CHAPTER 7

FERTILITY LEVELS, PATTERNS AND TRENDS

7.0. Introduction

Fertility is one of the dynamics of population change. Fertility analysis is important in understanding past, current and future trends of population size, composition and growth. Information on fertility levels, patterns and trends experienced by a country is important for socio-economic planning, monitoring and evaluating programs.

7.1. Concepts and Definitions

- **Fertility:** refers to the frequency of occurrence of live births among women in a population.
- **Crude Birth Rate (CBR):** is the number of live births per thousand mid-year population during a specified period.
- **Completed Family Size (Mean Parity):** is the number of children ever born to women who have completed their reproduction i.e. those aged 45-49.
- **Age Specific Fertility Rate (ASFR):** is the number of live births per thousand women of a specific age group.
- **Total Fertility Rate (TFR):** is the number of children that a woman would have by the end of her childbearing period if she were to experience the currently observed age-specific fertility rates.
- **Child Woman Ratio (CWR):** is the ratio of all children aged 0-4 to women aged 15-49 in the population.
- **General Fertility Rate (GFR):** is the number of live births occurring during a specified period per thousand women of childbearing age.
- **Gross Reproduction Rate (GRR):** refers to the average number of female births that a woman would give birth to by the time she reached the end of her reproduction if she experienced age specific fertility rates prevailing in that year.
- **Net Reproduction Rate (NRR):** refers to the average number of female births born to women aged 15-49, that would survive to the end of their reproductive period after experiencing the prevailing fertility and mortality levels.

7.2. Nature and Quality of Fertility Data

7.2.1. Data Availability and Limitations

The 2000 Census of Population and Housing collected data on fertility using a question on Children Ever Born (CEB) and a question on births in the last twelve months prior to the census. Information was collected from all women present in the household at the time of enumeration. Information on CEB was collected from women aged 12 years and older, while information on births in the last 12 months prior to the census was collected from women aged 12-49 years.

The question on CEB provides required information for estimating lifetime fertility of women. Estimates of Completed Family Size (Mean Parity) were computed using data from this question.

Information collected using the question on births in the 12 months prior to the census is useful in estimating current fertility. Data collected using this question was used in the computation of Age Specific Fertility Rates (ASFR), Total Fertility Rates (TFR), Gross Reproduction Rates (GRR) and the Net Reproduction Rates (NRR).

It is important to note that data on CEB sometimes do not yield good results due to omission of births, particularly by women aged 35 years and above. Children who died soon after birth, those born before marriage and not living with the mother for example, are usually omitted in the census, especially that birth histories are not used to collect this information in the census. Mean parities calculated from children ever born data are also affected by age misreporting by women (See Chapter 2).

In order to reduce on the chances of children being omitted, especially children who have died or live in different households from those of their mothers, the 2000 Census of Population and Housing included questions on whether the child lives in the same household as the mother or whether the child lives elsewhere, and whether the child died. The sex of the child was asked for each of these questions.

7.2.2. Data Evaluation and Adjustment

The 2000 Census fertility analysis used the Trussel variant of the Brass PF ratio technique to adjust the fertility data and to come up with adjusted Age Specific Fertility Rates (ASFR) and adjusted Total Fertility Rates (TFR). The PF ratio technique originally developed by William Brass provides a method for adjusting reported age specific fertility rates (based on births in the 12 month period prior to the census), to the 'actual ' level of fertility (based on CEB). The PF ratio technique was used to adjust fertility on the basis of the age of the mother at the time of the census, and not the age of the child.

While the Gompertz Relational Technique yielded reasonable estimates of adjusted TFR, the PF Ratio technique was used because it yielded both adjusted ASFR and TFR (See Table 7.1). The analysis of the PF Ratios showed that areas that had experienced fertility declines e.g. urban areas had PF ratios that were rising by age of women suggesting patterns of recent fertility decline, while rural areas with almost constant fertility showed PF ratios with very little deviations from the standard. The analysis and adjustment of fertility used the different sets of spreadsheets in the Population Analysis Spreadsheets (PASEX), developed by the US Census Bureau.

Table 7.1: Comparison of TFR obtained from the Gompertz Technique and the Trussel/Brass PF Ratio Technique by Province, Zambia, 2000

Province	Gompertz Relational 2+2 Points based on ASFR and CEB Avg. (20-34)	Trussel-Brass PF Ratio Avg. (P2/F2:P3/F3: P4/F4)
Zambia	**6.0**	**6.0**
Central	6.2	6.1
Copperbelt	5.2	5.2
Eastern	6.6	6.7
Luapula	7.0	7.1
Lusaka	4.6	4.6
Northern	6.9	7.0
North Western	6.3	6.6
Southern	6.3	6.3
Western	5.8	5.9

