ZAMBIA 2010 CENSUS OF POPULATION AND HOUSING

PRESENTATION ON CENSUS DATA EVALUATION WORKSHOP – KAMPALA, UGANDA 12-16 NOVEMBER 2012

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Presentation Outline

- 2010 Population Highlights

- Trends in Population since 1969

- Methods of Census Evaluation
    Direct Method
    Indirect Method

- Types of Census Errors
    Coverage Errors
    Content Errors

Total Population

- Zambia's Population in 2010 was **13, 092,666**.

- This is an increase from the population of **9,885,591** captured during the 2000 Census.

Trends in Total Population, Zambia 1969-2010
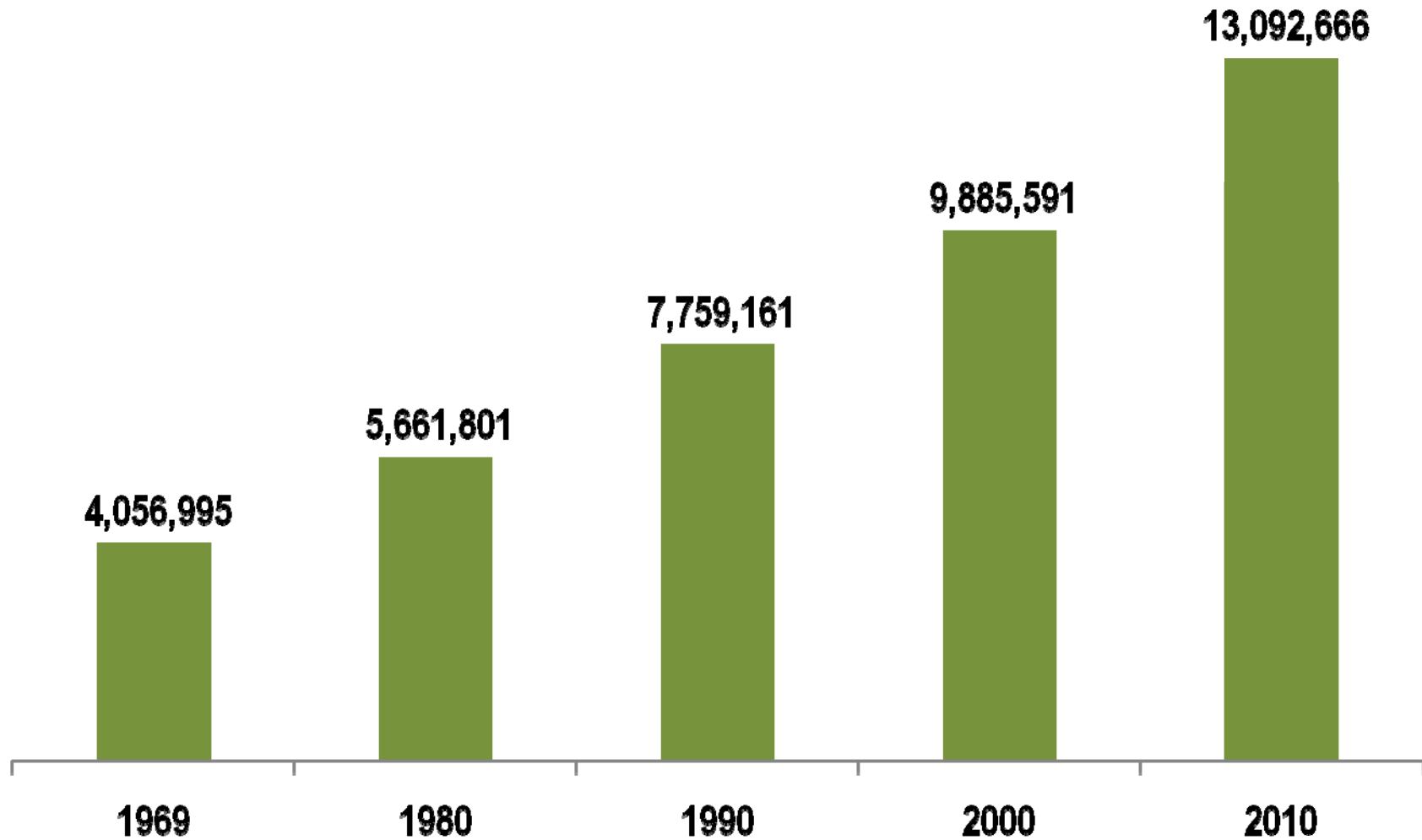
Methods of Evaluation

- **Direct Method:** Post Enumeration Survey (PES)- a sample of households is revisited after the census and data are again collected but on a smaller scale and later compared with that collected during the actual census.

- **Indirect Method:** Comparison of data using both internal and external consistency checks. Internal consistency checks compare relationships of data within the same census data, whereas external consistency checks compare census data with data generated from other sources.

Coverage Errors

- Omission or duplication of individuals, households, or housing units resulting in under or over enumeration.

- Lack of accessibility or cooperation with respondents.

- Lack of proper boundary descriptions on maps.

Coverage errors can be measured by examining certain statistics such as growth rate, age composition, child woman ratio and dependency ratio.

Coverage Errors: Growth Rate

- 1990-2000   2.4 percent per annum
- 2000-2010   2.8 percent per annum

Coverage Errors: Age Composition

- The percentage for each age group should not vary much from one census to another except where there had been major changes to the population.

- Fertility and mortality effects would normally result into marginal changes to the percentage of the broad age groups.

