The Brookings Institution

Metropolitan Policy Program
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Economic and Fiscal Benefits of Density

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Economic and Fiscal Benefits of Density

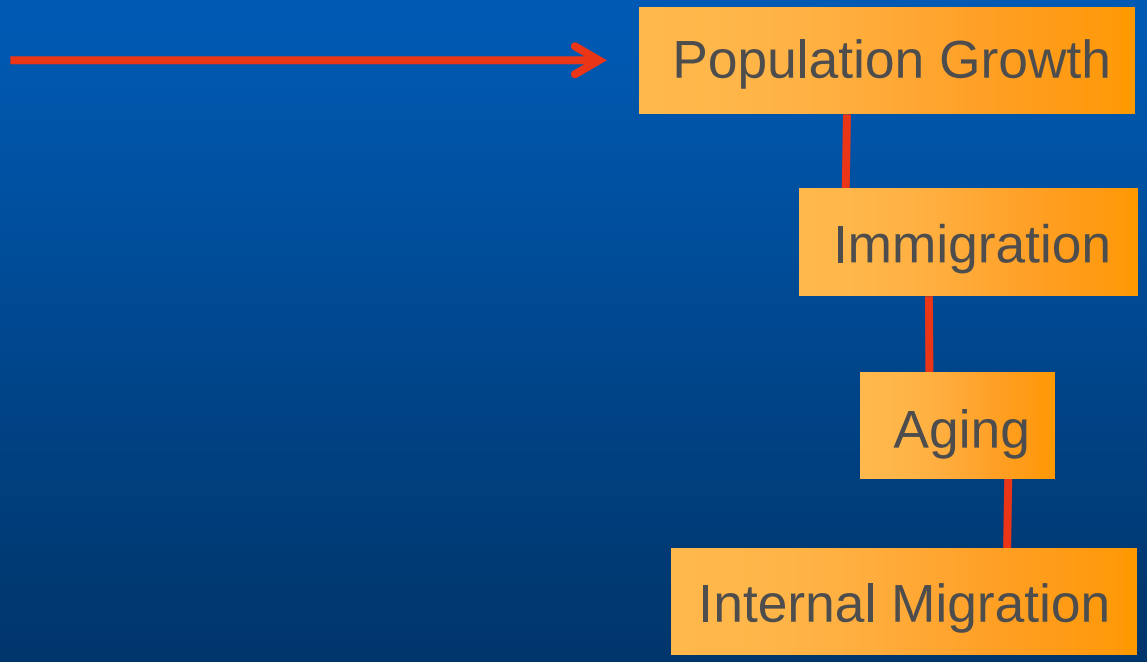
I. The United States is undergoing a period of profound demographic and market change

