

The Human Population & Population Growth

Lecture 8

ENHL 220

OUTLINE

- 1- Population Dynamics
- 2- Population Age structure
- 3- Factors Influencing Population Size

1- Population Dynamics

1- Population Dynamics

- About 10, 000 years ago → 5 million humans on the planet → now → about 7 billion or more
- During 2006 → about 81 million people were added to the world's population (79.5 million → developing countries / 1.2 million in developed countries)
- Currently & expected → 1.23% increase per year

1- Population Dynamics (Cont'd)

- The population grows or declines through the interplay of three factors. These are:
 - ✓ Births (fertility)
 - ✓ Deaths (mortality)
 - ✓ Migration (immigration & emigration)

1- Population Dynamics

- Population Change:

$$\text{Population Change} = (\text{Births} + \text{Immigration}) - (\text{Deaths} + \text{Emigration})$$

- ** Births + Immigrations > Deaths + Emigrations → population increases
- ** Deaths + Emigrations > Births + Immigrations → population decreases
- Instead of using the total number of births and deaths per year, experts use: Crude Death Rate & Crude Birth Rate
 - ✓ Crude Death Rate = # of deaths/1000 people/year
 - ✓ Crude Birth Rate = # of live births/1000 people/year

1- Population Dynamics (Cont'd)

- Many factors affect the death rate decline (increase in population). These are:
 - ✓ 1- increase in food supply → modern agriculture
 - ✓ 2- better nutrition
 - ✓ 3- advances in medicine
 - ✓ 4- improved sanitation & personal hygiene
 - ✓ 5- safer water supply → the situation in Lebanon
- The overall health of a population is measured by 2 indicators. These are:
 - ✓ 1- Life expectancy: “average # of years a newborn baby is expected to live” (Miller, 2009/7).
 - ✓ 2- Infant Mortality Rate: “# of babies out of every 1,000 born who die before the age of 1 years” (Miller, 2009/7).

2- Population Age Structure

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- Population Age Structure:
 - ✓ “The distribution of males & females in each age group” (Miller, 2009/7).
 - ✓ The population age structure diagram is constructed by plotting the percentage or numbers of males & females in the total population in each of 3 age categories:
 - 1- Pre-reproductive (0 - 14)
 - 2 –Reproductive (15 - 44)
 - 3- Post-reproductive (45 - 85+)

2- Population Age Structure (Cont'd)

