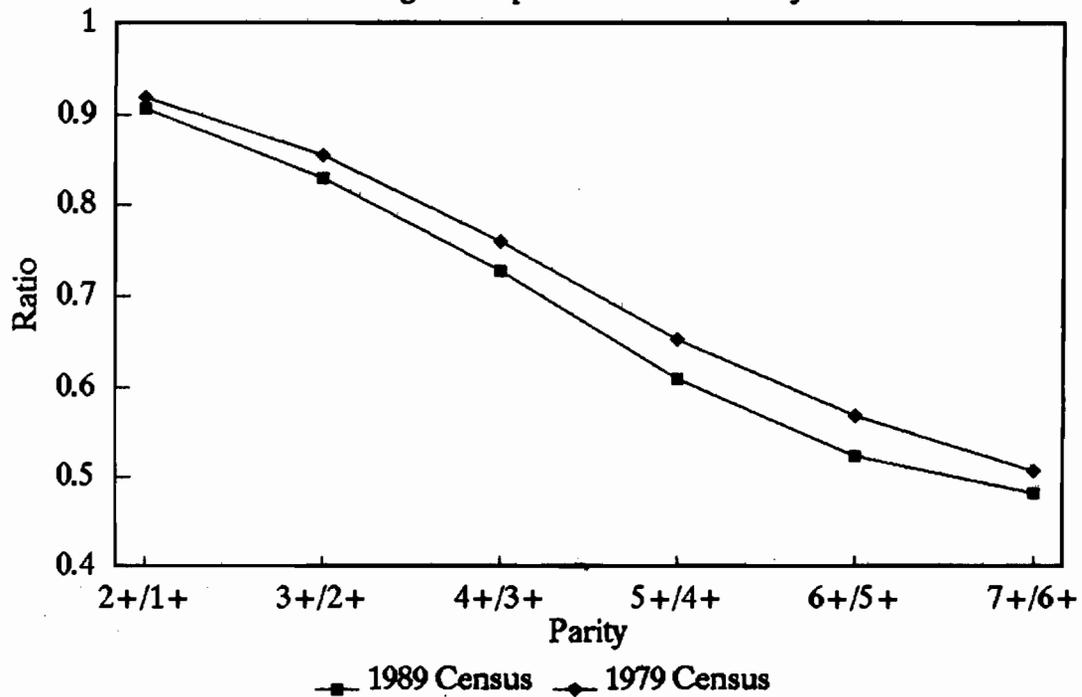
Incomplete Provincial PPR's

Age Group 20-24 - Rift Valley



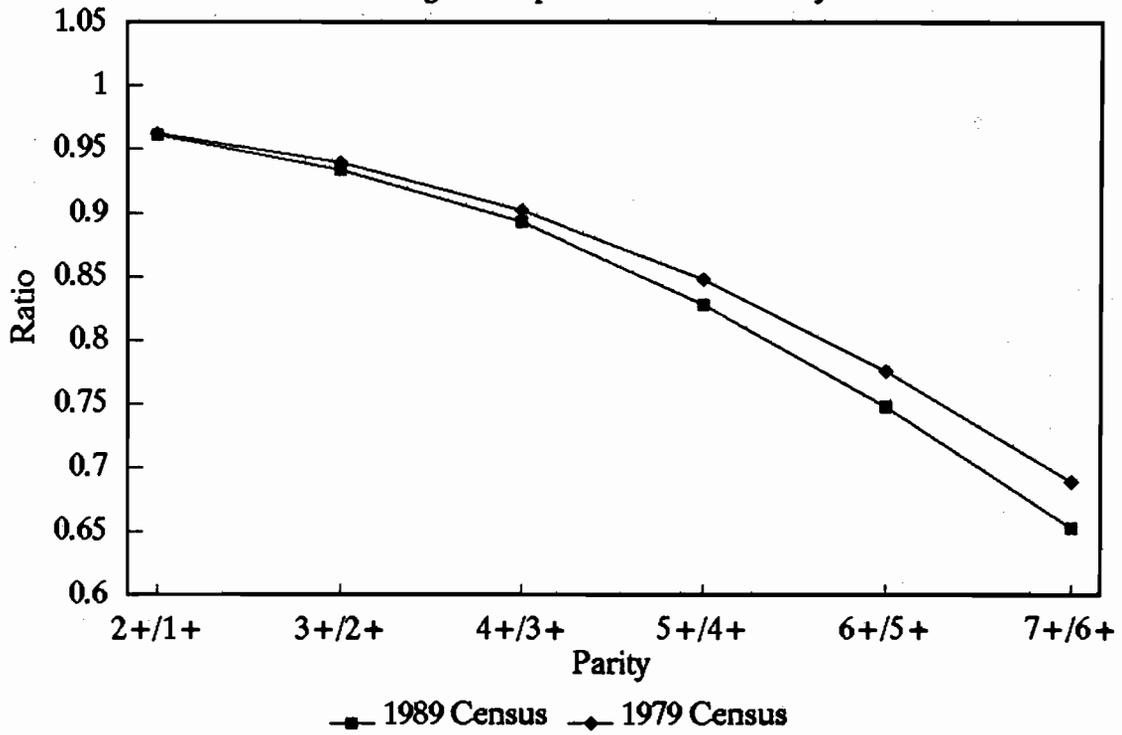
Incomplete Provincial PPR's

Age Group 25-29 - Rift Valley



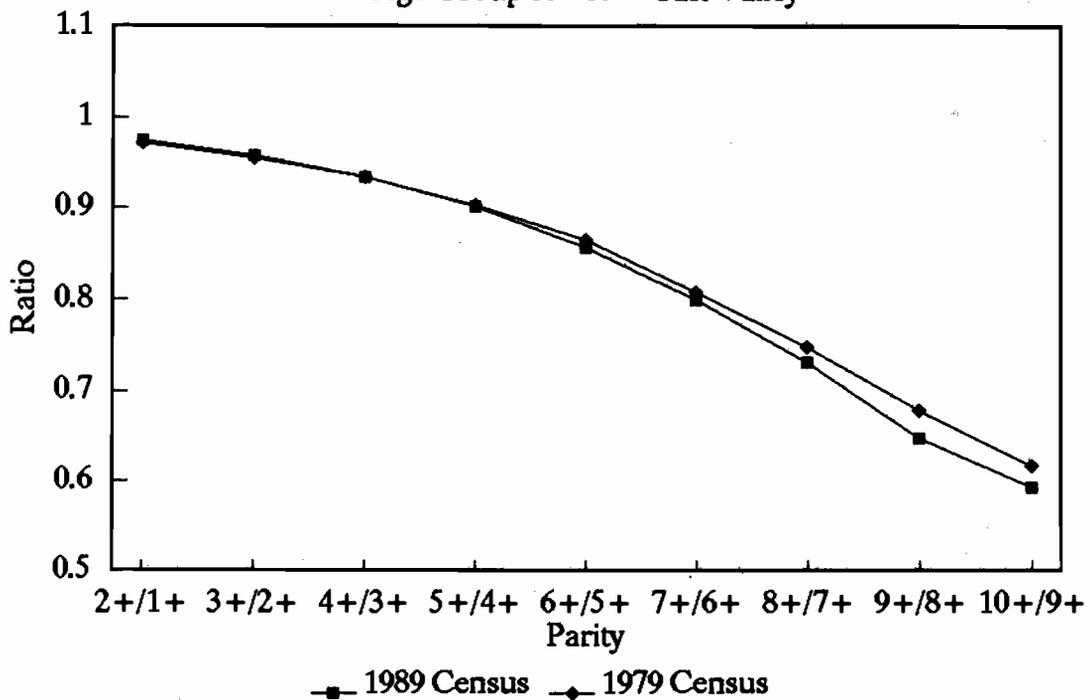
Incomplete Provincial PPR's

Age Group 30-34 - Rift Valley



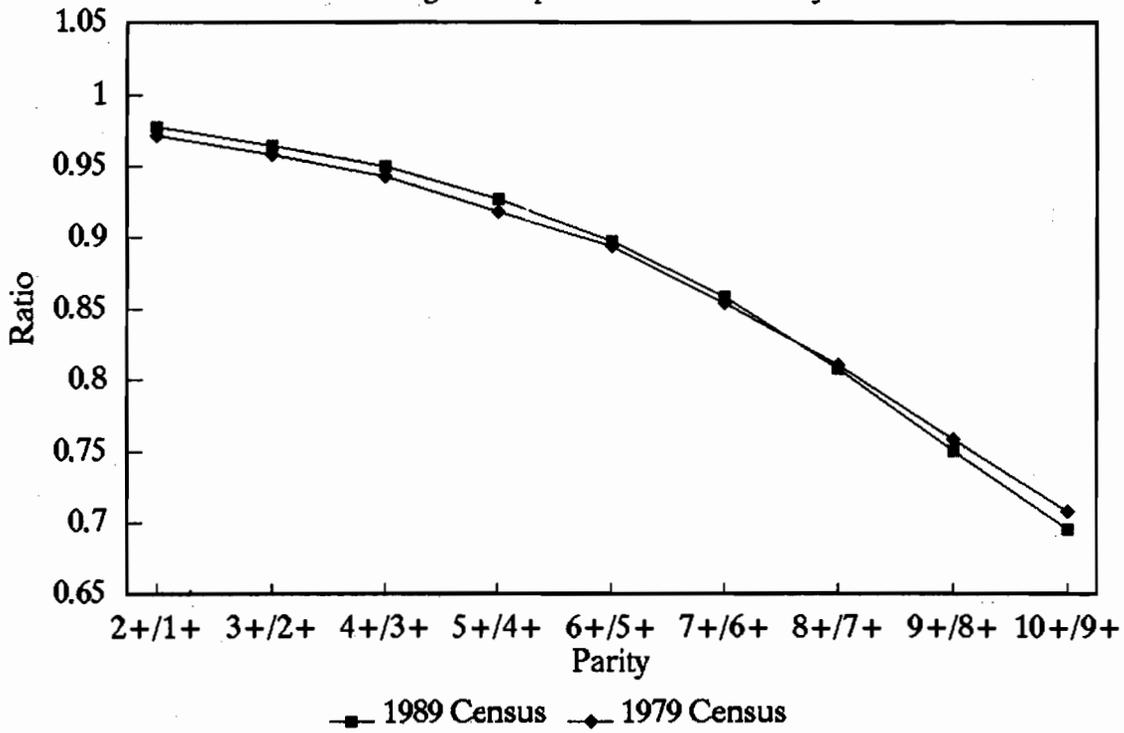
Incomplete Provincial PPR's

Age Group 35-39 - Rift Valley



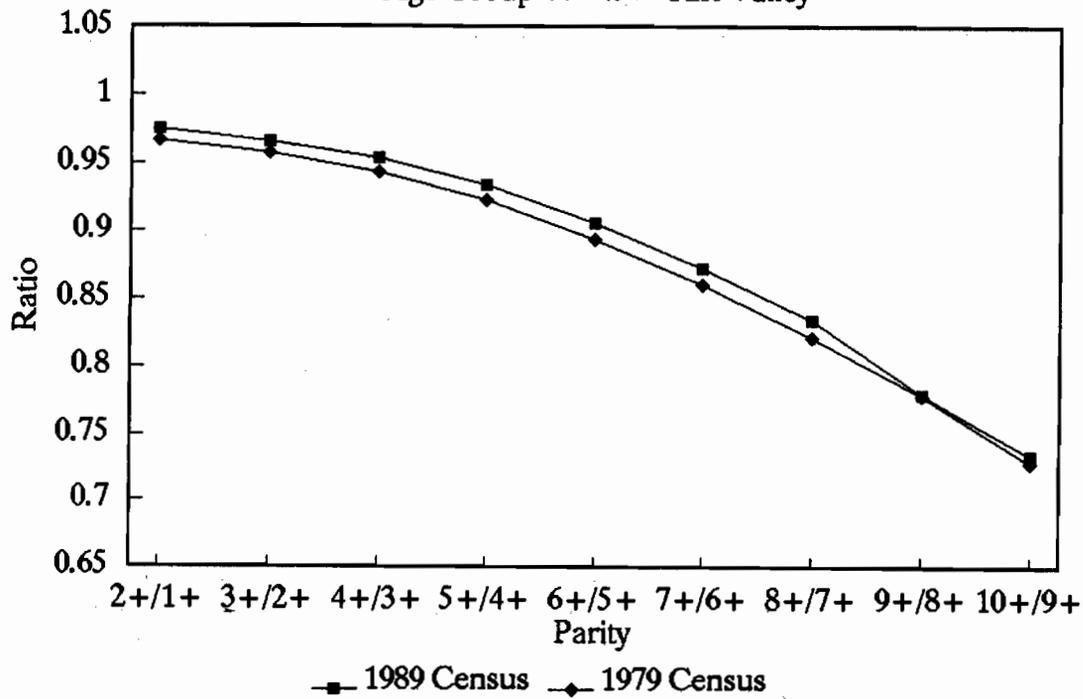
Incomplete Provincial PPR's

Age Group 40-44 - Rift Valley



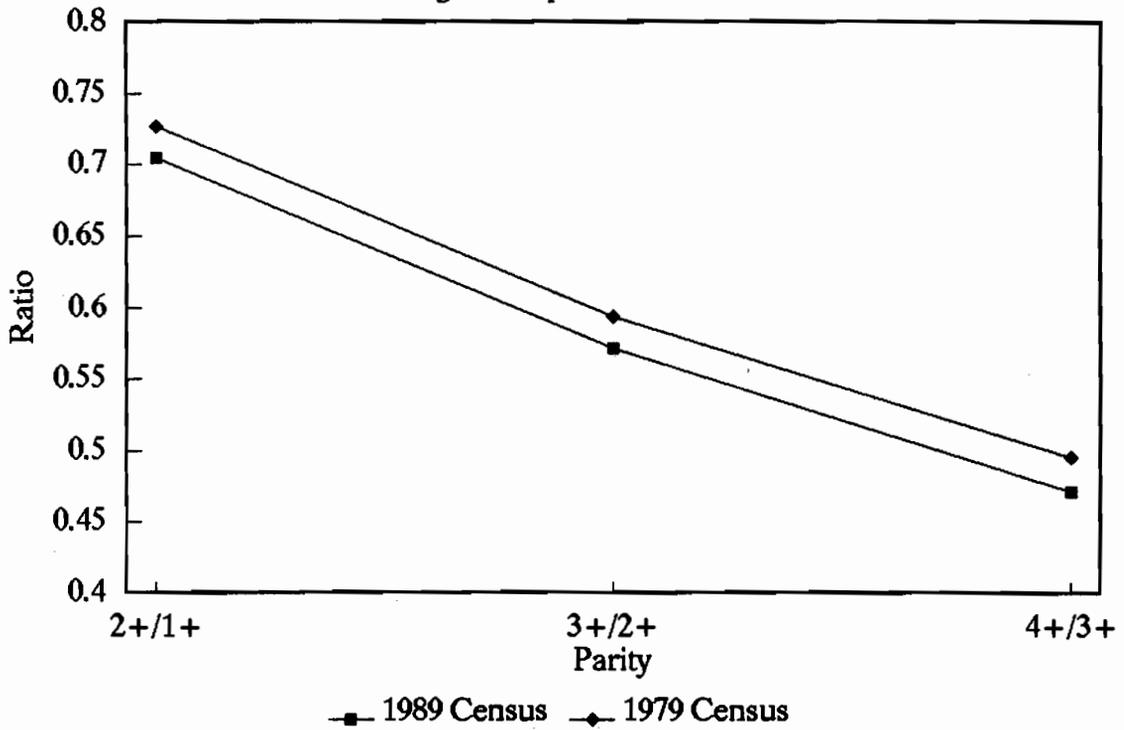
Incomplete Provincial PPR's

Age Group 44-49 - Rift Valley



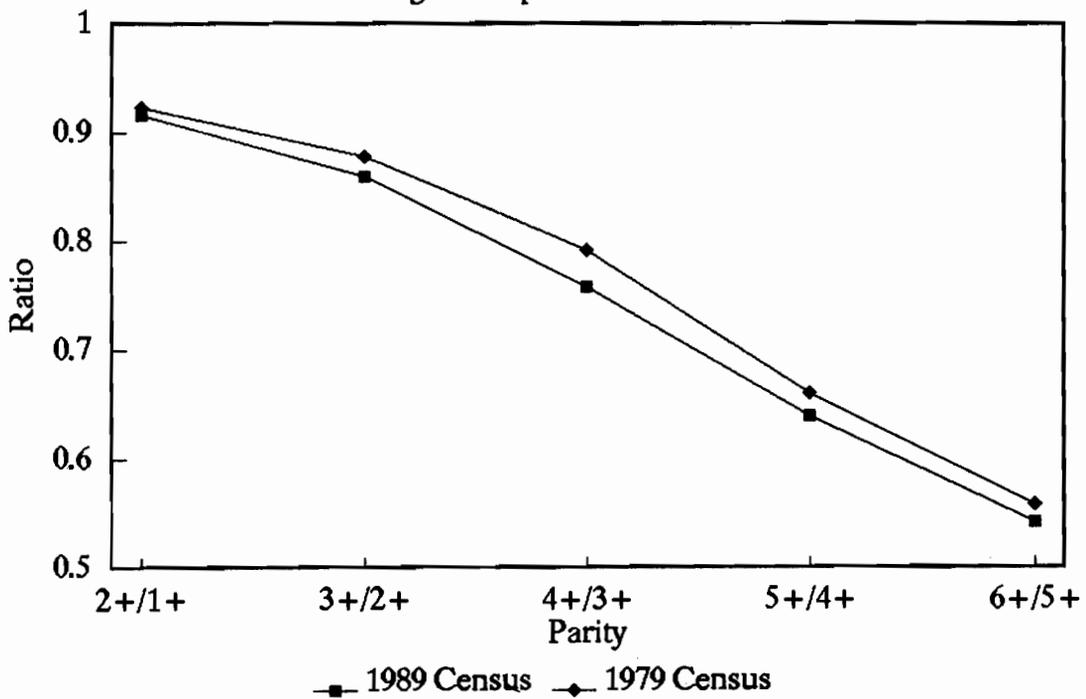
Incomplete Provincial PPR's

Age Group 20-24 - Western



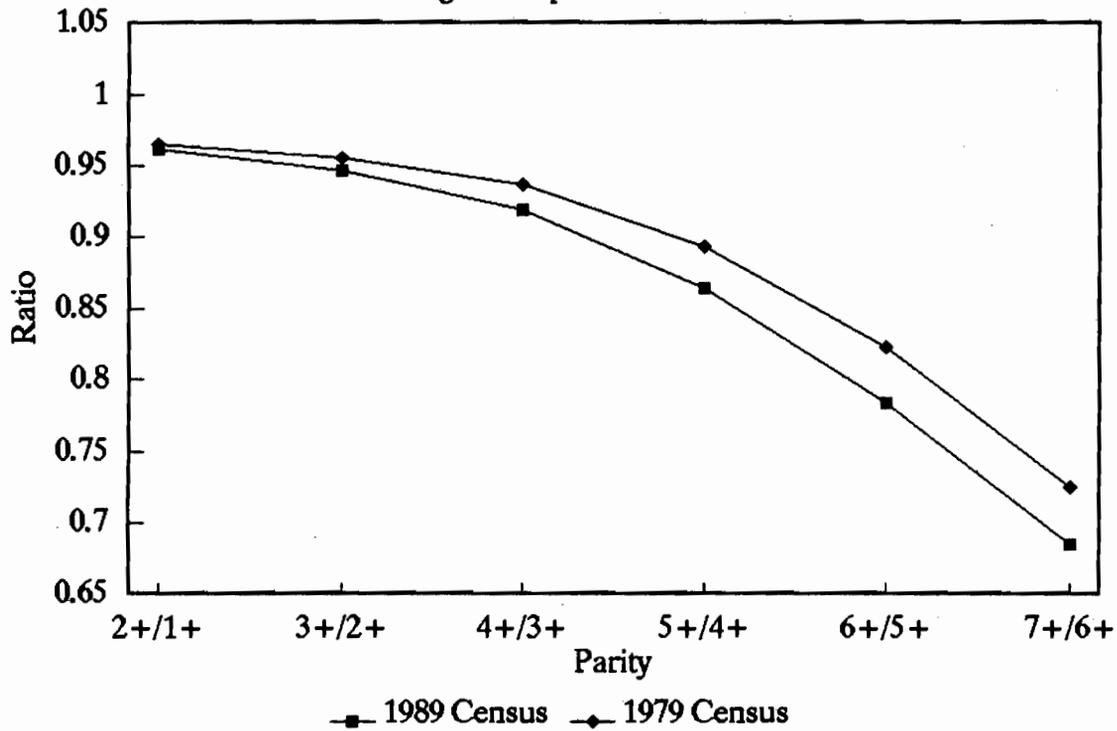
Incomplete Provincial PPR's

Age Group 25-29 - Western



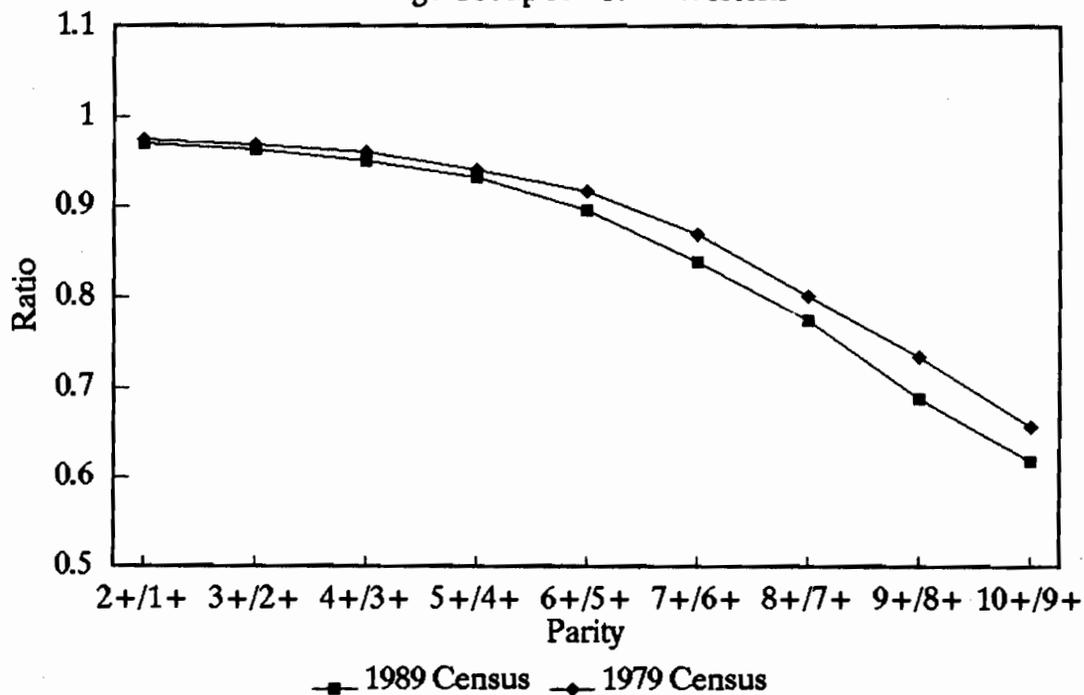
