

User-friendly dissemination of statistics

Jan Erik Kristiansen

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User-friendliness = ?



Pentax IQZoom 200 QD 35mm Film Camera

An uncompromising yet **user-friendly camera**, the IQZoom 200 expands the realms of photographic possibility with....

- Findable/easy to find
- Accessible
- Useful
- Understandable

Dissemination is many things:

- Press releases (press conferences, seminars...)
- Release calendar
- Tabular publications; with documentation, definitions, etc.:
 - as printed publications
 - electronically: Diskettes, CD-ROM
- Analytical reports, books, journals
- Internet (tables/ charts/ text/ databases....)
- Popular presentations: Pamphlets, brochures, posters...
- Information services:
 - Library
 - Answering service (telephone, letters, fax, e-mail)
- Lecturing, meetings, seminars....

Dissemination

– some important issues

- The role of users
- The role of media
- Numbers or analysis?
- Printed publications – electronic dissemination?
- Metadata

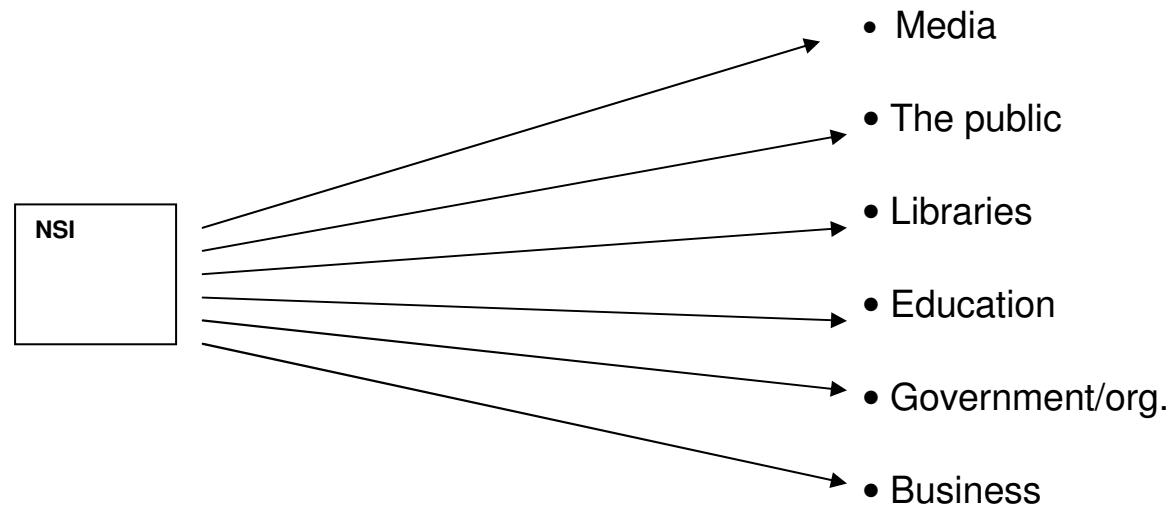
The role of users

“user-friendly = “let’s ask the users”?

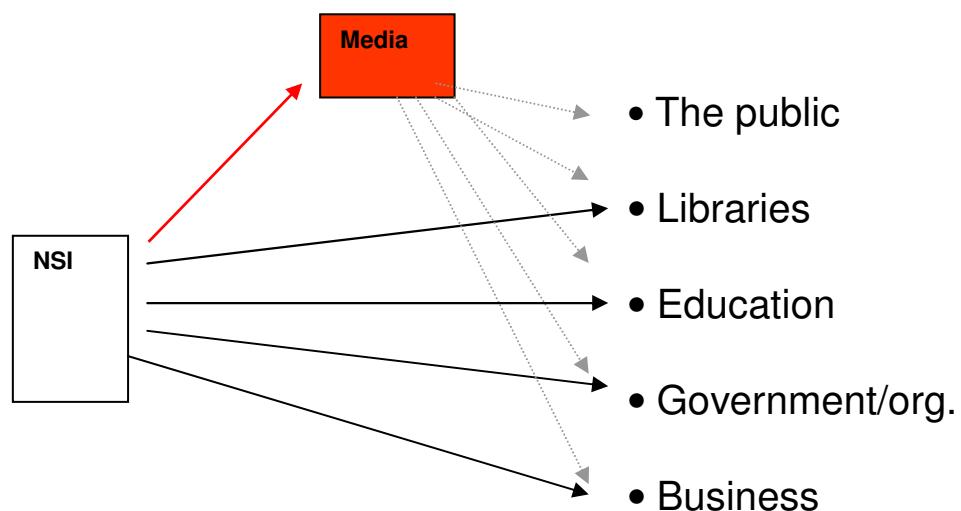
But many users do not know what they want!

The role of the media

Traditional dissemination model



“New” dissemination model





**Statistician and
journalist: Like
cat and dog?**



**Remember: Journalists
are our best friends: We
must cooperate!**

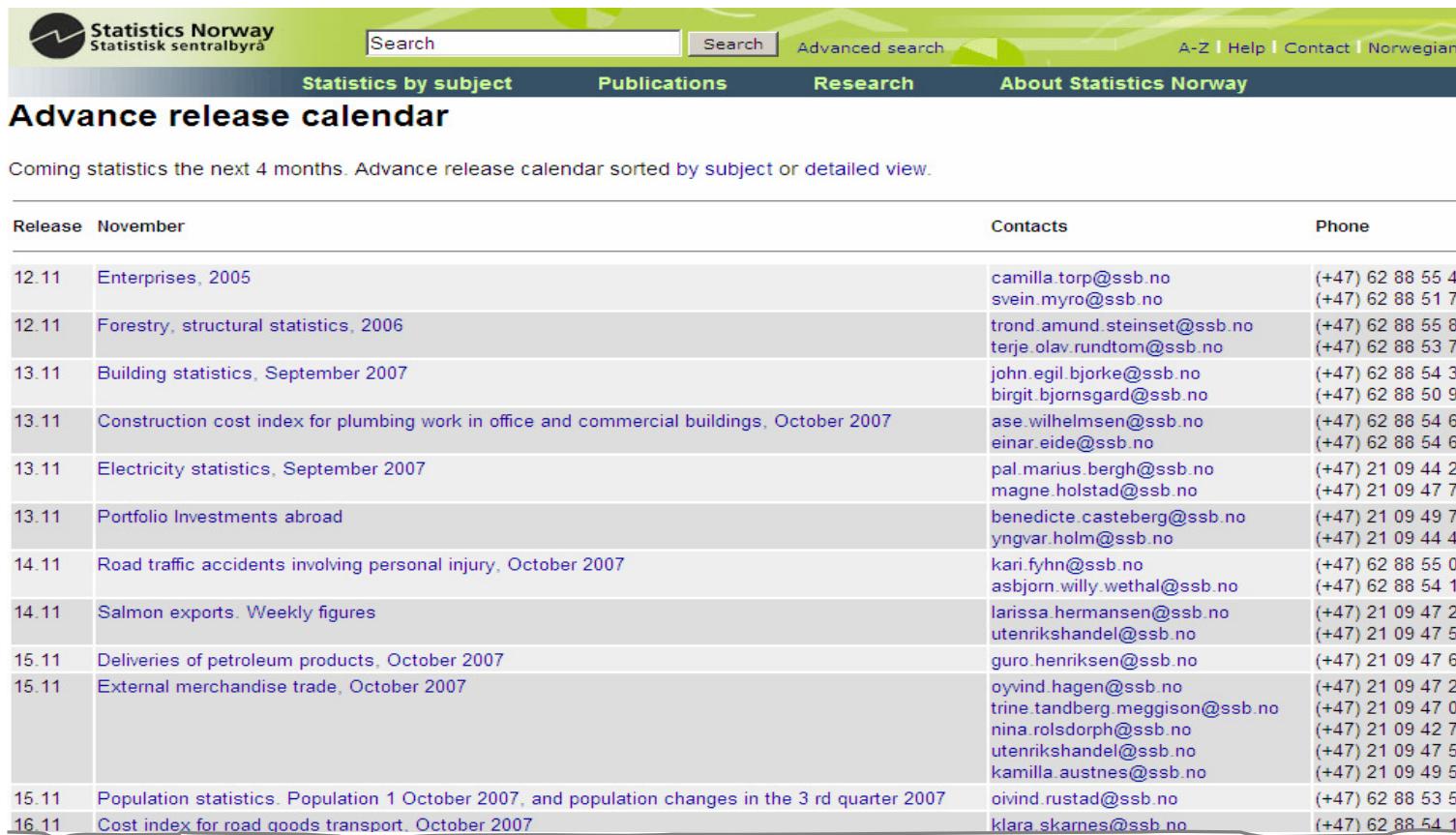
Media: Rule no. 1

Equal treatment!

- Do not favour certain media**

Media: Rule no. 2

Establish a release schedule/calendar



The screenshot shows the Statistics Norway website with a green header bar. The header includes the logo 'Statistics Norway Statistisk sentralbyrå', a search bar, and links for 'Advanced search', 'A-Z | Help | Contact | Norwegian'. Below the header is a navigation bar with four main categories: 'Statistics by subject', 'Publications', 'Research', and 'About Statistics Norway'. The main content area is titled 'Advance release calendar' and contains a sub-section 'Coming statistics the next 4 months. Advance release calendar sorted by subject or detailed view.' A table follows, listing releases from November 2007 to January 2008, along with contact names and phone numbers.

Release	November	Contacts	Phone
12.11	Enterprises, 2005	camilla.torp@ssb.no svein.myro@ssb.no	(+47) 62 88 55 48 (+47) 62 88 51 73
12.11	Forestry, structural statistics, 2006	trond.amund.steinset@ssb.no terje.olav.rundtom@ssb.no	(+47) 62 88 55 82 (+47) 62 88 53 78
13.11	Building statistics, September 2007	john.egil.bjorke@ssb.no birgit.bjornsgard@ssb.no	(+47) 62 88 54 30 (+47) 62 88 50 97
13.11	Construction cost index for plumbing work in office and commercial buildings, October 2007	ase.wilhelmsen@ssb.no einar.eide@ssb.no	(+47) 62 88 54 61 (+47) 62 88 54 64
13.11	Electricity statistics, September 2007	pal.marius.bergh@ssb.no magne.holstad@ssb.no	(+47) 21 09 44 20 (+47) 21 09 47 70
13.11	Portfolio Investments abroad	benedicte.casteberg@ssb.no yngvar.holm@ssb.no	(+47) 21 09 49 72 (+47) 21 09 44 47
14.11	Road traffic accidents involving personal injury, October 2007	kari.fyhn@ssb.no asbjorn.willy.wethal@ssb.no	(+47) 62 88 55 08 (+47) 62 88 54 15
14.11	Salmon exports. Weekly figures	larissa.hermansen@ssb.no utenrikshandel@ssb.no	(+47) 21 09 47 25 (+47) 21 09 47 53
15.11	Deliveries of petroleum products, October 2007	guro.henriksen@ssb.no	(+47) 21 09 47 65
15.11	External merchandise trade, October 2007	oyvind.hagen@ssb.no trine.tandberg.meggison@ssb.no nina.roldorph@ssb.no utenrikshandel@ssb.no kamilla.austnes@ssb.no	(+47) 21 09 47 26 (+47) 21 09 47 08 (+47) 21 09 42 77 (+47) 21 09 47 53 (+47) 21 09 49 58
15.11	Population statistics. Population 1 October 2007, and population changes in the 3 rd quarter 2007	oivind.rustad@ssb.no	(+47) 62 88 53 59
16.11	Cost index for road goods transport, October 2007	klara.skarnes@ssb.no	(+47) 62 88 54 16

Numbers or analysis?

Numbers to the experts?

Analysis/comments to the media & the public?

Print or electronic?

- *Yesterday*: Printed publication first, then electronic/
Internet
- *Today*: Parallel publishing: Paper *and* Internet
simultaneously
- *Tomorrow*: First on the Internet, then printed version.
(In Statistics Norway, an "Internet first"-policy has been
implemented. Statistics are – since June 1999 – released
daily on the Internet.).

The future?

Publishing statistics: Two main directions?

	Electronic	Paper
Numbers/ Tables	1	(x)
Text/ Analysis	(x)	2

1. Numbers/tables: On Internet
2. Text/analysis: Printed publications

Metadata

”Data about data”:

- Sources: Population/sample
- Methods: Variance/estimation/calculations
- Concepts/definitions
- etc.

User-friendly presentation of statistics:

Tables

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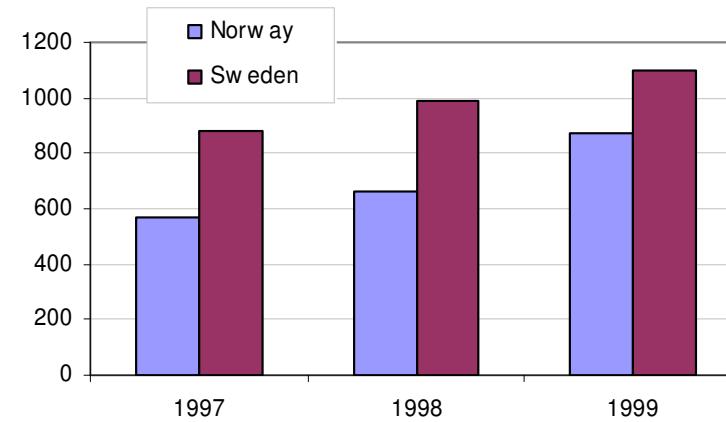
What is statistics?

Statistics is to compare numbers:

Like this:

	1997:	1998:	1999:
Norway	566	663	876
Sweden	879	987	1 098

... or: like this:



User-friendly tables

- KISS: Keep It Small and Simple: For popular presentations, tables should be small and simple
- Focus on a few indicators/variables at a time
- Present relative numbers (percentages, rates, etc.) when appropriate

Tables: Some general principles

Total population in selected African countries

	1995	2005
Angola	12279700	15941400
Eritrea	3097300	4401400
Kenya	27225900	34255700
Madagascar	13945500	18605900
Malawi	10110500	12883000
Mozambique	15853700	19792300
South Africa	41894000	47431800
Uganda	20893300	28816200
Zambia	9559400	11668500

The text column should be justified to the left,
whereas numbers should be right justified.

**Total population in selected African
countries**

	1995	2005
Angola	12279700	15941400
Eritrea	3097300	4401400
Kenya	27225900	34255700
Madagascar	13945500	18605900
Malawi	10110500	12883000
Mozambique	15853700	19792300
South Africa	41894000	47431800
Uganda	20893300	28816200
Zambia	9559400	11668500

By grouping the digits, we increase their readability.
We therefore put a comma before every third digit.

Total population in selected African countries

	1995	2005
Angola	12,279,700	15,941,400
Eritrea	3,097,300	4,401,400
Kenya	27,225,900	34,255,700
Madagascar	13,945,500	18,605,900
Malawi	10,110,500	12,883,000
Mozambique	15,853,700	19,792,300
South Africa	41,894,000	47,431,800
Uganda	20,893,300	28,816,200
Zambia	9,559,400	11,668,500

We can simplify the table by rounding to millions (1 decimal)

Total population in selected African countries. Millions

	1995	2005
Angola	12.3	15.9
Eritrea	3.1	4.4
Kenya	27.2	34.3
Madagascar	13.9	18.6
Malawi	10.1	12.9
Mozambique	15.9	19.8
South Africa	41.9	47.4
Uganda	20.9	28.8
Zambia	9.6	11.7

We could calculate the relative growth in a separate column

Finally, the table could be sorted by size of population,
in descending order.

Total population i selected African countries

	1995	2005	% growth
South Africa	41,9	47,4	13,2
Kenya	27,2	34,3	25,8
Uganda	20,9	28,8	37,9
Mozambique	15,9	19,8	24,8
Madagascar	13,9	18,6	33,4
Angola	12,3	15,9	29,8
Malawi	10,1	12,9	27,4
Zambia	9,6	11,7	22,1
Eritrea	3,1	4,4	42,1

Example:

Table 14: Livestock Population 1994 – 1999

	1994	1995	1996	1997	1998	1999
Poultry	56,373	86,165	107096	220559	101270	46281
Goats	2164	2876	5603	5781	6803	4113
Cattle	43528	49476	47941	47381	55936	52940
Pigs	6175	9074	3906	19318	19062	18142
Sheep	1593	1819	3906	1886	2063	586
Rabbits	207	1402	2511	488	505	97

From: Karonga District Socio Economic Profile

Better: Numbers justified to the right, text to the left

	1994	1995	1996	1997	1998	1999
Poultry	56,373	86,165	107,096	220,56	101,270	46,281
Goats	2,164	2,876	5,603	5,781	6,803	4,113
Cattle	43,528	49,476	47,941	47,381	55,936	52,940
Pigs	6,175	9,074	3,906	19,318	19,062	18,142
Sheep	1,593	1,819	3,906	1,886	2,063	586
Rabbits	207	1,402	2,511	488	505	97

Even better: Change columns and rows. It is now much easier to compare years!

Table 14. Livestock population 1994-1999

	Poultry	Goats	Cattle	Pigs	Sheep	Rabbits
1994	56,373	2,164	43,528	6,175	1,593	207
1995	86,165	2,876	49,476	9,074	1,819	1,402
1996	107,096	5,603	47,941	3,906	3,906	2,511
1997	220,559	5,781	47,381	19,318	1,886	488
1998	101,270	6,803	55,936	19,062	2,063	505
1999	46,281	4,113	52,940	18,142	586	97

Production of Food Crops in Tanzania Mainland 1994-2002 (Quantities in 000 tonnes)

Food crops	1994	1995	1996	1997	1998	1999	2000	2001	2002
Maize	1,458	2,875	2,822	2,386	2,073	2,848	2,870	3,348	3,495
Paddy	192	517	495	413	847	439	443	1,010	1,054
Wheat	44	47	49	51	53	68	61	65	68
Millet	295	222	269	195	50	76	72	74	77
Sorghum	258	443	360	449	249	363	365	364	380
Cassava	1,697	1,812	1,873	1,936	2,048	2,187	2,118	2,007	2,095

Source: Ministry of Agriculture/National Bureau of Statistics

Production of Food Crops in Tanzania Mainland 1994-2002
(Quantities in 000 tonnes)

	Maize	Paddy	Wheat	Millet	Sorghum	Cassava
1994	1,458	192	44	295	258	1,697
1995	2,875	517	47	222	443	1,812
1996	2,822	495	49	269	360	1,873
1997	2,386	413	51	195	449	1,936
1998	2,073	847	53	50	249	2,048
1999	2,848	439	68	76	363	2,187
2000	2,870	443	61	72	365	2,118
2001	3,348	1,010	65	74	364	2,007
2002	3,495	1,054	68	77	380	2,095

Source: Ministry of Agriculture/National Bureau of Statistics

3.11 Okuryazarlık ve cinsiyete göre nüfus

Population by literacy and sex

[6 ≥ yaşı - age]

Okuryazarlık - Literacy	1975	1980	1985	1990	2000
Erkek - Males					
Okuma yazma bilmeyen - Illiterate	4 096 110	3 802 455	2 932 964	2 779 172	1 857 132
(%)	23.79	20.02	13.48	11.19	6.14
Okuma yazma bilen - Literate	13 118 658	15 188 078	18 824 697	22 066 860	28 384 266
(%)	76.21	79.98	86.52	88.81	93.86
Bilinmeyen - Unknown	41 645	8 568	43 193	10 496	4 047
Kadın - Females					
Okuma yazma bilmeyen - Illiterate	8 048 078	8 394 868	6 770 698	6 808 809	5 732 525
(%)	49.49	45.33	31.84	28.02	19.36
Okuma yazma bilen - Literate	8 212 708	10 123 133	14 497 065	17 488 623	23 875 115
(%)	50.51	54.67	68.16	71.98	80.64
Bilinmeyen - Unknown	13 406	6 521	43 720	9 150	6 158

Not: Oranlar hesaplanırken bilinmeyen kapsanmamıştır.

Note: Proportions are calculated by excluding unknown.

	1975	1980	1985	1990	2000
Males	<i>Number</i>				
Illiterate	4 096 110	3 802 455	2 932 964	2 779 172	1 857 132
Literate	13 118 658	15 188 076	18 824 697	22 066 860	28 384 266
Unknown	41 645	8 568	43 193	10 496	4 047
Females	<i>Per cent</i>				
Illiterate	23,8	20,0	13,5	11,2	6,1
Literate	76,2	80,0	86,5	88,8	93,9
Females	<i>Per cent</i>				
Illiterate	49,5	45,3	31,8	28,0	19,4
Literate	50,5	54,7	68,2	72,0	80,6

Example:

Quadro 4.7 Operatividade dos Crimes em Geral, Segundo Província. N					
Província	Crimes Conhecidos	Crimes Esclarecidos	Crimes Não Esclarecidos	% Esclarecidos	% Não Esclarecidos
País (Total)	36313	26975	9338	74	26
Niassa	1492	1153	339	77	23
Cabo Delgado	1405	1135	270	81	19
Nampula	3154	2664	490	84	16
Zambézia	2980	2734	246	92	8
Tete	2308	1953	355	85	15
Manica	1216	1087	129	89	11
Sofala	4070	3396	674	83	17
Inhambane	2645	2004	641	76	24
Gaza	1979	1596	383	81	19
Maputo Província	3743	2809	934	75	25
Maputo Cidade	11321	6444	4877	57	43

Fonte: Comando Geral da Polícia (PRM)

Quadro 4.7. Operatividade dos Crimes em Geral, Segundo Província. 2000

Província	Crimes Conhecidos	% Esclarecidos
País (Total)	36,313	74
Niassa	1,492	77
Cabo Delgado	1,405	81
Nampula	3,154	84
Zambézia	2,980	92
Tete	2,308	85
Manica	1,216	89
Sofala	4,070	83
Inhambane	2,645	76
Gaza	1,979	81
Maputo Província	3,743	75
Maputo Cidade	11,321	57

Fonte: Comando Geral da Polícia (PRM)

Distribution of Persons 9 Years and Over by Newspaper Reading, Region and Sex (%) -1996

Newspaper Reading and Sex	Total	Gaza Strip	West Bank
Male			
Reader	36.1	24.5	41.9
Non Reader	63.9	75.5	58.1
Female			
Reader	25.4	15.9	30.2
Non Reader	74.6	84.1	69.8
Both Sexes			
Reader	30.9	20.3	36.2
Non Reader	69.1	79.7	63.8

By removing “Non Readers” + “Both sexes”, the number of cells are reduced from 18 to 6

Newspaper reading among males and females 9 years and over by region (%) -1996

	Total	Gaza Strip	West Bank
Males	36	25	42
Females	25	16	30

Quadro 5.2.1 - Número de deputados segundo o sexo, Moçambique, 1994 - 2005

Descrição	1994		1999		2005	
	Número	%	Número	%	Número	%
Total	250	100,0	250	100,0	250	100,0
Homens	181	72.4	172	68.8	161	64.4
Mulheres	69	27.6	78	31.2	89	35.6

Fonte: Assembleia da República, Departamento de Organização; Ministério da Mulher e Coordenação da Ação Social.