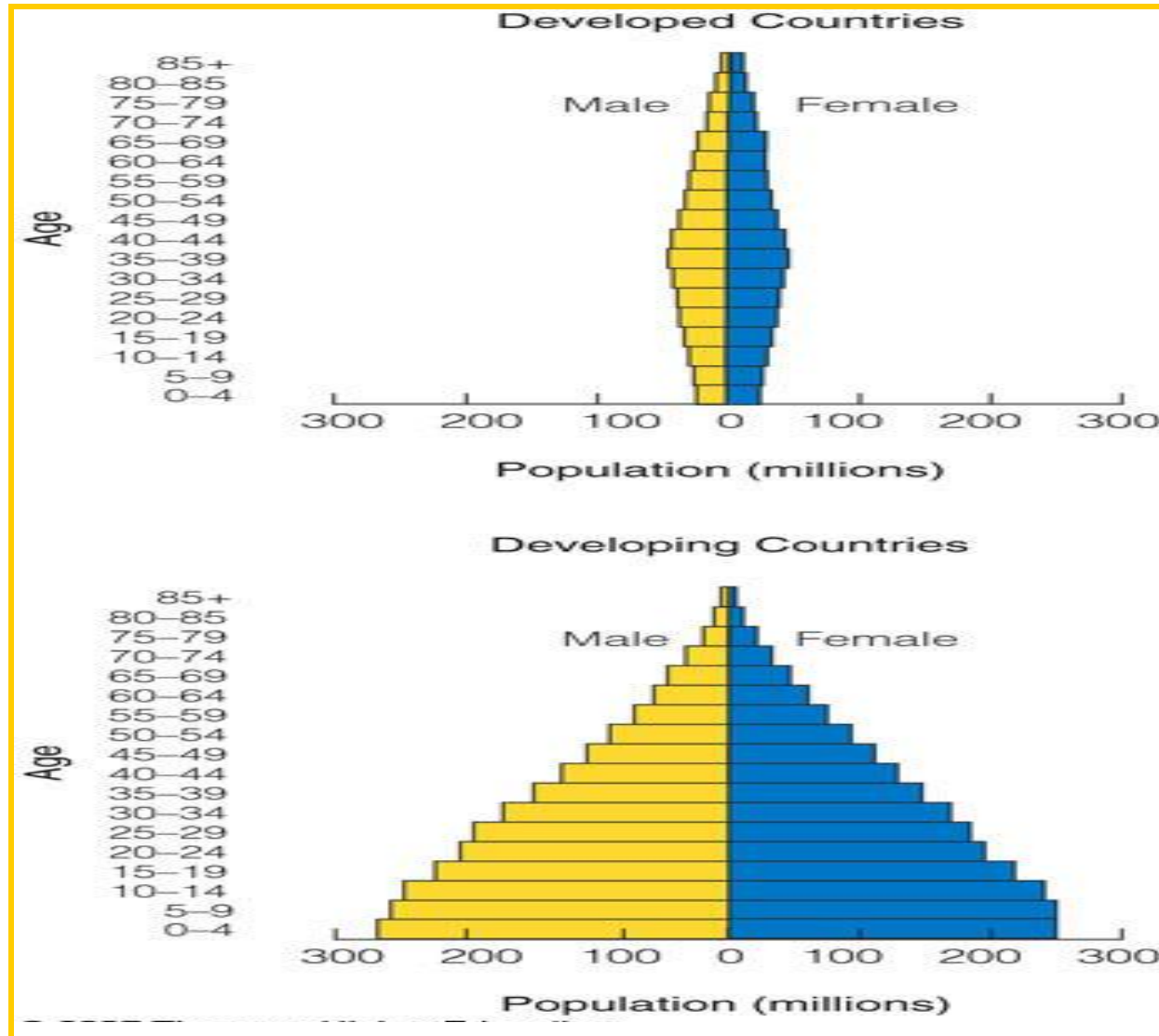


Figure 1: Age Structure Diagram

2- Population Age Structure (Cont'd)

- Countries with a lot of young people & high birth rate →
 - ** unemployment
 - **
- Countries with a lot of old people and high death rate →
 - ** less tax payers (more burden on the government)
 - ** more stress on medical care & social security funds
 - ** threat to economic growth
 - ** less likelihood to develop new technologies & develop
 - **

3- Factors Influencing Population Size

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Is the world overpopulated and is it ethical to control the world's population

??????????

The world can support billions more people as a result of technological improvements (for food, medicine...).

Population regulation, in its various forms, is a violation of their religion & moral beliefs and an invasion of their privacy.

The world won't be able to support billions more people because the earth's carrying capacity is already being exceeded in many areas.

Population regulation, in its various forms, is a great solutions for the problem and is very much welcomed

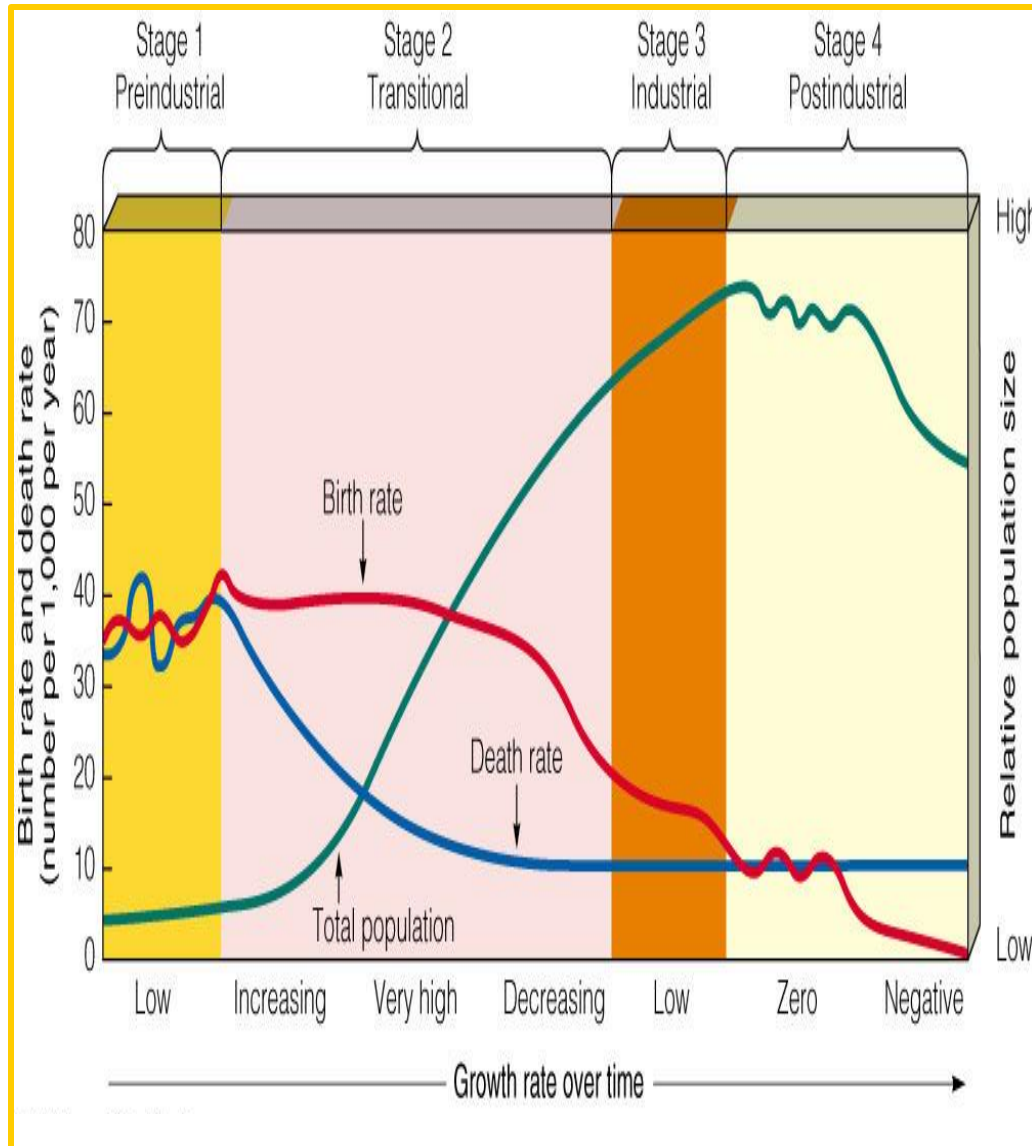
3- Factors Influencing Population Size (Cont'd)

