

Population distribution

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Extra reading
Population and Society (SOCL 312)



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Outline

- Introduction
- World population distribution
- Residential distribution and urbanization
- Economic distribution
- Distribution of the US population
- Metropolitanization and micropolitanization
- Megalopolis
- Trends toward deconcentration
- Consequences of population distribution



Introduction

- In some countries, people are more likely to live in rural than urban areas
- However, there is an urbanization movement throughout the world
 - “Without question, the dominant feature of spatial distribution in the United States and other developed countries is the concentration of population in densely settled urban areas” (Fossett 2005)
- This chapter examines
 - How the inhabitants of the world are distributed
 - How most of us have become city dwellers rather than cave dwellers, as was the case thousands of years ago





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World population distribution

- About 1/3 of the earth's land is permanently inhabited
 - Areas such as the Arctic, the Antarctic, vast deserts (e.g., the Sahara) have very few people
 - Areas with rugged mountains make it almost impossible for humans to survive
- Most populated regions of the world
 - South Asia (mainly India)
 - East Asia (mainly China)
- Oceania (primarily Australia) is the least



Estimated midyear population by major areas and regions, 2014 (in millions)

| | |
|------------------|--------------|
| World | 7,238 |
| Africa | 1,136 |
| Northern Africa | 217 |
| Western Africa | 339 |
| Eastern Africa | 378 |
| Middle Africa | 142 |
| Southern Africa | 61 |
| Americas | 972 |
| Northern America | 353 |
| Central America | 165 |
| Caribbean | 43 |
| South America | 410 |
| Asia | 4,351 |
| Western Asia | 255 |
| Central Asia | 67 |
| South Asia | 1,806 |
| Southeast Asia | 621 |
| East Asia | 1,601 |
| Europe | 741 |
| Western Europe | 190 |
| Northern Europe | 102 |
| Eastern Europe | 294 |
| Southern Europe | 154 |
| Oceania | 39 |



The world's ten most populous countries, 2014 and 2050 (in millions)

| 2014 | | 2050 | |
|---------------|------------|------------------|------------|
| Country | Population | Country | Population |
| China | 1,364 | India | 1,657 |
| India | 1,296 | China | 1,312 |
| United States | 318 | Nigeria | 397 |
| Indonesia | 252 | United States | 395 |
| Brazil | 203 | Indonesia | 365 |
| Pakistan | 194 | Pakistan | 348 |
| Nigeria | 178 | Brazil | 226 |
| Bangladesh | 159 | Bangladesh | 202 |
| Russia | 144 | Congo, Dem. Rep. | 194 |
| Japan | 127 | Ethiopia | 165 |

Demographic changes

- Back in 1930, Great Britain, France, Germany, and Italy were among the ten largest nations in the world
- Demographic changes reflect
 - Rapid growth in developing nations
 - Slow and even declining growth in many developed nations
- By 2050, India will most likely have surpassed China as the most populated nation in the world
 - Chinese women have lower fertility than Indian women
 - India's current rate of natural increase (1.5%) is three times China's rate (0.5%)



China and United States

- The world population is not equally distributed spatially
- Example of China and the U.S.
 - These countries are very close in geographic size
 - China's population is more than 1.3 billion
 - The U.S. population is around 321 million
- However...
 - The distribution in China is more concentrated in the eastern half of the country, where 90% of the population resides
 - A nighttime satellite map for the U.S. shows that much more than 10% of the U.S. population resides in the western half of the country

Nighttime satellite map of the United States



Source: National Aeronautics and Space Administration, available at <http://geology.com/articles/satellite-photo-earth-at-night.shtml> (accessed June 15, 2015)