II. U.S. research increasingly finds that economic density yields positive benefits

III. U.S. research also finds that residential density yields positive fiscal benefits

I Profound demographic and market changes have altered the function of cities

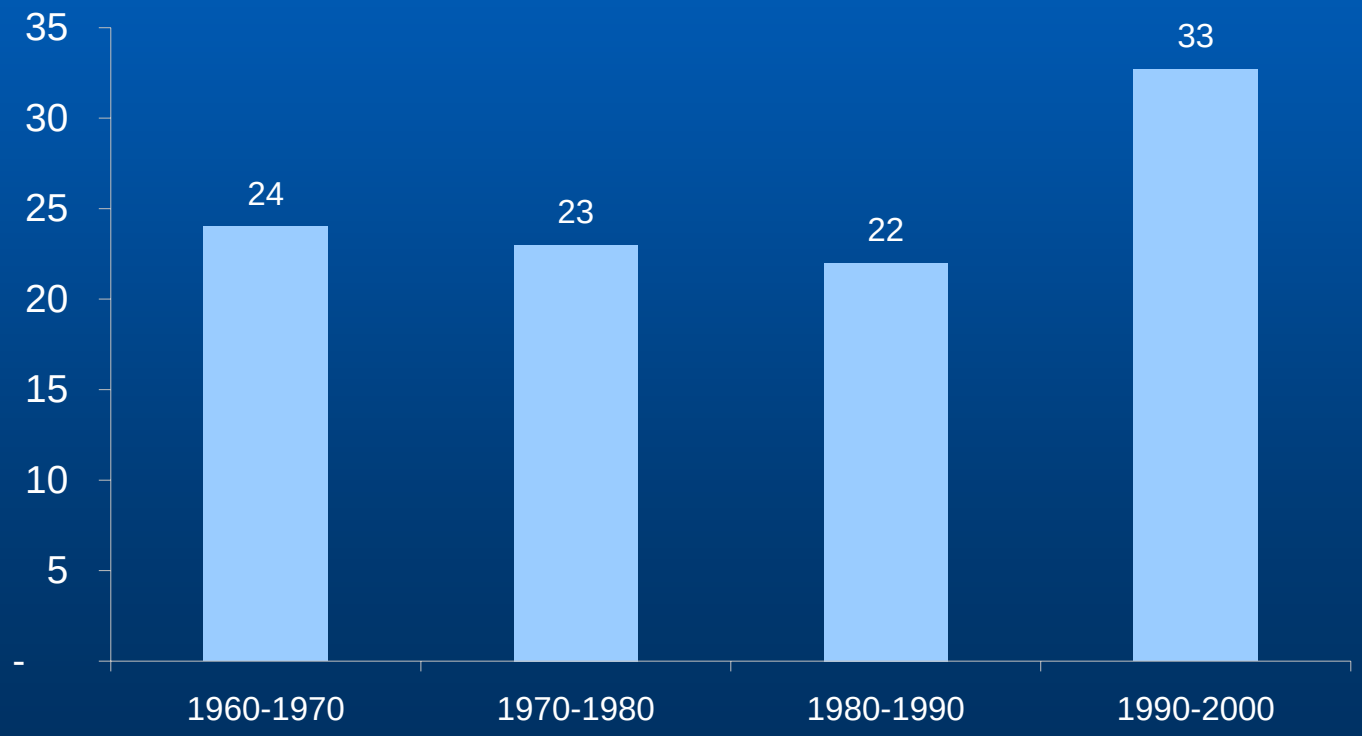
Major demographic forces are changing the United States