- *The population distribution remained stable over the three census years even though there were minor variations across the age groups over the years. This shows consistency of coverage in all the three censuses.*

Population Distribution by Broad Age Groups, Zambia, 1980, 1990, 2000 and 2010

Age Group	Population							
	1980	Percent	1990	Percent	2000	Percent	2010	Percent
0-4	1,033,484	18.3	1,200,344	16.3	1,656,720	17.7	2,214,887	17.7
5-9	997,256	17.6	1,119,524	15.2	1,461,082	15.6	1,856,336	14.8
10-14	778,528	13.8	1,029,803	13.9	1,205,646	12.9	1,699,042	13.6
15-64	2,693,225	47.6	3,842,793	52	4,758,697	51	6,419,717	51.2
65+	159,307	2.8	190,632	2.6	255,280	2.7	336,332	2.7
Total	5,661,801	100	7,383,097	100	9,337,425	100	12,526,314	100

Coverage Errors: Child Woman Ratio

- Number of children aged 0-4 years in a population to every 1,000 women aged 15-49 years in the same population.

- *The results show that the changes in child woman ratios were in line with the changes in the percentage of the population in the age group 0-4 years.*
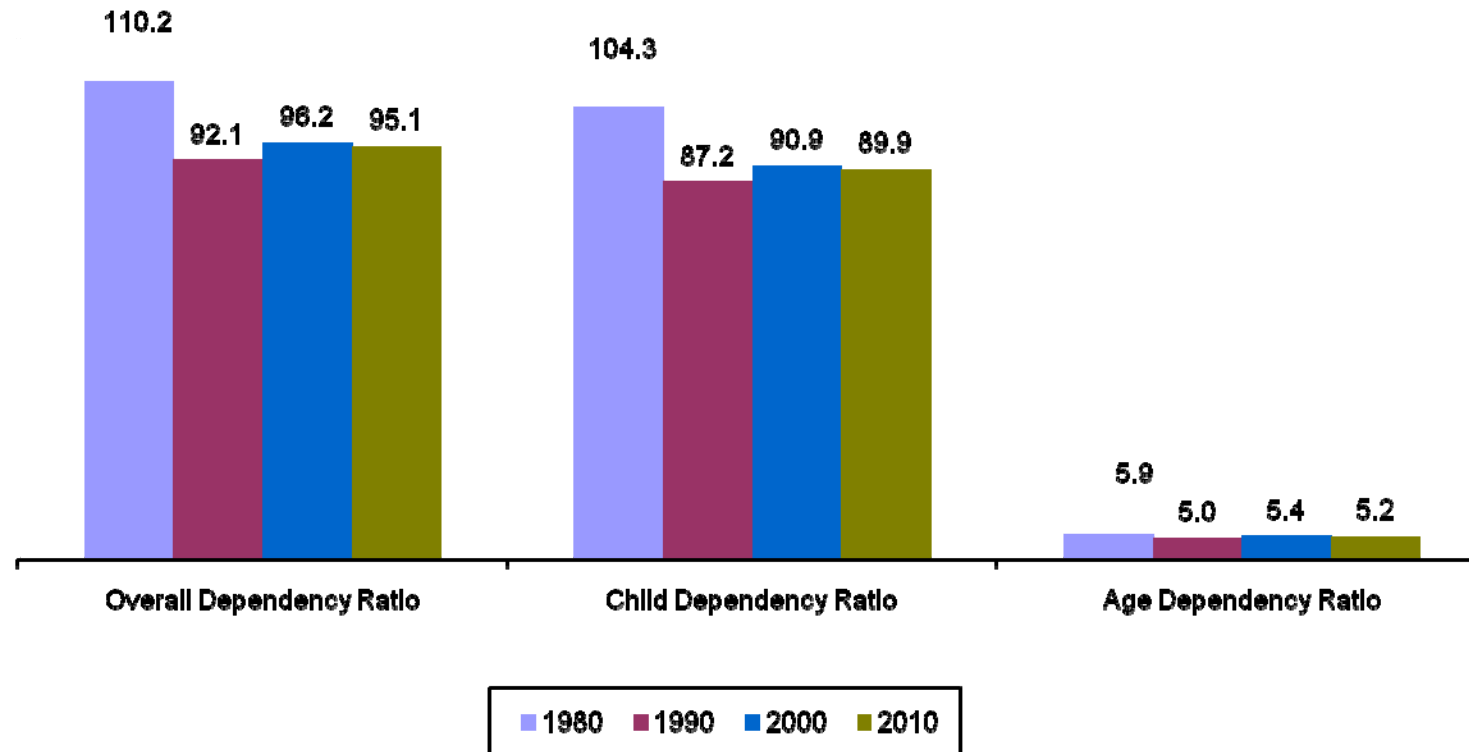
Child-Woman Ratio, Zambia, 1980 - 2010

Census Year	
1980	827
1990	678
2000	750
2010	738
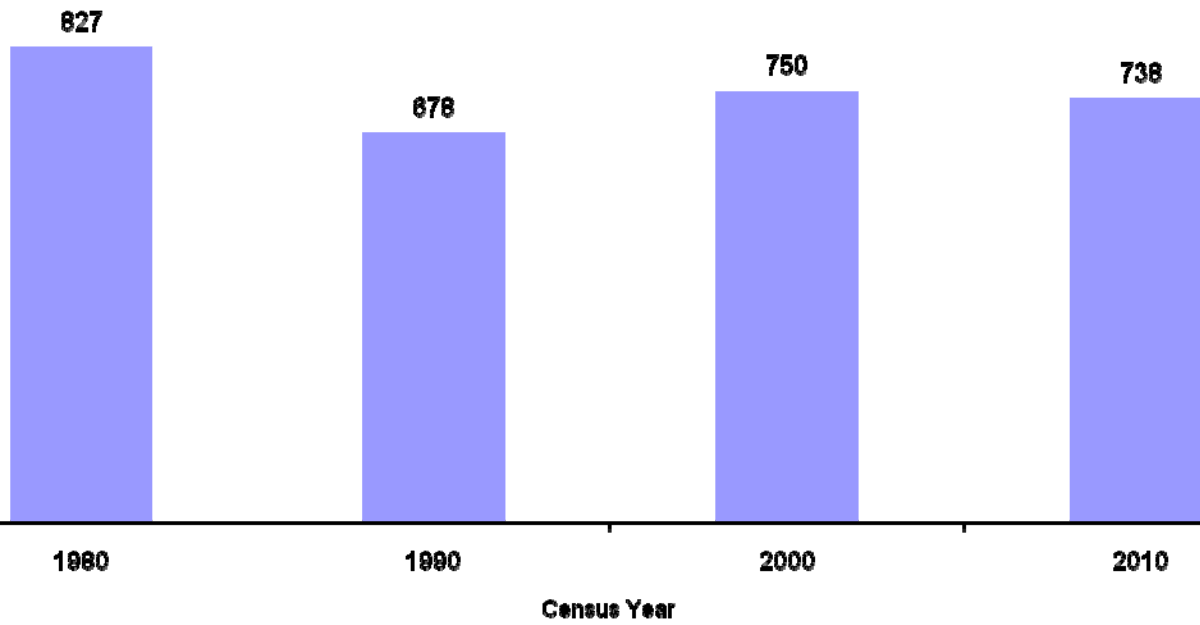
Coverage Errors: Dependency Ratios

