

DEMOGRAPHY-I

Associate Professor Dr. Nedal Alnawaiseh: M. B. Ch. B (MD), Baghdad, Iraq. MSc, JUST, Jordan. MSPH, Tulane University, USA. PhD, UKM, Malaysia. PhD, UNU, IIGH. Public Health & Community Medicine Department, Medical School, Mutah University, Jordan. Mobile:+962795*****

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Definition

- ✓ Demography is the science concerned with the study of human population and its characteristics,
- ✓ It provides basic data for organized planning of socio-economic, health and other community services and welfare programs

Sources Of Population Data

1. Population Census
2. Inter-censual Estimates

Sources of population data

Census

Definition:

It is the process of:

- 1.** Enumeration of all persons in a country at a specified time.
- 2.** Collection of demographic data (age, sex and socio-economic status)
- 3.** Analysis and publication of the data

Sources of population data

Census

Timing:

- ❑ the census process is usually carried out **every ten years (10)** in most countries
- ❑ at a time with **minimal movement** of the population, **whether within or outside** the country such as pilgrimage and summer vacations.

Sources of population data

Census

| <i>De facto</i> <i>census</i> التعداد الفعلي | <i>De jure census</i> التعداد القانوني |
|---|---|
| <ul style="list-style-type: none">▪ Counting individuals Wherever they <u>actually</u> are on the day of the Census ▪ Much easy, less expensive | <ul style="list-style-type: none">▪ Counting individuals At their <u>legal permanent residence</u> regardless To whether or not they Are physically present at the time of census ▪ It gives a factual figure |

De facto census

Disadvantages

- 1. Persons in transit may be missed**
- 2. It may give a false impression of size for areas with high migration or high seasonal mobility (date choice is critical)**

De jure census

Disadvantages:

- 1. Expensive and time consuming**
- 2. Some individuals may be omitted or counted twice (requires definition of permanent residence which may be difficult with high mobility)**

Sources of population data

Inter-censal estimates

Methods of estimation

1. Actual increase method

- ❑ Used only with Inter-censal years
- ❑ Population size is estimated by using the preceding census as starting point and taking into account births, deaths and migration.

Sources of population data

Inter-censal estimates

2. Arithmetical method:

- ❑ Can be used with intercensal years and future years predictions.
- ❑ It can be assumed that there is a constant absolute annual increase in population:

Example of arithmetical estimation

| | |
|-------------------------------------|------------------------------------|
| 1980 census pop. | 400 000 |
| 1990 census pop. | 500 000 |
| Pop. increase in 10 years | 100 000 |
| Arithmetical annual increase | 10 000 |
| 1982 estimated pop. | =400 000+2(10 000)= 420 000 |
| 1994 estimated pop | =500 000+4(10 000)= 540 000 |

Importance Of Demographic Data In Public Health

- ❑ **Health statistics** of a community depends on the dynamic relationship between **number of people (Size)**, their **characteristics (Composition)** and the **space they occupy (Distribution)**.
- ❑ **Planning of health services** can be logically guided by demographic variables.
- ❑ They are needed for **computing morbidity, mortality and fertility rates**

Elements Of Demography

1. Size

2. Composition

3. Distribution

These elements of demography are affected by three processes namely:

1. Fertility

2. Mortality

3. Migration

1. Size of population

- ❑ The **base** for many vital statistics.
- ❑ It has to be related to a **place** and a specific **time**.
- ❑ To describe size one has to consider
Person, Place, Time.

2. Composition of the population

❑ Describes the **characteristics** of pop.

It is important for the followings:

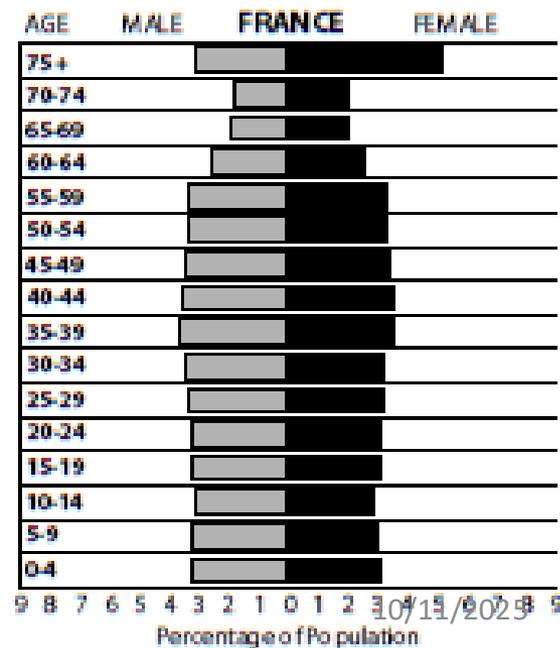
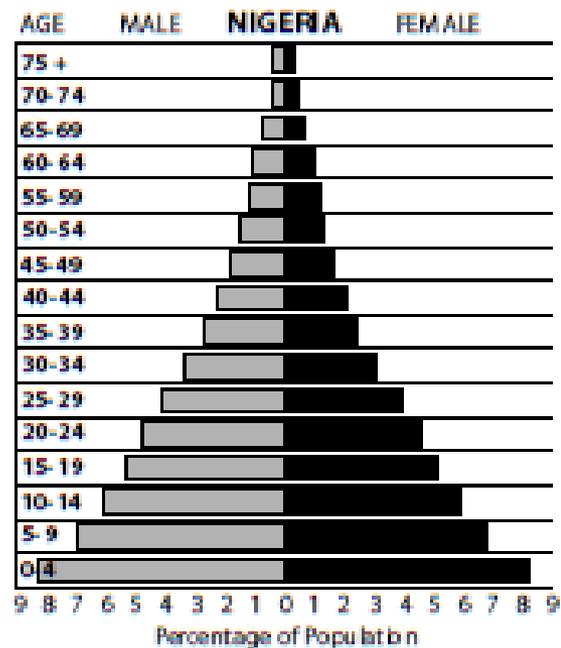
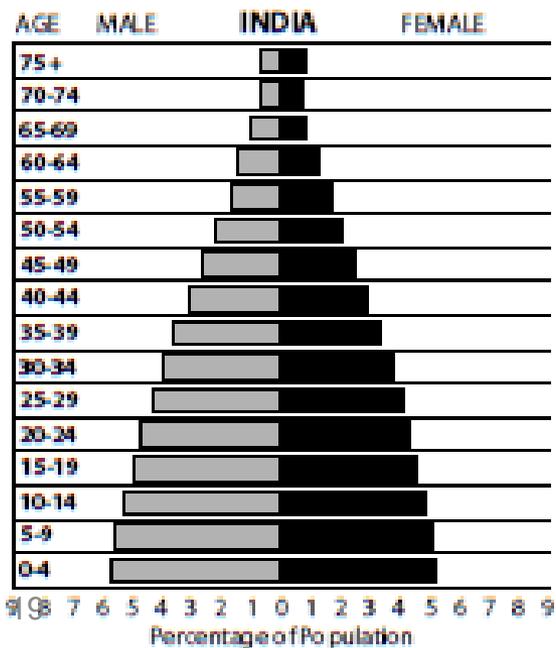
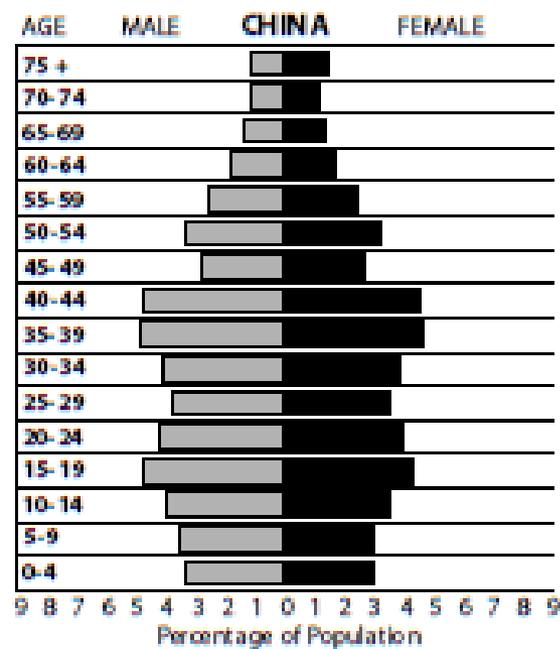
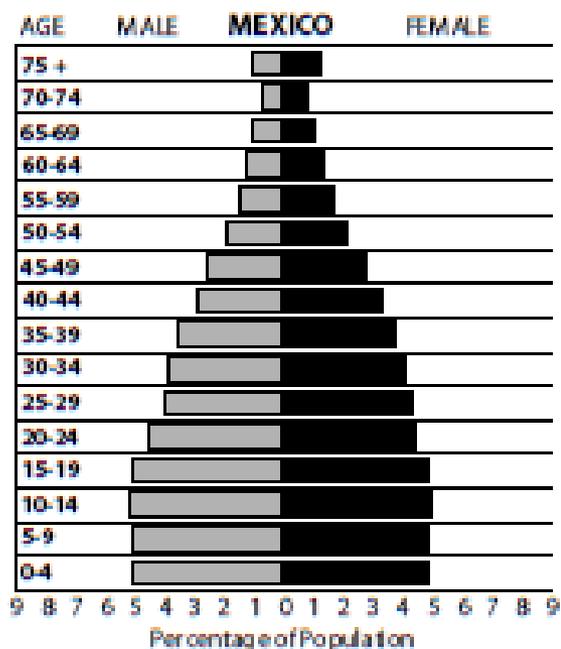
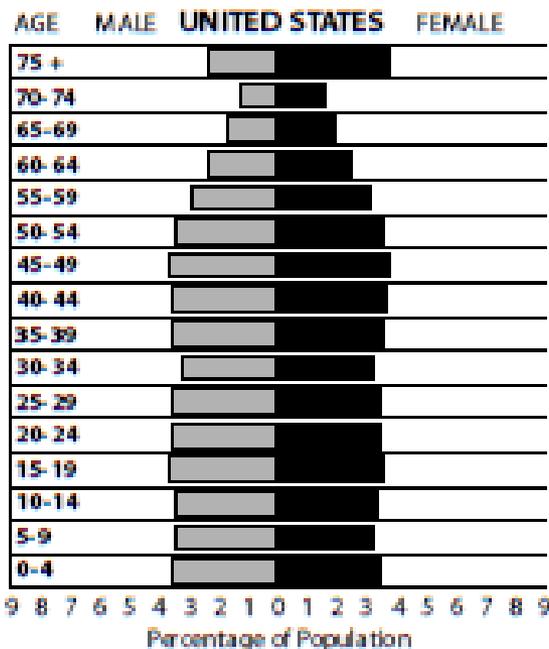
1. Gives a **true picture** of human **Resources and Needs**.
2. Provides **Essential Data** for vital statistics.
3. **Forecasts changes in size** and their directions.
4. Allows **Comparisons** between populations

