Theories of demography

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Outline

• Introduction to doctrines and theories
• Early writings about population
• Demographic transition theory
• Fertility theories
• Health and mortality transition
• Demographic theory of mortality
• Migration terms
• Internal migration theories
• International migration theories
Introduction

• Ryder (1964)
  – A population is an aggregate of individuals defined in spatial and temporal terms
  – The population model is both microdynamic (individual) and macrodynamic (aggregate)

• Lotka (1934)
  – Distinction between the persistence of the individual and aggregate
  – Human beings die, while a population aggregate does not: individuals continue entering to replace those exiting

Source: Poston, Bouvier, 2017.
## Premodern doctrines

<table>
<thead>
<tr>
<th>Date</th>
<th>Demographic Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>~1,300 B.C.</td>
<td>Genesis: “be fruitful and multiply and fill the earth”</td>
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<tr>
<td>~500 B.C.</td>
<td>Confucius: governments should maintain balance between population and resources</td>
</tr>
<tr>
<td>~360 B.C.</td>
<td>Plato: population quality more important than quantity</td>
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<tr>
<td>~340 B.C.</td>
<td>Aristotle: population should be limited; abortion might be appropriate</td>
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# Premodern doctrines

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<tr>
<td>~50 B.C.</td>
<td>Cicero: population growth necessary to maintain the Roman Empire</td>
</tr>
<tr>
<td>~400 A.D.</td>
<td>St. Augustine: abstinence is preferred way to deal with sexuality; second best is to marry</td>
</tr>
<tr>
<td></td>
<td>and procreate</td>
</tr>
<tr>
<td>~1280 A.D.</td>
<td>St. Thomas Aquinas: celibacy is not better than marriage and procreation</td>
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<td>~1380 A.D.</td>
<td>Ibn Khaldun: population growth increases occupational specialization and raises incomes</td>
</tr>
<tr>
<td>~1500–1800</td>
<td>Mercantilism: increasing national wealth depends on a growing population that can stimulate trade</td>
</tr>
<tr>
<td>~1700–1800</td>
<td>Physiocrats: population size depends upon the wealth of the land, which is stimulated by free trade (so-called laissez-faire)</td>
</tr>
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## Modern theories

<table>
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<tr>
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<tr>
<td>1798</td>
<td>Malthus: population grows exponentially, food supply grows arithmetically; poverty is the result in the absence of moral restraint</td>
</tr>
<tr>
<td>~1800</td>
<td>Neo-Malthusian: birth control measures are appropriate checks to population growth</td>
</tr>
<tr>
<td>~1844</td>
<td>Marxian: each society has its own law of population that determines consequences of population growth; poverty is not the natural result of population growth</td>
</tr>
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### Modern theories

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<tr>
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<tr>
<td>1945</td>
<td>Demographic transition in its original form: the process whereby a country moves from high birth and death rates to low birth and death rates</td>
</tr>
<tr>
<td>1962</td>
<td>Earliest studies suggesting the need to reformulate demographic transition theory</td>
</tr>
<tr>
<td>1963</td>
<td>Theory of demographic change and response: demographic response made by individuals to population pressures is determined by the means available to them to respond; causes and consequences of population change are interrelated</td>
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### Modern theories

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<td>1968</td>
<td>Easterlin relative cohort size hypothesis: successively larger young cohorts put pressure on young men’s relative wages, forcing them to make a tradeoff between family size and overall well-being</td>
</tr>
<tr>
<td>1971–present</td>
<td>Decomposition of the demographic transition into its separate transitions: health and mortality, fertility, age, migration, urban, and family and household</td>
</tr>
</tbody>
</table>
Early writings about population

• John Stuart Mill (1848)
  – A stationary population is better than a larger one
  – A large society will suffer from the growth rate of wealth not keeping up with the rate of population increase

• Emile Durkheim (1893), two types of societies
  – Mechanical: small and a simple division of labor
  – Organic: larger and an extensive division of labor

Source: Poston, Bouvier, 2017.
John Stuart Mill

• Basic thesis was that the standard of living is a major determinant of fertility levels

• The ideal state is that in which all members of a society are economically comfortable, rather than seeking excessive wealth

• At this ideal point, the population will stabilize and people will progress culturally, morally, and socially
Émile Durkheim

• French sociologist who based an entire social theory on the consequences of population growth

• Population growth leads to greater division of labor and more societal specialization
  – The struggle for existence is more severe when there are more people
  – In the long term, this leads to greater economic well-being
Thomas Robert Malthus

