

APES CH 11 Lecture Outline: The Human Population; Growth, Demography & Carrying Capacity

11-1 Factors Affecting Human Population Size

- A. Demography is the study of the size, composition, and distribution of human populations and the causes and consequences of changes in these characteristics.**
- B. Population increases through births and immigration and decreases through deaths and emigration. [population change = (Births + Immigration) – (Deaths + Emigration)]**
1. The crude birth rate is the number of live births per 1,000 people in a population in a specific year.
 2. The crude death rate is the number of deaths per 1,000 people in a population in a specific year.
- C. There are currently more births than deaths throughout the world.**
1. The annual rate of natural population change (%) equals birth rate minus death rate divided by 1,000 persons multiplied by 100.
 2. The rate of the world's population growth has decreased.
 3. The annual population growth dropped by almost half between 1963 and 2004, from 2.2% to 1.2%. But during this same period, the population base doubled from 3.2 to 6.4 billion.
 4. There is a big difference in the exponential population growth rates of developed and developing countries, with developed countries growing at 0.25% and developing countries growing at 1.46%— almost six times faster.
 5. The six fastest growing countries in terms of population are: India, China, Pakistan, Nigeria, Bangladesh, and Indonesia.
- D. The populations of China and India comprise 38% of the world's population. The next most populated country is the United States with 4.6% of the world's population.**
- E. Doubling time is one measure of population growth. The rule of 70 is a quick way to calculate doubling time in years. If the population grows by 1.2% in 2004, divide 70 by 1.2, which equals 58 years.**
- F. Fertility is the number of births that occur to an individual woman in a population.**
1. The changing nature of fertility rates effect population growth.
 - a. Replacement-level fertility is the number of children needed to replace their parents.
 - b. Total fertility rate (TFR) is the average number of children that a woman has during her fertile years.
 2. There are apt to be between 7.2–10.6 billion people by 2050, with 97% of this growth to be in developing countries. These countries have acute poverty as a way of life for about 1.4 billion people.
- G. From 1946–1964, the United States had a sharp rise in birth rate, called the baby-boom period.**
1. At its peak, the TFR reached 3.7 children per woman. There has been a gradual decline since then.
 2. The population growth of the United States is still greater than any other developed country and is not close to leveling off.

3. About 2.7 million people were added to the U.S. population in 2004. Fifty-five percent of this population growth came from more births than deaths, and forty-five percent came from immigration.
 - a. Other major developed countries have slower population growth, and most are expected to have declining populations after 2010.
 - b. The high U.S. per capita resource rate use produces enormous environmental impact.

H. *Many factors influence birth and fertility rates.*

1. More children work in developing countries; they are important to the labor force.
2. The economic cost of raising and educating children determines their numbers. The more children cost, the less children people tend to have.
3. If there are available private/public pension systems, adults have fewer children because they don't need children to take care of them in old age.
4. People in urban areas usually have better access to family planning, so they have fewer children.
5. If women have educational and economic choices, they tend to have fewer children.
6. When the infant mortality rate is low, people have fewer children because children are not being lost to death.
7. The older the age at which women marry, the fewer children they bear.
8. If abortions are available and legal, women have fewer children.
8. The availability of reliable birth control allows women to space children and determine the number of children they bear.

I. *Factors, which have caused a decline in death rates, are the following.*

1. Better food supplies and nutrition and safer water supplies contribute to people living longer.
2. Advances in medicine and public health and improved sanitation and personal hygiene also contribute to people living longer.

J. *Measures of overall health*

1. Life expectancy is the average number of years a newborn can expect to live.
2. Infant mortality rate is the number of babies out of every 1,000 born who die before their first birthday.
 - a. This rate reflects a country's level of nutrition and health care.
 - b. It is the single best measure of a society's quality of life.
3. U.S. infant mortality rate is higher than 35 other countries due to:
 - a. inadequate health care for poor women and for their babies,
 - b. drug addiction among pregnant women, and
 - c. a high birth rate among teenagers.

K. *Arguments to limit immigration into the U.S.*

1. Limitations would aid in stabilizing the population sooner.
2. Limitations would help reduce the enormous environmental impact of the U.S.

L. *Arguments for generous immigration policies in the U.S.*

1. Historically, the U.S. has been the land of opportunity for the world's poor.
2. Immigrants do work that Americans won't do or handle jobs for which there are not enough trained natives.
3. Immigrants contribute to the economy and pay taxes.

10-2 Population Age Structure

What are age structure diagrams? They are visual aids, which show the distribution of males and females in each age group.

A. *The percentages of males and females in the total population are divided into the following age categories.*

1. Pre-reproductive ages span birth to 14 years of age.
2. Reproductive ages include 15 through 44.
3. Post-reproductive ages include 45 and up.

B. *The major determining factor in a country's future population growth is the number of people under the age of 15.*

1. In 2004, 30% of the planet's population was under 15.
2. The world is demographically divided.

C. *Changes in the distribution of a country's age groups have long-lasting economic and social impacts. An example of this is the "baby boom" generation in the U.S.*

1. Such a group can dominate the population's demands for goods and services.
2. They influence elections and legislation and economic demand.
3. Retirement of baby boomers in the U.S may create a shortage of workers.

D. *The "baby bust" generation compared to that of the "baby boom"*

1. There will be fewer people to compete for education, jobs, and services.
2. Too few people in the labor force may increase wages.
3. It may be more difficult to get job promotions because a larger "baby-boom" group will occupy most upper-level positions.
4. There is an echo-boom consisting of people born since 1977.
5. These fluctuations in population age structure have social and economic effects for decades.

