ENVIR 202: Lesson No. 6

Demography: TFR & DTM

February 16, 2005

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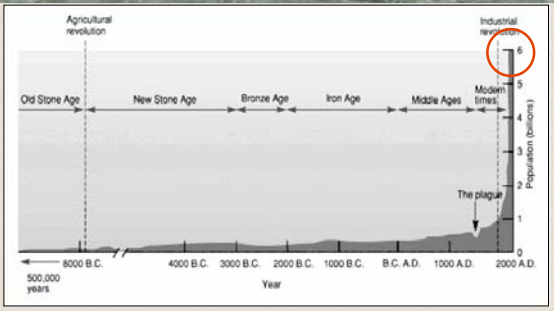
Overview

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

Demography

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

World Population



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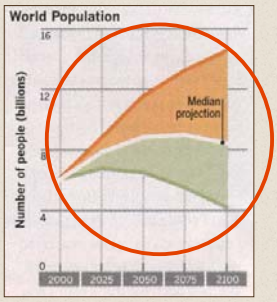
Population Growth



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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

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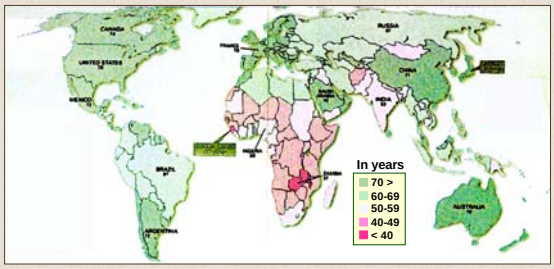
Life Expectancy



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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.)

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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.

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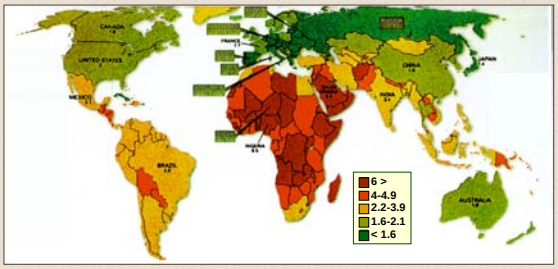
Fertility Rates



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TFR Factors

- **What factors might influence actual fertility rates?**

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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.

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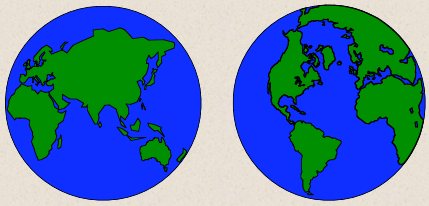
World TFR



Where are the highest and lowest TFRs are in the world?

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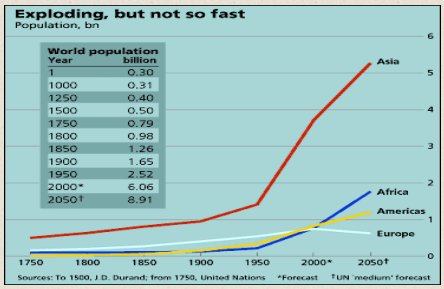
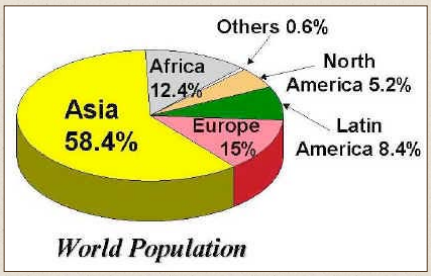
Sample TFRs

Country	TFR		Country	TFR
Europe			Latin America	
Ireland	1.8		Guatemala	4.8
Poland	1.4		Brazil	2.3
Switzerland	1.5		Mexico	2.9
Italy	1.2		Hati	4.7
UK	1.7		Cuba	1.6
North America			Sub-Saharan Africa	
US	2.1		Gambia	5.9
Canada	1.7		Senegal	6.2
			Mandagascar	5.8
Asia			Ethopia	6.9
Indonesia	2.6			
Phillipines	3.5		North Africa and Mid-East	
China	1.8		Egypt	3.4
Japan	1.5		Turkey	2.5
India	3.2		Iran	2.6

Population Growth by Region



World Population



Migrant Population

(as a percent of the total population)

Demographic Transition Model

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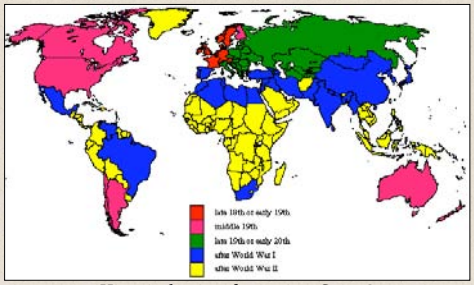
Declining Death Dates



Historical point of entry into Stage 2

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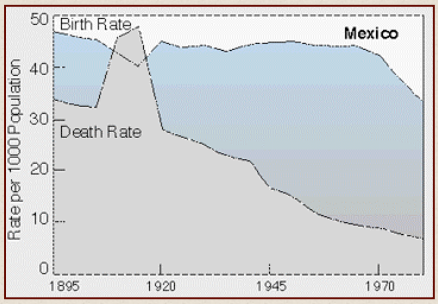
Demographic Transition: Mexico



