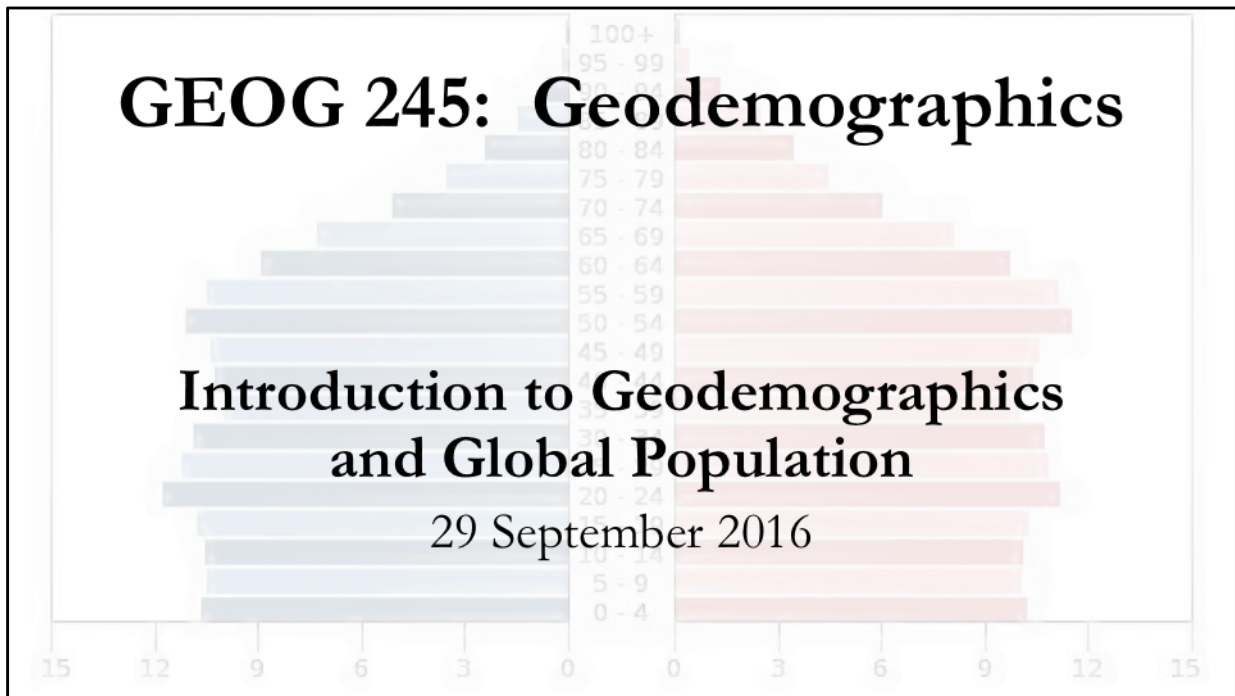


GEOG 245: Geodemographics

Introduction to Geodemographics and Global Population

29 September 2016



Plan for Today

- Review the Syllabus & Canvas Site
- Introduction to Geodemographics and Global Population
 - What is Population?
 - How do we Measure it?
 - World Population
 - Demographic Transition

Skye Naslund

snaslund@uw.edu

Office: Smith 428

Office Hours: 10-11am Tuesday & Thursday or by appt.

Plan for Today

- Review the Syllabus & Canvas Site
- Introduction to Geodemographics and Global Population
 - What is Population?
 - How do we Measure it?
 - World Population
 - Demographic Transition

What is Geodemography?

What is Geodemography?

- Hint: Demography is the study of human populations

What is Geodemography?

- Hint: Demography is the study of human populations
- Geodemography is the study of the interrelation of population and geography

What is Geodemography?

- Hint: Demography is the study of human populations
- Geodemography is the study of the interrelation of population and geography
 - Sometimes also called spatial demography or population geography

What is Population?

What is Population?

- The number of people in a specific place and time

What is Population?

- The number of people in a specific place and time
- Ex: The current US population is...
<http://www.census.gov/popclock/>

So...

- Demographers look at groups of people (populations), not individuals.

How do we Measure Population?

How do we Measure Population?

- Absolute Size
- Distribution
- Density

Absolute Size

Absolute Size

- Number of people
- Also called a count (the absolute number at a given time within a given space)

Distribution

Distribution

- Relative Size OR Location of People
- For example, how many people are in China vs. India?
Urban vs. rural areas?

Density

Density

- The relationship between population size and physical space OR how crowded people are
- Ex. Even though Monaco has a small population, it is very densely populated (about 32,000 people per square mile)

But demography isn't only about raw numbers...

What else might we want to know about a population?

Composition

What commonly goes into composition?

