

An Evaluation of Age-Sex Data of Census of Population and Housing 2001 Sri Lanka

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Introduction

- Population census is a complex, large scale operation
- Perfect census is unattainable, anywhere in the world
- Census data used extensively for policy, research purposes
- Essential to evaluate data
- Confined to age-sex data (misreporting)

Objectives

- Examine the accuracy of age-sex data at
 - National level
 - District level
- Compare with previous census (1981)

Data

- Based on complete tabulations of 2001 census
- Confined to 18 districts ; Comparisons are made for 18 districts
- Age data collected by asking date of birth from every individual
- Asked to confirm with available documents (NIC, BC etc.)
- If not known and documents not available probe to get best estimate

Methodology

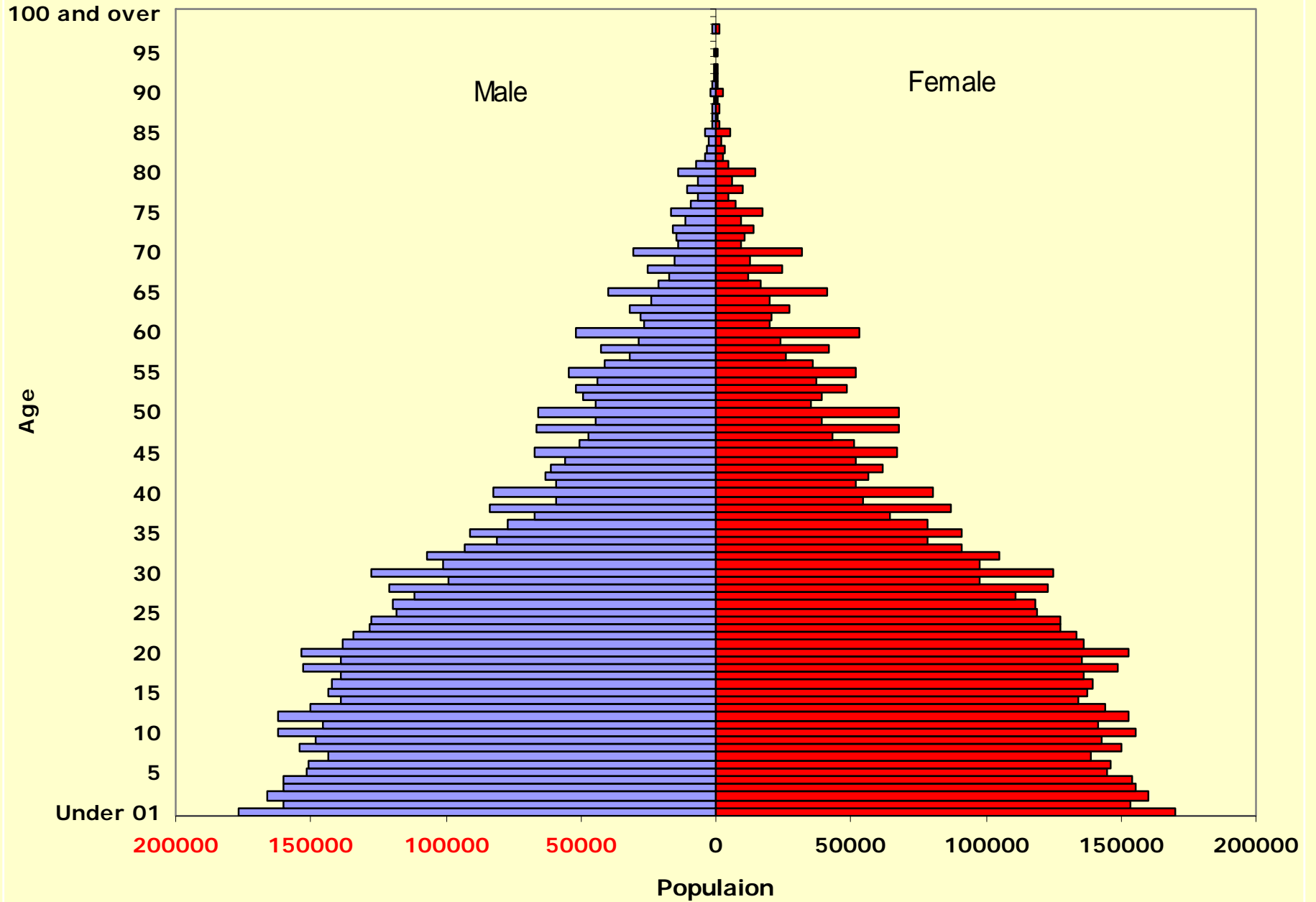
- Graphical presentation of age and sex data
- Examine Age accuracy indices
 - U.N. age-sex accuracy index

