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# Evaluation of socioeconomic data collected from censuses

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**United Nations Workshop on Census Data Evaluation for English Speaking African Countries  
Kampala, Uganda  
12 – 16 November 2012**



# Overview

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1. Socioeconomic data from censuses – questions and definitions
  2. Evaluation of socioeconomic data
    - a) Household size and composition
    - b) Marital status
    - c) Literacy and school attendance
    - d) Economic activity
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## Socioeconomic data from censuses

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- The definitions used for socioeconomic indicators can have a significant impact on results
  - Consistency in how the question is phrased and how respondents understand the terms is key for internal consistency of the data
  - Close inspection of definitions used must accompany any use of outside data sources for comparison of results
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## What can be done to check data quality?

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- Check the internal consistency of the data
  - Whether plausible when tabulated or cross-tabulated with other characteristics
- Compare with other sources (indirect comparison)
  - Make sure that definitions used are consistent
  - Graph the derived indicators
  - Cohort analysis of certain indicators
  - Disaggregate by sex and age
- Compare with other sources, direct comparison
  - Re-interview surveys, where people were re-interviewed and content of the census responses is verified



# Main types of socioeconomic characteristics from censuses

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- Household and family characteristics
    - Relationship to household head or other reference member
  - Demographic and social characteristics
    - Age
    - Sex
    - Marital status
  - Educational characteristics
    - Literacy
    - School attendance
    - Educational attainment
  - Economic characteristics
    - Economic activity status (labor force participation)
    - Occupation
    - Industry
    - Status in employment
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Core topics from the *Principles and Recommendations for Population and Housing Censuses, Rev. 2*



# Household composition

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- ❑ Most censuses use the household as the unit of enumeration
  - A “household” is typically defined by the common provision of food or other essentials
    - ❑ A household may consist of one person who provides for these essentials on his own
    - ❑ Not all household members (or even no household members) need be related
  - A “family” consists of individuals who are related by blood, adoption or marriage
    - ❑ Must contain at least 2 individuals
- In many countries, there may be multiple family units residing in one household



# Relation to head of household

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- Because households may contain many types of family and non-family relationships, it is recommended that all individuals be identified in relation to the household head or other reference person
  - The “head” of the household (or other reference person) should be defined in way that makes most sense for local context – most important issue is consistency
- Other members of the household are then defined based on the following categories:
  - Spouse; partner in a consensual union (cohabiting partner); child; spouse of child; grandchild or great-grandchild; parent or parent of spouse; other relative; domestic employee; other person not related to the reference person



# Marital status

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- ❑ Determining who is “married” varies by context
  - In some societies, marriage is a multi-stage process
  - Increasing rates of unmarried cohabitation in some countries
  - Increasing rates of marital dissolution and/or failure to obtain legal divorces even when the relationship has ended (de facto separation)
- ❑ In relation to local laws and customs, it is recommended that categorizations of marital status include at least the following:
  - Never married; married; widowed (not remarried); divorced (not remarried); married but separated

Source: *Principles and Recommendations for Population and Housing Censuses, Rev.2*, United Nations, 2008





# Education

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- ❑ Three core concepts
  - **Literacy** – ability to read and write a short, simple statement
  - **School attendance** – current, regular attendance at an accredited educational institution or program
    - ❑ Distinguished from enrollment, which means that the student is officially registered at school, not necessarily that s/he actually goes to class
  - **Educational attainment** – highest grade completed within the most advanced level reached in the educational system (1997 ISCED classification)



# Economic activity

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- ❑ Activity status – a person's relationship to economic activity during a short reference period (typically a week)
  - **Employed** – a person who worked a defined, minimum amount of time over the reference period (may be as little as an hour)
  - **Unemployed** – a person who did not work the minimum amount of time during the reference period but was willing and able to work and looking for a job
  - **Inactive** (out of labor force)– a person who did not work the minimum amount of time during the reference period and did not want to work/was not looking for work
- ❑ Both the employed and the unemployed are economically active!
  - Employed + unemployed = labor force



# Economic activity

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## □ Difficulties:

- What does “work” mean?
  - Goods and services produced for the market
  - Goods produced for own-use (replacing need to buy on market)
  - In practice, this is quite difficult to measure, especially in areas with large agricultural or informal economies
  - Women’s home-based production in particular is often undercounted in surveys
- What does “looking for a job” mean?
  - E.g. some persons may have registered at a government labor office months ago, but done nothing else. Are they looking for a job?



# Additional economic characteristics

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- ❑ **Occupation** – type of work that the person performs (most recent ISCO classification)
- ❑ **Industry** – kind of production that the establishment in which the person works engages in (most recent ISIC classification)
- ❑ **Status in employment** – type of contract the person has with his place of work (ICSE from the ILO)
  - Recommended categories: Employee; Employer; Own-account worker; Contributing family worker; Members of producer cooperatives; Persons not classifiable by status

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Source: *Principles and Recommendations for Population and Housing Censuses, Rev.2*, United Nations, 2008





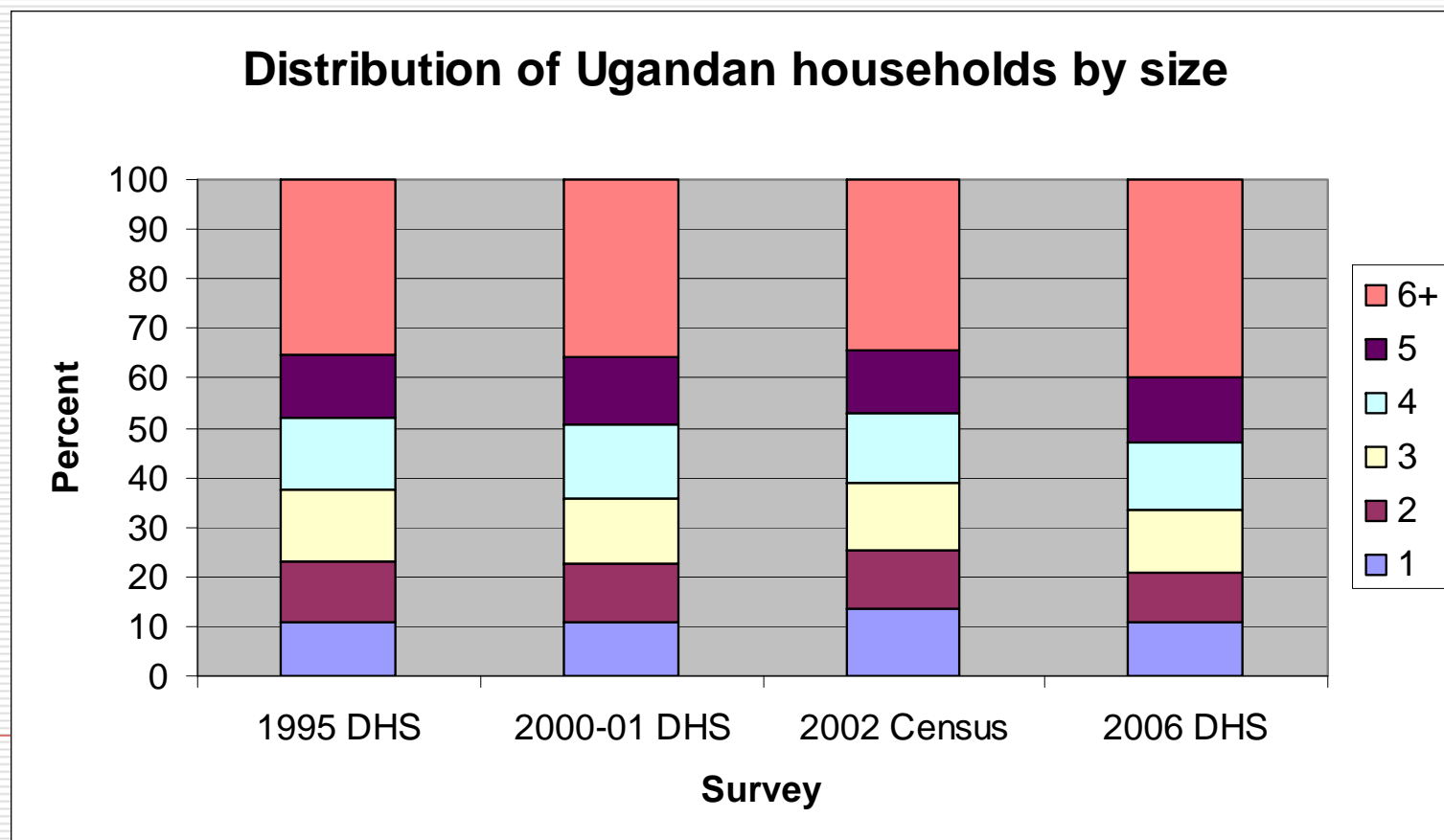
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# Evaluation of data