• The most well-known early scholar who wrote about population growth
  – *An Essay on the Principle of Population, as it Affects the Future Improvement of Society with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers*
  – **Main argument:** material resources (food and shelter) can grow at an arithmetic rate, while populations grow at a geometric rate
  – If left unchecked, population grows exponentially and subsistence arithmetically
  – **Preventive checks:** “moral restraint” or the postponement of marriage
  – **Positive checks:** war, famine, pestilence, and other forms of misery and vice
  – He influenced Charles Darwin, Herbert Spencer, David Ricardo, John Maynard Keynes, and many others

Source: Poston, Bouvier, 2017.
Malthusian perspective

• Malthus argued that people have a natural urge to reproduce
• The increase in the food supply (arithmetic increase) cannot keep up with population growth (geometric increase)
• The major consequence of population growth is poverty
• Within that poverty is the stimulus for action that can lift people out of misery
Malthusian ideas about growth of population and food supply
Major criticisms of Malthus

• He did not consider that technological advances could increase food production to deal with population growth
  – He described humans as no different than all living organisms in the ability to increase at a geometric rate
  – In his view, we are all competing for space and resources

• Conclusion that poverty was an inevitable result of population growth led to rejection by Marx and Engels

• Belief that moral restraint was the only acceptable preventive check
  – Avoiding intercourse until marriage
  – Only marrying when you can afford the subsequent children
Other criticisms of Malthus

• Some argued that he ignored the impact of contraception
  – He was a clergyman who didn’t see contraception practices as moral

• He never clearly defined subsistence as either food or means of subsistence (life standard)

• Malthusian principles were not valid for Europe or North America
  – With the industrial revolution, the increase in subsistence have far exceeded the human tendency to reproduce

Source: Poston, Bouvier, 2017.
Neo-Malthusians

• Neo-Malthusians agree that resources are limited, but argue that people should use birth control

• Paul Ehrlich: Population Bomb

• Garrett Hardin: Tragedy of the Commons
Karl Marx

• An economist and philosopher, who disagreed with Malthus about his theory
  – Two classes of people: the bourgeoisie (capitalists) and the proletariat (the workers)
  – To Malthus, population was an independent variable creating distress (poverty)
  – To Marx, population was the dependent variable
    • Capitalism is the main cause of poverty, not the population
    • Regardless of fertility level, bourgeoisie benefits the most
  – Population growth can be a problem
    • However, the potential difficulty can be regulated in communist society

Source: Poston, Bouvier, 2017.
Marxian perspective

• Each society at each point in history has its own law of population that determines population growth
  – For capitalism, the consequences are overpopulation and poverty
  – For socialism, population growth is readily absorbed by the economy with no side effects

• Major criticism of Marx
  – He provided no guidance for how to get to a socialist model
Demographic transition theory

• Demographic transition theory is the most prominent explanation for population growth
  – Also known as classic demographic transition or first demographic transition
  – Developed by Warren S. Thompson (1929) and Frank W. Notestein (1945), and extended by Kingsley Davis (1963)

• Changes in the size of the world’s population over a certain period of time are due to fertility and mortality changes

• Four stages of mortality and fertility change in the process of societal modernization

  – High birth and death rates
  – Little change in population size

  – Mortality decline
  – Industrialization and modernization
  – Lower death rates and high birth rates
  – Intense population growth

  – Fertility decline
  – Lower birth and death rates
  – Decrease in population growth

  – Very low fertility and mortality
  – Slight fluctuations in fertility
  – Any natural increase or decrease due only to fertility

Source: Poston, Bouvier, 2017.
Demographic transition

Birth/death rates

Stage 1: Pretransitional
Stage 2: Preindustrialization
Stage 3: Industrialization
Stage 4: Modernization

Time

Birth rate
Natural increase
Death rate

Pretransitional Preindustrialization
Industrialization Modernization
Fertility began to decline
Incipient decline

Source: Poston, Bouvier, 2017.
Demographic transition

Birth rate | Death rate | Natural increase
---|---|---
High | High | Stable or slow increase
High | Falls rapidly | Very rapid increase
Falling | Falls more slowly | Increase slows down
Low | Low | Stable or slow increase
Very low | Low | Stable or slow decrease