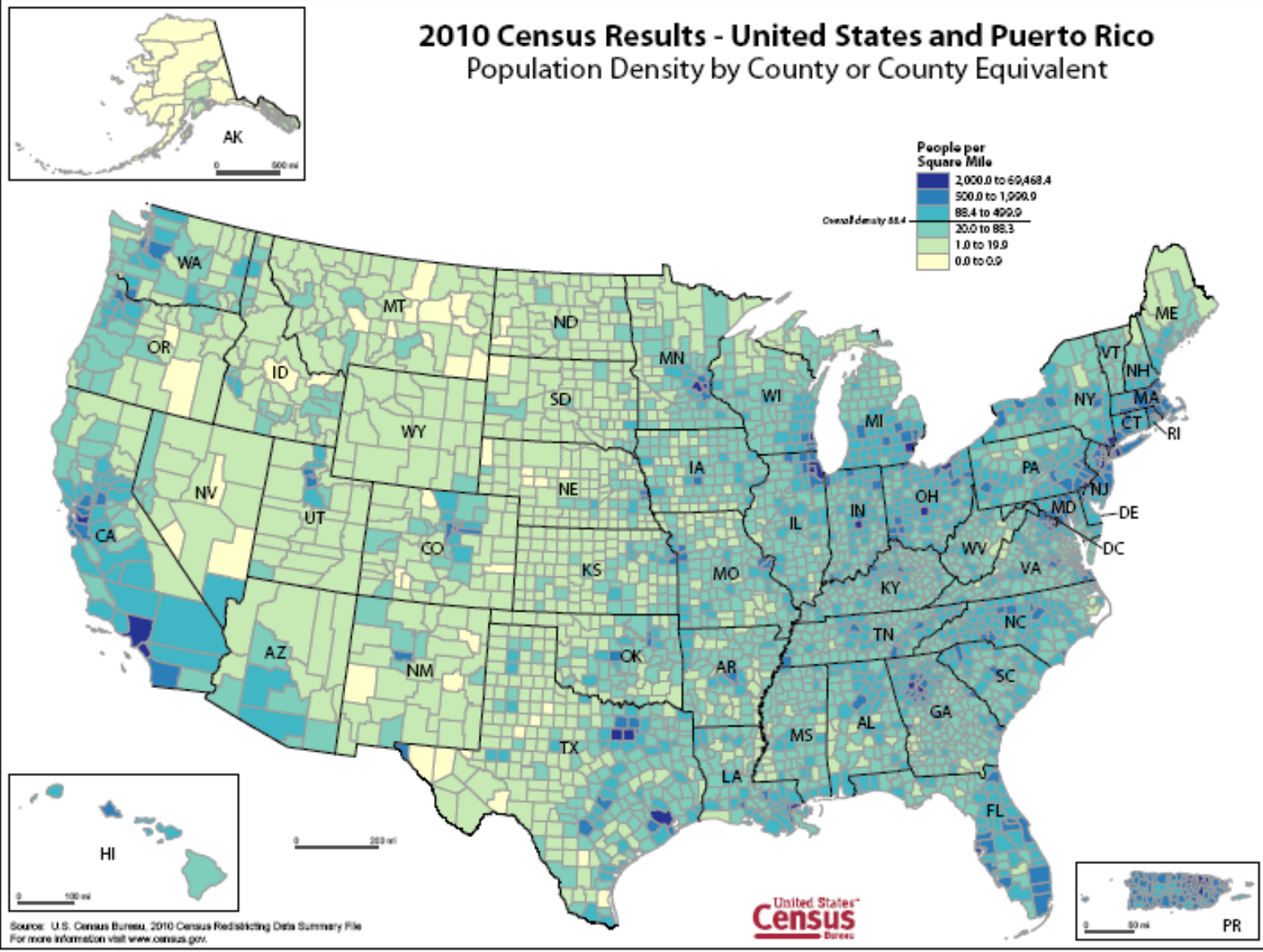


Population density

- Population density is measured as the number of persons per square mile (or square kilometer)
 - The world's population density was 53 persons per square kilometer in 2014
 - The density of the U.S. was 33
 - The density of China was 143
 - Western Europe is much more densely settled than Western Asia
 - East Asia is the most densely settled, and the most populated, of all the regions
- In the United States
 - Vast portions of the Mountain states are sparsely inhabited compared to the Northeast and parts of the West Coast...



2010 Census Results - United States and Puerto Rico Population Density by County or County Equivalent



Source: U.S. Bureau of the Census, available at http://www2.census.gov/geo/pdfs/maps-data/maps/thematic/us_popdensity_2010map.pdf (accessed June 15, 2015)

Physiological density

- A more meaningful and accurate measure of population density uses the amount of arable land area as the denominator
- Physiological density is calculated
 - By dividing the number of persons in the country
 - By the country's quantity of arable land
 - In square kilometers or miles

Factors that influence distribution

- Many factors influence in different degrees the distribution of the world's population
- Geographic factors
 - Climate, terrain and soils, natural resources
- Economic, social, and political factors
 - Type of economic activity
 - Form of social organization
- Demographic factors
 - Mainly rates of population change due to fertility, mortality, and migration