Incomplete Provincial PPR's

Age Group 30-34 - Western



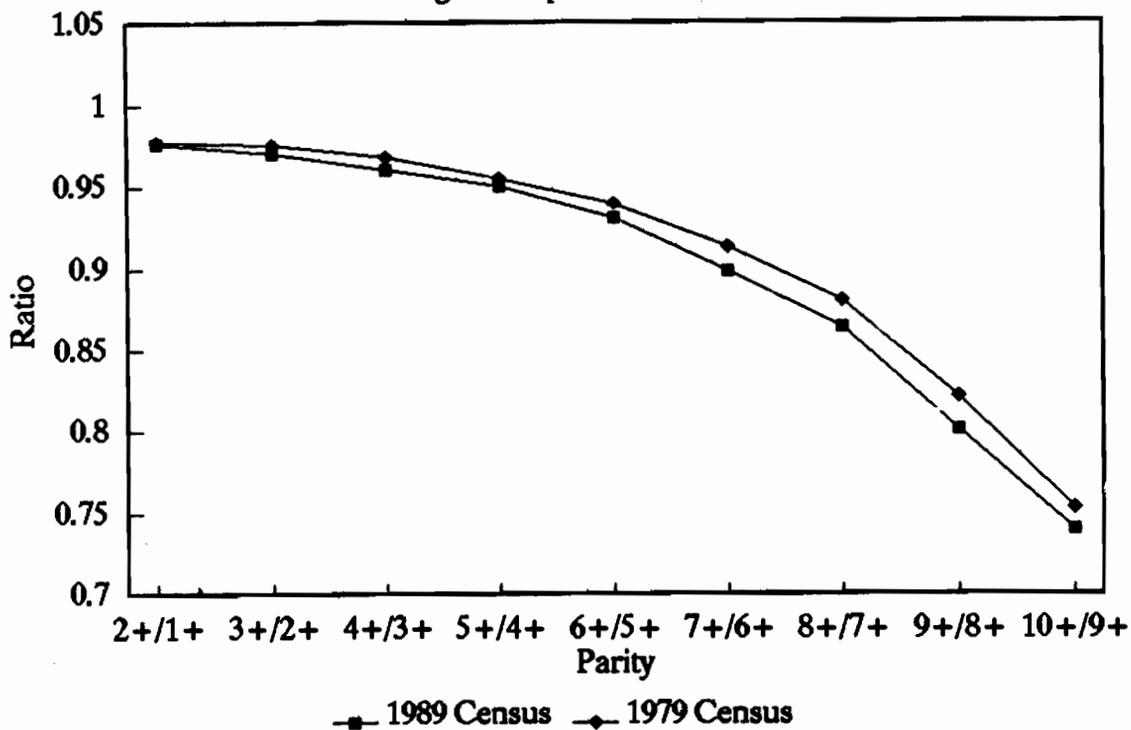
Incomplete Provincial PPR's

Age Group 35-39 - Western



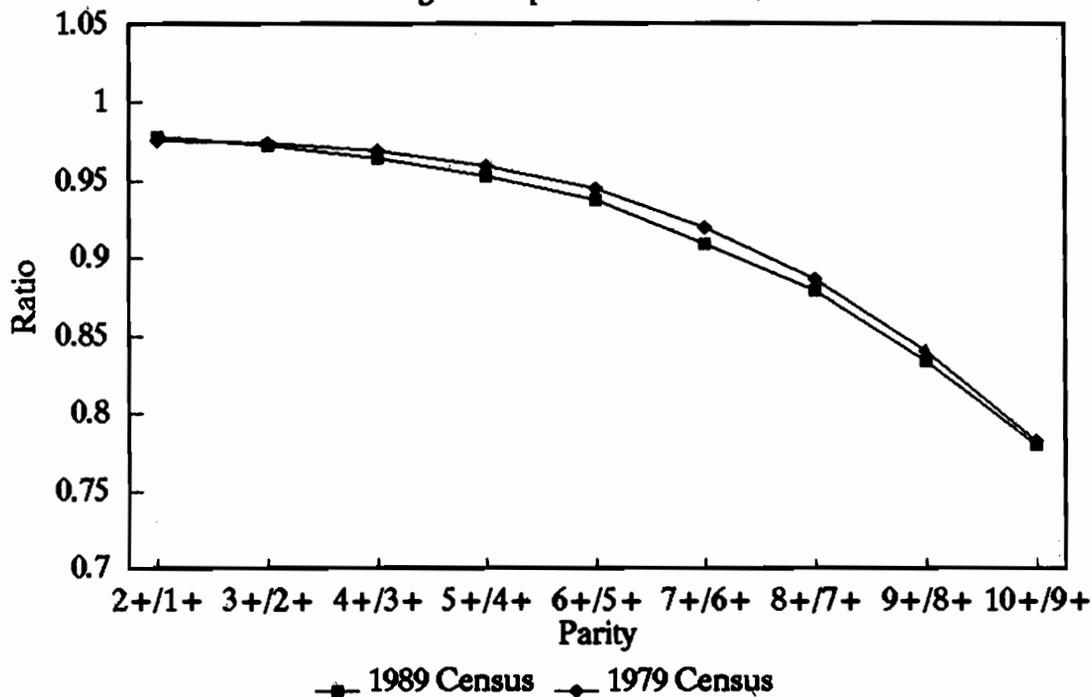
Incomplete Provincial PPR's

Age Group 40-44 - Western



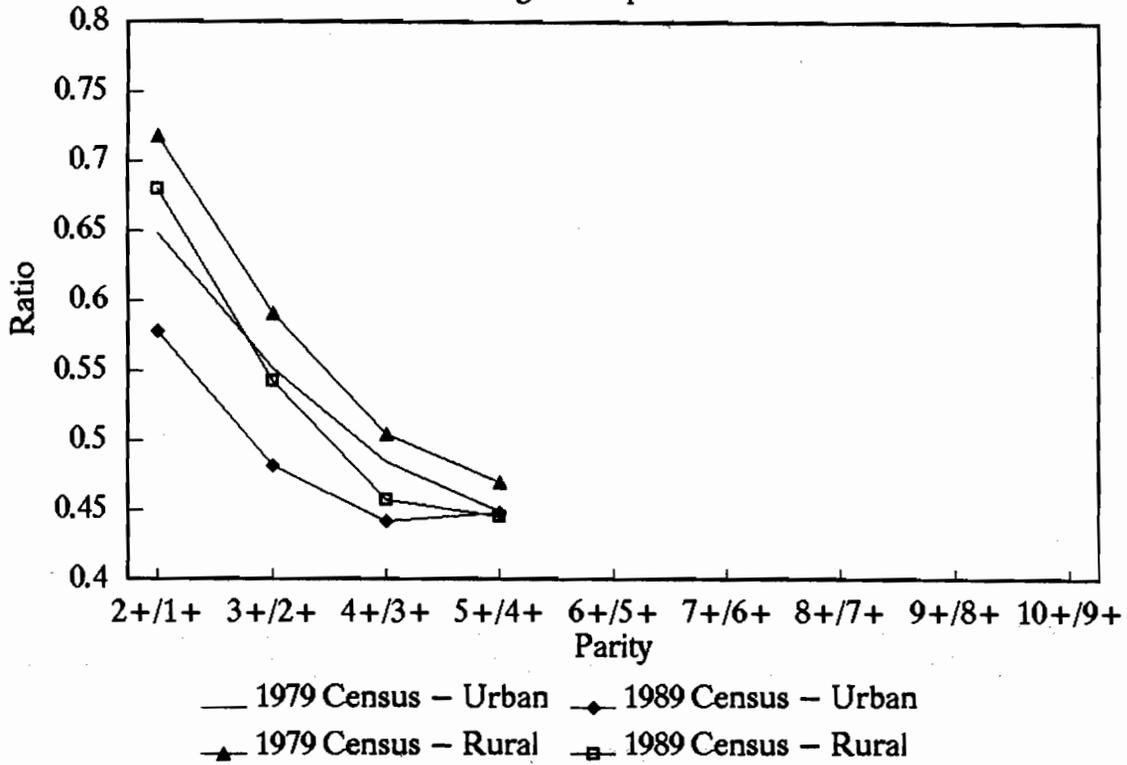
Incomplete Provincial PPR's

Age Group 45-49 - Western

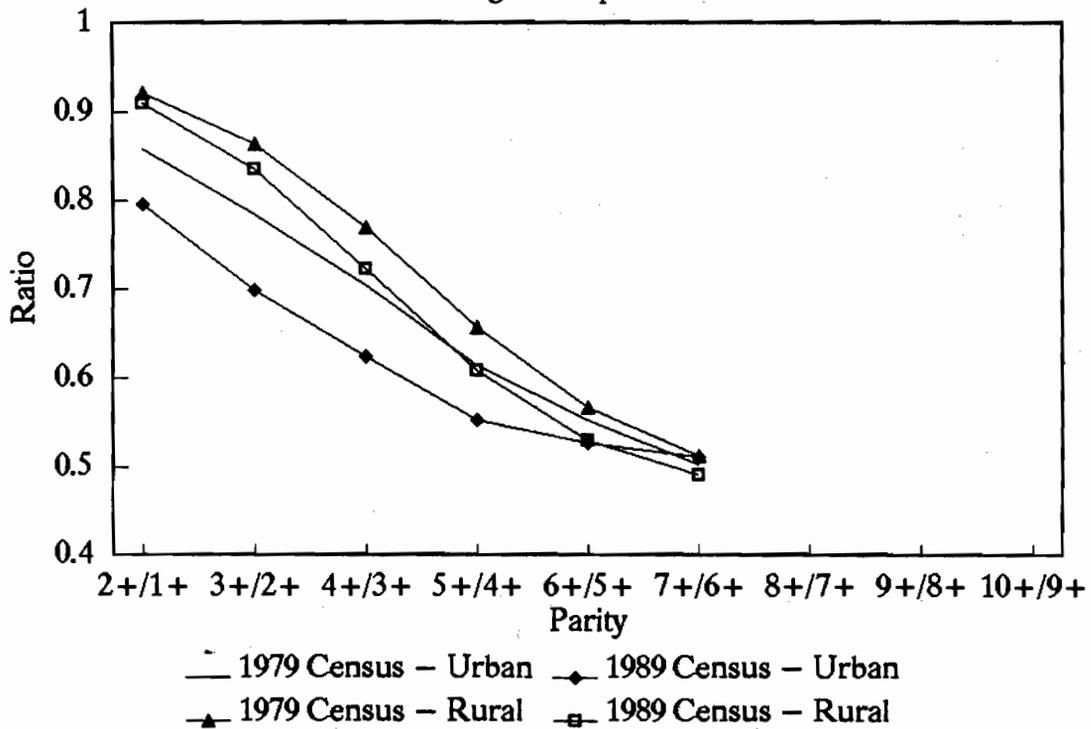


Appendix X

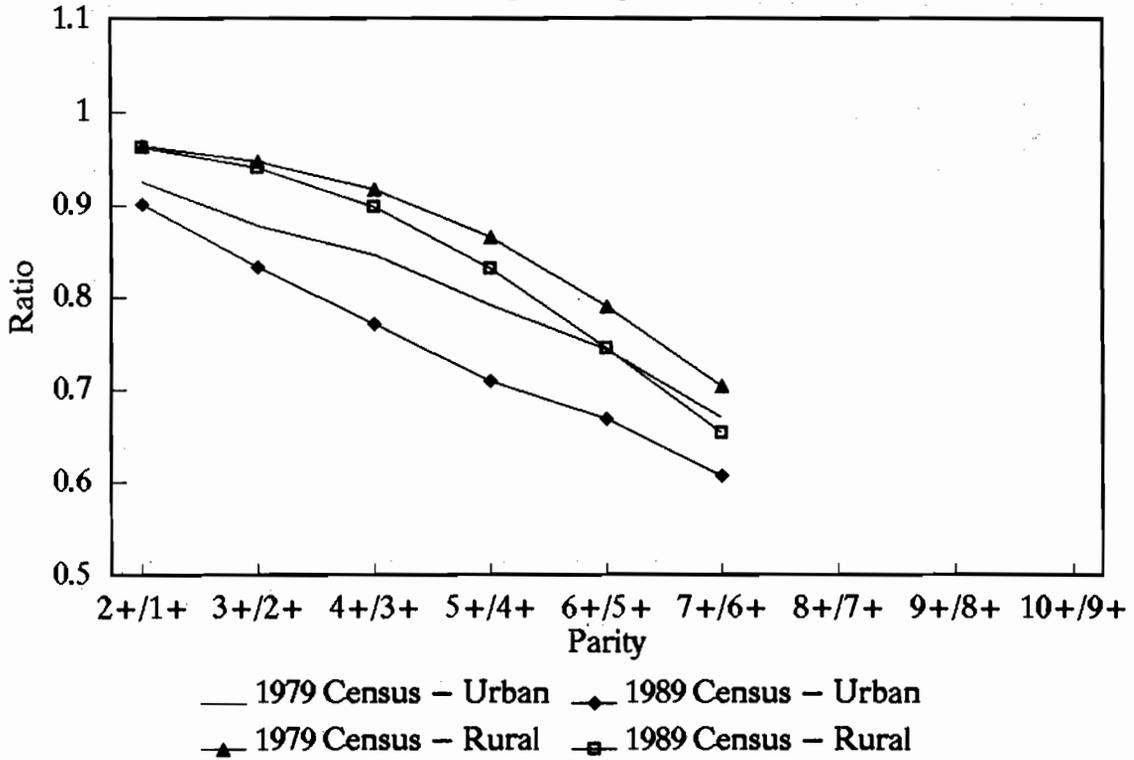
**Incomplete PPR's by Type of Place of Residence
Age Group 20-24**



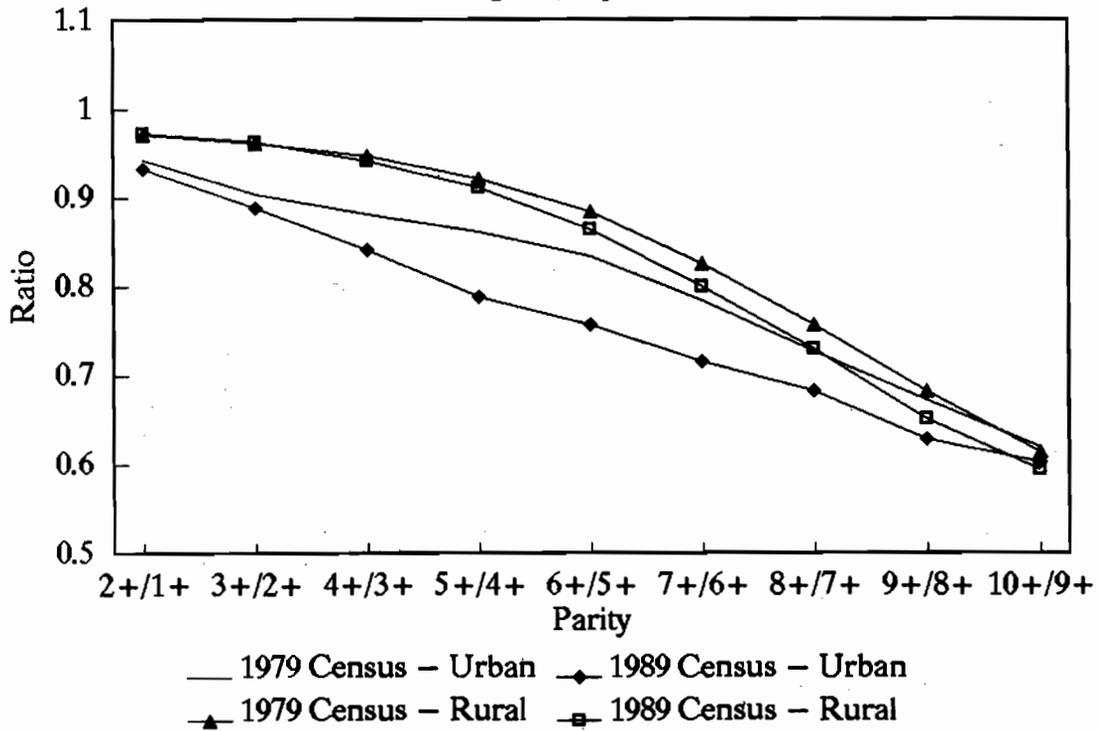
**Incomplete PPR's by Type of Place of Residence
Age Group 25-29**



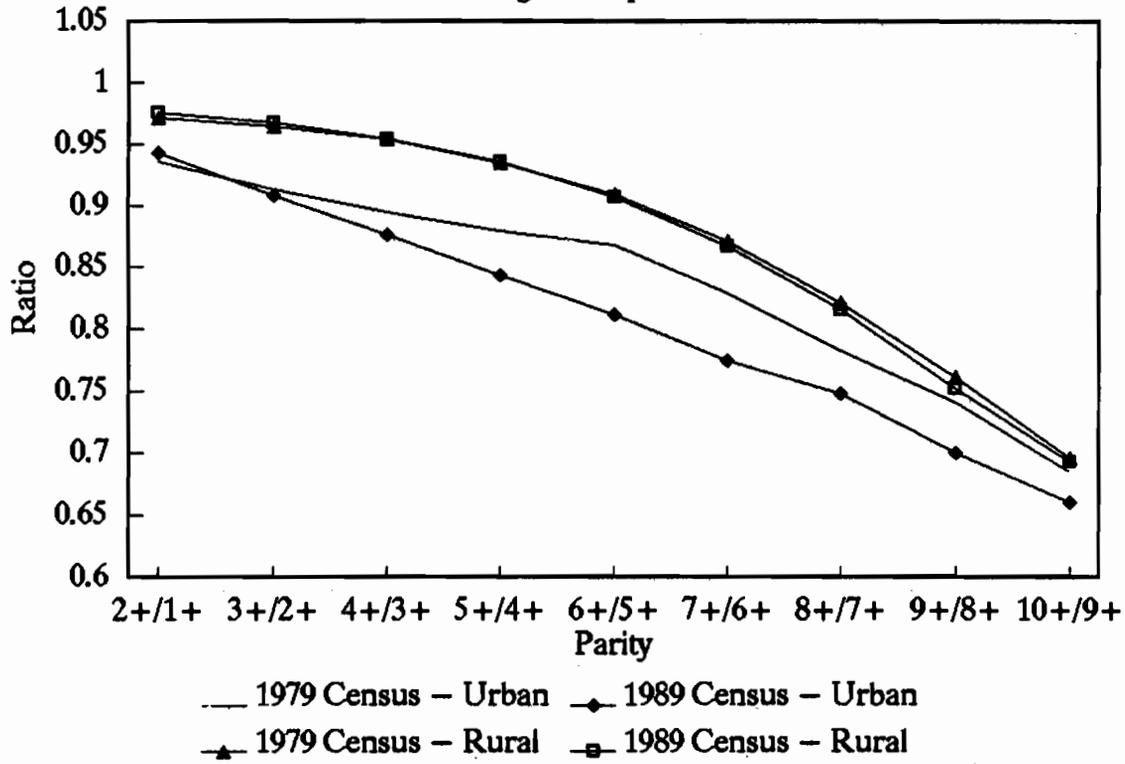
Incomplete PPR's by Type of Place of Residence
Age Group 30-34



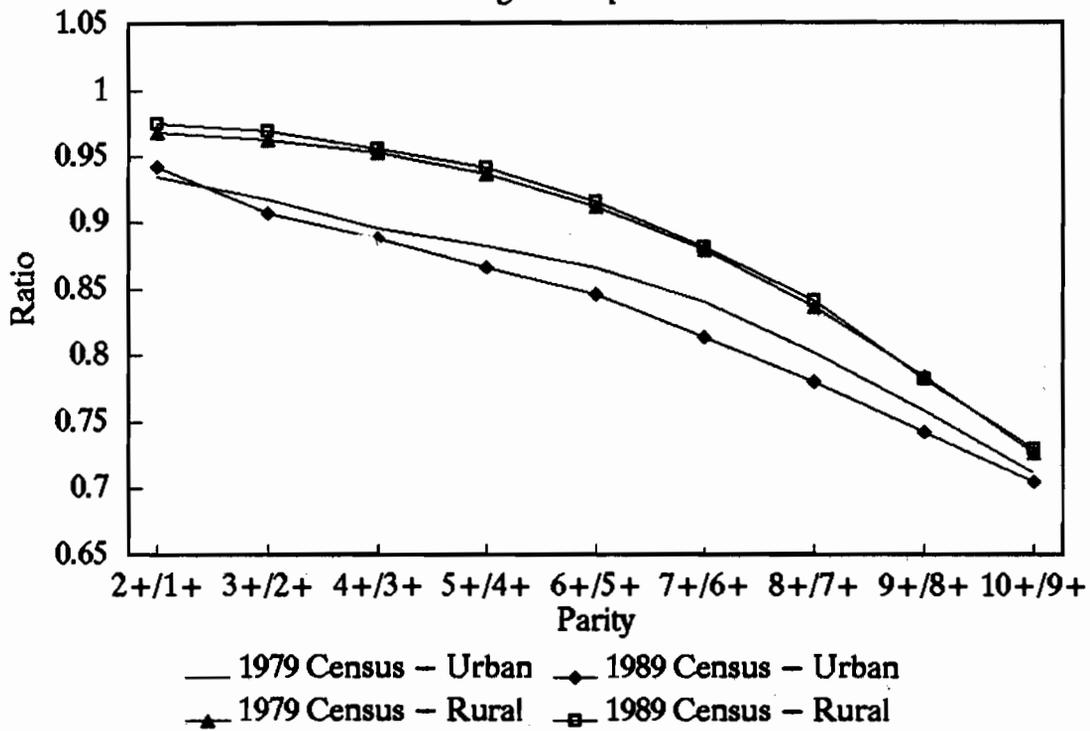
Incomplete PPR's by Type of Place of Residence
Age Group 35-39