7.3. Fertility Levels, Patterns and Trends, 1980-2000

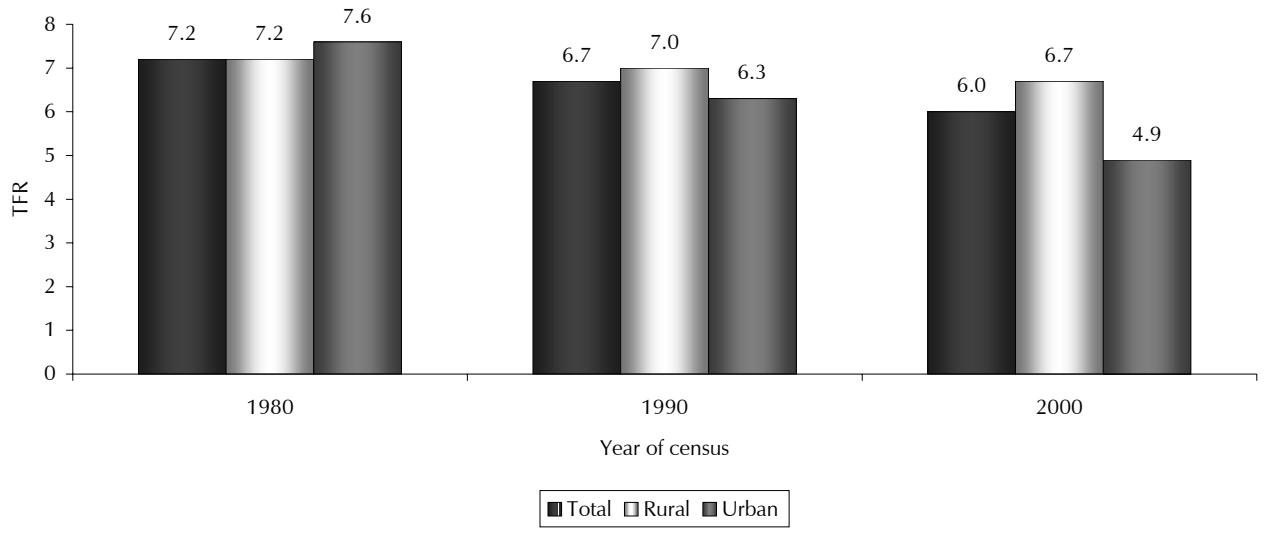
Table 7.2 presents information on the current fertility levels for Zambia as a whole and for all provinces. According to the 2000 Census results, the total fertility rate is 6.0. This means that on average, a woman in Zambia at the beginning of her childbearing years, will give birth to 6.0 children by the end of her reproductive period if current fertility levels remain constant. The TFRs range from 4.6 in Lusaka to 7.1 in Luapula. Fertility levels have remained high, with only Copperbelt, Lusaka and Western provinces experiencing TFRs below the national average.

The decline in fertility seems to be concentrated in urban areas, while fertility in rural areas has remained almost constant. This could point to the fact that urban areas may have the socio-economic conditions necessary for fertility decline such as access to reproductive health services, better and enhanced access to education by both girls and boys

etc as opposed to the conditions prevailing in rural areas. The reduction in rural to urban migration in the last 20 years, i.e. between 1980 and 2000 could indirectly have an effect on lower fertility levels in urban, as most migrants tend to be people in the prime of their productive and reproductive years (refer to the Migration and Urbanization report).

Though Zambia's fertility has been declining, the rate of decline has been rather slow, with TFR declining from 7.2 in 1980 to 6.7 in 1990 and 6.0 in 2000 (Figure 7.1 below). It is important to point out that whereas fertility in Zambia has exhibited declining trends, it is still among the highest in the region.

Figure 7.1: Trends in Total Fertility Rates by Residence, Zambia, 1980-2000



Source: CSO, 1980., 1990 and 2000 Censuses of Population and Housing

Table 7.2: Adjusted ASFR and TFR by Province, Zambia, 2000

Age Group	Zambia	Central	Copperbelt	Eastern	Luapula	Lusaka	Northern	North Western	Southern	Western
15-19	0.1407	0.1456	0.1205	0.1703	0.1598	0.1193	0.1496	0.1431	0.1483	0.1245
20-24	0.2768	0.2899	0.2404	0.3046	0.3152	0.2320	0.3168	0.2911	0.3008	0.2572
25-29	0.2692	0.2707	0.2514	0.2845	0.3221	0.2102	0.3127	0.2995	0.2806	0.2649
30-34	0.2317	0.2308	0.2132	0.2500	0.2745	0.1753	0.2736	0.2535	0.2339	0.2247
35-39	0.1748	0.1832	0.1445	0.1907	0.2126	0.1205	0.2061	0.1870	0.1814	0.1833
40-44	0.0833	0.0811	0.0560	0.0986	0.1022	0.0518	0.0979	0.1005	0.0911	0.0957
45-49	0.0301	0.0269	0.0176	0.0435	0.0310	0.0188	0.0340	0.0382	0.0267	0.0389
TFR	**6.0**	**6.1**	**5.2**	**6.7**	**7.1**	**4.6**	**7.0**	**6.6**	**6.3**	**5.9**

Table 7.3 shows observed and adjusted ASFR and TFR for Zambia for the Census years 1980, 1990 and 2000.