Composition of the population

- ❑ Studying population may cover any relevant data: age, sex, religion, marital state, education, occupation, economic status...etc.
- ❑ **Age** and **sex** composition are the **important biological population characteristics**.
- ❑ Age and sex are graphically presented as a **Population Pyramid**.

Population pyramid

- ❑ This is basically Back To Back Histogram.
- ❑ One showing the number of **males** and the other showing the number of **females**.
- ❑ The **base represents age** bands of 5 years intervals.



Population pyramid

Importance of population pyramid:

- 1) Indicates births and mortality experiences of the country as well as migration and wars.
- 2) Indicates the **Stage Of Development** that a certain country has reached.
- 3) Shows the **percentage** of population which is described as being **Dependent**

Population pyramid

- 1) **Indicates births and mortality experiences of the country as well as migration and wars.**
 - ❑ **Base** denotes birth rate (if wide = high birth rate - if narrow = low birth rate)
 - ❑ **Slope of the sides** can denote:
 - **Mortality and migration** (the **sharper the slope**, as it goes upwards, the higher are these events)
 - **The effect of wars** (large imbalance in the population with far more women than men of certain ages.)

Population pyramid

- ❑ The height of the pyramid denotes **life span**
- ❑ The shape of apex (narrow or wide) indicates the percentage of individuals who survive till old age.

Population pyramid

- ❑ **The median age**: the point on the vertical axis of age through which passes the horizontal line that divides the surface area of the pyramid into two equal parts (50 % younger and 50 % older than median age);
- ❑ **The position of this defined point** is inversely related to the width of the base (median age is low when the width is wide and the reverse is true)

Population pyramid

- 2) Indicates the Stage Of Development that a certain country has reached.
- ❑ Different shaped population pyramids between Developed And Developing countries can indicate the stage of development that a country has reached.