U.N. Age-Sex Accuracy Index

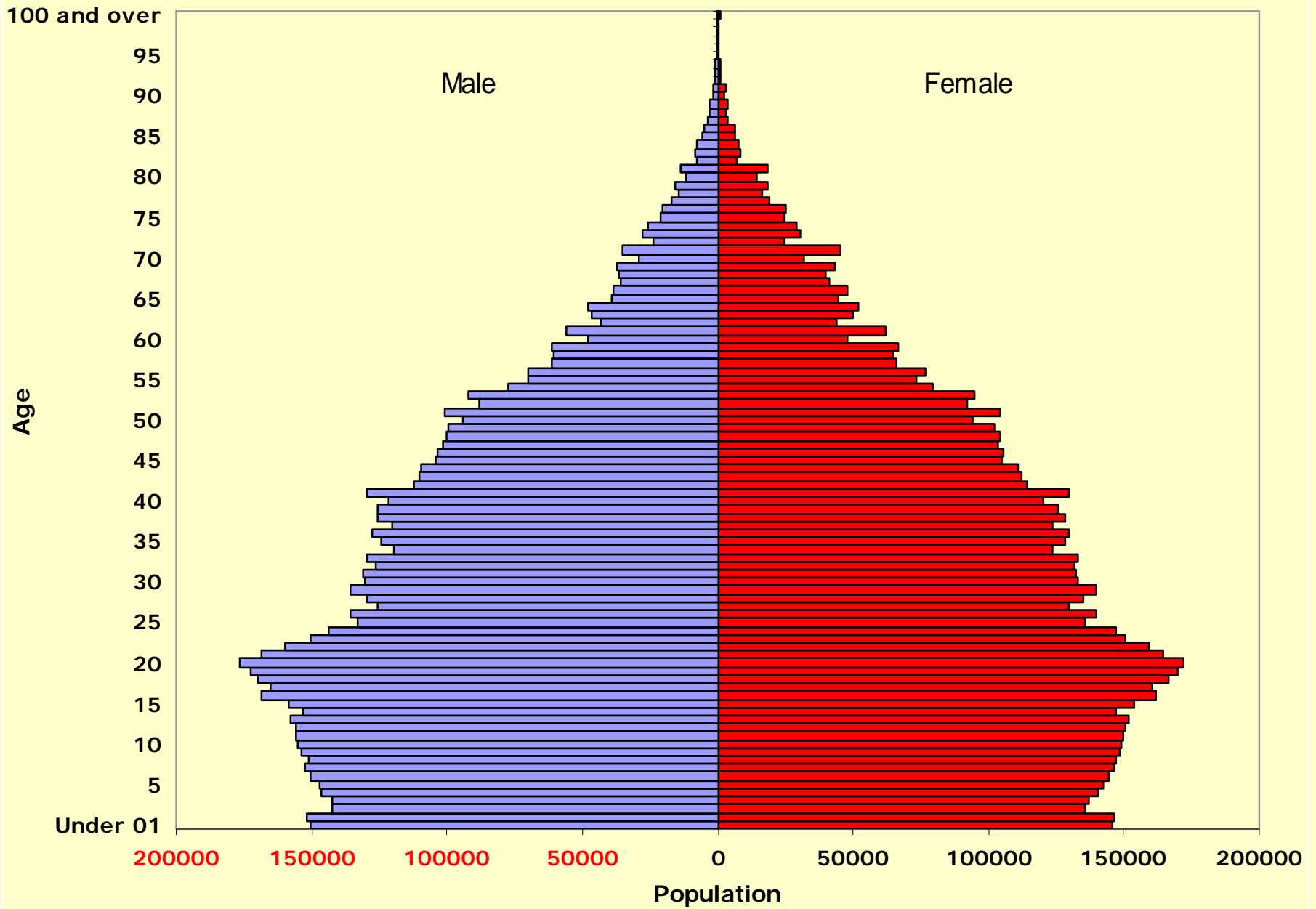
- Measures sex-specific omission of persons in addition to age misreporting
- Based on 5 year age groups
- Sex ratio score and age ratio scores by sex are computed
- U.N. Joint Score = $3(\text{S.R.Score}) + 1(\text{A.R. Score}_M) + 1(\text{A.R.Score}_F)$
- U.N.I. < 20 \Rightarrow data reasonably reliable
- $20 \leq \text{U.N.I.} \leq 40 \Rightarrow$ data fairly reliable
- U.N.I. > 40 \Rightarrow data unreliable