**Proporção de assentos
ocupados por mulheres no
Parlamento**

1994	1999	2005
27,6	31,2	35,6

Decimals?

13.47 %?

- Never use two decimals when giving percentages
- When reporting percentages from censuses, registers, etc., use one decimal
- When reporting percentages from surveys, use no decimal (unless the sample is very big: LF survey)

TABLE 55
Employment Gender Ratio by Economic Activities (1999- 2005)

ECONOMIC ACTIVITY	EMPLOYMENT GENDER RATIO (%)																	
	1999		2000		2001		2002		2003		2004		2005		NATIONAL			
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Agriculture	86.14	13.86	84.30	15.70	82.29	17.71	84.34	15.66	81.04	18.96	81.10	18.90	78.24	21.76	82.49	17.51		
Manufacturing & Processing	88.53	11.47	89.50	10.50	89.60	10.40	90.01	9.99	87.66	12.34	87.81	12.19	87.70	12.30	88.69	11.31		
Building & Construction	94.01	5.99	94.02	5.98	94.56	5.44	93.73	6.27	94.24	5.76	93.37	6.63	93.41	6.59	93.91	6.09		
Hotels, Restaurants & Tourism	67.27	32.73	66.48	33.52	64.48	35.52	64.34	35.66	64.08	35.92	64.55	35.45	65.13	34.87	65.19	34.81		
Transport	88.88	11.12	89.18	10.82	90.83	9.17	88.30	11.70	88.42	11.58	87.92	12.08	85.15	14.85	88.38	11.62		
Communications	83.57	16.43	84.87	15.13	68.95	31.05	68.71	31.29	72.96	27.04	70.92	29.08	71.31	28.69	74.47	25.53		
Education	50.00	50.00	48.42	51.57	50.71	41.20	50.70	41.21	60.01	20.00	65.00	24.11	60.25	27.65	57.74	42.26		

The Nigerian Statistical Fact Sheet 2006

	Males							Females						
	1999	2000	2001	2002	2003	2004	2005	1999	2000	2001	2002	2003	2004	2005
Agriculture	86.1	84.3	82.3	84.3	81.0	81.1	78.2	13.9	15.7	17.7	15.7	19.0	18.9	21.8
Manufacturing & processing	88.5	89.5	89.6	90.0	87.7	87.8	87.7	11.5	10.5	10.4	10.0	12.3	12.2	12.3
Building & construction	94.0	94.0	94.6	93.7	94.2	93.4	93.4	6.0	6.0	5.4	6.3	5.8	6.6	6.6
Hotels, restaurants & tourism	67.3	66.5	64.5	64.3	64.1	64.6	65.1	32.7	33.5	35.5	35.7	35.9	35.5	34.9

Simplify titles (examples)

- Not: Percentage distribution of households by type of household.
- Instead: Household types. Per cent
- Instead of "...by gender (or by sex)" write: "men and women/males and females"
- Not: Movimento Geral de Crimes Segundo Tipos de Crime
- But: Tipos de Crime

6.1 Educational Institutions by Kind, Level and Sex

(Numbers)

Year	Primary Schools		Middle Schools		Secondary Schools	
	Total	Female	Total	Female	Total	Female
1994-95	139634	41967	12571	5562	10005	3323
1995-96	143130	43434	13330	5719	10119	3329
1996-97	149661	42042	14487	5760	10436	3394
1997-98	156318	51204	17354	7168	11685	4019
1998-99	159330	56515	18072	7985	12931	4710
1999-00	162521	58748	18435	8146	13211	4805
2000-01	147736	42870	25472	5875	15416	3009
2001-02	149084	43524	26791	6257	15658	3000
2002-03	150809	43858	28021	6553	16208	3080
2003-04	154970	43913	28727	6567	16742	3213

	Primary schools		Middle schools		Secondary schools	
	Total	% Female	Total	% Female	Total	% Female
1994-95	139634	30,1	12571	44,2	10005	33,2
1995-96	143130	30,3	13330	42,9	10119	32,9
1996-97	149661	28,1	14487	39,8	10436	32,5
1997-98	156318	32,8	17354	41,3	11685	34,4
1998-99	159330	35,5	18072	44,2	12931	36,4
1999-00	162521	36,1	18435	44,2	13211	36,4
2000-01	147736	29,0	25472	23,1	15416	19,5
2001-02	149084	29,2	26791	23,4	15658	19,2
2002-03	150809	29,1	28021	23,4	16208	19,0
2003-04	154970	28,3	28727	22,9	16742	19,2

Simplify titles (examples)

Not: Percentage distribution of persons aged 15-49 years with knowledge of transmission of Aids virus....

But: Persons 15-49 years with knowledge of.....

Or: Knowledge of Persons aged 15-49.

Simplify titles (more examples)

Not: Percentage distribution of persons outside the labour force by sex, age and reason

But: Persons outside the labour force by reason, sex and age. Per cent

Not: Pupil to teacher ratio

But: Pupils per teacher

User-friendly presentation of statistics:

Graphs

Jan Erik Kristiansen

Senior adviser

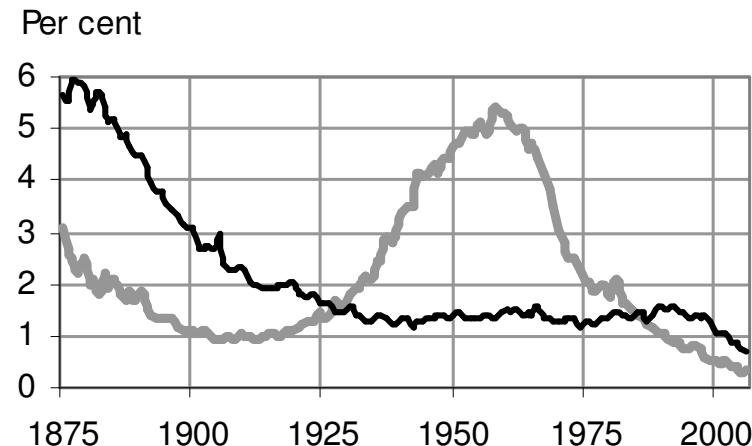
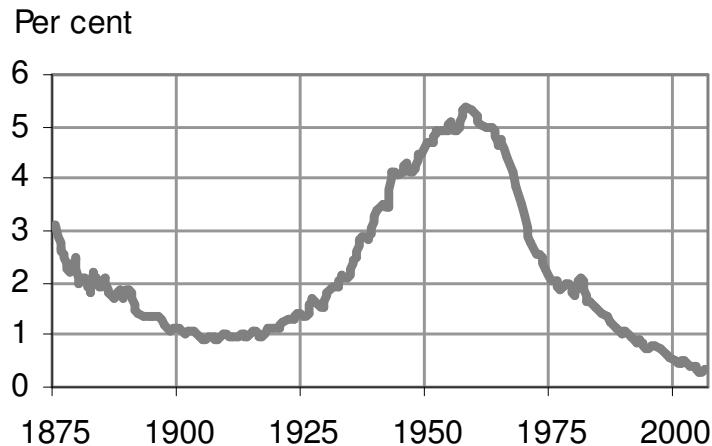
Statistics Norway

From tables to graphs:

Why?

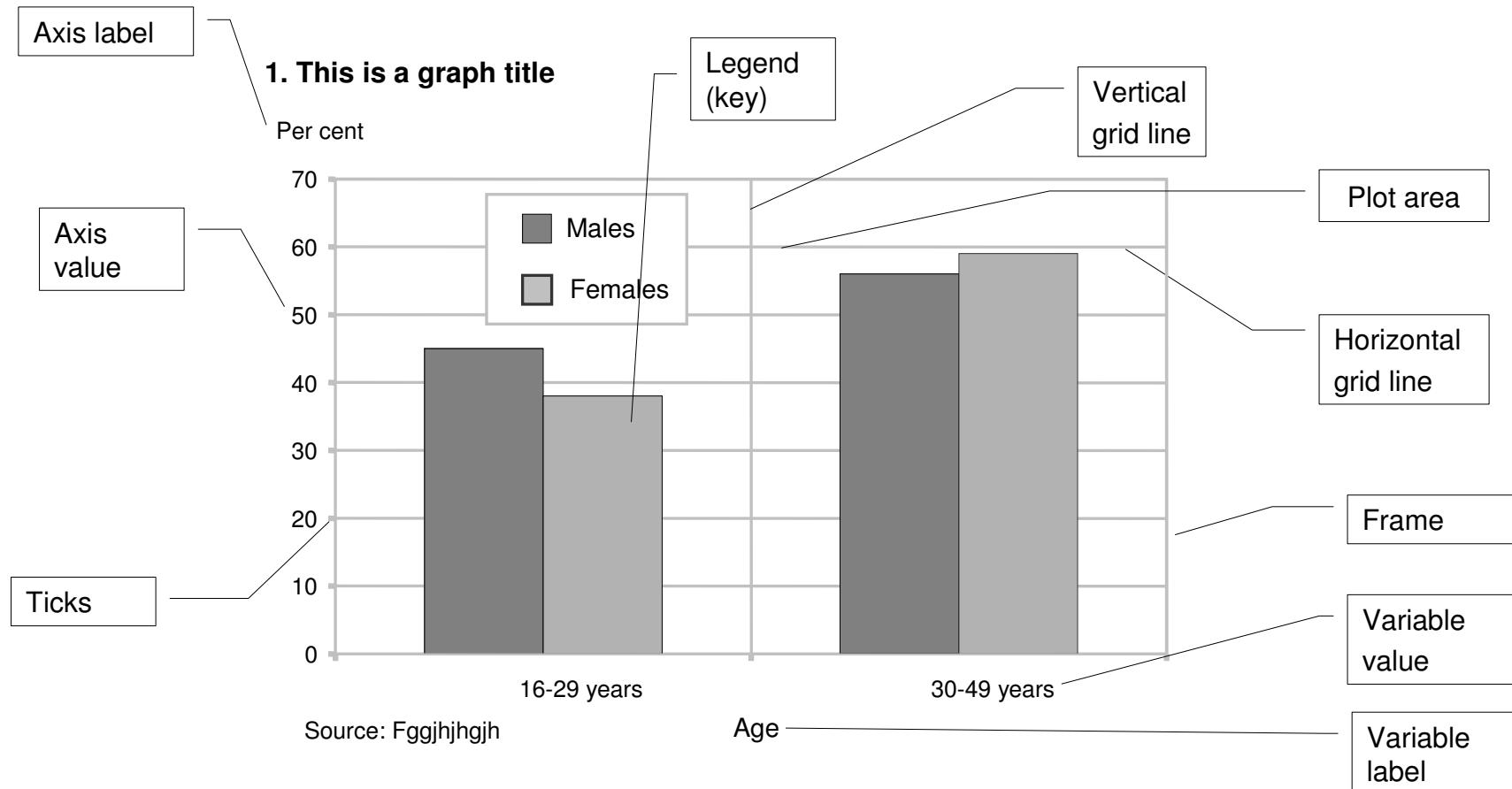
Per cent girls given the first name *Anne* each year

Year:	Pct.:												
1875	3,11	1897	1,17	1919	1,12	1941	3,52	1963	4,99	1985	1,39		
1876	2,67	1898	1,10	1920	1,16	1942	3,47	1964	4,63	1986	1,36		
1877	2,53	1899	1,13	1921	1,24	1943	4,14	1965	4,74	1987	1,23		
1878	2,20	1900	1,11	1922	1,31	1944	4,06	1966	4,44	1988	1,14		
1879	2,48	1901	1,03	1923	1,31	1945	4,15	1967	4,16	1989	1,03		
1880	1,97	1902	1,09	1924	1,43	1946	4,29	1968	3,83	1990	1,05		
1881	2,07	1903	1,05	1925	1,36	1947	4,13	1969	3,49	1991	0,96		
1882	1,80	1904	0,96	1926	1,41	1948	4,41	1970	3,05	1992	0,85		
1883	2,22	1905	0,93	1927	1,70	1949	4,45	1971	2,77	1993	0,88		
1884	1,95	1906	0,94	1928	1,61	1950	4,68	1972	2,52	1994	0,76		
1885	2,12	1907	0,97	1929	1,55	1951	4,72	1973	2,49	1995	0,78		
1886	1,82	1908	0,91	1930	1,81	1952	4,95	1974	2,29	1996	0,81		
1887	1,70	1909	1,04	1931	1,91	1953	4,95	1975	2,06	1997	0,73		
1888	1,84	1910	0,99	1932	1,95	1954	4,90	1976	2,04	1998	0,61		
1889	1,70	1911	0,97	1933	2,16	1955	5,12	1977	1,88	1999	0,54		
1890	1,85	1912	0,94	1934	2,10	1956	4,91	1978	1,99	2000	0,52		
1891	1,50	1913	1,01	1935	2,42	1957	5,30	1979	1,94	2001	0,45		
1892	1,39	1914	0,98	1936	2,47	1958	5,40	1980	1,77	2002	0,51		
1893	1,36	1915	1,06	1937	2,91	1959	5,33	1981	2,07	2003	0,42		
1894	1,36	1916	1,01	1938	2,81	1960	5,23	1982	1,66	2004	0,38		
1895	1,36	1917	0,98	1939	2,93	1961	5,04	1983	1,65	2005	0,29		
1896	1,36	1918	1,13	1940	3,40	1962	4,97	1984	1,53	2006	0,36		



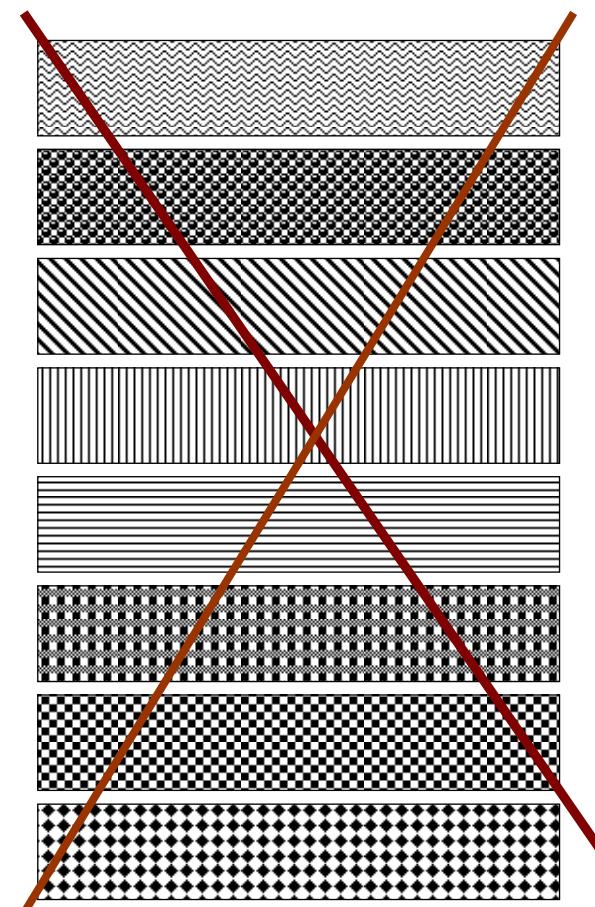
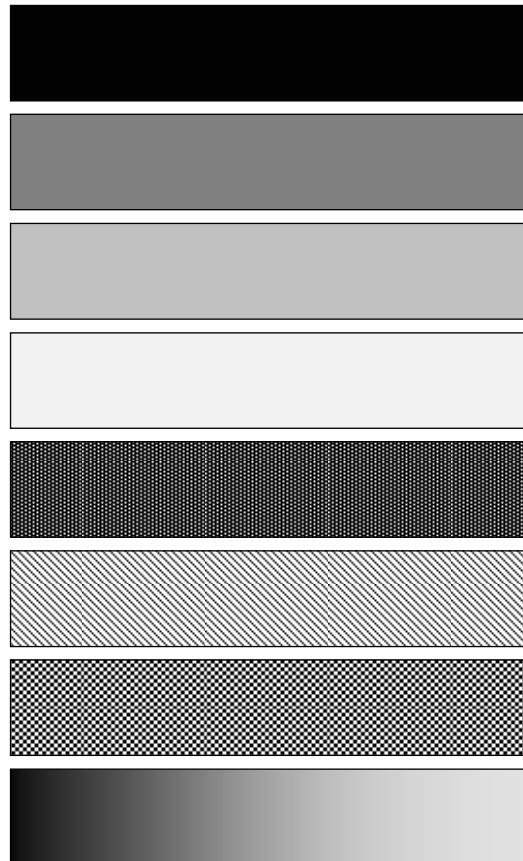
Charts speak directly to the eye!

Elements of a graph:



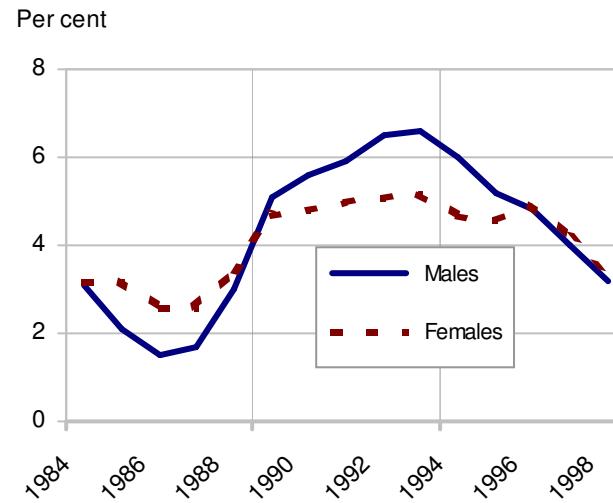
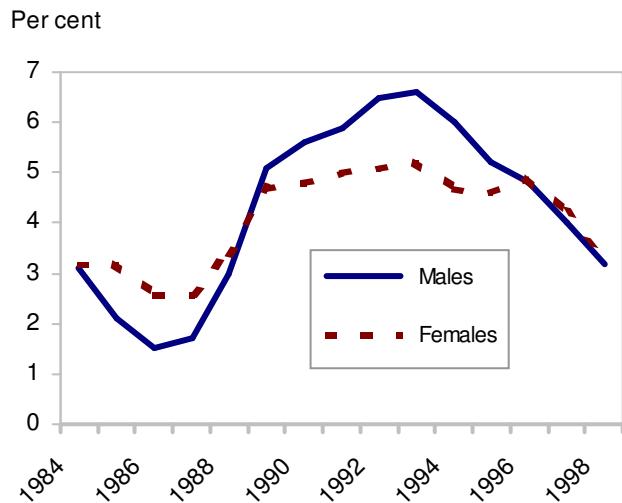
Graphs: Issues and solutions

- Use of patterns



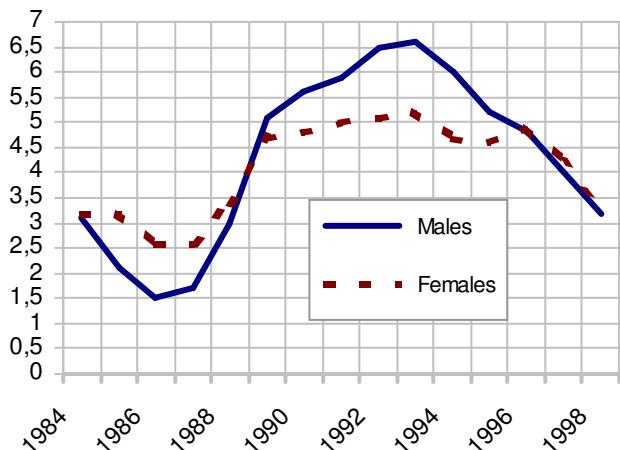
Graphs: Issues and solutions (cont.)

- Use gridlines to improve readability
- But how many?