# Household size – comparison with other sources

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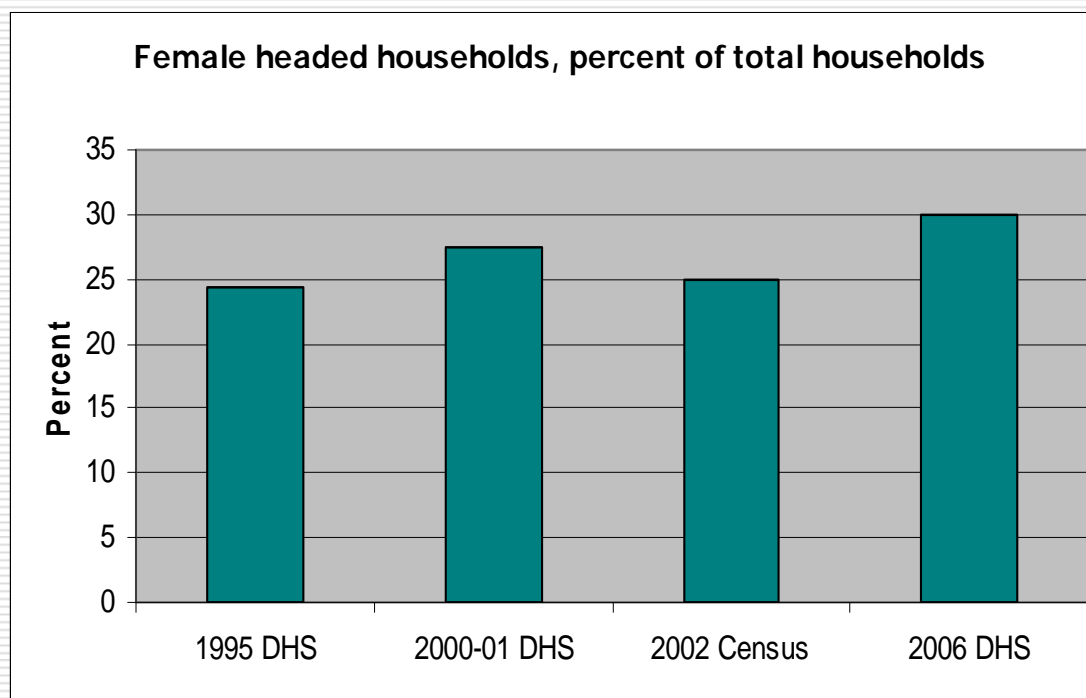


Data source:  
graph produced  
based on data  
from the United  
Nations  
*Demographic  
Yearbook* and  
DHS  
STATcompiler



# Household composition – female headship

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Data source: graph produced based on data from the United Nations *Demographic Yearbook* and DHS STATcompiler

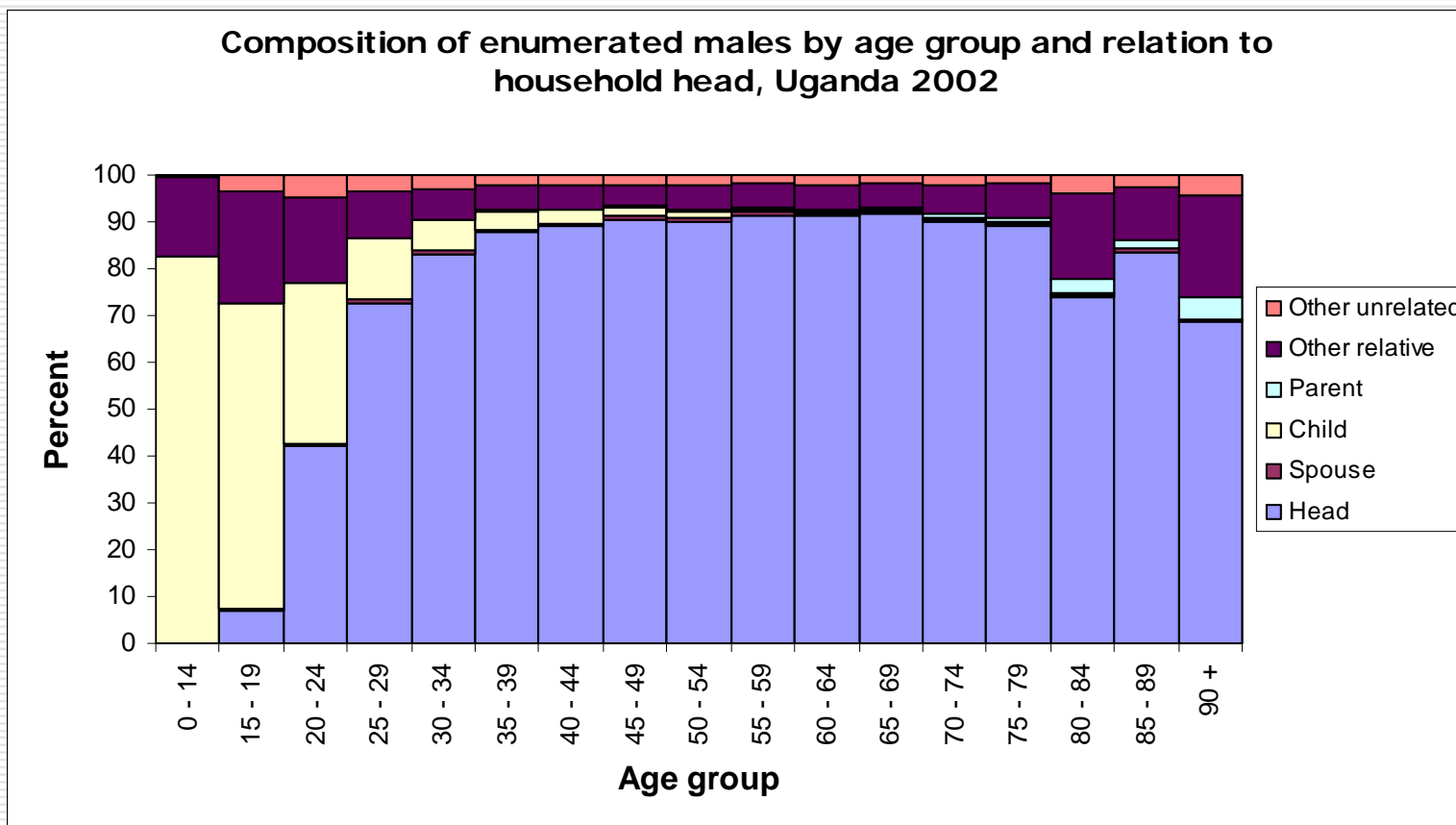
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# Household composition by age and sex (1)