Graphical Presentation of Age, Sex data

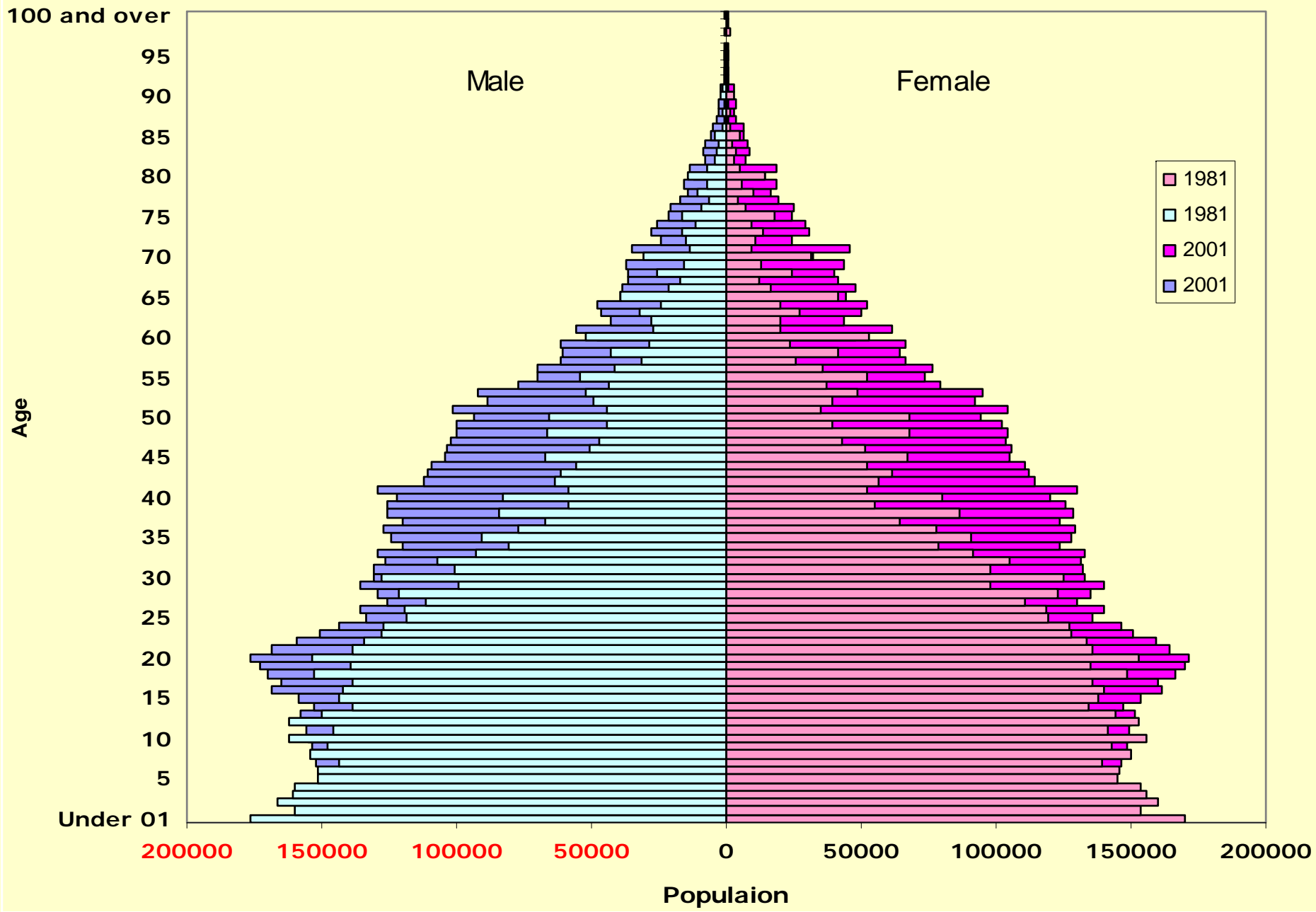
Age pyramid, 1981



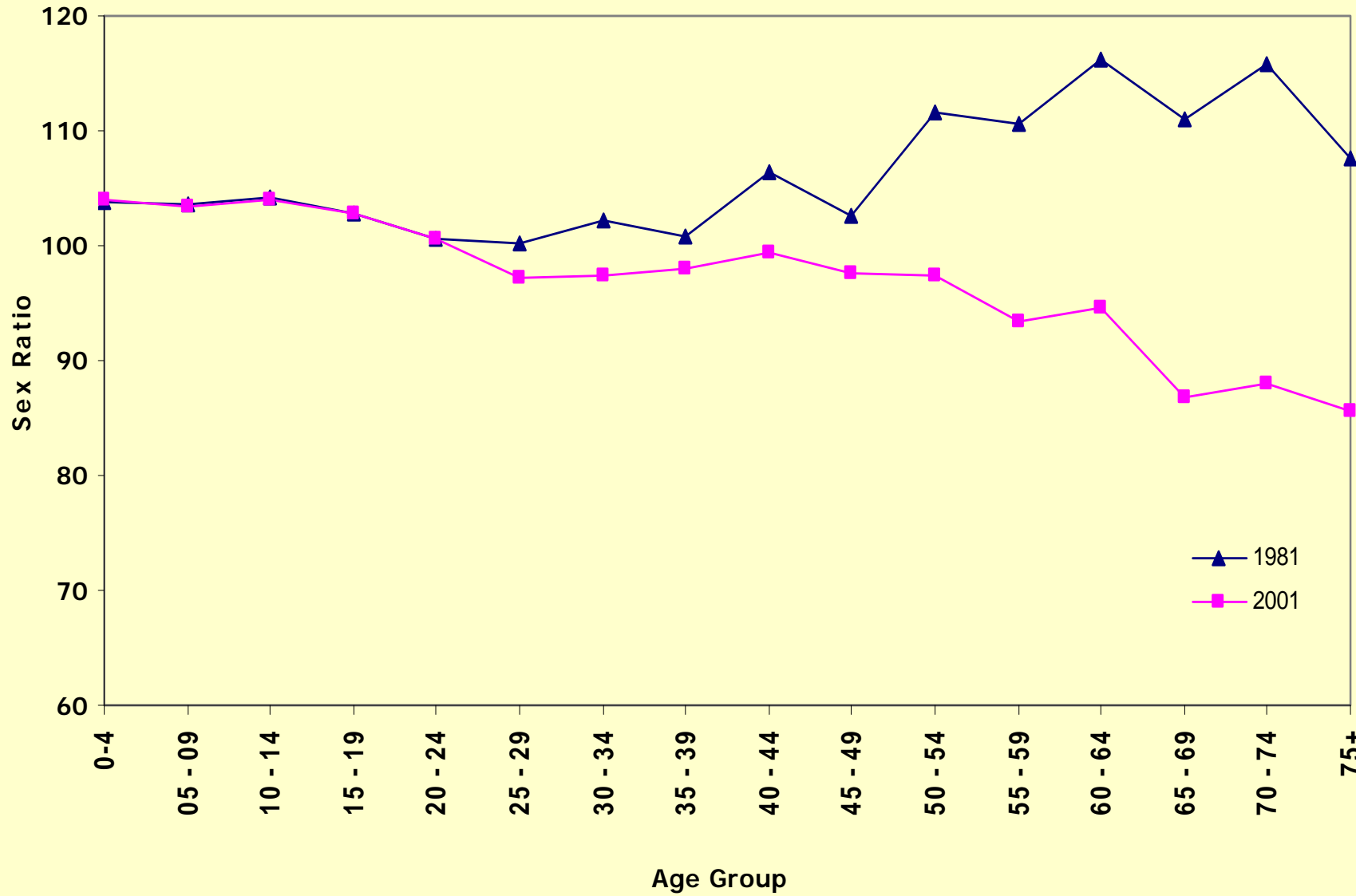
