

Demography (Part 2)



Population Composition

Age and Sex Composition

- ▶ Age and sex are the most basic characteristics of a population.
- ▶ Every population has a different age and sex composition— **the number and proportion of males and females in each age group**—
- ▶ This structure can have considerable impact on the population's social and economic situation, both present and future.



Population Composition

Age and Sex Composition

- ▶ Populations could be relatively young / developing countries, About 40 % <15 years e.g. Africa.. Jordan . Less than 4% are older groups.
- ▶ Relatively old populations (aging), developed countries, more than 10% over 65 years e.g. Europe/ Less than 25% of pop <15 years.



Age and Sex Composition

- ▶ Young and old populations have markedly different age compositions; as a consequence, they also have different proportions of the population in the labor force or in school, as well as different medical needs, consumer preferences, and even crime patterns.



Median Age

A population's age structure has a great deal to do with how that population lives.

▶ The **median age** is the age at which exactly half the population is older and half is younger.

▶ **Examples:**

The median age of the Costa Rican population in 1995 was 23 years. While that in Sweden was 38, signifying an older population.

▶ In 1995, the median age in Jordan, with a young population, was 18. In 2012, median age in Jordan was 20,3 years. In 2017 it became 22 years.



Sex Ratio

- ▶ The sex ratio is ***the ratio of males to females in a given population,***
- ▶ usually expressed as the number of males for every 100 females.
- ▶ The sex ratio at birth in most countries is about 105 or 106 males per 100 females.
- ▶ After birth, sex ratios vary because of different patterns of mortality and migration for males and females within the population.



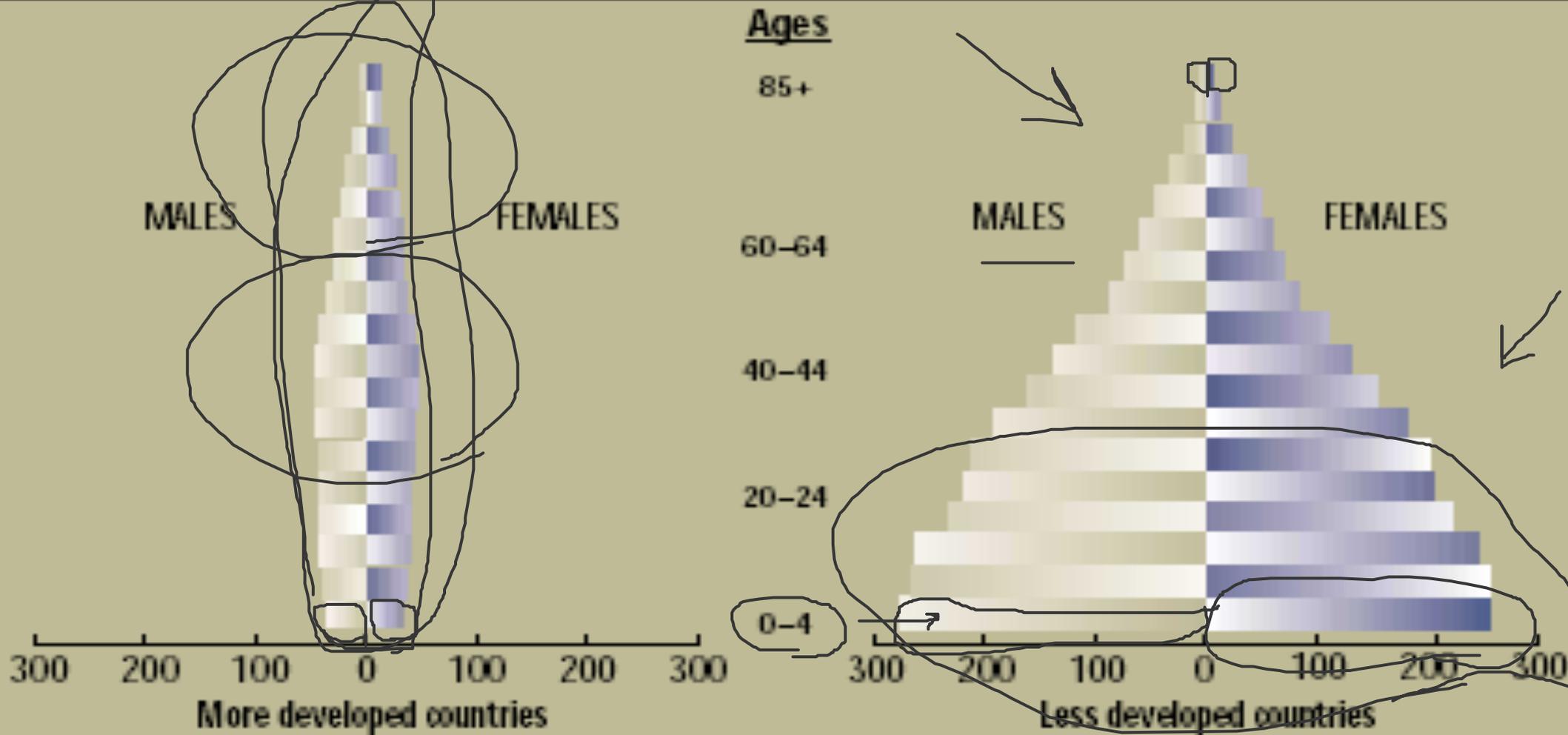
Population Pyramid

- ▶ A population pyramid graphically displays a population's age and sex composition.
- ▶ Horizontal bars present the numbers or proportions of males and females in each age group.
- ▶ The sum of all the age-sex groups in the population pyramid equals 100 percent of the population.