E. *Reduced fertility and population decline can have long-term consequences, especially if the decline is rapid.*

1. A gradual population decline and its harmful effects can usually be managed.
2. There can be a sharp rise in the proportion of older people.
 - a. This produces a sharp rise in public services/cost for health, etc.
 - b. This may mean having many fewer working taxpayers and labor shortages.
 - c. It may be necessary to raise retirement age, raise taxes, cut retirement benefits, and increase legal immigration, which are generally unpopular moves.
3. If population declines because of deaths, consequences are serious.
 - a. Deaths from disease, such as AIDS, disrupt a country's social and economic structure.
 - b. Large numbers of people at a particular age are removed from the country's future.
 - 1) Life expectancy drops.
 - 2) In the case of AIDS, the deaths are mostly young adults, those who usually help run the country and everyday life for millions.
 - 3) Two major goals are to reduce the spread of HIV through education and health care and to provide financial help for education, health care, volunteer teachers, and social workers to compensate for the lost young adults.

10-3 Solutions: Influencing Population Size

A. Can the world sustain a rising population without causing widespread environmental damage?

1. More consumers = more growth; people are the world's resource as consumers and as problem solvers.
2. Some feel that limiting population is a violation of their religious beliefs.
3. The world is already overpopulated.
 - a. Basic necessities of life are not provided for one out of six people today.
 - b. Declining health and environmental conditions will threaten the entire world.
 - c. Increased resource use and environmental harm is compromising the life of the environment through: infectious disease, biodiversity loss, fisheries depletion, water scarcity, pollution, and climate change.
 - d. The quality of life on the planet and for all its people requires some limits on everyone.

B. The demographic transition hypothesis states that as countries become industrialized, first their death rates and then their birth rates decline in four stages.

1. The pre-industrial stage produces high birth and death rates because living conditions are harsh.
2. The transitional state sees food production rise and improvement in health care. Death rates drop, and birth rates remain high.
3. The industrial stage causes the birth rate to begin to drop, and the death rate drops because of industrialization and medical advances. Modernization is widespread.
4. The post-industrial stage moves to the birth rate equaling the death rate and results in zero population growth. The population size will begin to slowly decrease.

C. Some countries run the risk of getting caught in the transitional state, and economic conditions will not be available to sustain the population.

1. There can be a shortage of skilled workers to sustain the country's economy.
2. There will not be capital and resources to support rapid developing economies.
 - a. International debt takes much of a country's resources.
 - b. Developed countries are not helping developing countries economically.

D. Family planning helps reduce the number of births and abortions throughout the world.

1. Information is given on birth spacing, birth control, and health care.
2. Family planning has been responsible for at least 55% of the drop in TFRs in developing countries.
3. Family planning has also reduced both legal and illegal abortions per year.
4. Services come through educational and clinical services.
 - a. Almost one-half of pregnancies in developing countries are unplanned and 26% end in abortion.
 - b. Women want to limit their pregnancies but have no access to contraceptives.
5. Family planning success can be improved through these methods.
 - a. Target programs to teenagers and unmarried, sexually active women.
 - b. Develop programs for educating men about their responsibilities for the children they father.
 - c. Provide more effective means of birth control for men.
 - d. Advocate that pro-choice and pro-life groups join to reduce unplanned birth and abortions.
6. Empower women by providing education, paying jobs, and supporting their human rights.
 - a. Women work two-thirds of all the hours worked, but receive 10% of the world's income.

- b. Empowering women with these things would slow population growth, promote human rights, reduce poverty, and slow environmental degradation.

E. Reducing population growth can best be achieved by investing in family planning, reducing poverty, and elevating the status of women.

10-4 Case Studies: India and China

A. India has tried to control its population growth for years.

1. Overpopulation ills of poverty, malnutrition, and environmental problems abound in India.
2. Almost one-half of India's labor force is unemployed; half of its cropland is degraded due to soil erosion; and two-thirds of its water is seriously polluted, with inadequate sanitation services.
3. Efforts to limit population have not been especially successful because:
 - a. poor couples believe they need several children for work and care.
 - b. there is a strong preference for male children so many do not use birth control.

B. Population growth in China has been controlled by a strongly enforced government program.

1. Between 1972 and 2004, China's birthrate was cut in half.
2. Couples with one child are rewarded with extra food, larger pensions, better housing, bonuses, free school tuition, and preferential employment treatment for the child.
3. 83% of married women use modern contraception, provided free by the government.
4. China's population has an enormous environmental impact that may affect its production of food.
5. The health clinics that used to provide basic health care for rural farm populations collapsed in the 1980s; now 9 out of 10 rural Chinese have no health insurance or social safety net.

10-5 Cutting Global Population Growth

A. One goal of the 1994 U.N. Conference on Population and Development was to stabilize world population at 7.8 billion people by 2050.

1. Provide universal access to family planning services and reproductive health care
2. Improve health care for infants, children, and pregnant women
3. Develop and implement national population policies
4. Provide more education, especially for girls and women
5. Improve the status of women and expand education and job opportunities for young women
6. Increase the involvement of men in child-rearing responsibilities and family planning
7. Sharply reduce poverty
8. Greatly reduce unsustainable patterns of production and consumption

B. The experience of Japan, Thailand, South Korea, Taiwan, Iran, and China indicates that goals can be achieved through a combination of family planning, poverty reduction, and elevation of the status of women.