Table 7.3: Age Specific Fertility rate (ASFR), Total Fertility rate (TFR) and Mean Age at Childbearing (MACB), Zambia, 1980 - 2000

Age Group	1980		1990		2000	
	Observed ASFR	Adjusted ASFR	Observed ASFR	Adjusted ASFR	Observed ASFR	Adjusted ASFR
15-19	0.0610	0.0779	0.0879	0.0940	0.0928	0.1407
20-24	0.2370	0.3027	0.2501	0.2674	0.2118	0.2768
25-29	0.2523	0.3222	0.2746	0.2936	0.2116	0.2692
30-34	0.2199	0.2808	0.2543	0.2719	0.1846	0.2317
35-39	0.1803	0.2303	0.2112	0.2258	0.0420	0.1748
40-44	0.1081	0.1381	0.1203	0.1286	0.0710	0.0833
45-49	0.0689	0.0880	0.0549	0.0587	0.0290	0.0301
Observed TFR	5.6		6.3		4.7	
Adjusted TFR		7.2		6.7		6.0
Mean Age at Child bearing	30.6		30.3			29.6

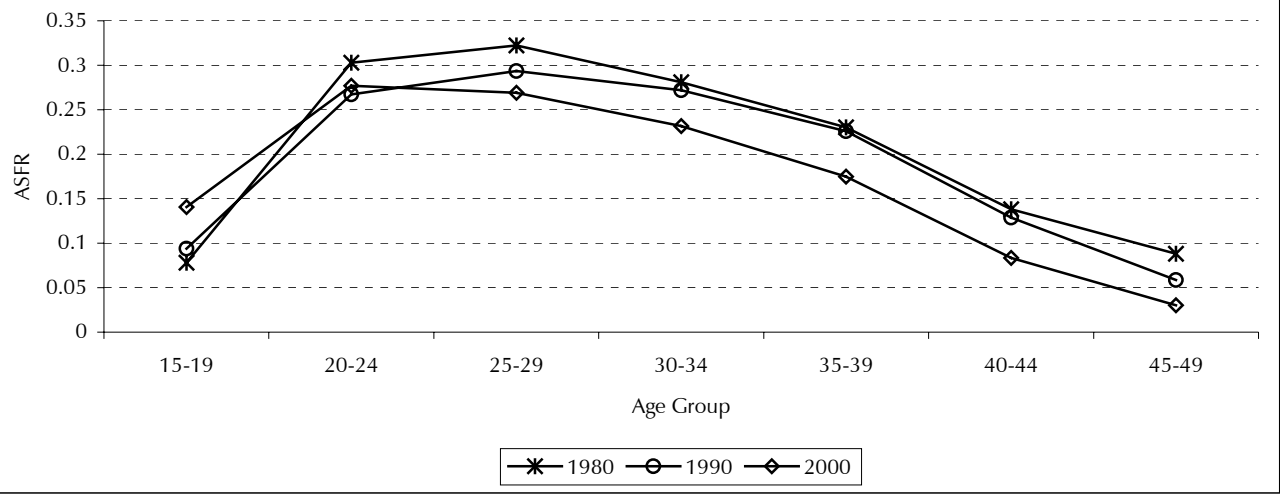
Source: CSO, 1980, 1990 and 2000 Census of Population and Housing

Note: *1980 and 1990 estimates extracted from Analytical Report Vol.X of the 1990 Census of Population, Housing and Agriculture, CSO 1995.*

The age patterns of fertility indicate a decline in the peak of child bearing from the age group 25-29 in 1990 to the age group 20-24 in 2000. However, fertility declines are usually associated with an increase in the mean ages at marriage and childbearing. Noticeable increases in the fertility of young women aged 15-24 has been observed from the 2000 Census data. This could provide a possible explanation to the drop in the mean age at childbearing especially between 1990 and 2000, which may not necessarily be in line with the observed declining trends in fertility. However, caution should be taken in interpreting this shift in the MACB, as this could also be attributed to the omission of CEB and births occurring to older women.

Figure 7.2 below shows that fertility levels have declined across the age groups 25-29 to 40-49 over the period 1990-2000. Information from specialized surveys such as the Zambia Demographic and Health Survey (ZDHS) has attributed the decline in fertility to among other factors, increased awareness and use of contraceptives among women especially among older women in need of contraceptive methods for both spacing and limiting births. Results from the three surveys show an increase in the percentage of married women using contraceptives for *limiting* births from six percent in 1992 to 10 percent in 1996 and 15 percent in 2001/2. A similar pattern is observed in the use of contraceptives for spacing among married women, with the percentage increasing from nine percent in 1992 to 16 percent in 1996 and 19 percent in 2001/2.

Figure 7.2: Ajusted Age Specific Fertility Rate, Zambia (1980-2000)



Source: CSO**,** 1980, 1990 and 2000 Censuses of Population and Housing

Figure 7.2 shows that the peak of childbearing has shifted from the age group 25-29 in the 1980 and 1990 Censuses, to 20-24 in the 2000 Census. The mean age at childbearing has remained almost constant, declining marginally from 30.6 years in 1980 to 30.3 years in 1990 and finally to 29.6 in 2000 (Refer to Table 7.3). Though fertility decline is associated with increases in MACB, this does not seem to apply as it shows a decline. This could be attributed to the increase in the fertility levels among women aged 15-24, as compared to the decline in fertility among older women (Figure 7.2).

Table 7.4 shows that the difference in TFR between rural and urban areas is 1.8. This is a result of more rapid declines in fertility in urban areas compared to rural areas.

Table 7.4: ASFR and TFR by Residence, Zambia, 2000

Age Group	Zambia	Rural	Urban
15-19	0.1407	0.1575	0.1141
20-24	0.2768	0.3066	0.2351
25-29	0.2692	0.2957	0.2304
30-34	0.2317	0.2533	0.1950
35-39	0.1748	0.1972	0.1315
40-44	0.0833	0.0974	0.0542
45-49	0.0301	0.0344	0.0191
TFR	6.0	6.7	4.9

Urban TFR declined from 7.6 in 1980 to 6.3 in 1990 and finally to 4.9 in 2000. The TFR for rural areas, on the other hand, have remained almost stable, declining from 7.2 in 1980 to 7.0 in 1990 and finally to 6.7 in 2000 (See Table 7.5).