Incomplete PPR's by Type of Place of Residence
Age Group 40-44

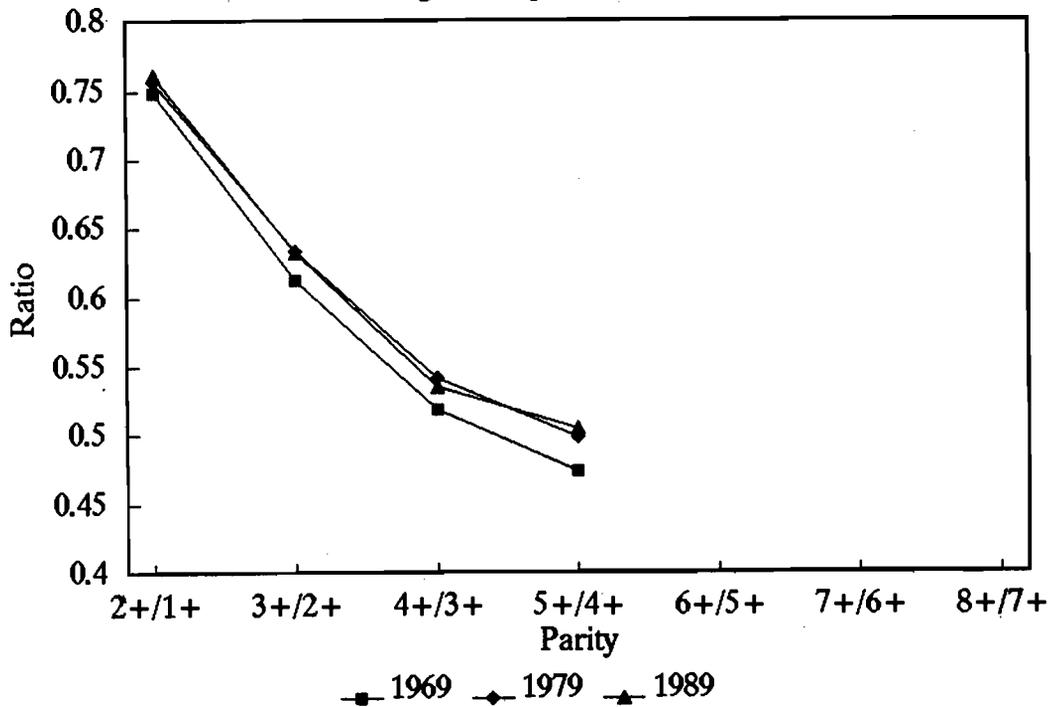


Incomplete PPR's by Type of Place of Residence
Age Group 45-49

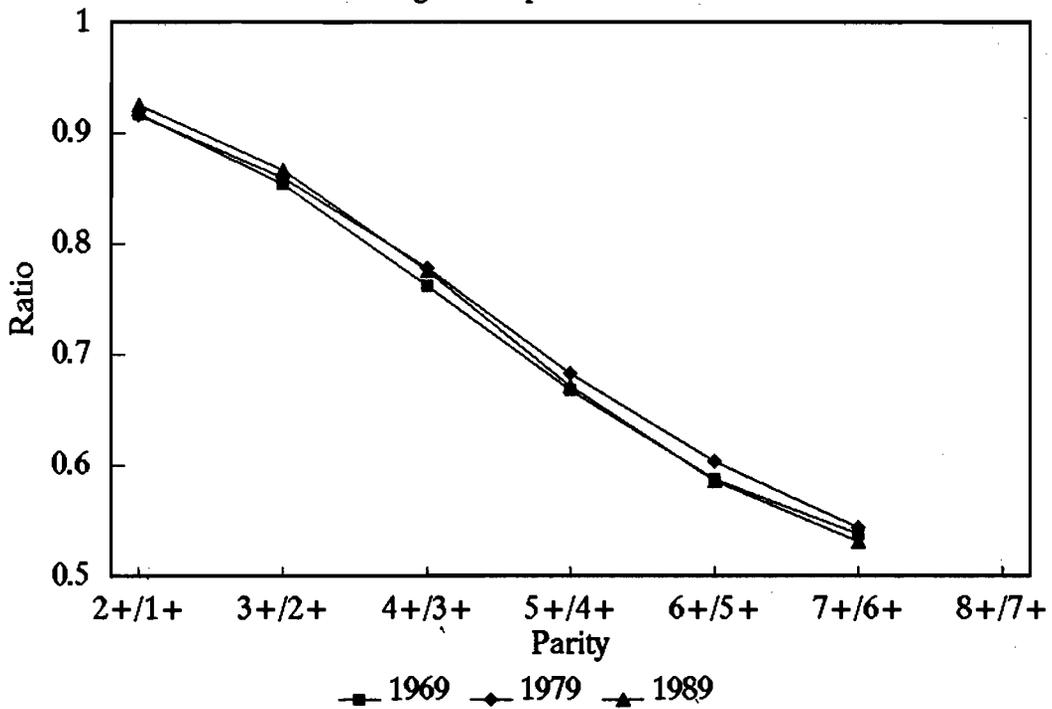


Appendix XI

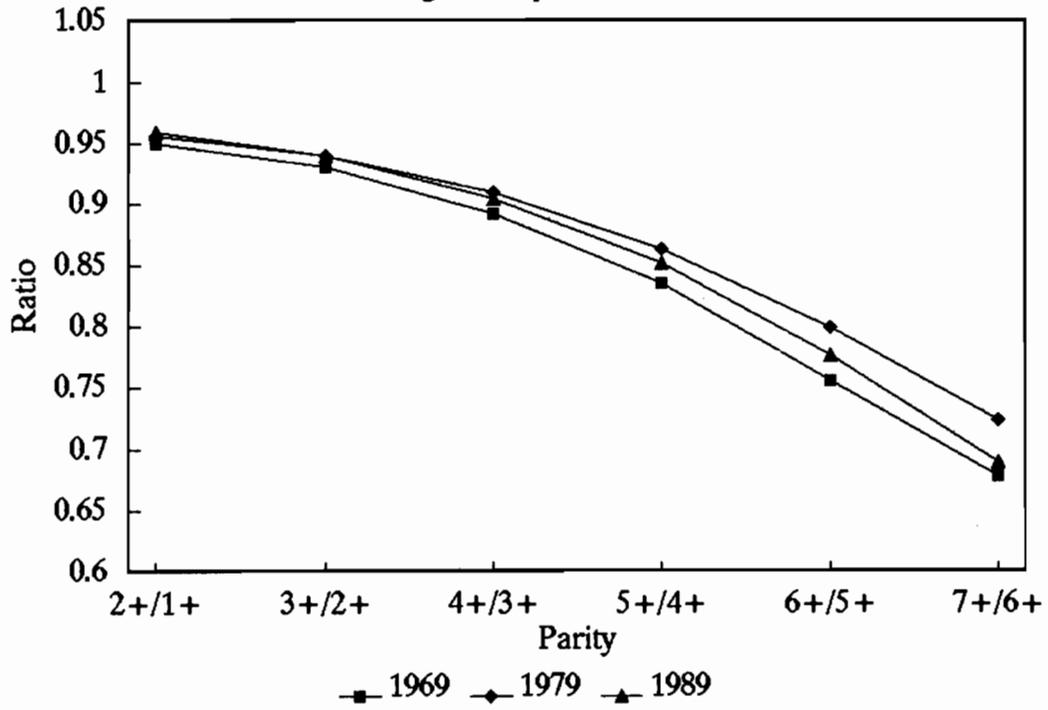
**Incomplete PPR's by Educational Attainment
Age Group 20-24 - None**



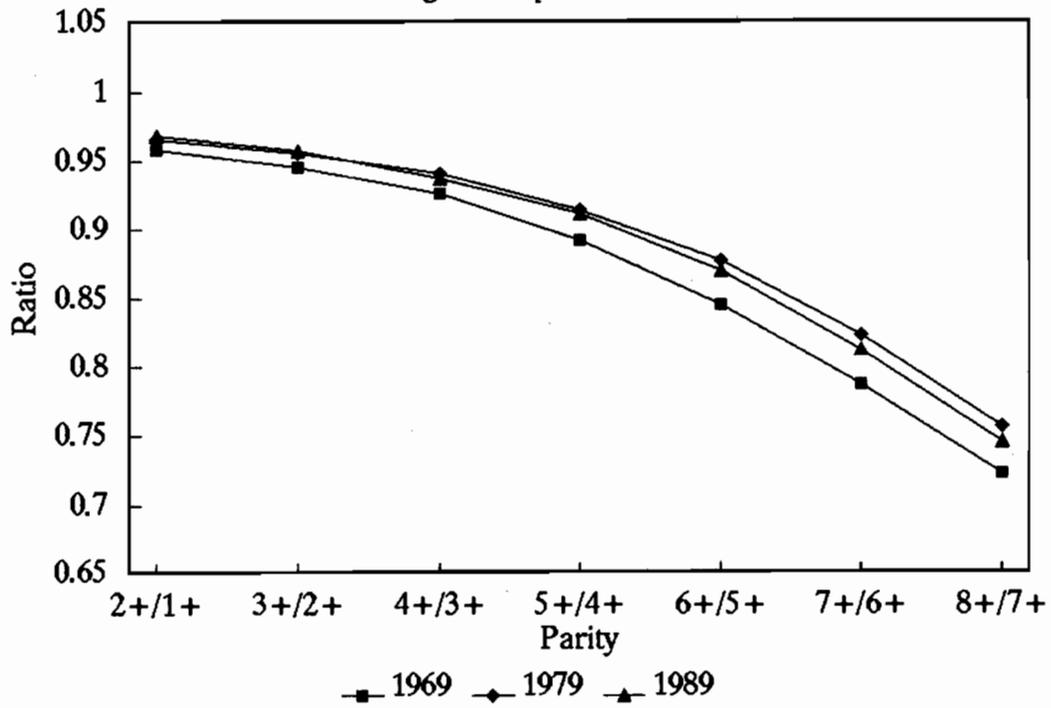
**Incomplete PPR's by Educational Attainment
Age Group 25-29 - None**



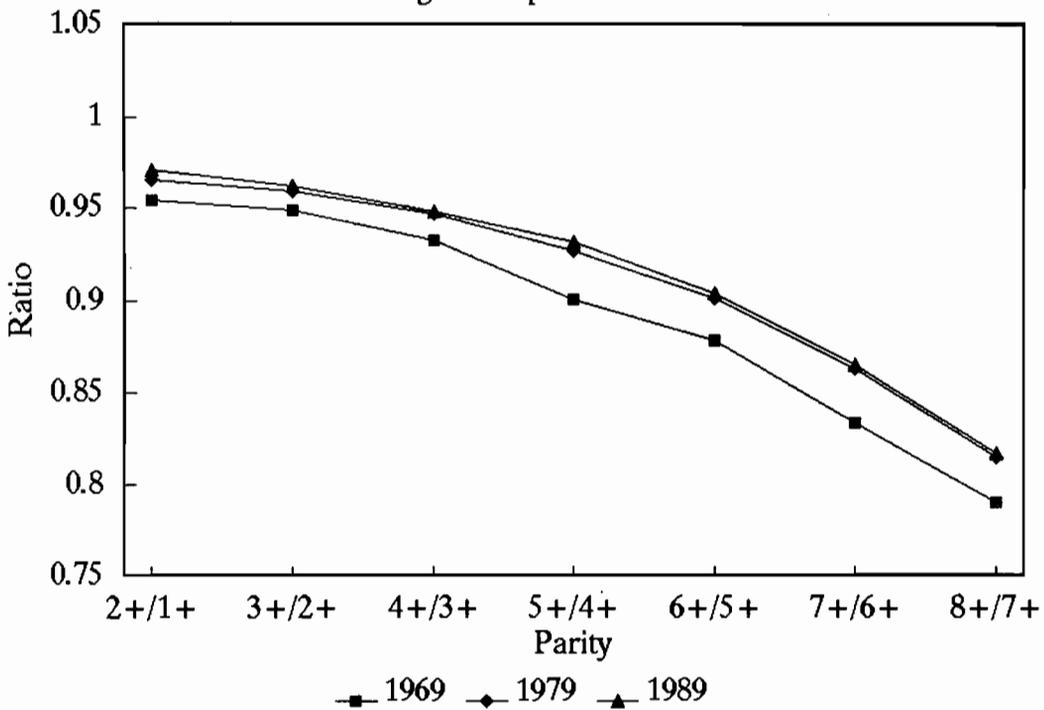
Incomplete PPR's by Educational Attainment
Age Group 30-34 - None



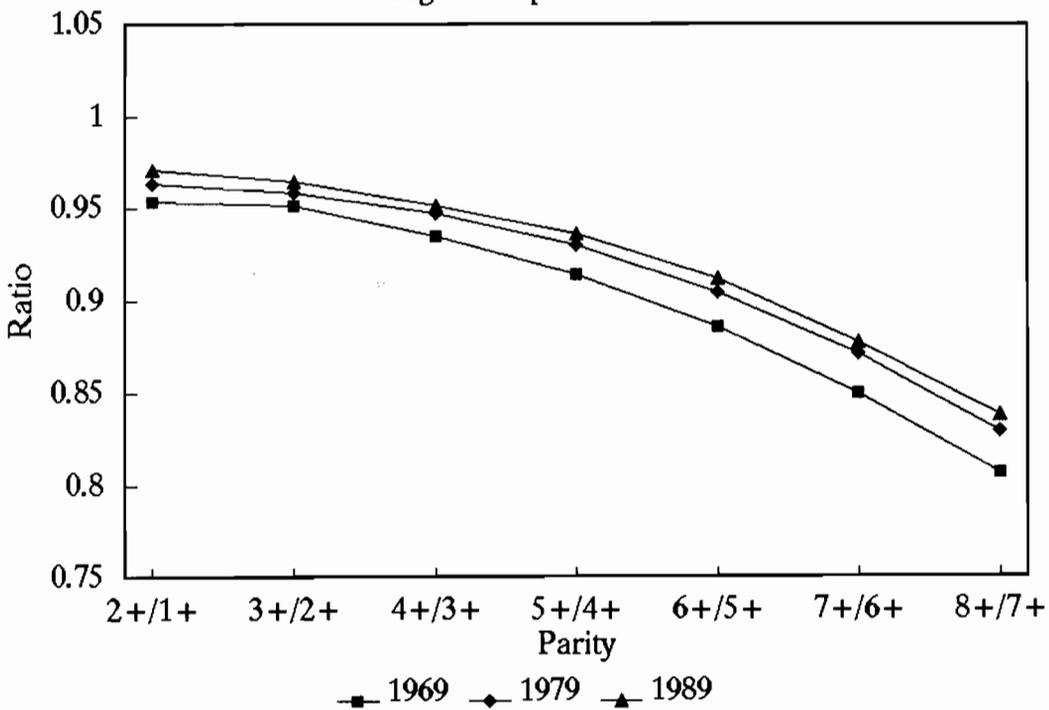
Incomplete PPR's by Educational Attainment
Age Group 35-39 - None



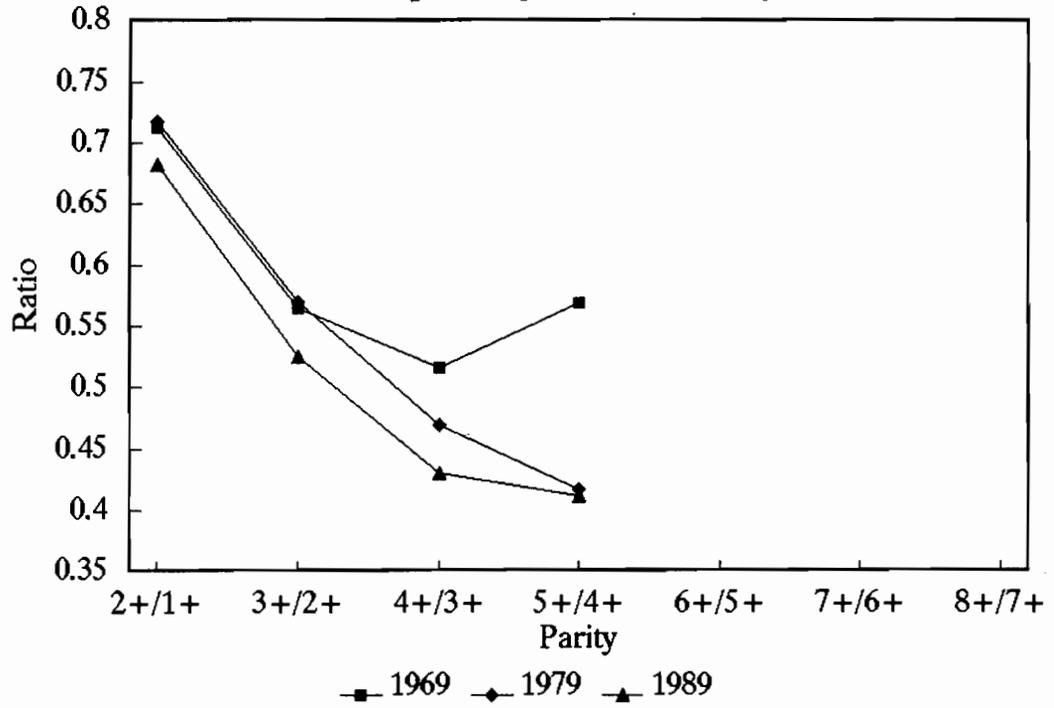
Incomplete PPR's by Educational Attainment
Age Group 40-44 - None



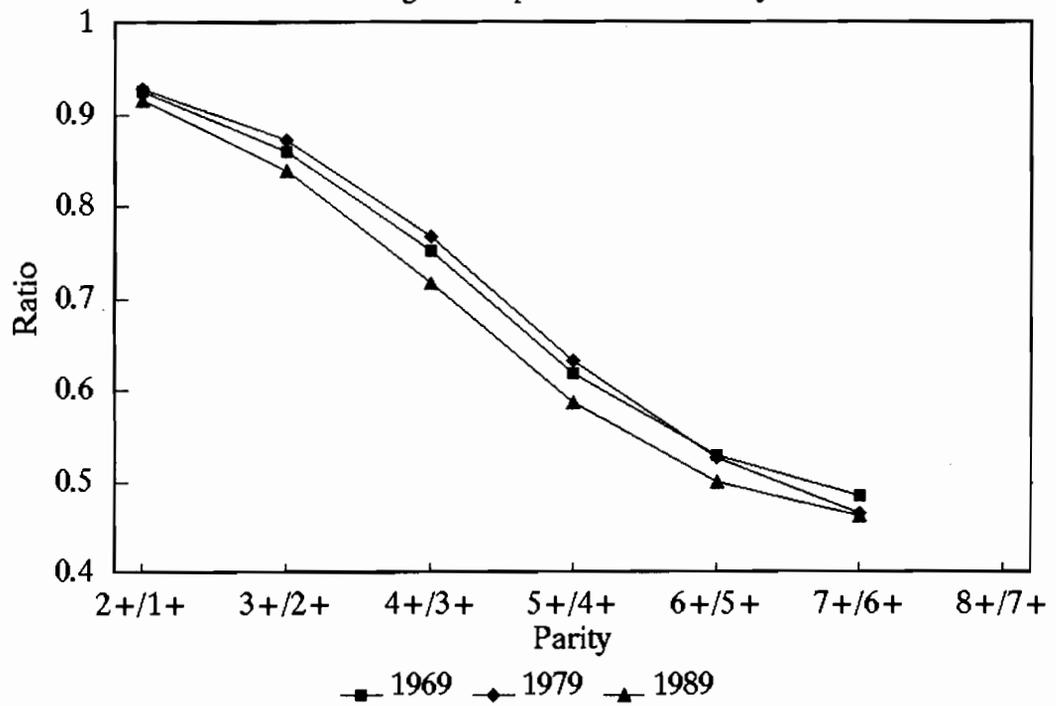
Incomplete PPR's by Educational Attainment
Age Group 45-49 - None



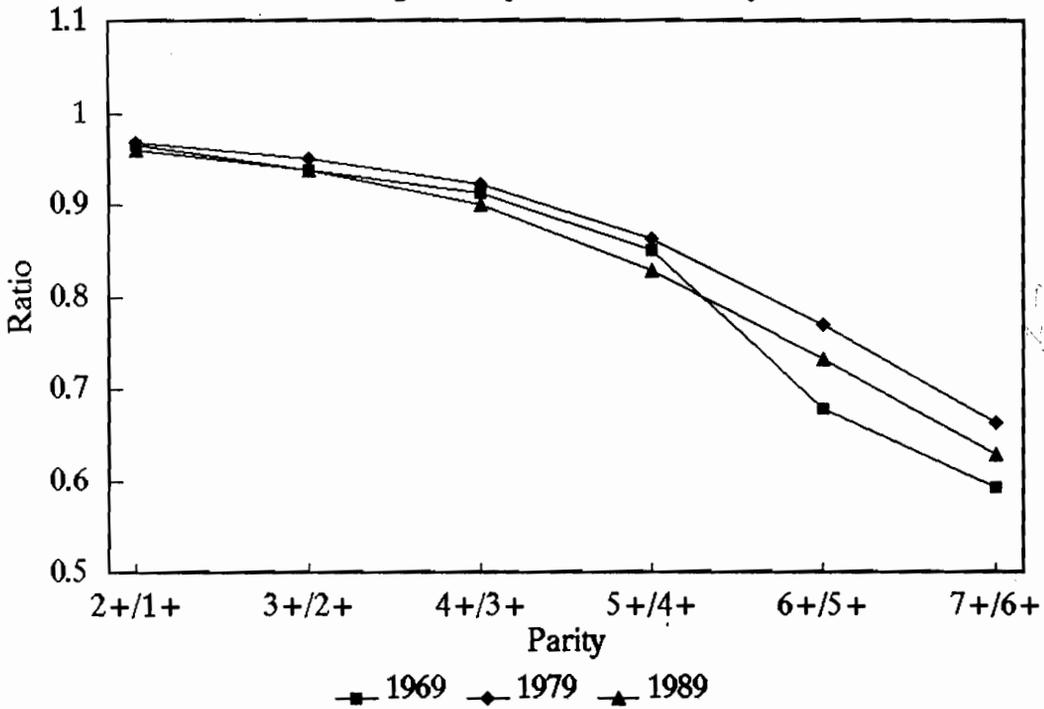
Incomplete PPR's by Educational Attainment
Age Group 20-24 - Primary



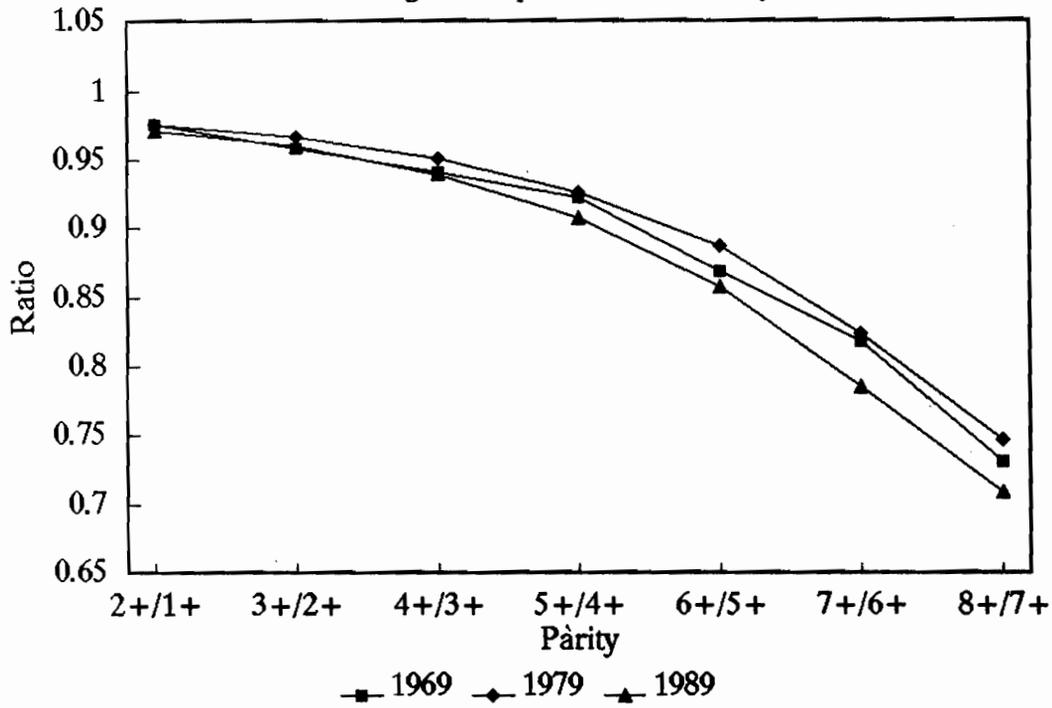
Incomplete PPR's by Educational Attainment
Age Group 25-29 - Primary