- The Child and Aged dependency ratios had a similar pattern to that of the Overall dependency ratio.

- The observed changes in dependency ratios were consistent with observed changes in the percentage of the population in the age group 0-14 years and the changes in proportions in the child woman ratio.

Dependency Ratio, Zambia, 1980 - 2010

Overall Dependency Ratio
- 110.2
- 92.1
- 96.2
- 95.1

Child Dependency Ratio
- 104.3
- 87.2
- 90.9
- 89.9

Age Dependency Ratio
- 5.9
- 5.0
- 5.4
- 5.2

Legend: ■ 1980 ■ 1990 ■ 2000 ■ 2010

**Note:** Ratio of children age 0-14 and persons age 65 years and older, per 100 persons in the age-group 15-64

Content Errors

- Content errors refer to instances where characteristics such as age, sex, marital status, economic activity, etc. of a person enumerated in a census or survey are incorrectly reported or tabulated.

- Content errors are caused by either a respondent giving a wrong response or by an enumerator recording an incorrect response.

- 2010 census errors were estimated by the use of the Myers' Index, Sex Ratios, Age Ratios and Population Pyramids.

Content Errors: Myers Index

- Used to investigate age heaping/digit preference.
- The maximum value of Index is 90 and the minimum value is 0.
- A high Myers' Index implies poor age reporting whereas a low Myers' Index indicates good age reporting.

- Overall Index between 2000 and 2010 declined from 7.0 to 6.7 suggesting an improvement in the quality of age data reporting in 2010 compared to 2000.
- The index for urban areas was lower than the rural one in both census years, implying better age reporting in urban than in rural areas.

# Myers' Index by Residence, Zambia, 2000 and 2010

	Zambia	Rural	Urban
2000	7.0	7.1	6.7
2010	6.7	7.0	6.3
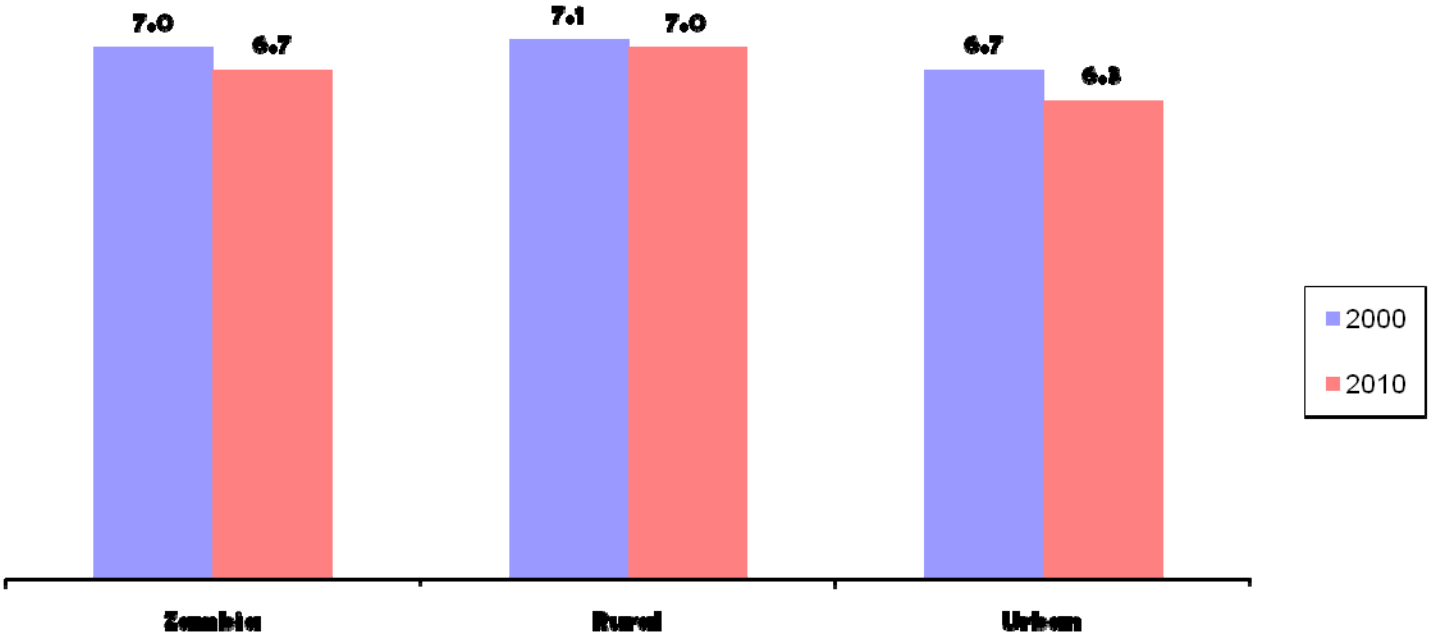
Most Preferred Digits, Zambia, 1980, 1990, 2000 and 2010