Features of pyramids for developed and developing countries

Developed communities

Narrow base of the pyramid due to low birth rate

Sides are not sloping, constant numbers of people through all bands of working age **indicating low mortality experienced.**

Developing communities

Wide base due to high birth rate (high dependant young population)

Sides are sloping, numbers decrease as you go up the pyramid (triangular shape **indicating high mortality experienced**)

Features of pyramids for developed and developing countries

Developed communities

The height of the pyramid is high **indicating high life expectancy**

Apex is wide which means that a **large number of peoples over 60 years**

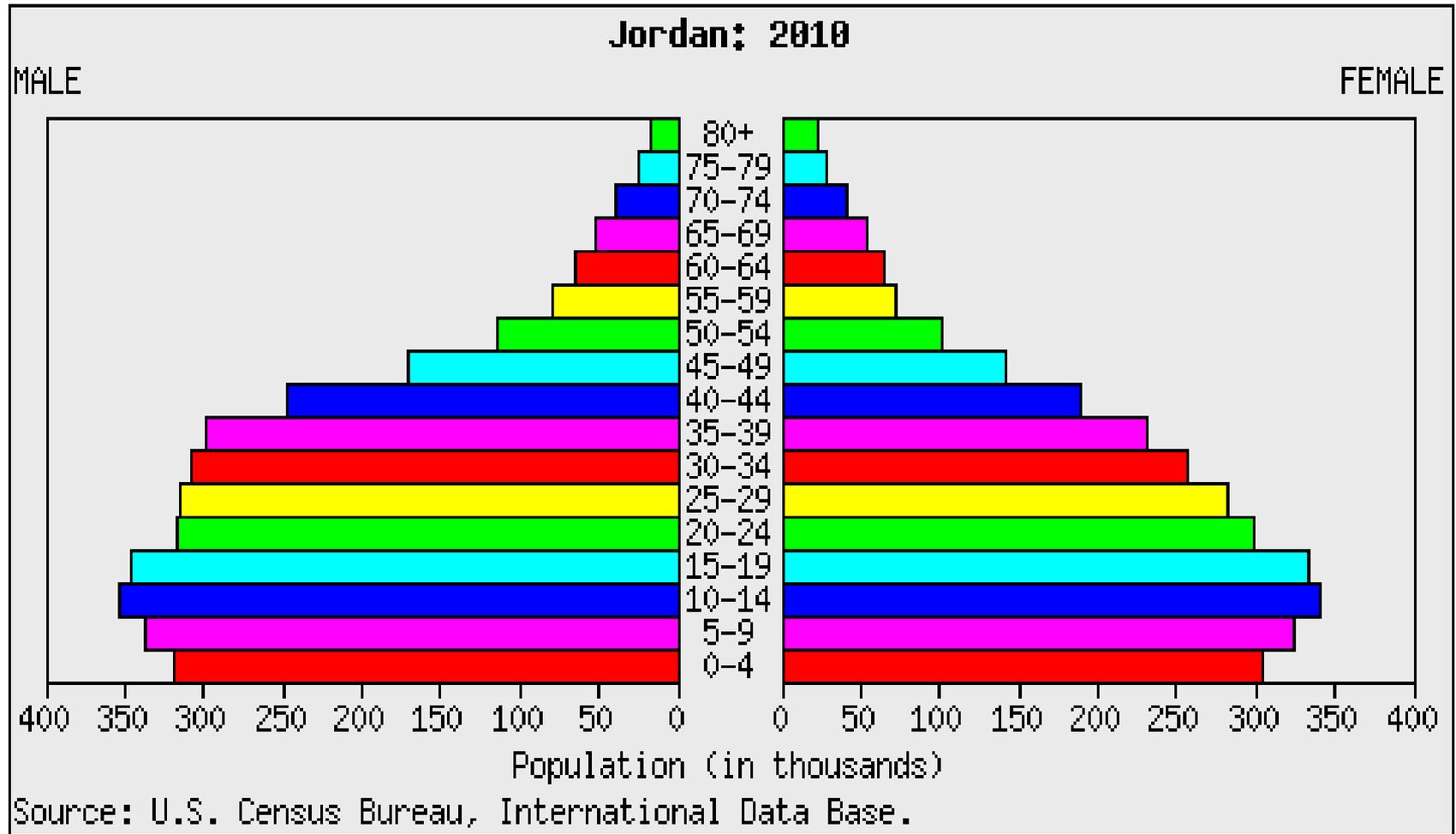
Developing communities

The height of the pyramid is short **indicating a low life expectancy**

Apex is narrow indicating that **few people survive to old age**