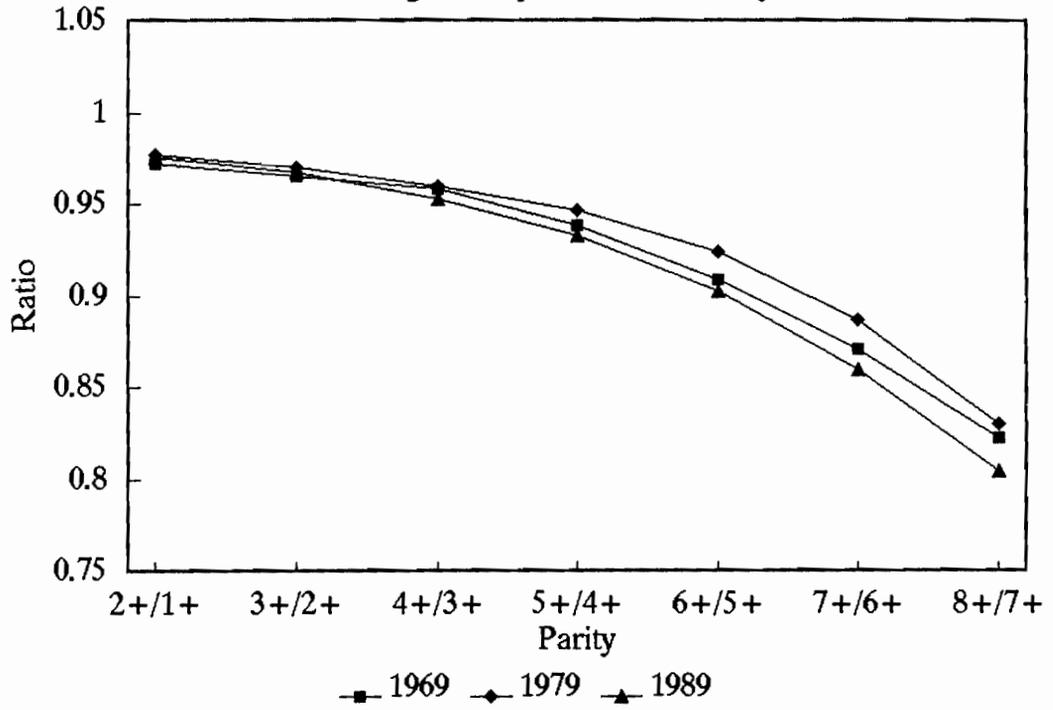
Incomplete PPR's by Educational Attainment
Age Group 30-34 - Primary



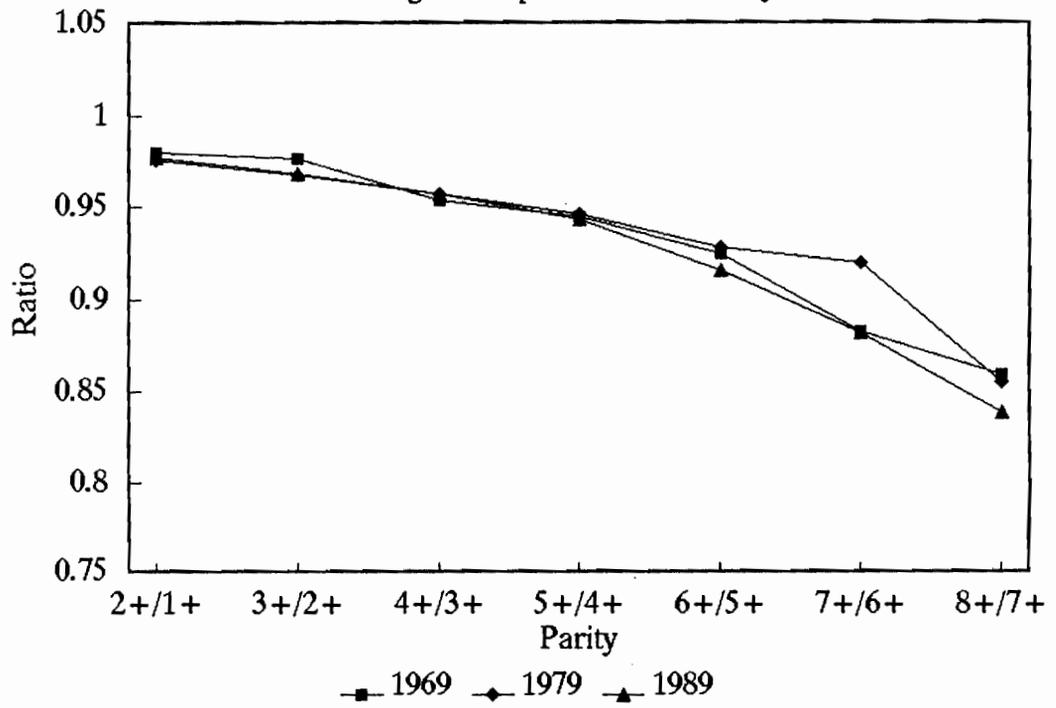
Incomplete PPR's by Educational Attainment
Age Group 35-39 - Primary



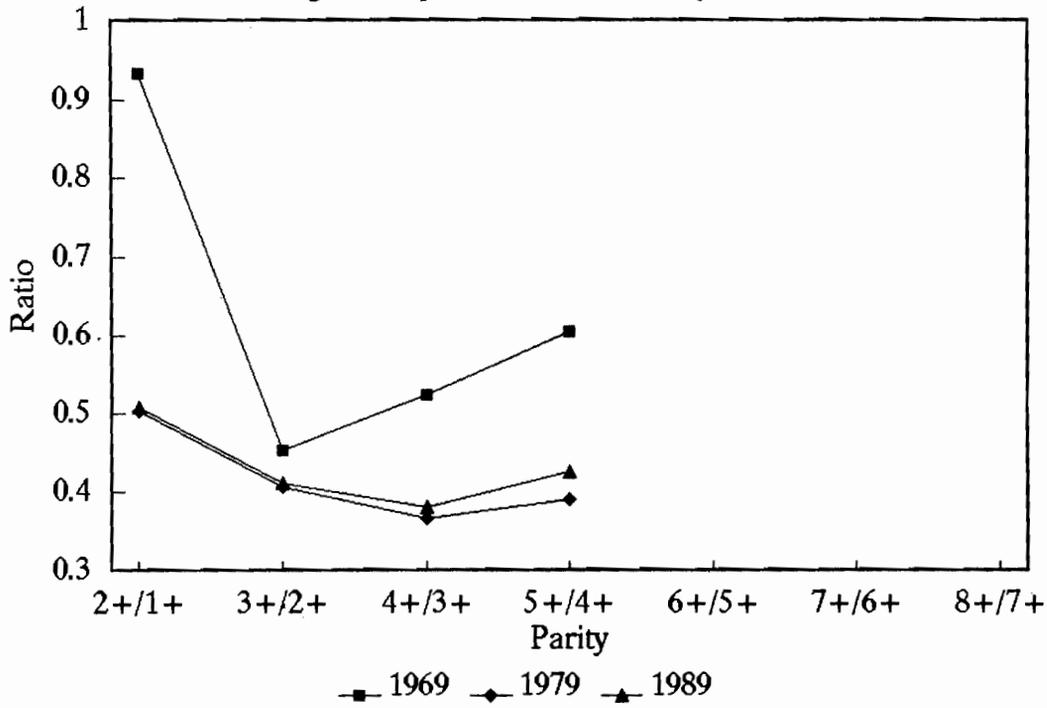
Incomplete PPR's by Educational Attainment
Age Group 40-44 - Primary



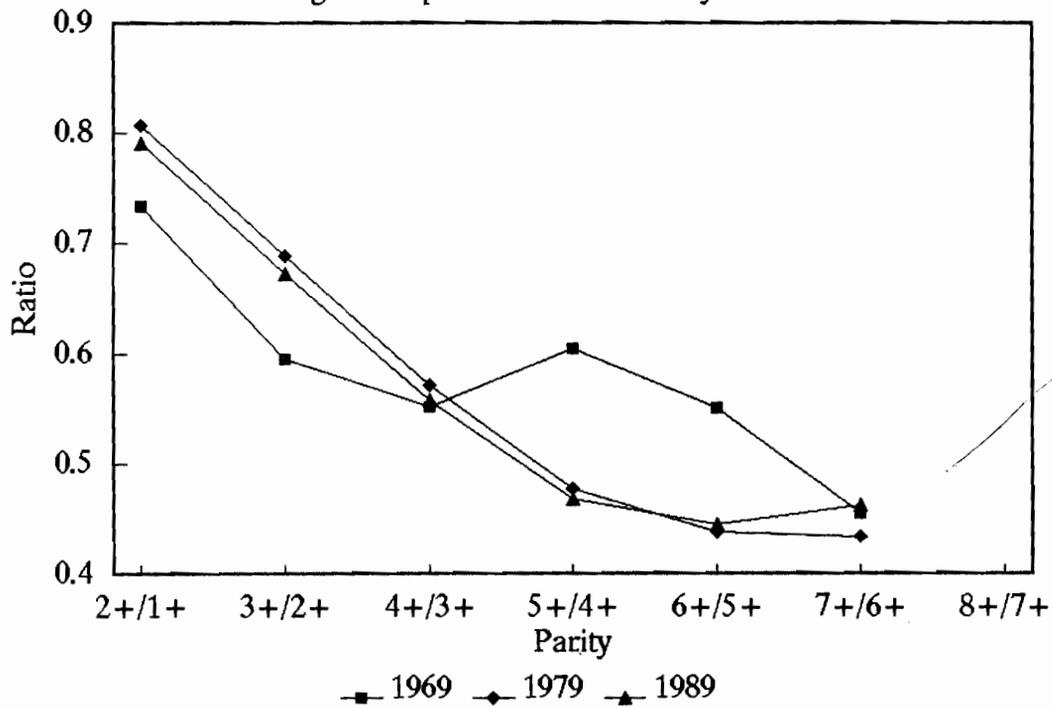
Incomplete PPR's by Educational Attainment
Age Group 45-49 - Primary



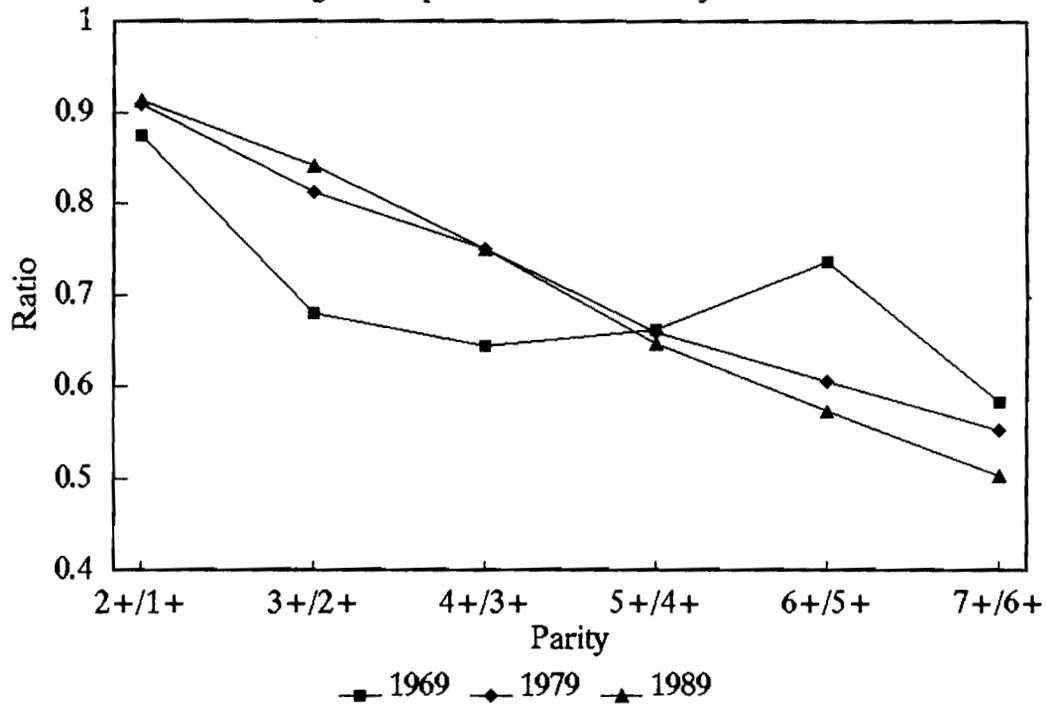
Incomplete PPR's by Educational Attainment
Age Group 20-24 - Secondary and above



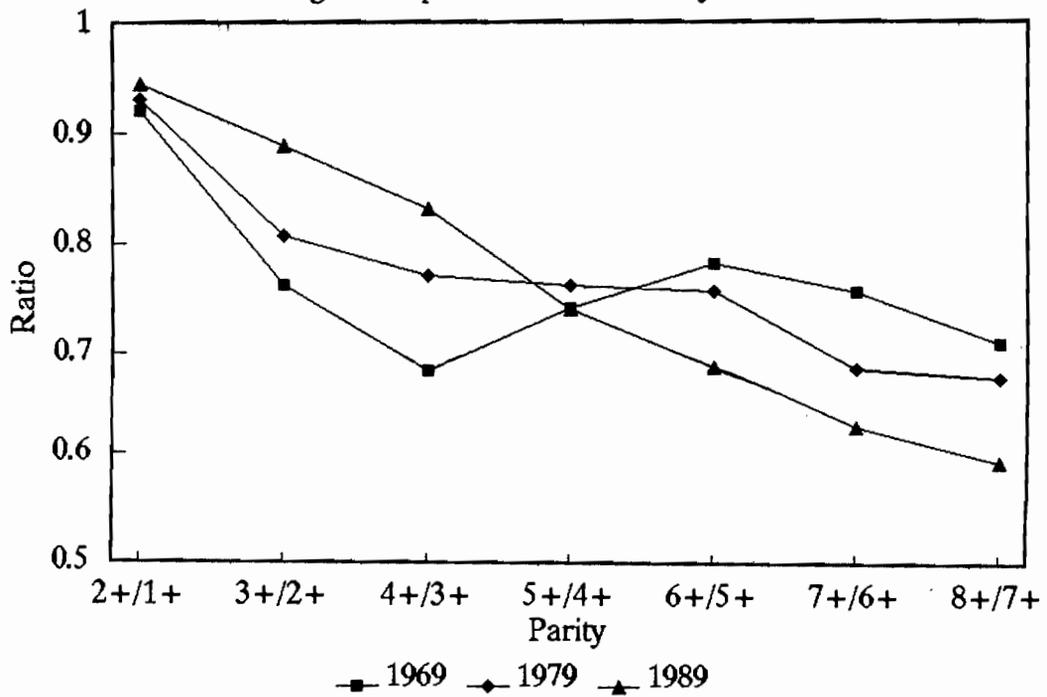
Incomplete PPR's by Educational Attainment
Age Group 25-29 - Secondary and above



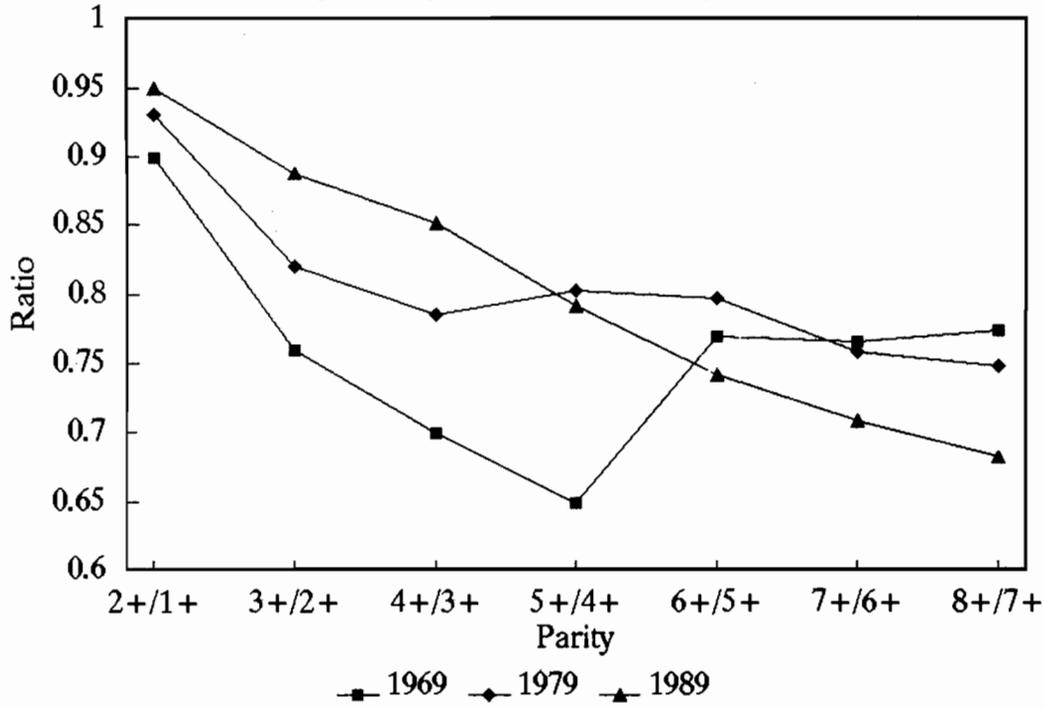
Incomplete PPR's by Educational Attainment
Age Group 30-34 - Secondary and above



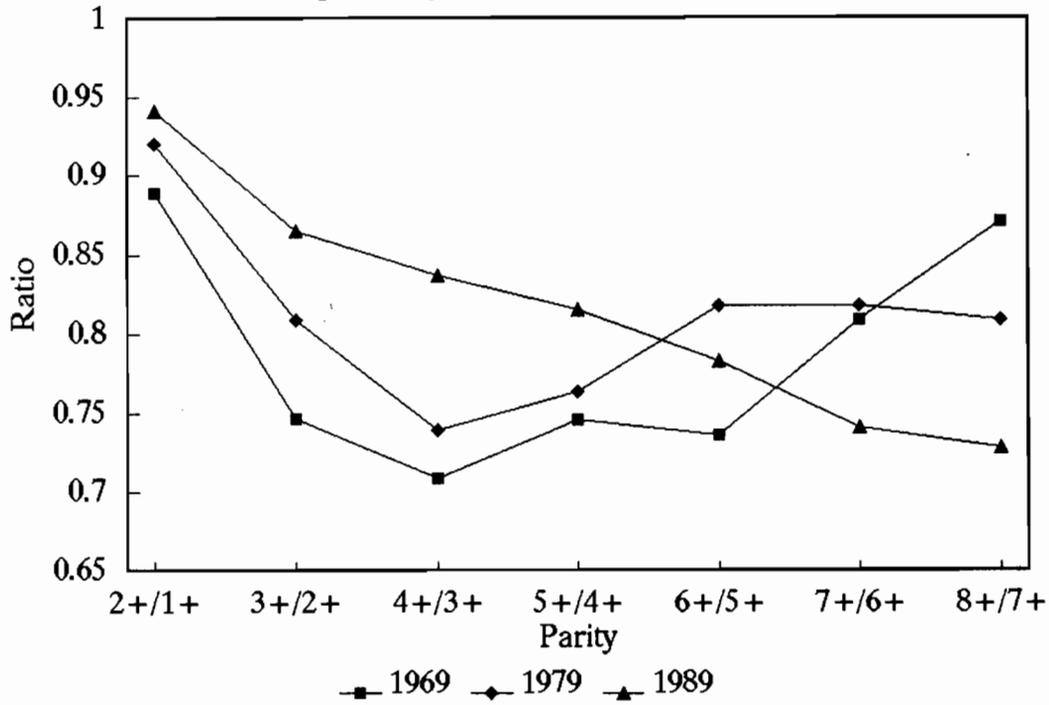
Incomplete PPR's by Educational Attainment
Age Group 35-39 - Secondary and above