Age pyramid, 2001



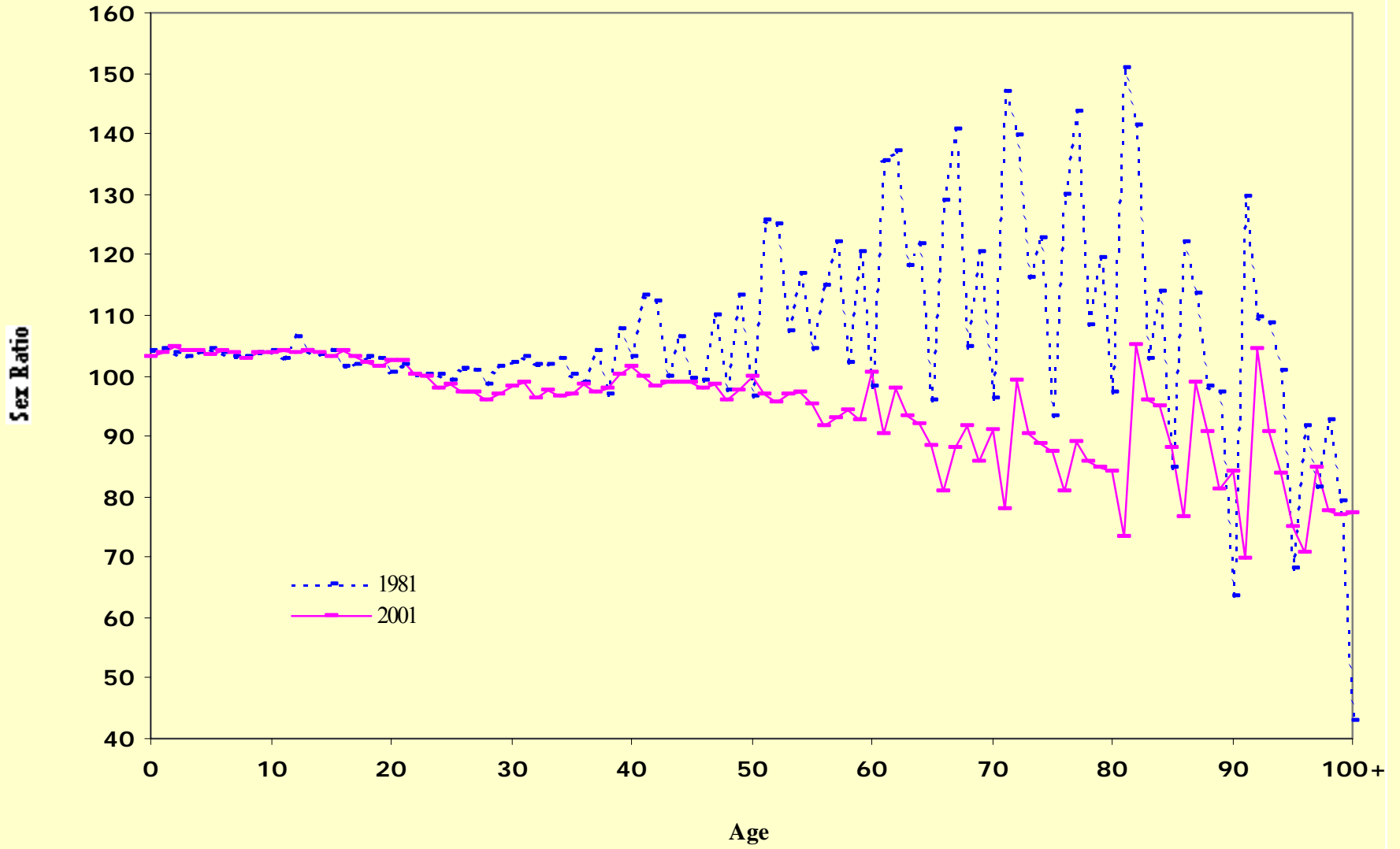
Age pyramids, 1981 and 2001



Age-specific sex ratios, 1981 and 2001



