Overview

- Demography
- Demographic Transition Model (DTM)
- Population Pyramids

Demography

- The study of human populations:
  - Where people are born, live, and die
  - Population trends
  - Migration patterns
World Population

Population Growth

Demographic Trends

- \( PGR = N_p + B_R - D_R \ (\ + \ I - E) \)
- Key Terms:
  - Crude Birth (CBR)
  - Crude Death Rates (CDR)
  - Total Fertility Rate (TFR)
- Demographic Transitions
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**Crude Death Rate (CDR)**

Total # of deaths for every 1000 people in a population

\[
CDR = \frac{\text{Total # of deaths}}{\text{Population}} \times 1000
\]

**Mortality**

**Life Expectancy**

<table>
<thead>
<tr>
<th>In years</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>70+</td>
<td>Europe</td>
</tr>
<tr>
<td>60-69</td>
<td>North America</td>
</tr>
<tr>
<td>50-59</td>
<td>South America</td>
</tr>
<tr>
<td>40-49</td>
<td>Asia</td>
</tr>
<tr>
<td>&lt; 40</td>
<td>Africa</td>
</tr>
</tbody>
</table>

**Crude Birth Rate (CBR)**

Total # of live births for every 1000 people in a population

\[
CBR = \frac{\text{Total # of live births}}{\text{Population}} \times 1000
\]

It is “crude” because it does not take into account those who cannot have kids (men, women not in fecund period, married/unmarried, etc.)
**Total Fertility Rate**

*Total Fertility Rate* (TFR) is the average number of children born per woman of child bearing years.

\[
TFR = \frac{\text{Total # of Children}}{\text{Number of Women}} \times 1000
\]

Biological Maximum TFR for humans is about 8 but can be much lower depending on health status.

**Fertility Rates**

- 6
- 4.4-4.9
- 2.2-3.9
- 1.6-2.1
- < 1.6

**TFR Factors**

- What factors might influence actual fertility rates?
Factors that influence TFR

- **Personal Factors**
  - Of potential mothers, such as their age when married, occupation, education, health

- **Family Factors**
  - such as existing children, social class, income, religion

- **Societal Factors**
  - Such as education, economic opportunity, medical and public health systems, norms, ethnicity

- **Geographical Factors**
  - Such as urban or rural, standards of housing, available natural resources, weather, and various forms of exchange between regions.

World TFR

Where are the highest and lowest TFRs in the world?

<table>
<thead>
<tr>
<th>Country</th>
<th>TFR</th>
<th>Country</th>
<th>TFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td></td>
<td>Latin America</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>1.8</td>
<td>Guatemala</td>
<td>4.8</td>
</tr>
<tr>
<td>Poland</td>
<td>1.4</td>
<td>Brazil</td>
<td>2.3</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1.5</td>
<td>Mexico</td>
<td>2.9</td>
</tr>
<tr>
<td>Italy</td>
<td>1.2</td>
<td>Haiti</td>
<td>4.7</td>
</tr>
<tr>
<td>UK</td>
<td>1.7</td>
<td>Cuba</td>
<td>1.6</td>
</tr>
<tr>
<td>North America</td>
<td></td>
<td>Sub-Saharan Africa</td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>2.1</td>
<td>Gambia</td>
<td>5.9</td>
</tr>
<tr>
<td>Canada</td>
<td>1.7</td>
<td>Senegal</td>
<td>6.2</td>
</tr>
<tr>
<td>Asia</td>
<td></td>
<td>Madagascar</td>
<td>5.8</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2.6</td>
<td>Ethiopia</td>
<td>6.9</td>
</tr>
<tr>
<td>Philippines</td>
<td>3.5</td>
<td>North Africa and Middle East</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>1.8</td>
<td>Egypt</td>
<td>3.4</td>
</tr>
<tr>
<td>Japan</td>
<td>1.5</td>
<td>Turkey</td>
<td>2.5</td>
</tr>
<tr>
<td>India</td>
<td>3.2</td>
<td>Iran</td>
<td>2.6</td>
</tr>
</tbody>
</table>
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Population Growth by Region

Exploding, but not so fast

<table>
<thead>
<tr>
<th>Year</th>
<th>World Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>0.21</td>
</tr>
<tr>
<td>1500</td>
<td>0.33</td>
</tr>
<tr>
<td>2000</td>
<td>0.50</td>
</tr>
<tr>
<td>2500</td>
<td>0.99</td>
</tr>
<tr>
<td>3000</td>
<td>1.50</td>
</tr>
<tr>
<td>3500</td>
<td>1.92</td>
</tr>
<tr>
<td>4000</td>
<td>2.54</td>
</tr>
</tbody>
</table>

Population Growth by Region

World Population

- Asia: 58.4%
- Africa: 12.4%
- Europe: 15%
- Latin America: 8.4%
- North America: 5.2%
- Others: 0.6%

Migrant Population

(as a percent of the total population)
Demographic Transition: Sweden

Population Pyramids

Mexico

...a visual illustration of the "age structure" of a geographical region.

http://www.census.gov/ipc/www/idbpyr.html
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World Tuberculosis Deaths

Deaths per 1 million population

- Tuberculosis bacillus identified
- Chemotherapy
- BCG Vaccination

Declining Deaths

Political Economy

Birth and Death Rates vs. Wealth

Birth Rate

Death Rate