Standardization

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Demography

- “Study of populations, especially with reference to size and density, fertility, mortality, growth, age distribution, migration, and vital statistics, and the interaction of all these with social and economic conditions” John Last

Population size

- The scale and nature of health problems are determined by the size and characteristics of the population in which they occur.

- Population size is determined by the outcome of the continuous interplay of birth, death, migration according to the following model:
- P2=P1+B-D+IM-EM
- (P=population, B= births, D= deaths, IM immigrants, EM= emigrants)
- Natural increase occurs when B>D therefore P2>P1
- Natural decrease occurs when D>B therefore P2<P1

Population doubling time

- The population can only increase if the number of births exceeds the number of deaths
- Population growth rates are described either in terms of annual percentage increase or in term of population doubling time (PDT)
- PDT: Number of years it will take for the population to double in size

Population doubling time

- PDT=

$$\frac{70}{\text{Annual percentage increase}}$$

For example:

Population growing at 2% per annum will double in size in 35 years

Population growing at 3% per annum will double in size in 23 years

Sources of demographic information

- 1. Census:

a. Decennial: poll count on 100% sample held every 10 years

b. Midcensus sample: poll count on 10% sample held every 10 years between censuses

Sources of demographic information

1. Census:

Limitations:

- Censuses are costly and slow.
- Census data are at least four years out of date
- Research has shown that Censuses in developed countries are accurate and complete. On the other hand Censuses in developing countries are held but are likely to be inaccurate and incomplete.

Sources of demographic information

2. Population registers:

More or less equivalent to continuous census.

3. Registration of vital events:

Births, Death, marriage, stillbirth, adoption, divorce

4. Sample household survey

5. Governmental and private record system

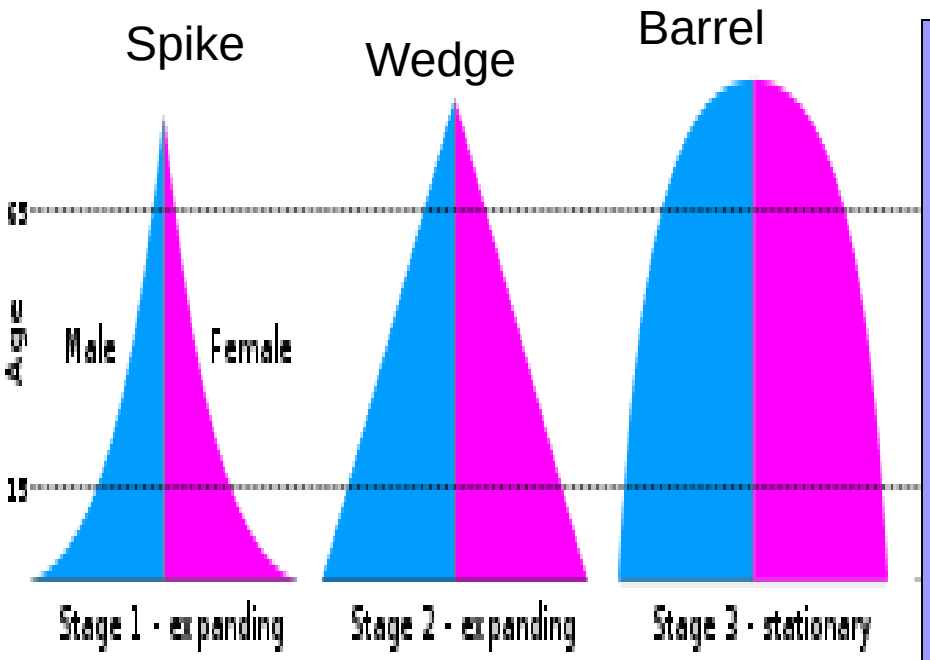
Health services, education, armed forces, social security, insurance

Types of population data

1. Population size
2. Mortality- death rates
3. Fatality: Birth rate, fertility
4. Residential mobility
5. Composition
6. Geographic distribution of the population
7. Population characteristics – marital and family status, education, occupation, income

Population pyramids

- Age and sex composition of a population influences its pattern of mortality and natality more than any other factor
- These characteristics pyramid shapes occur naturally



Common shapes of population pyramids

Population pyramids

The spike shape:

- is characterised by a wide base that narrows rapidly depicting a high BR and high DR at all ages
- High BR. High DR, low growth rate
- Typical of an under-developed country in primitive demographic equilibrium

Population pyramids

Barrel shape:

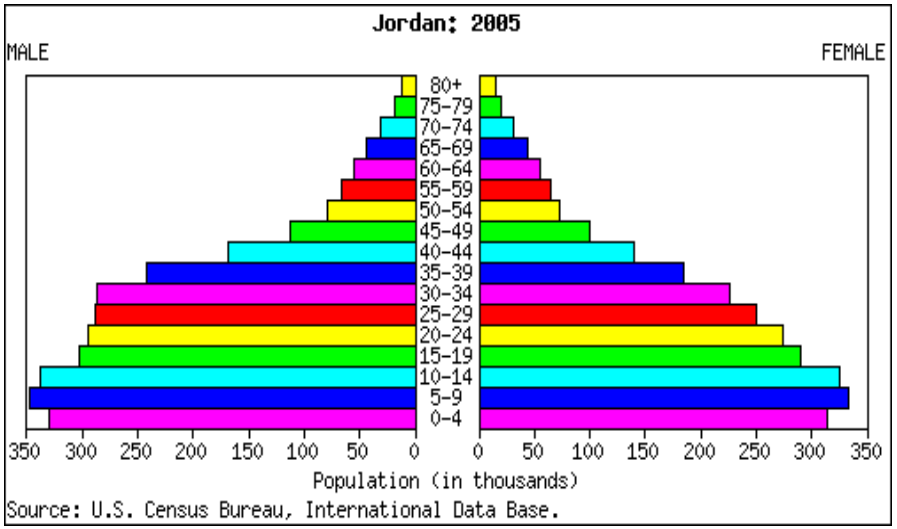
- Characterised by a narrow base with little further narrowing until the apex, depicting low BR and low DR at younger ages
- Typical of developed country in evolved demographic equilibrium

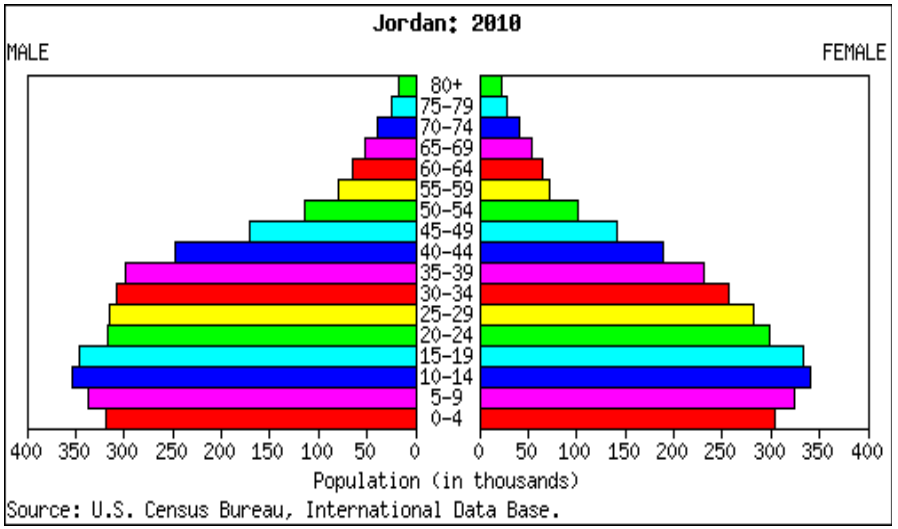
Population pyramids

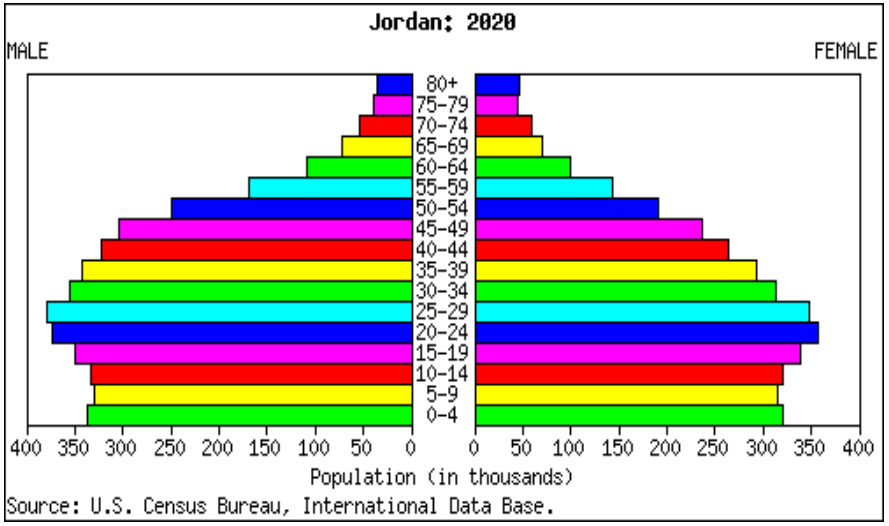
Wedge shape:

