TOPIC 1: INTRODUCTION TO SOCIAL DEMOGRAPHY

Introduction

History

Definition of demography, demographic and social demography

Basic concepts
Definition of Demography, Demographic and Social Demography

• Demography

  – The term ‘ecology’ is connected in most people’s mind with the biological world of plants and animals (including human being) and their relationships to their environments.
  – Human ecology can be referred to the study of human populations and communities, including their distribution across and impact on the physical environment they inhabit.
  – Demography serves as the basis field of knowledge that studies human ecology, especially in the analysis of human population.
  – Demography can be defined as the study of size, composition and distribution of human population and how these factors change over time.
  – The three basic elements that shape the size, composition and distribution of human populations are fertility, mortality and migration.
  – The term Demography derives from the Greek: (dimographia), etymologically is compound of the words (dēmos) "people", and (graphia) "write or record".
  – Above all, demography is about the record about people which most of the time dealing with numbers.
Demographic

- Demographic is the characteristics of the population.
- The demographic characteristics are facts about the make up of population such as: gender, age, ethnicity, language, disabilities, mobility, home ownership, employment status, location etc.
- All the characteristic of demographic factors can be obtained through demographic statistic.
- Demographic statistics record all the demographic characteristics.
- It deal with the quantitative aspects (numbers) of the distribution, characteristics and growth of the population of a community, whether a village, a nation, or the entire world.
- Demographic statistics are gathered by enumeration of a population, as in a census; by registration upon the occurrence of certain events, such as birth, marriage, death, illness in some cases, or divorce; or by special investigations of selected categories of the population.
• **Social Demography**

  – The field of social demography uses *demographic data and methods* to describe, explain, and predict social phenomena.
  – It also *measures the effect of social forces* on population distribution.
  – Distinct from formal demography, which focuses more generally on population composition and distribution, *social demography investigates the social-status composition and distribution of a population*.
  – As a conclusion, social demography is about *the implication of the number*.
• The Development of Social Demography

– Social demography emerged as an academic discipline in the United States over the course of the last half of the twentieth century.

– Kingsley Davis coined the term social demography in a 1963 paper (Heer 2005).

– Previously, the term population studies was used to denote the study of social status using demographic techniques.

– In 1970, Thomas Ford and Gordon DeJong published a textbook titled Social Demography, which included research exemplars in the field.

– In 1975 the first conference on social demography was held at the University of Wisconsin.
History

- **Census data:** there are indications that population enumerations were made in Babylonia before 3800 B.C., in China about 3000 B.C., and in Egypt near 2500 B.C., but these have been questioned.

- Ancient Greece and Rome conducted numerous population counts at which data were gathered regarding certain social and economic characteristics of the people.

- The primary purpose in the early census enumerations, as in modern times, was to secure essential data as an administrative aid to governing bodies.

- The nature of the data collected, along with the count of the population, reflects the governmental problems of the times; e.g., taxation, military service, the rights and duties of various classes of the people, and so forth.

- **Registration data:** Compared with census enumerations, systematic registration of the vital events in life (birth, fetal death, marriage, divorce, death) for the population of a community is a comparatively recent development.

- As early as the Middle Ages, detailed records of this nature may be found for the propertied classes and nobility of England and the European continent; for the general population such records were then kept, in a fashion, by the clergy (head of the church).
• In 1538, Henry VIII ordered the parishes in England and Wales to maintain a record of all baptisms, marriages, and deaths.
• This duty was turned over to laymen/common people in each parish by Parliament in 1653, but it was later returned to the clergy.
• Sporadic attempts at registration of births, marriages, and deaths were made on the European continent during the eighteenth century.
• Civil registration in England dates from 1837, but it was not really effective until an act of 1874 made it compulsory.
## BASIC CONCEPTS

### Fertility

<table>
<thead>
<tr>
<th>Concept</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>Crude Birth Rate</td>
<td>The crude birth rate (cbr or b) in a population during a given year is defined as the total number of births (B) divided by the midyear population (P). It is normally expressed per thousand population, so we have $b = 1000 \times \frac{B}{P}$</td>
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<tr>
<td>Age-specific Fertility Rate</td>
<td>The age-specific fertility rate (asfr) for women of age group i in a population during a given year is defined as the total number of births to women age i during the year (Bi) divided by the total (midyear) number of women age i (Wi). Expressed per thousand, we have $asfr_i = 1000 \times \frac{Bi}{Wi}$</td>
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<tr>
<td>Total Fertility Rate</td>
<td>Mathematically, the total fertility rate (TFR) equals the sum of age-specific fertility rates from the minimum to the maximum age at which childbearing occurs, multiplied by the number of years in each age group and divided by 1000. Thus, for example, if age groups are for five-year intervals (15-19, 20-24, etc.), we have $TFR = \frac{\text{&quot;SUM&quot; } asfr_i \times 5}{1000}$</td>
</tr>
</tbody>
</table>
Total Fertility Rates for Select Countries, 2010.