Sex ratios by single years of age , 1981 and 2001

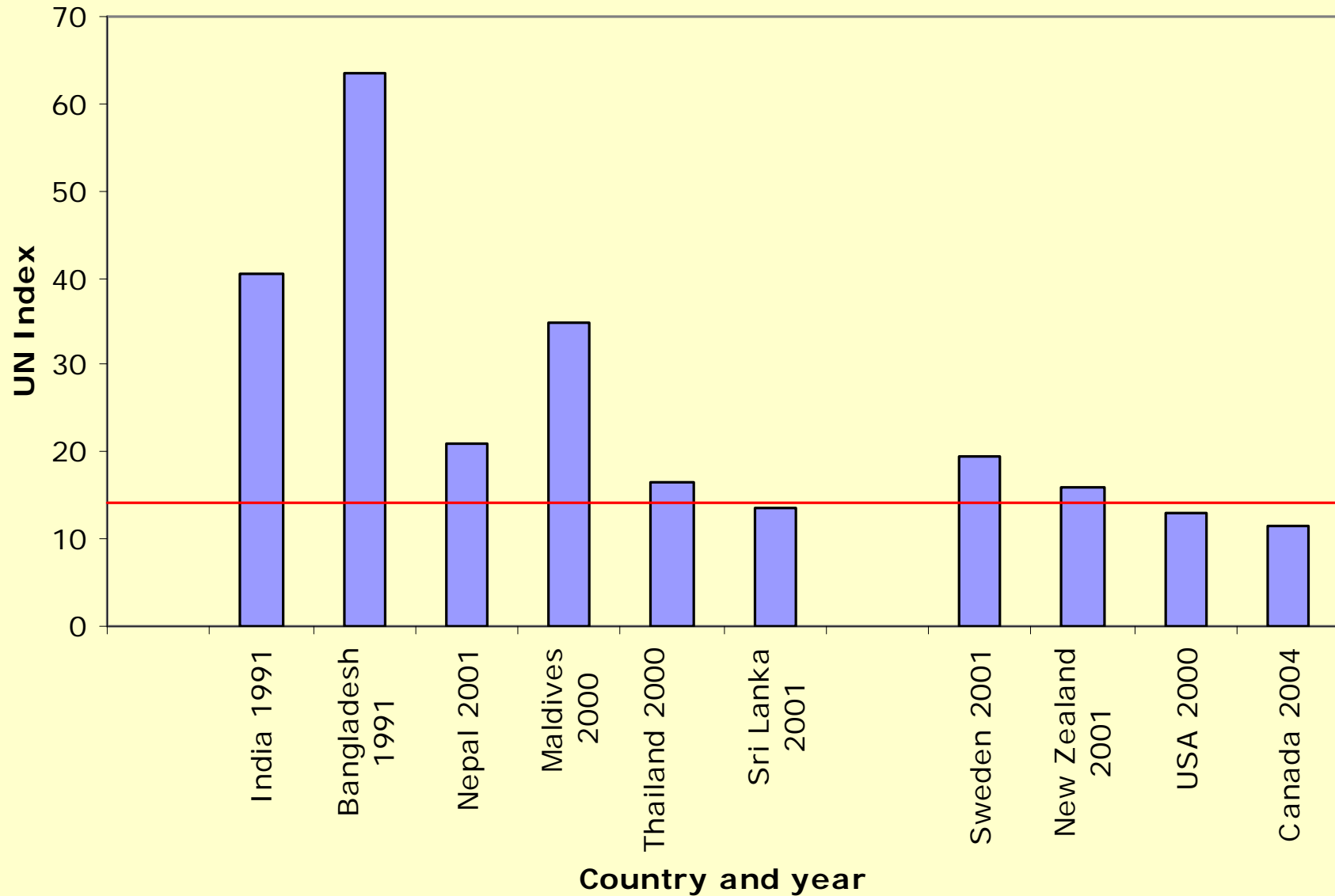


Results from Age-accuracy indices

U.N. Age-sex accuracy index - 1981 and 2001