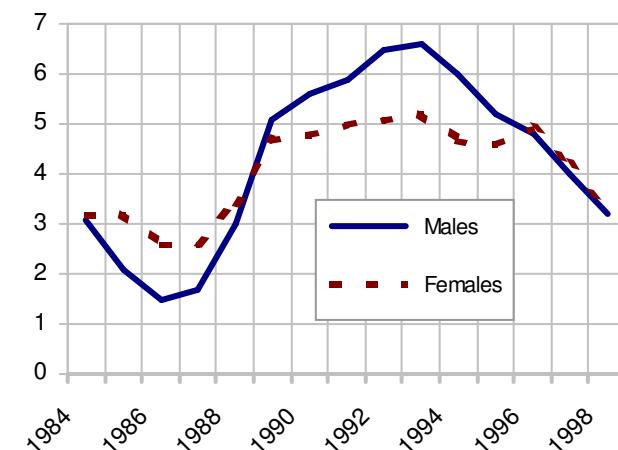


- Use of gridlines (cont.):

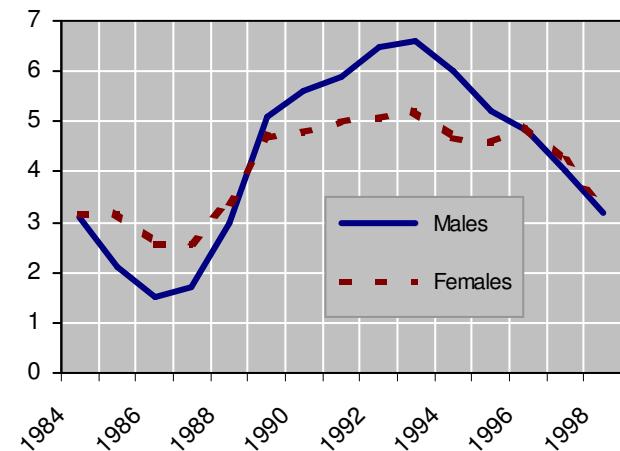
Per cent



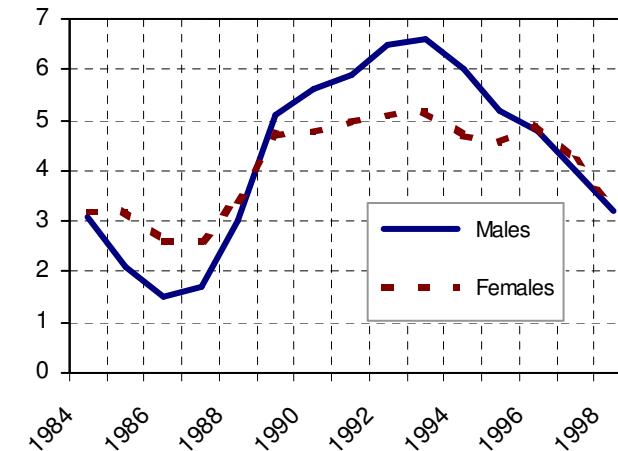
Per cent



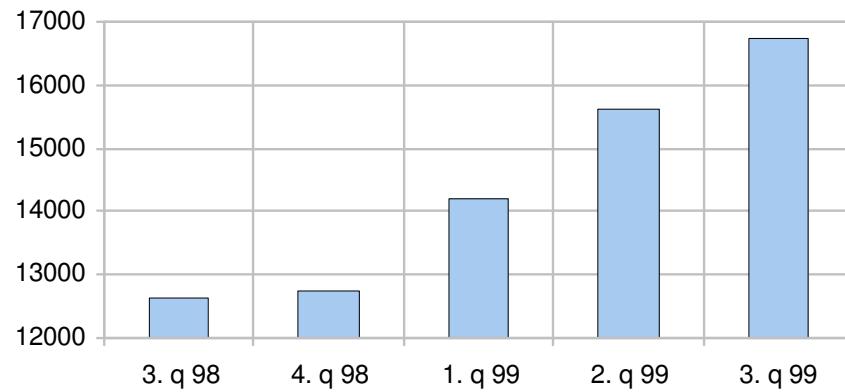
Per cent



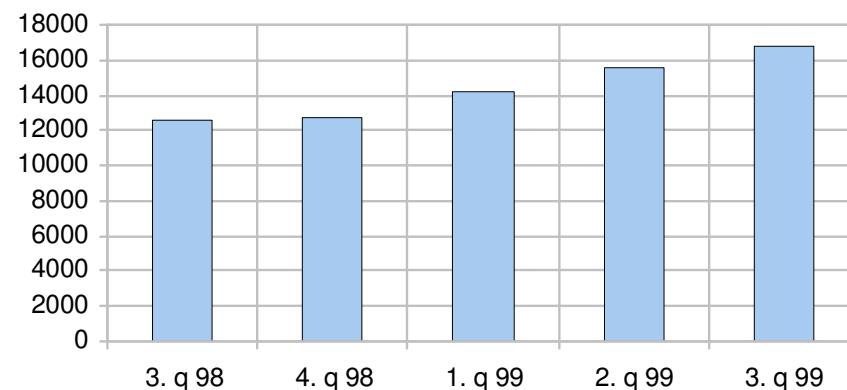
Per cent



How to lie with graphs

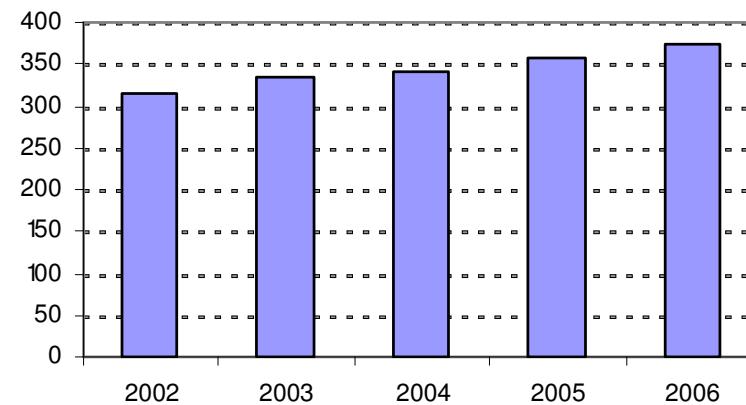
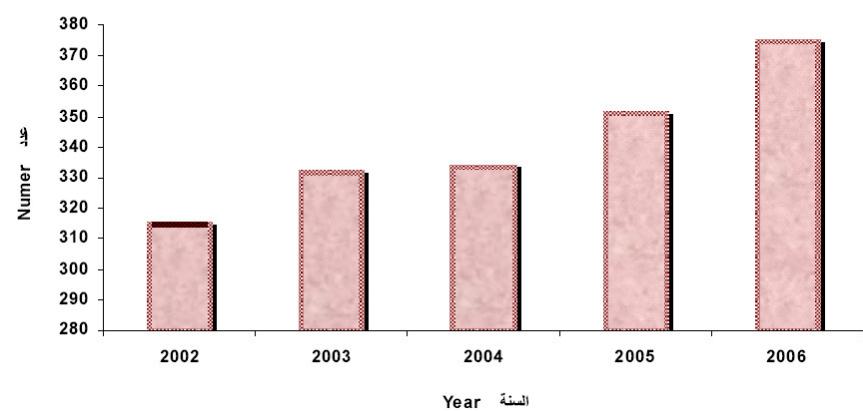


- Increase of 600 % ?!



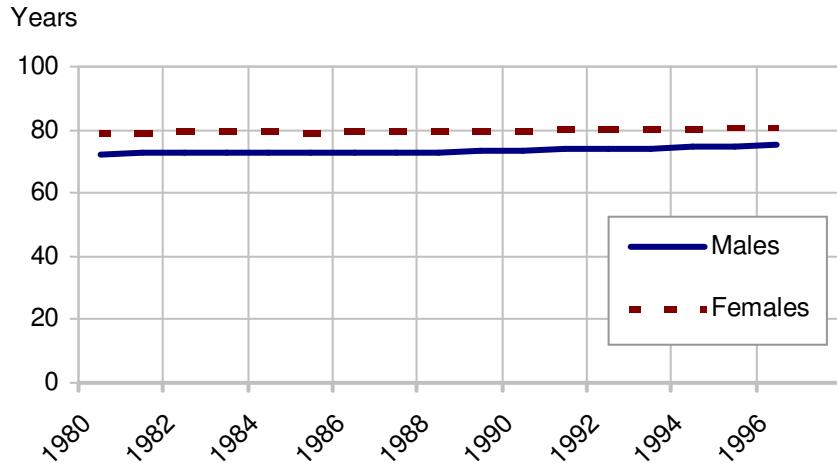
- No, only 35%!

Nmber of Hospitals عدد المستشفيات

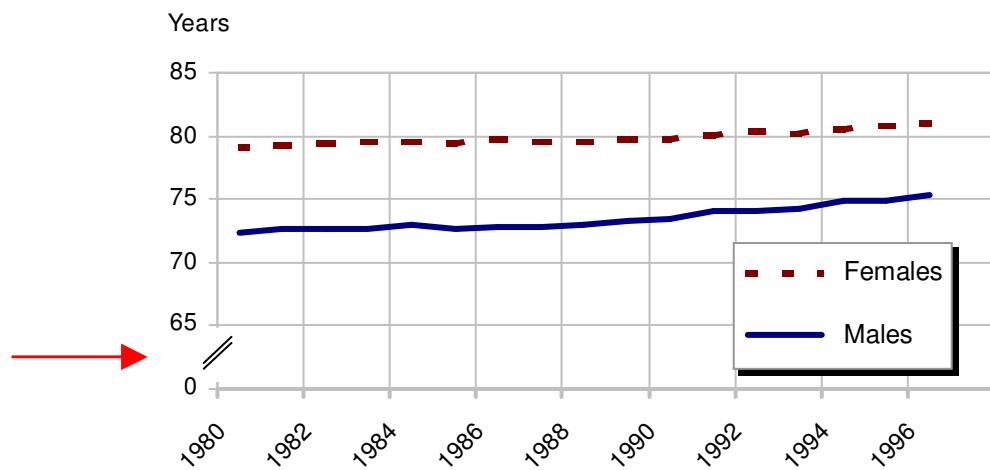


From: Sudan in Figures 2006

But:

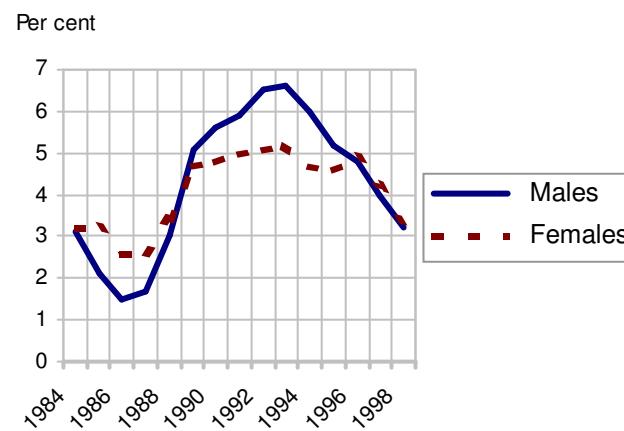
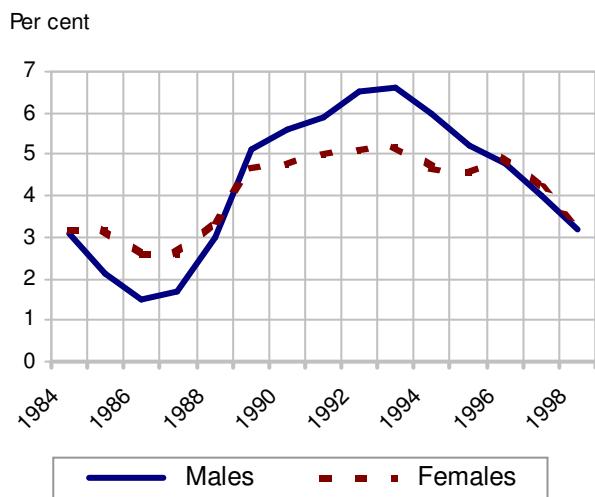


- When you compare groups...

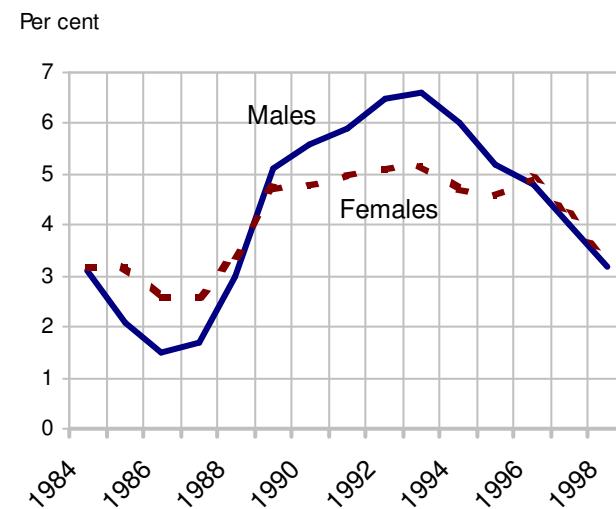
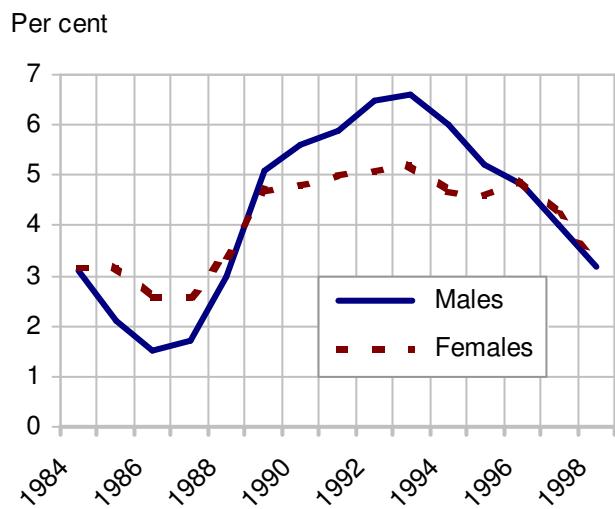


Graphs: Issues and solutions

- Legend: Where to place it?



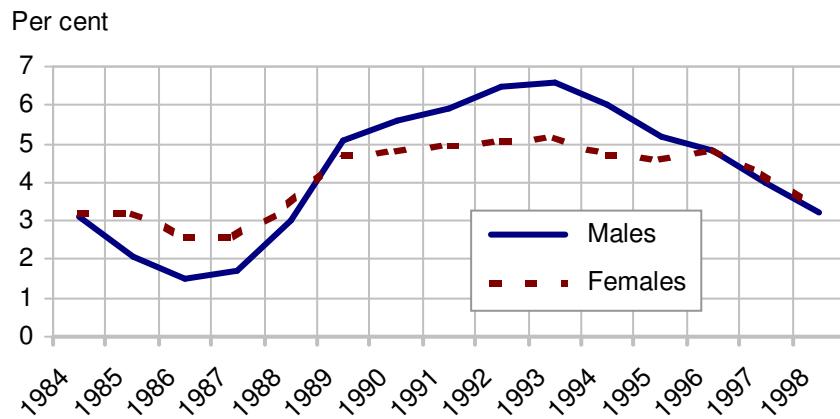
- Legend: Where to place it? (cont.)



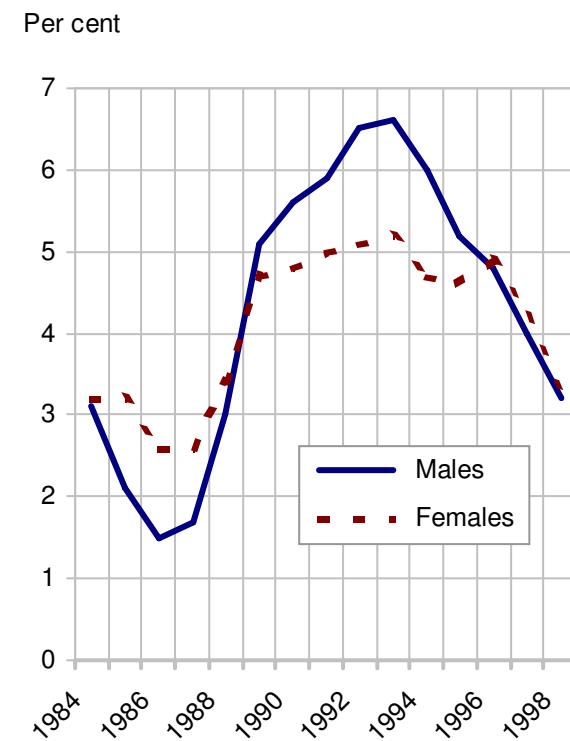
Best
solution!

Graphs: Issues and solutions (cont.)

- Format/proportions

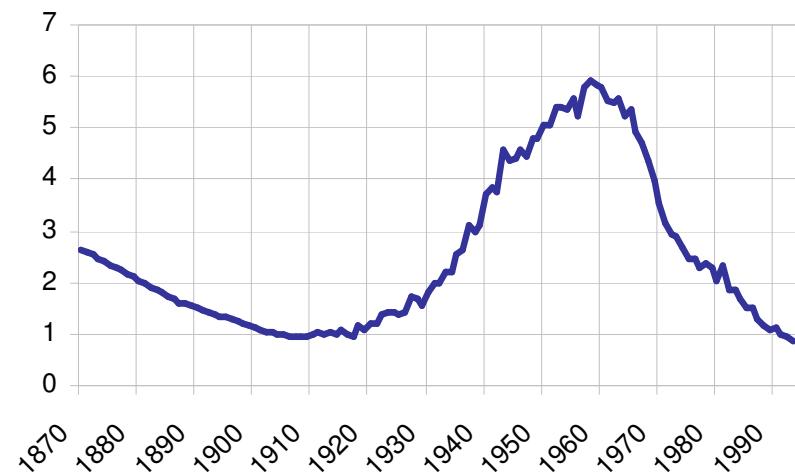


Landscape



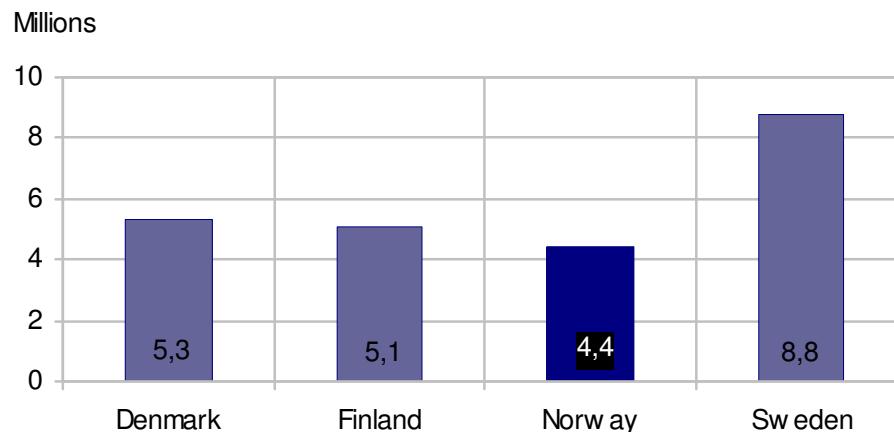
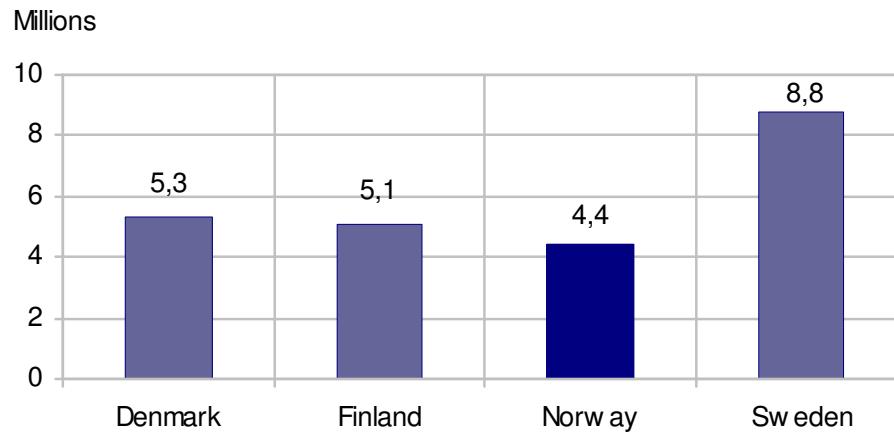
Portrait

- Format/proportions
 - The most usual format is probably landscape; width x height = ca. 1.5×1



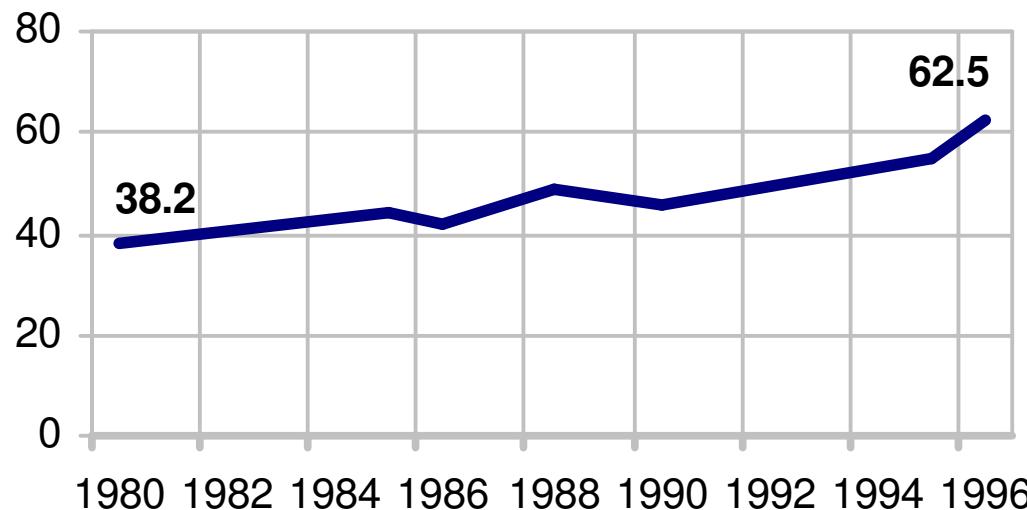
Graphs: Issues and solutions (cont.)

- Should values be given in the graph?



Graphs: Issues and solutions (cont.)