Age and sex distribution in more and less developed countries, 1998

in millions



Source: UN, *The Sex and Age Distribution of the World Populations: The 1998 Revision (medium scenario)*.

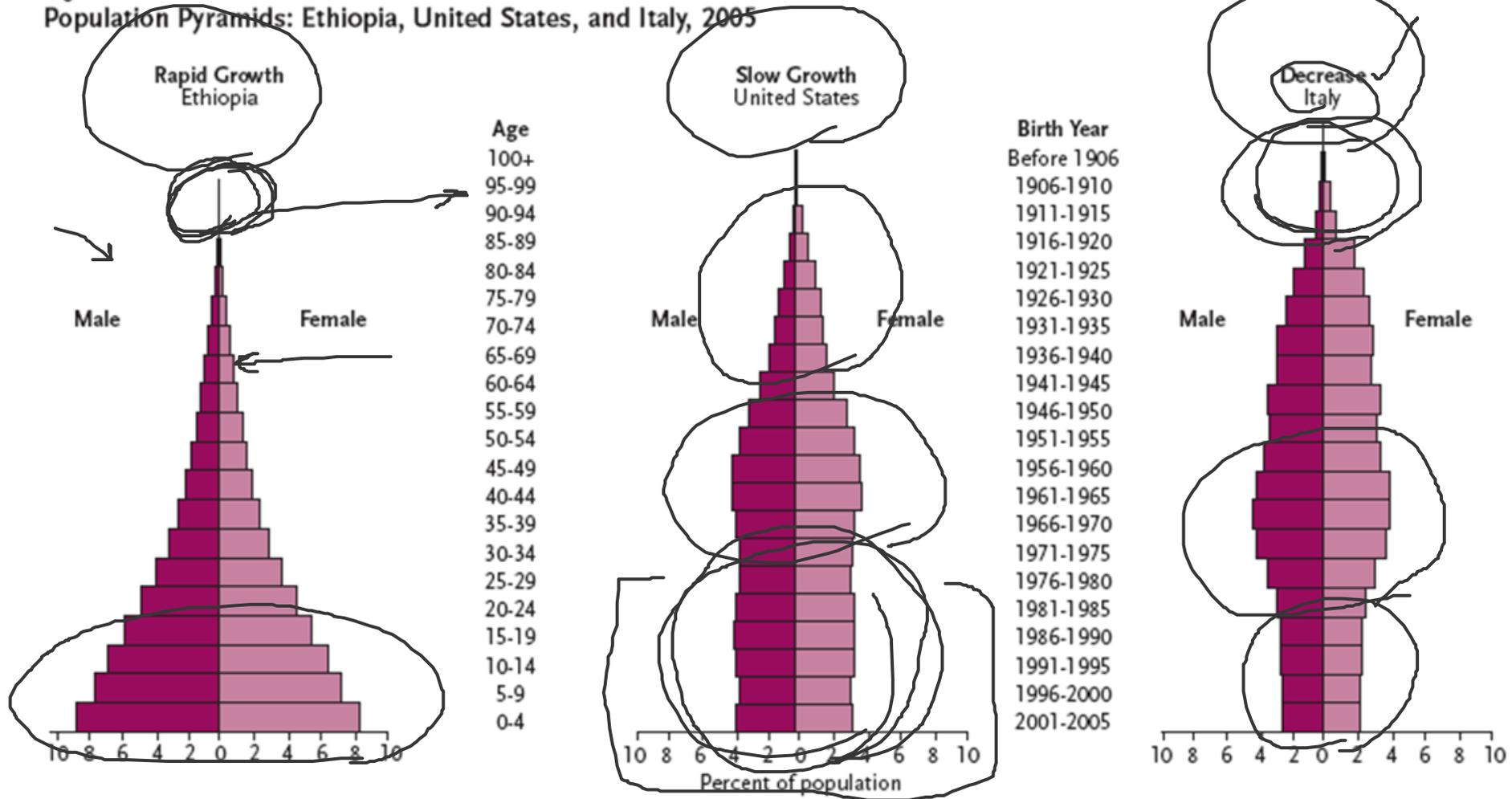


Population profiles

- ▶ Populations of countries can differ markedly as a result of **past and current** patterns of **fertility, mortality, and migration**. However, they all tend to fall into three general profiles of age-sex composition.
 1. **Rapid growth** is indicated by a pyramid with a large percentage of people in the younger ages.
 2. **Zero growth or decreasing** is reflected by a pyramid with a smaller proportion of the population in the younger ages.
 3. **Slow growth** populations are shown by roughly equal numbers of people in all age ranges, tapering off gradually at the older ages.