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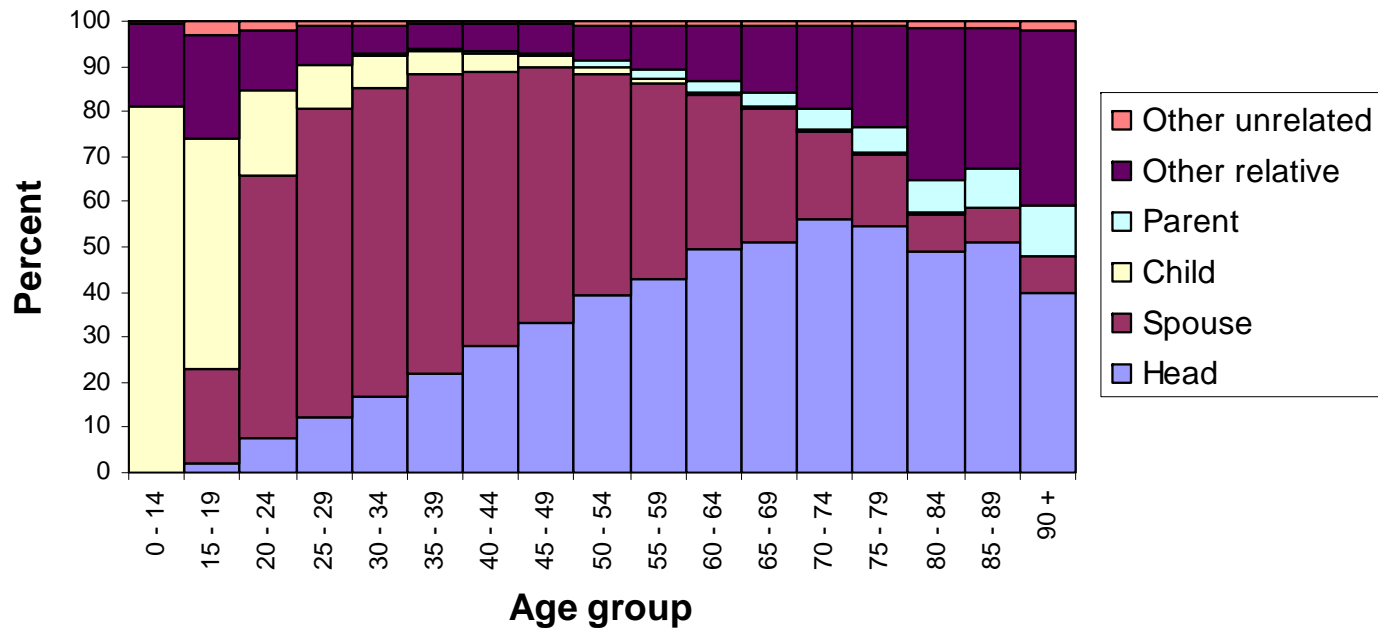
Data source:  
Graph  
produced  
based on data  
from the  
United  
Nations  
*Demographic  
Yearbook*



# Household composition by age and sex (2)

United Nations Statistics Division

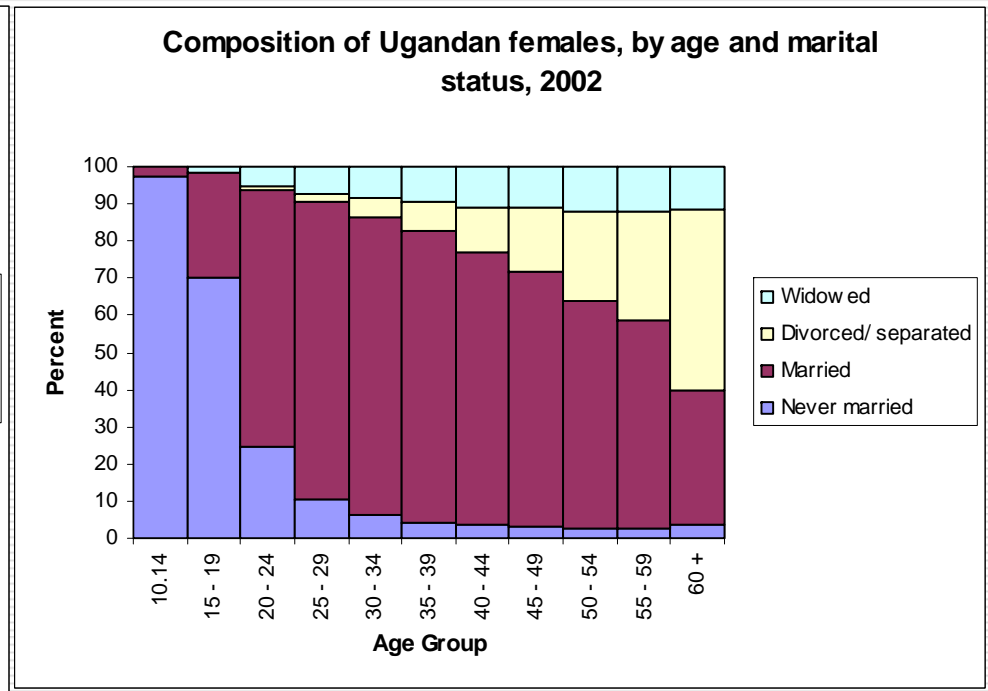
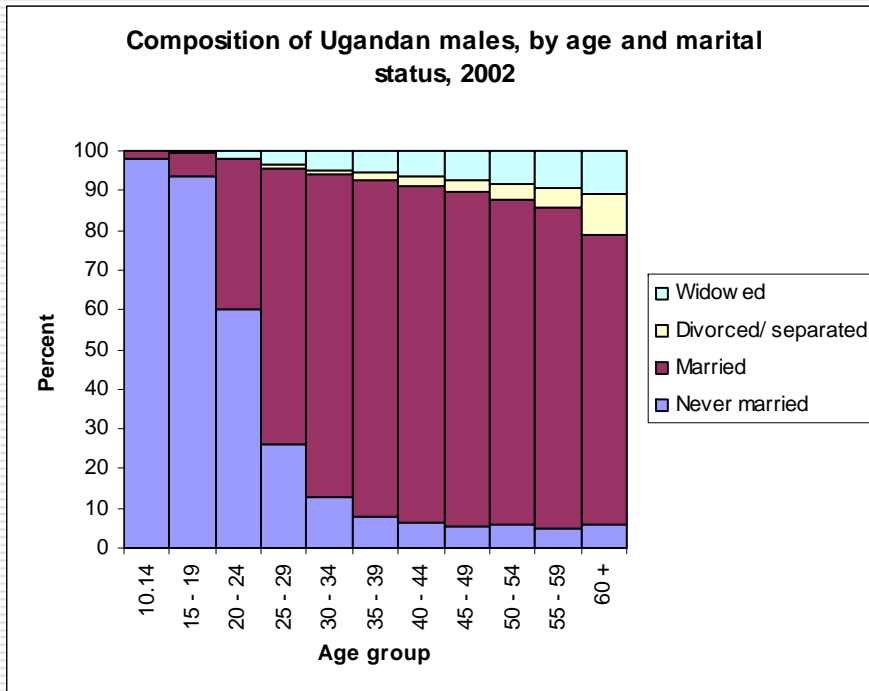
Composition of enumerated females, by age and relation to household head, Uganda 2002



Data source:  
Graph  
produced  
based on data  
from the  
United Nations  
*Demographic  
Yearbook*