- In line charts, it is often useful to give the first and the latest value:



Main types of graphs:

- Bar charts (vertical)
 - Grouped
 - Stacked
- Bar charts (horizontal)
 - Grouped & stacked
- Line charts + area charts
- Pie charts
- Other types/ combinations

Which type of graph to use?:

Number of adopted children 1990-1997

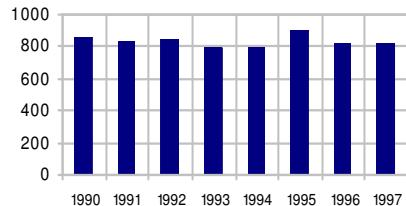
	Total			Norwegian			Foreign			
	Total	Under 3 years	3 - 11 years	12 years and over	Total	Boys	Girls	Total	Boys	Girls
1990	855	397	303	155	283	137	146	572	309	263
1991	833	418	263	152	271	131	140	562	309	253
1992	851	442	251	158	279	149	130	572	284	287
1993	786	397	246	143	236	125	111	550	312	238
1994	788	426	231	131	239	115	124	549	273	276
1995	898	490	257	151	284	141	143	614	272	342
1996	822	418	206	198	295	134	161	527	240	287
1997	814	469	189	156	272	126	146	542	244	298

Possible charts from the above table:

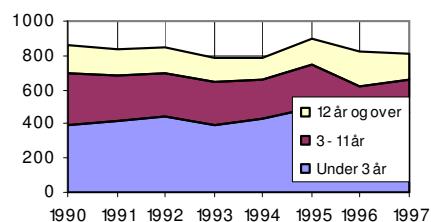
No. of adopted children 1990-1997



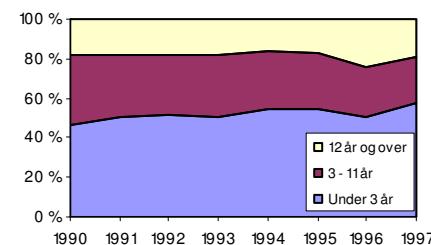
No. of adopted children 1990-1997



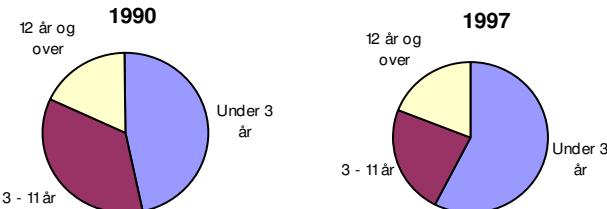
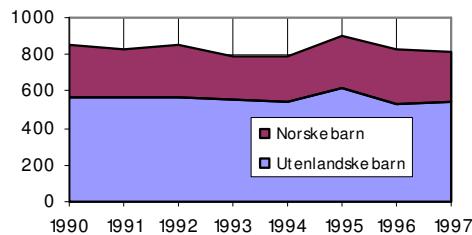
No. of adopted children by age 1990-1997



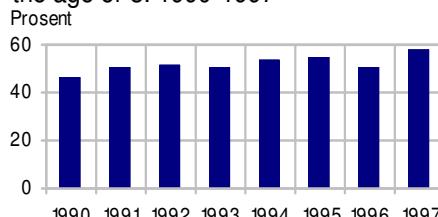
Adopted children by age 1990-1997



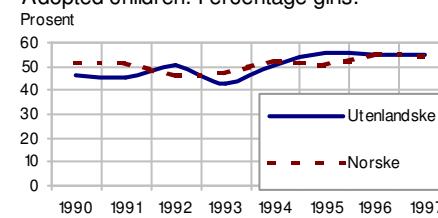
No. of adopted children. Norwegian and foreign 1990-1997



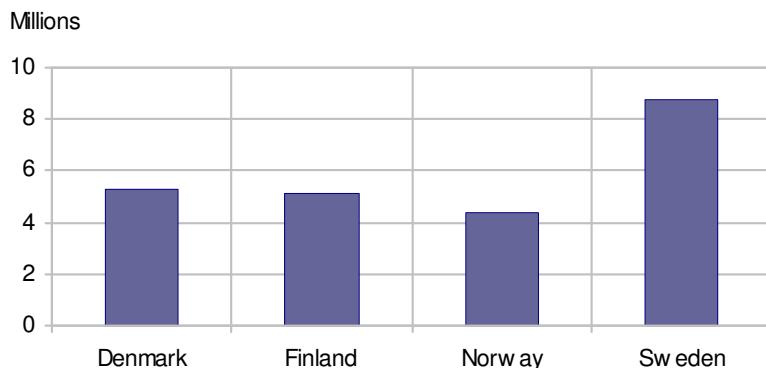
Adopted children. Percentage under the age of 3. 1990-1997



Adopted children. Percentage girls.

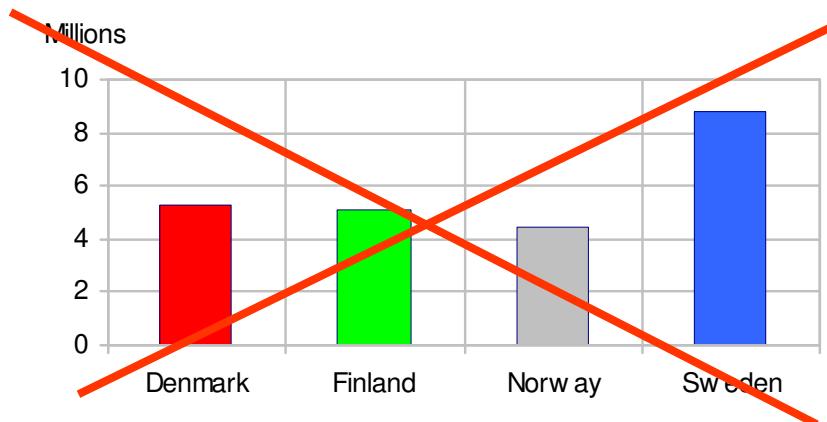


Bar charts (vertical):

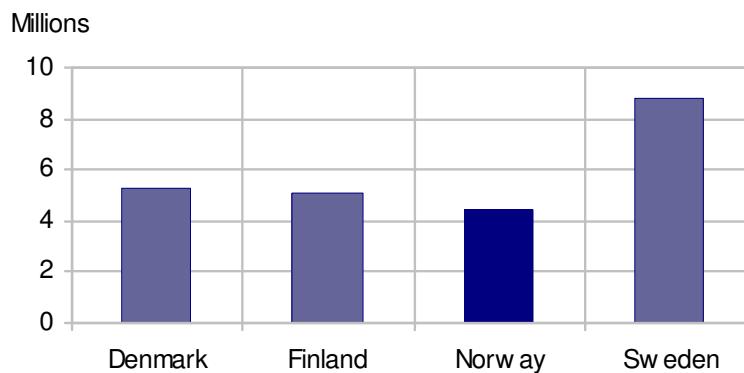


- Also called: Column charts
- The simplest and most basic chart type
- Used to show absolute or relative frequencies, percentages, averages
- Example: *Population in the Nordic countries*

Bar charts (vertical) (cont.):

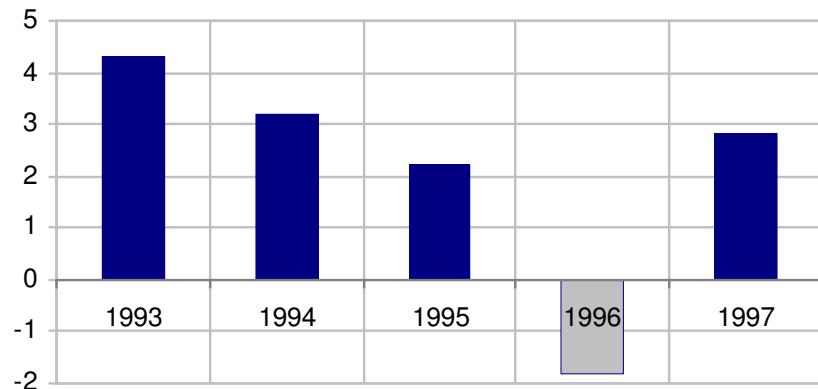


- With only one classification variable it is best to use only one colour/pattern



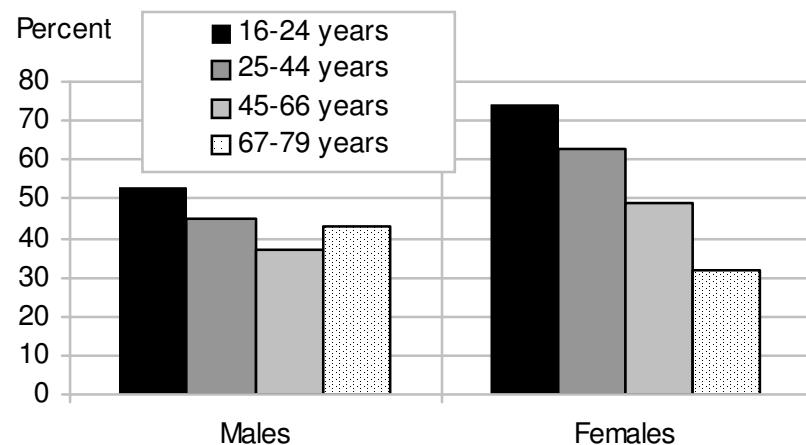
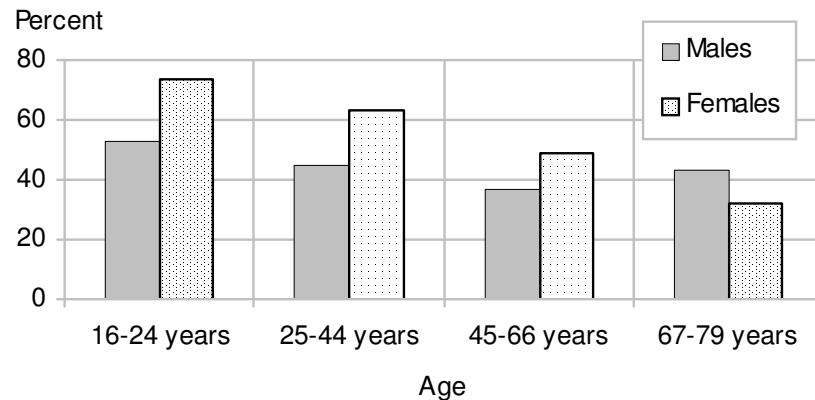
- If you want to focus on one class/group, this can be done by using a different colour/pattern

Bar charts (vertical) (cont.):



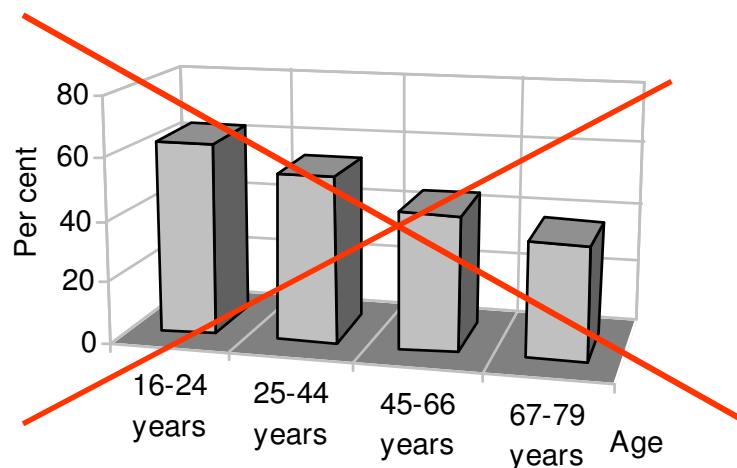
- When both positive and negative values are plotted, use different colours/ patterns

Grouped bar charts:

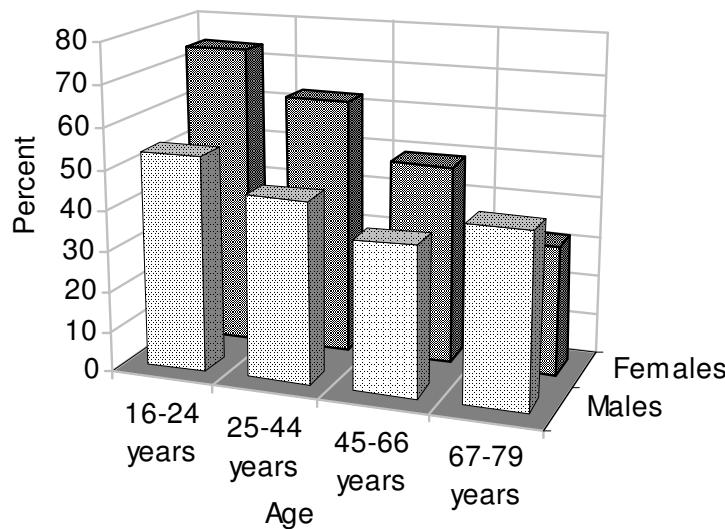


- Two (or more) categories
- Example: *Percent using a library last year, by sex and age*
- With two categories, we have two ways of grouping, inviting to different comparison

“3D” bar charts:

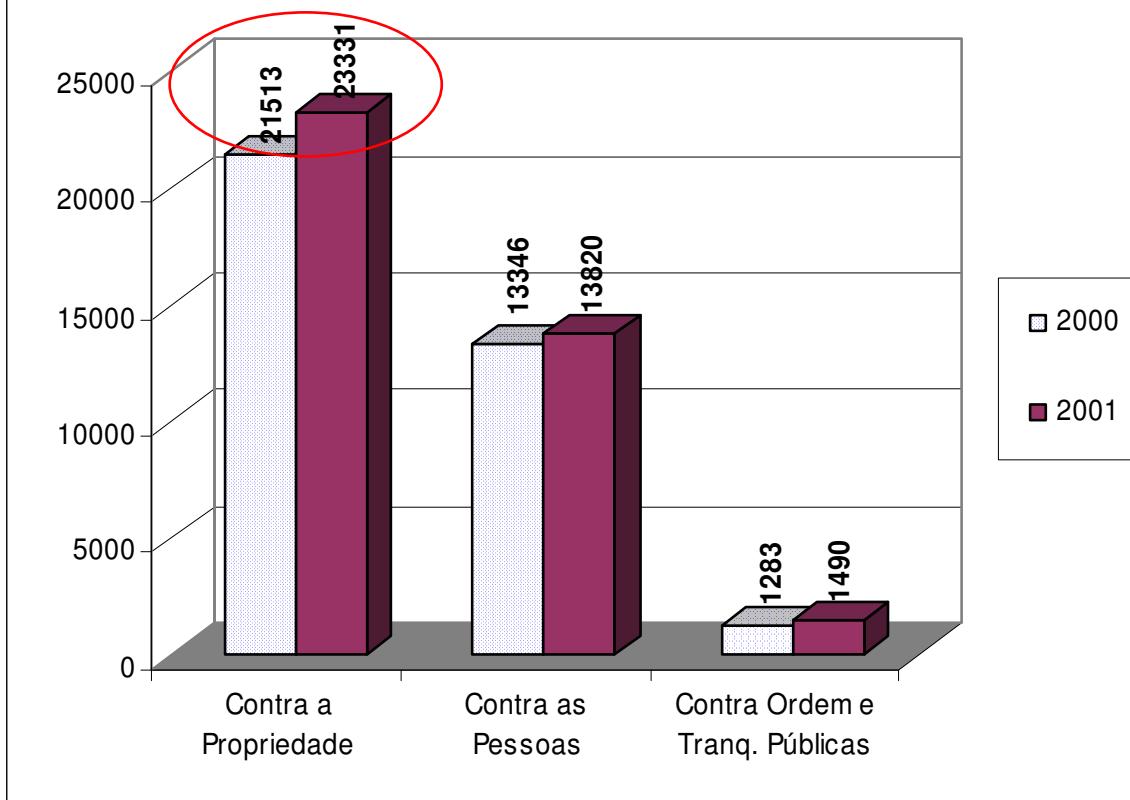


- Popular, but not recommended

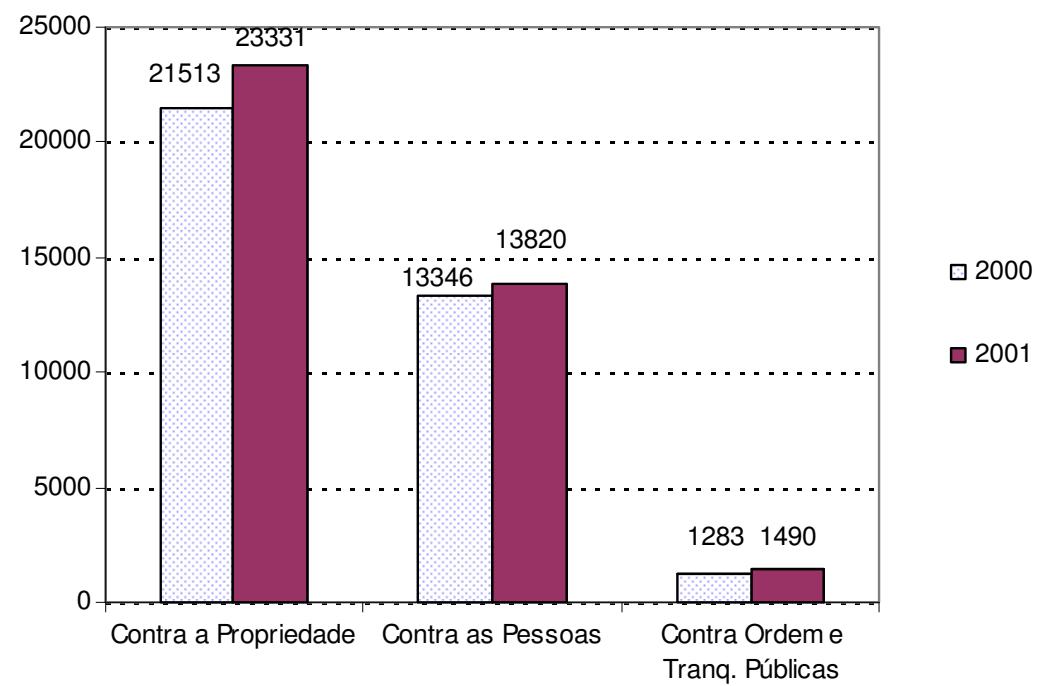


- “Genuine” 3D-chart (3 variables)

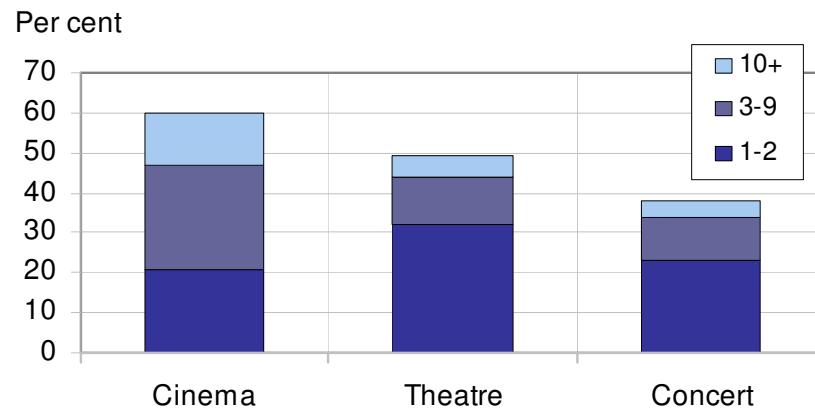
**Gráfico 1.1 Movimento Geral de Crimes Reportados
à Polícia segundo tipo. Moçambique, 2001/2002**



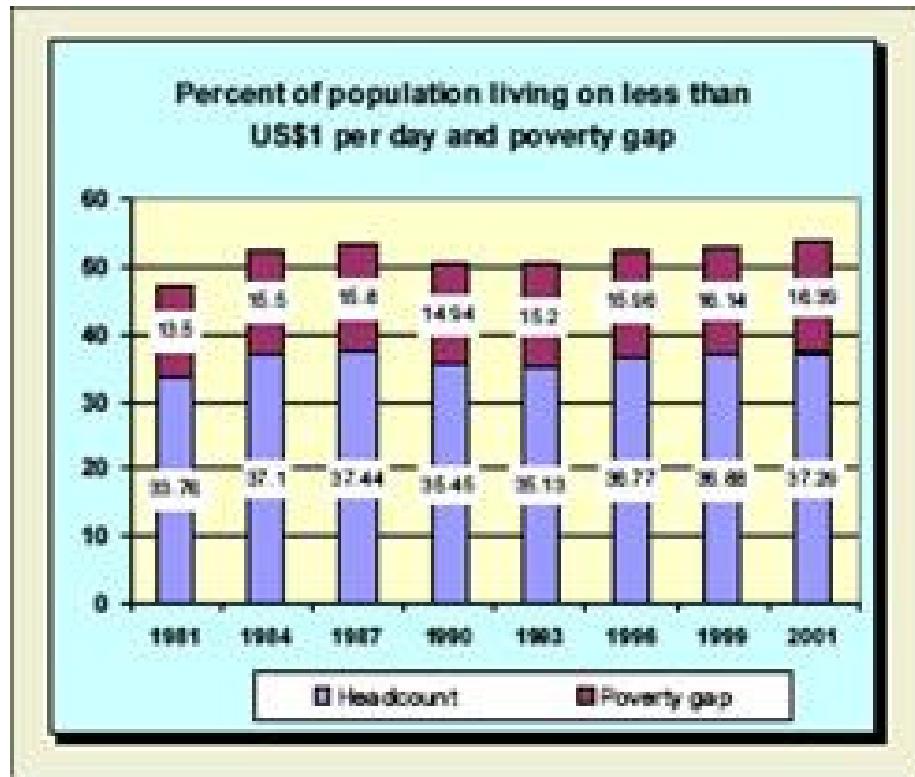
**Gráfico 1.1: Crimes Reportados à Polícia segundo tipo.
2000 - 2001**