The 1990s presented the strongest growth in four decades

US population growth (millions), 1990-2000

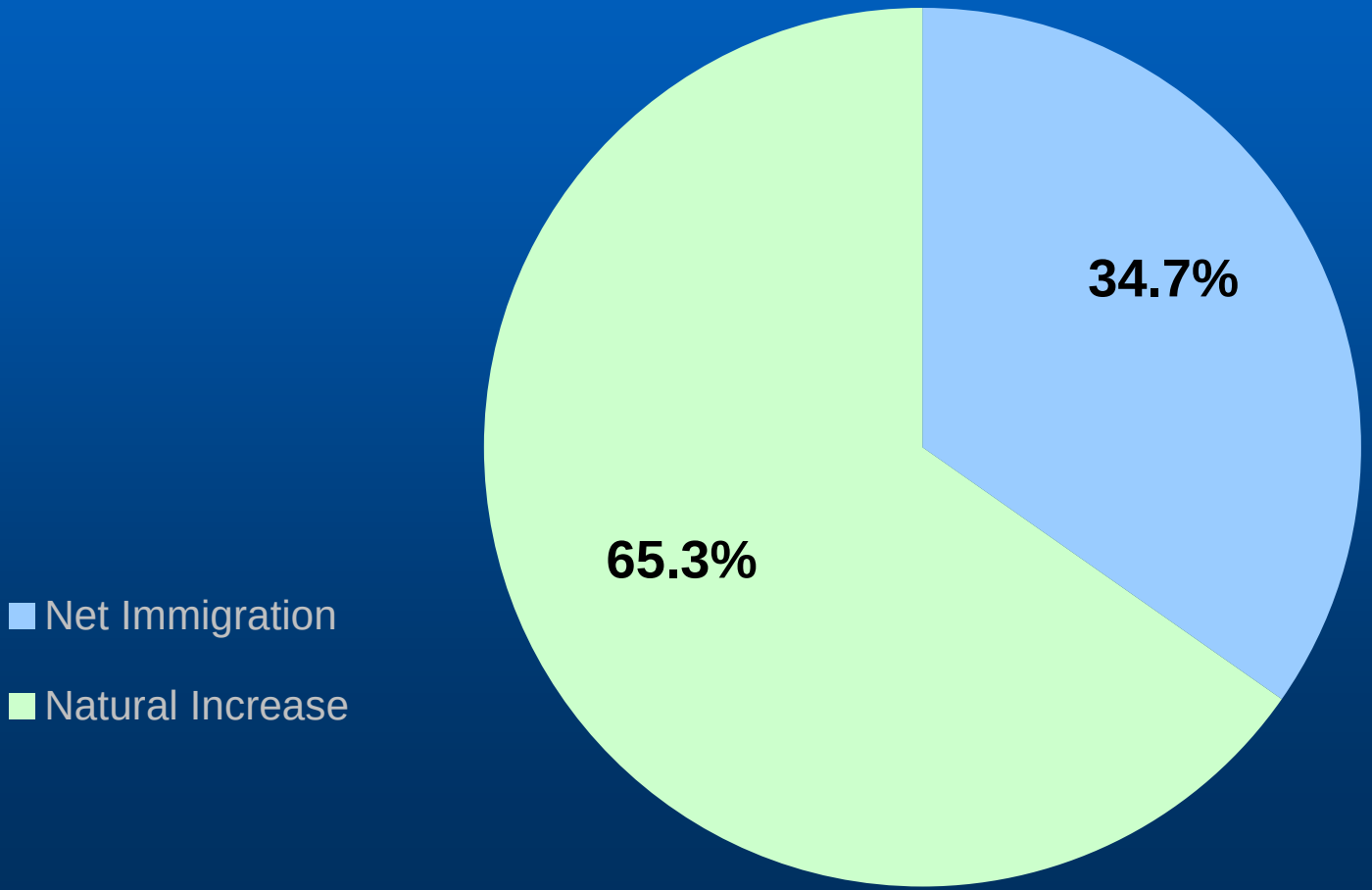
Source:
U.S. Census Bureau



More than 1/3 of this population growth was driven by immigration