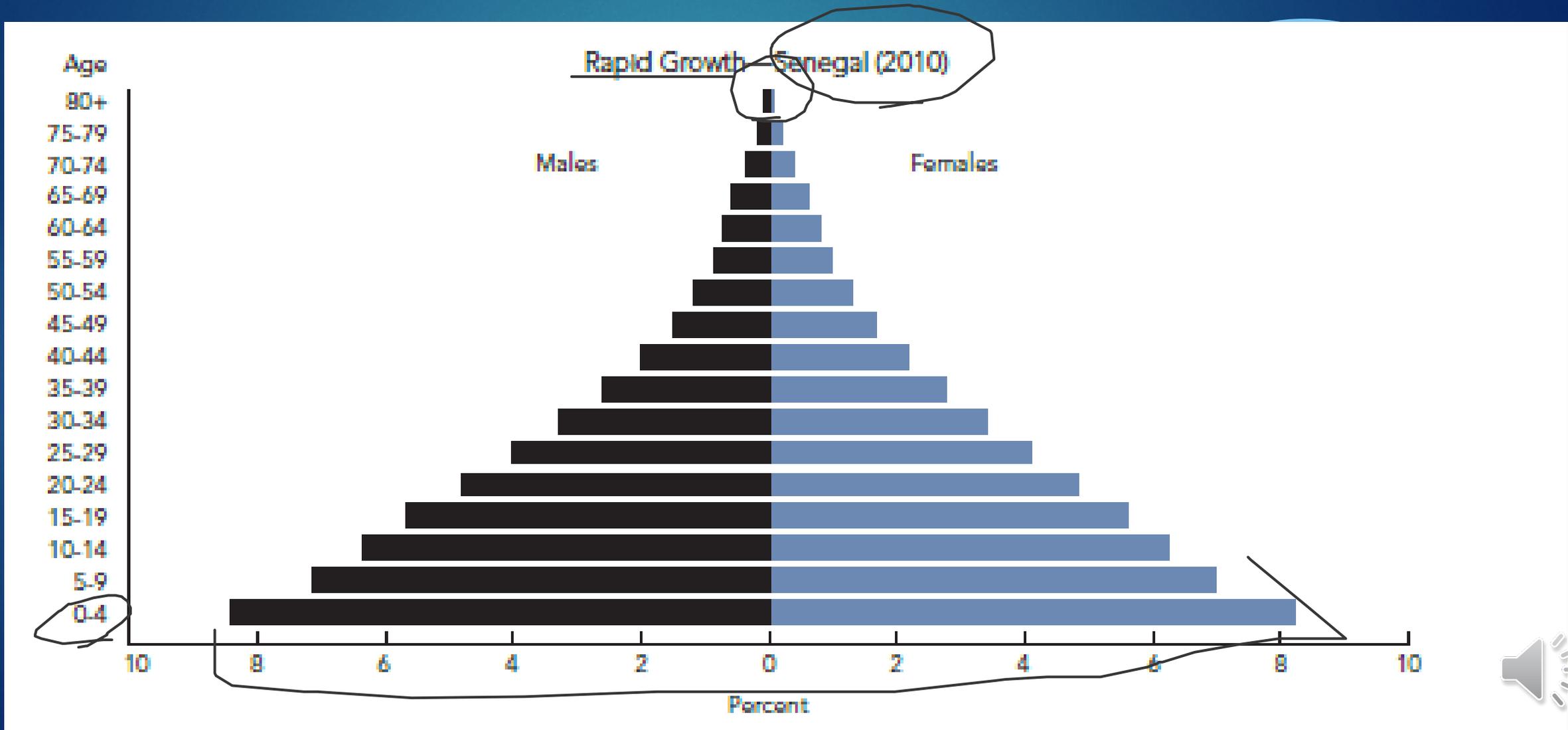
Figure 6
Population Pyramids: Ethiopia, United States, and Italy, 2005



Sources: UN, *World Population Prospects: The 2004 Revision, Online Data* (www.un.org/esa/population/unpop.htm, accessed Jan. 29, 2007); and U.S. Census Bureau, *National Population Estimates for the 2000s* (www.census.com, accessed Jan 29, 2007).