Stacked bar charts

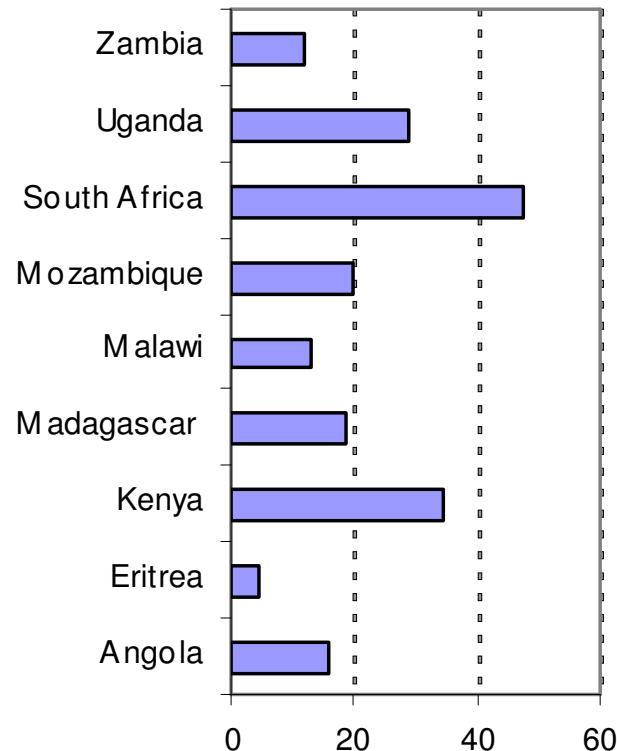


- Show total frequency and how the total is divided into different components



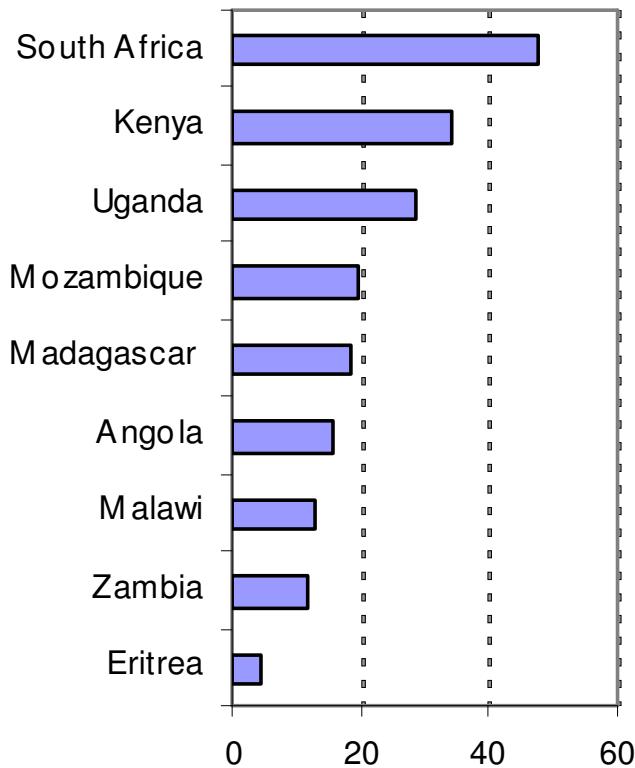
From: African Development Bank 2006. Gender, Poverty and Environmental Indicators on African Countries, page 37

Horizontal bar charts:



- Often used
 - when labels (variable names) are long
 - when there are many variables or classifications
- Here, text should be right justified

Horizontal bar charts:

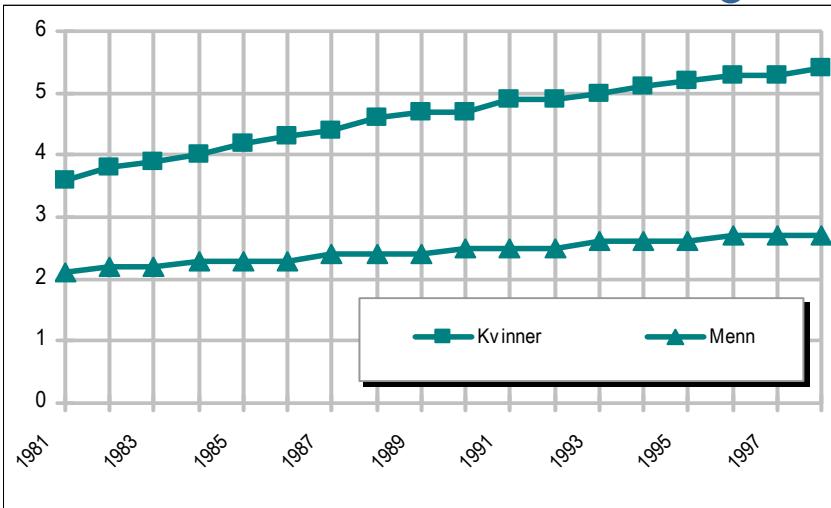


- Often it is better to sort by the value of the indicator (dependent variable)

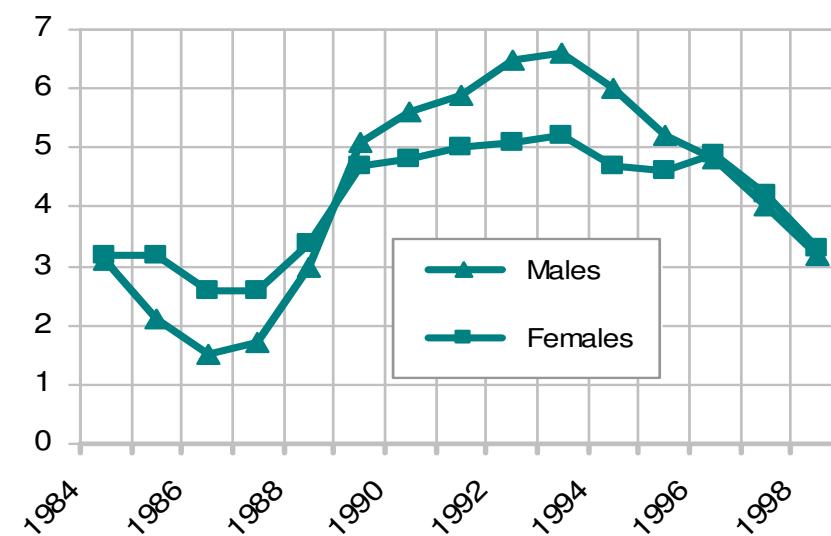
Line charts:

- Most often used for time series
- Time = years, quarters, months, weeks, days, hours and minutes + age
- What is a time “series”? Minimum = 4 data points?
Up to 4, use vertical bar chart
- The longer series, the better?!

Line charts: Symbols?

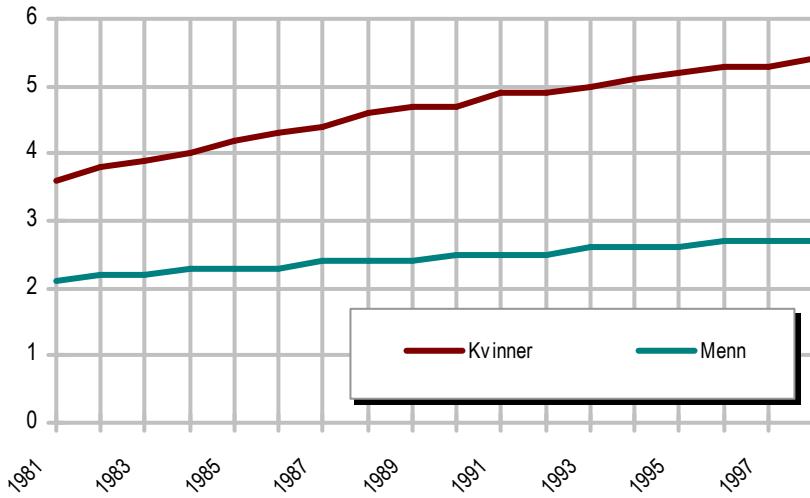


Per cent

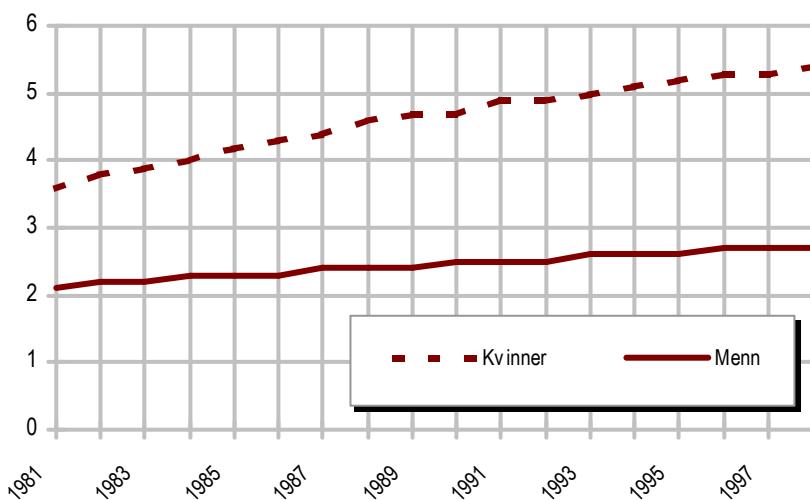


- Indicators or symbols ($\blacksquare \triangledown$) are often used to differentiate between series, but these symbols overload the chart, especially with crossing time series

Line charts:

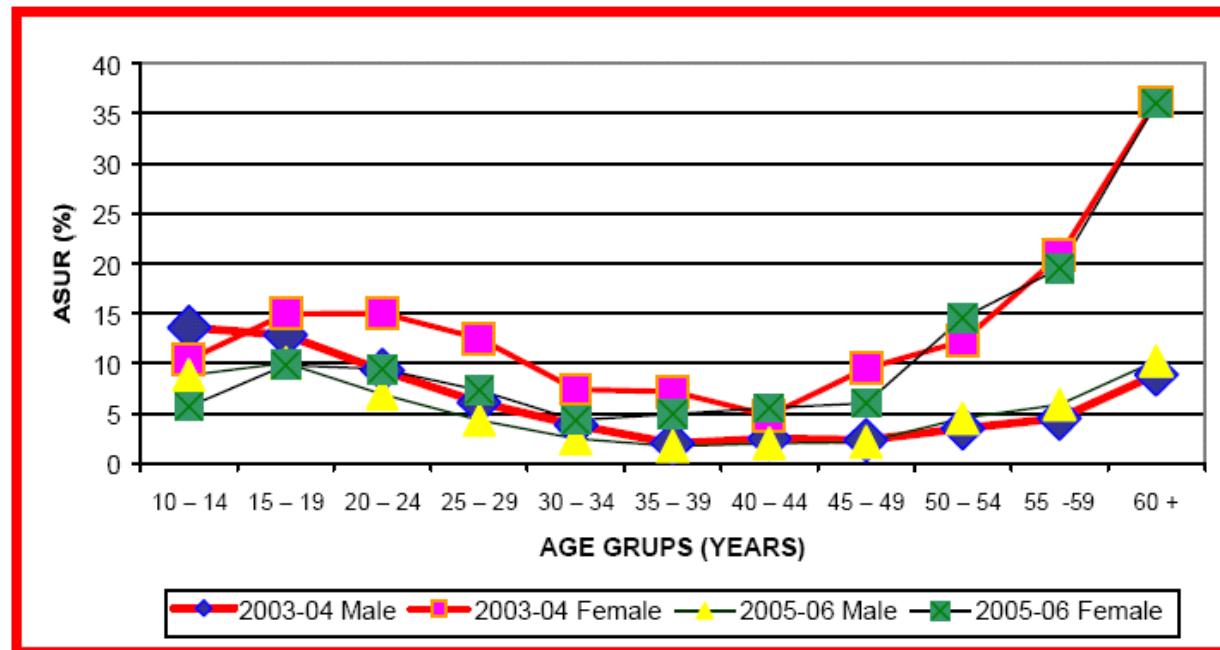


- Better to use different colours ...

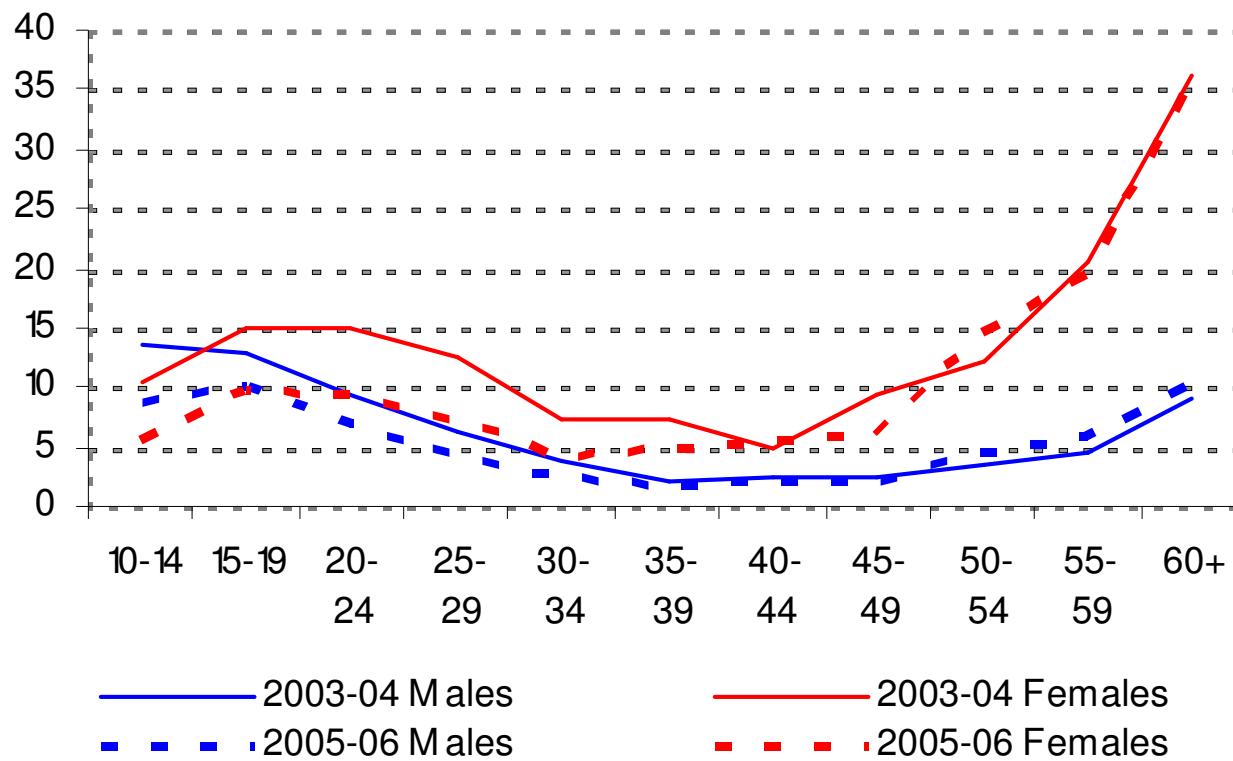


- ... and/or line styles

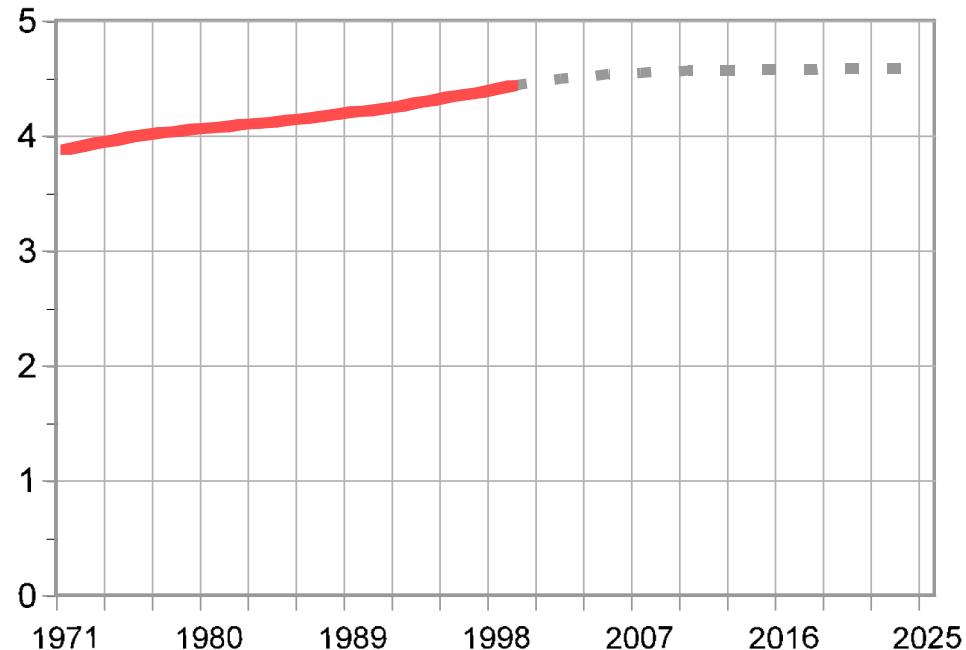
FIGURE-5: AGE SPECIFIC UNEMPLOYMENT RATES (ASUR) BY SEX FOR PAKISTAN



From: Pakistan Labour Force Survey 2005-2006

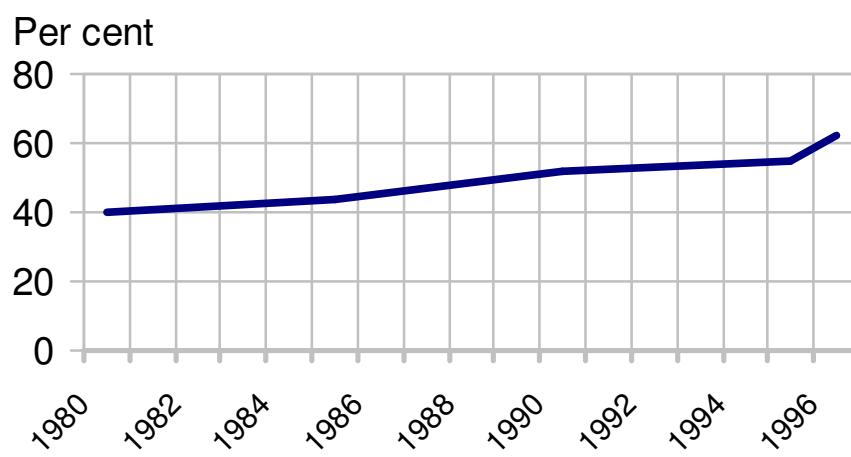
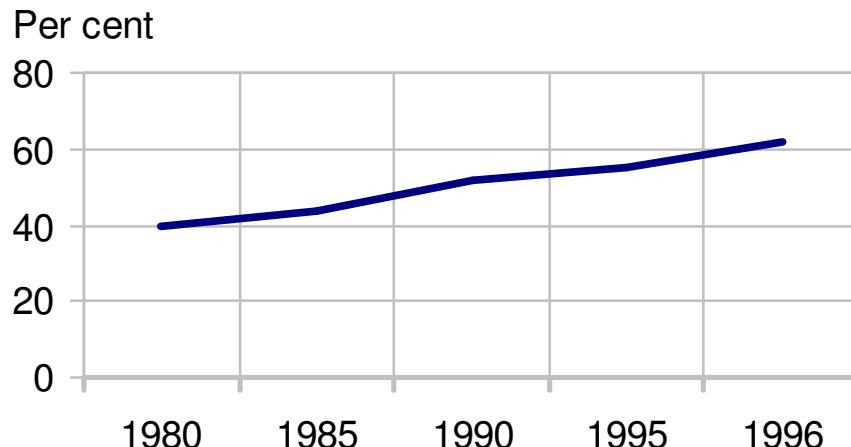


Line charts:



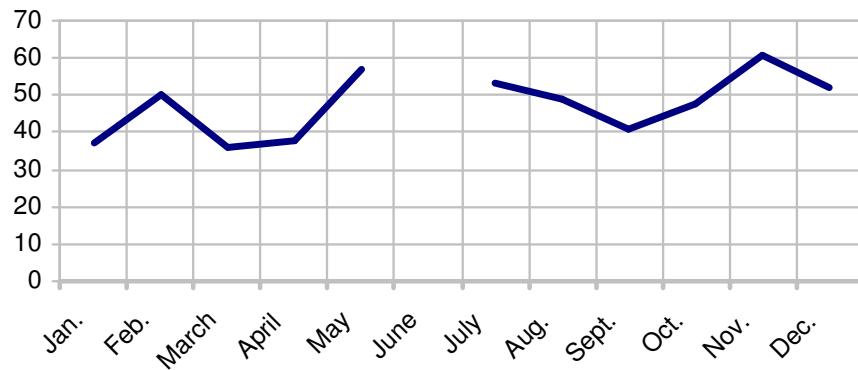
- When showing projections, the projection portion should be clearly differentiated graphically from the rest of the curve

Standard line charts

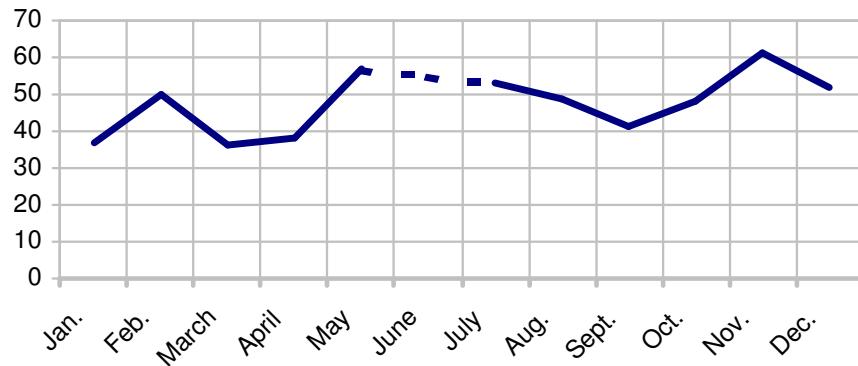


- “A time series” requires at least 4? data points (if not: use bar chart)
- Be careful when the data points are not evenly spaced; like 1980, 1985, 1990, 1995 and 1996