Residence	Sex	Most Preferred Digits and Census Year			
		1980	1990	2000	2010
Zambia	Both Sexes	0, 8, 2	0, 8, 2	0, 5, 8	0, 8, 5
	Male	0, 8, 2	0, 8, 2	0, 5, 8	0, 5, 8
	Female	0, 8, 2	0, 8, 2	0, 8	0, 8, 5
Rural	Both Sexes	0, 8, 2	0, 8, 2	0, 5, 8	0, 8, 5
	Male	0, 8, 2	0, 8, 2	0, 5, 8	0, 5, 8
	Female	0, 8, 2	0, 8, 2	0, 8	0, 8, 5
Urban	Both Sexes	0, 8, 2	0, 8, 2	0, 8	0, 8, 5
	Male	0, 8, 2	0, 8, 2	0, 5, 8	0, 8, 5
	Female	0, 8, 2	0, 8, 2	0, 2, 8	0, 8, 5

Digit Preference by Single Year

- Errors in age data reporting can be graphed to show cases of preferred digits

- The peaks on the curves indicate the most preferred ages in reporting while the troughs indicate the under reported ages.

Population Distribution in Single Years, Zambia, 2010
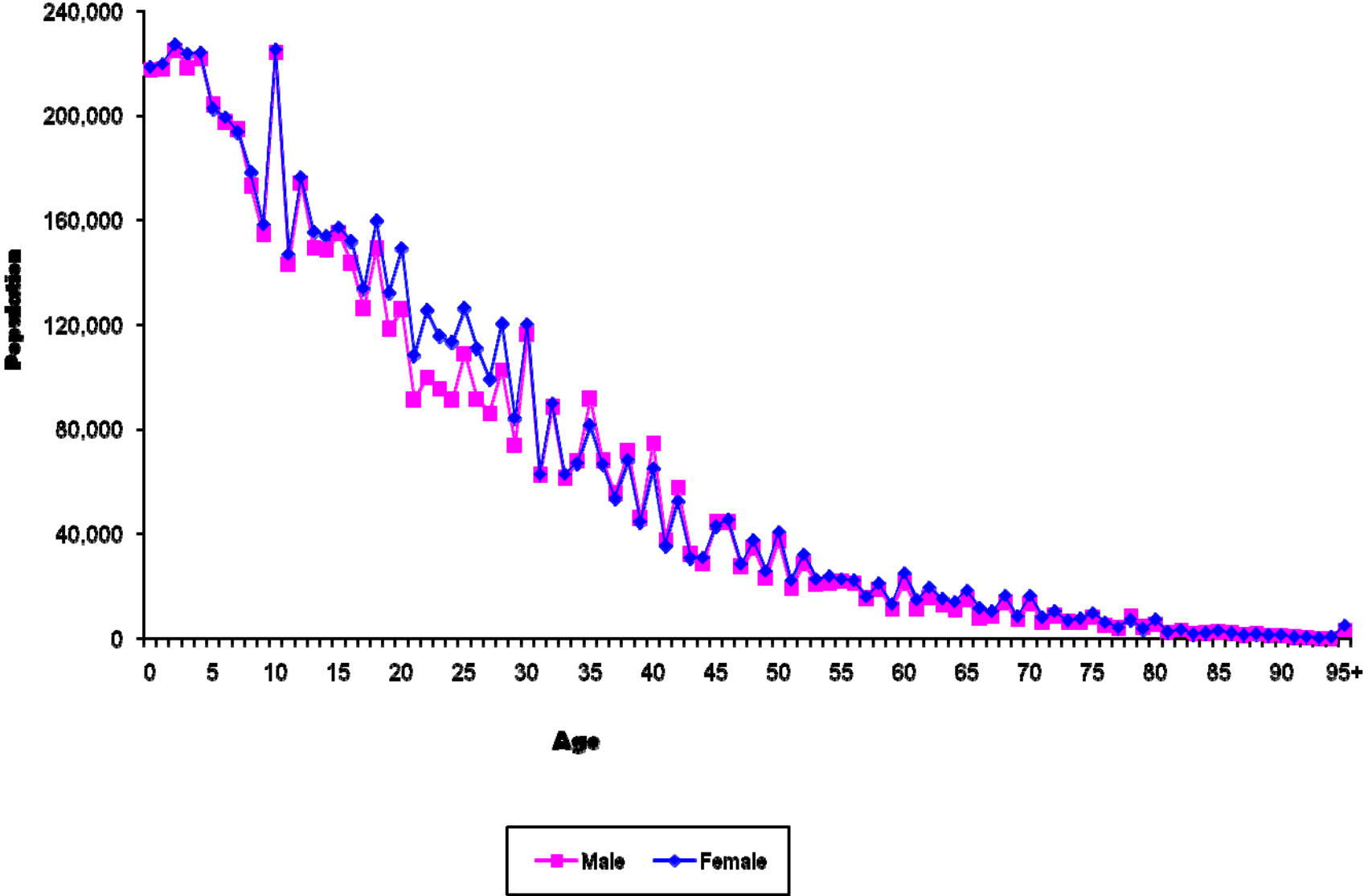
Content Errors: Sex Ratios

- In the absence of big fluctuations in births, deaths and migration, the sex ratios are expected to be high at infant ages. After early childhood, the ratios are expected to decline continuously to reach very low levels at the highest ages when female mortality is much lower than the male mortality

- Deficit of males in age groups 10-14 to age group 30-34 and excess of males over females in the age groups 35-39 and 40-44 years

- *The pattern of sex ratio for all the three censuses suggest under enumeration of children since sex ratio is supposed to be high at age groups 0-4 and 5-9 years.*