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Residential distribution and urbanization

- Demographers examine percentages of populations living in rural and urban areas
 - Economy of rural areas tends to be overwhelmingly agricultural
 - Economy of urban areas are more likely to be diversified and non-agricultural
- Sociologists have long pointed out that lifestyles tend to be different in rural and urban places
 - Emile Durkheim called them mechanical and organic



Demographic differences

- Typically, there are sharp demographic differences between rural and urban areas
 - Fertility is usually higher in rural than in urban areas
 - Educational attainment is usually lower in rural areas
- In industrialized nations, many of the rural-urban differences have been reduced
 - Due to the spread of modern media and rapid communication
- In less developed countries, these differences are still very much apparent



Historical changes

- Throughout most of history, humans have been rural dwellers
 - After the Agricultural Revolution many still lived on farms
 - But they no longer had to wander in search of food and shelter
- True urbanization occurred after the Industrial Revolution in Western Europe and their colonies
- Large scale urbanization is a modern development
 - Large changes in the proportion of people who live in cities
 - Urbanization is different from the sociological term “urbanism” which reflects lifestyle



Conditions for urbanization

- China has the longest urban tradition of any country in the world
 - Cities made their first appearance in China more than 2,000 years ago
- Three conditions must be present for cities and urbanization to develop
 - A **surplus** of farm products
 - A **means of transporting** these products to the urban areas, to be processed into food, clothing, and shelter
 - A sufficiently **developed technology** in the urban areas to use the farm products and to provide employment for the urban dweller



World urbanization

- In 1800, 3% of the world population was urban
- Industrial Revolution (1760–1840)
 - Technological and economic changes created large agricultural surpluses
 - People began migrating to the cities in search of jobs in the factories
 - Urbanization was under way
- By 1950, 29% of all residents lived in urban areas
- In 2014, 54% lived in urban areas



Urbanization in the U.S.

- The U.S. serves as an example of the impacts of the Industrial Revolution
- It contributed to the growth of cities, especially the mode of transportation
 - Early in the nineteenth century, water was the main source of major transportation
 - Then came the railroad era in the 19th century, which opened up more areas for urban growth
 - The automobile and the construction of the Interstate highway system also contributed to this urban growth

Urbanization vs. Urban growth

- Is this phenomenon urbanization or urban growth?
 - **Urbanization** refers to the percent of a region's or country's population living in an urban area
 - **Urban growth** refers to an increase in the number of people living in urban areas
- Starting in 1900, rapid urbanization began in many parts of the world
- **Urban agglomeration** is an urban area of at least 1 million inhabitants (United Nations)
 - This includes all inhabitants in the surrounding territory living in urban levels of residential density



| World's 20 largest urban agglomerations, 2014 (in millions) | Rank | Urban agglomeration | Nation | Population |
|--|-------------|----------------------------|---------------|-------------------|
| | 1 | Tokyo | Japan | 37.8 |
| | 2 | Delhi | India | 25.0 |
| | 3 | Shanghai | China | 23.0 |
| | 4 | Mexico City | Mexico | 20.8 |
| | 5 | São Paulo | Brazil | 20.8 |
| | 6 | Mumbai | India | 20.7 |
| | 7 | Osaka | Japan | 20.1 |
| | 8 | Beijing | China | 19.5 |
| | 9 | New York-Newark | United States | 18.6 |
| | 10 | Cairo | Egypt | 18.4 |
| | 11 | Dhaka | Bangladesh | 17.0 |
| | 12 | Karachi | Pakistan | 16.1 |
| | 13 | Buenos Aires | Argentina | 15.0 |
| | 14 | Kolkata | India | 14.8 |
| | 15 | Istanbul | Turkey | 14.0 |
| | 16 | Chongqing | China | 12.9 |
| | 17 | Rio de Janeiro | Brazil | 12.8 |
| | 18 | Manila | Philippines | 12.8 |
| | 19 | Lagos | Nigeria | 12.6 |
| | 20 | Los Angeles ^a | United States | 12.3 |

^a Refers to the Los Angeles-Long Beach-Santa Ana urban agglomeration.