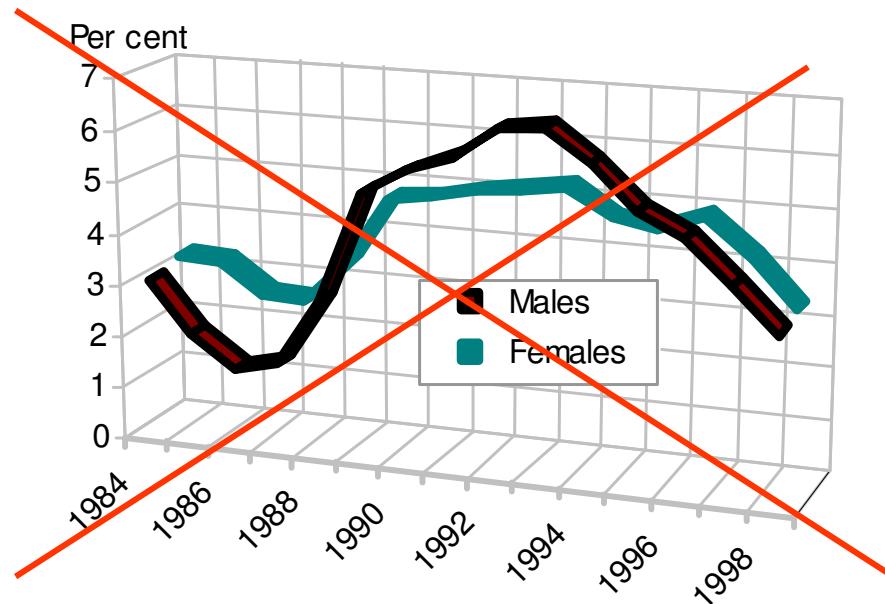
Missing data in time series



- The gap should be bridged with a dashed line

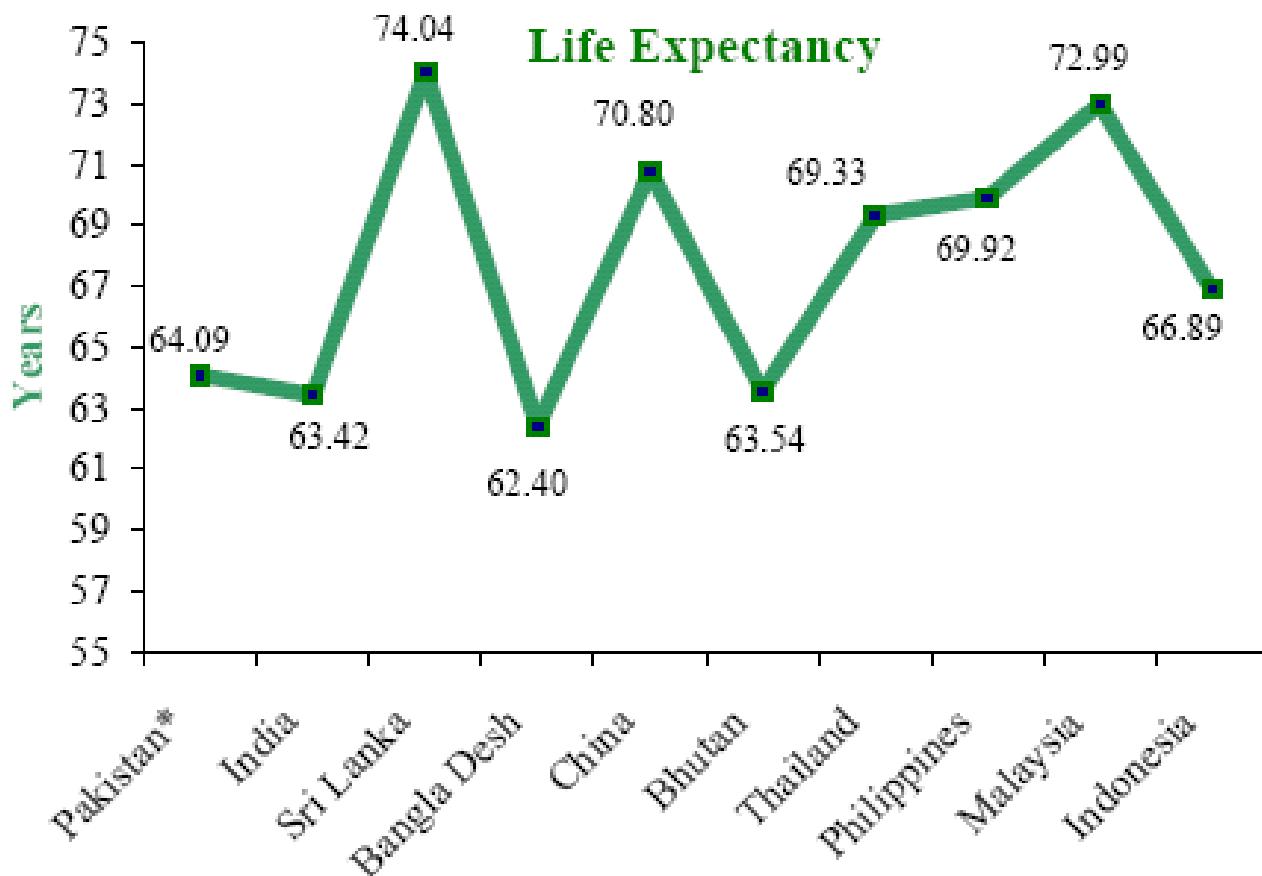


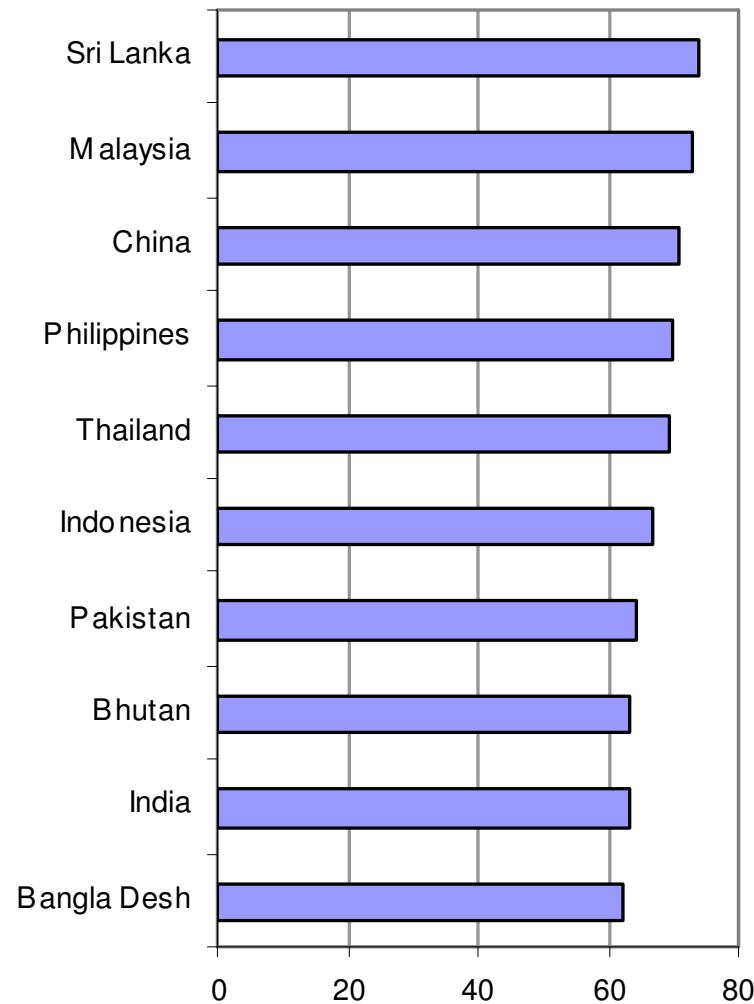
“3D” line charts?



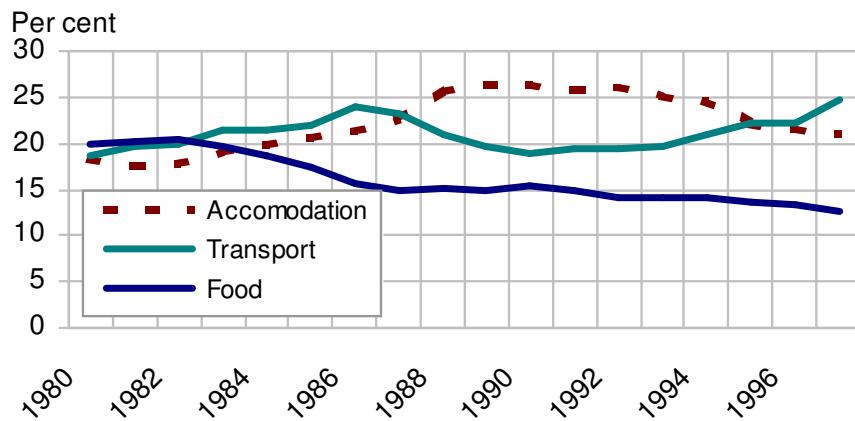
- NO!!

Should *never* be used to illustrate differences between group, for instance countries

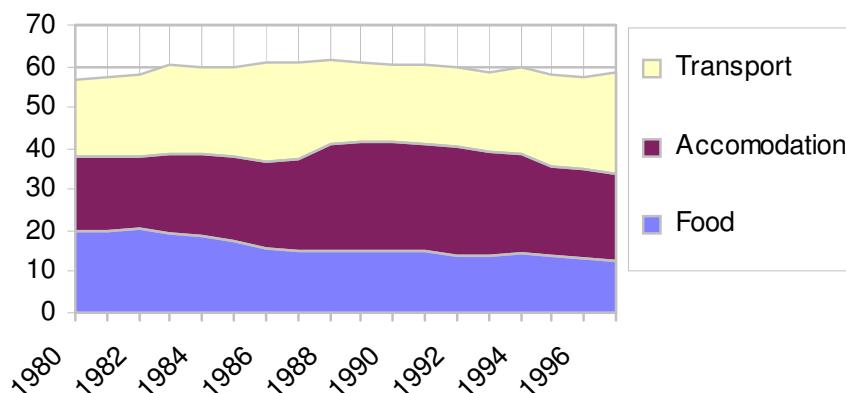




Area chart

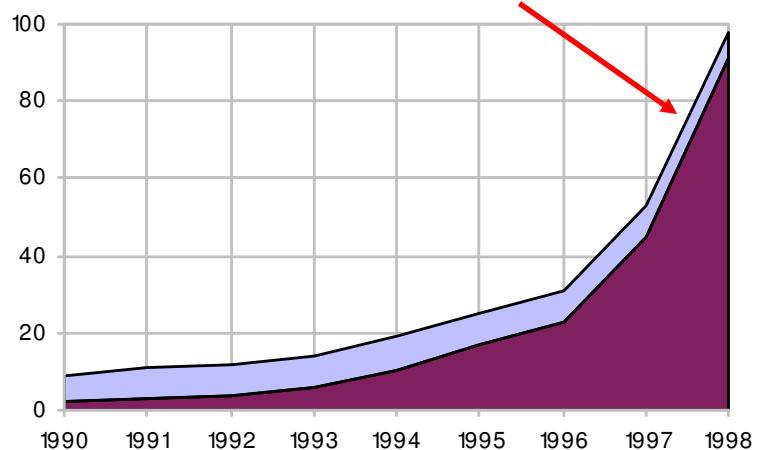


- Area charts are accumulated line charts; like stacked bars.

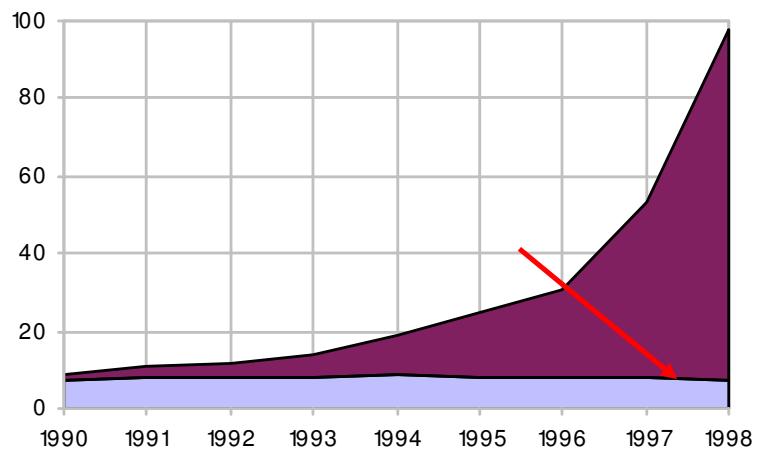


- Shows total and parts
- Don't use with too many groups/values

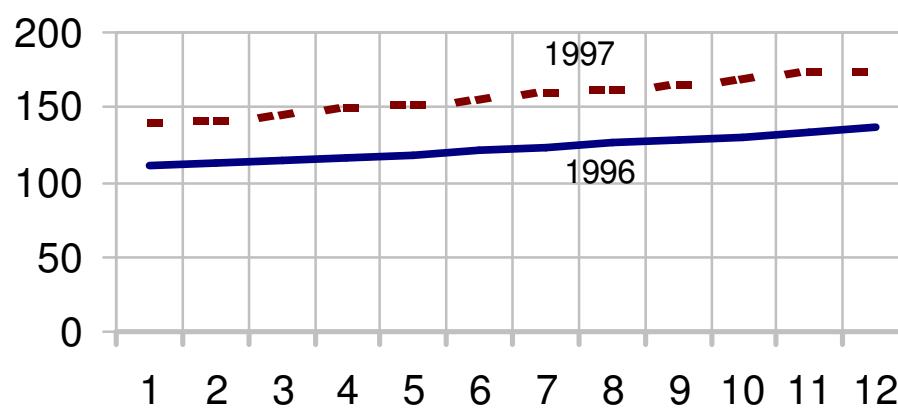
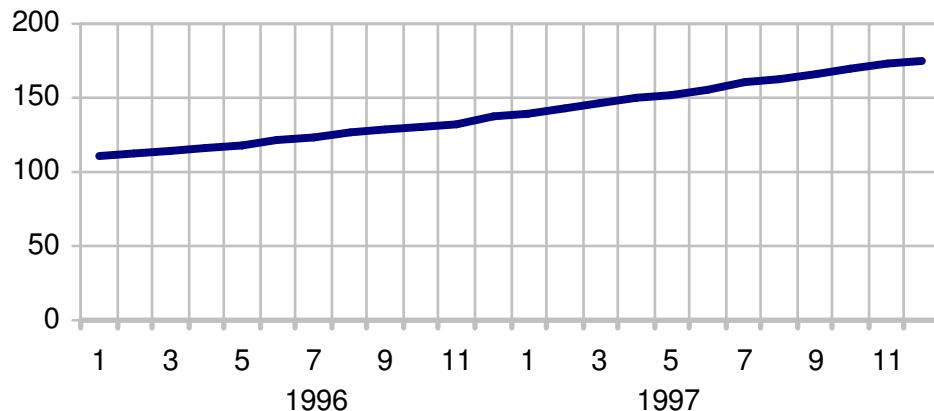
Area chart



- Order of series may be important



Periodical data



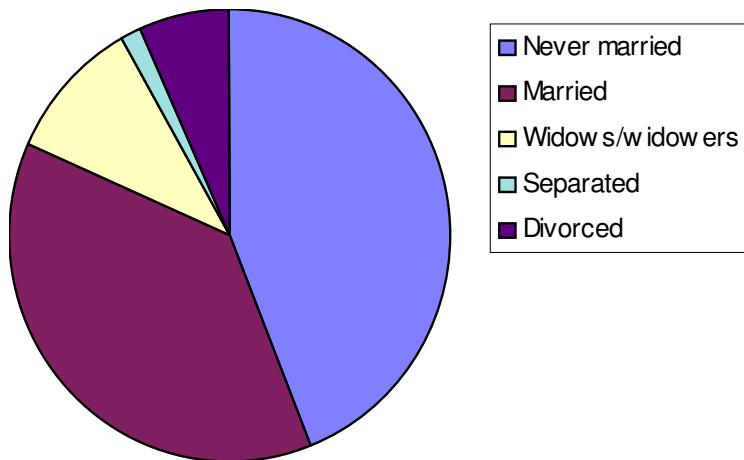
- Weekly, monthly and quarterly data. Monthly data for one year can be presented as a standard line chart
- With two or more years, we have two alternatives

Curve smoothing



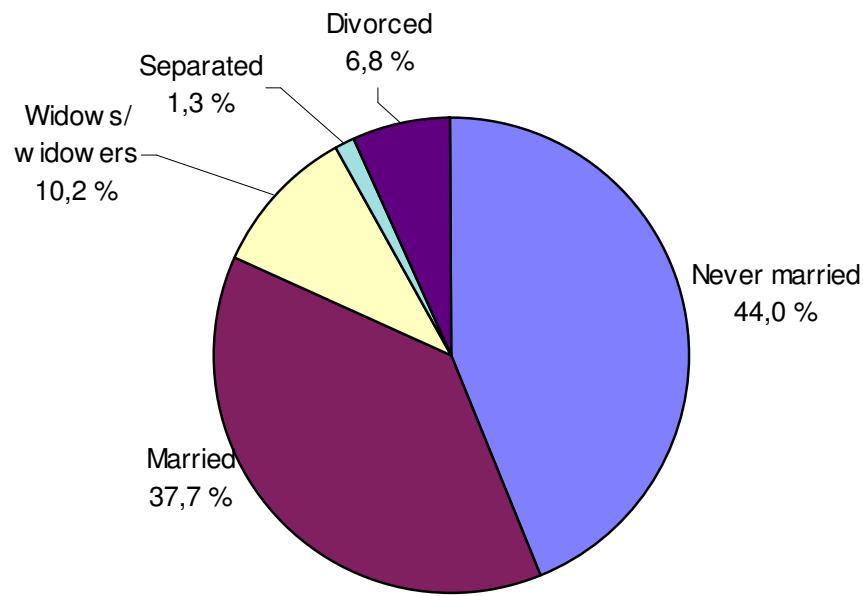
- Often used with periodical data
- Moving average (here: 3 years)

Pie chart



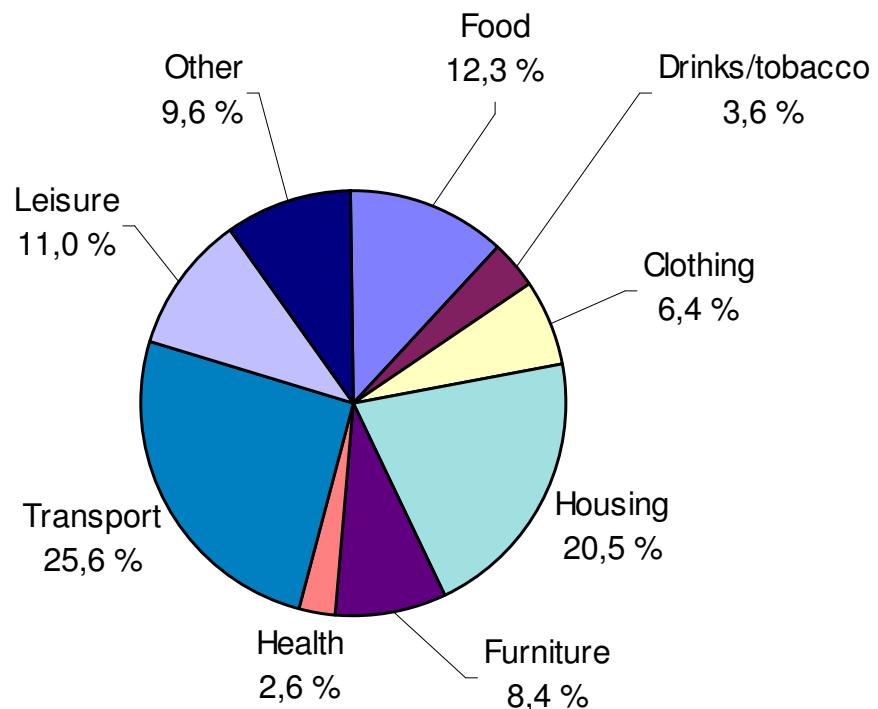
- Shows distribution of (qualitative) variables
- No axis
- Total area = 100%
- Instead of legend....

Pie chart



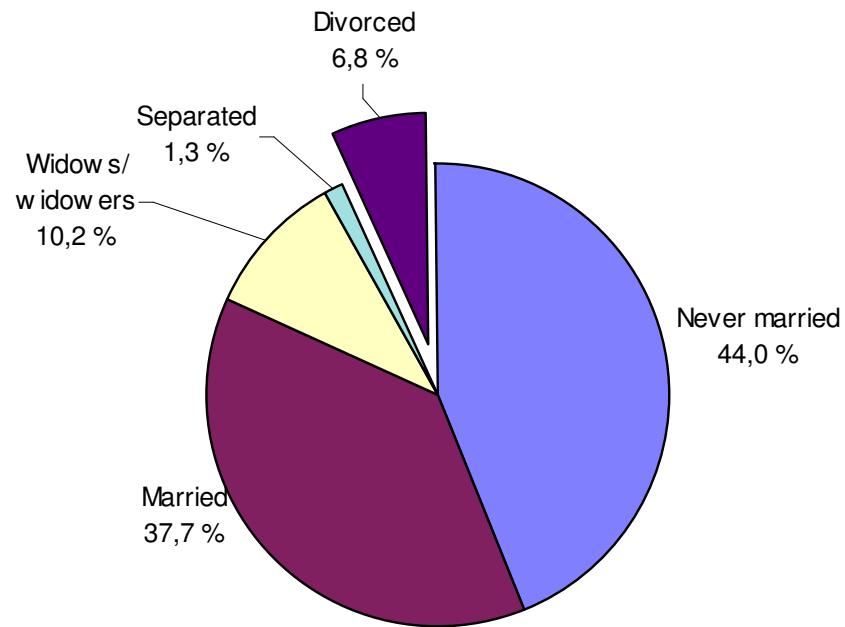
- ...use labels
- Since pie charts have no value axis, show percentage
- Maximum 5 values?