Components of population change, 1990-2000

Source:
U.S. Census Bureau



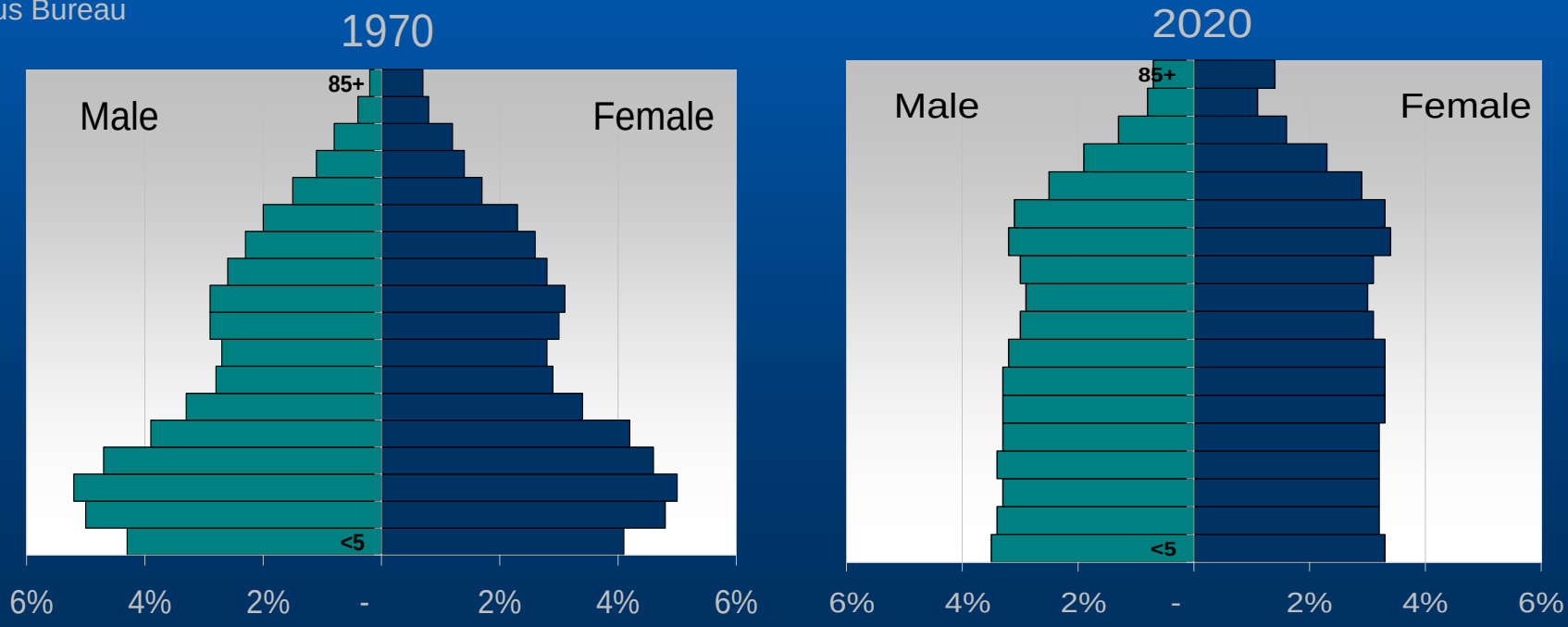
34 million foreign-born now live in the U.S.; 12 percent of the population

