

# Population distribution

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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)

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



# 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)

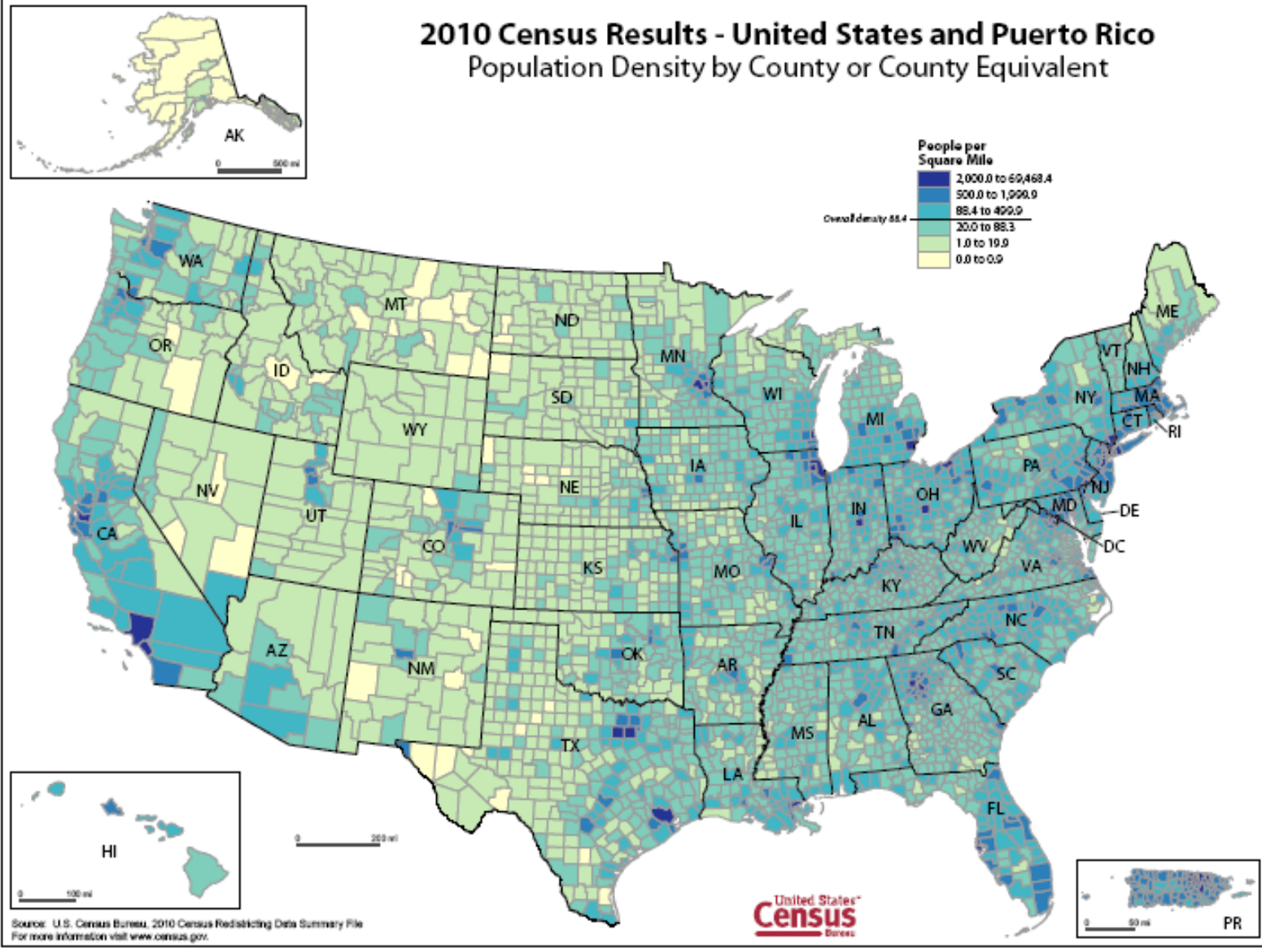


# Population density

- 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](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



| <b>World's 20<br/>largest urban<br/>agglomerations,<br/>2014 (in millions)</b> | <b>Rank</b> | <b>Urban agglomeration</b> | <b>Nation</b> | <b>Population</b> |
|--|-------------|----------------------------|---------------|-------------------|
|  | 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 <sup>a</sup>   | United States | 12.3              |