Source: United Nations, 2014b: 26





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Economic distribution

- A population can also be classified according to its level of economic development
 - Per capita income
 - Per capita energy consumption
- Each measure produces similar results with respect to population distribution
 - Less than 20% of the world population resided in the more economically developed regions in 2014
 - It could well be below 15% by 2050, because rates of population growth are much higher in the developing than in the developed nations



Migration

- Massive migration from developing regions into the developed regions is unlikely
- This is due to political barriers erected by developed countries to prevent such international movements
- Despite many and varied limitations, around 30 to 35 million people are estimated to be moving from one country to another without official documents





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Distribution of the US population

- Several trends have occurred to shape the distribution of the population of the United States
- Generally, there has been a long time movement westward...



Population of the United States by region, 1970 and 2010 (in thousands)

| Region | 1970 | | 2010 | |
|-----------|------------|---------|------------|---------|
| | Population | Percent | Population | Percent |
| Northeast | 49,061 | 24.1 | 55,317 | 17.9 |
| Midwest | 56,589 | 27.8 | 66,927 | 21.7 |
| South | 62,812 | 30.9 | 114,556 | 37.1 |
| West | 34,838 | 17.1 | 71,946 | 23.3 |

Sources: U.S. Bureau of the Census 1994; Mackun and Wilson 2011.