Composition

- The list is limitless, but the most common composition concerns are:
 - Age
 - Sex/Gender
 - Race/Ethnicity

Change Over Time

What are some of the ways demographers pay attention to change over time?

Change Over Time

- Births (Fertility)
- Deaths (Mortality)
- Migration

Questions?

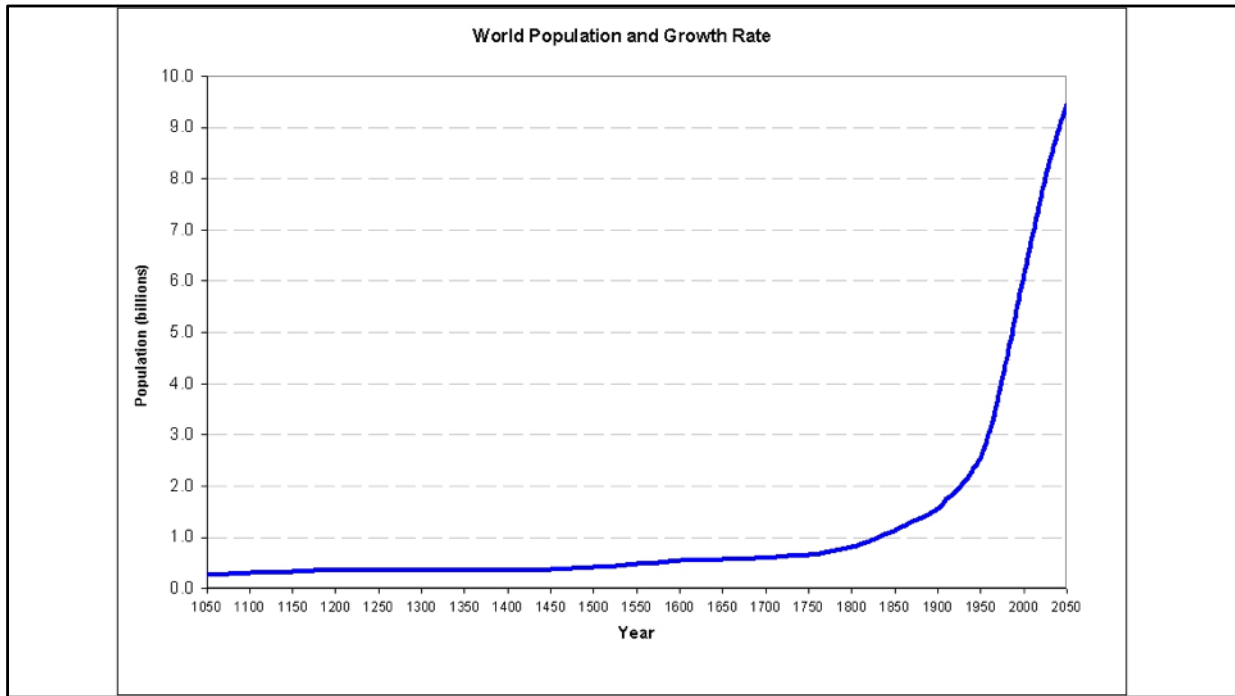
World Population

- Population clock: <http://www.census.gov/popclock/>

World Population

- Population clock: <http://www.census.gov/popclock/>
- In 1900, global population was at 2 billion

Most of this growth happening in the developing world



From: <http://blog.dssresearch.com/?p=229>

History of Global Population Growth

- Most of human history, global population has been small
 - Somewhat on account of high food insecurity
- Shift from hunter-gather societies to agriculture-based societies (8000-5000 BCE) increased global population
- But global population in the hundreds of thousands until the modern era
 - By 1600, global population=500,000,000

History of Global Population Growth

- Since 1600, growth increases based on...
 - Increased life expectancy
 - Increased security
 - Increased food production & nutrition
- Between 1960 and 1998, the population doubled from 3 billion to 6 billion
 - This is called doubling time

Most of this growth has been in the developing world.

Doubling Time

- The amount of time it takes for a population to double
 - Generally measured in years
- Doubling Time = $\ln 2 / r$
 - $\ln 2$ is the natural log of 2
 - r is the reproductive rate

Reproductive Rate

- The number of children the average woman gives birth to in her lifetime

Reproductive Rate

- The number of children the average woman gives birth to in her lifetime
- Note: Rate means the frequency of some demographic event in a population in a given time period
 - Frequency of births in a population during reproductive years

Reproductive Rate

- The number of children the average woman gives birth to in her lifetime
- So what would be the Replacement Reproductive Rate?

Replacement Reproductive Rate

- The number of children the average woman would need to give birth to to maintain the population constant (assuming no in or out migration)
- Replacement Reproductive Rate = 2.1
 - Why 2.1 and not 2?