Incomplete PPR's by Educational Attainment
Age Group 40-44 - Secondary and above

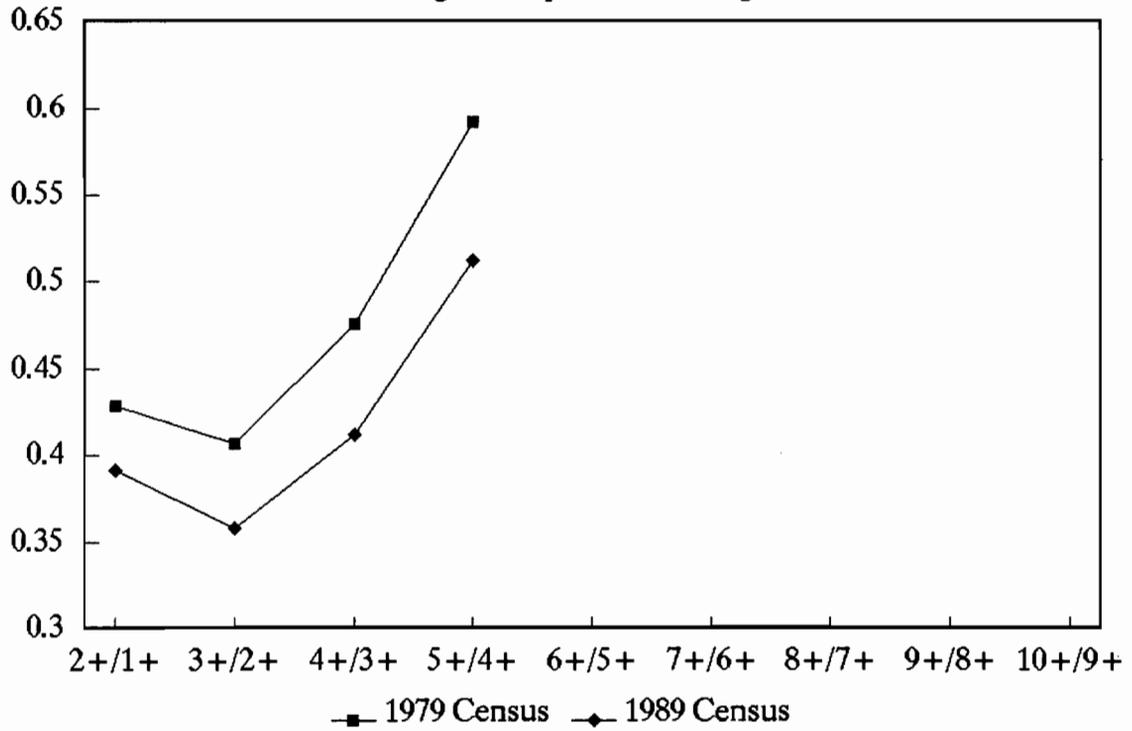


Incomplete PPR's by Educational Attainment
Age Group 45-49 - Secondary and above



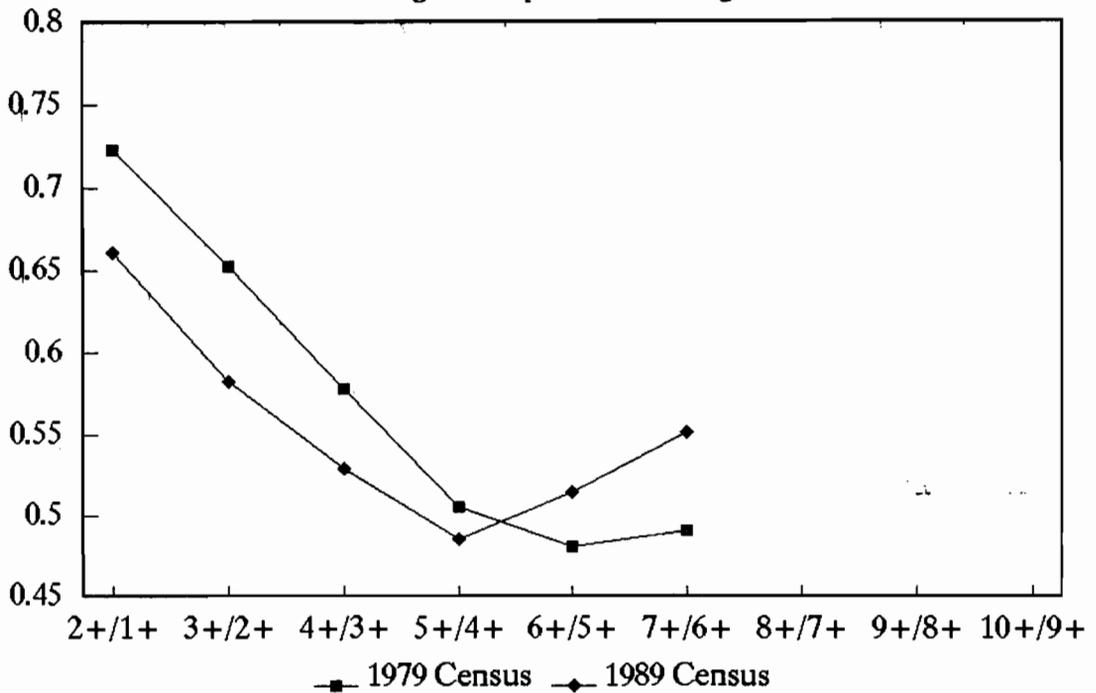
Incomplete PPR's by Marital Status

Age Group 20-24 - Single



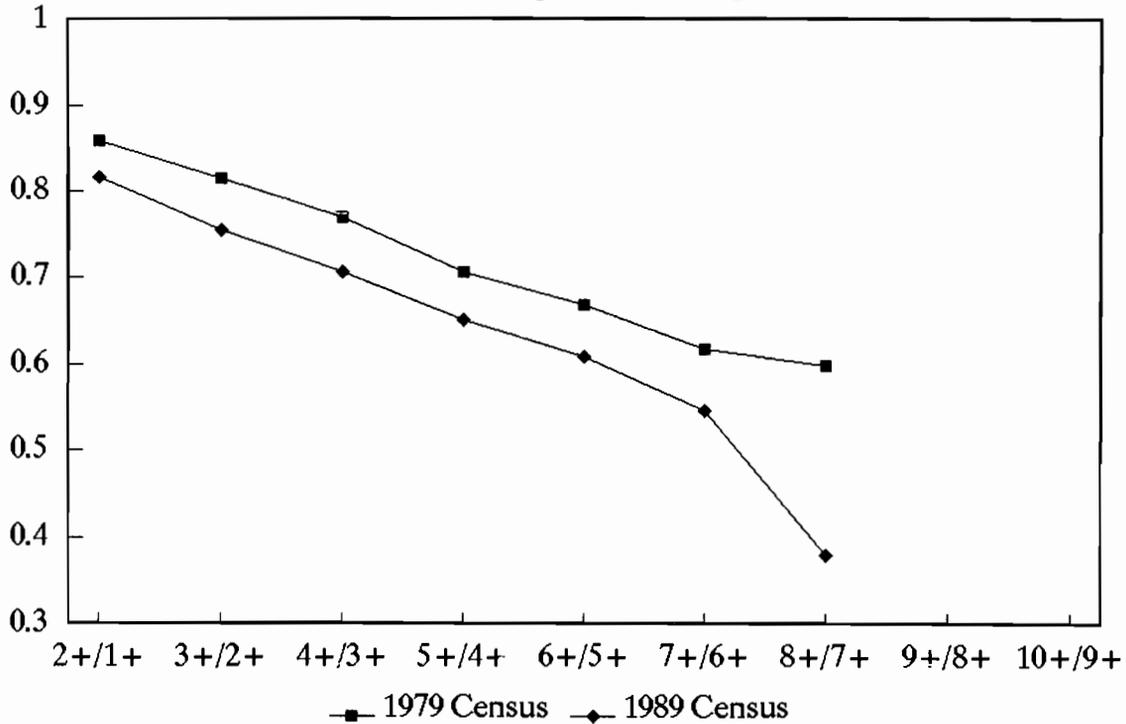
Incomplete PPR's by Marital Status

Age Group 25-29 - Single



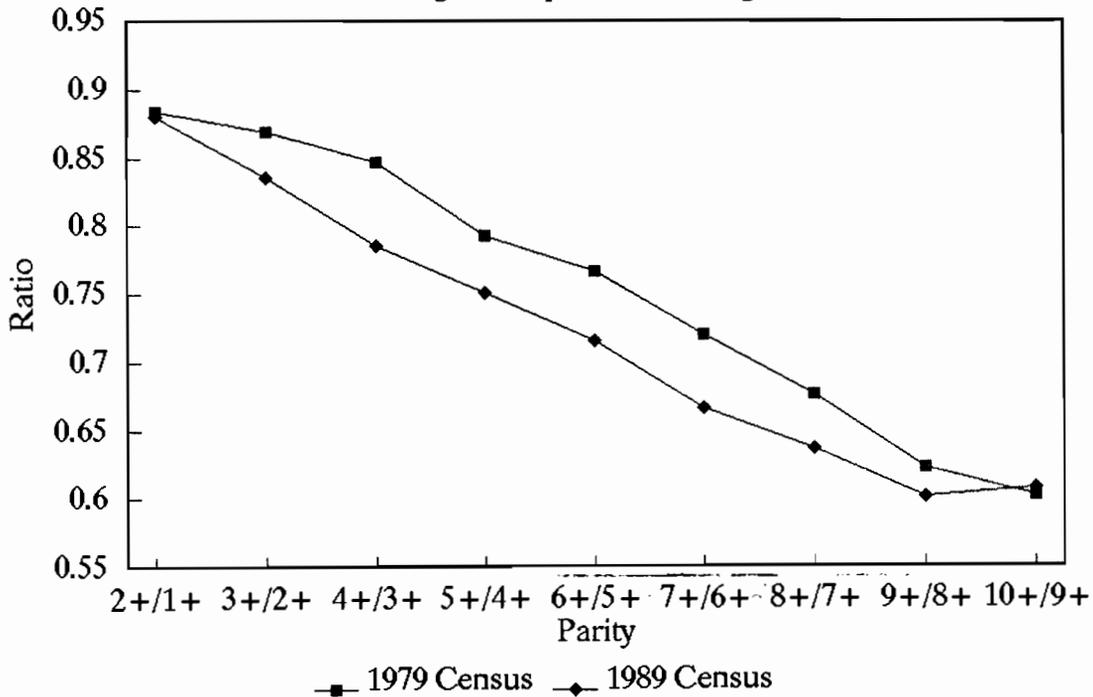
Incomplete PPR's by Marital Status

Age Group 30-34 - Single



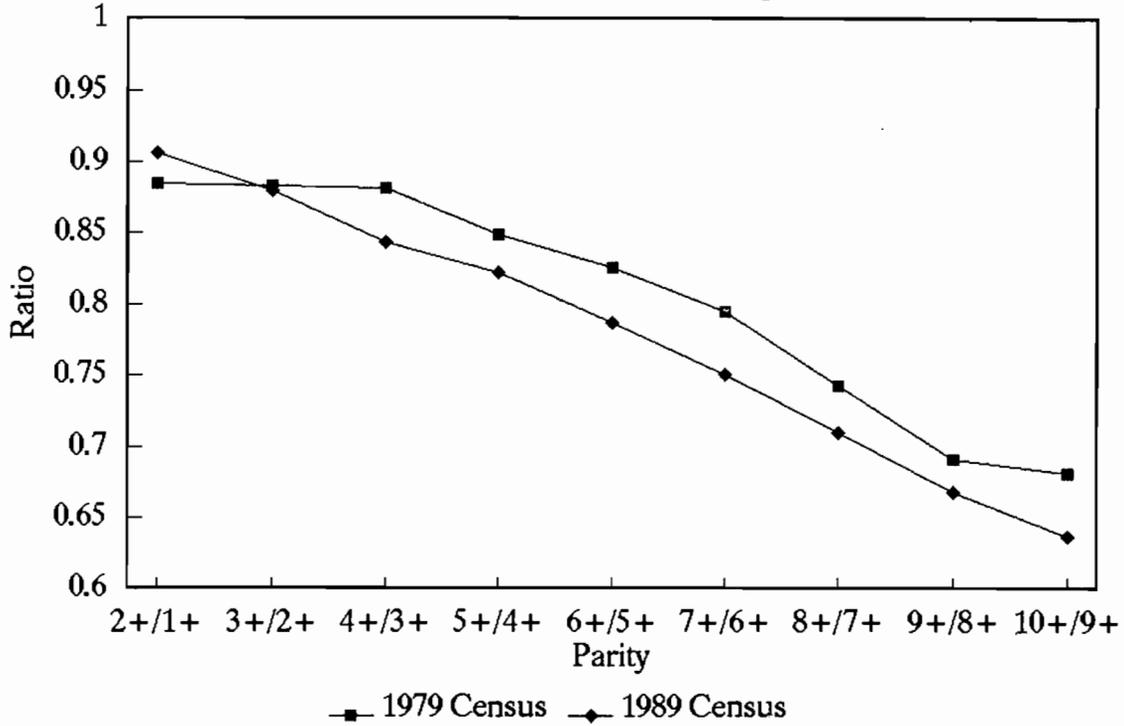
Incomplete PPR's by Marital Status

Age Group 35-39 - Single



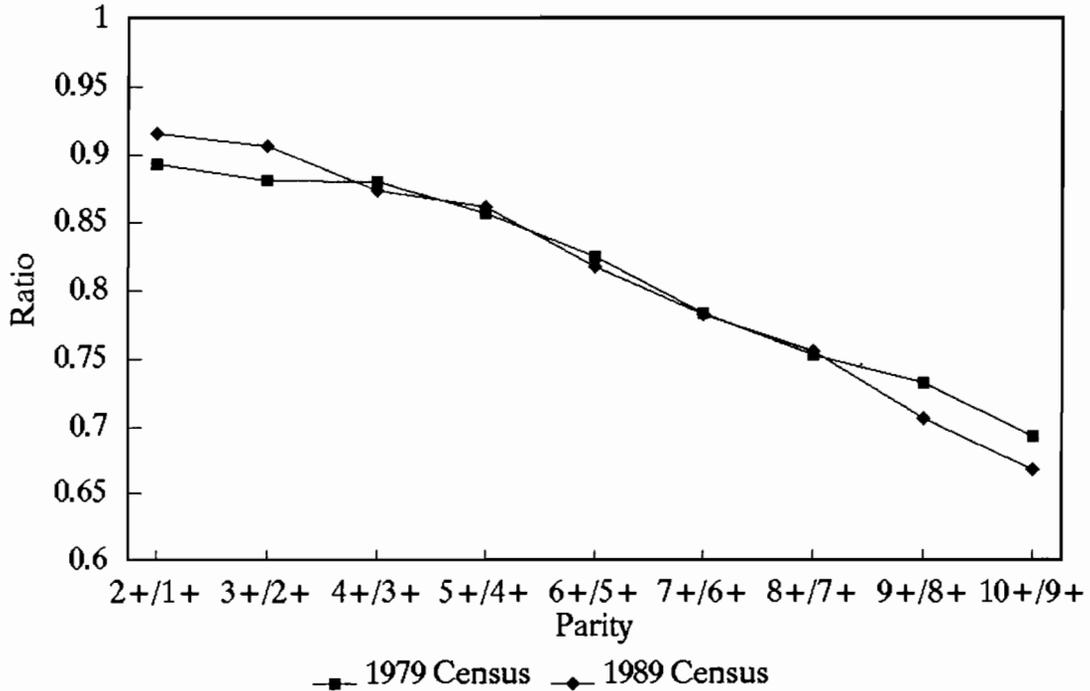
Incomplete PPR's by Marital Status

Age Group 40-44 - Single



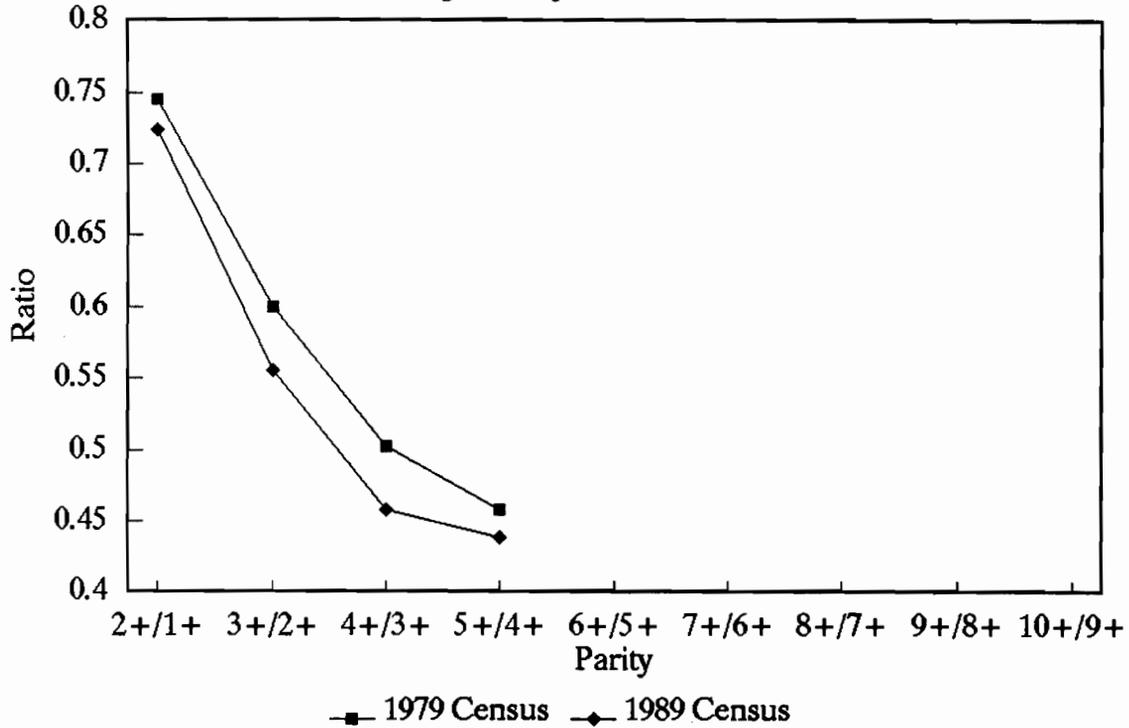
Incomplete PPR's by Marital Status

Age Group 45-49 - Single



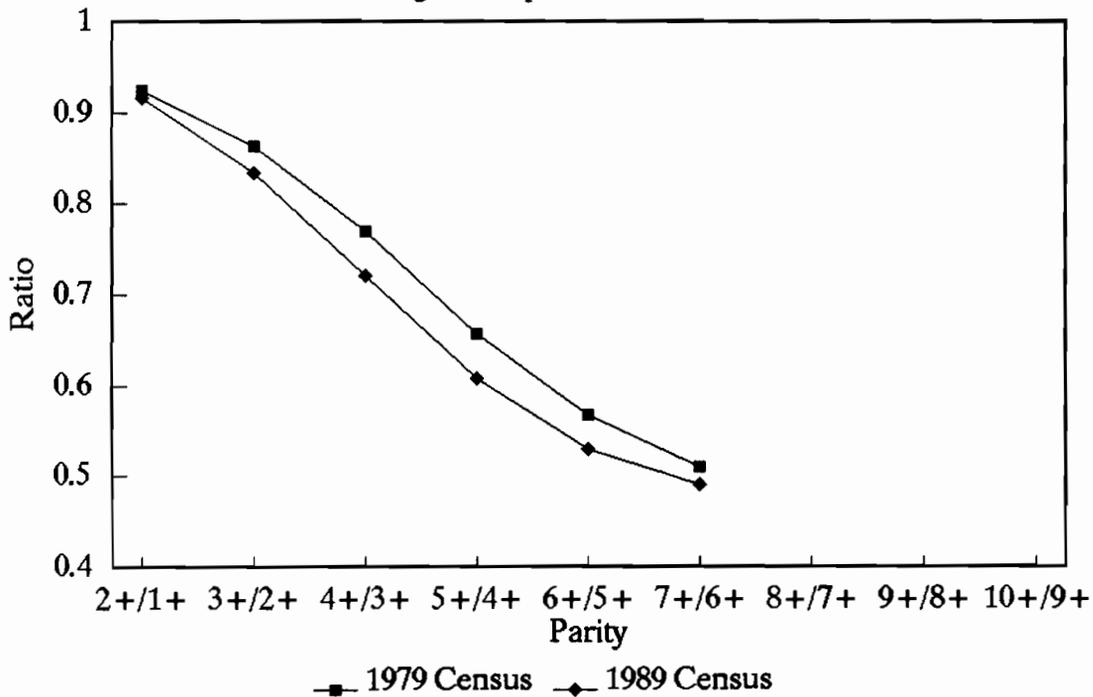
Incomplete PPR's by Marital Status

Age Group 20-24 - Married



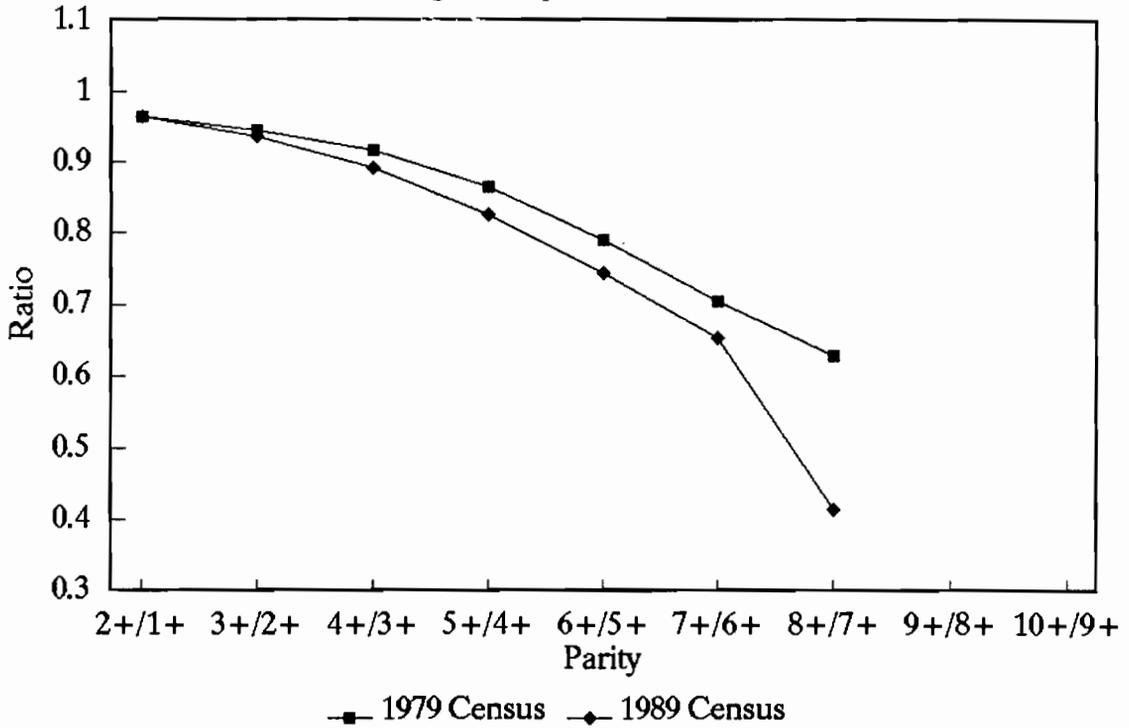
Incomplete PPR's by Marital Status

Age Group 25-29 - Married



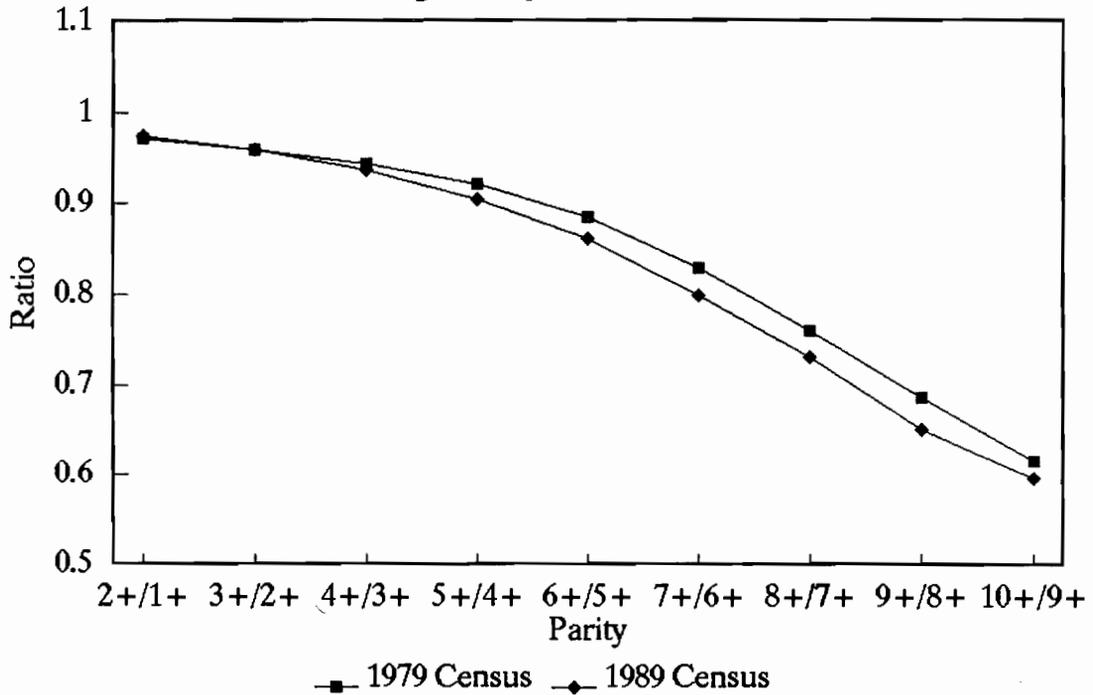
Incomplete PPR's by Marital Status

Age Group 30-34 - Married



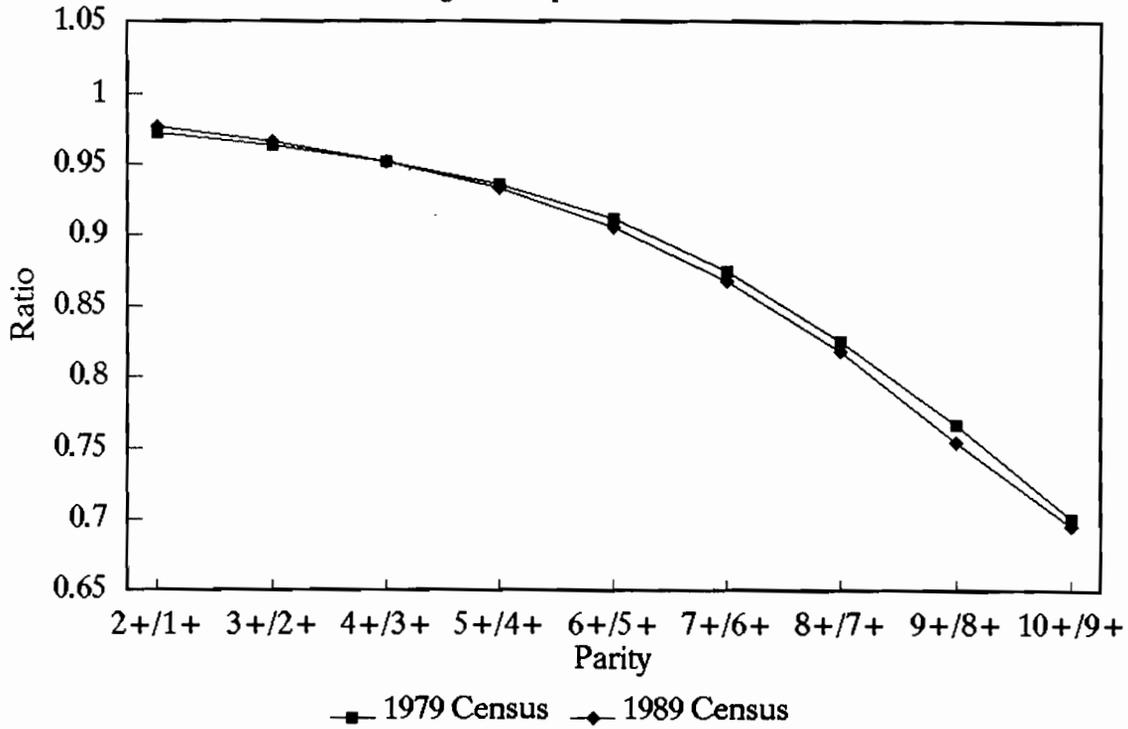
Incomplete PPR's by Marital Status

Age Group 35-39 - Married



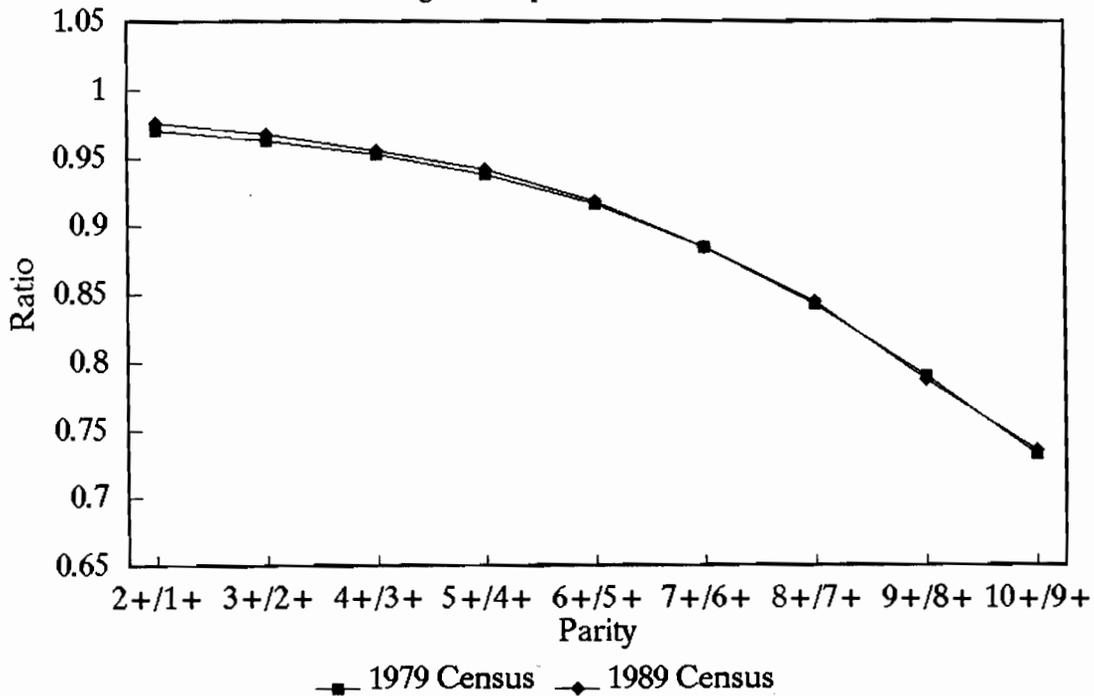
Incomplete PPR's by Marital Status

Age Group 40-44 - Married



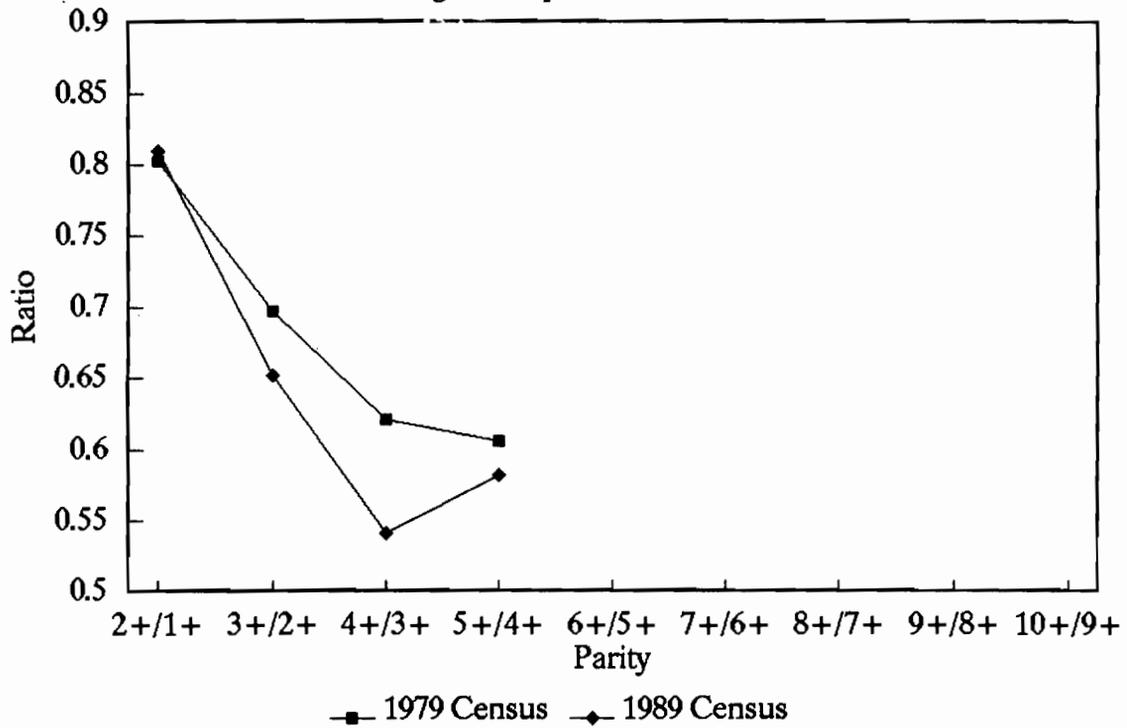
Incomplete PPR's by Marital Status

Age Group 45-49 - Married



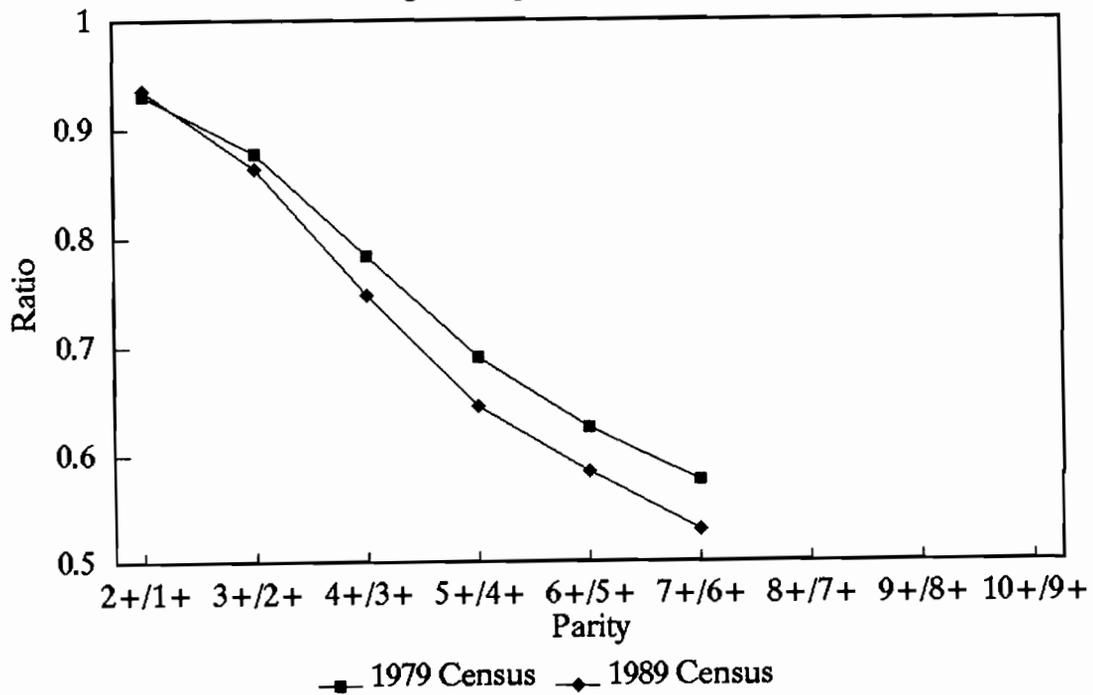
Incomplete PPR's by Marital Status

Age Group 20-24 - Widowed



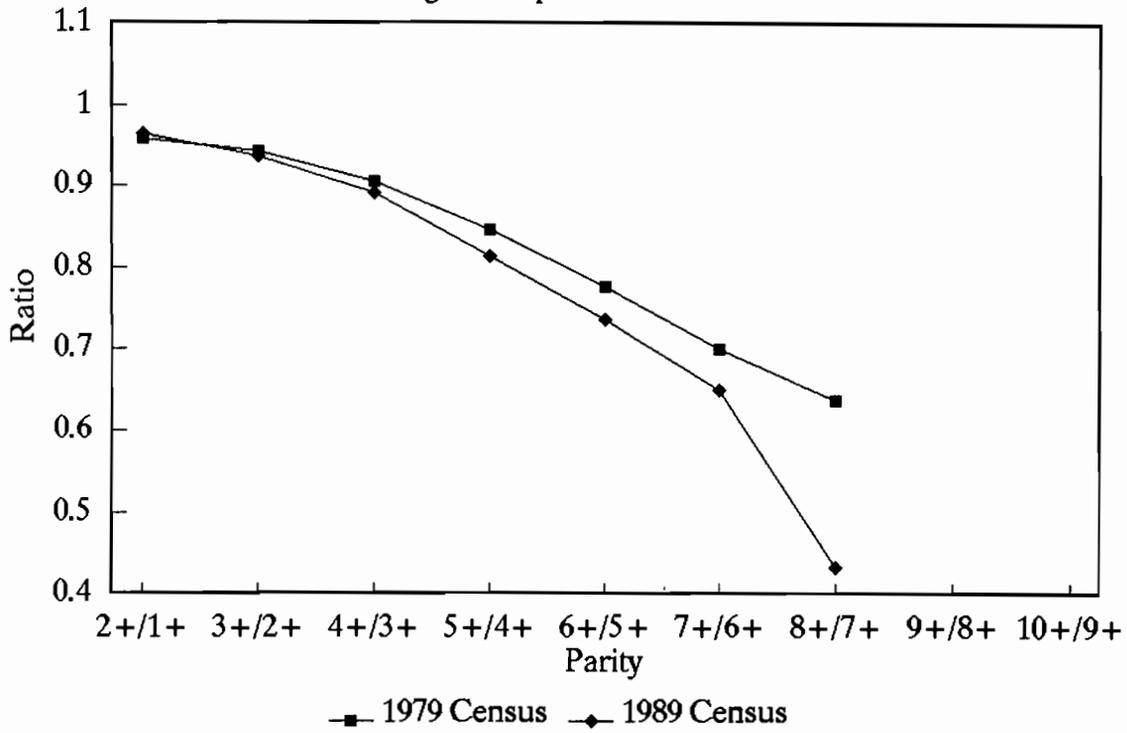
Incomplete PPR's by Marital Status

Age Group 25-29 - Widowed



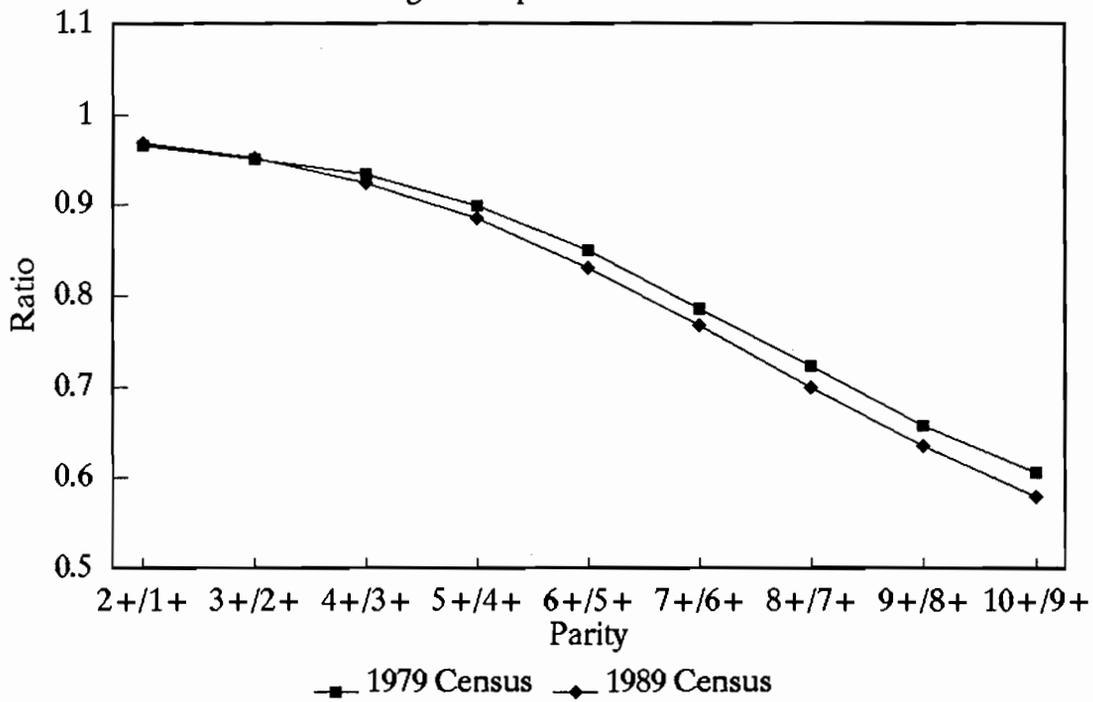
Incomplete PPR's by Marital Status

Age Group 30-34 - Widowed



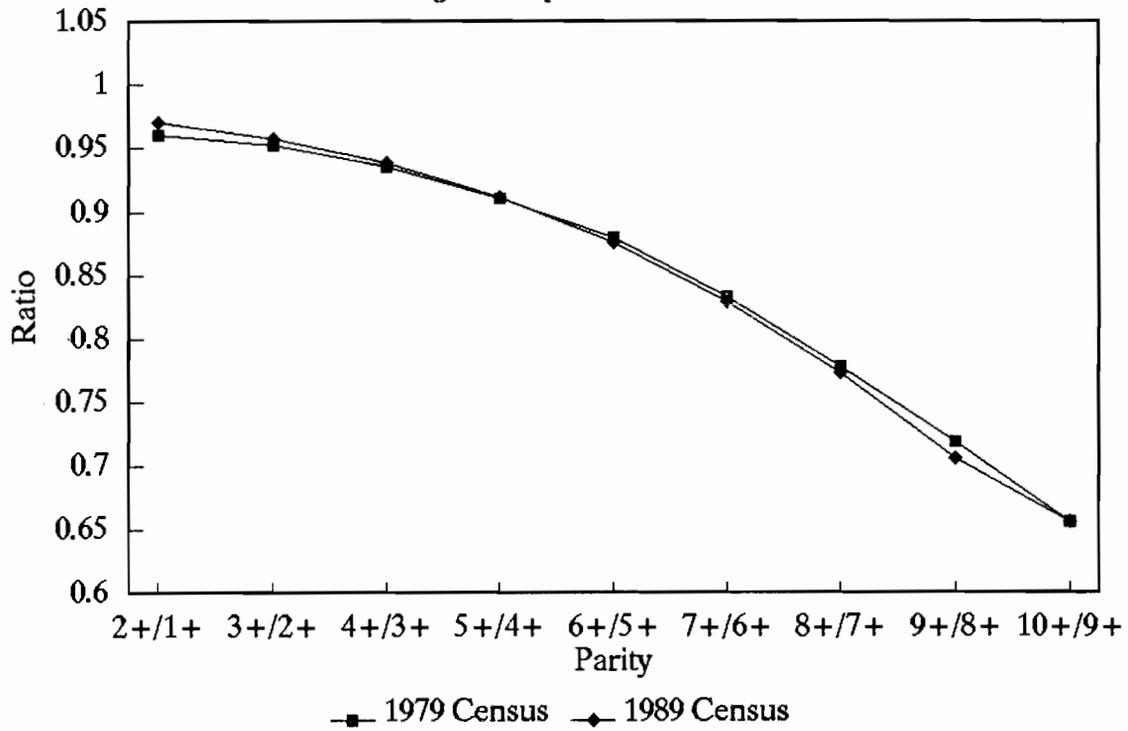
Incomplete PPR's by Marital Status

Age Group 35-39 - Widowed



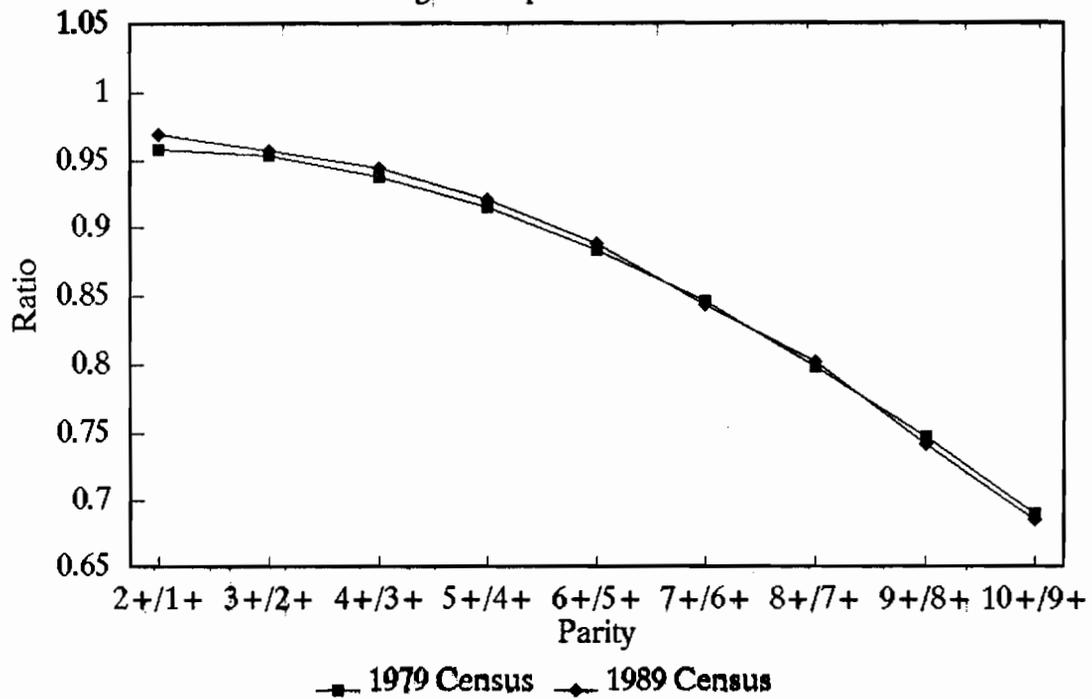
Incomplete PPR's by Marital Status

Age Group 40-44 - Widowed



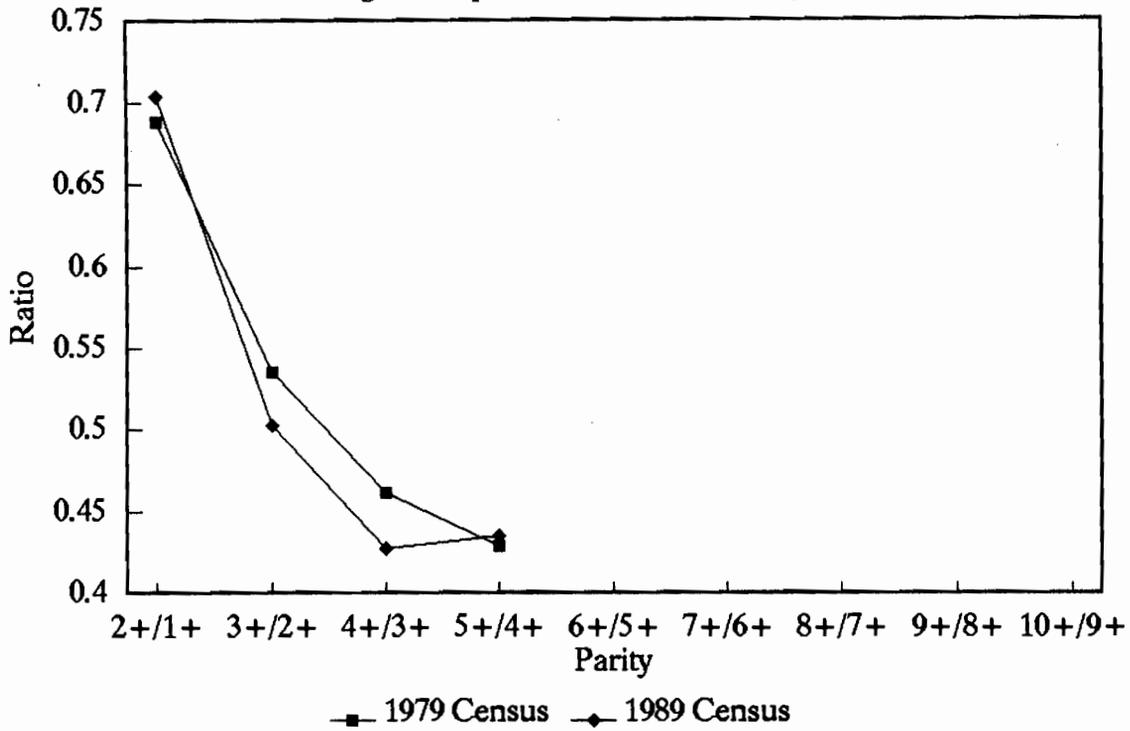
Incomplete PPR's by Marital Status

Age Group 45-49 - Widowed



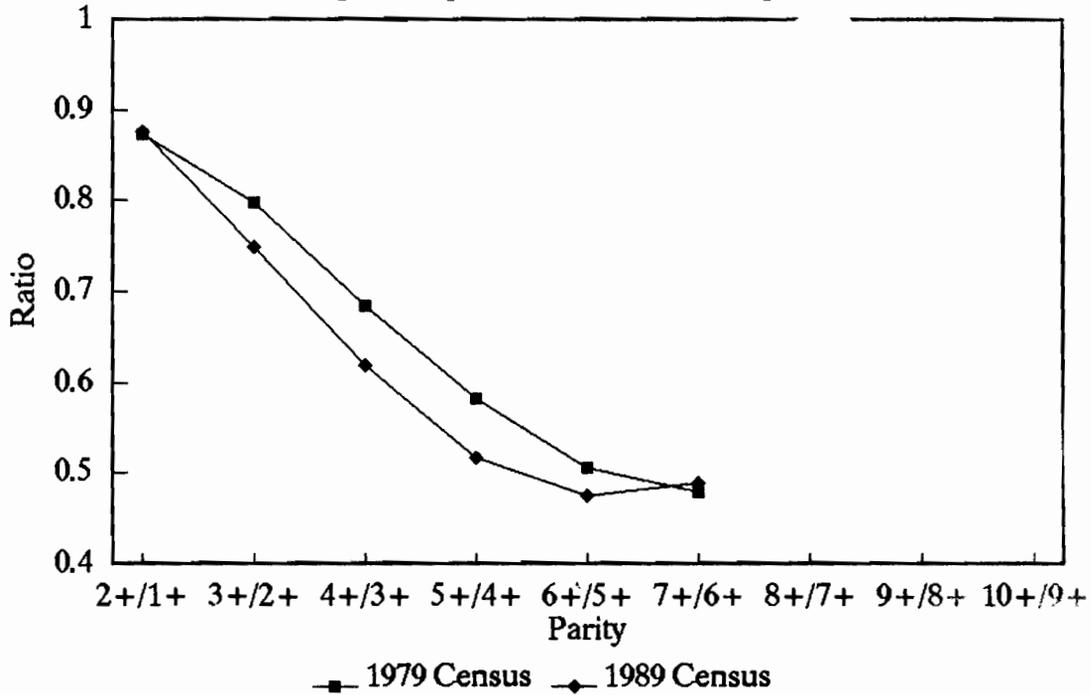
Incomplete PPR's by Marital Status

Age Group 20-24 - Divorced/Separated



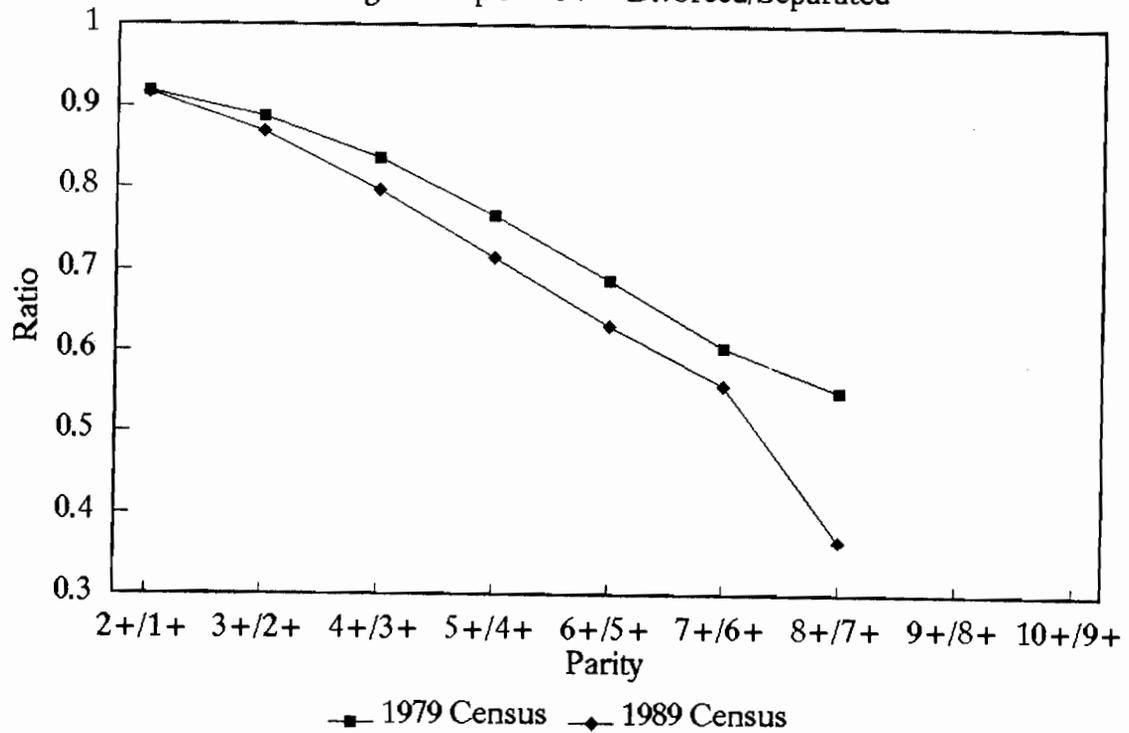
Incomplete PPR's by Marital Status

Age Group 25-29 - Divorced/Separated



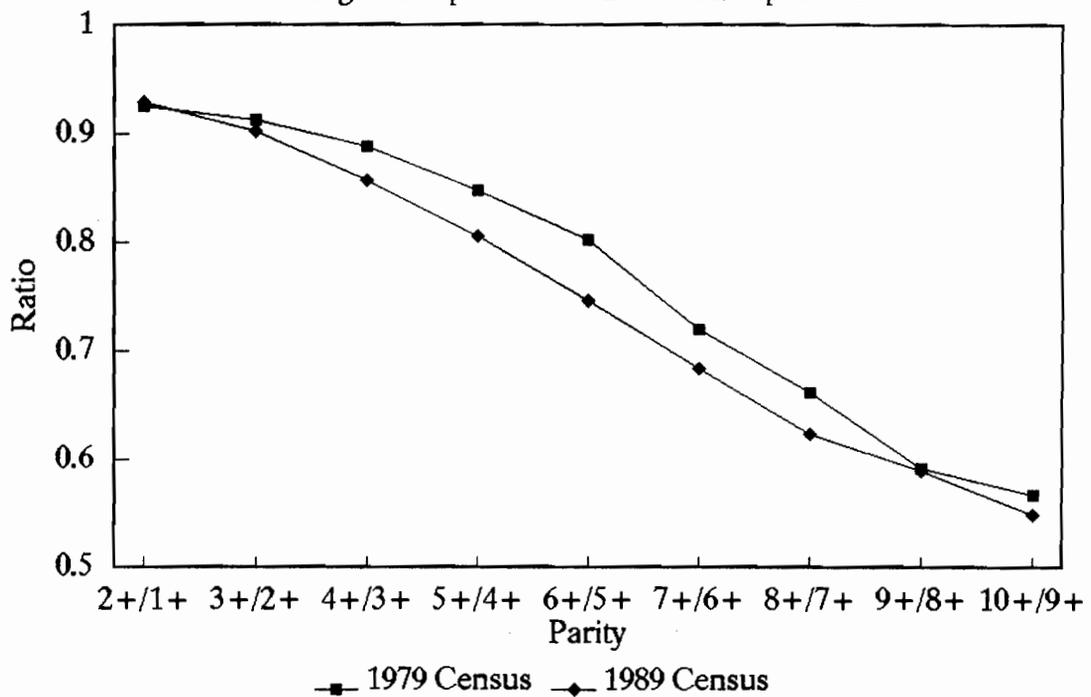
Incomplete PPR's by Marital Status

Age Group 30-34 - Divorced/Separated



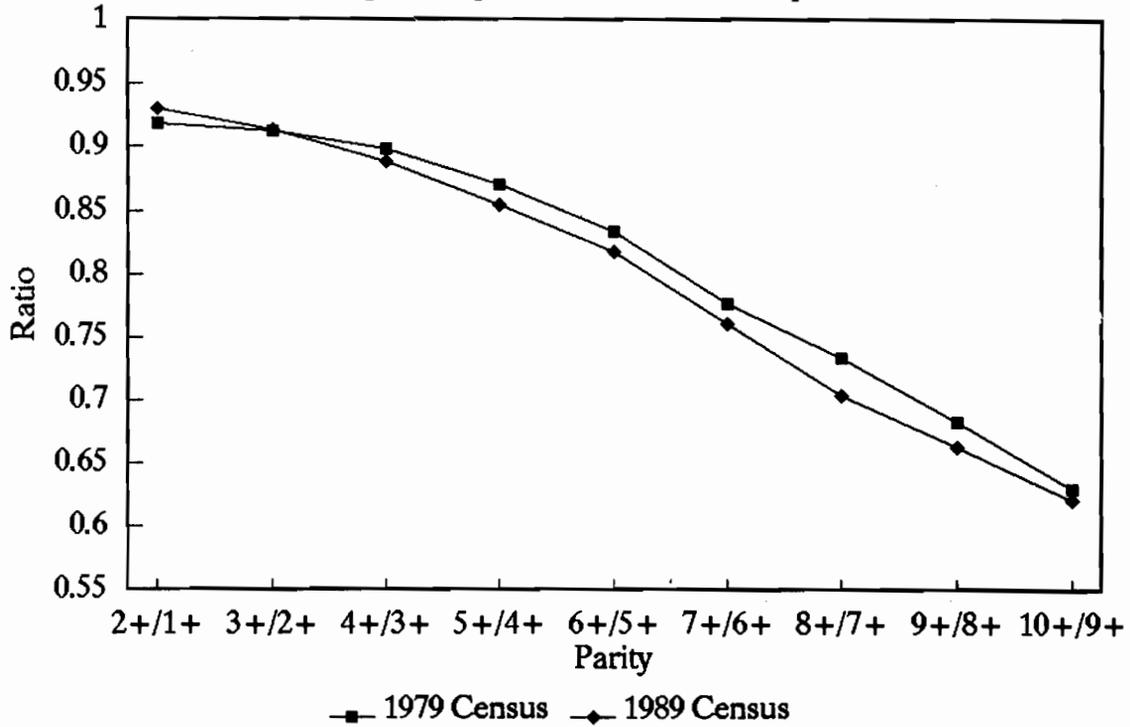
Incomplete PPR's by Marital Status

Age Group 35-39 - Divorced/Separated



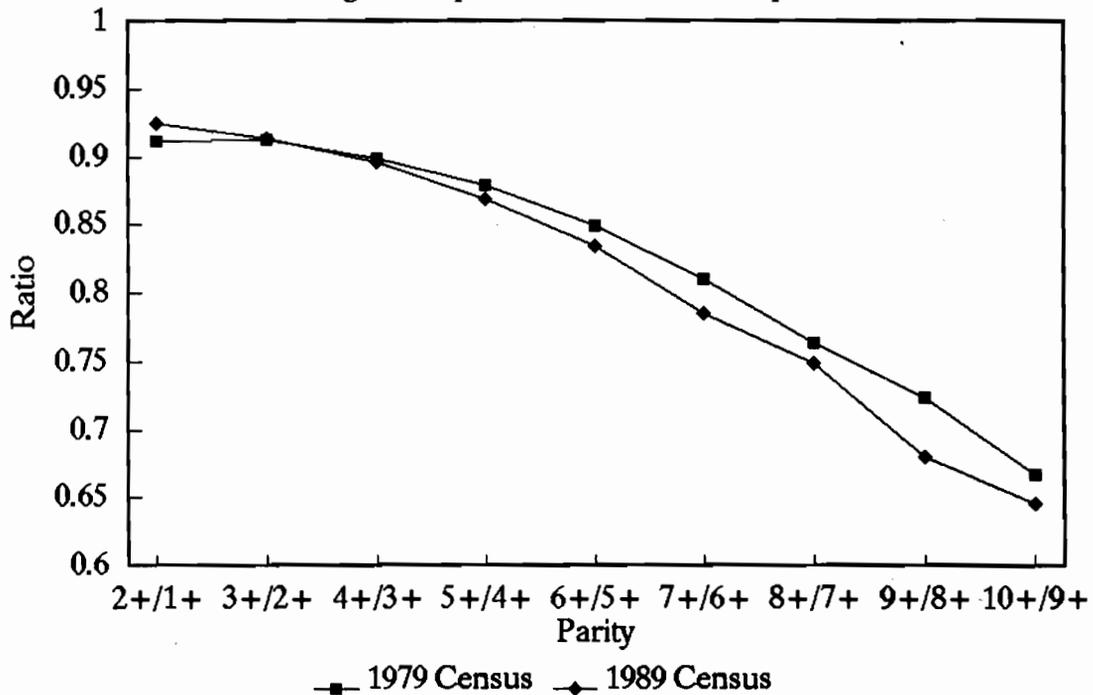