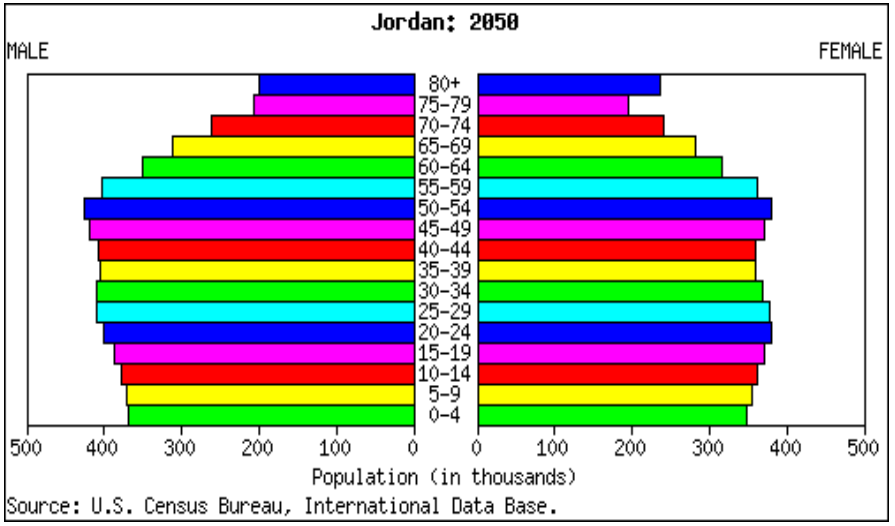
- Wide base and gradual arrowing depicting high BR and low DR, high growth rate
- Typical of a country in demographic transition with rapidly growing population, marked imbalance of its dependency ratio and severe socio-economic stress