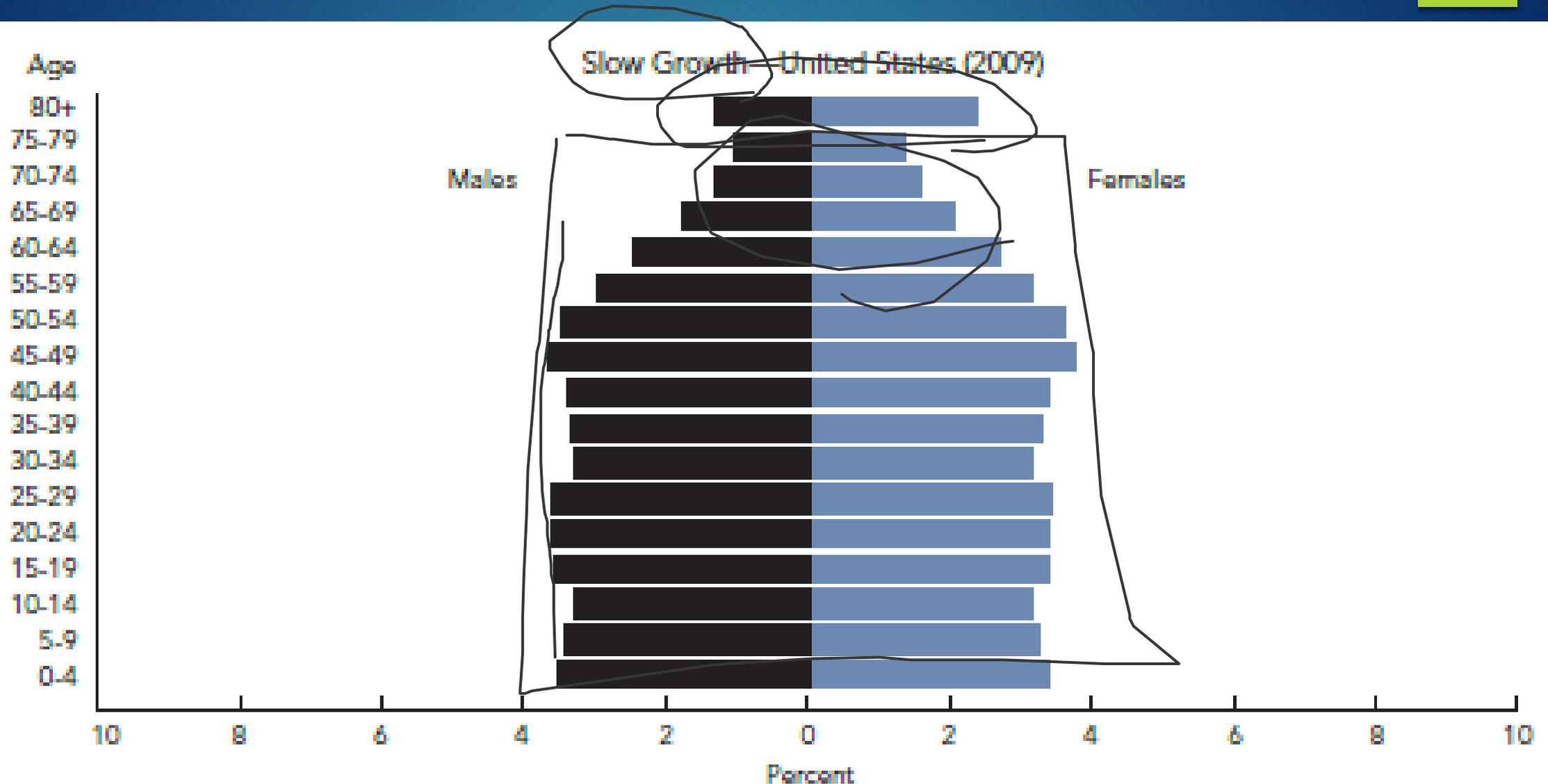
Age pattern of Senegal population, 2010



Age pattern of Italy's population, 2010

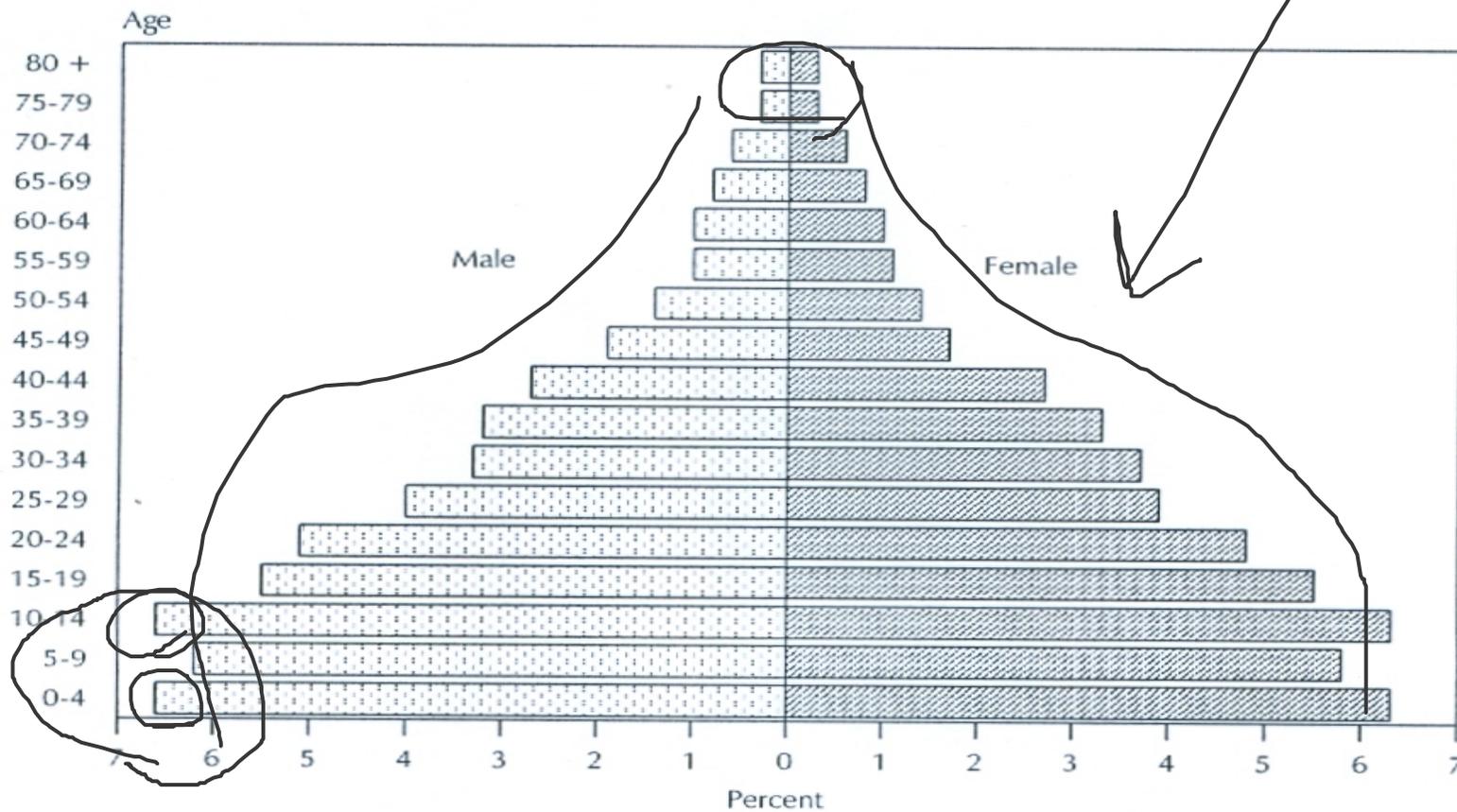


Age pattern of US population, 2009



Jordan Population Pyramid

Figure 2.2 Population Pyramid

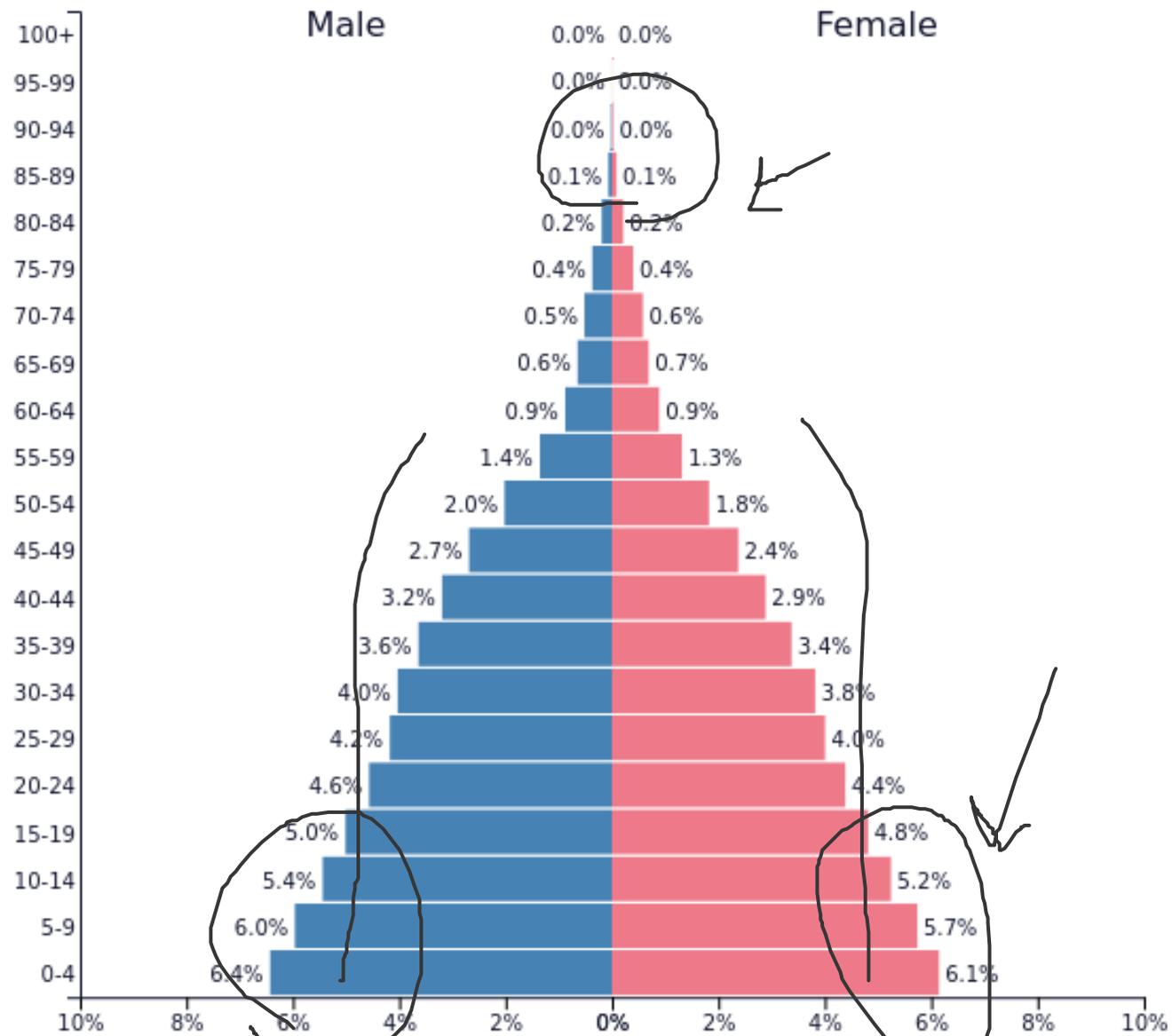


JPFHS 2007

JPFHS
2007



Jordan's Population Pyramid, 2017



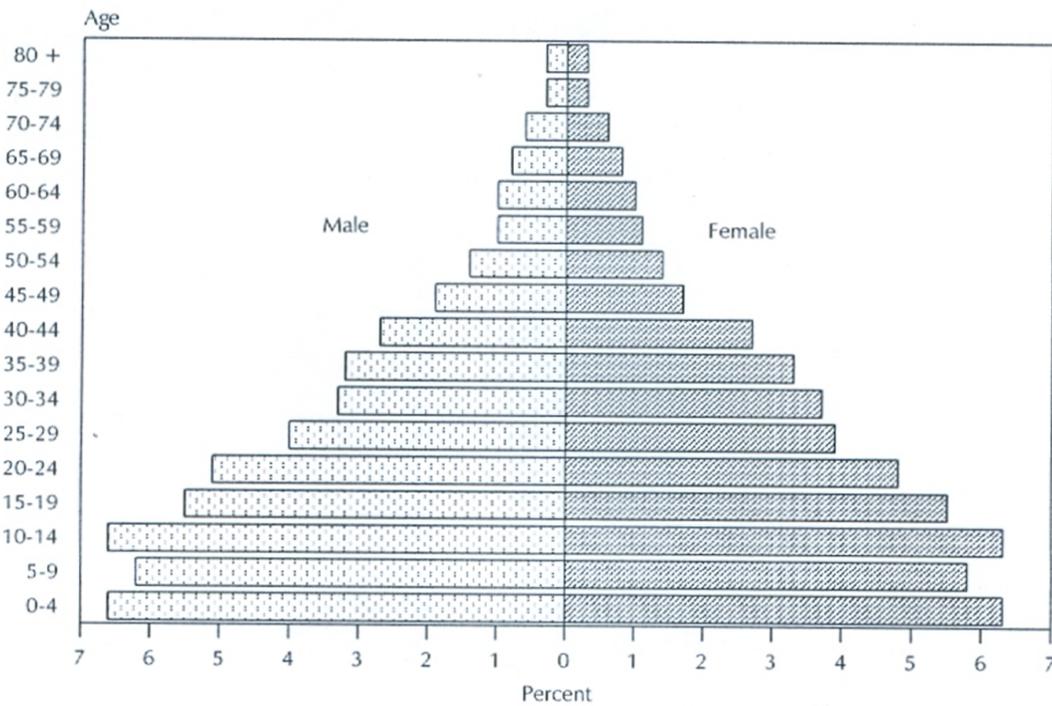
PopulationPyramid.net

Jordan - 2017
Population: 7,876,702

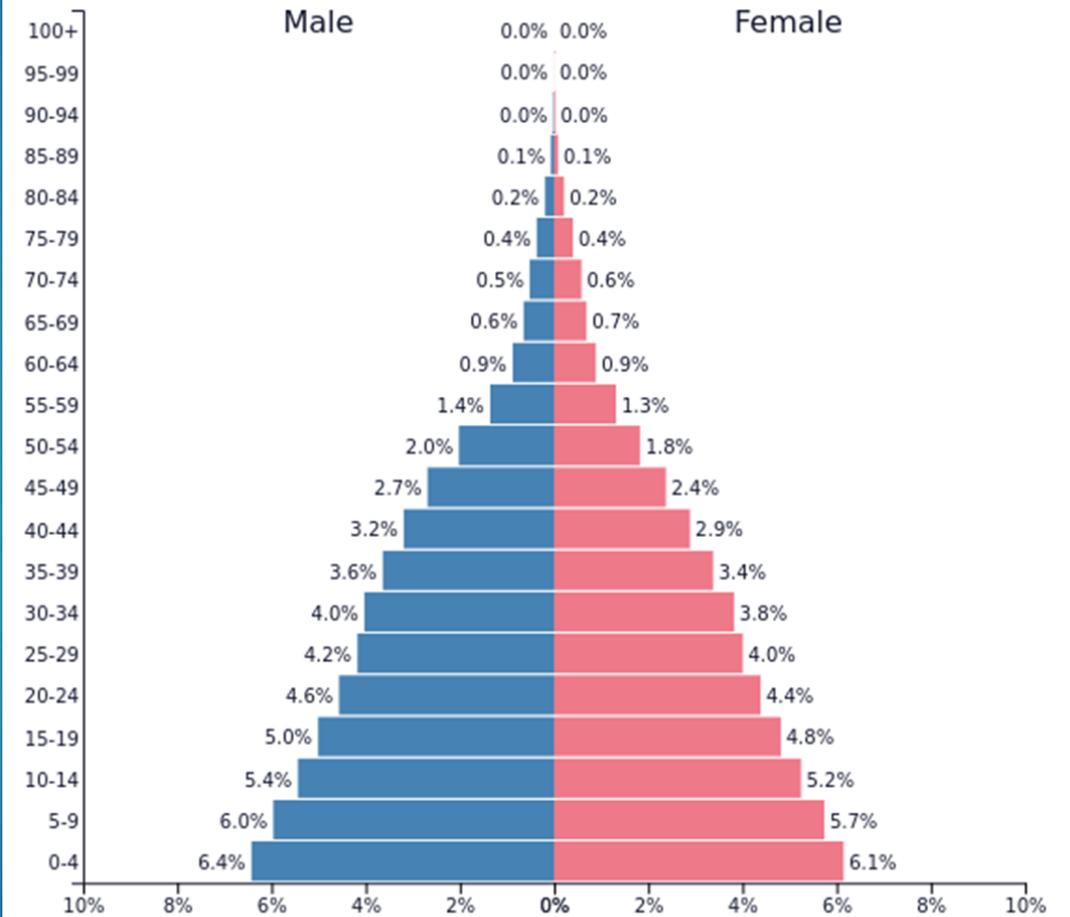


From 2007 to 2017

Figure 2.2 Population Pyramid



JPFHS 2007



PopulationPyramid.net

Jordan - 2017
Population: 7,876,702