Incomplete PPR's by Marital Status

Age Group 40-44 - Divorced/Separated



Incomplete PPR's by Marital Status

Age Group 45-49 - Divorced/Separated



APPENDIX XIII:

Percent Single and Singulate Mean Age at First Marriage by Sex and District

Age Group	KENYA- RURAL		KENYA- URBAN		CENT- NAIROBI		KIRIN- yaga		Nyan- arua		Nyeri	COAST	Kilifi	Kwale	Lamu	Mombasa	T/Taveta	T/River
	KENYA	RURAL	KENYA	URBAN	RAL	NAIROBI	Kiambu	yaga	Muranga	arua								
MALE																		
15-19	97.9	98.0	97.4	97.6	98.6	98.4	98.5	98.8	98.4	99.1	96.9	96.3	96.0	97.9	96.9	98.8	98.1	
20-24	79.1	78.8	79.8	81.8	84.3	82.8	81.2	85.4	83.0	88.6	77.5	73.3	71.5	80.7	79.9	85.0	77.5	
25-29	38.3	37.1	40.7	42.7	42.9	42.2	40.8	42.8	37.5	49.0	41.5	38.6	37.9	42.4	43.3	50.4	36.5	
30-34	14.4	14.6	13.9	14.1	16.7	16.1	15.2	17.4	14.4	19.7	17.3	17.9	17.0	17.8	16.9	22.0	12.3	
35-39	8.6	9.0	7.7	7.3	10.2	9.2	10.2	10.9	7.8	12.4	10.3	10.8	10.7	10.1	9.4	14.5	6.2	
40-44	6.9	7.3	5.7	5.3	7.9	6.9	8.5	8.4	6.7	9.1	7.9	8.8	9.1	8.6	6.3	11.0	4.4	
45-49	6.1	6.4	5.3	4.7	7.2	6.5	7.8	7.5	6.1	8.4	6.4	6.7	7.3	7.6	5.3	8.3	3.7	
SMAM	26.0	25.9	26.2	26.5	26.6	26.5	26.2	26.7	26.2	27.4	26.2	25.8	25.5	25.5	26.6	27.4	26.0	
FEMALE																		
15-19	81.2	81.6	78.7	81.1	91.3	89.0	90.4	92.7	90.2	93.9	70.7	65.0	64.5	78.4	74.6	87.4	67.0	
20-24	35.3	32.8	43.9	49.6	47.9	48.6	45.4	45.2	42.6	54.6	30.4	23.1	22.4	30.1	39.0	47.7	18.8	
25-29	15.8	12.9	25.5	29.6	23.4	26.3	22.0	18.2	20.8	27.9	14.6	11.2	10.8	12.9	20.5	22.0	5.9	
30-34	9.0	7.1	17.4	20.8	14.7	18.2	12.4	10.2	14.3	17.1	8.5	6.6	6.0	6.2	12.8	14.4	3.4	
35-39	6.3	4.8	13.9	17.0	10.7	13.9	7.4	7.2	10.0	13.2	6.0	4.6	4.5	4.6	9.4	8.8	2.7	
40-44	5.1	4.1	11.6	14.6	8.9	11.8	5.5	6.0	8.4	11.2	4.9	3.5	4.7	4.2	7.6	6.6	2.1	
45-49	4.1	3.4	10.0	13.1	6.8	9.5	4.1	4.2	5.6	9.3	4.3	3.0	3.9	6.3	7.0	5.2	2.6	
SMAM	21.6	21.3	22.1	22.5	23.1	23.1	23.1	22.8	22.8	23.7	20.6	19.9	19.6	20.5	21.5	23.1	19.4	

Percent Single and Singulate Mean Age at First Marriage by Sex and District

Age Group	Macha-														
	EAST-ERN	Embu	Isiolo	Kitui	Kitui kos	Marsabit Meru	N-EAST	Garissa	Mandera	Wajir	NYANZA	Kisii	Kisumu	Siaya	S/Nyanza
	MALE														
15-19	98.7	99.0	97.5	98.5	98.9	98.4	98.4	97.9	97.9	97.6	97.3	97.3	97.7	98.1	96.3
20-24	83.5	84.2	82.1	81.1	85.9	87.2	81.1	78.0	80.5	77.3	76.3	72.9	75.6	77.7	69.3
25-29	42.7	40.6	46.9	39.2	45.2	55.7	40.5	40.1	42.8	37.2	40.2	30.4	33.4	37.2	26.9
30-34	16.6	14.8	17.7	16.1	16.8	28.0	15.5	16.2	16.6	16.0	15.9	11.0	11.7	16.4	9.4
35-39	9.8	7.2	9.7	12.2	11.1	12.4	8.2	7.6	6.8	8.5	7.8	6.4	6.6	10.0	5.6
40-44	8.0	5.7	7.0	10.3	9.1	9.1	6.5	5.9	5.7	6.1	5.9	5.6	5.9	8.3	4.8