Census year	Sex-ratio score	Age-ratio score		U.N. index
		Male	Female	
1981	3.1	4.7	3.4	17.5
2001	1.9	4.1	3.9	13.6
Percent change	-38.7	-12.8	14.7	-22.3

Comparison of U.N. Index with other countries



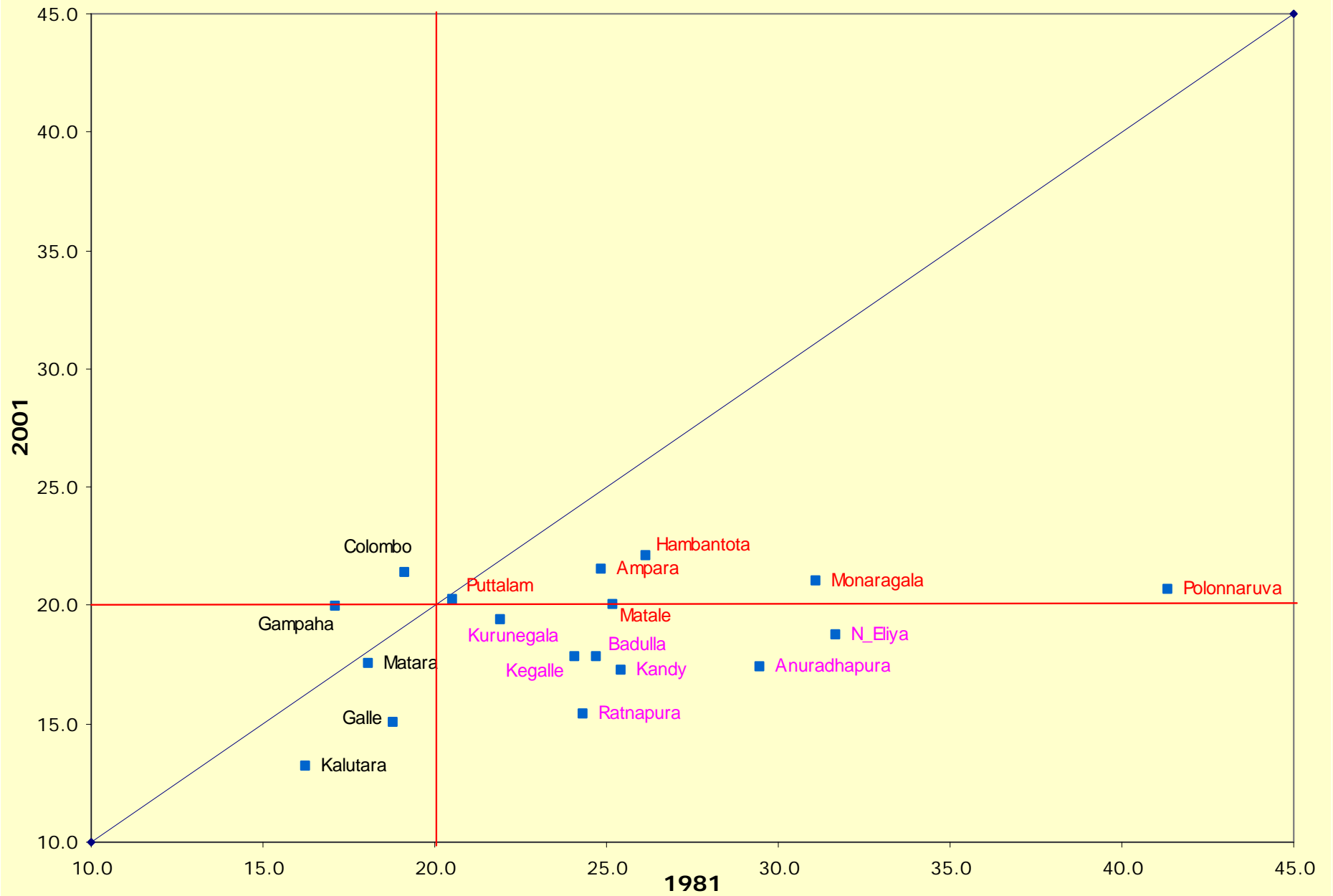
U.N. Age-sex accuracy index by residence 1981 and 2001