- That is the largest absolute number in U.S. history
- And highest share since 1930

At the same time, the US population is aging…

US Age Distribution, 1970 vs. 2020

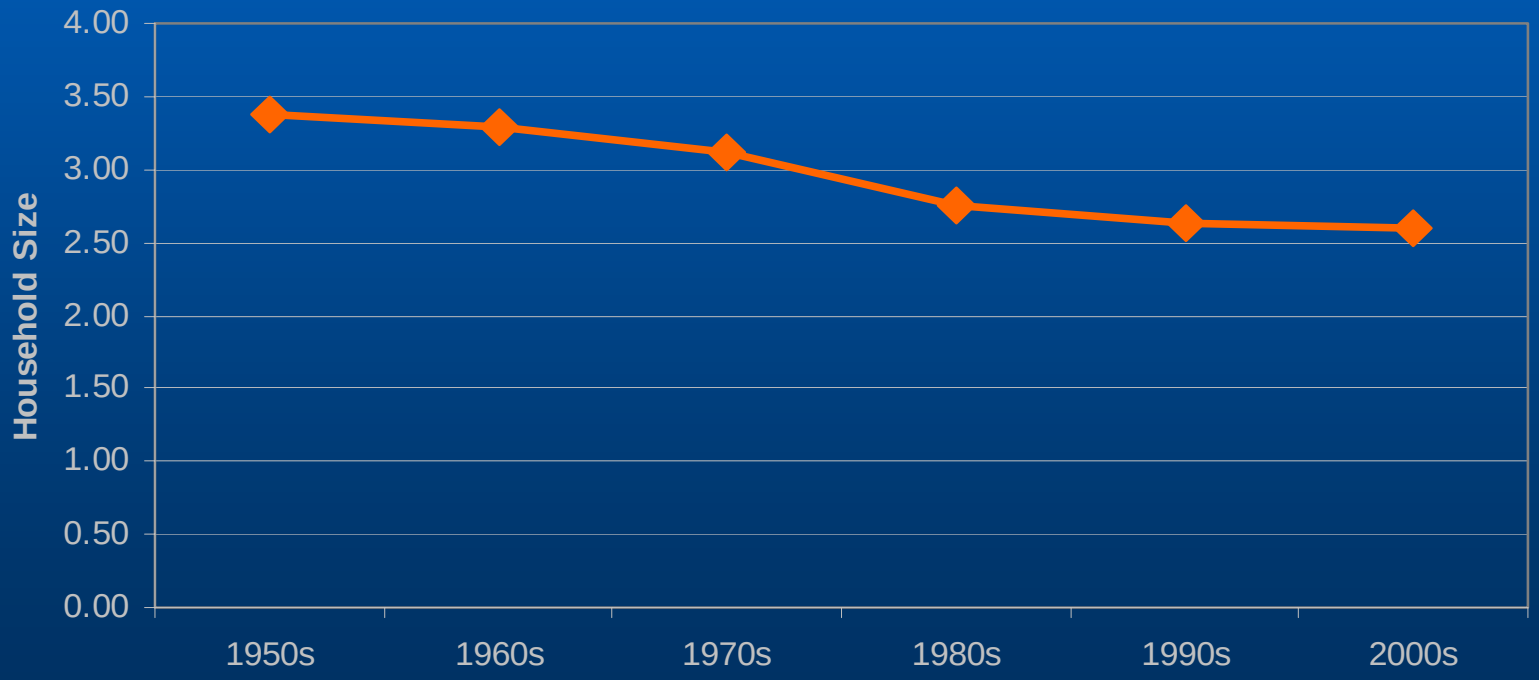
Source:
U.S. Census Bureau



…and household size is declining

Household size, 1950-2000

Source: U.S. Census Bureau



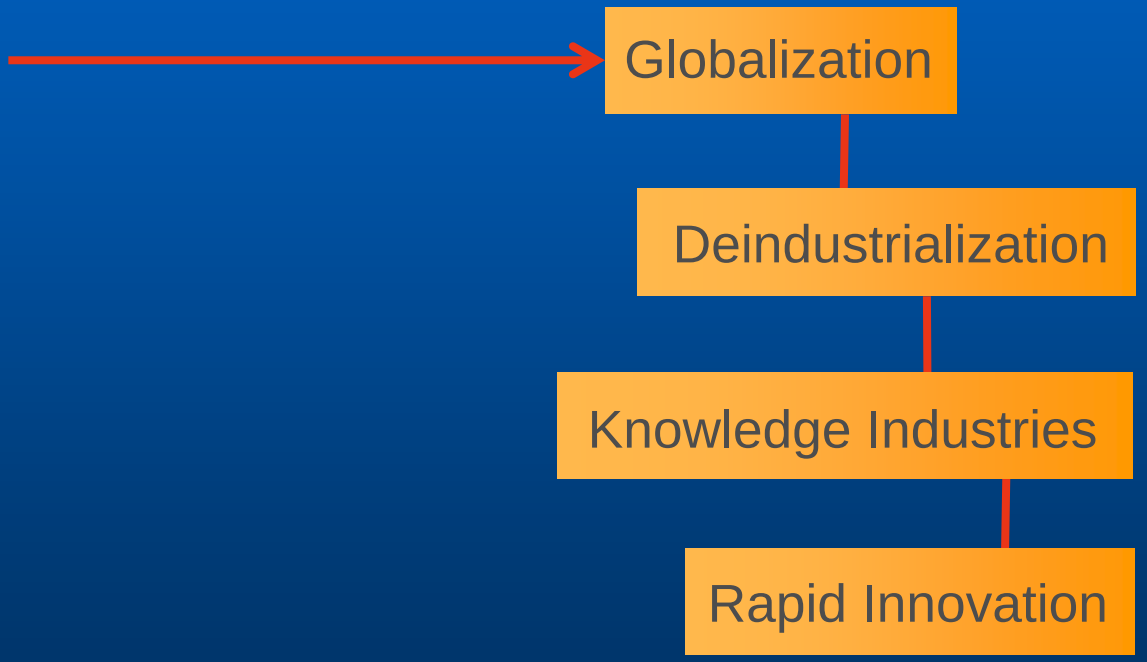
Population growth and migration places huge demands on future construction

By 2030, about half of the buildings in which Americans live, work, and shop will have been built after 2000.

- By 2030, the nation will need about 427 billion square feet of built space to accommodate growth projections.
- About 82 billion of that will be from replacement of existing space and 131 will be new space.