# Marital status



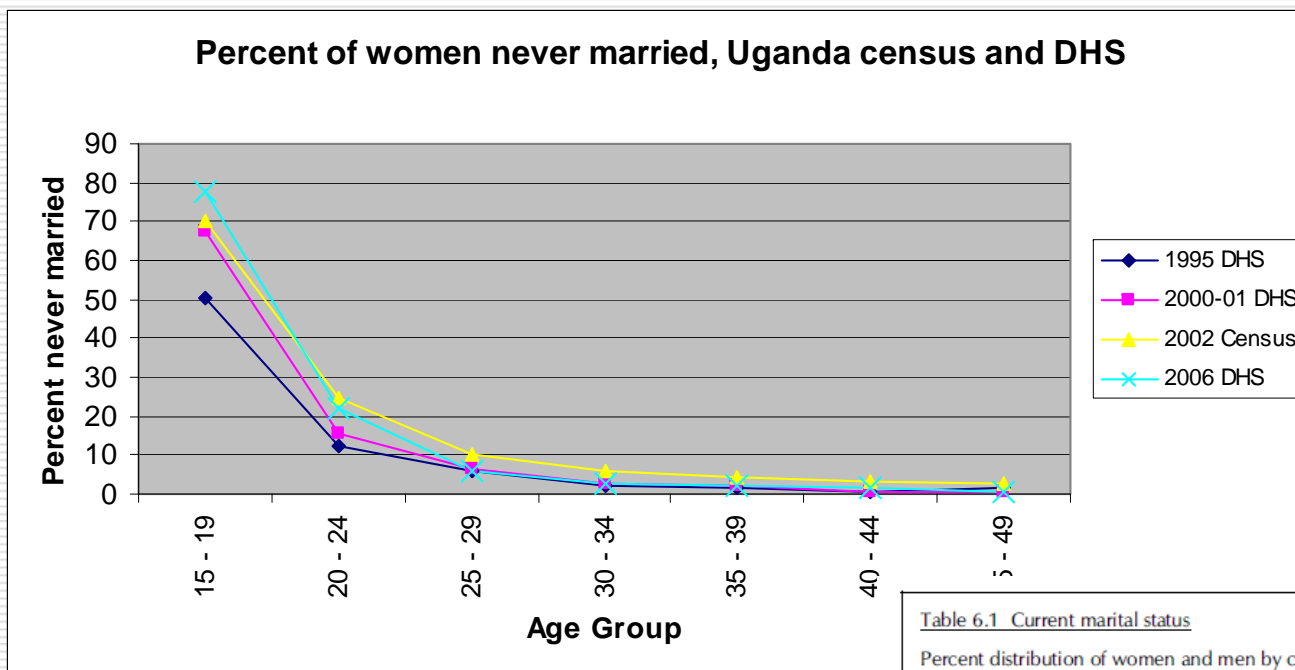
Data source: Graph produced based on data from the United Nations *Demographic Yearbook*



# Percent never married –

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# comparison with outside sources



Source: United Nations Demographic Yearbook and DHS Uganda country reports

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Table 6.1 Current marital status

Percent distribution of women and men by current marital status, according to age, Uganda 2000-2001

Age	Marital status						Total	Number
	Never married	Married	Living together	Widowed	Divorced	Not living together		
WOMEN								
15-19	67.7	16.7	12.2	0.0	0.1	3.2	100.0	1,615
20-24	15.3	47.4	29.1	0.7	0.8	6.7	100.0	1,504
25-29	6.2	55.2	25.1	2.4	0.2	10.8	100.0	1,341
30-34	2.6	55.3	26.8	4.0	1.3	10.1	100.0	983
35-39	2.2	56.6	23.9	6.4	1.1	9.7	100.0	810
40-44	0.6	56.4	19.1	9.3	2.2	12.3	100.0	570
45-49	0.5	52.3	18.0	13.4	4.5	11.4	100.0	423
Total	20.1	45.1	22.3	3.4	1.0	8.2	100.0	7,246



# Singulate Mean Age at First Marriage (SMAFM)

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- Technique for estimating the mean age at first marriage when actual dates of marriage are not available
  - Is a period measure (uses a synthetic cohort)
- Very simple data requirements:
  - Total number of women by 5-year age groups
  - Total number of ever-married women by 5-year age groups



# SMAFM calculation (1)

	A	B	C	D	E	F	G
1	<b>Singulate Mean Age at First Marriage, Uganda 2002</b>						
2							
3	<b>Age</b>	<b>Total women</b>	<b>Ever-married women</b>	<b>PEM<sub>x</sub> = (2)/(1)</b>	<b>S<sub>x</sub></b>	<b>n S<sub>x</sub></b>	
4		<b>(1)</b>	<b>(2)</b>	<b>(3)</b>			
5	0 - 4	2,272,297	0	0			
6	5 - 9	2,002,895	0	0			
7	10 - 14	1,751,983	41,360	0.024			
8	15 - 19	1,383,564	411,065	0.297			
9	20 - 24	1,192,989	898,688	0.753			
10	25 - 29	946,960	848,639	0.896			
11	30 - 34	711,656	668,129	0.939			
12	35 - 39	528,430	506,944	0.959			
13	40 - 44	427,753	413,149	0.966			
14	45 - 49	285,083	276,787	<b>0.971</b>			
15							
16							
17							
18							
19							
20							

PEM<sub>ult</sub>

Source: Wachter, Ken, *Essential Demographic Methods*, Data from United Nations *Demographic Yearbook*



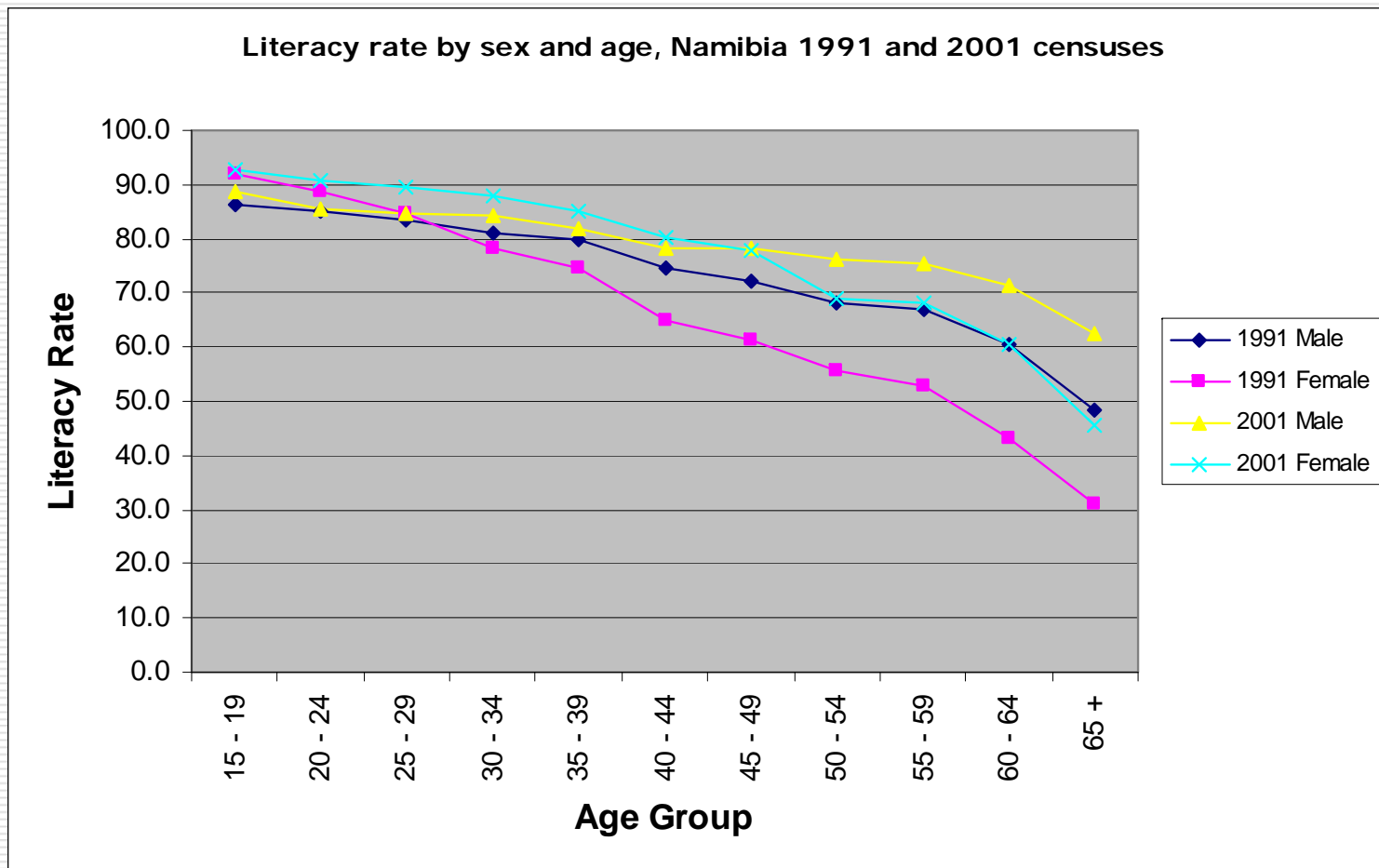
# SMAFM calculation (2)