جدول 5.2 عدد سكان المملكة المقدر حسب الجنس وفئة العمر في نهاية 2017
 Table 2.5 Estimated Population of the Kingdom by Sex and Age Group, at End-year 2017

| نسبة الجنس * Sex Ratio | المجموع | Total | Female | اناث | Male | ذكور | فئة العمر Age Group |
|---------------------------|---------|----------|--------|---------|--------|---------|------------------------|
| | % | عدد | % | عدد | % | عدد | |
| 105.3 | 11.5 | 1154040 | 11.9 | 562050 | 11.1 | 591990 | 4-0 |
| 104.6 | 12.3 | 1233450 | 12.7 | 602750 | 11.8 | 630700 | 9-5 |
| 106.0 | 10.6 | 1065660 | 10.9 | 517330 | 10.3 | 548330 | 14-10 |
| 111.0 | 9.9 | 999660 | 10.0 | 473860 | 9.9 | 525800 | 19-15 |
| 121.6 | 9.9 | 997710 | 9.5 | 450160 | 10.3 | 547550 | 24-20 |
| 124.0 | 8.7 | 876030 | 8.3 | 391030 | 9.1 | 485000 | 29-25 |
| 117.0 | 7.7 | 774560 | 7.5 | 356950 | 7.8 | 417610 | 34-30 |
| 118.2 | 6.8 | 686800 | 6.7 | 314810 | 7.0 | 371990 | 39-35 |
| 118.6 | 5.9 | 591610 | 5.7 | 270630 | 6.0 | 320980 | 44-40 |
| 120.4 | 5.0 | 499300 | 4.8 | 226580 | 5.1 | 272720 | 49-45 |
| 115.1 | 3.7 | 368970 | 3.6 | 171540 | 3.7 | 197430 | 54-50 |
| 108.5 | 2.6 | 258080 | 2.6 | 123750 | 2.5 | 134330 | 59-55 |
| 106.7 | 1.8 | 176220 | 1.8 | 85250 | 1.7 | 90970 | 64-60 |
| 102.3 | 3.7 | 370910 | 3.9 | 183310 | 3.5 | 187600 | +65 |
| 112.5 | 100.00 | 10053000 | 100.00 | 4730000 | 100.00 | 5323000 | Total |