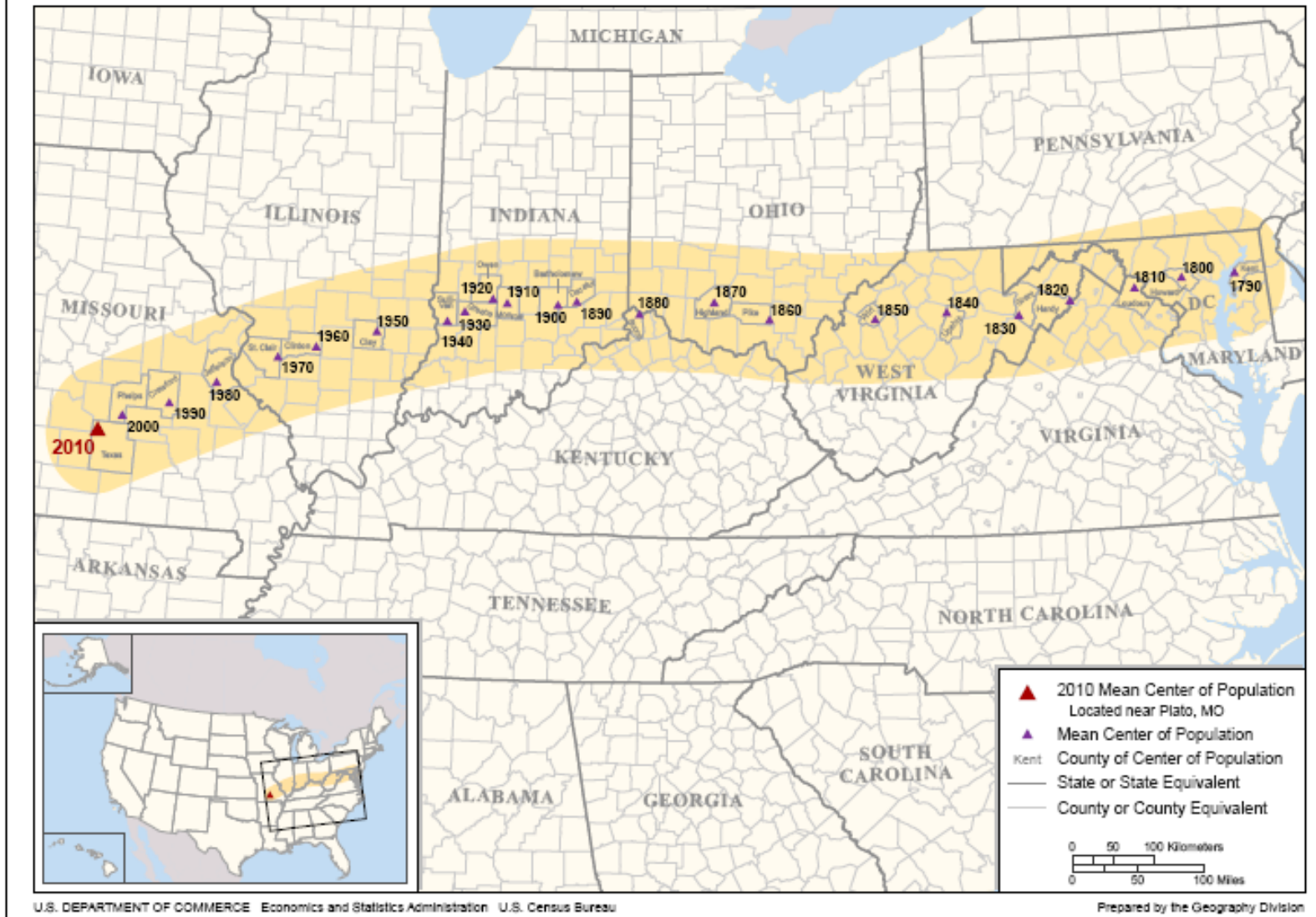


Center of the U.S. population

- The center of population
 - It is determined as the place where an imaginary, flat, weightless, and rigid map of the U.S. would balance perfectly if all residents were of identical weight
- Historically, there has been a movement out of the South into the East, then the Middle West, and finally the Far West
- In more recent decades, people have been moving into the South from other regions



Mean Center of Population for the United States: 1790 to 2010



Source: U.S. Census Bureau, available at http://www2.census.gov/geo/pdfs/reference/cenpop2010/centerpop_mean2010.pdf (accessed June 15, 2015)



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Metropolitanization and micropolitanization

- **Metropolitanization**

- The U.S. population has been experiencing rapid concentration in urban areas

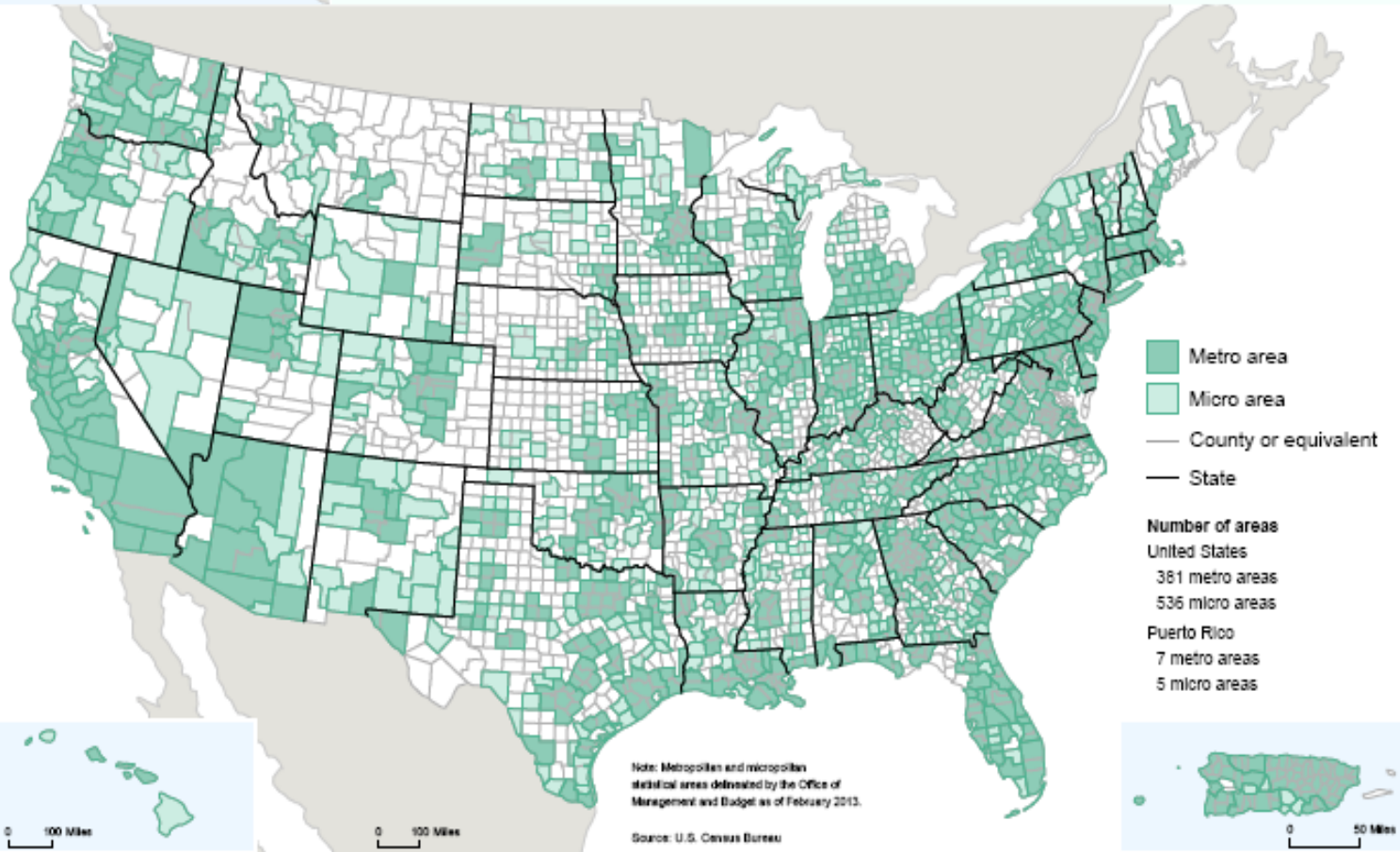
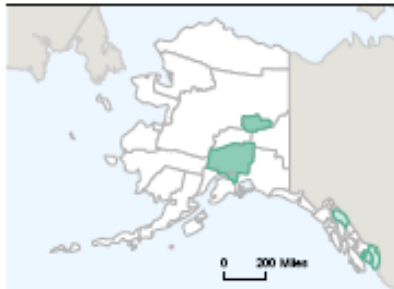
- Metropolitan areas and micropolitan areas

