Demography-II

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3.   Distribution of the population

✓ In describing the distribution of any population the following questions have to be answered:

1. What is the percentage of inhabitant land in relation to available land within the national borders of a given country?

2. What is the population density /km^2 for the inhabited area?

3. What is the population density /km^2 for the available land?

Distribution of the population

✓ What are the occurring population movements between different areas of the country (rural- urban)?

✓ Data on distribution are notable politically, economically as well as socially.

✓ Changes in distribution are caused by the **Cumulative Effects Of Fertility, Mortality, External And Internal Migration**

MAJOR DEMOGRAPHIC PROCESSES

Major demographic processes

Components Of Population Dynamics

I. **Fertility**

II. **Mortality**

III. **Migration**

I. Fertility (Natality)

➤ **Fertility** is the actual Reproductive Performance of a woman or a group of women.

➤ Statistically a woman's reproductive period is from **15 – 49 years**.

Measures of Fertility

1. **Crude Birth Rate**
2. **General Fertility Rate**
3. **Age Specific Fertility Rates**
4. **Total Fertility Rate**
5. **Gross Reproduction Rate**
6. **Net Reproduction Rate**

Measures of fertility

❑**Crude birth rate (CBR):** it is the number of live births per 1000 mid year population in a given year and locality

CBR = معدل المواليد الخام

Total no. of live births in a certain year and locality

————————————————————————————————— $\boxed{\textbf{x 1000}}$

Estimated midyear population (same year and loc.)

CBR in Jordan = 30.1 births/1,000 population 2010

CBR: (per 1,000 people) in Jordan was reported at **26.47 in 2016**

Measures of fertility

❑ CBR is a crude index of fertility as it relates births to total population (males, females outside the reproductive period as well as unmarried)

❑ **CBR is useful in:**

A. Making annual comparisons

B. Detect trends in fertility in a given country (30.1 ⟶ 26.47)/1000

C. Comparing different population

⟶ Gaza Strip Birth rate. Birth rate: 31.4 births/1,000 population (2017 est.)

Measures of fertility

Factors affecting the crude birth rate:

A. **Factors affecting the Numerator:**

1. Number of females in the community specifically those 15 -49 years

2. The age of marriage

3. The level of infant and preschool mortality rates

4. The rate of having children

Measures of fertility

Factors affecting the crude birth rate:

B. Factors affecting the Denominator:

1. Epidemics

2. Wars

3. Famines

4. Migration

Measures of fertility

☐ **<u>General Fertility Rate (GFR):</u>** the number of live births a given year and locality per 1000 females in the child bearing period (15-49 years)

☐ It is equal to:

Total no. of live births in a certain year and locality

_____ **x 1000**

Reproductive Female Population In The Same

Year And Locality: عدد النساء في سن الانجاب

Measures of fertility

❑GFR is <u>refinement of the CBR</u> as it relates births to those who will carry them in the future.

❑It eliminates the influence of the difference in the proportion of males in the community

❑ **The weakness of GFR is that it does not take into account:**

1. The <u>marital status</u>

2. The differences in fertility levels in <u>various age groups of reproductive period.</u>

Measures of fertility

Age specific fertility rate (ASFR):

❑Major refinement in measuring fertility allowing for the age differences among women

❑The whole reproductive life of women is divided into 7 age groups, each of 5 years duration (15 – up to 45 – 49)

❑There are **seven (7)** age specific fertility rates.

Measures of fertility

ASFR =

Total no. of live births born by females in a <u>specific</u> <u>age group</u> in a certain year and locality

————————————————————————— **x 1000**

Female population in <u>the same age group</u>

Measures of fertility

Total Fertility Rate (TFR)

➢ The Total Fertility Rate (TFR) is a standard demographic indicator used internationally to estimate the **Average Number Of Children** that a woman would have over her childbearing years (i.e. age 15-49), based on current birth trends.