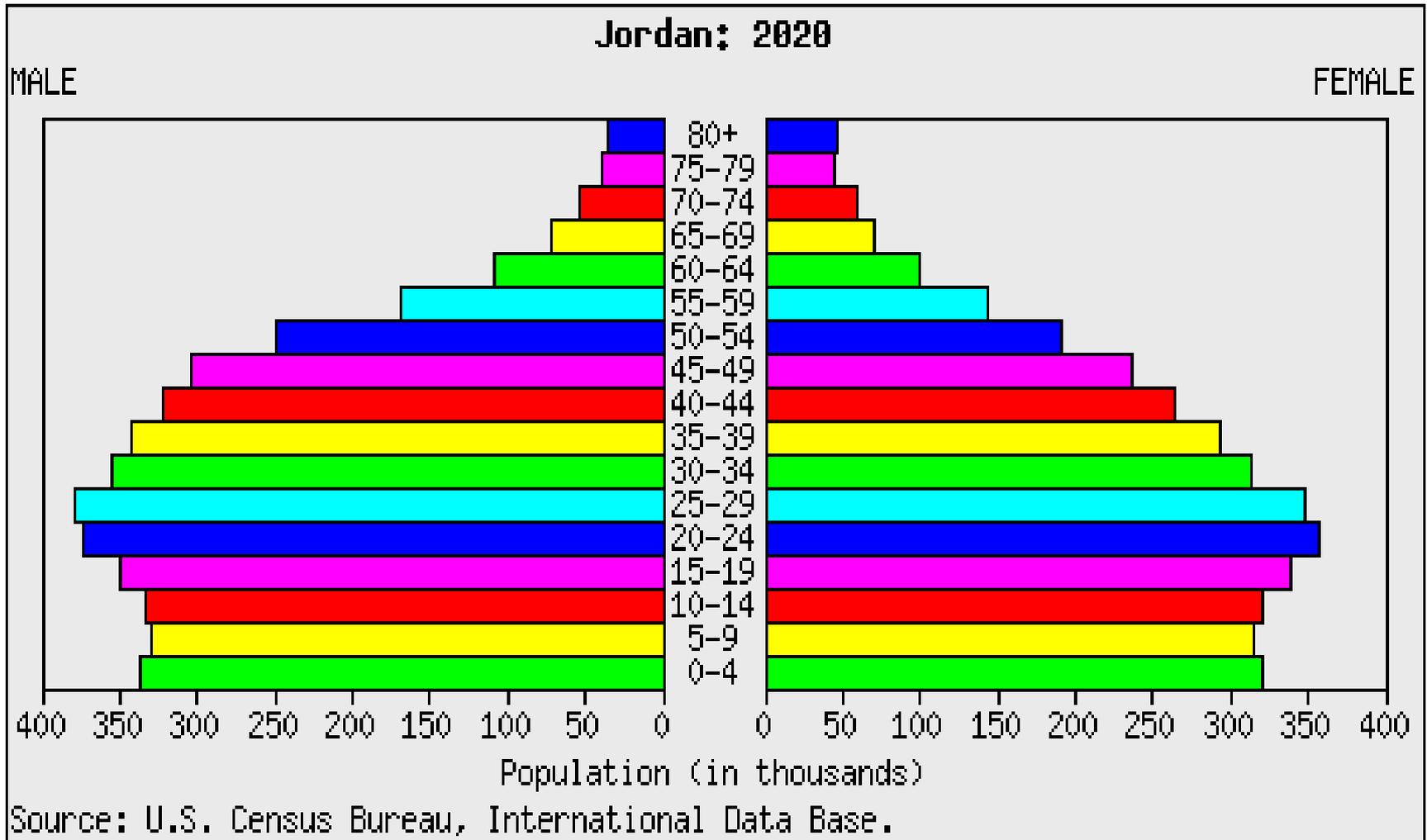
Jordan Population Pyramid for 2010

Age and sex distribution for the year 2010



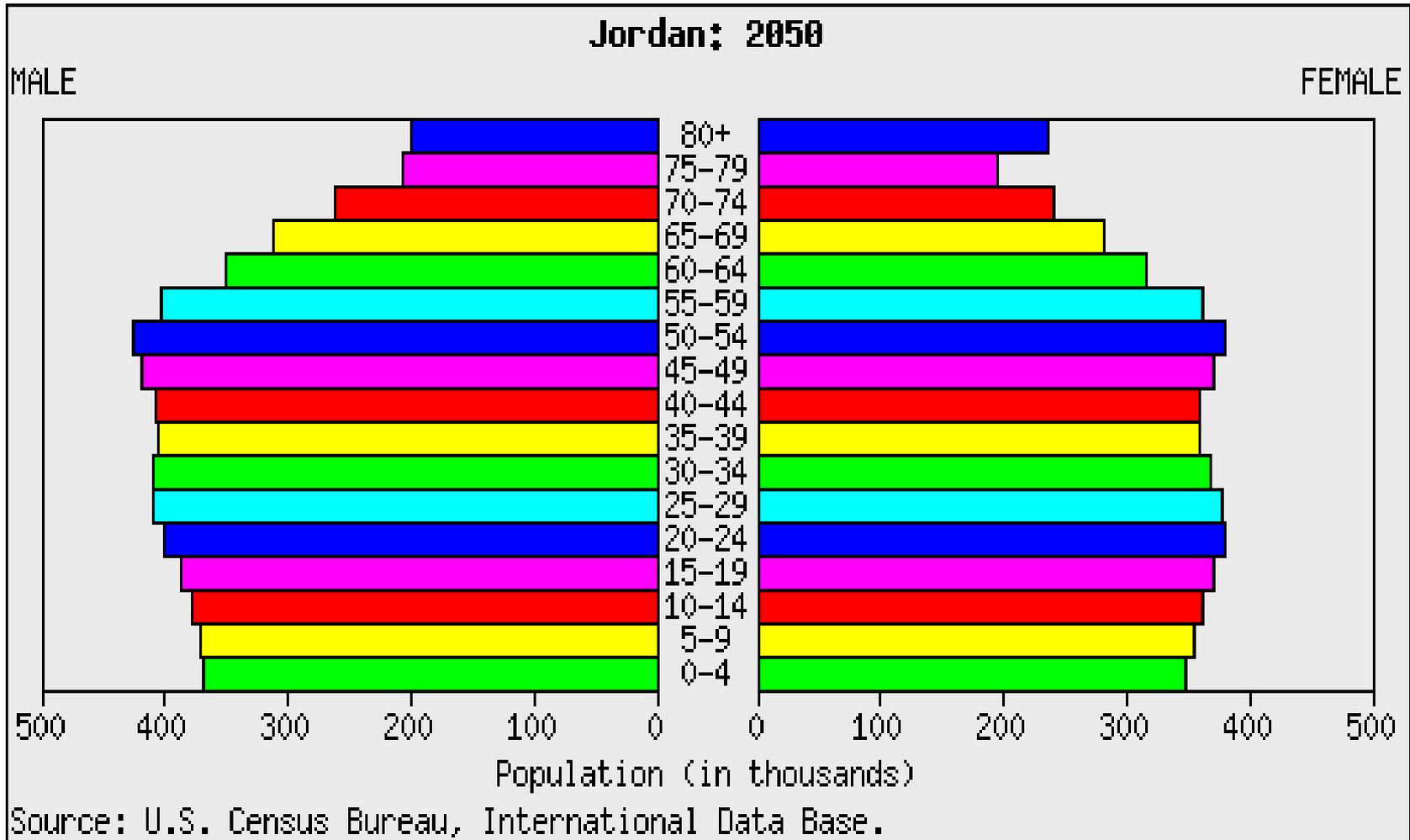
Jordan Population Pyramid for 2020

Predicted age and sex distribution for the year 2020:



Jordan Population Pyramid for 2050

Predicted age and sex distribution for the year 2050:



Population pyramid

3) Shows the percentage of population which is described as being “dependant”

- ❑ These are the groups of people who are dependant upon the economically active members of society.

They are classified as:

- ❑ Those under working age (0-15 years old)
- ❑ Those who retires (60 years and over)
- ❑ These two groups relay on the **working age group of people (15-less than 60)**

Population pyramid

- ❑ Young dependency: presented by the surface area below the horizontal line passing through 15 years of age.
- ❑ **Young dependency ratio:**

Pop. < 15 years in a year in a locality

$$\frac{\text{Pop. < 15 years in a year in a locality}}{\text{Population 15 - < 60 years}} \times 100$$

(same year and locality)

Population pyramid

❑ Old dependency: presented by the surface area above the horizontal line passing through 60 years of age.

❑ Old dependency ratio =

Population aged 60 + years

x 100

Population 15 -60 years

(same year and locality)

❑ Age of retirement is different in some countries

Population pyramid

❑ Total dependency: : presented by the surface area below the horizontal line passing through 15 years of age and that above the horizontal line passing through 60 years of age.

❑ **Total dependency ratio =**

Population below 15 years + above 60 years

x 100

Pop. age 15 - <60 years (same year and locality)

❑ **Jordan dependancy ratio is 68.2 %**