- A **metropolitan area** contains a core urban area population of 50,000 or more
- A **micropolitan area** contains a core urban area population of at least 10,000, but less than 50,000
- They are known as core based statistical areas (CBSAs)
- Each of them consists of one or more counties: county containing the core urban area and adjacent counties



Metropolitan and Micropolitan Statistical Areas of the United States and Puerto Rico

February 2013



Source: U.S. Census Bureau, available at http://www.census.gov/population/metro/files/metro_micro_Feb2013.pdf (accessed June 15, 2015).



Largest and fastest-growing areas

- All ten of the largest metro areas in the United States increased in size between 2000 and 2010
- Houston, Atlanta, and Dallas-Fort Worth grew the fastest: over 20%
- This is another evidence of population movement westward and southward...



Population Change for the Ten Most Populous and Ten Fastest-Growing Metropolitan Statistical Areas: 2000 to 2010

(For information on confidentiality protection, nonsampling error, and definitions, see www.census.gov/prod/cen2010/doc/pl94-171.pdf)

| Metropolitan statistical area | Population | | Change | |
|--|------------|------------|-----------|---------|
| | 2000 | 2010 | Number | Percent |
| MOST POPULOUS | | | | |
| New York-Northern New Jersey-Long Island, NY-NJ-PA | 18,323,002 | 18,897,109 | 574,107 | 3.1 |
| Los Angeles-Long Beach-Santa Ana, CA | 12,365,627 | 12,828,837 | 463,210 | 3.7 |
| Chicago-Joliet-Naperville, IL-IN-WI | 9,098,316 | 9,461,105 | 362,789 | 4.0 |
| Dallas-Fort Worth-Arlington, TX | 5,161,544 | 6,371,773 | 1,210,229 | 23.4 |
| Philadelphia-Camden-Wilmington, PA-NJ-DE-MD | 5,687,147 | 5,965,343 | 278,196 | 4.9 |
| Houston-Sugar Land-Baytown, TX | 4,715,407 | 5,946,800 | 1,231,393 | 26.1 |
| Washington-Arlington-Alexandria, DC-VA-MD-WV | 4,796,183 | 5,582,170 | 785,987 | 16.4 |
| Miami-Fort Lauderdale-Pompano Beach, FL | 5,007,564 | 5,564,635 | 557,071 | 11.1 |
| Atlanta-Sandy Springs-Marietta, GA | 4,247,981 | 5,268,860 | 1,020,879 | 24.0 |
| Boston-Cambridge-Quincy, MA-NH | 4,391,344 | 4,552,402 | 161,058 | 3.7 |
| FASTEST-GROWING | | | | |
| Palm Coast, FL | 49,832 | 95,696 | 45,864 | 92.0 |
| St. George, UT | 90,354 | 138,115 | 47,761 | 52.9 |
| Las Vegas-Paradise, NV | 1,375,765 | 1,951,269 | 575,504 | 41.8 |
| Raleigh-Cary, NC | 797,071 | 1,130,490 | 333,419 | 41.8 |
| Cape Coral-Fort Myers, FL | 440,888 | 618,754 | 177,866 | 40.3 |
| Provo-Orem, UT | 376,774 | 526,810 | 150,036 | 39.8 |
| Greeley, CO | 180,926 | 252,825 | 71,899 | 39.7 |
| Austin-Round Rock-San Marcos, TX | 1,249,763 | 1,716,289 | 466,526 | 37.3 |
| Myrtle Beach-North Myrtle Beach-Conway, SC | 196,629 | 269,291 | 72,662 | 37.0 |
| Bend, OR | 115,367 | 157,733 | 42,366 | 36.7 |

Source: Mackun and Wilson, 2011: 6.