Because not everyone goes on to have children and not all children survive to adulthood/reproductive age.

Questions?

Demographic Transition

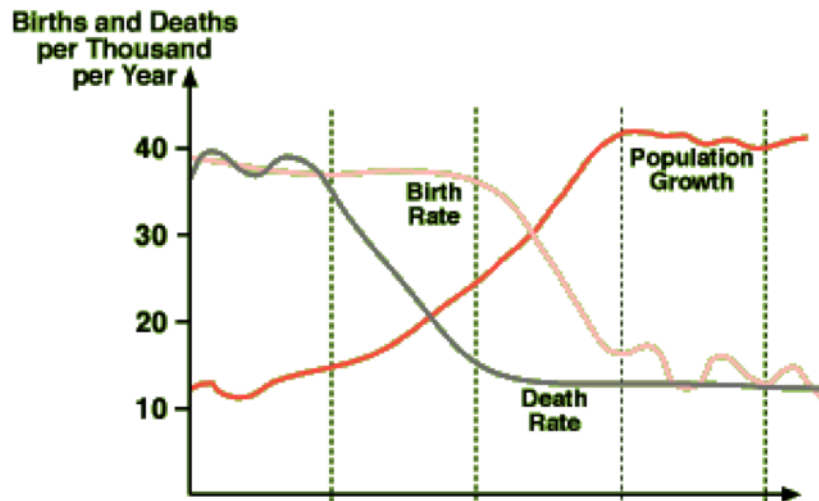
- More formally called the Demographic Transition Theory

What does the theory postulate?

Demographic Transition

- More formally called the Demographic Transition Theory
- The theory is based on the fact that starting in the 1800s, Western countries began the shift from high to low mortality and high to low fertility

Demographic Transition Model



Fertility Rate/Birth Rate

Fertility Rate/Birth Rate

- Number of live births (usually measured per thousand) in a population per year
- Remember: Rates are events per population per time period

Mortality Rate/Death Rate

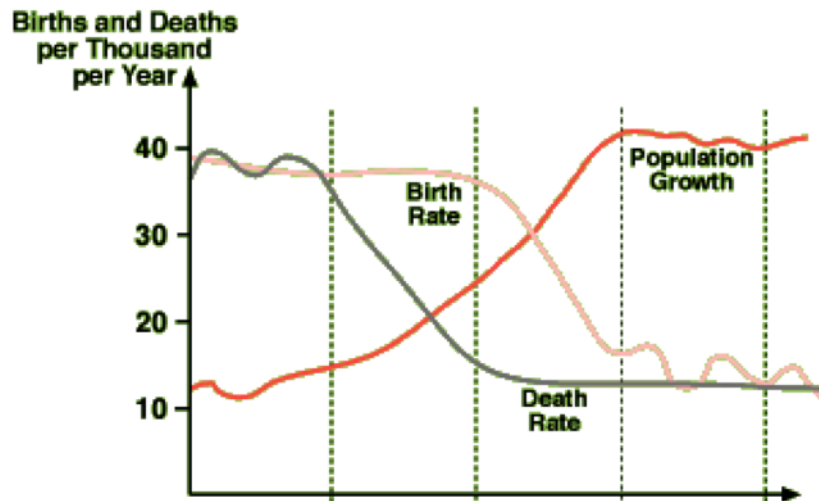
Mortality Rate/Death Rate

- Number of deaths (usually measured per thousand people) in a population per year

Demographic Transition

- The theory states that as a society develops, death rates will decline and then, after a period of high growth, birth rates will also decline, again stabilizing population growth

Demographic Transition Model



The Stages of Demographic Transition

Stage 1: Birth rate high, death rate high

Britain in 18th c., least developed countries today

- Birth rate high because of
 - Lack of family planning
 - High infant mortality
 - Need for workers in agriculture
 - Religious beliefs
 - Children viewed as economic assets
- Death rate high because of
 - High levels of disease
 - Famine
 - Lack of clean water and sanitation
 - Lack of health care
 - War

Stage 2: Birth rate high, death rate falling

Britain in 19th c., Bangladesh, Nigeria today

- Birth rate high because of
 - Lack of family planning
 - High infant mortality
 - Need for workers in agriculture
 - Religious beliefs
 - Children viewed as economic assets
- Death rate falling because of
 - Improved health care (vaccines)
 - Improved hygiene & sanitation
 - Improved food production
 - Improved food transportation & storage
 - Decreasing infant mortality rates