- Many methods exist to influence the population size (increase or decrease). The main and most common ones are:
 - ✓ 1- Helping countries apply the “Demographic Transition” (Economic Development)
 - ✓ 2- Family Planning
 - ✓ 3- Empowering Women (education & employment)
 - ✓ 4- Reducing Poverty
 - ✓ 5- Economic Rewards & Penalties
 - ✓ 6- Migration
 - ✓ 7- cost of education and raising a child
 - ✓ 8- Importance of children as part of the labor force
 - ✓ 9- Average age of marriage
 - ✓ 10- Legal abortion, religious beliefs and cultural norms

3- Factors Influencing Population Size (Cont'd)

- ✓ 1- Helping countries apply the “Demographic Transition” (Economic Development):
 - A hypothesis that countries, as they become industrialized, have declines in death rates followed by declines in birth rates.
 - According to this hypothesis, the transition takes place in 4 distinct stages. These are:
 - * Stage 1: Pre-industrial Stage
 - * Stage 2: Transition Stage
 - * Stage 3: Industrial Stage
 - * Stage 4: Postindustrial Stage

3- Factors Influencing Population Size (Cont'd)



- Stage 1: little population growth because harsh living conditions lead to both a high birth & death rates.

Stage 2: when industrialization begins, food production rises & health care improves → death drops & birth rate remains high → rapid population growth.

Stage 3: birth rate drops & eventually approaches the death rate as modernization becomes widespread → population growth continues but at a slower rate.

Stage 4: when birth rate declines further, equaling the death rate or less → zero population growth or decrease in population.

Figure 2: Transition Stages

3- Factors Influencing Population Size (Cont'd)

- ✓ 2- Family Planning:
 - has been a major factor in reducing the number of births & abortions throughout most of the world.
 - provides educational & clinical services that help couples choose how many children to have and when to have them.

- ✓ 3- Empowering Women:
 - women tend to have fewer children if they are educated, hold a paying job outside the home & do not have their human rights suppressed.

- ✓ 4- Reducing Poverty.

- ✓ 5- Economic Rewards & Penalties:
 - government regulations regarding number of children

- ✓ 6 –Migration.

3- Influencing Population Size (Cont'd)

- ✓ 7- cost of education and raising a child
 - as the cost of raising and educating a child increases, parents tend to decrease the number of children

- ✓ 8- Importance of children as part of the labor force
 - in many countries children are an important component of the labor force → help in the family business (mainly agriculture)

- ✓ 9- Average age of marriage
 - as the age of marriage increases, the probability of having many children decreases

- ✓ 10- Legal abortion, religious beliefs and cultural norms

Reference Book

Reference Book:

Miller, T. & Spoolman, S (2009). *Living in the Environment* (16th ed.) Canada:
Cengage Learning – Brooks/Cole

Co- reference: Same Book – Editions 15 & 17 & 18

n.b: All the material in this presentation is taken from the previously mentioned reference book.