Pie chart



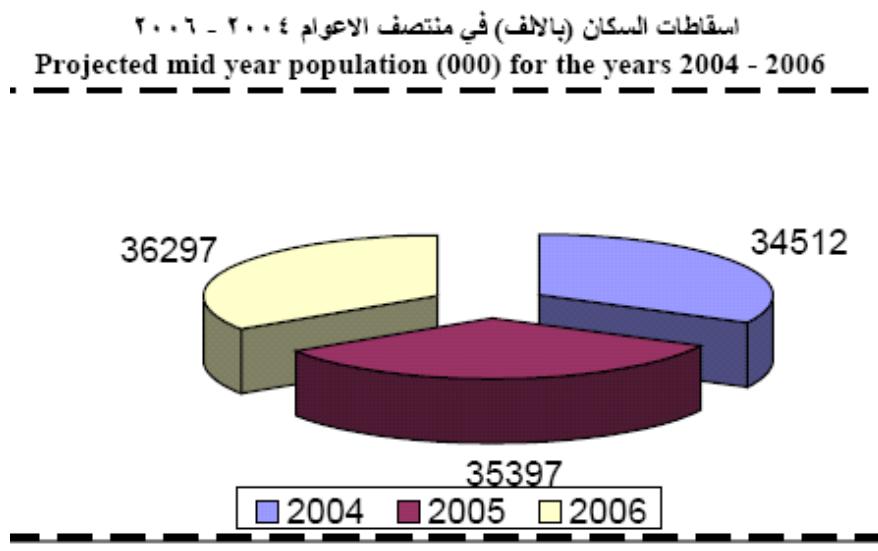
- With too many values, the reader loses interest

Pie chart



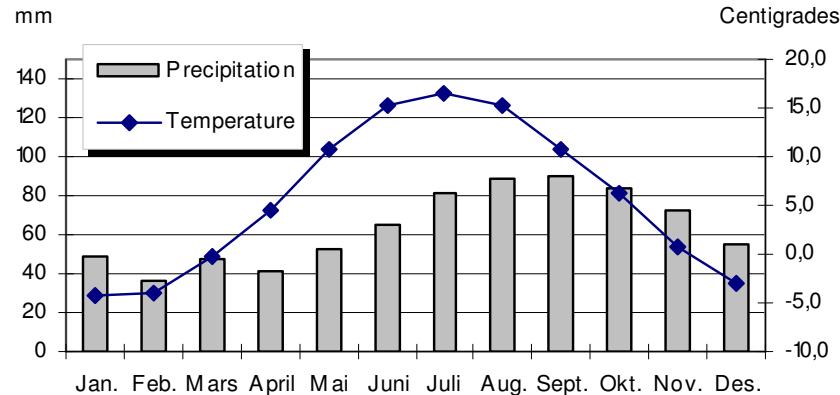
- If we want focus on or draw attention to a special group/sector, this can be done by “exploding”

Pie chart

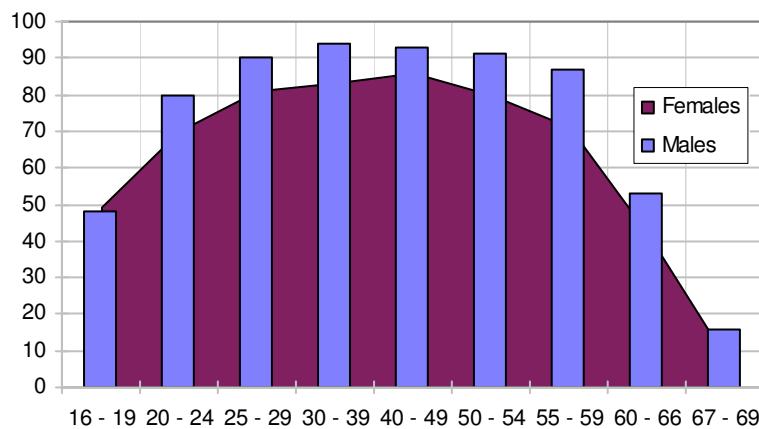


- Pie charts should *never* be used to illustrate time series

Other types



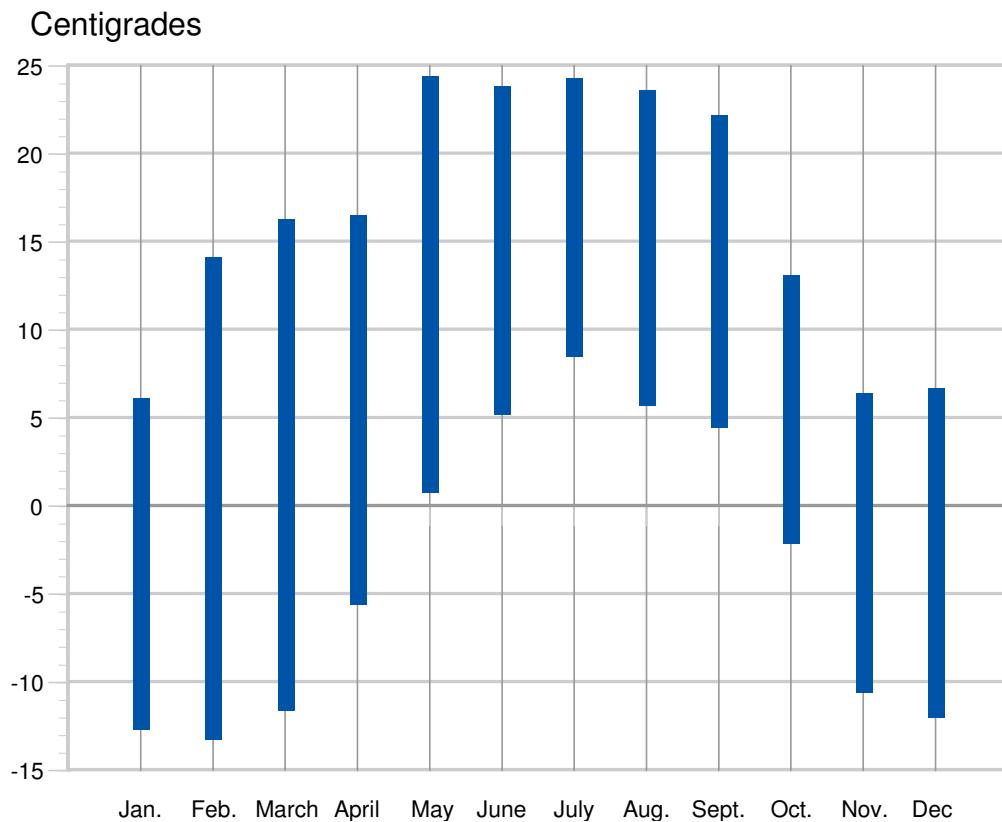
Male and female labour participation rates by age. 1998



- Combination graphs (also called “overlay”):
 - Bar & line

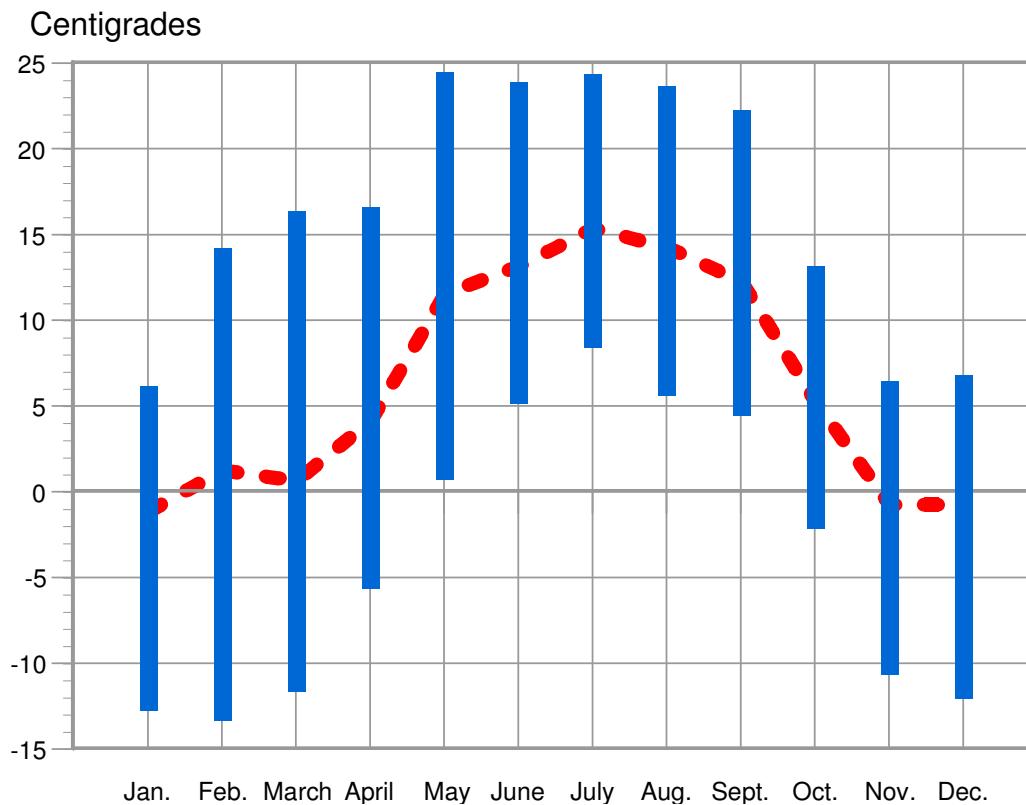
- Bar & area

Other types



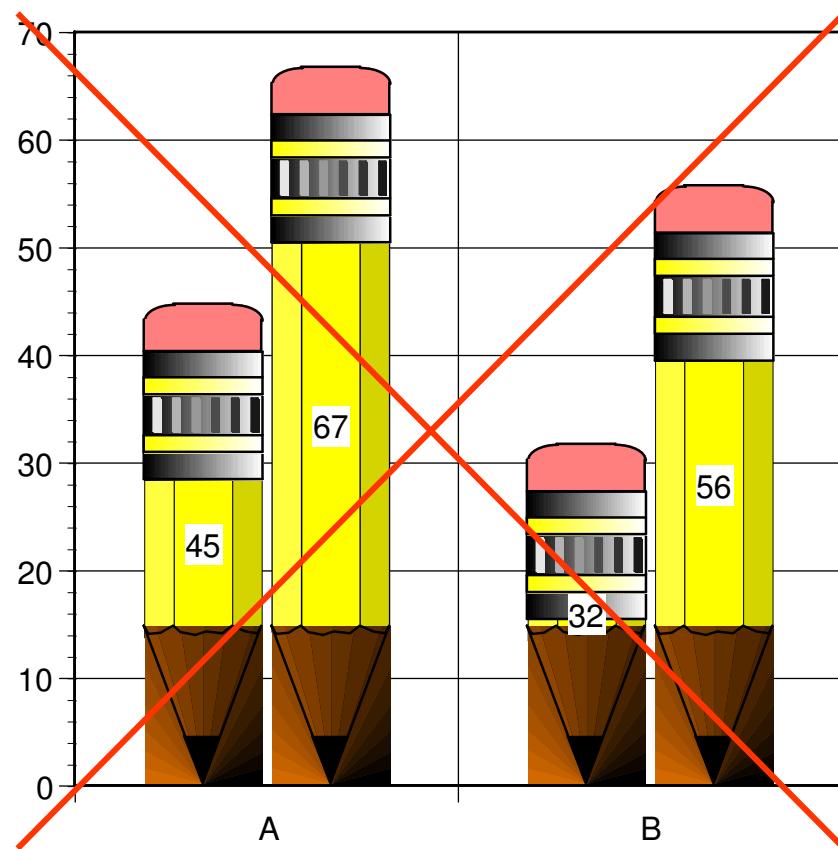
- Min. - max.
(floating column)

Other types



- Or: Min. - max.
+ average
temperature

Other types



- Pictogram: Not recommended

User-friendly analysis

Some guidelines/suggestions

Users?

- Media
- Organizations (gov. /NGO's)
- The informed public
- Students/teachers
- But also the (so called) experts

Why “analysis”?

- In a complex and changing society, readers need to be guided through the numerical jungel: “What does the numbers really mean”?
- Unlike experts, the informed users and the general public need explanations, interpretations and comments

Why “analysis”?

- “Analysis” forces us to look closer at the data: concepts, definitions, measurements, sampling, etc.
- “Analysis” therefore provides a necessary feedback into the statistical production process and helps increase the quality of statistics, by uncovering error and mistakes in the statistics

KISS!

- **Keep It Short and Simple**
 - Tables
 - Graphs
 - Titles
 - Text

Analysis is ...

Some synonyms:

- Comment
- Interpretation
- Study
- Breakdown
- Explanation
- Research

Analysis is ...

- To select among all the possible numbers
- What is...
 - Important?
 - Interesting?
 - Relevant?
 - New...?

To select means ...

- ... to focus: 2 or 3 main findings
- Don't try to comment on everything
- Avoid “table reading”: to describe every cell in a table

Analysis is ...

- To compare: point out differences, trends and tendencies
 - Over time/time series
 - Between groups
 - Or both
- And to make the figures comparable

Analysis is ...

- to put into context
- to explain (the unexpected)
- What do the figures changes/differences mean?
- Are the changes part of a more general pattern?
- In short: To make statistics informative and meaningful to the reader

In “analysis”

- Use relative rather than absolute numbers:
percent, per 1 000 pop., ...

Types of “analysis”?

- Press releases = comments → media
- Popular presentations = descriptive → Posters/brochures
- Thematic analysis = "interpretation" → Social reports/Women & men)
- In depth analysis/research = "explanation" → Research report

Constructing tables is the first step of analysis:

- When constructing a table; we implicitly start analysing:
 - What is the dependent variable (indicator)?
 - What are the (most important) background (classification) variable(s) (and why)?
- A table is always (or should be) constructed on basis of certain ideas about relations between variables, which is also the basis of analysis

Título dos quadros – simples e claro

Quadro 1.1 Movimento Geral dos Crimes Reportados à Polícia, segundo Tipo, Moçambique, 2000/2001

Quadro 1.1 Crimes Reportados à Polícia, segundo tipo. 2000-2001

Quadro 1.4 Situação Operativa da Polícia face aos Crimes Reportados Segundo Províncias

Quadro 1.4 Crimes Reportados à Polícia, segundo província. 2000-2001

Press releases:

Structure:

- Name of statistics
- Heading/title
- Lead (the first paragraph)
- Short paragraphs...
- ... with sub-headings
- small tables/graphs?
- date of release
- contact/more information:
telephone no./e-mail address

Press releases: Name and title

Labour Force Survey 2006

More women in the labour force

Maximum one line.
No figures

Press releases: Lead/first paragraph

After being stable for some years, the labour force participation rate for women in 2006 reached 69 per cent, compared to 76 per cent for men. Weekly working hours are also increasing.

Maximum two or three sentences

Labour Force Survey Q3 2007

Higher participation rate among elderly

From the third quarter of 2006 to the third quarter of 2007, the labour force participation rate increased by 2.3 percentage points among people aged 55-66 years. For the population aged 15-74, the labour force participation rate rose by 0.7 percentage points.

From the third quarter of 2006 to the third quarter of 2007, employment rose by 78 000. The number of people in full-time employment increased by 90 000, while the number of people in part-time employment fell by 13 000. Average settled working hours were 34.7 hours per week, compared with 34.5 in the third quarter of 2006. Average settled working hours for men were 37.7 hours per week, compared with 31.3 hours for women.

Higher labour force participation for the elderly

The labour force (the sum of employment and unemployment) increased by 58 000 people from the third quarter of 2006 to the third quarter of 2007. In the same period, the working-age population (aged 15-74) rose by 48 000. The proportion of 55-66 year-olds in the labour force increased from 63.3 to 65.6 per cent. The labour force participation rate for women rose by 1.0 percentage point, compared with 0.4 percentage points for men.

Number of employees on temporary contracts unchanged

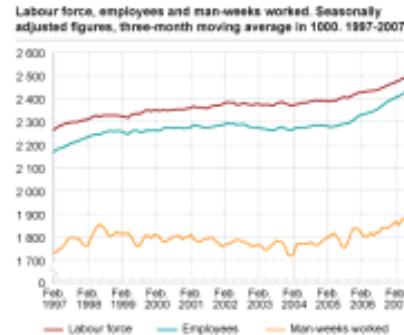
238 000 were on temporary contracts in the third quarter of 2007. This was more or less unchanged from the third quarter of 2006. Hotels and restaurants have the highest share of employees on temporary contracts, with 21.3 per cent. Education and health and social work are also industries with a high share of employees on temporary contracts with 14.9 per cent. Transport and communication (5.6 per cent) and manufacturing (6.6 per cent) had the lowest shares of temporary employees.

Unemployment fell by 20 000

According to the LFS, the number of unemployed fell by 20 000 from the third quarter of 2006 to the third quarter of 2007. The decline mainly took place in the age group 25-54 years, where the unemployment fell by 15 000. The unemployment rate stood at 2.5 per cent.

The proportion of long-term unemployed - defined as persons who have been unemployed for at least six consecutive months - was 25 per cent in the third quarter of 2007, down 6 percentage points from the third quarter of 2006. The reduction in unemployment has come both among people who have been unemployed for shorter periods as well as the long-term unemployed. However, the relative reduction was largest among the long-term unemployed.

Contact: E-mail Telephone (+47)
bnbnb.mnmmn@ssb.no 21 09 xx xx



The graph illustrates the trend of unemployment figures in the United Kingdom from 1997 to 2007. The 'Unemployed' series (red) starts at approximately 105 in Feb 1997, dips to about 60 by 2000, rises to a peak of around 115 in 2004, and ends at approximately 65 in 2007. The 'Registered unemployed' series (blue) starts at about 100 in 1997, drops to around 60 by 2000, rises to a peak of about 105 in 2004, and ends at approximately 55 in 2007. The 'Registered unemployed plus government measures to promote employment' series (cyan) starts at about 100 in 1997, drops to around 60 by 2000, rises to a peak of about 110 in 2004, and ends at approximately 50 in 2007.

Name of statistics

Short title

Lead

Short paragraph

Graph

Sub-heading

Short paragraph

- • • • • • • • • •

More information

Date of publishing

CURSO SOBRE ANÁLISE DE DADOS

RESUMO DO CURSO

ESCOLA PORTUGUESA DE MOÇAMBIQUE

(Maputo, Novembro de 2007)

PRINCIPAIS FOCOS

Aspectos da Qualidade

Qualidade do produto, dos processos e para o cliente

Identificação dos Usuários

Internos/Externos e quais as suas necessidades

Disseminação de estatísticas

Facilmente identificável ou localizável, acessível, útil e de fácil compreensão –
user friendly

Classificação de usuários

Moldar a apresentação da informação de acordo com o usuário a que se destina.

PUBLICAÇÕES

O que publicar

Números (especialistas) ou análises/comentários (mídias e público)

Em que formato publicar

Internet (números), Relatórios de análise, Livros, Apresentações públicas, etc.

O que não deve fazer numa publicação / apresentação

Power points sofisticados com muitas animações, gráficos tri-dimensionais, etc.

DADOS

Como e quando apresentar dados numéricos absolutos e/ou relativos

Evitar números muito longos, usar separadores, não usar mais de uma casa decimal, etc.

Como organizar dados numéricos absolutos e/ou relativos num quadro

Usar valores relativos (percentuais), nunca misturar valores absolutos e percentuais no mesmo quadro, etc.

GRÁFICOS

Quando usar cada tipo de gráfico

- Barras
- Circular

evitar usar muitas variáveis para facilitar a leitura.

- Linha

Séries temporais

DESTAQUES

Que informação destacar numa publicação

- Press Release a Imprensa

Destacar a informação que à partida, forneça o quadro geral do fenómeno em análise.

MUITO OBRIGADO

O que significa qualidade?

”satisfazer as necessidades e expectativas dos clientes ou usuários a um preço competitivo”

” Aptidão para uso (a preço correcto)”

O que é qualidade das estatísticas?

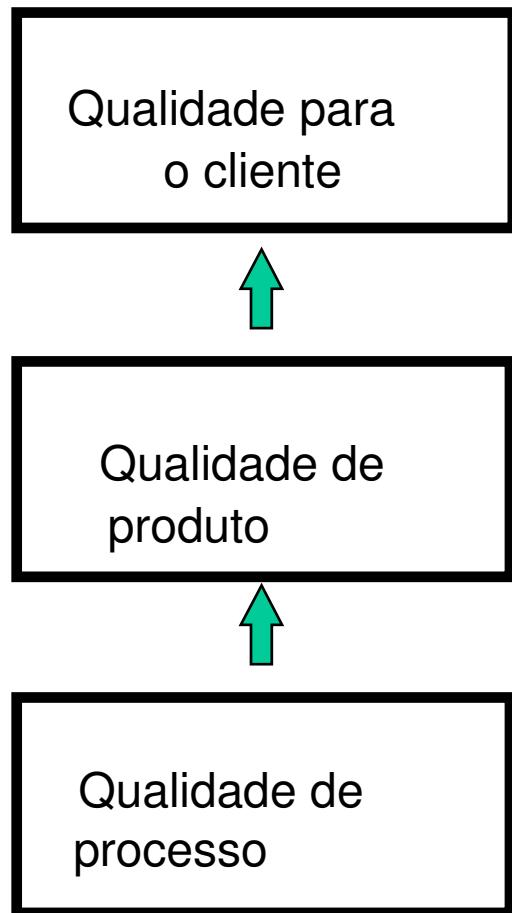
Os seguintes factores afectam e caracterizam qualidade em estatísticas:

Pertinência e exaustividade

1. Fiabilidade
2. Actualidade e pontualidade
3. Comparabilidade e coerência
4. Acessibilidade e clareza

A produção deve ser eficiente. As estatísticas devem ser produzidas independente e¹²¹

Qualidade total (TQM)



- O cliente ou utilizador deve ser o foco principal
- Os utilizadores exigem as seguintes características das estatísticas:
 - Pertinência e exaustividade
 - Fiabilidade
 - Actualidade e pontualidade
 - Comparabilidade e coerência
 - Acessibilidade e clareza
- A produção deve ser eficiente.
- Dados (indicadores) dos processos, susceptíveis de melhoria / aperfeiçoamento

Perguntar!

- What O quê?
- Why Porquê?
- How Como?
- Who Quem?
- Where Onde?
- When Quando?