Microsoft Excel window showing the calculation of SMAFM for Uganda 2002. The spreadsheet is titled "Uganda\_HH.xls" and displays the following data:

Age	Total women (1)	Ever-married women (2)	PEM <sub>x</sub> = (2)/(1) (3)	S <sub>x</sub> = 1 - PEM <sub>x</sub> /PEM <sub>ult</sub> (4)	n*S <sub>x</sub> (5)
0 - 4	2,272,297	0	0	1.000	5.000
5 - 9	2,002,895	0	0	1.000	5.000
10 - 14	1,751,983	41,360	0.024	0.976	4.878
15 - 19	1,383,564	411,065	0.297	0.694	3.470
20 - 24	1,192,989	898,688	0.753	0.224	1.121
25 - 29	946,960	848,639	0.896	0.077	0.385
30 - 34	711,656	668,129	0.939	0.033	0.166
35 - 39	528,430	506,944	0.959	0.012	0.060
40 - 44	427,753	413,149	0.966	0.005	0.026
45 - 49	285,083	276,787	0.971	0.000	0.001
SMAFM =			Σ n*S <sub>x</sub>	20.107	



# Literacy rate

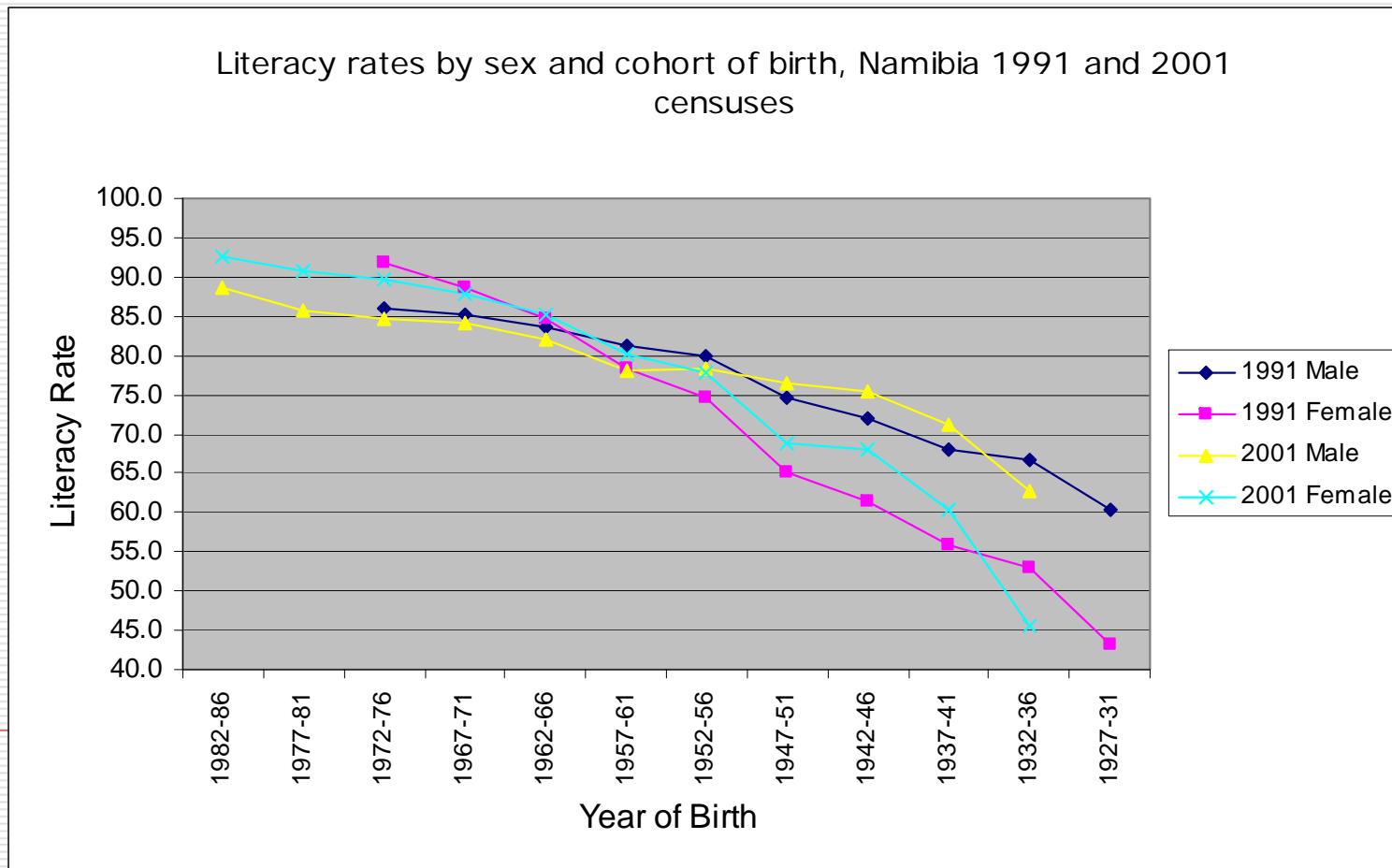


Data source:  
Graph  
produced  
based on  
data from  
the United  
Nations  
*Demographic  
Yearbook*