- Source: Arthur C. Nelson, 2005

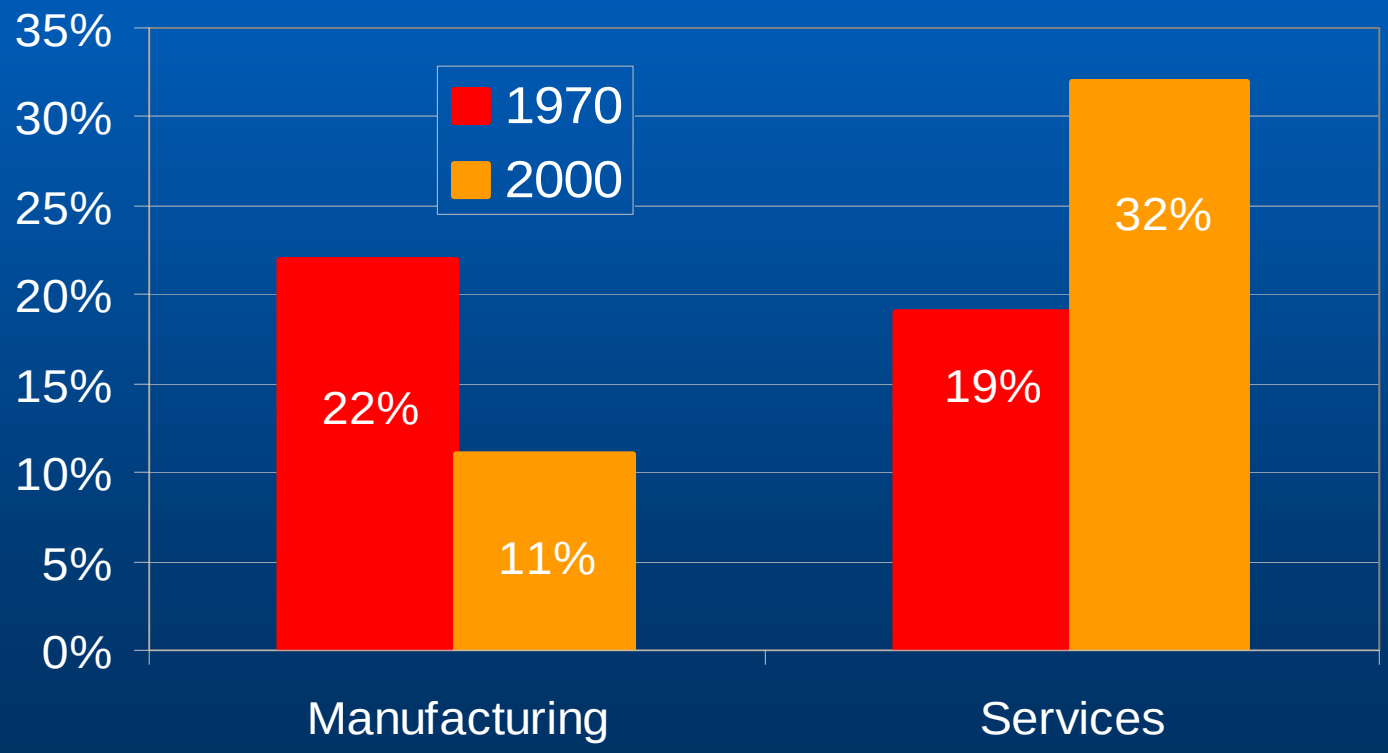
Major economic forces are changing the United States



Since 1970, the U.S. has moved from a manufacturing-based economy to one based on services