The more urbanized provinces of Lusaka and Copperbelt have experienced larger declines in fertility levels compared to other less urbanized provinces. Table 7.5 further shows that in 1980, the TFRs were 7.5 and 7.9, for Lusaka and Copperbelt provinces respectively. These rates dropped to 6.0 and 6.6 in 1990 and then to 4.6 and 5.2 in 2000, for the two provinces respectively. The observed rates of fertility decline could be attributed to the fact that the population in Lusaka and Copperbelt province benefit from, among other socio-economic conditions associated with developed urban areas, the readily available reproductive health services necessary for transition to low fertility.

Table 7.5: Adjusted Total Fertility Rate (TFR) by Residence, Zambia, 1980-2000

Census Year	Zambia			Province								
	Total	Rural	Urban	Central	Copperbelt	Eastern	Luapula	Lusaka	Northern	North Western	Southern	Western
1980	7.1	7.2	7.6	7.5	7.9	6.9	8.0	7.5	7.7	6.5	7.1	5.7
1990	6.7	7.0	6.3	6.3	6.6	6.9	7.2	6.0	7.5	6.9	7.0	6.2
2000	6.0	6.7	4.9	6.1	5.2	6.7	7.1	4.6	7.0	6.6	6.3	5.9

Sources CSO, 1980, 1990 and 2000 Censuses of Population and Housing

7.4. Fertility Differentials by Background Characteristics of Women Aged 15-49

This section shows differences in levels of fertility according to various background characteristics of women. These include residence, education levels, economic characteristics, religion, marital status, ethnicity and disability status.

7.4.1. Fertility Differentials by Educational Attainment of Women Aged 15-49

Table 7.6 and Figure 7.3 show the fertility levels according to women's levels of education. Women with tertiary education have lower fertility than women in other education categories. For instance, women with tertiary education had a TFR of 3.9 compared with TFR of 6.1 for women without any schooling. The difference is highest in Lusaka and Southern provinces where women without schooling have on average about two children more than those with tertiary education.

While it has been observed that women without any schooling have a lower fertility than those who have completed primary education, this pattern may not necessarily be true as most women without any schooling or who did not complete their primary education may have reported to have done so. Ideally the fertility differentials between women without any schooling and those with primary education should be small, however with those with primary education exhibiting lower fertility than those without any schooling.

The pattern of fertility declining with increasing level of education is only noticeable after primary education. Between primary and tertiary education, fertility levels decrease with increasing level of education, except for less urbanized provinces of Eastern, Luapula, Northern, North Western and Western provinces. The variation is greater in North Western province in which the TFR is 5.1 for women with secondary education and 7.9 for those with tertiary education compared to the other provinces. The TFR for women with tertiary education in some provinces may not reflect the actual levels due to insufficient number of cases, therefore care should be taken in the interpreting some of the results

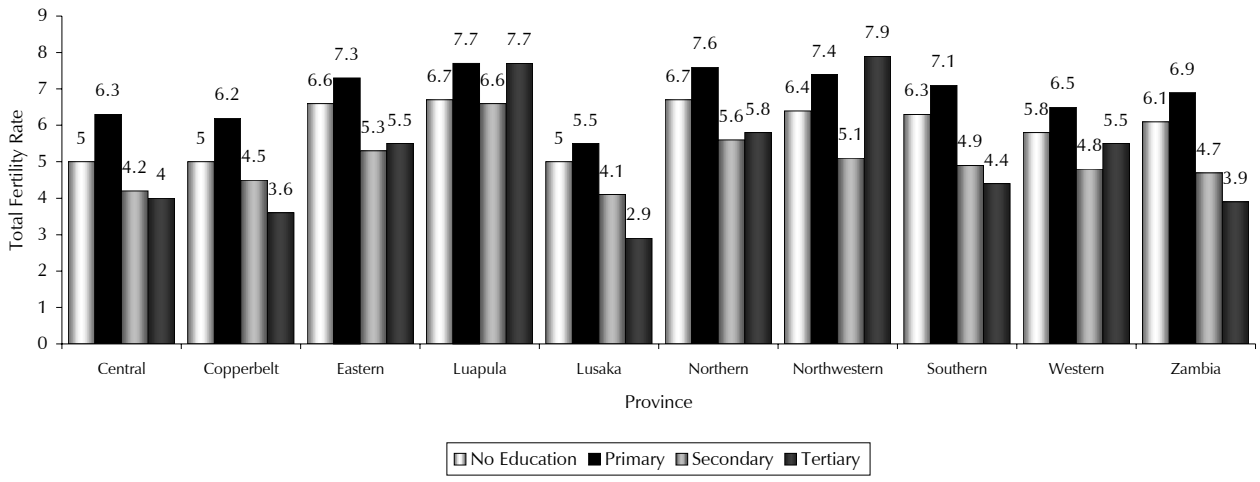
Total fertility has been declining among women of all education background except for women with tertiary education whose fertility seems to have increased slightly between 1990 and 2000.