# Literacy rate – cohort analysis

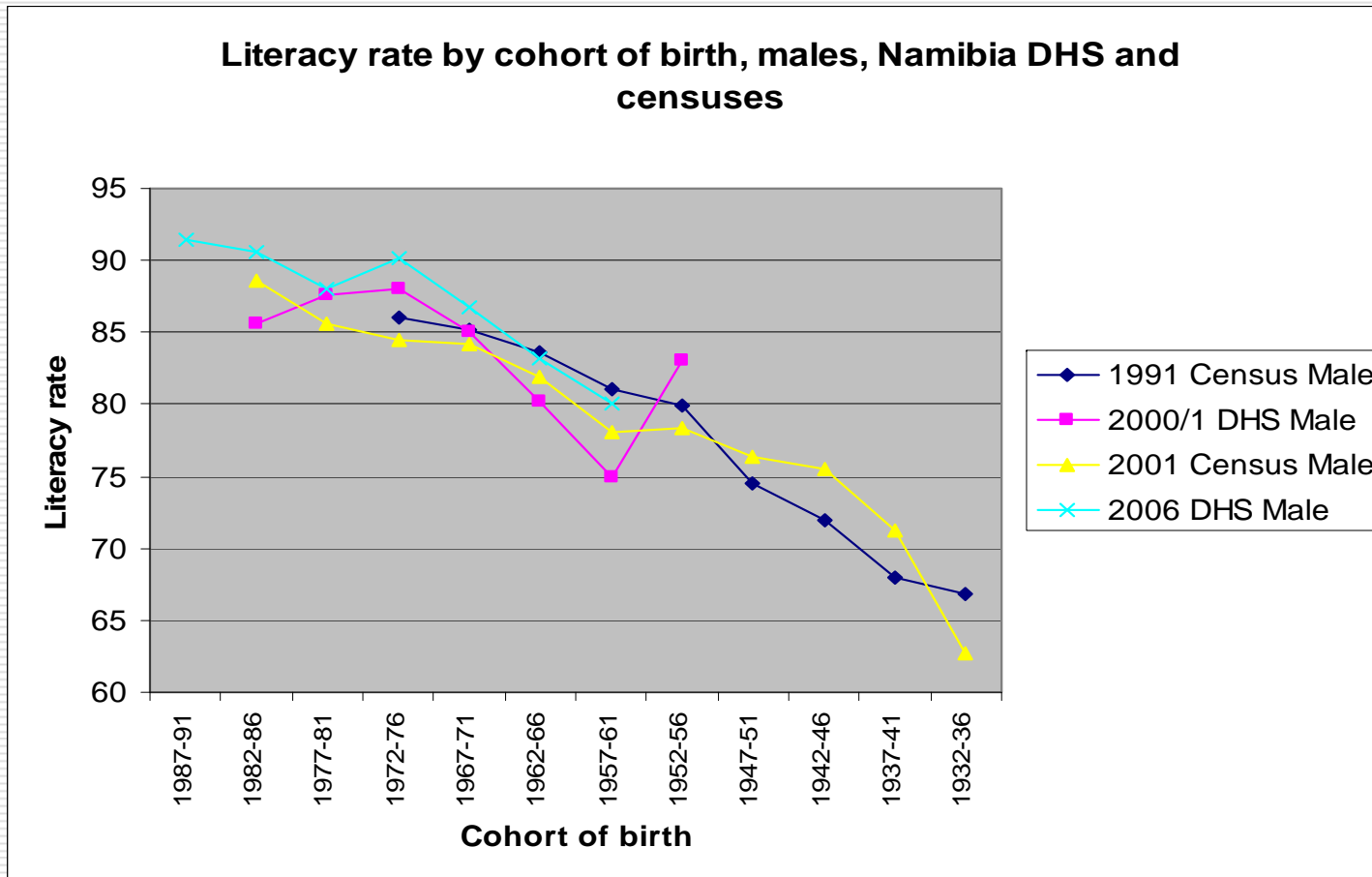


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# Literacy rate – comparison with other sources (1)

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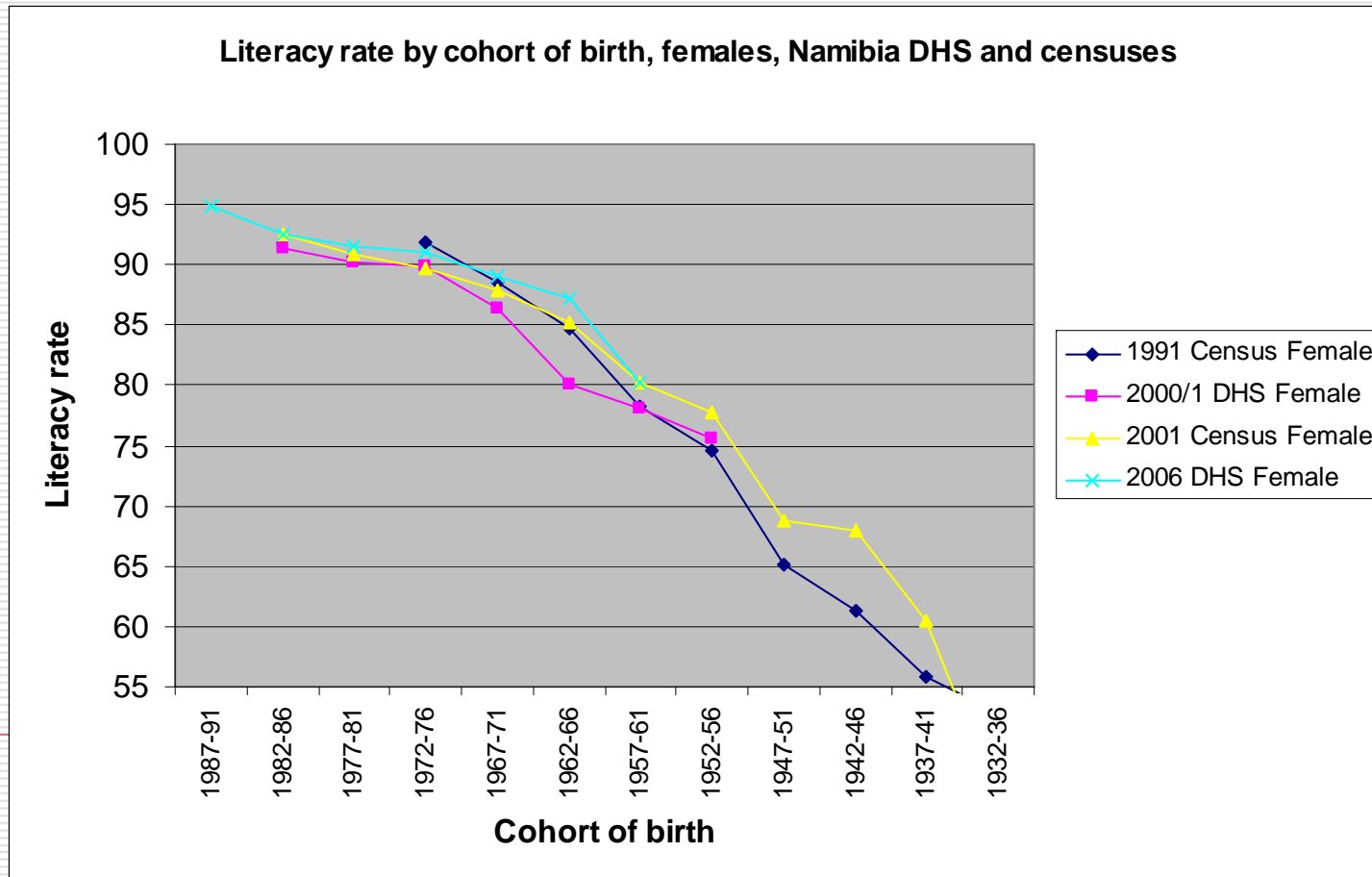


Data source:  
United Nations  
*Demographic Yearbook* and  
DHS Namibia  
country  
reports



# Literacy rate – comparison with other sources (2)

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# School attendance – common indicators

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**Gross Enrollment Ratio (GER)** = Total number of students enrolled in a school level / Total population of age to be in that school level