**Sex Ratio by Five Year Age Group and Census Year;
Zambia, 1980, 1990, 2000 and 2010**
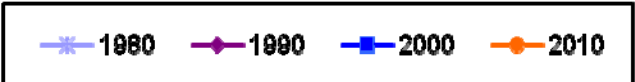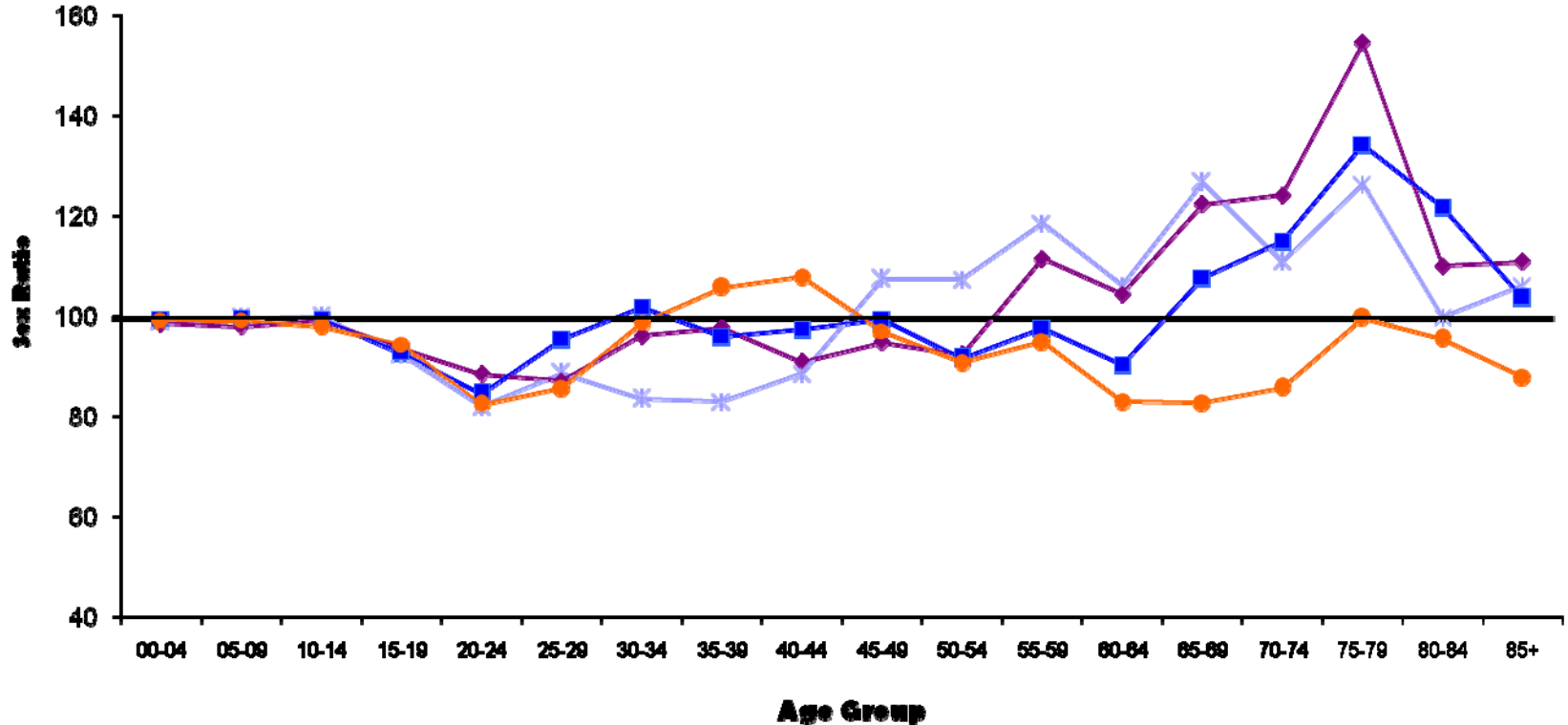
Content Errors: Age Ratios

- The quality of age data has been evaluated by examining age ratios.

- When there are no major changes in fertility, mortality or migration, the age ratios do not deviate much from 100

- Any substantial deviation is explained in terms of age misreporting.

- *The irregular patterns of the age ratios show that data could be affected by errors from age misreporting, digit preference, omission, migration or fluctuations in births and deaths.*

Age Ratios by Sex, Zambia 2010
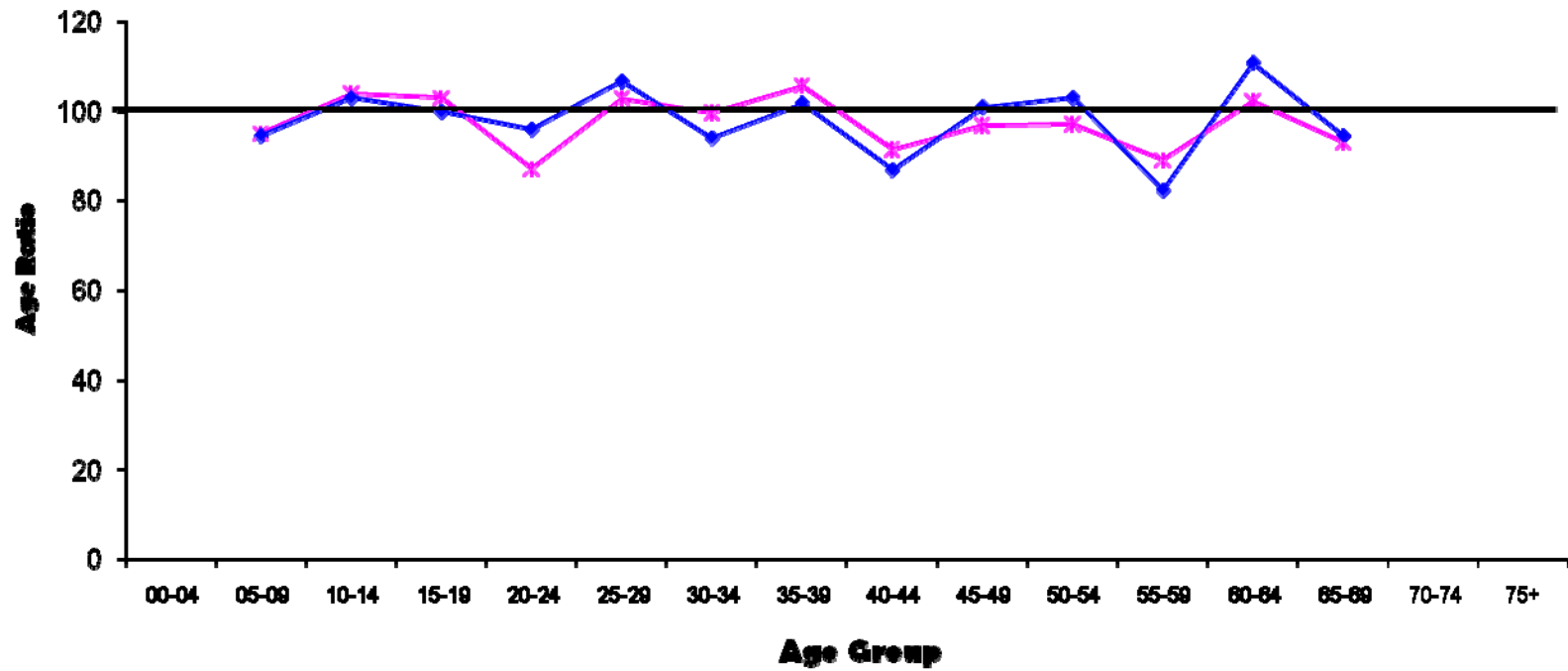
Content Errors: Age Sex Accurate Index