45-49	7.0	4.8	5.5	9.3	8.9	4.8	5.1	3.7	3.4	3.8	3.9	5.0	5.1	6.9	4.2
SMAM	26.6	26.6	26.9	26.0	26.7	28.4	26.4	26.4	26.7	26.2	26.3	25.1	25.5	25.9	24.7
	FEMALE														
15-19	89.5	92.4	71.0	87.6	92.7	69.8	88.3	69.5	73.6	66.1	68.8	74.5	72.7	78.3	60.3
20-24	41.0	48.1	26.3	35.2	42.8	19.4	42.9	17.6	21.1	15.4	16.3	23.6	22.6	23.2	12.6
25-29	16.5	20.1	11.7	13.8	17.1	8.0	17.2	5.7	7.4	4.5	5.0	8.0	8.1	7.2	4.0
30-34	8.7	10.3	5.8	7.2	9.7	3.4	8.6	2.8	3.7	2.6	2.1	4.0	4.6	3.5	2.3
35-39	5.8	6.2	4.9	5.4	6.2	3.6	5.5	1.5	2.1	1.4	1.1	2.0	2.4	1.6	1.3
40-44	4.3	4.7	3.3	3.8	4.7	3.2	4.1	1.8	2.1	1.7	1.7	2.0	2.2	1.9	1.3
45-49	3.4	3.4	3.8	3.6	3.6	2.9	3.2	1.6	1.9	1.5	1.3	1.5	1.7	1.3	1.0
SMAM	22.4	23.2	20.3	21.8	22.7	19.6	22.5	19.5	20.0	19.2	19.4	20.3	20.1	20.4	18.8

Percent Single and Singulate Mean Age at First Marriage by Sex and District

Age Group	R- VALLEY		Mara- kwet		kajiado	Kericho	Laikipia	Nakuru	Nandi	Narok	Sambur T/Nzoia	Turkana	U/Gishu	West- Pokot	WEST- ERN	Kaka- mega	Bungo- ma	Busia	
	97.8	98.6	98.0	95.9	97.9	97.9	98.7	98.1	98.7	95.5	98.8	97.9	98.0	98.3	97.2	98.0	98.1	98.1	97.1
20-24	77.8	82.3	74.5	77.8	75.6	84.0	79.8	81.5	81.5	69.1	89.3	75.2	82.1	79.6	68.8	74.2	75.8	74.6	67.8
25-29	36.4	39.2	32.9	43.2	33.0	42.4	36.2	37.5	37.5	30.0	59.6	31.9	52.3	36.7	29.4	29.5	32.4	26.9	24.9
30-34	13.8	15.0	14.6	17.3	10.1	14.8	12.7	13.9	13.9	12.9	28.3	12.5	28.1	12.8	14.2	11.2	13.3	8.1	10.0
35-39	8.6	10.4	10.2	11.1	5.6	10.6	7.6	8.3	8.3	8.7	13.2	8.0	17.1	8.2	9.3	7.4	8.6	5.2	7.3
40-44	6.8	8.0	10.0	9.3	4.0	7.6	6.1	7.4	7.4	7.0	5.5	6.7	11.5	6.9	7.6	6.5	7.3	5.0	6.6
45-49	6.3	7.7	9.5	8.3	3.5	7.5	5.7	7.6	7.6	7.3	4.8	6.1	7.5	6.4	6.2	5.7	6.5	4.1	5.7
SMAM	25.8	26.2	25.1	26.1	25.6	26.5	25.9	25.9	25.9	24.7	28.9	25.3	27.8	25.9	24.9	25.1	25.4	25.0	24.4
MALE																			
15-19	77.4	84.3	84.7	60.7	74.5	85.6	82.6	84.5	84.5	55.8	71.6	79.2	83.8	84.1	67.7	80.7	83.3	79.5	73.6
20-24	32.1	34.0	32.1	26.3	31.0	40.5	38.8	35.0	35.0	16.5	26.4	30.5	35.0	38.2	17.9	27.9	31.0	25.5	21.8
25-29	14.9	11.4	13.1	15.6	14.8	20.0	20.7	14.7	14.7	8.2	10.2	11.9	14.7	17.9	6.4	9.5	10.9	8.1	7.2
30-34	9.1	6.3	7.5	10.5	8.7	13.1	13.8	9.3	9.3	5.5	5.4	6.4	7.9	10.9	3.6	4.8	5.6	3.8	3.6
35-39	6.3	3.3	4.6	8.3	5.0	9.8	10.8	6.5	6.5	4.4	3.4	4.3	5.5	7.2	1.8	3.1	3.8	2.2	2.3
40-44	5.2	3.0	4.1	7.1	3.6	8.5	8.7	4.6	4.6	4.2	3.3	3.8	4.8	6.2	2.4	2.8	3.3	2.3	2.1
45-49	4.4	2.0	4.2	6.0	2.3	7.4	7.1	4.1	4.1	4.3	4.8	2.9	4.7	5.3	2.5	2.1	2.6	1.6	1.5
SMAM	21.1	21.5	21.3	19.8	21.2	22.1	21.9	21.7	21.7	18.6	20.0	21.0	21.5	21.9	19.4	20.8	21.2	20.6	20.1

Note: SMAM = Singulate Mean age at first Marriage (years)

APPENDIX XIV: Percent Single and Singulate Mean Age at First Marriage for Females by District