➢ **In Jordan TFR = 3.8 children born/woman in 2010**

➢ It is an estimate of the average number of children born to a woman or a cohort of 1000 women throughout her or their child bearing period subjected to prevailing age specific fertility rates.
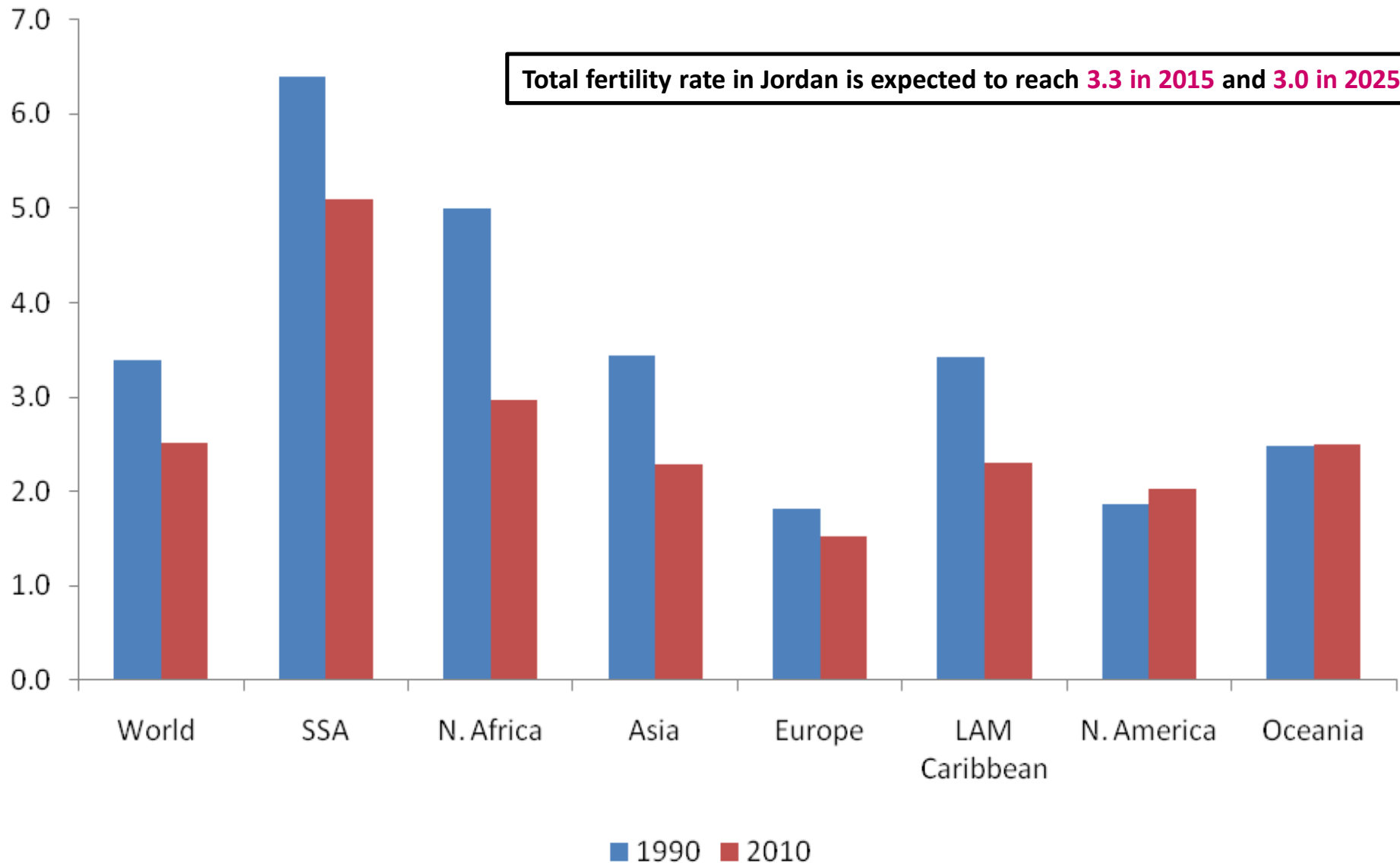
Measures of fertility

Total fertility rate entails two assumptions:

1) **The ASFRs** <u>remain constant for this cohort</u> **of females till the end of their reproductive life.**