Table 7.6: Total Fertility Rates By Education Background of Women Age 15-49 and Province, Zambia, 2000

Province	Total Women	No Education	Primary	Secondary	Tertiary
Central	6.1	5.0	6.3	4.2	4.0
Copperbelt	5.2	5.0	6.2	4.5	3.6
Eastern	6.7	6.6	7.3	5.3	5.5
Luapula	7.1	6.7	7.7	6.6	7.7*
Lusaka	4.6	5.0	5.5	4.1	2.9
Northern	7.0	6.7	7.6	5.6	5.8
Northwestern	6.6	6.4	7.4	5.1	7.9*
Southern	6.3	6.3	7.1	4.9	4.4
Western	5.9	5.8	6.5	4.8	5.5
Zambia (2000)	**6.0**	**6.1**	**6.9**	**4.7**	**3.9**
Zambia (1990)	**6.7**	**7.6**	**7.4**	**5.9**	**3.2**
Zambia (1980)	**7.2**	**7.4**	**7.4**	**6.4**	**3.5**

Note: *(*) Rates may not represent the true fertility levels due to insufficient number of cases*.

Figure 7.3: Fertility Differentials by Educational Attainment of Women Age 15-49 and Province, Zambia, 2000



7.4.2. Fertility Differentials by Economic Status of Women Aged 15-49

Fertility levels of working and non-working women are shown in Table 7.7. Definitions of working are described in detail in Chapter six. Women classified as working have a lower TFR of 5.8 compared to 6.2 for those classified not working. All provinces except Western show that non-working women have a higher total fertility rate than those classified as working. However, the overall difference in the fertility between those women classified as working and not working is small. This could be attributed to the broad classification used, which lumps together, all those in formal and informal types of work. There has been a shift in the fertility pattern from those prevailing in 1980 and 1990, compared to those prevailing in 2000 with working women having lower fertility than non-working women.

Table 7.7: Total Fertility Rates By Economic Background of women Age 15-49 and Province, Zambia, 2000

Province	2000		
	Total Women	Working	Not Working
Central	6.1	5.9	6.1
Copperbelt	5.2	4.5	5.4
Eastern	6.7	6.5	6.7
Luapula	7.1	6.9	7.1
Lusaka	4.6	3.9	5.0
Northern	7.0	6.7	7.0
Northwestern	6.6	6.2	6.6
Southern	6.3	6.0	6.3
Western	5.9	5.7	5.9
Zambia (2000)	**6.0**	**5.8**	**6.2**
Zambia (1990)*	**6.7**	**7.1**	**5.2**
Zambia (1980)*	**7.2**	**7.1**	**6.5**

Note: *(*) 1980 and 1990 estimates extracted from Analytical Report Vol.X of the 1990 Census of Population, Housing and Agriculture, CSO 1995.*

7.4.3. Fertility Differentials by Religious Affiliation of Women Age 15-49

Table 7.8 shows the fertility levels of women of varying religions and those without any religious affiliation. Results show that women who reported to be Protestant by virtue of their religious affiliation and those that reported no religious affiliation had the highest TFR of 6.1 respectively. Hindu women had the lowest fertility with a TFR of 4.2. Muslim women had the highest TFR in Eastern province.

Care must be taken in using and interpreting these results as analysis is based on the religious affiliation reported by women and their respective fertility captured at the time of the census. The fact that other variables have not been controlled for means no relationship between the fertility of women and their religious affiliation could be deduced from the information, and hence the results do not and should not be taken to portray such a relationship.

Table 7.8: Total Fertility Rates By Religious Characteristics of Women Aged 15-49 and Province, Zambia, 2000

Total Fertility Rates by Religious Characteristics							
Province	**Total Women**	**Catholic**	**Protestant**	**Muslim**	**Hindu**	**Other**	**None**
Central	6.1	5.6	6.3	5.2	3.2	6.3	5.5
Copperbelt	5.2	5.2	5.3	5.1	1.6	5.3	4.0
Eastern	6.7	6.5	6.7	8.1	5.5	7.0	6.6
Luapula	7.1	7.1	7.1	5.7	-	6.6	6.5
Lusaka	4.6	4.6	4.8	2.7	-	4.6	3.9
Northern	7.0	7.0	7.0	5.8	2.2	6.8	6.5
North western	6.6	6.7	6.5	-	2.6	6.8	6.6
Southern	6.3	6.0	6.4	6.3	2.7	5.6	6.9
Western	5.9	6.1	5.8	3.6	-	6.2	6.5
Zambia	**6.0**	**6.0**	**6.1**	**4.5**	**4.2**	**6.0**	**6.1**

Note: (-) *Missing due to insufficient number of cases for calculating TFR*

7.4.4. Fertility Differentials by Marital Status of Women Aged 15-49

Marital status of women has a bearing on their fertility because of the amount of exposure to the risk of pregnancy that married women have compared to other women. The 2000 Census results show that married women have higher fertility with a TFR of 6.4, compared to 5.1 for separated, 4.9 for divorced, 4.8 for widowed, 4.7 for living together (co-habiting) and 2.3 for never married women.