Age Group	1989 Census										Mom-basa						
	KENYA	KENYA- RURAL	KENYA- URBAN	NAIROBI	RAI	Kiambu	Kirin- yaga	Muranga arua	Nyand- arua	Nyeri	COAST	Kilifi	Kwale	Lamu	T/Taveta	T/River	
15-19	81.2	81.6	78.7	81.1	91.3	89.0	90.4	92.7	90.2	93.9	70.7	65.0	64.5	78.4	74.6	87.4	67.0
20-24	35.3	32.8	43.9	49.6	47.9	48.6	45.4	45.2	42.6	54.6	30.4	23.1	22.4	30.1	39.0	47.7	18.8
25-29	15.8	12.9	25.5	29.6	23.4	26.3	22.0	18.2	20.8	27.9	14.6	11.2	10.8	12.9	20.5	22.0	5.9
30-34	9.0	7.1	17.4	20.8	14.7	18.2	12.4	10.2	14.3	17.1	8.5	6.6	6.0	6.2	12.8	14.4	3.4
35-39	6.3	4.8	13.9	17.0	10.7	13.9	7.4	7.2	10.0	13.2	6.0	4.6	4.5	4.6	9.4	8.8	2.7
40-44	5.1	4.1	11.6	14.6	8.9	11.8	5.5	6.0	8.4	11.2	4.9	3.5	4.7	4.2	7.6	6.6	2.1
45-49	4.1	3.4	10.0	13.1	6.8	9.5	4.1	4.2	5.6	9.3	4.3	3.0	3.9	6.3	7.0	5.2	2.6
SMAM	21.6	21.3	22.1	22.5	23.1	23.1	23.1	22.8	22.8	23.7	20.6	19.9	19.6	20.5	21.5	23.1	19.4
1979 Census																	
15-19	-	-	-	73.4	85.2	85.2	84.0	84.9	82.4	89.4	55.7	40.8	51.1	67.8	63.3	81.1	61.5
20-24	-	-	-	40.4	34.8	27.9	31.2	31.1	27.6	40.7	18.0	10.2	12.3	19.0	27.8	35.3	11.7
25-29	-	-	-	21.9	13.2	15.8	10.0	9.8	10.7	17.1	7.8	4.6	4.8	6.3	13.0	14.5	3.6
30-34	-	-	-	14.8	7.7	9.2	5.2	5.5	6.4	10.8	4.2	2.4	2.9	3.3	7.7	7.2	2.1
35-39	-	-	-	11.2	5.4	6.9	3.8	3.4	4.4	7.4	3.1	2.0	2.2	2.3	5.7	5.0	1.5
40-44	-	-	-	11.0	4.2	5.7	3.1	2.8	3.2	5.6	2.7	1.6	1.9	2.9	5.2	3.9	1.3
45-49	-	-	-	8.0	3.7	5.0	2.4	2.5	3.0	4.7	2.4	1.6	1.6	1.9	4.6	2.5	1.2
SMAM	21.4	21.6	21.3	21.2	21.2	21.2	21.0	22.4	18.9	17.6	18.3	19.5	19.9	21.6	18.7	18.7	18.7

Percent Single and Singulate Mean Age at First Marriage for Females by District

Age Group	Macha-kos															
	EAST-ERN	Embu	Isiolo	Kitui	Marsabit	Meru	N-EAST	Garissa	Mandera	Wajir	NYANZA	Kisii	Kisumu	Siaya	S/Nyanza	
1989 Census																
15-19	89.5	92.4	71.0	87.6	92.7	69.8	88.3	69.5	73.6	66.1	68.8	74.5	85.4	72.7	78.3	60.3
20-24	41.0	48.1	26.3	35.2	42.8	19.4	42.9	17.6	21.1	15.4	16.3	23.6	34.6	22.6	23.2	12.6
25-29	16.5	20.1	11.7	13.8	17.1	8.0	17.2	5.7	7.4	4.5	5.0	8.0	11.9	8.1	7.2	4.0
30-34	8.7	10.3	5.8	7.2	9.7	3.4	8.6	2.8	3.7	2.6	2.1	4.0	5.7	4.6	3.5	2.3
35-39	5.8	6.2	4.9	5.4	6.2	3.6	5.5	1.5	2.1	1.4	1.1	2.0	2.7	2.4	1.6	1.3
40-44	4.3	4.7	3.3	3.8	4.7	3.2	4.1	1.8	2.1	1.7	1.7	2.0	2.8	2.2	1.9	1.3
45-49	3.4	3.4	3.8	3.6	3.6	2.9	3.2	1.6	1.9	1.5	1.3	1.5	2.2	1.7	1.3	1.0
SMAM	22.4	23.2	20.3	21.8	22.7	19.6	22.5	19.5	20.0	19.2	19.4	20.3	21.6	20.1	20.4	18.8
1979 Census																
15-19	80.6	85.8	61.0	72.9	85.1	66.8	85.4	67.5	67.8	68.3	67.2	63.6	72.6	57.3	67.1	53.6
20-24	29.8	34.6	16.5	20.3	31.9	16.6	32.8	16.1	16.4	15.4	16.5	17.8	24.1	16.0	14.6	13.9
25-29	9.5	10.8	8.4	6.4	10.0	4.5	10.9	4.1	4.6	3.7	3.9	5.3	6.5	5.0	4.2	4.9
30-34	4.2	5.3	4.4	3.0	4.3	2.0	4.7	1.9	1.9	2.0	1.8	2.5	2.7	2.7	1.9	1.6
35-39	2.6	3.5	2.0	2.1	2.6	1.2	3.0	1.5	1.1	1.5	1.9	1.7	1.6	0.9	1.3	1.2
40-44	2.1	2.5	3.7	1.9	2.0	1.5	2.4	1.1	1.3	0.9	1.0	1.3	1.1	1.5	1.2	0.9
45-49	1.9	2.5	1.8	1.8	1.6	0.7	2.3	1.4	1.8	1.4	1.1	1.0	0.8	1.4	1.0	0.9
SMAM	21.0	21.5	19.1	19.9	21.4	19.3	21.4	19.3	19.3	19.3	19.4	19.3	20.2	18.8	19.2	18.6

Percent Single and Singulate Mean Age at First Marriage for Females by District

Age Group	1989 Census															1979 Census														
	R- VALLEY	Baringo	Mara- kwet	kajiado	Kericho	Laikipia	Nakuru	Nandi	Narok	Sambur	T/Nzoia	Turkana	U/Gishu	West- Pokot	WEST- ERN	Kaka- mega	Bungo- ma	Busia												
15-19	77.4	84.3	84.7	60.7	74.5	85.6	82.6	84.5	55.8	71.6	79.2	83.8	84.1	67.7	80.7	83.3	79.5	73.6												
20-24	32.1	34.0	32.1	26.3	31.0	40.5	38.8	35.0	16.5	26.4	30.5	35.0	38.2	17.9	27.9	31.0	25.5	21.8												
25-29	14.9	11.4	13.1	15.6	14.8	20.0	20.7	14.7	8.2	10.2	11.9	14.7	17.9	6.4	9.5	10.9	8.1	7.2												
30-34	9.1	6.3	7.5	10.5	8.7	13.1	13.8	9.3	5.5	5.4	6.4	7.9	10.9	3.6	4.8	5.6	3.8	3.6												
35-39	6.3	3.3	4.6	8.3	5.0	9.8	10.8	6.5	4.4	3.4	4.3	5.5	7.2	1.8	3.1	3.8	2.2	2.3												
40-44	5.2	3.0	4.1	7.1	3.6	8.5	8.7	4.6	4.2	3.3	3.8	4.8	6.2	2.4	2.8	3.3	2.3	2.1												
45-49	4.4	2.0	4.2	6.0	2.3	7.4	7.1	4.1	4.3	4.8	2.9	4.7	5.3	2.5	2.1	2.6	1.6	1.5												
SMAM	21.1	21.5	21.3	19.8	21.2	22.1	21.9	21.7	18.6	20.0	21.0	21.5	21.9	19.4	20.8	21.2	20.6	20.1												
1979 Census																														
15-19	66.1	70.5	75.3	81.2	62.4	72.6	72.9	66.5	43.7	60.8	65.8	78.9	70.4	62.0	70.8	73.7	69.3	63.0												
20-24	20.7	18.6	19.1	17.9	19.4	24.7	27.3	17.3	12.3	18.7	17.1	36.5	22.0	14.4	19.5	22.8	17.0	12.8												
25-29	8.3	6.0	5.6	5.3	7.0	15.2	12.7	6.1	6.2	7.5	6.0	14.5	8.5	5.2	6.2	7.8	5.0	3.5												
30-34	4.6	3.3	3.0	2.7	3.3	7.3	7.7	3.1	4.3	4.2	3.2	6.2	5.1	3.0	3.2	3.9	2.7	1.8												
35-39	3.3	2.1	3.0	3.1	2.4	5.5	4.9	2.4	3.3	3.2	2.3	4.6	3.4	2.2	2.2	2.5	1.7	2.2												
40-44	2.7	1.9	1.9	2.1	1.7	4.7	4.0	2.2	3.7	2.3	1.9	3.7	3.1	2.2	1.7	2.1	1.5	1.1												
45-49	2.3	1.8	2.2	3.0	1.3	4.1	3.6	1.6	3.0	2.3	2.0	2.4	2.8	1.9	1.4	1.6	1.3	1.0												
SMAM	19.7	19.7	19.9	20.0	19.4	20.4	20.6	19.4	17.8	19.2	19.3	21.5	19.9	18.9	19.8	20.2	19.5	19.0												

Note: SMAM = Singulate Mean age at first Marriage (years)

APPENDIX XV:

Percent Childless and Mean Age at First Birth by District

Age Group	KENYA- KENYA-		CENT-		Kirin-		Nyand-		COAST	Kilifi	Kwale	Lamu	Mom-				
	KENYA	RURAL	URBAN	NAIROBI	RAL	Kiambu	yaga	Muranga					arua	Nyeri	bas	T/Taveta	T/River
1989 Census																	
15-19	75.4	75.4	75.4	78.4	83.5	82.0	82.9	84.6	82.5	85.1	71.4	69.5	63.2	74.5	75.1	80.9	73.4
20-24	23.1	20.5	32.0	37.4	27.3	28.3	27.0	26.7	22.0	29.6	24.6	20.7	16.7	22.3	33.1	29.1	20.7
25-29	7.4	5.9	12.7	15.3	7.4	8.8	7.1	6.2	5.8	7.9	9.8	8.2	6.5	8.1	15.1	8.3	6.4
30-34	4.3	3.6	7.3	8.7	3.6	4.4	3.4	3.2	2.7	3.6	6.1	5.5	4.6	4.9	9.5	4.7	3.5
35-39	3.4	3.0	5.8	6.3	2.7	3.0	3.0	2.5	1.9	2.6	5.1	4.8	4.0	4.7	8.2	2.6	3.4
40-44	3.3	3.0	5.7	5.5	2.7	3.1	2.3	2.8	2.1	2.9	5.7	5.7	4.1	4.5	9.5	3.1	4.0
45-49	3.4	3.1	6.4	6.7	2.9	3.1	3.0	3.0	2.1	2.8	6.4	6.6	5.3	5.1	10.0	3.3	4.3
MAB	20.0	19.8	20.5	21.1	20.7	20.7	20.6	20.6	20.3	20.9	19.6	19.1	18.7	19.7	20.1	20.7	19.5
1979 Census																	
15-19	75.4	76.4	75.7	82.8	83.1	83.0	81.5	81.7	84.4	72.5	68.0	68.7	78.3	74.4	81.7	78.8	
20-24	23.1	20.4	30.8	23.3	25.5	23.2	20.3	19.6	25.0	23.2	17.2	19.7	27.6	31.9	26.5	22.3	
25-29	7.4	6.7	12.5	5.7	6.8	4.8	4.8	5.3	5.9	10.3	8.3	8.3	12.4	15.3	8.7	7.6	
30-34	4.3	4.3	8.3	3.5	4.1	3.3	3.4	3.0	3.5	7.6	6.6	6.9	8.8	11.7	4.7	4.1	
35-39	3.4	3.8	7.2	3.2	4.0	2.7	3.0	2.7	3.1	7.4	7.5	6.5	6.6	10.6	4.8	4.6	
40-44	3.3	4.0	7.9	3.3	3.6	3.2	3.1	2.8	3.6	6.0	8.9	7.1	11.2	12.4	4.0	5.0	
45-49	3.4	4.2	8.2	3.3	3.7	2.8	3.2	2.5	3.7	8.5	8.9	7.5	10.1	12.2	4.3	6.5	
MAB	20.0	19.7	20.1	20.3	20.5	20.3	20.0	20.1	20.4	19.5	18.5	19.0	19.5	19.7	20.5	19.7	

Percent Childless and Mean Age at First Birth by District

Age Group	Macha-															
	EAST-ERN	Embu	Isiolo	Kitui	Macha-kos	Marsabit Meru	N-EAST	Garissa	Mandera Wajir	NYANZA KISII	Kisumu	Siaya	S/Nyanza			
1989 Census																
15-19	82.2	84.9	76.6	81.6	85.5	81.8	78.1	83.6	85.1	81.6	84.3	65.4	74.9	61.6	68.9	53.8
20-24	23.2	26.4	23.0	21.1	23.9	26.4	22.5	27.2	29.6	25.6	26.5	16.3	20.7	16.0	16.1	12.1
25-29	5.7	6.1	7.6	5.1	5.5	7.9	5.8	7.9	9.0	7.1	7.7	6.5	5.6	7.1	7.8	6.5
30-34	3.0	2.8	3.6	3.5	3.0	3.4	2.8	3.9	4.3	3.7	3.6	5.1	2.7	6.0	6.8	5.8
35-39	2.4	2.2	3.4	3.0	2.2	3.1	2.3	2.5	2.4	2.6	2.6	4.6	1.8	5.8	6.4	5.4
40-44	2.5	1.7	3.1	3.6	2.4	3.2	2.1	2.7	3.1	2.0	2.8	4.3	1.7	4.9	6.1	4.8
45-49	2.8	1.8	3.4	4.3	2.6	3.7	2.1	2.4	2.7	2.0	2.5	4.0	1.5	4.8	5.5	4.5
MAB	20.3	20.8	20.1	19.9	20.5	20.5	20.2	20.8	21.0	20.7	20.7	19.0	20.0	18.8	19.1	18.2
1979 Census																
15-19	81.0	85.8	80.4	78.3	83.8	85.2	77.1	87.7	85.6	88.7	88.7	69.9	74.0	66.0	69.9	67.1
20-24	22.5	27.2	23.4	18.3	22.3	30.3	22.7	31.5	27.1	34.0	33.2	20.4	20.0	20.4	19.9	20.9
25-29	6.1	5.7	9.1	5.4	5.6	11.5	6.5	8.4	7.9	8.9	8.5	9.2	4.6	10.6	11.3	11.2
30-34	3.8	2.8	5.2	4.3	3.5	6.5	3.6	3.6	3.3	3.8	3.7	6.4	2.3	7.7	8.8	7.5
35-39	3.4	2.6	4.1	4.7	3.1	4.7	3.0	2.1	2.0	1.8	2.3	5.4	1.6	6.8	7.7	6.1
40-44	3.8	2.5	4.5	5.9	3.5	3.7	3.2	1.9	1.8	2.0	1.9	5.3	1.5	6.4	7.6	5.9
45-49	3.8	2.1	4.7	6.3	3.7	4.7	3.0	2.1	2.7	2.4	1.2	5.6	1.6	6.5	8.4	5.7
MAB	20.1	20.8	20.2	19.3	20.2	21.1	20.0	21.3	20.8	21.4	21.6	19.4	19.8	19.2	19.2	19.5

Percent Childless and Mean Age at First Birth by District

Age Group	R- VALLEY		Mara- kwet		Kericho		Laikipia		Nakuru		Nandi		Narok		Sambur		Turkana		U/Gishu		West- Pokot		WEST- ERN		Kaka- mega		Bungo- ma		Busia		
	1989	1979	1989	1979	1989	1979	1989	1979	1989	1979	1989	1979	1989	1979	1989	1979	1989	1979	1989	1979	1989	1979	1989	1979	1989	1979	1989	1979	1989		
15-19	73.0	82.6	80.6	81.4	71.3	79.1	74.4	76.6	58.5	78.2	71.1	83.2	73.5	68.3	73.9	75.3	76.4	62.9													
20-24	20.6	25.2	22.9	16.9	20.5	23.3	21.4	20.7	12.1	26.9	19.6	30.3	22.3	14.5	18.8	19.8	20.0	13.7													
25-29	6.2	5.8	6.6	5.1	6.4	6.3	6.7	5.4	4.5	6.4	5.9	10.4	6.7	4.3	5.7	6.0	5.2	5.6													
30-34	3.3	2.7	3.1	2.9	3.4	2.8	3.9	3.5	2.9	2.9	3.2	4.1	3.5	1.9	3.6	3.6	3.0	4.5													
35-39	2.6	2.1	2.3	2.6	2.8	2.4	2.7	2.9	2.8	1.8	2.7	2.9	2.6	1.3	3.0	3.0	2.5	3.9													
40-44	2.5	2.1	3.6	3.0	2.1	2.3	2.6	3.0	2.3	2.2	2.4	2.4	3.0	1.8	2.8	2.8	2.3	3.8													
45-49	2.8	2.5	3.6	2.9	1.9	3.3	2.8	3.4	3.2	3.0	3.0	2.5	2.8	1.9	2.6	2.3	2.3	3.6													
MAB	19.7	20.5	20.1	18.8	19.8	20.1	19.9	19.8	18.4	20.3	19.6	21.1	19.9	19.1	19.7	19.9	19.9	18.8													
1979 Census																															
15-19	72.8	75.9	81.3	66.8	70.7	75.1	74.3	69.3	63.6	80.7	70.1	83.3	75.6	71.5	76.2	77.1	76.9	72.0													
20-24	18.7	16.9	19.9	16.5	16.8	17.7	19.9	14.2	15.8	25.6	15.6	37.6	21.1	17.0	20.4	21.9	19.3	17.5													
25-29	6.2	4.2	5.5	5.0	5.1	4.4	6.4	5.2	5.5	8.4	5.7	14.2	7.3	5.2	7.2	7.7	5.6	8.3													
30-34	3.8	2.6	3.6	3.5	2.9	3.3	3.8	3.7	3.8	3.7	3.7	6.8	5.2	2.9	4.3	4.2	3.5	5.8													
35-39	3.0	2.0	3.3	3.3	2.0	2.7	3.4	3.3	3.1	1.9	2.8	5.3	4.2	2.3	3.5	3.3	2.7	5.5													
40-44	3.5	3.0	4.3	4.1	2.3	3.5	3.3	4.7	4.5	2.0	3.3	3.7	3.5	2.7	3.4	3.0	3.1	5.1													
45-49	3.6	3.1	4.1	3.6	2.9	3.2	4.1	4.2	4.1	2.0	3.3	3.9	5.0	2.7	3.6	2.8	3.3	5.8													
MAB	19.5	19.5	19.8	19.0	19.3	19.5	19.6	18.8	18.7	20.6	19.2	21.7	19.8	19.4	19.9	20.1	19.7	19.3													

Note: MAB = Mean Age at First Birth (Years)

APPENDIX XVI:

Proportion of Childless Women and MAB by Level of Education and Marital Status, and Proportions Single and SMAM by Level of Education

Percentage Distribution of Women and Mean Age at First Birth by Education and Marital Status

Education Age	1979 Census			1989 Census		
	None	Primary	Secondary Plus	None	Primary	Secondary Plus
15-19	62.4	77.8	87.3	60.7	75.7	86.6
20-24	17.0	17.0	45.3	15.1	17.8	39.5
25-29	7.5	6.0	16.2	6.2	5.6	11.7
30-34	5.1	3.6	10.7	4.3	3.7	5.4
35-39	4.4	2.9	9.9	3.7	2.8	4.2
40-44	4.6	3.2	11.5	3.6	2.5	4.6
45-49	4.7	3.2	16.5	3.6	2.6	6.5
MAB	18.8	19.7	20.6	18.7	19.8	21.3

Marital Status

Age Group	1979 Census				1989 Census			
	Single	Married	Widowed	Divorced/ Separated	Single	Married	Widowed	Divorced/ Separated
15-19	92.1	39.5	26.5	28.8	88.5	32.7	45.2	25.4
20-24	58.4	11.8	5.8	13.3	51.9	10.2	9.5	10.7
25-29	34.4	5.1	4.2	9.3	25.7	4.3	3.6	7.3
30-34	26.8	3.6	3.8	8.7	16.2	3.0	3.1	6.9
35-39	26.8	3.2	3.4	9.1	12.8	2.7	2.6	6.5
40-44	29.1	3.5	3.8	10.1	13.7	2.6	2.6	7.2
45-49	30.1	3.7	4.6	10.4	15.6	2.8	2.8	8.1
MAB	21.4	17.3	16.3	16.0	22.1	17.0	17.6	16.0

Singulate Mean Age at First Marriage by Education, 1989

Age Group	None	Primary	Secondary Plus
15-19	58.5	83.2	91.8
20-24	17.5	30.1	55.4
25-29	8.6	13.9	26.4
30-34	6.0	9.1	15.9
35-39	4.5	7.1	11.9
40-44	4.0	6.4	9.9
45-49	3.5	5.3	9.2
SMAM	19.0	21.1	23.5

Appendix XVII: Main Contributors to Census Analytical Reports

Project Manager: Dr. E.K. Bauni (UNFPA, National Professional Project Personnel)

Professional/technical Support

Dr. Sheila Macrae - UNFPA Representative (Technical Support)
Dr. Blacker - ODA (Demographic Technical Adviser/Lead Consultant)
Mr. Jean-Marc Hie - UNFPA (CST) Data Processing and Analysis Adviser
Mr. Alan Findlay - ODA, Data Processing Adviser
Ms. Basia Zaba - London School of Hygiene and Tropical Medicine(Projection Model on AIDS)

Authors of different Volumes

Dr. E.K. Bauni: Vol. III - Analytical Report: The Population Dynamics of Kenya

Dr. John Kekovole }
Mr. Collins Opiyo } Vol. IV - Analytical Report: Fertility and Nuptiality

Mr. Ben Obonyo: Vol. V - Analytical Report: Mortality
Dr. John Kekovole: Vol. VI - Analytical Report: Migration and Urbanisation
Dr. John Blacker: Vol. VII - Analytical Report: Population Projections
Dr. Boniface K'Oyugi: Vol. VIII - Analytical Report: Education

Mr. Barack Otieno }
Mr. Titus Katembu } Vol. IX - Analytical Report: Labour Force
Mr. Ben Obonyo }

Mr. Enos Momanyi: Vol. X - Analytical Report: Housing.

Central Bureau of Statistics Core Staff

1. Mr. S. K. Nguli (PC Maintenance)
2. Mr. P. W. Nyongesa (Programming and Tabulation)
3. Mr. E. G. Mungai (Programming and Tabulation)
4. Mr. B. W. Njoroge (Tabulation)
5. Mr. A. J. Muthee (Tables Formatting, Typesetting and Desktop Publishing)
6. Mr. Collins Opiyo (Editing / Data Validation)
7. Mr. Mark Odege (Editing / Data Validation)