2) **Non of the women beginning their reproductive life will die before reaching their menopause**

Measures of fertility

- In most developed countries the TFR is **below 2.0**

- In a number of developing countries it is **over 6.0** (very high rate)

- **In Jordan TFR = 3.8 children born/woman in 2010**

Total fertility rates in 1990 and 2010 for the world and its major regions

Total fertility rate in Jordan is expected to reach **3.3 in 2015** and **3.0 in 2025**

Measures of fertility

☐**Even if this target is achieved the population will grow for another period by the effect of Demographic Momentum (large % of women will reach reproductive age الزخم الديموغرافي). So,**

Total number of births can increase even if TFR falls.

Measures of fertility

Gross Reproduction Rate (GRR):

❑ **It shows only the number of Female Births who are expected to be future mothers**

❑ **It is defined as the number of female births / 1000 women or /woman throughout her or their child bearing period subjected to prevailing age specific fertility rates.**

❑ **In calculation it is similar to that of TFR but except that it refers only to female births only vs.**

$$TFR = \frac{\Sigma \text{ (average number of children (males + females)}}{\text{Female population in the same age group}}$$

Measures of fertility

❑**GRR is calculated by multiplying the TFR to the percentage of females to the total births.**

❑**GRR = TFR X % of female births.**

e.g. 3.8*0.55=2.09

❑**The drawback** **of the rate is that the deaths of women during their reproductive period are not taken into consideration**

Measures of fertility

Net reproduction rate (NRR):

❑ It is derived from and is less than the GRR

❑ It **corrects the drawback** of the GRR where deaths of women during their reproductive period are taken into account using life tables of females.

❑ NRR measures the actual number of female children born to a woman during her child bearing life, subject to prevailing age specific fertility and specific mortality rates.

Measures of fertility

❑Drawback of NRR is that it <u>Assumes</u> that the ASFR and the death rates in a certain year will remain constant through a generation.

N.B:

• TFR, GRR, and NRR are **hypothetical** measures of fertility.

II. Mortality

❑Mortality data are relatively easy to obtain and reasonably accurate.

Measures of mortality:

1. Crude death rate

2. Age specific mortality rates

3. Sex specific death rates

4. Cause specific death rate

5. Proportionate mortality rate

Mortality

Crude Death Rate: CDR

$$\frac{\text{Number of deaths in a certain year and locality}}{\text{Estimated mid year population in the same year and locality}} \times 1000$$

☐ **The Jordanian figure for CDR 2010 = 7 deaths/1000 population**

Mortality

❑The main advantage of CDR is its **Summarizing Power** (its ability to portray a general impression by a single value.

❑However it **lacks comparability** between different communities that have different structures as regard factors governing the probability of death e.g. **age, sex and race composition**

Mortality

Age Specific Death Rate:

$$\frac{\text{Total deaths in a certain age and a certain year and area}}{\text{Total number of the same age group in the same year and same area}} \times 1000$$

Mortality

Sex Specific Death Rate

$$\frac{\text{Number of deaths in a certain sex during a year in a certain locality}}{\text{Total number of the same sex during the same year and locality}} \times 1000$$

Mortality

Cause Specific Mortality Rate;

Total number of deaths due to a certain cause during a year and a given locality
_____ X 1000

Estimated midyear population during the same year and locality

Mortality

Proportionate Mortality Rates

Total number of *Deaths Due To A Certain Cause* during a year and a given locality

_____   X 100

Total number of *Deaths From All Causes* during the same year and locality

III. Migration

Definition:

❑ It is the **movement** of populations **across a specific boundaries** for the purpose of residing.

❑ It is the **change of residence** of a person or a group of persons for better life and higher standard of living.

Migration

❑The terms **Immigration** and **Emigration** are used for **international migration** (movement between countries); also called **external migration.** It can be **temporary or permanent.**

❑The parallel terms **in-migration and out-migration are** used for **internal migration** (internal movement between different areas within a country)

Migration

❑Although migration affects the characteristics of the population, its **role is minimal** when compared to fertility and mortality, in most of the countries