

SS 11: COUNTERPOINTS

CH. 13: POPULATION: CANADA AND THE WORLD – NOTES

INTRODUCTION

1. 1999 – the UN declared the world’s population had reached 6 billion.
2. Forecasters are sure that at least another billion will be added by the year 2020.
3. Some people see the growth in population as a contributor to shortages in energy, housing, and food, and an increase in pollution, unemployment, and the destruction of the environment.
4. According to optimists, world population will increase to 9 billion in 2054 and level off at 10 billion after 2100. By then, they predict, technology will have found ways to provide for the increased numbers of people.
5. 2000 years ago there were about 300 million people on Earth. In 1804, there were 1 billion.
6. The 20th century began with world population under 2 billion and ended with triple that number.
7. 8000 BCE – AD 1750 about 70 000 people each year were added to the Earth’s population. Today that number is added in less than 7 hours.

DEMOGRAPHY

1. **Demography** is the statistical study of human population.
2. It helps us to understand the causes and consequences of population change.

The Census: Counting People

1. Today, according to the UN, a census of population is the “total process of collecting, compiling, and publishing demographic, economic, and social data pertaining to a particular time, to all persons in a particular country.”

2. Since Confederation in 1867, Canada has had a major census every 10 years in the first year after the end of each decade and a less detailed one every 5 years.
3. Statistics Canada collects detailed information on population numbers and population characteristics such as age and education.
4. All Canadians are required by law to be counted in the census.
5. A selection of people has to give more detailed information about their accommodations, household contents, income, buying habits, etc.
6. Surveys on market trends, television viewing patterns, and voting preferences, together with health, scholastic, and job-related statistics, amounts to a major demographic file on every Canadian.
7. A **developed country** like Canada has the resources to keep its data current, yet its figures still have a margin for error.
8. In **developing countries**, the census data are usually much less accurate because the registration of births and deaths is not as complete as in developed countries.

Population Rates – Go Figure!

1. Demographers are most interested in statistics that help them predict and explain changes in society. E.g. – the number of working women will have an effect on the birth rate.
2. The components of population change are:
 - how many people are born,
 - how many die, and
 - how many move in or out of an area.

Equation: Births – deaths + immigrants – emigrants = increase or decrease of population

3. Demographers use rates per thousand when figuring population change.

4. **Crude birth rate** is calculated by dividing the number of births in one year by the population and then multiplying the result by 1000. The same method is used to calculate **crude death rate**.
5. Subtracting deaths from births gives the rate of **natural increase**.
6. Canada's annual crude birth rate is about eleven per thousand, and the crude death rate is about seven per thousand.
7. The natural increase of the Canadian population for a given year is six per thousand. This is usually expressed as 0.6% and does not include immigrants.
8. **The Rule of Seventy = doubling time** is approximately equal to 70 divided by the growth rate (in per cent) per year.
E.g. – Gabon at the present rate of natural increase has a doubling time of approximately 47 years: $70 \text{ divided by } 1.5 \text{ (\% growth per year)} = 46.7$ years.
9. **Exponential rate** of increase = e.g. – a couple has 4 children, and each of these grows up to produce 4 children. By the 3rd generation the couple will have 16 descendants.

The Effects of Migrations

1. The **immigration rates** and **emigration rates** are calculated in a similar manner to birth and death rates. The difference between the two gives the **net migration rate**.
2. Net migration rate is given as a rate per thousand.
3. A combination of the birth rate, the death rate, and the net migration rate gives a complete picture of the annual change in the Canadian population: $\text{Birth Rate (BR)} - \text{Death Rate (DR)} \pm \text{Net Migration Rate (NMR)} = \text{Population Growth Rate}$

THE DEMOGRAPHIC REVOLUTION

1. Before the 1700s people had a **life expectancy** – the average number of years that an individual is expected to live – of little more than 30 years. (Today in Canada life expectancy is over 75 years.)

- Disease, poor medical care, poor nutrition, and unsanitary conditions contributed to the high death rate.
 - Families needed to have many children to ensure a few survived.
 - Large families were needed to help farm the land, from which most people made a living, and to provide security for parents in old age.
 - This is still common today in many developing countries.
2. The rapid increases in population growth after 1750 were mainly due to falling death rates.
 - The agricultural revolution increased food production, so that people had better diets.
 - Hygiene and medical knowledge improved.
 3. The falling death rate was finally matched by a decline in the birth rate. 3 likely reasons: economic development, the move to cities, and rising standards of living.
 4. After WW II, the World Health Organization (WHO) and aid programs made improved health measures available to all countries. Death rates fell, but birth rates are still high in many developing countries.