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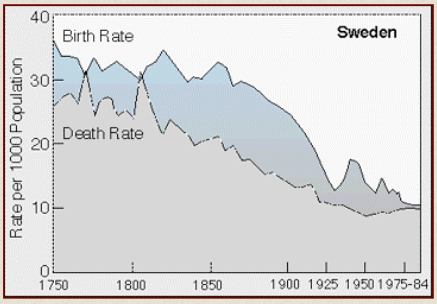
Demographic Transition: Sweden



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Population Pyramids

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

http://www.census.gov/ipc/www/idbpyr.html

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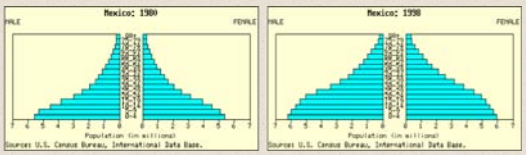
Mexico

1980 1998



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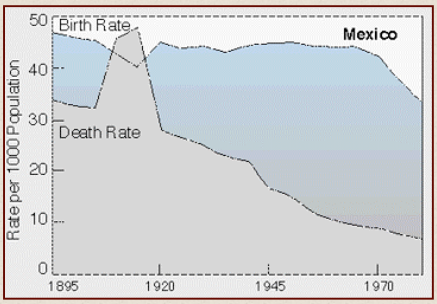
Demographic Transition: Mexico



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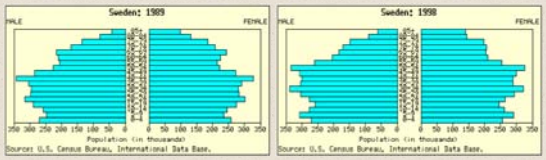
Sweden

1989 1998



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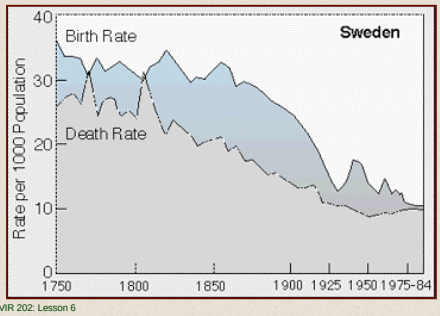
Demographic Transition: Sweden



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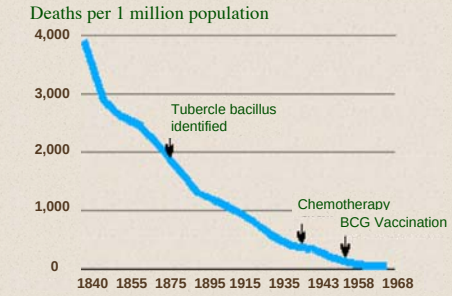
World Tuberculosis Deaths



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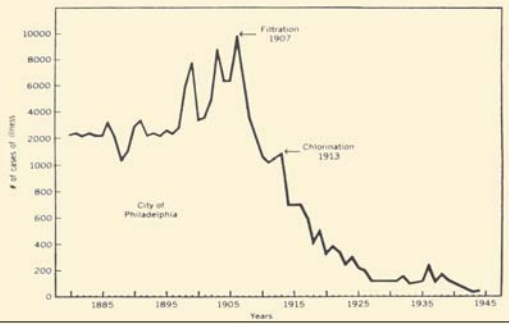
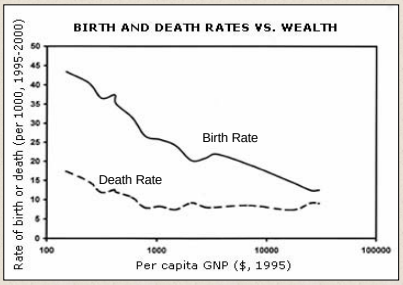
Declining Deaths



Political Economy



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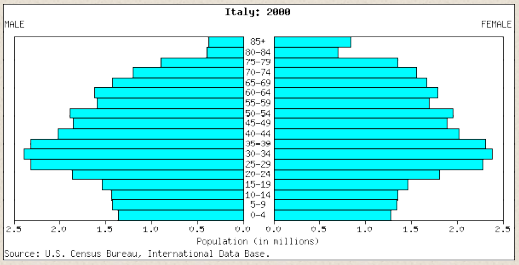
Italy



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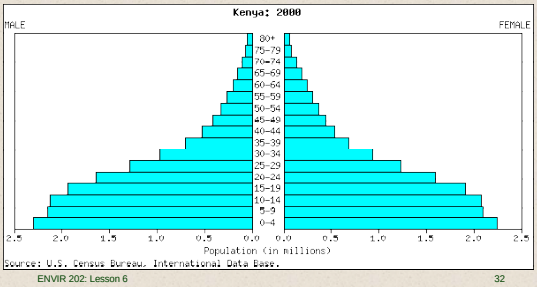
Kenya



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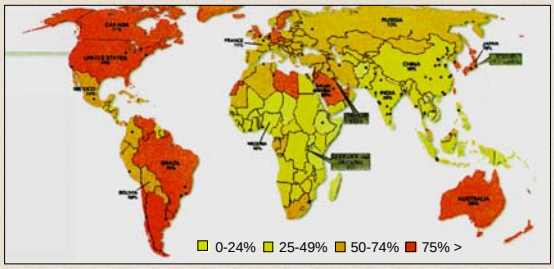
Urbanization



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Questions

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Next Lesson

Epidemiology

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