- The Age-Sex Accuracy Index describes the quality of age data.

- The United Nations defines age data as "accurate, inaccurate and highly inaccurate" if the Age-Sex Accuracy Index lies below 20, between 20-40, and 40 and above, respectively.

- Over time the declining ASI depicts slight improvements in age reporting

- However, using the UN interpretation of the age accuracy index, despite these improvements in the 2010 census data on age, it would still be defined as inaccurate.

Figure 2.11: Age-Sex Accuracy Index by Census Year, Zambia, 1980 - 2010
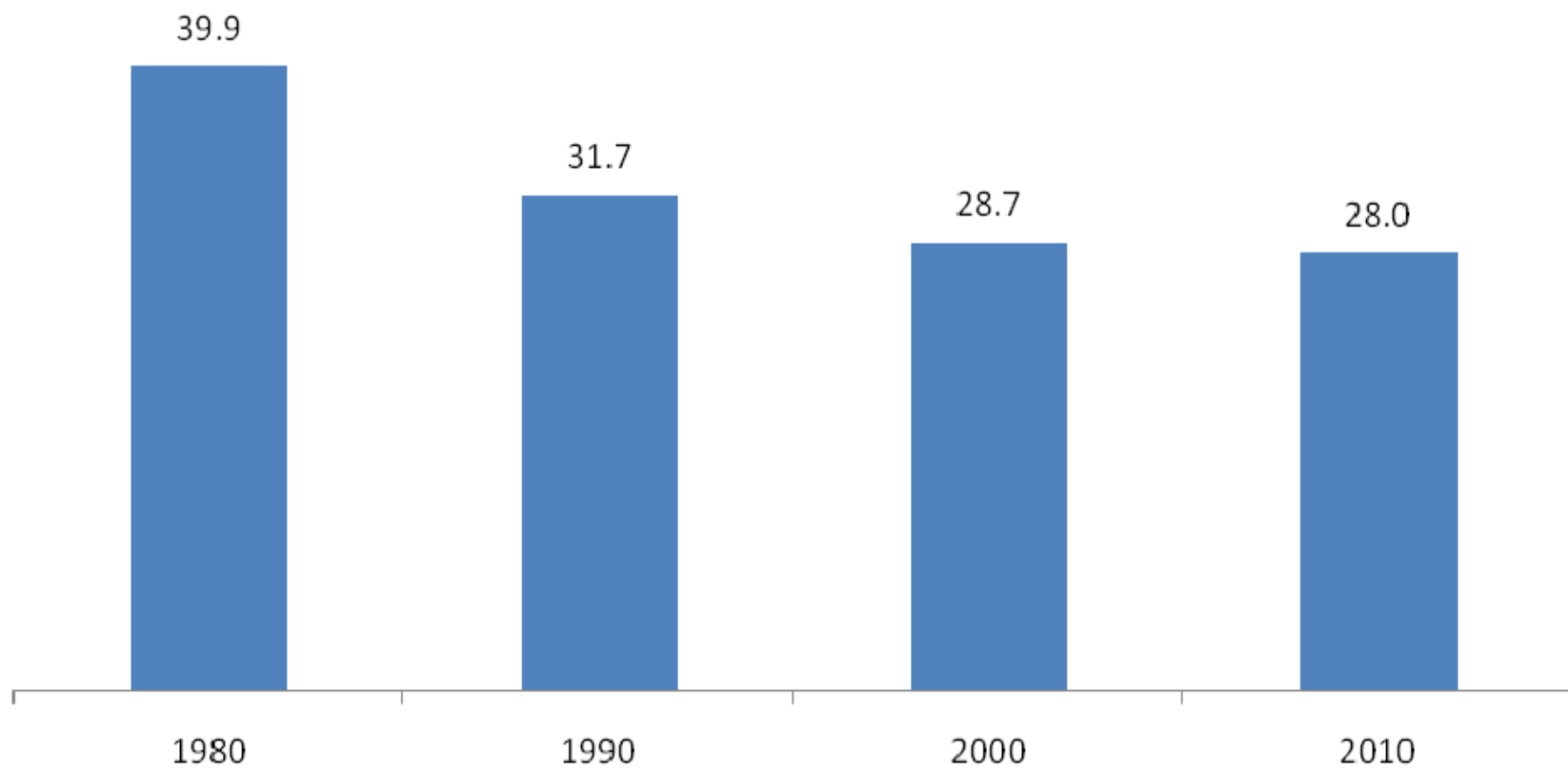
Note: A lower Age-Sex Accuracy Index indicates better quality of age data
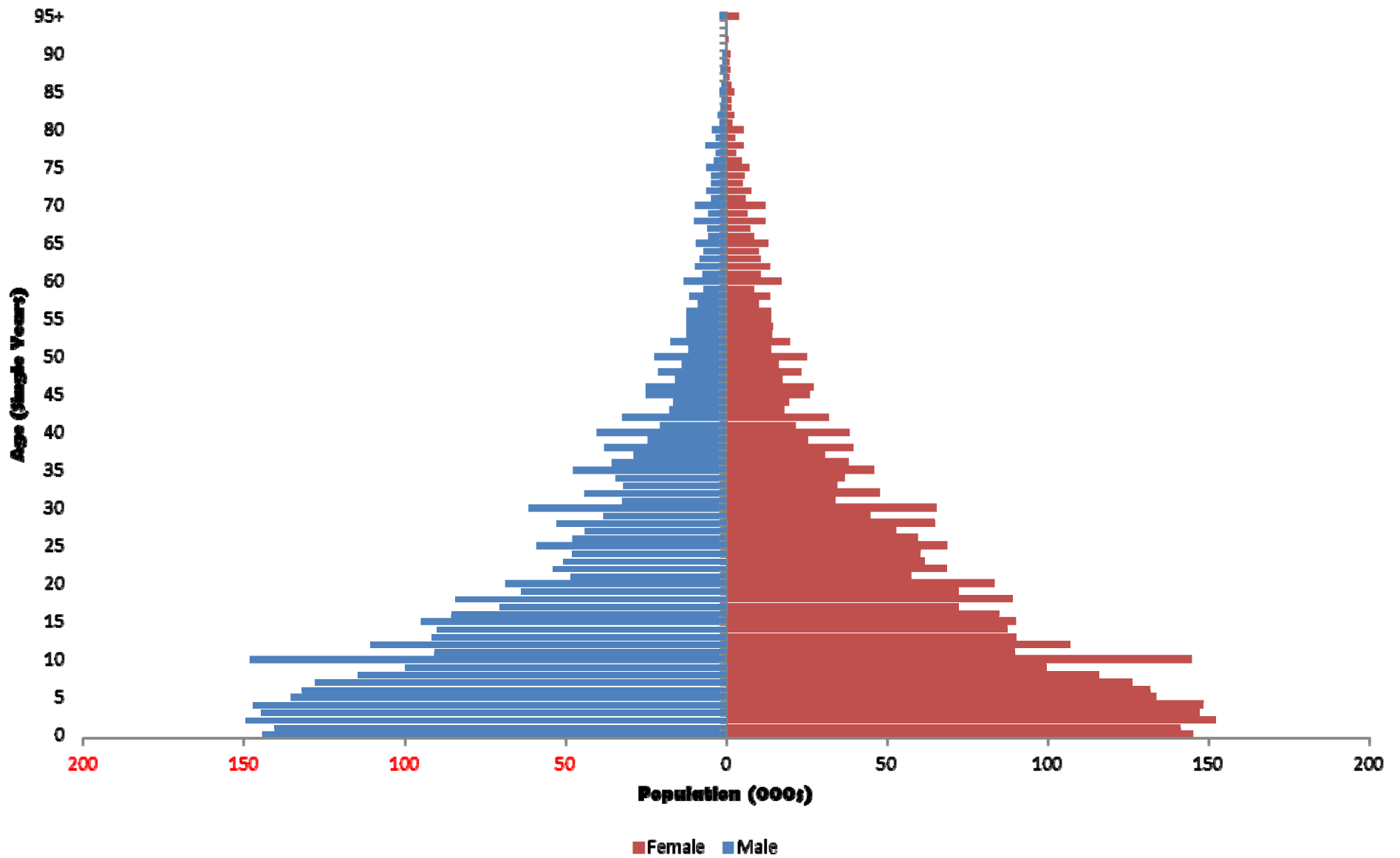
Content Errors: Population Pyramids