The Demographic Transition Model

1. shows changes over a period of time in 3 elements: birth rates, death rates, and trends in overall population numbers.
2. assumes that in any country high birth rates and high death rates will gradually fall.
3. Because the model is based on what has happened in developed countries, it assumes that countries will pass through periods of industrialization and urbanization on the way to reduced birth and death rates.
4. is useful in showing how the population growth rates of countries that are industrializing are in a state of transition.

THE AGE STRUCTURE OF POPULATIONS

1. Demographers divide populations into 3 age groups: children up to age 15; working adults from 16 to 64; and adults 65 and older.

2. This gives the **dependency ratio** = the proportion of the population that is being supported by the working age group.
3. 1996 census – Canada's population included 21% children and 12% adults 65 years and older = dependency load of 33%.
Bangladesh has a dependency rate of 53% = 47% children and 6% adults aged 65 years and older.

Population Pyramids

1. graphs that show the age and sex structure of a population.
2. A series of horizontal bar graphs for the male and female populations are placed back to back at age intervals of five years, called **cohorts**.
3. Useful in comparing the population structures of different countries.
4. Countries with high birth rates have many children and an *expanding population*.
A stable population will have birth rates and death rates in balance.
A contracting population will have a growth rate below replacement level.
5. In general, the expanding pyramids are representative of developing countries, while the stable and contracting pyramids represent developed countries.

Canada's Population: The Past and the Future

1. Canada's birth rate and death rate have been dropping steadily in the past 30 years. This means the population is getting older.
2. In 1951, 1 in 10 Canadians was over 65 years of age. In 2020, 1 in 5 will be over that age.
3. Life expectancy in Canada increased from an average of 45 years in 1900 to 65 by 1950 and to 79 by the year 2000. This trend is the same for most developed countries.
4. The increasing numbers of elderly people put immense strains on social and medical services. There are fewer children to look after aging parents.

5. The age structure of Canada's population is one of the main factors the federal government considers when deciding on the number of immigrants Canada should accept each year.
6. Without immigration between 1991 and 1996, our population would have shrunk by almost 750 000 instead of increasing by more than 1 600 000. The average age of the Canadian population would have increased rapidly.
7. The number of immigrants entering Canada fluctuates above or below the 200 000 level. This is far from the federal government's goal, which is to have annual immigration equal 1% of the population.
8. Immigration numbers have never come near the record level of 402 432 immigrants in 1913, which represented 5.5% of a population of 7.3 million.
9. The number of refugees accepted into Canada in 1999 was close to the projected number of 22 000. The single largest group of refugees came from China.

Dependency: Too Young or Too Old

1. There has been a major change in the age structure of the world's population as the numbers of people have increased. There have never been so many people in the dependent category.
2. E.g. Japan – the life expectancy is 81 years for males and 84 for females, the highest in the world. If present trends continue, $\frac{1}{4}$ of the Japanese population will be over 65 by the year 2025.
3. At the other end of the scale, some developing countries have young dependents under the age of 15 making up $\frac{1}{2}$ their population. Any fall in birth rates in these areas has been offset by a greater number of women who can bear children, even if families are smaller. These countries remain in a cycle of poverty, as their limited resources and attempts to improve development are swallowed up by young populations.

THE ONE-CHILD POLICY: CHINA'S SOLUTION

1. Nearly 1/5 of the world's population lives in China. Even with growth rates below the world average, China adds 20 million children to its population each year.
2. These are 20 million more mouths to feed in a country that depends on agriculture, yet where less than 15% of the land is suitable for cultivation. Although it is one of the largest countries in the world, ½ of China's area is mountains, hills, and deserts.
3. The leader of the newly established Communist government in 1949, Mao Zedong, encouraged increases in the population of 540 million. He saw this as a way to make China into a great power. When challenged to explain how China would feed the growing population, Mao pointed out that "*every stomach comes with two hands attached.*"
4. By 1972, the population had swelled to 852 million. Dealing with growth rates reaching 2.85% was using up over ½ the output of China's economy.
5. 1970s – the government reacted with a publicity campaign encouraging people to limit their family to 2 children. This had the effect of reducing the growth rate to 1.57%, still too high for a population approaching 900 million.
6. 1980 (Mao Zedong had died in 1976) – the Chinese government launched a policy of one child per family, a challenge for a culture that valued large families.
7. Cash rewards, free medical care, and improved educational and housing opportunities were offered as incentives for those who had one child.
8. People who did not cooperate were fined for each child after the first-born, and lost many medical and educational privileges. Pressure to be sterilized and have abortions was common at the height of the program in the mid-1980s.
9. By 1980, China's birth rate had been halved. The success of the one-child policy was greater in urban than in rural areas, which could not be as tightly controlled. Sons were valued as labourers on the farms, and

they were expected to look after their parents in their old age. This, and reports of forced abortions and infanticide if the first-born was a girl, led the government to relax the policy in the late 1980s. A second child was allowed in rural areas if the first-born was a girl or was born with a disability.