Table 7.9: Total Fertility Rates By Marital Status of Women Aged 15-49 and Province, Zambia, 2000

Residence	**Total Women**	**Married**	**Separated**	**Divorced**	**Widowed**	**Never Married**	**Living Together**
Central	6.1	6.6	5.0	4.8	5.1	2.0	4.6
Copperbelt	5.2	5.8	4.4	4.3	4.5	1.7	4.8
Eastern	6.7	6.9	5.5	5.3	5.5	2.1	5.3
Luapula	7.1	7.1	5.6	5.5	5.8	3.1	5.5
Lusaka	4.6	5.4	4.2	4.1	4.4	1.6	4.1
Northern	7.0	7.1	5.3	5.2	5.4	1.9	5.3
Northwestern	6.6	6.8	4.6	5.2	5.9	2.9	5.0
Southern	6.3	6.5	5.2	4.9	5.6	2.8	5.6
Western	5.9	6.4	5.4	5.8	6.1	3.7	5.2
Zambia	6.0	6.4	5.1	4.9	4.8	2.3	4.7

7.4.5. Fertility Differentials by Zambian Language Group of Women Aged 15-49

Fertility levels of women of different language groups are shown in Table 7.10. There are no major variations in fertility levels of these women. The TFRs range from 5.3 among Tumbuka women to 6.6 among women from the Mambwe langage group. The pattern, however, varies from province to province and from one language group to another. For instance, women from the Bemba speaking language groups have the highest fertility in Luapula, Northern and Central provinces, with women from the Tonga speaking language groups in Central and Southern.

Care must be taken in using and interpreting these results as analysis is based on the reported Language grouping of women and their respective fertility captured at the time of the census. The fact that other variables have not been controlled for means no relationship between the fertility of women and their respective language grouping could be deduced from the information, and hence the results do not and should not be taken to portray such a relationship

Table 7.10: Differentials in Total Fertility By Language Grouping of Women Aged 15-49, Zambia, 2000

Province	All Groups	Bemba	Tonga	North Western	Barotse	Nyanja	Mambwe	Tumbuka
Central	6.1	6.3	6.3	5.9	5.8	5.5	5.5	5.5
Copperbelt	5.2	5.3	5.1	5.7	5.7	4.7	5.0	5.0
Eastern	6.7	6.4	5.3	6.4	5.7	6.6	7.6	7.2
Luapula	7.1	7.1	5.0	6.0	6.0	5.9	5.0	5.6
Lusaka	4.6	4.6	4.9	4.6	4.3	4.7	4.5	4.9
Northern	7.0	7.0	5.2	5.9	5.3	6.2	7.0	6.6
North-western	6.6	6.2	3.9	6.6	5.9	5.3	4.2	5.0
Southern	6.3	5.2	6.6	5.4	5.2	5.4	5.1	5.1
Western	5.9	5.8	5.9	5.9	5.9	5.9	6.6	5.3

7.4.6. Fertility Differentials, All Women and Disabled Women, Aged 15-49

Table 7.11 compares the total fertility rates of all women with that of the disabled women. The TFR for the disabled women is 5.4. Disable women have a lower fertility than all women and this observation is true in all provinces. Due to the small numbers of disabled persons for the various disability categories, it has not been possible to compute the TFRs for women by type of disability.

Table 7.11: Total Fertility Rates by all Women and Disabled Women, Aged 15-49 by Province, Zambia, 2000

Province	Total Fertility Rate for all women	Total Fertility Rate for disabled women
Central	6.1	5.1
Copperbelt	5.2	4.6
Eastern	6.7	5.7
Luapula	7.1	6.3
Lusaka	4.6	4.5
Northern	7.0	6.2
Northwestern	6.6	5.8
Southern	6.3	5.6
Western	5.9	5.2
Zambia	6.0	5.4

7.5. Gross Reproductive Rates (GRR)

From Table 7.12, it can be observed that the GRR for Zambia is estimated at 2.3. This means that by the time a woman reaches the end of her reproductive period, she will have given birth to 2.3 female children if she conforms to the currently observed age specific fertility patterns. The GRR for rural areas (2.7) is higher than that for urban areas (1.7). This pattern is similar to that of the TFR. Significant declines have been observed in the GRR between 1990 and 2000.

Table 7.12: Gross Reproduction Rate (GRR) by Residence, Zambia 2000

Age Group	Zambia		Rural		Urban	
	Total Female Births	ASFR (f)	Total Female Births	ASFR (f)	Total Female Births	ASFR (f)
15-19	25,452	0.0457	18271	0.0542	7089	0.0323
20-24	50,693	0.1029	35424	0.1221	16328	0.0807
25-29	39,034	0.1029	27357	0.1211	12533	0.0817
30-34	24,689	0.0896	17727	0.1047	7502	0.0707
35-39	15,077	0.0690	11342	0.0826	3936	0.0484
40-44	5,694	0.0346	4541	0.0434	1261	0.0210
45-49	1,724	0.0140	1390	0.0171	344	0.0083
GRR (2000)		2.3		2.7		1.7
GRR (1990)*		3.3		3.4		3.1
GRR (1980)*		3.5		3.5		3.7

Note: (*) *1980 and 1990 estimates extracted from Analytical Report Vol.X of the 1990 Census of Population, Housing and Agriculture, CSO 1995. ASFR (f) refers to the age specific fertility rates for female births only*

7.6. Net Reproduction Rate

The Net Reproduction Rate is more useful in theoretical demography because it helps in determining the replacement levels of women by taking into consideration the effect of both fertility and mortality on the daughters born to women.