* Sex Ratio: Number of males Per 100 females

* نسبة الجنس: عدد الذكور لكل 100 أنثى

Source: Department of Statistics

http://dosweb.dos.gov.jo/DataBank/Population_Estimares/2017/PopulationEstimates.pdf



Population change

- ▶ Population change has three components: births, deaths, and migration.
- ▶ As people are born, die, or move, their total numbers in an area change.
- ▶ During most of history, world population increased very slowly, but during the 20th century, this growth has accelerated.



How do populations change?

- ▶ A change in **population size** over a given period of time equals **the number of people in the population at the beginning of the period** plus any **births that occur during the period**, minus any **deaths**, plus **net migration during the period**.



Calculating population change over time

$$P_1 + (B - D) + (I - E) = P_2$$

$$P_1 + (B - D) + (I - E) = P_2$$

Where P_2 is the population at the later date and P_1 is the population at the earlier date; B is births and D is deaths between the two dates; and I is immigration (or in-migration) and E is emigration (or out-migration) between the two dates.

| Jan. 2009 | | | | | Jan. 2010 |
|------------------|---|---------------------------|---|-------------------------------|------------------------|
| population | + | (2009 Births-Deaths) | + | (2009 Immigration-Emigration) | = population of Sweden |
| <u>9,256,000</u> | + | <u>(111,800 - 90,080)</u> | + | (102,280 - 39,000) | = <u>9,341,000</u> |

During 2009, the population of Sweden increased by 85,000.



Population change

- ▶ The change in population size accounted for by more births in the population than deaths is referred to as "**natural increase.**"
- ▶ The term "**natural decrease**" refers to population decline resulting from more deaths than births.



Rate of Natural Increase

- ▶ The rate of natural increase is the rate at which a population is increasing (or decreasing) in a given year due to a surplus (or deficit) of births over deaths, expressed as a percentage of the base population.
- ▶ Net migration is the number of immigrants minus emigrants.



Growth Rate

- ▶ The growth rate is the rate at which a population is increasing (or decreasing) in a given year due to natural increase and net migration, expressed as a percentage of the base population.
- ▶ The growth rate takes into account all components of population growth: births, deaths, and migration.
- ▶ It equals $(\text{births} - \text{deaths}) + \text{net migration} / \text{total population} \times 100$.
- ▶ It should never be confused with the birth rate, but it sometimes is.



The Demographic Transition

- ▶ The demographic transition refers to the change that populations undergo from high rates of births and deaths to low rates of births and deaths.
- ▶ High levels of births and deaths kept most populations from growing rapidly throughout most of time.