Share of employment in manufacturing and services, 1970 and 2000

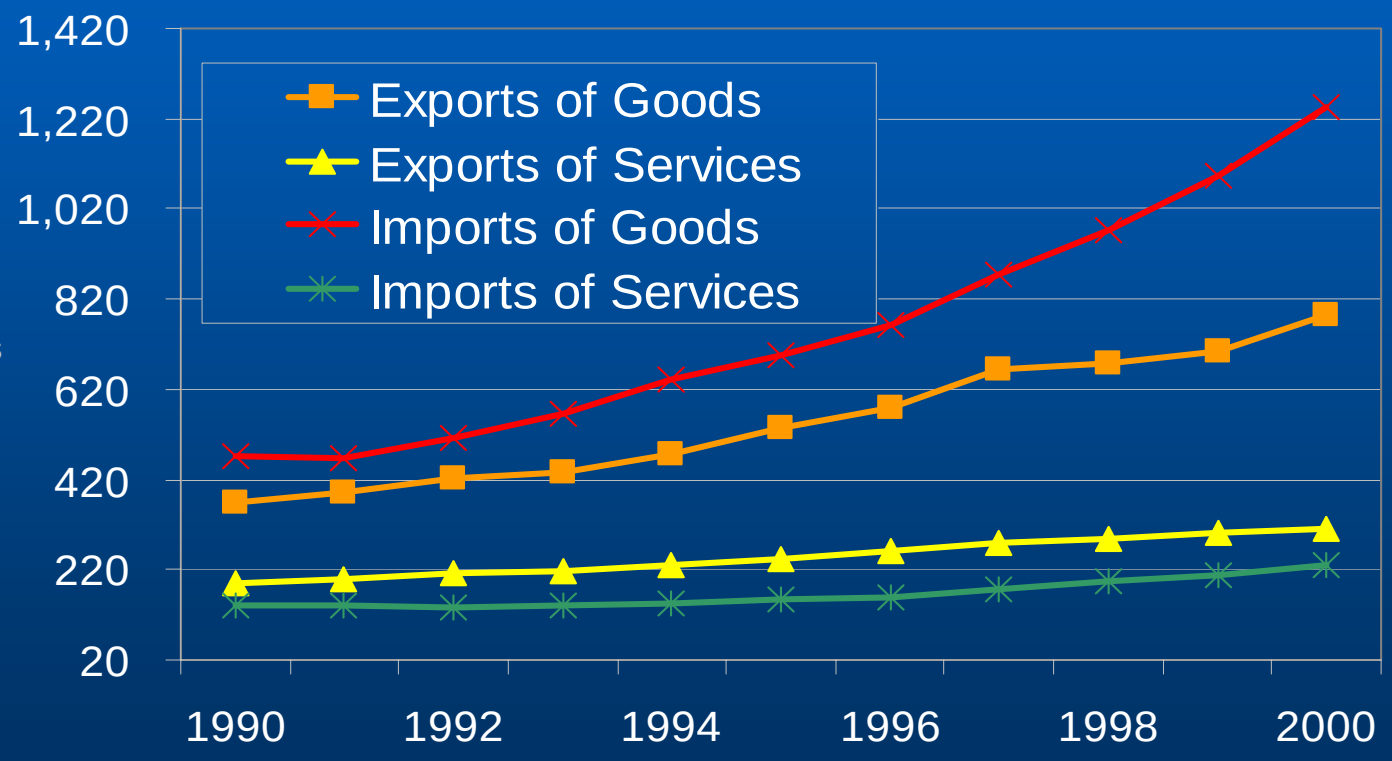
Source:
Bureau of Economic Analysis



Importing dramatically increased in the 1990s

Trade of goods and services in Billions of constant 2000 dollars, 1990-2000

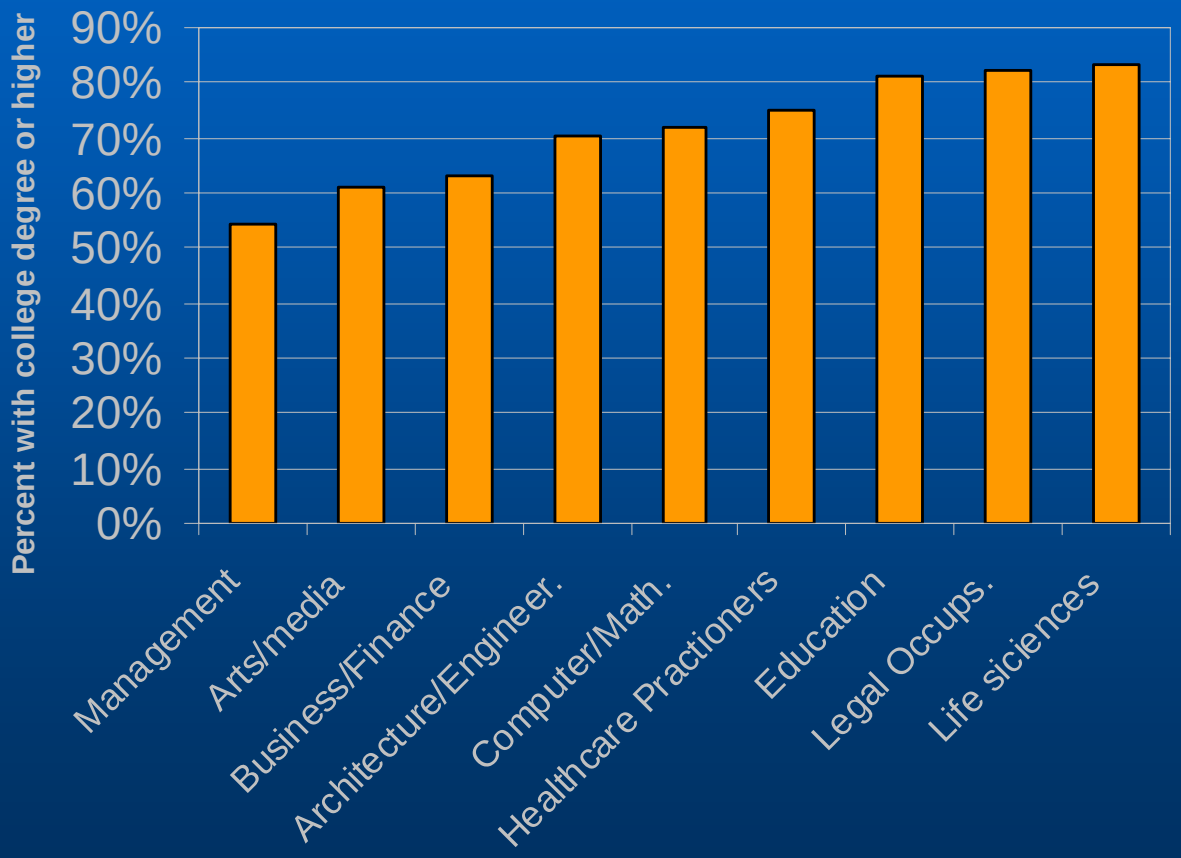
Source:
Bureau of Economic Analysis



The new economy places a high premium on higher education and skills

Percentage of Workers with a College Degree or Higher, select occupations, 2002

Source: National Education and Attainment, National Bureau of Labor



II U.S. research increasingly finds that economic density yields positive benefits

Economic competitiveness is enhanced by concentrations of firms, people, and institutions:

Higher labor productivity

Enhanced innovation

Higher population and income growth

Concentration of employment contributes to productivity

Average labor productivity increases with more employment density

- Doubling employment density increases average productivity by around six percent
- Workers in the ten states with the lowest employment densities produced 25% less annual output value than the ten states with the highest employment densities

Ciccone and Hall (1996)

Concentration of human capital contributes to productivity

More educated workers enhance productivity

- Each additional year of education for a worker in a metro area leads to a 2.8 percent increase in productivity

Rauch (1993)

Concentration of employment enhances innovation

Higher employment density has been linked to increased innovation

- External economies are generated by the interactions among educated and experienced people

Jacobs (1969)

- For every doubling of employment density, the number of patents per capita increase, on average, by 20 to 30 percent

Carlino (2001)

Concentration of human capital fuels population growth

Education levels are a powerful indicator of urban growth

- Between 1980 and 2000, the population of metro areas where less than 10 percent of adults had at least a bachelors degree in 1980 grew on average by 13 percent
- By contrast, the population of metro areas where more than 25 percent of adults had at least a bachelors degree in 1980 grew on average by 45 percent between 1980 and 2000