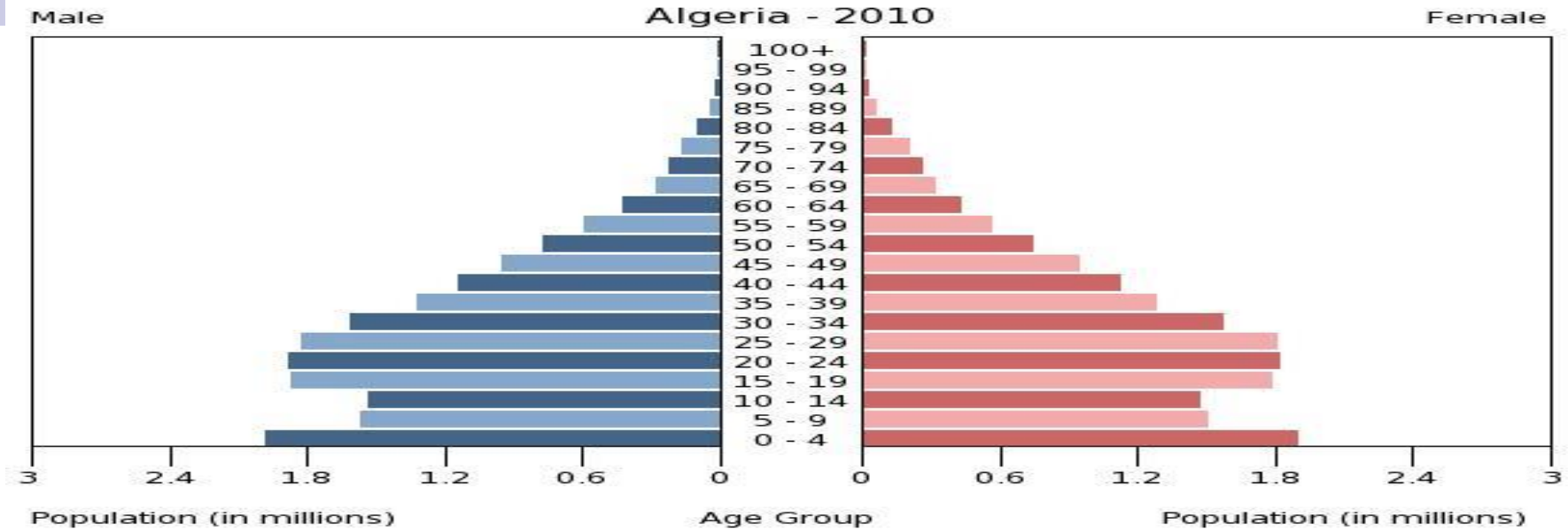
Population pyramids- Jordan

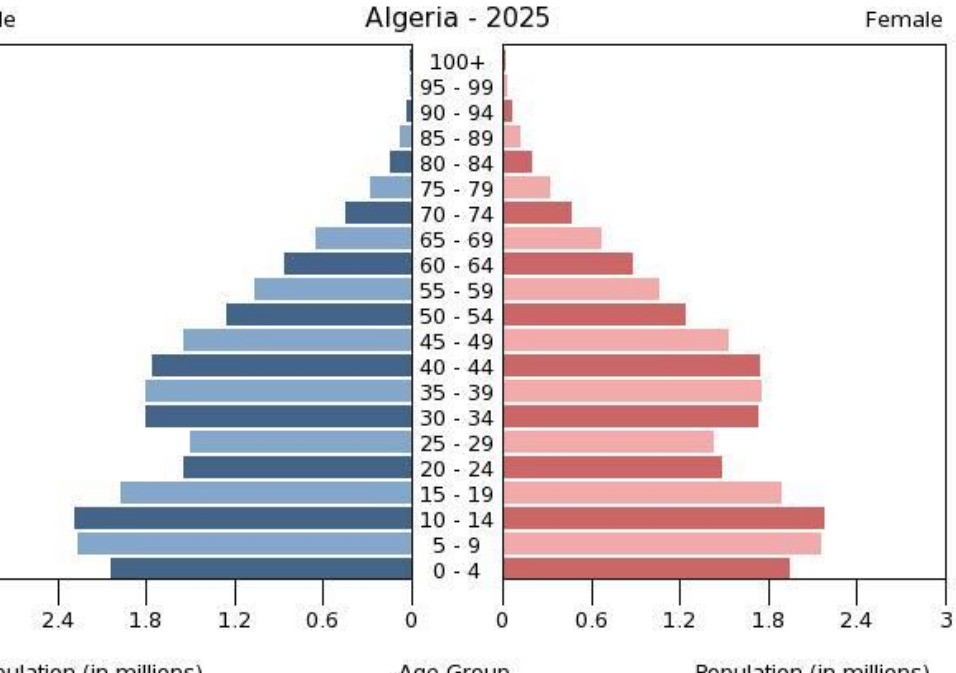









Male
Algeria - 2010
Female
100+
95 - 99
90 - 94
85 - 89
80 - 84
75 - 79
70 - 74
65 - 69
60 - 64
55 - 59
50 - 54
45 - 49
40 - 44
35 - 39
30 - 34
25 - 29
20 - 24
15 - 19
10 - 14
5 - 9
0 - 4
3
2.4
1.8
1.2
0.6
0
Population (in millions)
Age Group
Population (in millions)


Algeria - 2025
Female
100+
95 - 99
90 - 94
85 - 89
80 - 84
75 - 79
70 - 74
65 - 69
60 - 64
55 - 59
50 - 54
45 - 49
40 - 44
35 - 39
30 - 34
25 - 29
20 - 24
15 - 19
10 - 14
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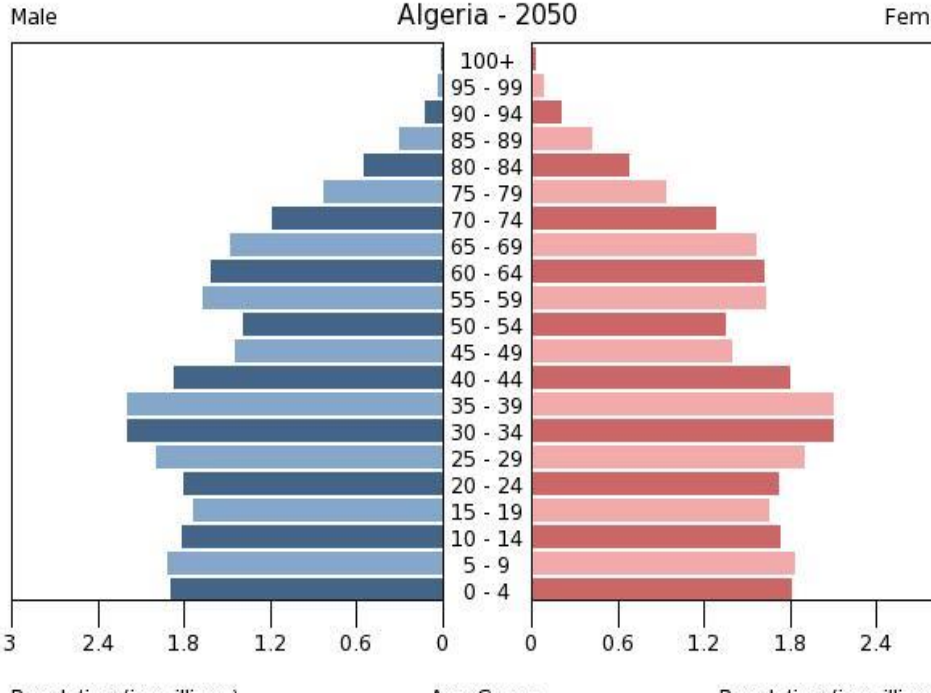
0
0.6
1.2
1.8
2.4
3


Male
Algeria - 2050
100+
95 - 99
90 - 94
85 - 89
80 - 84
75 - 79
70 - 74
65 - 69
60 - 64
55 - 59
50 - 54
45 - 49
40 - 44
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