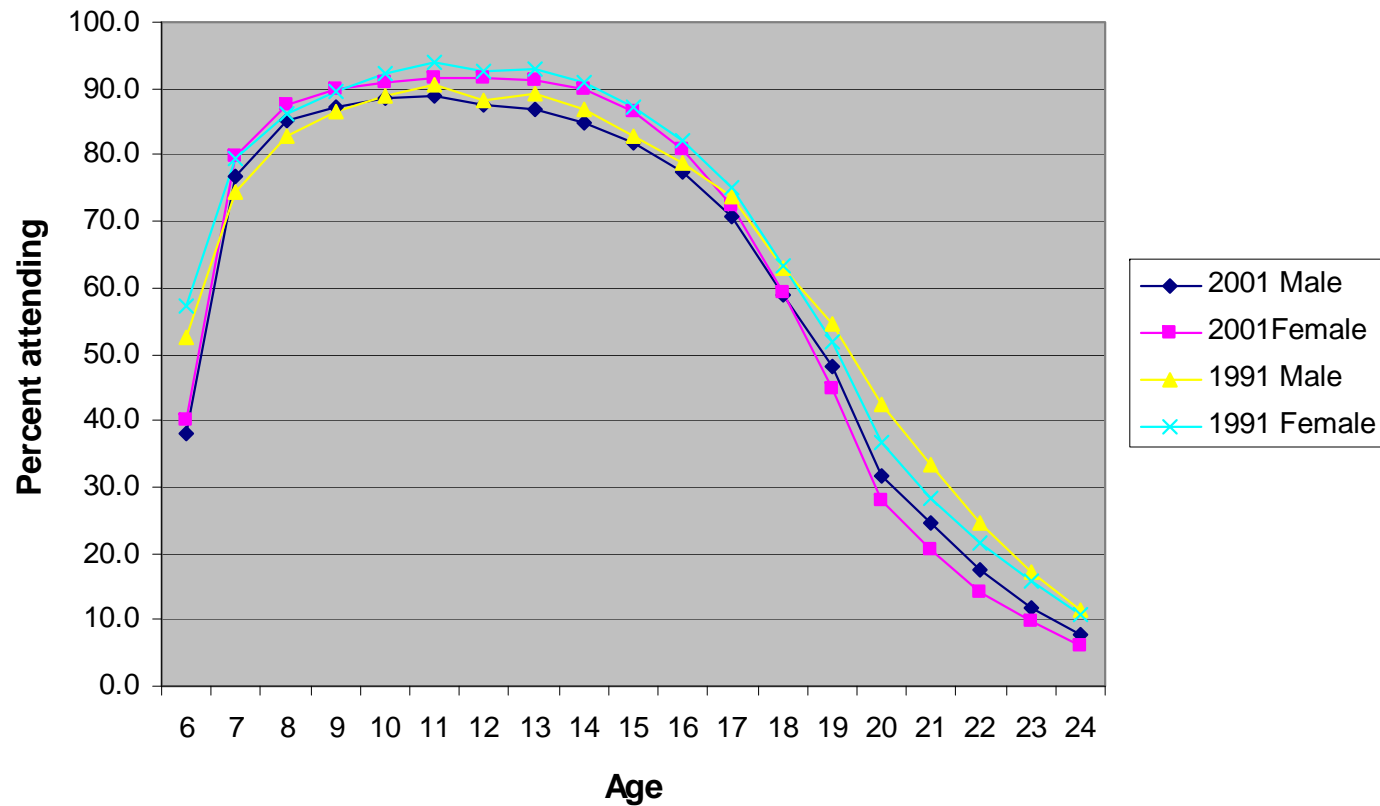
**Net Enrollment Ratio (NER)** =  $\frac{\text{Population of age } x - x+n \text{ enrolled in school}}{\text{Total population age } x - x+n}$

<b>D</b> For persons aged 6 years and above (education)		
Can (name) write and read a message in any language?  if No 00 If Yes, enter language codes from code list 4  99 Don't know	Has (name) ever been to school?  1 Never attended 2 Still at school 3 Left school 9 Don't know  If 1 or 9 go to E1	What is (name)'s highest grade/standard or level of education completed?  (See code list 3)



# School attendance

Percent of children attending school, by sex and age, Namibian  
1991 and 2001 censuses

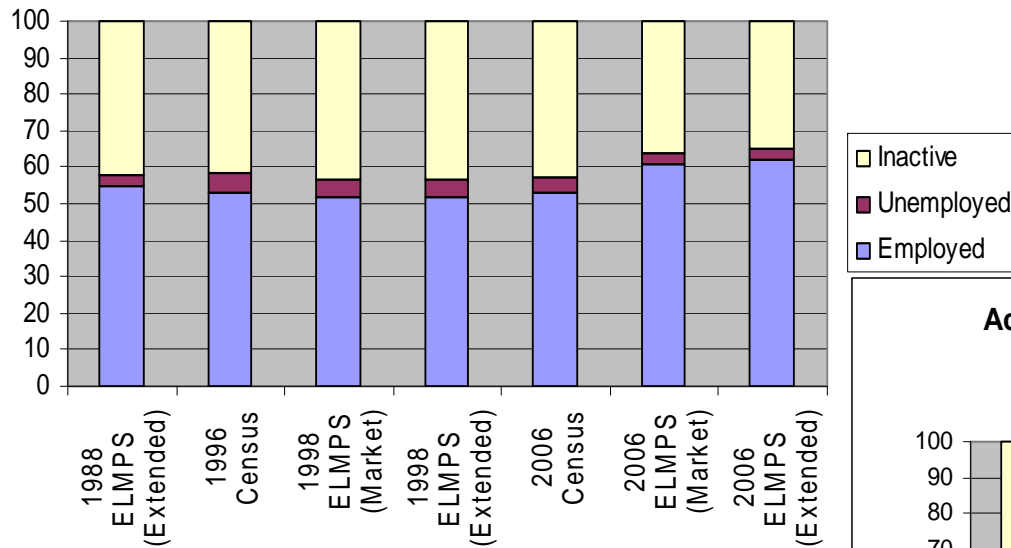




# Economic activity status – United Nations Statistics Division

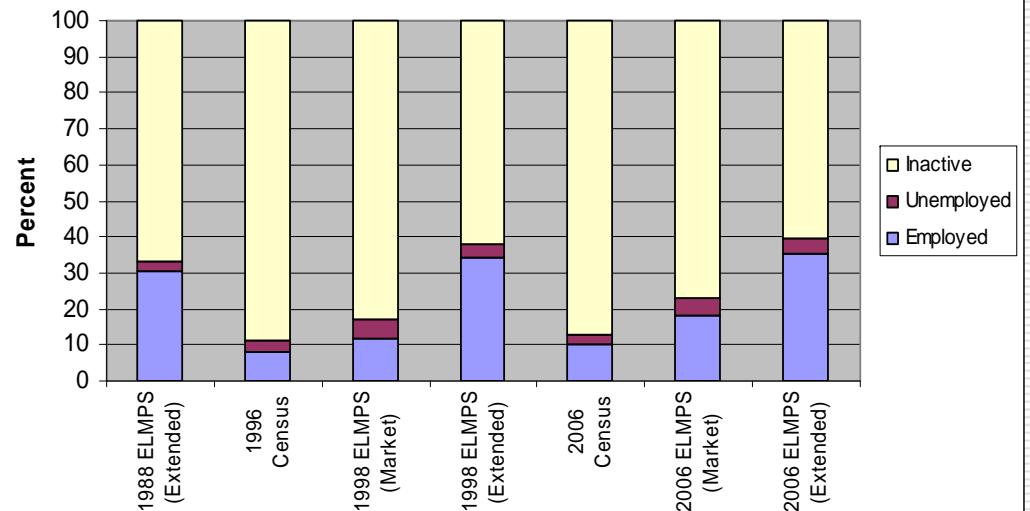
## comparison with other sources

Activity status, males, Egyptian census and Egypt Labor Market Panel Survey



Data source: Minnesota Population Center. *Integrated Public Use Microdata Series, International: Version 6.1* (IPUMS International, with CAPMAS Egypt) and Egypt Labor Market Panel Survey (ELMPS, Economic Research Forum, Egypt)