- Poland
- Russia
- Latvia
- Bulgaria
- China
- Sweden
- USA
- Qatar
- Peru
- India
- Philippines
- Rwanda
- Zambia

### Mortality

<table>
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| **Crude Death Rate**          | The crude death rate (cdr or d) in a population during a given year is defined as the total number of deaths (D) divided by the midyear population (P). It is normally expressed per thousand population, so we have  
\[
d = 1000 \times \frac{D}{P}
\] |
| **Age-specific Death Rate**   | The age-specific death rate (asdr) for individuals age i in a population during a given year is defined as the total number of deaths to people age i during the year (Di) divided by the total (midyear) population age i (Pi). Expressed per thousand, we have  
\[
asdri = 1000 \times \frac{Di}{Pi}
\] |
| **Life Expectancy at Birth**  | Life expectancy at birth (e0) measures the average number of years that a newborn baby can expect to live. We can think of cohort life expectancy at birth, which would be the average age at death of a cohort of individuals (equal to the total number of person-years lived by the cohort divided by the size of the initial cohort). |
| **The Infant Mortality Rate** | The annual number of deaths of children less than 1 year old per 1,000 live births. |
- **Migration**

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<td><strong>Migrants</strong></td>
<td>Migrants are people who change their place of residence. In-migrants (I) move into a place, while out-migrants (O) leave that place.</td>
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<td><strong>Gross migration</strong></td>
<td>Gross migration flows measure movement in both directions.</td>
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<td><strong>Net Migration</strong></td>
<td>Net migration reflects the difference between two opposing gross migration flows. Thus, for example, if during a particular period 300,000 people moved from New York to California and 100,000 moved from California to New York, we’d characterize the situation as one with a net migration of 200,000 from New York to California.</td>
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<tr>
<td><strong>Immigration or Emigration</strong></td>
<td>Immigration or emigration occurs when migration entails crossing an international border depending on whether the place we’re focused on is the one migrants are moving into or out of, respectively.</td>
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INTERNATIONAL MIGRATION REPORT 2011
### Age and Sex Composition

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<td>Age and Sex Composition</td>
<td>The age and sex composition of a population is reflected by an age pyramid. These diagrams are drawn with age (ascending) on a central vertical axis, horizontal bars showing the number or proportion of males on the left, and bars showing the number or proportion of females on the right. They are an extremely useful means of depicting the age and sex composition of a population, and typically will provide a good deal of information about the past history of fertility and perhaps also mortality and migration in a population.</td>
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AN EXAMPLE OF AGE PYRAMID OF THREE DIFFERENT COUNTRIES IN THE WORLD

Rapid growth
Kenya

Male Female
80+ 75–79
70–74 65–69
60–64 55–59
50–54 45–49
40–44 35–39
30–34 25–29
20–24 15–19
10–14 5–9
0–4

Slow growth
United States

Male Female
Year of birth
Before 1915 1915–1919
1920–1924 1925–1929
1930–1934 1935–1939
1940–1944 1945–1949
1990–1994

Zero growth/decrease
Italy

Male Female

Percent of population Percent of population Percent of population
Population Growth

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<td>Population Growth</td>
<td>The change in population from one year to the next equals the excess of births over deaths plus the amount of net immigration: $\Delta P = B - D + I - O$</td>
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<td></td>
<td>The first portion of the right hand side of the equation (B-D) equals the natural increase in the population. Note that the rate of natural increase in the population equals the difference between the crude birth rate and the crude death rate. The overall rate of population growth equals the rate of natural increase plus the rate of net immigration. Further, note that because of the effects of age composition, it is possible for a population to manifest below-replacement fertility and yet still experience natural increase (in the demographic short and medium run). This has been the case for most of the past two decades and more in the U.S. A useful thing to know in considering population growth is how to estimate the time required for a population to double. If r is the annual rate of population growth in percent, then the doubling time of the population (T2) may be approximated by $T2 = 72/r$</td>
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- Demographic Transition

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<td>Demographic Transition</td>
<td>The notion of the demographic transition refers to the long-term process of transition from a demographic regime of high birth and death rates to one of low birth and death rates. Every industrialized country has undergone this transition, and developing countries may be seen as being in various stages of the transition.</td>
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