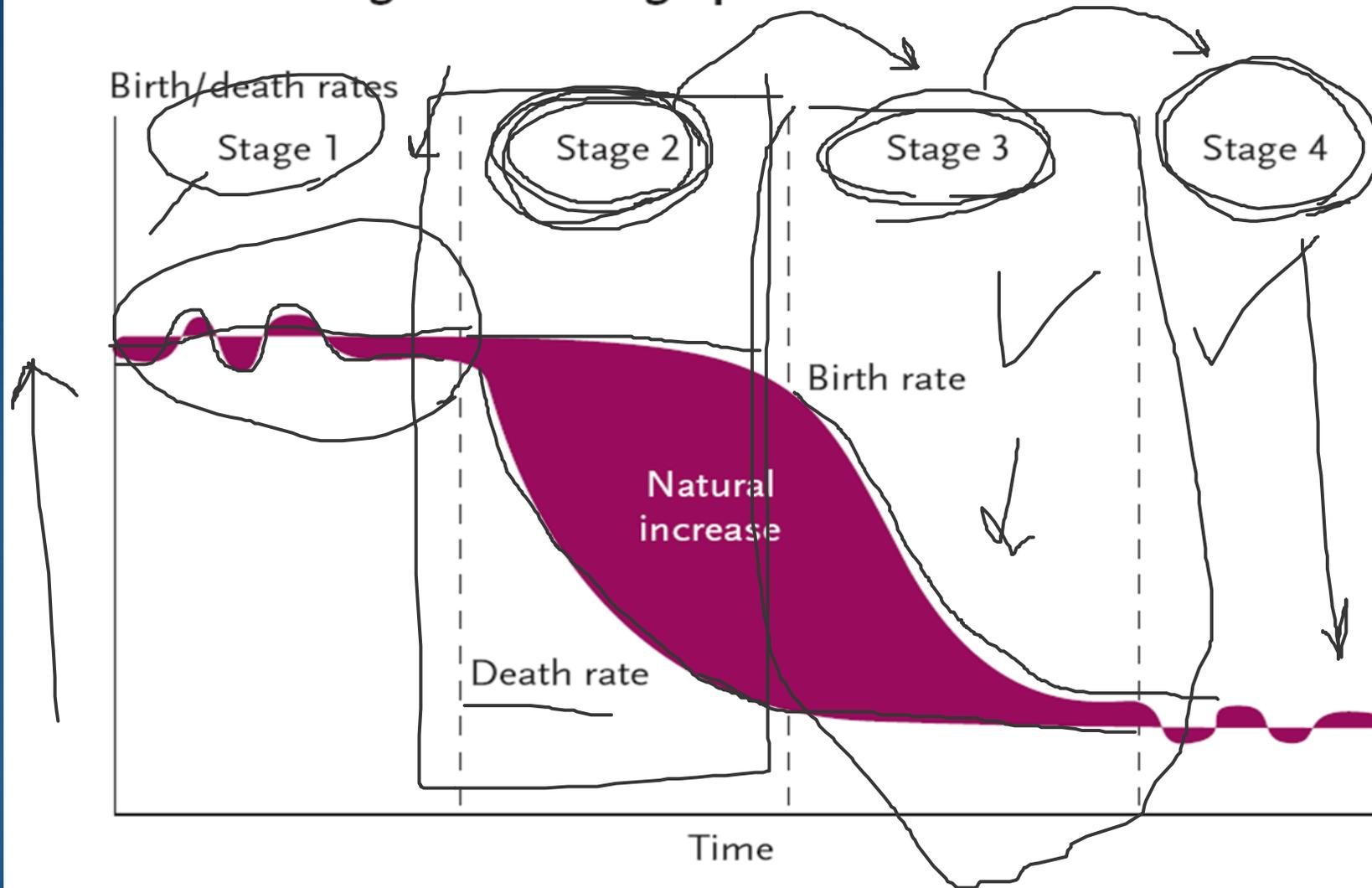


The Demographic Transition

- ▶ The decline in mortality usually precedes the decline in fertility, resulting in population growth during the transition period.



Figure 11
The Classic Stages of Demographic Transitions



Note: Natural increase or decrease is produced from the difference between the number of births and deaths.



Finland is a good example of a country that has passed through the four stages of the demographic transition.

Stage I

High birth rate, high death rate = little or no growth

(Finland in 1785-1790)

Birth rate: 38 per 1,000

Death rate: 32 per 1,000

Rate of natural increase: 0.6 percent



Stage II

High birth rate, falling death rate = high growth

(Finland in 1825-1830)

Birth rate: 38 per 1,000

Death rate: 24 per 1,000

Rate of natural increase: 1.4 percent



Stage III

Declining birth rate, relatively low death rate = slowed growth

(Finland in 1910-1915)

Birth rate: 29 per 1,000

Death rate: 17 per 1,000

Rate of natural increase: 1.2 percent



Stage IV

Low birth rate, low death rate = very low population growth

(Finland in 1996)

Birth rate: 12 per 1,000

Death rate: 10 per 1,000

Rate of natural increase: 0.2 percent



Population policies

- ▶ National population commissions were formed in different countries
- ▶ They formulated national population policies and action plans
- ▶ One major component of the action plan deals with reproductive health
- ▶ Reproductive health in the context of population includes reproductive rights, sexuality, family planning, reproductive morbidity, violence against women, gender based differences, male involvement in reproductive health.



Selected Indicators of Jordan

▶ Jordan Population and Family Health Survey (JPFHS), 2017/2018

Total population 10,234,315 by September 7, 2018

(including 3 million non Jordanian residents)

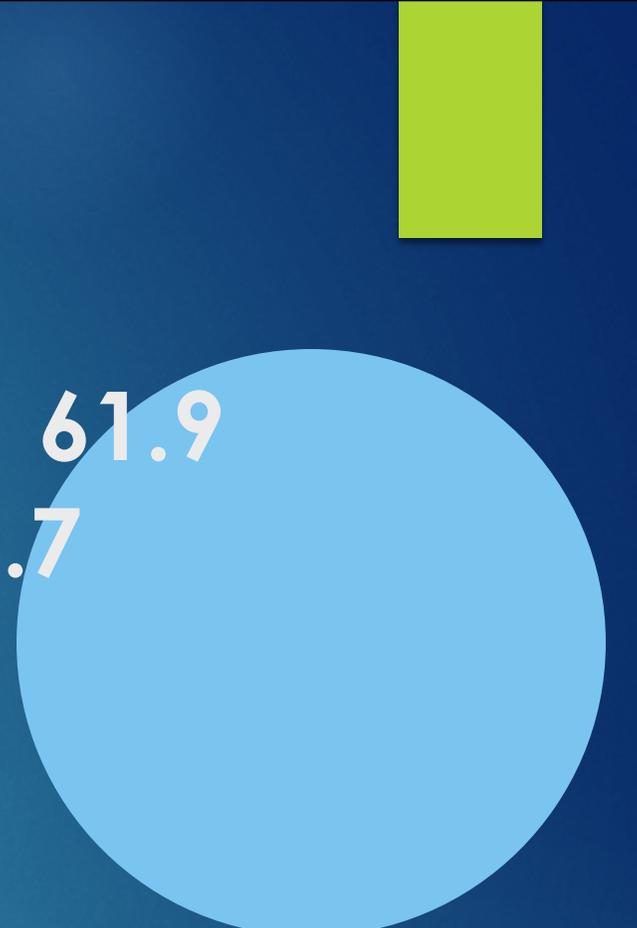
Population Growth Rate (%) 2.2

Rate of natural increase (%) 2.1

Population Doubling time (year) 31.5

Population less than 15 years (%) 34.4





| | |
|---------------------------------|------|
| Population Age 15-65 years (%) | 61.9 |
| Population Age 65+ years(%) | 3.7 |
| Dependency ratio | 63.5 |
| Urban population (%) | 90.3 |
| Rural population (%) | 9.7 |
| Life Expectancy at birth (year) | 73.5 |
| Male | 72.8 |
| Female | 74.3 |



Total fertility rate (Women 15-49 years) 2.7

Urban 2.7

Rural 3.1

General Fertility Rate (women 15-44) 90

Sex ratio 112.5 (Number of males/100 females)