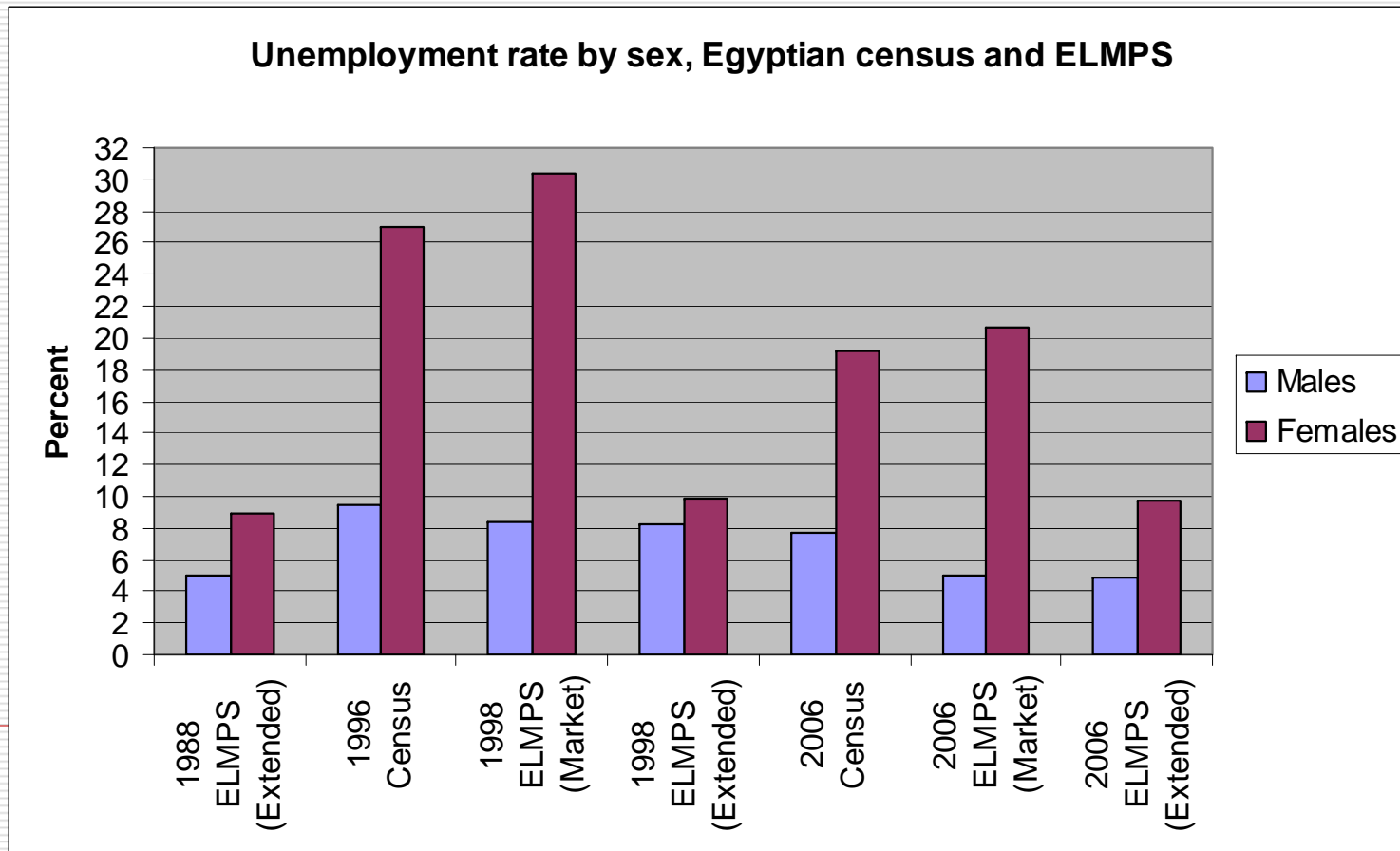
Activity status, females, Egyptian census and Egypt Labor Market Panel Survey





# Unemployment rate – comparison with other sources

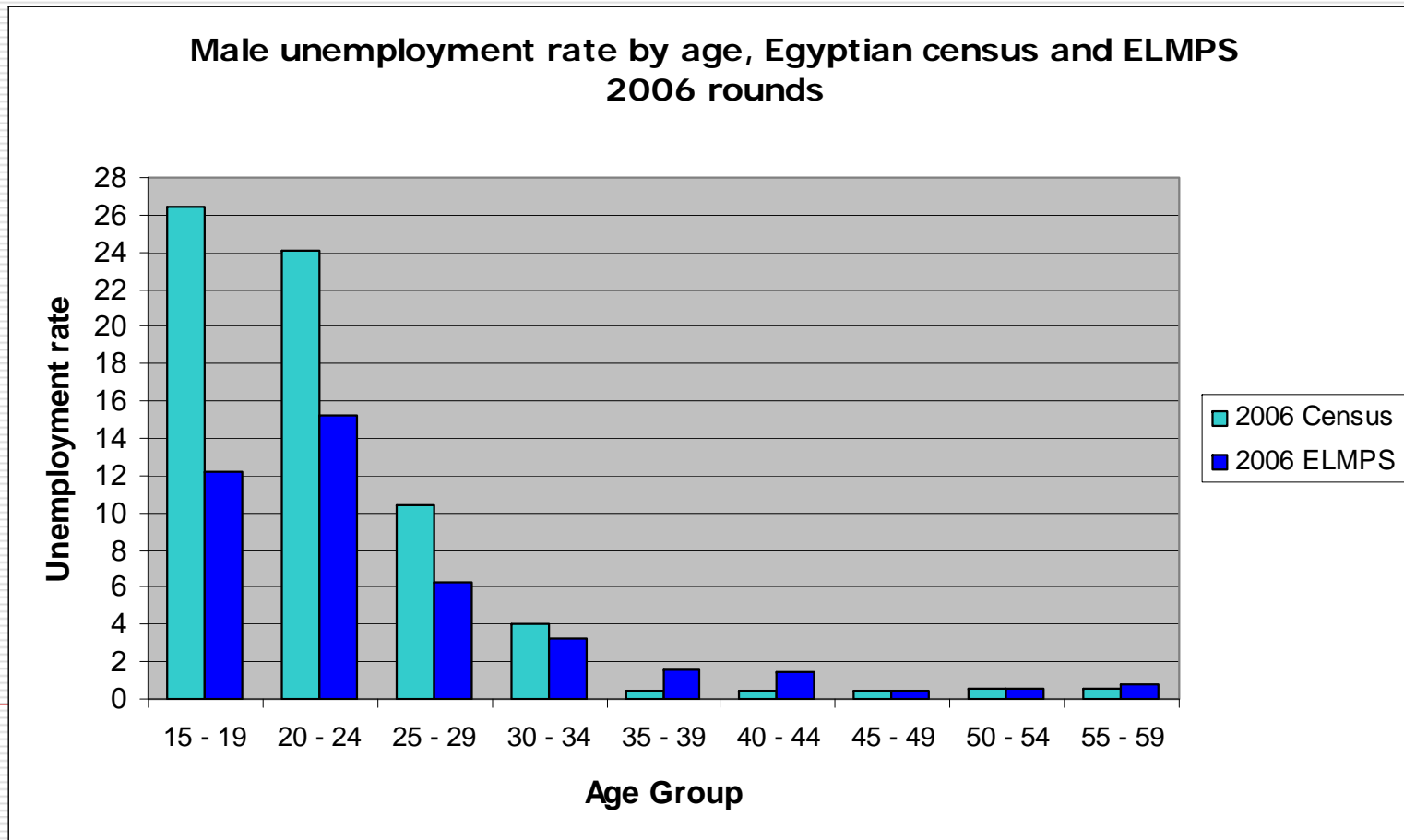
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# Unemployment rate by age







# Employment status – comparison with other sources