Stage 3: Birth rate falling, death rate falling

Britain in late 19th/early 20th c., Brazil, China today

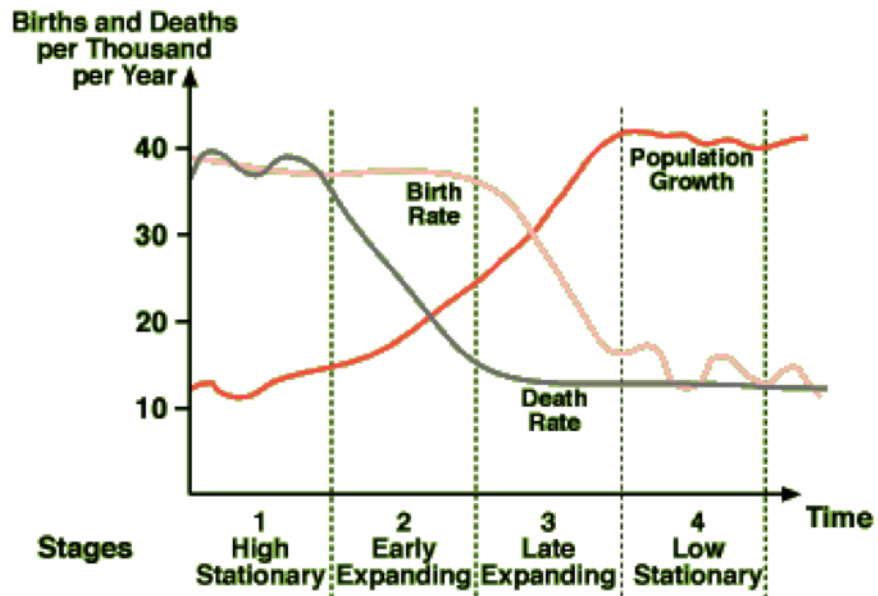
- Birth rate falling because of
 - Family planning
 - Lower infant mortality
 - Increased mechanization reduces the need for workers
 - Increased standard of living
 - Changing status of women
- Death rate falling because of
 - Improved health care (vaccines)
 - Improved hygiene & sanitation
 - Improved food production
 - Improved food transportation & storage
 - Decreasing infant mortality rates

Stage 4: Birth rate low, death rate low

Britain, US, Sweden, Japan today

- A period of re-stabilization at a similar growth rate as the start, but significantly lower birth and death rates

Demographic Transition Model



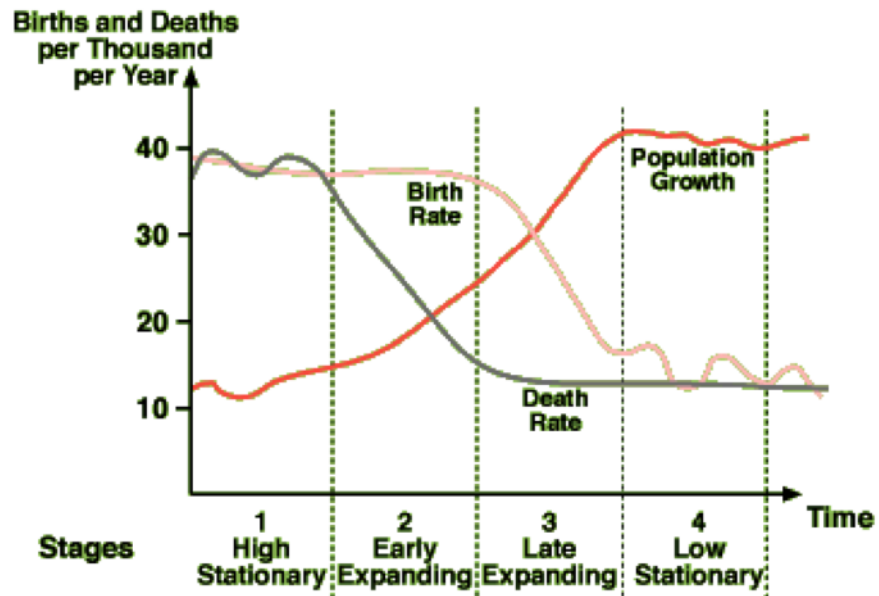
Therefore,

- The best determinants of population growth are...

Therefore,

- The best determinants of population growth are...
 - Pre-transition fertility rate
 - Lag time between decline in mortality and decline in fertility
- Essentially: The area between the two lines

Demographic Transition Model



But,

- This theory has also been highly criticized as Western-centric
 - Based on the demographic experience of Europe
 - Assumes all other countries will progress similarly
 - Doesn't account for variation within experiences
 - Doesn't account for changes in technology and geopolitics between Western countries transitions and countries transitioning later

Questions?

Putting it all together...

<https://www.youtube.com/watch?v=VcSX4ytEfcE>