- Irregularities in the reported age data was analysed using population pyramids

- Inaccuracies in census age data are easily spotted when data is distributed in single years than in five year age groups.
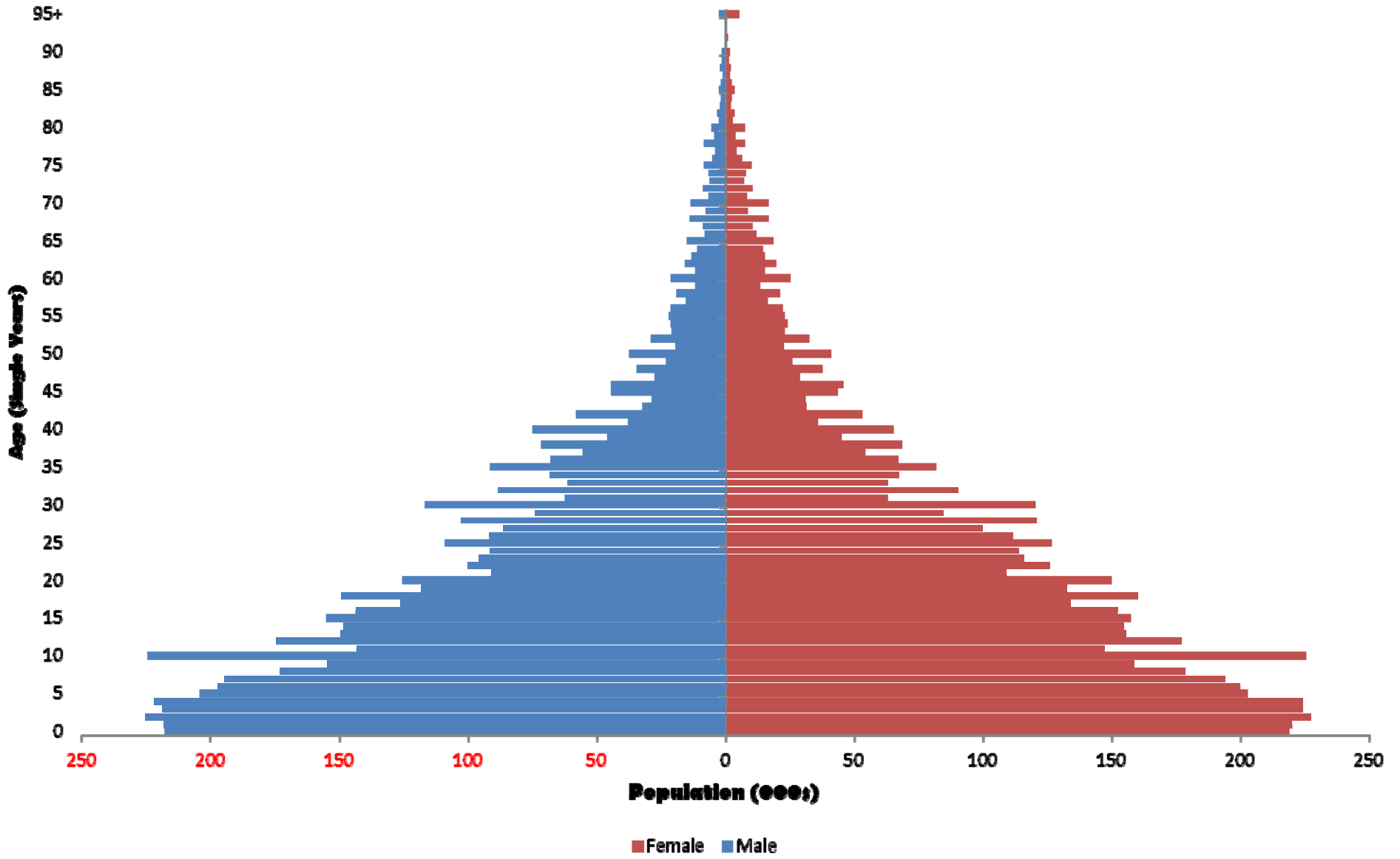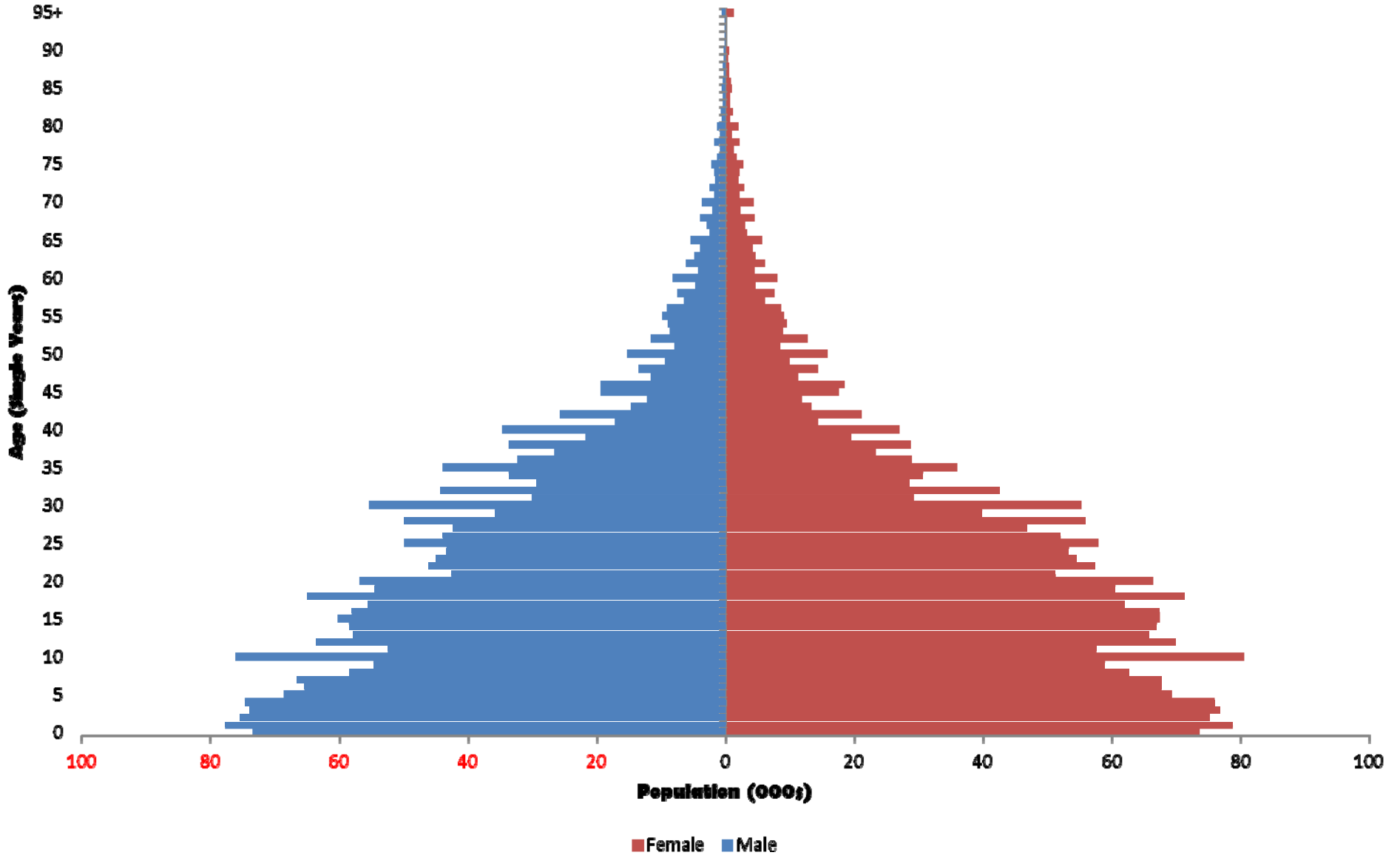
Graphical Population Distribution in Single Years; Zambia Total, 2010.

Graphical Population Distribution in Single Years; Zambia Rural, 2010.

Age (Single Years)

Population (000s)

■ Female ■ Male

Graphical Population Distribution in Single Years; Zambia Urban 2010.

Age (Single Years)

Population (000s)

■ Female ■ Male

End of Presentation

Thank You for your Attention