Residence	1981	2001	Percentage change
Urban	20.3	18.6	-8.4
Rural	18.7	14.4	-23.0

U.N. Age-sex accuracy index by districts - 1981 and 2001

District	1981	2001	Percent change
Colombo	19.2	21.4	11.5
Gampaha	17.1	20.0	17.0
Kalutara	16.3	13.2	-19.0
Kandy	25.4	17.3	-31.9
Matale	25.2	20.0	-20.6
Nuwara Eliya	31.7	18.8	-40.7
Galle	18.8	15.0	-20.2
Matara	18.1	17.5	-3.3
Hambantota	26.2	22.1	-15.6
Ampara	24.9	21.5	-13.7
Kurunegala	21.9	19.4	-11.4
Puttalam	20.6	20.3	-1.5
Anuradhapura	29.5	17.4	-41.0
Polonnaruwa	41.3	20.7	-49.9
Badulla	24.7	17.8	-27.9
Monaragala	31.1	21.0	-32.5
Ratnapura	24.3	15.4	-36.6
Kegalle	24.1	17.8	-26.1
Total	17.5	13.6	-22.3

UN Age-sex accuracy index for districts, 1981 and 2001



Age ratios and sex ratios - Colombo, 2001

Age	Population		Age ratio		Sex ratio
	Male	Female	Male	Female	
0-4	85,276	81,228	-	-	105.0
5-9	82,036	77,866	99.2	99.2	105.4
10-14	80,158	75,716	86.0	87.8	105.9
15-19	104,340	94,536	96.7	98.6	110.4
20-24	135,584	116,003	124.9	119.1	116.9
25-29	112,710	100,183	95.6	96.9	112.5
30-34	100,122	90,804	99.1	97.5	110.3
35-39	89,406	86,037	98.8	101.4	103.9
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- Smoothing the data at 20-24 reduces index from 21.4 to 17.8

Age ratios and sex ratios - Gampaha, 2001

Age	Population		Age ratio		Sex ratio
	Male	Female	Male	Female	
0-4	84,336	81,287	-	-	103.8
5-9	80,753	77,368	99.1	99.7	104.4
10-14	78,555	73,970	89.3	84.0	106.2
15-19	95,184	98,841	101.1	102.4	96.3
20-24	109,829	119,024	118.9	122.5	92.3
25-29	89,622	95,558	93.1	93.0	93.8
30-34	82,626	86,379	99.3	98.5	95.7
35-39	76,747	79,744	100.8	100.4	96.2
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- Smoothing the data at 20-24 reduces index from 20.4 to 16.4

Conclusions

- Age-Sex data collected in the 2001 census are very accurate
- Sri Lanka falls into highest accuracy levels among developing Asian countries
- Accuracy of age-sex data is higher for rural areas. Need to pay more attention to urban areas in future

- General accuracy of age-sex data are needed for 6 districts
viz. Hambantota, Ampara, Moneragala, Polonnaruwa, Puttalam and Matale
- Alternative approaches for improving U.N. Age-Sex accuracy index need to be explored (Principal Component Analysis)

THANK YOU !