Geodemography: The study of the interrelation of population and geography

Measure Population Size: Absolute Size, Distribution, Density

Absolute Size

Count (absolute number at a given time within a given space)

Distribution

Relative Size OR Location of Ppl

e.g. how many ppl in China vs India

Composition of population: Age, Sex/Gender, Race/Ethnicity

Change over time of population: Births (Fertility), Deaths (Mortality), Migration

Shift to Hunter-Gatherer: 8000-5000BCE population growth

1600 population growth

^ Life Expectancy, Security, Food Production and nutrition

1960-1998

Population double 3 -> 6 bil

This is called doubling time

Doubling time: Amount of time it take for a population to double, in years

Ln(2)/r

r = reproductive rate

Reproductive Rate: Avg # children a woman gives bith to in her lifetime

Replacement Reproductive Rate: # children the avg woman would need to give birth to maintain the population constant (assuming no in or out migration) 2.1

**Demographic Transition Model: See Notebook**

1: Britain 18th c., least developed countries, 2: Britain 19th c., Bangladesh, Nigeria today

3: Britain late 19th/20th c., Brazil, China today, 4: Britain, U.S., Sweden, Japan today

Best Determinants of PopGrowth: Pre-transition fertility rate, Lag time b/w vMortality and Fertility

Criticism:

Based on Europe experiences

Assumes all other countries will progress similarly

Doesn’t account for variation w/in experiences

Doesn’t account for changes in tech and geopolitics b/w western countries transitions and countries transitioning later

Challenges to Enumerating/Calculating Age and Sex

Age: Not everyone know their birthday

Ppl lie about their age

Sex: One’s gender may influence their likelihood to be counted in a census, women not valued as men

Gender identity changes

Lack of Symmetry of Pyramid: Females

Differing opportunities for men and women

Disproportionate immigration/emigration of men and women (jobs)

Differing causes of death (war)

Selective abortions

Ecological Fallacy: When you make inferences (guesses) about an individual based on population statistics

Easy to slip into **discrimination** and **stereotyping**

Population Pyramids give info about absolute size and relative distribution of age/sex, but nothing about density

**Demographic transition model and Population pyramid: See Notebook**

The sustainability of a population (economically) is about the relationship between the three population groups:

Young dependents/children [0-14]

Working aged population [15-64]

Elderly dependents [65+]

Population: A specific group of people at a given time

Sample: A subset of the population

Key Sources of Secondary Information:

US Census Bureau

Bureau of Labor Statistics

IRS

Statistics Canada

WHO

Birth Data comes from

Birth certificates, surveys, parish registries, hospital records, IRS records

Death Data comes from

Death certificates, surveys, parish registries, hospital records, police record, IRS records

Vital Statistics: Statistical data about key life events

Births, deaths, marriages, divorces

Generally collected by gov’ts through a civil registry

Civil Registry

In the US, this is maintained by the states (not federal gov’t)

WA State: Department of health

Historic Records

Historically, records were maintained by churches

Sweden was the first country to produce a nationwide civil registry in 1631 (produced by the Church of Sweden at the request of the King)

Today, the UN guides member countries to maintain civil registers

Census Data, Representative Sample Surveys, Indirect Sources (Using USPS Data [address change forms] to look at internal migration patterns)

Why do we have a census?

To ensure that population size, not political influence or wealth, determined how many representatives each state got in congress

States used to be tax based on their population (now individuals are taxed)

Fertility: The capacity to produce offspring

Factors: Economy, Education, Health, Contraception, Gov’t, Type of society (urban, rural), status, religion

Human Development Index: A measure of the overall quality of life in a country based on life expectancy, education, and income per capita

World Fertility Rate strongly correlated with level of economic development

**Different equations: see notebook**

Parity = Number of children born alive to a woman in her lifetime

Gravidity = Number of pregnancies a woman has had whether or not they produce a live birth

Fecundity = The natural capacity to bear children

Calculating fertility is complex: fecundity, sexual activity, contraception/abortion, repeatable event

Census, Vital Registration Systems, Nationally representative sample surveys

Calculating case specific death reates is complex:

Migration in U.S.

Ppl move once every 6 years

US population is most mobile in the world

Era 1: Initial Settlement of Colonies (1600s-1840)

Europe and Africa

Era 2: 19th Century Immigration (1840-1930)

Europe

1840s and 50s: Norther and Western Europe

1880s: Scandinavia

1900s-20s: Southern and Eastern Europe

Era 3: Recent Immigration (1930-Today)

More than ¾ immigrants from Asian and Latin America

Symbolic Ethnicity: irish

An ethnic identity that is only relevant on specific occasions and does not significantly impact everyday life

Prejudice: thought process

Discrimination: action

**Theoretical approaches: see notebook**

Genocide

Population Transfer: native americans

Internal Colonialism: The economic and political domination and subjugation of the minority group by the controlling group of the nation

Segregation: The formal and legal separation of groups by race or ethnicity

Pluralism = multiculturalism, diverse

1965 voting rights act: prohibited discrimination at polls

1968 civil rights act: equal housing opportunity

Why conduct a cohort analysis?

Track change over time amongst the same people

Study cause and effect

Gather information about a wide variety of things at the same time, see which turn out to be important later

Why not conduct a cohort analysis?

Can be high-losses to follow-up

Often requires a large sample size

Takes a long time

Expensive

Ethical issues (privacy, data breaches, ppl pressured to stay b/c researches spent a lot of time, $)

Dependency Ratio: Higher = more older ppl dependant on fewer younger ppl

Feminization of Old Age:

Likely a combination of genetic (XX vs XY) and environmental (based on the world you live in) factors

Women experience less stress (war, labor)

Women smoke less

Aging in Place: When ppl retire, they tend to move south or age in place

Midwest and central US have highest rates of aging in place

Baby Boomers: 1946-1964

Causes of Baby Boom: Stronger economy, soldiers coming home, more single family houses, stronger middle class, put off having children during war

End of Baby Boom: Invention of Birth Control Pill (1961), Women more empowered over their bodies = delayed marriage, Cold War tension increased, Vietnam war started,

Endemic: disease remaining at low levels

Pandemic: Disease achieving global distribution

Measure Morbidity: Mortality rates, infection rates,

R0: The # new people the average infected person will infect. 1, disease remains constant, endemic

Challenges to knowing incidence:

Morbidity not always observed

Only counted on diagnosis (ppl who don’t go to doctor aren’t counted)

Years of Life Lost (YLL)

Years of Health Lost (YHL)

Disability Adjust Life Years (DALYs) = YLL + YHL

Population Health: Policy makers

HIV1: Sub-Saharan Africa, rest of world

HIV2: West Central Africa, part of Europe, India