Table 7.13: Net Reproduction Rate (NRR) by Residence, Zambia, 2000

Age Group	Zambia Total			Rural			Urban		
	ASFR (f)	Survival Ratios	*ASFR (f)	ASFR (f)	Survival Ratios	*ASFR (f)	ASFR (f)	Survival Ratios	*ASFR (f)
15-19	0.0457	0.7777	0.0355	0.0542	0.7443	0.0403	0.0323	0.8202	0.0265
20-24	0.1029	0.7598	0.0782	0.1221	0.7251	0.0885	0.0807	0.8047	0.0649
25-29	0.1029	0.7393	0.0761	0.1211	0.7031	0.0852	0.0817	0.7866	0.0643
30-34	0.0896	0.7162	0.0642	0.1047	0.6786	0.0710	0.0707	0.7663	0.0542
35-35	0.0690	0.6906	0.0477	0.0826	0.6513	0.0538	0.0484	0.7437	0.0360
40-44	0.0346	0.6626	0.0229	0.0434	0.6217	0.0270	0.021	0.7182	0.0151
45-49	0.0140	0.6325	0.0089	0.0171	0.5907	0.0101	0.0083	0.6901	0.0057
NRR			**1.7**			**1.9**			**1.3**

Note*: *ASFR (f) at prevailing rates of mortality*

An NRR equal to 1.0 is referred to as the "replacement level fertility" because it indicates that on average each woman will be replaced by exactly one daughter after a generation. A higher value indicates a growing population and a lower value shows declining population. The NRR for Zambia in 2000 was estimated at 1.7 daughters, implying that each woman will be replaced by almost two daughters who will survive upto the end of their reproductive age. The NRR for rural areas is higher (1.9) than that for urban areas (1.3). This means that the population will continue growing at a faster rate in rural areas than in urban areas (See Table 7.13)

NRR has declined over the last 20 years (Table 7.14). This implies that population has been growing, but at a declining rate.

Table 7.14: Trends in Net Reproduction Rate (NRR) by Residence, Zambia, 1980-2000

Residence	Year of Census		
	1980	1990	2000
Zambia	2.6	2.2	1.7
Rural	2.5	2.3	1.9
Urban	2.9	2.2	1.3

7.7. Mean Parity

The mean parity for the women aged 45-49 is usually referred to as the Completed Family Size (CFS) and should be equal to TFR under constant fertility, mortality and migration. The 2000 Census of Population and Housing estimates the CFS for women in Zambia at 6.8, with rural women having a higher CFS of 7.0 compared with their urban counterparts with CFS of 6.5 (Table 7.14).

Table 7.15: Observed Mean Parity by Age Group and Residence, Zambia, 2000

Age Group	Zambia Total	Rural	Urban
15-19	0.3	0.3	0.2
20-24	1.4	1.6	1.1
25-29	2.7	3.0	2.3
30-34	4.1	4.4	3.6
35-39	5.4	5.7	4.9
40-44	6.4	6.7	6.0
45-49	6.8	7.0	6.5

Table 7.16 and Figure 7.4 shows that the mean parity or CSF for Zambia has declined between 1990 and 2000. The completed family size for 1980 (6.6) was lower than that for both 1990 (7.1) and 2000 (6.8). The underlying factor could point to omission of CEB in the 1980 Census. Improvements in the collection of data on CEB were made in the 1990 and 2000 Census, with the aim of reducing the amount of omissions.

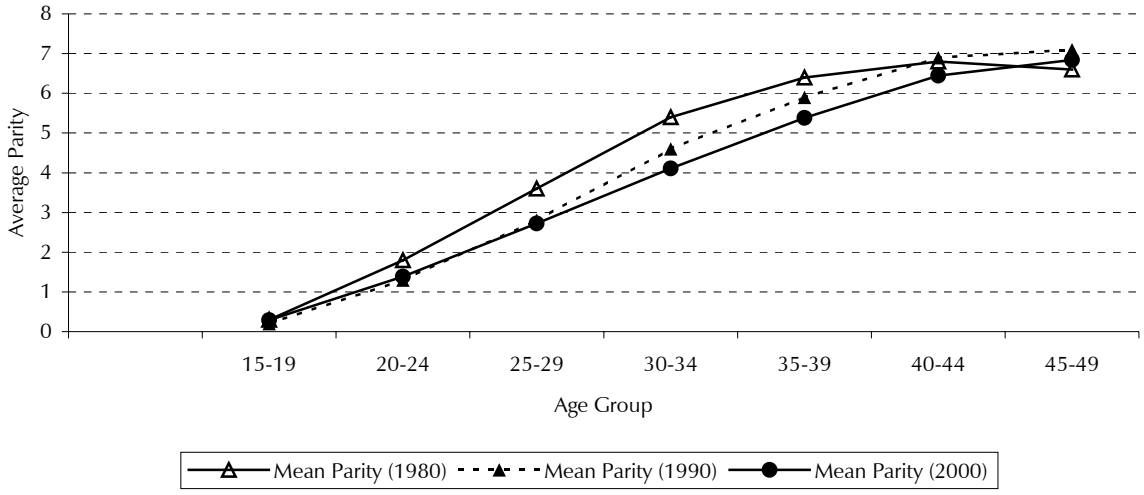
Table 7.16: Observed Mean Parity by Age Group, Zambia, 1980-2000