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Examples in the world

- Transition began in 1700 and later in Europe
- Not complete in most less developed countries (LDCs)
  - Many African and Middle Eastern countries are early in Stage 3
  - Some in Latin America are moving toward Stage 4, also the U.S.
  - These variations change population distribution
- Beginning of 20\textsuperscript{th} century
  - Majority of population resided in more developed countries
- Throughout 20\textsuperscript{th} century
  - High population growth and reversal of population distribution
- In 2014, of the world population
  - Over 83\% (~6 billion) lived in LDCs
  - Under 17\% (~1.2 billion) lived in more developed countries
- 21\textsuperscript{st} century
  - Share of LDC population will increase

Source: Poston, Bouvier, 2017.
Second demographic transition


• Further fertility declines are due to demographic behaviors such as
  – Increasing age at first marriage
  – Increases in cohabitation
  – Increases in divorce
  – Emergence of same-sex partnerships and marriages
  – Increasing rates of nonmarital childbearing
  – Voluntary childlessness

Source: Poston, Bouvier, 2017.
Third demographic transition

• David Coleman (2006) further expanded demographic transition theory
  – Increasing tendency of low fertility countries relying on immigration to maintain their populations
  – This changes composition of national populations, culture, physical appearance, social experiences, self-perceived identity
  – e.g. United States, Western Europe

• Daniel Lichter (2013): children of immigrants are the vanguard of the third demographic transition that will remake the United States

Source: Poston, Bouvier, 2017.
Demographic transition is a set of transitions.
Several transitions

• Health and mortality transition
  – Shift from deaths at younger ages due to communicable disease to deaths at older ages due to degenerative diseases

• Fertility transition
  – Shift from natural (and high) to controlled (and low) fertility

• Migration transition
  – Growth in the number of young people in rural areas will lead to an oversupply of young people looking for jobs
  – This encourages people to leave in search of economic opportunity in urban areas (urbanization)
Several transitions

• **Age transition**
  – Changing numbers/percentages of people at each age and sex, as mortality and fertility decline, and as migrants flow
  – “Master transition” because it forces changes in societies

• **Urban transition**
  – It begins with migration from rural to urban areas
  – It changes into urban “evolution” as most humans are born in, live in, and die in cities
  – Migration to suburbs and mid-sized cities

• **Family and household transition**
  – Diversity in composition and structure, due to longer life, lower fertility, older age structure, urban residence
Fertility theories

• Wealth flows theory
• Human ecological theory
• Political economic theory

Source: Poston, Bouvier, 2017.
Wealth flows theory

• John Caldwell (1976)
• Fertility patterns depend on the intergenerational flows of wealth and services
  – When flows run from children to their parents, parents will want to have large families
  – When flows run from parents to their children, parents will want to have small families
  – The “emotional” nucleation of the family is crucial for lower fertility
  – Parents become less concerned with ancestors and extended family than with children and grandchildren

Source: Poston, Bouvier, 2017.
Human ecological theory

• Macro-level perspective (Poston and Frisbie)
  – Focus on societies, not individuals
  – The level of organization and complexity of a society is negatively related with fertility growth
  – **High fertility** makes a population vulnerable to environmental, technological, and other kinds of societal changes and fluctuations
    • Large quantities of sustenance are normally consumed by the familial and educational institutions
  – **Low fertility** enables more sustenance to be available for investment back into the system

Source: Poston, Bouvier, 2017.
Political economic theory

• It is not a fertility theory per se
  – It is an investigative framework, analytic perspective
  – This framework is multileveled: macro and micro
  – Quantitative and qualitative analyses

• E.g., Casalecchio, Italy (Kertzer, Hogan 1989)
  – Life-course perspective: changes throughout the 19th and 20th centuries, using individual-level data
  – Historical events: labor and marriage patterns
  – Fertility reduction depends on social class or occupation of families (macro)
  – These macro factors varied through different classes of people (micro)

Source: Poston, Bouvier, 2017.
Health and mortality transition

• Health and death
  – Morbidity: prevalence of disease in a population
  – Mortality: pattern of death

• Epidemiological transition theory (Omran 1971)
  – Change from prevailing poor health (high morbidity) and high death rates (high mortality)
    • Most people dying at younger ages from communicable and infectious diseases
  – To prevailing good health (low morbidity) and low deaths rates (low mortality)
    • Most people dying at older ages from degenerative diseases
Demographic theory of mortality
(Omran 1971)

• First stage: age of pestilence and famine
  – Influenza, pneumonia, smallpox, tuberculosis...
  – High infant and childhood mortality
  – Average life expectancy between 20 and 40 years
  – In developed countries, lasted until around 1875

• Second stage: age of receding pandemics
  – Mortality declines due to improvement in sanitation, standard of living, and public health
  – Average life expectancy between 30 and 50 years
  – In developed countries, between 1875 and 1930