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Megapolis

- Generally, megalopolis describes
 - Any densely populated social and economic entity encompassing two or more cities and the increasingly urbanized space between them
- Does a megalopolis have the essential characteristics of a community?
 - It does have a common geographic area which is distinguishable from other areas
 - It is difficult to conceive of a megalopolis as anything, but a grouping of contiguous metropolitan areas sharing a common, heavily populated geographic area





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Trends toward deconcentration

- Suburbanization process in the U.S.
 - Trend of deconcentration in metropolitan areas
 - A shift from the higher-density central cities to the lower-density areas beyond the traditional city limits
 - The shift from metropolitan to nonmetropolitan areas
- Since 1930, the proportion living in central cities of the metro areas of the U.S. has been falling
 - While metropolitan areas have seen population growth, much of that growth has been taking place in the suburban portions



Specific trends in the U.S.

- Some of the growth that has occurred in central cities in past decades can be explained by annexation
 - Jacksonville, FL; Nashville, TN; Houston, TX
- Many older cities have shown population declines or little growth in recent decades
 - Detroit, MI; San Francisco, CA
- Social reasons help explain the declining populations of many central cities
 - White flight: large movement of poorer, often non-white, residents into the central cities has contributed to the massive out-migration to the suburbs of the mostly white middle and upper classes



Immigration and distribution

- International migration must also be considered when examining population distribution
 - In the late 19th and early 20th centuries immigrants were most likely to settle in the poor downtown areas of the big cities
 - Later, these immigrants and their children began to move to the suburbs
- However, certain middle size cities with a need for low wage workers often attract undocumented workers
 - E.g., North Carolina and Alabama



New trends

- Traditionally people moved from non-metro to metro areas
- Today people are more likely to move from the suburbs of one area to the suburbs of another
- Now there is a movement even further away from the historic downtowns into the exurbs
 - Exurbs are areas beyond the beltways that circle the metropolitan areas
- An area experiencing net in-migration gains population in two ways
 - Direct effect: through the net number of movers
 - Indirect effect: through the number of children born to those movers after the migration has occurred



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Consequences of population distribution

- There are various issues concerning the geographic movement of people
 - Economic activities have relocated to the ring portions of metropolitan areas
 - The out-migrating middle class has been replaced in the core areas by a relatively disadvantaged population
- Concentration of economically and socially disadvantaged persons in the central cities
 - Increases demand for social services
 - Economic status of the resident population is lower



Gentrification

- Gentrification is the migration of middle-class and affluent peoples into the once poorer areas of cities
- It has been taking place in some older central cities, e.g., San Francisco
- Blindspotting: interesting movie about gentrification



Population explosion and implosion

- The terms population explosion and population implosion appear contradictory
- But they are both occurring these days throughout the world
- The Las Vegas metropolitan area tripled between 1980 and 2000, while 46 of the 53 counties in the state of North Dakota lost population (Guest, Brown 2005)



Migration, fertility, and labor

- Migration flows from small to middle or big municipalities, conjugated with fertility decline
 - This might generate empty areas in different countries
 - This would have negative socioeconomic consequences
- If migration flows adjust to the decline in fertility, spatial distribution would move towards a faster stabilization process
 - Spatial analyses could be performed to evaluate associations between migration, fertility, and labor outcomes
- Public policies would have to deal with issues of declining population in certain locations
 - Need to stimulate economic development in different areas, instead of concentrating the production in specific regions



References

- Amaral EFL, Rios-Neto ELG, Potter JE. 2016. “The influence of internal migration on male earnings in Brazil, 1970–2000.” *Migration and Development*, 5(1): 55–78.
- Poston DL, Bouvier LF. 2017. *Population and Society: An Introduction to Demography*. New York: Cambridge University Press. 2nd edition. Chapter 14 (pp. 365–385).





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