Age Group	Mean Parity (1980)*	Mean Parity (1990)*	Mean Parity (2000)
15-19	0.3	0.2	0.3
20-24	1.8	1.3	1.4
25-29	3.6	2.8	2.7
30-34	5.4	4.6	4.1
35-39	6.4	5.9	5.4
40-44	6.8	6.9	6.4
45-49	**6.6**	**7.1**	**6.8**

Source: CSO, 2000 Census of Population and Housing

Note: (*) *1980 and 1990 estimates extracted from Analytical Report Vol.X of the 1990 Census of Population, Housing and Agriculture, CSO 1995.*

Figure 7.4:Average Parity by Age Group, Zambia, 1980-2000



Source: CSO, 1980, 1990 and 2000 Censuses of Population and Housing

Another measure of trends in fertility is comparing the TFR with the mean number of CEB to women at the end of their childbearing period, aged 45-49 (mean parity). While the TFR is a measure of current fertility, the CFS measures past or completed fertility. Overall, women age 45-49 reported having given birth to an average of 6.8 children. This compares with a TFR of 6.0 for women age 15-49, the difference may be attributed to the observed fertility decline over time as one measure (Mean Parity) measures completed fertility while the other measure (TFR) measures current fertility (Table 7.17 below).

Table 7.17: Comparison of Total Fertility Rates and Mean Parity by Province, Zambia, 2000

Residence/Province	Mean Parity	Total Fertility Rate
Zambia - Total	6.8	6.0
Rural	7.0	6.7
Urban	6.5	4.9
Central	6.3	6.1
Copperbelt	6.7	5.2
Eastern	7.0	6.7
Luapula	7.3	7.1
Lusaka	6.4	4.6
Northern	7.3	7.0
North Western	6.5	6.6
Southern	7.0	6.3
Western	6.3	5.9

7.8. Other Fertility Indicators

Table 7.18 shows a summary of fertility indicators. These include the Crude Birth Rate (CBR), Child Woman Ratio (CWR) and the General Fertility Rate (GFR). The 2000 census estimates the crude birth rate as 36 births per thousand persons in the population. While the CBR increased between 1980 and 1990 from 37 to 44, it declined between 1990 and 2000 to 36. The pattern for rural and urban areas is similar to that for Zambia as a whole. The 2000 Census also estimates the CWR of 729, implying that there is 729 children aged 0-4 per thousand women in the reproductive aged group of 15-49. This is an increase from the 1990 figure of 678 children per 1000 women aged 15-49. The increase in the CWR could be attributed to the decline in the denominator (women aged 15-49).

The GFR for 2000 was estimated at 152 births per 1000 women age 15-49. This compared with 185 in 1990 and 173 in 1980. Generally all the fertility indices, except the (CWR), show declining trends in the 1990 to 2000 period. The declines are more pronounced in the urban areas than rural areas.

Table 7.18: Summary of Fertility Indicators by Residence and Province, Zambia, 1980-2000

Residence	TFR	CFS	CBR	CWR	GFR	GRR	NRR
Zambia							
1980	7.2	6.6	37	834	173	3.5	2.6
1990	6.7	7.1	44	678	185	3.3	2.2
2000	6.0	6.8	36	729	152	2.3	1.7
Rural							
1980	7.2	6.5	36	813	166	3.5	2.5
1990	7.0	7.2	45	712	194	3.4	2.3
2000	6.7	7.0	40	843	178	2.7	1.9
Urban							
1980	7.6	7.0	40	867	185	3.7	2.9
1990	6.3	6.9	43	629	171	3.1	2.2
2000	4.9	6.5	29	605	111	1.7	1.3
Fertility indicators All Provinces, 2000							
Central	6.1	6.3	37	764	163	2.7	1.8
Copperbelt	5.2	6.7	28	622	115	1.7	1.3
Eastern	6.7	7.0	41	816	181	2.7	1.9
Luapula	7.1	7.3	42	797	181	2.8	1.8
Lusaka	4.6	6.4	29	613	114	1.6	1.3
Northern	7.0	7.3	40	798	174	2.7	1.8
North Western	6.6	6.5	39	812	170	2.6	2.0
Southern	6.3	7.0	39	790	169	2.5	1.9
Western	5.9	6.3	35	680	145	2.3	1.5

Note: *1980 and 1990 estimates extracted from Analytical Report Vol.X of the 1990 Census of Population, Housing and Agriculture, CSO 1995.*

7.9. Summary

Over the past decade, Zambia's fertility has continued to decline although at a slow pace. The drop in urban childbearing is the principle reason for the overall decline in fertility levels in Zambia. Compared with other sub-Saharan countries, Zambia's TFR remains among the highest.

The TFR for rural areas (6.7) is considerably higher than that of urban areas (4.9). More urbanized provinces have a much lower fertility level compared to the less urbanized ones. Lusaka and Copperbelt have TFRs of 4.6 and 5.2 respectively, while Luapula has a TFR of 7.1 and Northern, 7.0.

The peak of child bearing has shifted from age group 25-29 in the 1980 and 1990 censuses to 20-24 in the 2000 census. This has been more as a result of the increase in fertility of younger women aged 15-24 compared to the overall decline in the fertility of older women aged 25-49.

Women with tertiary education and those classified as working have lower fertility compared to women with primary or no education. The married and protestant women have higher fertility than women of other marital status and religious categories respectively.