Source: Poston, Bouvier, 2017.
Demographic theory of mortality

(Omran 1971)

• Third stage
  – Era of degenerative and manmade diseases
    • Heart disease, cancer, stroke...
  – Mortality declines due to medical advances in prevention and treatment of infectious diseases
  – Life expectancy exceeds 70 years
    • Fertility is the primary factor in population growth

• Fourth stage (Rogers, Hackenberg 1987)
  – Hybristic stage
  – Individual behavior and lifestyle influence mortality
    • Social pathologies: accidents, alcoholism, suicide, homicide...
    • Lifestyle issues: smoking, diet...

Source: Poston, Bouvier, 2017.
## Migration terms

- **Internal migration**: permanent changes in residence that occur within a country.
- **International migration**: permanent changes in residence that occur between countries.

<table>
<thead>
<tr>
<th>Areas</th>
<th>Internal migration (within countries)</th>
<th>International migration (between countries)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving areas (destination)</td>
<td>In-migration</td>
<td>Immigration</td>
</tr>
<tr>
<td>Sending areas (origin)</td>
<td>Out-migration</td>
<td>Emigration</td>
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Factors involved on migration

• Fertility and mortality occur in response to biological/genetic and social factors
  – E.g., women have children due in part to her fecundity (biological) and education (social)

• Migration has no biological factors
  – A person migrates due to factors in the physical and social environments at areas of origin and destination
  – Personal/individual factors can also influence migration

Source: Poston, Bouvier, 2017.
Why do people move?

- Migration happens in response to a reason that the person believes cannot be satisfied in the current residence.

- The study of migration determinants dates back to classical economic development theory:
  - Migration is considered to be a mechanism that establishes regional spatial-economic equilibrium (Ravenstein 1885, 1889).

- Migrants move from low income to high-income areas:
  - From densely to sparsely populated areas.

- Population streams are expected to occur between the poorest and wealthiest places and countries.
Laws of migration
(Ravenstein, 1885, 1889)

• Migration is affected by distance
  – Most migrants move only short distances

• Migrants often move in stages
  – As they leave one area, their places are filled by migrants from more distant areas

• Every migration stream has a compensating counterstream

• Migrants moving long distances often stop, temporarily, at major cities or centers of commerce
  – Located between the area of origin and the intended final area of destination

• Urban residents are less likely to migrate than rural residents
Intervening obstacles

• Migration is due not only to a person calculating advantages and disadvantages of areas of origin and destination

• Intervening obstacles must be considered
  – Distance
  – Income, job opportunities
  – Destination characteristics
  – Physical barriers and costs, migration laws
  – Information about alternative localities
  – Personal characteristics
  – Individual expectations
  – Community and kinship ties

Source: Poston, Bouvier, 2017.
Migration theories

• The following migration theories are compatible

• They are influenced by individual factors
  – Age, sex, education, race/ethnicity, social network...

• They are also influenced by contextual factors
  – Characteristics in the areas of origin (push factors) and destination (pull factors) that facilitate migration

Source: Poston, Bouvier, 2017.
Push and pull factors

• Question of who migrates depends on push-pull factors

• **Push factors of migration (origin)**
  – Loss of a job, poverty, violence, discrimination, low availability of social and life partners, catastrophes (floods, epidemics...)

• **Pull factors of migration (destination)**
  – Employment, education, income, better climate and living conditions, different types of activities

• Migration as a **response to push factors**
  – Migrants tend to be “negatively” selected
  – They are often poorly educated or unskilled
  – The area of origin is changed positively

• Migration as a **response to pull factors**
  – Migrants tend to be “positively” selected
  – They are often more educated, innovative
  – The area of origin loses a valuable segment of the population
Internal migration theories

• Neoclassical migration theory
• New economics of labor migration
• Spatio-temporal migration theories
• Structuralism (neo-Marxist, center-periphery)
• Sociological human ecology
Neoclassical migration theory

• Neoclassical economic theory sees migration primarily as a function of geographical differences in the relatively scarcity of labor
  – Rural-urban migration continues if expected urban income exceeds rural income (Todaro 1969, 1980; Harris, Todaro 1970)
  – Migration is a result of individual decisions
  – This framework is also known as functionalist theory

• Migration causes labor to become less scarce at the destination and scarcer at the origin
  – This process will result in growing convergence between wages at the sending and receiving areas
New economics of labor migration