<sup>a</sup> 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](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

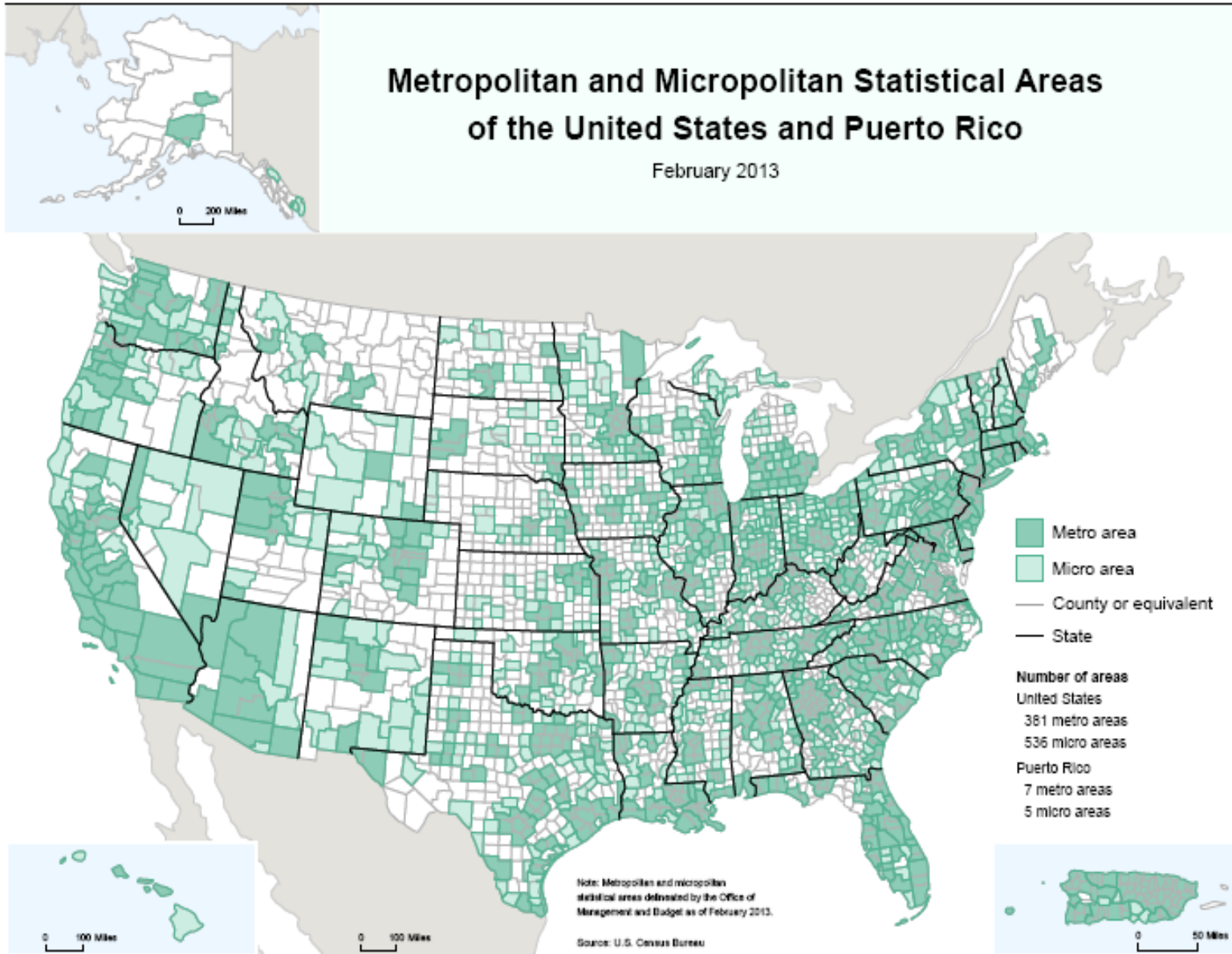
- Metropolitan areas and micropolitan areas

- 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](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](http://www.census.gov/prod/cen2010/doc/pl94-171.pdf))

| Metropolitan statistical area                            | Population |            | Change    |         |
|--|------------|------------|-----------|---------|
|  | 2000       | 2010       | Number    | Percent |
| <b>MOST POPULOUS</b>                                     |            |            |           |         |
| 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     |
| <b>FASTEST-GROWING</b>                                   |            |            |           |         |
| 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



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