10. Today, China's one-child policy is firmly established in the cities. Still, China began to face a baby boom in the 1990s, with hundreds of millions of rural peasants apparently ignoring the policy.
11. The results of the one-child policy on Chinese society are now beginning to be felt. The growth in the rural population is putting more pressure on farmland. This may lead to a migration of massive proportions by the younger rural population to cities.
12. "*Little Emperor Syndrome*" – children who have been raised in single-child families and feel no sense of obligation to their families or society
13. Canadians particularly have felt the immediate effects of population pressure in southern China with the arrival of smuggled Chinese migrants on Canada's West Coast.
14. And if a controlled society like China has such difficulty in limiting population increase, what hope is there for India, which will eventually outstrip China to have the world's largest population?

WHERE DO SIX BILLION PEOPLE LIVE?

1. **Population distribution** = the way people are spaced over the Earth's surface.
2. **ecumene** (from Greek) = permanently inhabited places
3. Approximately 35% of the world's land area is not good for settlement.
4. Over ½ the population lives on only 5% of the land, and 90% of people live on 20% of the land.
5. 2/3 of people live within 500 km of the ocean.
6. **population density** = number of people in a given area

7. **crude densities** = calculated by dividing the population of a country by its area.
8. See the web in Figure 13-23 that shows some of the major physical and human factors that affect population density.

What are the Limits of Population Growth?

1. British economist, Thomas Malthus, published *Essays on the Principles of Population* in 1798, at the beginning of the Industrial Revolution. He predicted that the numbers of people would be checked by diseases and famine at under 14 million as the population outstripped the food supply.
2. Malthus was not able to foresee the improvements in agriculture, transportation, hygiene, and medicine that would make larger populations possible. Also, in the 19th century, migrations of millions opened up new farmlands in North and South America, Asiatic Russia, and Australia.
3. Some thinkers, called neo-Malthusians, predict that in the long term, Malthus was right. Disaster will overtake populations in the world's poorest developing countries in the next 50 years. They predict increasing shortages of **arable** (used for farming) land to grow enough food, conflicts over fresh water, declining fish stocks, and the spread of AIDS or other diseases. Africa will be most vulnerable to these threats.
4. Neo-Malthusians claim that migrations, technology, and new farming lands cannot solve the problems of the poorest developing countries. Studies from UBC point out that if everyone were to live at the North American standard of living, the resources of 3 Earths would be required.
5. **carrying capacity** = the idea that land can produce only so much in the way of food or goods given the technology of the time. As population outstrips food supplies, it is reduced by checks such as famine and disease until it stabilizes close to the land's carrying capacity.
6. The UN, the World Bank, and most international aid societies are more positive.

- They claim technological developments, increased trade, and more efficient ways of sharing the Earth's resources will ease the problems of developing nations.
- They point to the rapid increases in population in the 20th century that were always matched by increased food production.
- Food production has increased by 25% since the 1960s. New developments in genetic engineering of crops and animals could repeat this success.

7. Those with a positive outlook claim

- that educational programs will increase awareness of the benefits of population control.
- that enough food is produced to feed everyone adequately, and it is the distribution system that causes malnutrition in some countries.
- that increased globalization will help to create a more equal distribution of food and resources.
- that raising the standard of living of people around the world will cause population growth to level off.

Nutritional Density

1. There are great differences in the productivity of farmlands in different parts of the world.
e.g. Fraser Valley in southern B.C. has exceptionally rich agricultural soils, but its output is restricted by a short growing season. Canadian farms cannot match the output of areas like southern China, where rich soils and ideal climate produce 3 crops a year. This means that a square km of farmland in southern China can produce far more food for people than a similar area in the Fraser Valley.
2. **Nutritional density** of land is a measure of how much nutrition in calories can be produced from the land.

EARTH'S CROWDED FUTURE

1. Age structure is an important factor in determining how fast a population will increase.
2. Developing countries with high numbers of young dependents will likely experience greater population growth than developed countries.

3. Birth rates will continue to decline worldwide, but the large base in countries like India means increases will continue to be too high for the population to be sustained without environmental damage.
4. The future will be determined by the youth of developing nations. The age at which they choose to marry, and the number of children they have, may be the most important decisions of the 21st century.