Padrão de documentação - Metadados para utilizadores

1. Informação administrativa

- 1.1. Nome
- 1.2. Área responsável
- 1.3. Objectivo e historia
- 1.4. Utilizadores e aplicações
- 1.5. Fontes

2. Conteúdo

- 2.1. Descrição
- 2.2. Conceitos e classificações

3. Tempo

- 3.1. Período de referencia
- 3.2. Data de publicação
- 3.3. Frequência

4. Fiabilidade

- 4.1. Fontes de erros e de incerteza

5. Comparabilidade e coerência

- 5.1. Comparabilidade temporal e espacial
- 5.2. Coerência com outras estatísticas

6. Acessibilidade e clareza

- 6.1. Formas de distribuição
- 6.2. Acesso aos dados primários
- 6.3. Documentação
- 6.4. Outra informação

Diagrama de fluxo

Processo



Fluxo de dados e estratégia

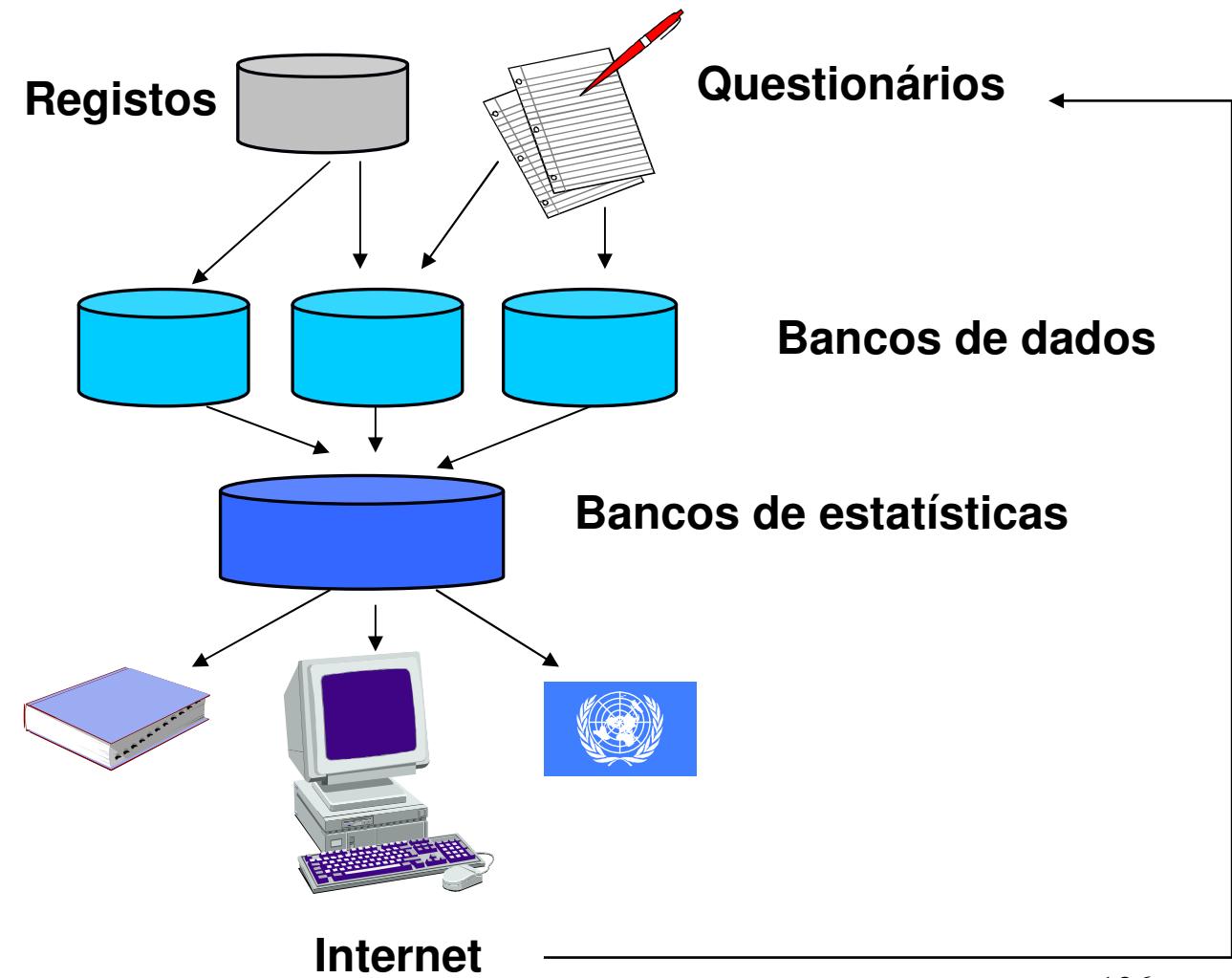
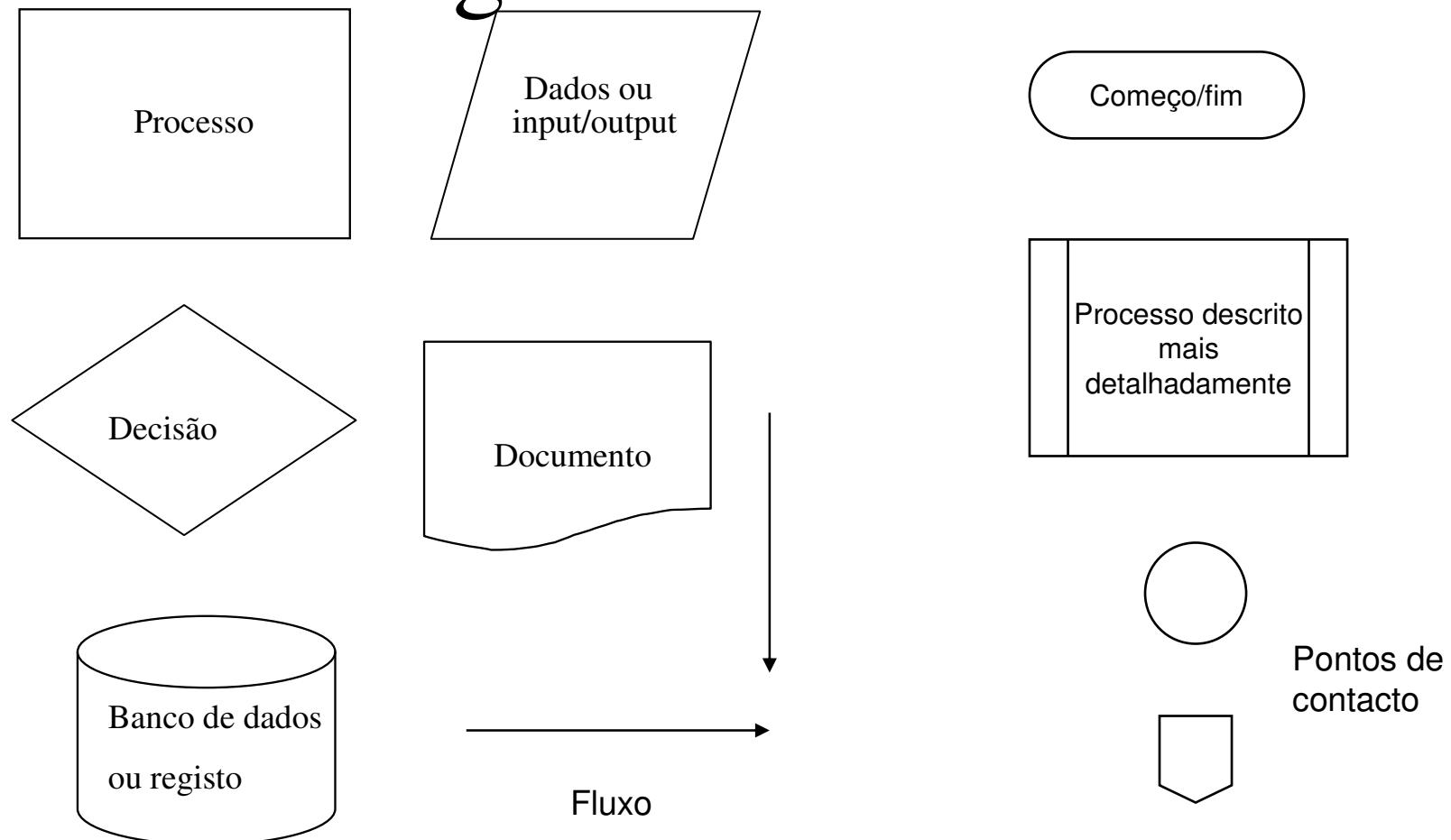
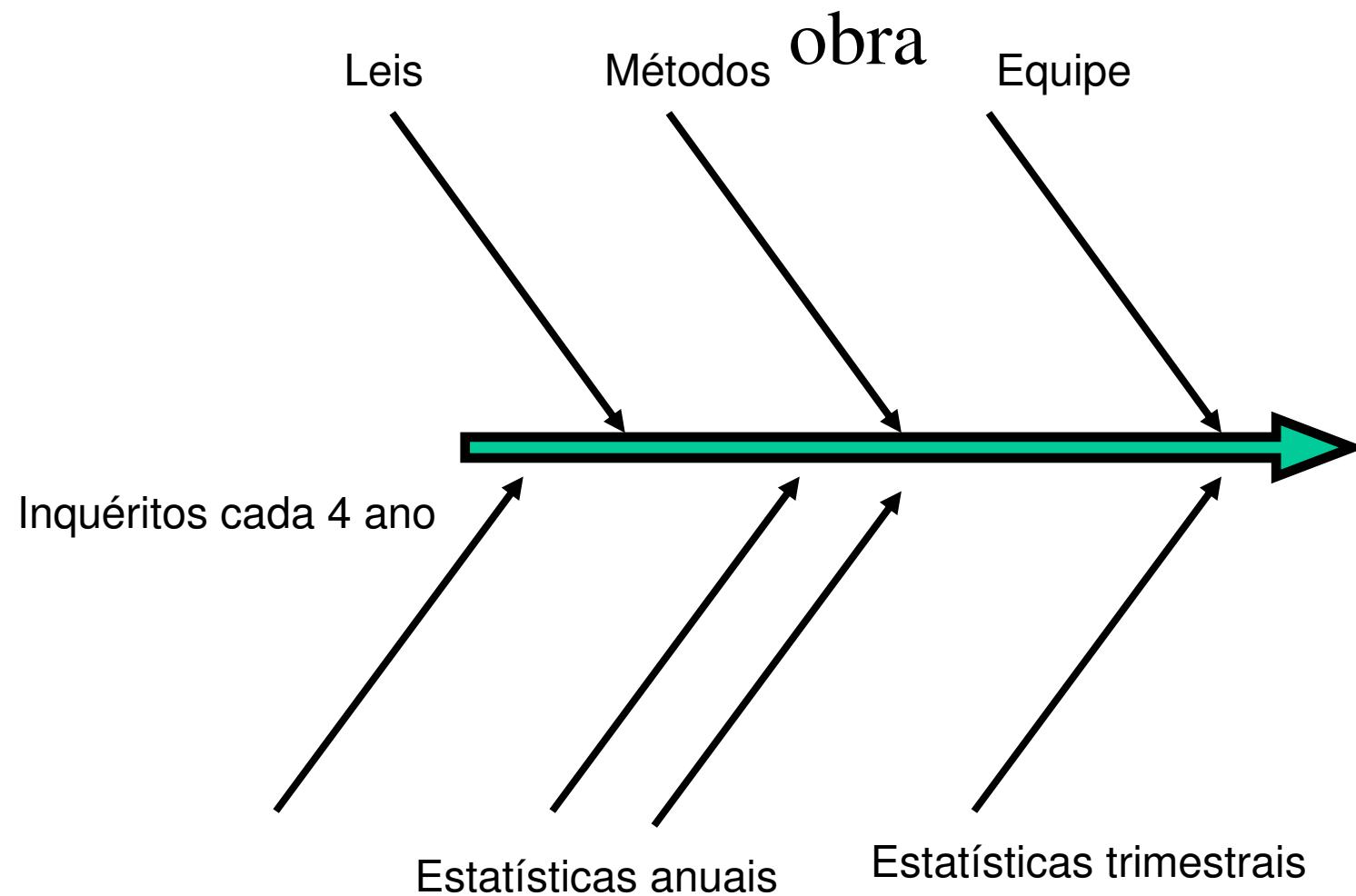
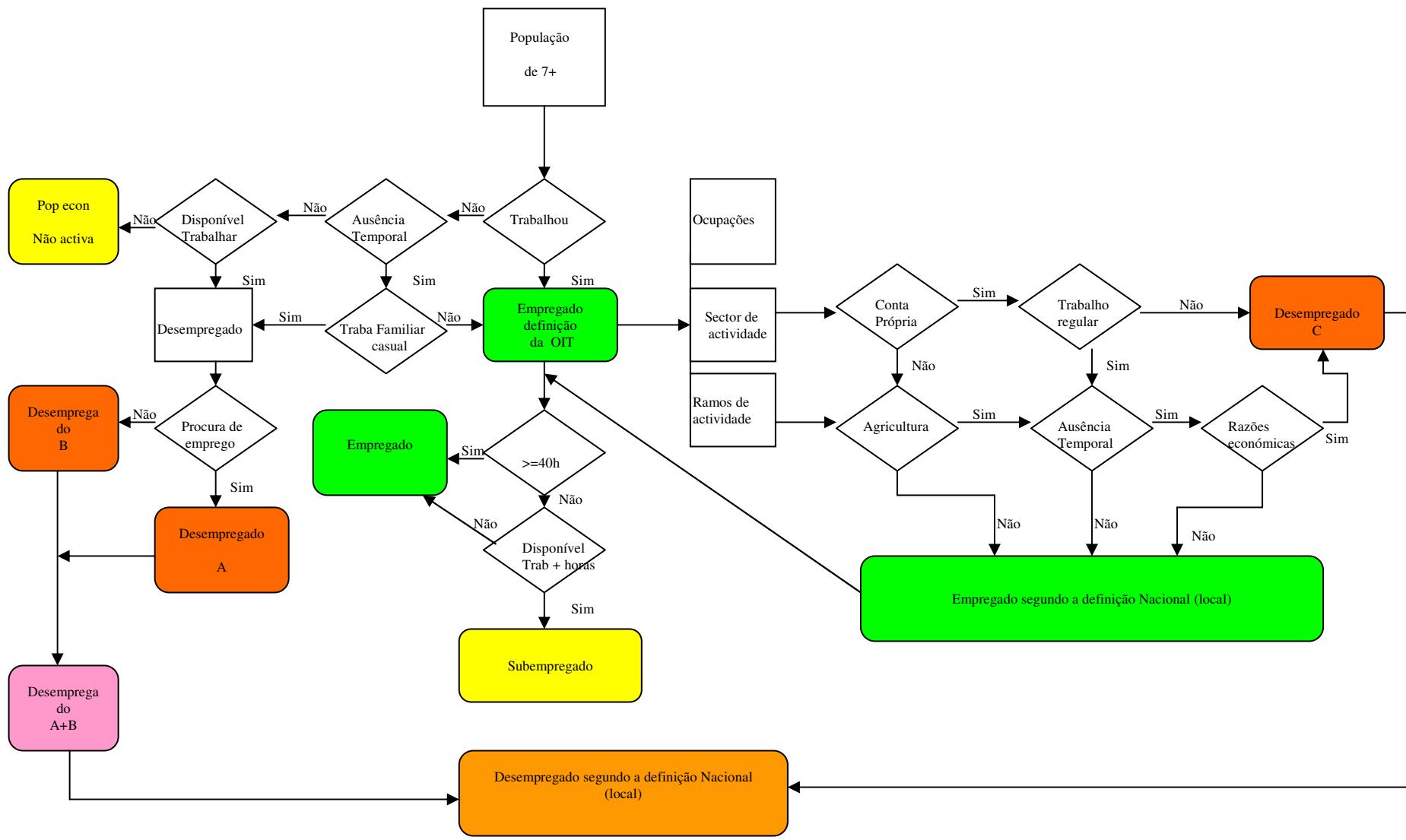


Diagrama de fluxo



Exemplo: índice trimestralmente de custo de mão-de-





IFTRAB, definições diferentes de força de trabalho, emprego, desemprego, etc.

OBJETIVOS DO DESENVOLVIMENTO DA Milénio (ODM) para Moçambique.

Plano de tempo é tarefas.

ID	Task Name	Start Date	End Date	Duration	2004	2005		
					Dec	Jan	Feb	Mar
1	Make an outline of the report	12/9/2004	12/13/2004	3d				
2	Find data	12/9/2004	12/17/2004	7d				
3	Review other MDG-reports	12/9/2004	12/31/2004	17d				
4	Check relevant litterature	12/9/2004	1/31/2005	38d				
5	Write the MDG-report for Mozambique	12/9/2004	2/18/2005	52d				
6	Present a draft to the senior management	2/14/2005	2/15/2005	2d				
7	Prepare a PPT-presentation	2/20/2005	2/28/2005	6d				

Listas de questões chaves

- ✓ Quem são os usuários ou clientes? (externos ou internos)
- ✓ O que são as suas necessidades?
- ✓ Quais são os indicadores de qualidade neste caso?
- ✓ Quais são os processos?
- ✓ Quem são responsáveis?
- ✓ Quem usa o resultado de cada processo?
- ✓ Quem da input?
- ✓ São os processos documentados?
- ✓ Que dados existem?
- ✓ Que dados novos podemos registrar?
- ✓ Como usar os dados para propor melhorias?

Melhores métodos e boas práticas

- Manuais
- Padrões
- Aprender de outros departamentos
- Aprender de outros países
- Documentação e dados
- Nomenclaturas

Processos de grupo de trabalho

- É importante considerar o que é possível inspirar todos os participantes para contribuir.
- É importante que todos está ouvido e visto.
- É importante que todos sugestões está tratado seriamente.
- É importante que ninguém está dominando o grupo.
- O facilitator deve ajudar ao líder o que agrupa para moderar estes processos.
- **Vamos fazer juntos!**

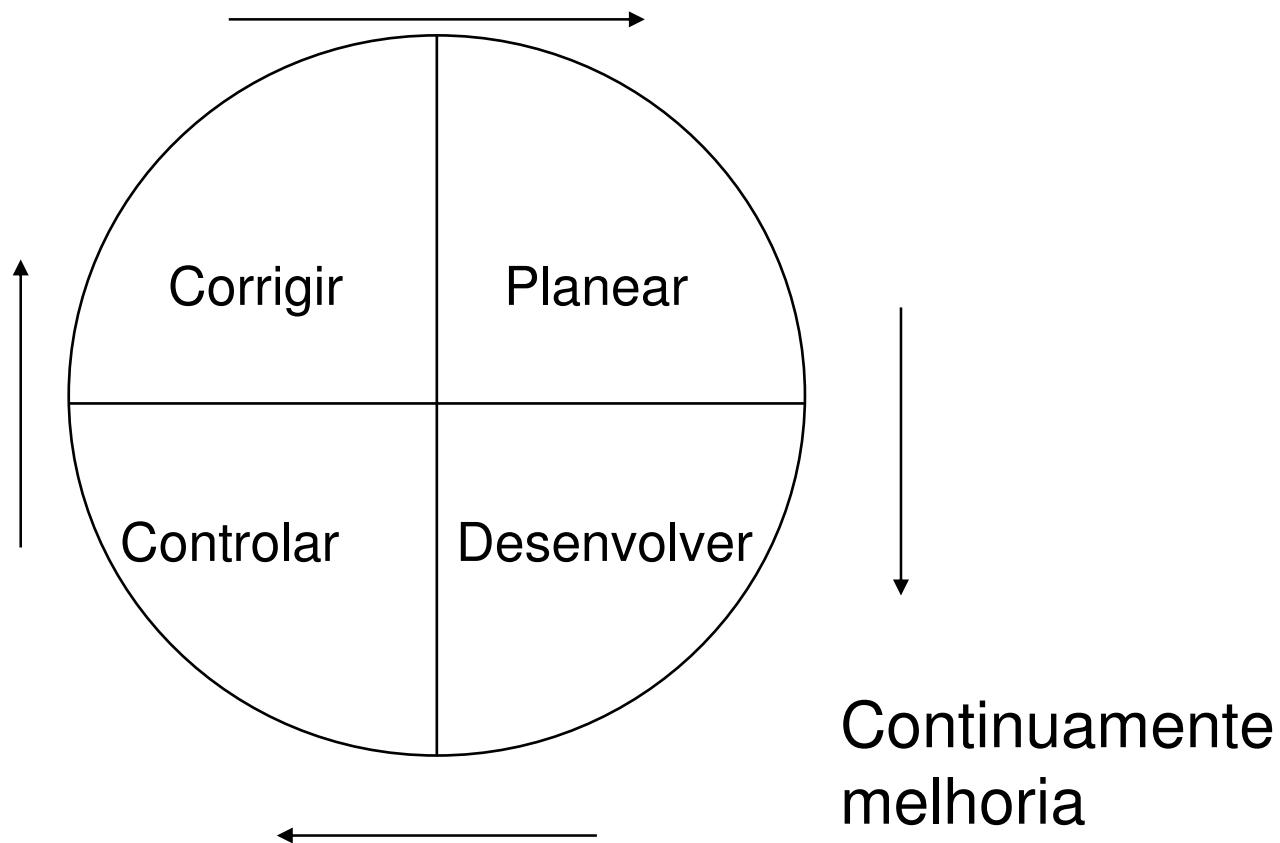


Vi o processo de trabalho

- Perguntar é fazer sugestões
- Não esteja receoso fazer as perguntas que os outros não ousam fazer.
- Os erros são encontrados frequentemente quando alguém começa fazer perguntas.



Roda da qualidade



Procurar erros

- O que é o problema?
- Você deve sempre pensar
 - sobre o que pode ser feito mais melhor.
 - de se houver uma maneira alternativa para fazer isto.
 - sobre o que é a fonte aos erros.



29.10.2001

- O processo atrás dos produtos
- Identifica e descreve os processos chaves
- Bons pratica
- Avalía e melhora



O que é “qualidade suficiente”?

- Sempre é possível fazer bom trabalho com muito tempo e dinheiro.
- Tudo não têm mesma importância.
- É importante clarificar quantos recursos o que é disponível para sua



Considerar o que os usuários queriam?

- É importante fazer um produto que o usuário queira.
- Se não não será usado.



- Os usuários decidem-se o que é qualidade
- Identifique os usuários diferentes
- Avalie suas necessidades
- Diálogo e cooperação
- Usuários externos e internos

Assistência fora de grupo

- Às vezes os recursos dentro do grupo não são suficientes para resolver o problema. Pode para o exemplo ser necessário ter o auxílio adicional em um assunto específico.
- Chamada alguém que sabe.



Fazer divertimento

- Sempre é mais melhor trabalhar com coisas o que é divertido.
- E bom pegar um carro e ir para a praia.
- E bom pegar um bom