• NELM argues that most migration in developing countries can only be understood as a **household** rather than individual decision
  – Migration decision generates income diversification (e.g., remittances) rather than maximization
  – It is a conscious attempt to overcome failing markets and socio-economic inequalities

• NELM is a **micro-level** theory applied to particular forms of migration
  – It is not able to explain long-term global migration patterns and trends and how these are connected to broader development processes
Spatio-temporal migration theories

• Spatio-temporal transition migration theories define migration as a constituent part of broader development processes
  – Development processes tend to coincide with increased levels of migration and overall mobility

• These processes are associated with
  – Modernization
  – Capitalist economic development
  – Urbanization
  – Demographic transitions
Structuralism

- Structuralism (neo-Marxist, center-periphery) criticizes functionalist theory (neo-classical, push-pull)
  - Structuralism sees a general pattern of disruptions, dislocations, and migrations intrinsic to capitalism
  - Functionalist assumes socioeconomic forces tend towards equilibrium through migration

- However, they share these assumptions
  - More development leads to less emigration
  - Higher development differences across areas (spatial disequilibrium) leads to more migration
Sociological human ecology

• Ecological theory of migration focus on population characteristics to predict migration
  – Why some areas increase through migration?
  – Why some areas decrease through migration?
  – Why some areas are not influenced by migration?
  – It does not ask why individuals move

• Migration is the major mechanism of social change and adaptability for human populations
  – Populations redistribute themselves via net migration to attain equilibrium

• Based on interdependence of four concepts
  – Population, organization, environment, technology

Source: Poston, Bouvier, 2017.
International migration theories
(Massey et al. 1994)

• Initiation of international migration
  – Neoclassical economics
  – The new household economics of migration
  – Segmented labor market theory
  – World systems theory

• Continuation of migration
  – Network theory
  – Institutional theory
  – Cumulative causation
Initiation of international migration
(Massey et al. 1994)

• Neoclassical economics
  – Supply-demand framework

• The new household economics of migration
  – Diversify income sources: remittances

• Segmented labor market theory (demand-driven)
  – Primary sector: well-educated, good salary, benefits
  – Secondary sector: low wages, unstable, usually rejected by natives

• World systems theory
  – Peripheral countries are most likely to send migrants to core nations
Neoclassical economics

• The neoclassical economic theory of international migration is the oldest and best-known
• It focuses on labor migration
• Migration occurs due to individual cost-benefit decisions to maximize expected incomes
• People move from low-wage countries to high-wage countries

Source: Poston, Bouvier, 2017.
New household economics

• The new household economics theory of migration challenged the neoclassical theory

• Migration decisions are influenced by
  – Isolated individuals
  – As well as by larger units: families and households

• Migration happens to
  – Increase individual earnings
  – As well as to minimize household risks and protect family from market failures

Source: Poston, Bouvier, 2017.
Segmented labor market theory

• Migration flows are a result of the demands of the economic structure of industrial societies
  – Caused by push-pull factors

• Capitalism divides labor markets into two sectors
  – This theory is also known as dual labor market theory
  – Primary: secure jobs, high pay, generous benefits, good working conditions
  – Secondary: instable jobs, low pay, limited benefits, unpleasant or hazardous working conditions
  – Employers use migrants to fill jobs in secondary sector

Source: Poston, Bouvier, 2017.
World systems theory

• Migration is the result of globalization of the market economy

• In the process of global industrialization
  – Population is released from traditional industries: farming, state-owned industries, handicrafts
  – This creates a mobilized population to move both internally and internationally

• Global market economy attracts employees with higher human capital to specific global cities
  – Human capital: knowledge, experience, skills, education, productivity of an employee
  – Examples of global cities: NYC, LA, Chicago...

Source: Poston, Bouvier, 2017.
Continuation of migration
(Massey et al. 1994; Massey, Espinosa 1997)

• Network theory
  – Migrants establish interpersonal ties
  – Once started, migration sustains itself through diffusion

• Institutional theory
  – Institutions facilitate or profit from the continued flow of migrants
  – Organizations help perpetuate migration in the face of government attempts to limit the flow of migrants

• Cumulative causation
  – Migration has an impact on social environments of sending and receiving regions
Network theory

• Migration network theory focuses on interpersonal ties
  – These ties connect migrants, formal migrants, potential migrants, and non-migrants in the origin and destination countries

• Networks increase the likelihood of migration
  – They decrease migrant risks and costs
  – They increase net earnings to migration
  – They make it easier for migrants to find jobs and access resources in destination

Source: Poston, Bouvier, 2017.
References