Glaeser (2005)

Higher education institutions spark population growth

The number of colleges per capita in metros is a good predictor of population growth

- Cities or large metro areas with twice as many colleges in 1940 as peer areas witnessed four percent faster population growth per decade after 1970
- This suggests that high growth rates are stimulated by high skill levels

Glaeser (2005)

Concentration of human capital fuels income growth

Cities and metros with highly skilled workers have higher income growth

- The most highly educated metro areas have per capita incomes about 20 percent higher than average while the least educated metros have per capita incomes about 12 percent below average

Gottlieb and Fogarty (2003)

- A one percentage point increase in the college-educated population of a metro area raises everyone else's average wages by .6 to 1.2 percent

Moretti (2004)

Moreover, places with high value amenities and quality growth yield additional benefits

Attracting more knowledge-workers

Enhancing the quality of place

Producing public revenues for investing in more amenities

High density brings with it amenities that create a high “quality of place” that attracts young knowledge-workers

“…place is the key economic and social organizing unity of our time… Places provide the ecosystems that harness human creativity and turn it into economic value.”

•“To compete in the new age of talent, regions must make the quality-of-place and the amenities of the new economy central elements of their strategies to attract knowledge workers and build high technology economies.”

Florida (2000)

Quality growth and high value amenities produce economic benefits

Growth management metros were more likely to see improvements in metropolitan level personal income than other metros

Nelson and Peterman (2000)

"Accessible" cities with efficient transportation systems had higher productivity than more dispersed places (47 metro areas)

Cervero, 2000

III U.S. research also finds that density yields positive fiscal benefits

The costs of sprawl are well-researched and well-recognized

Low density development increases cost of infrastructure:

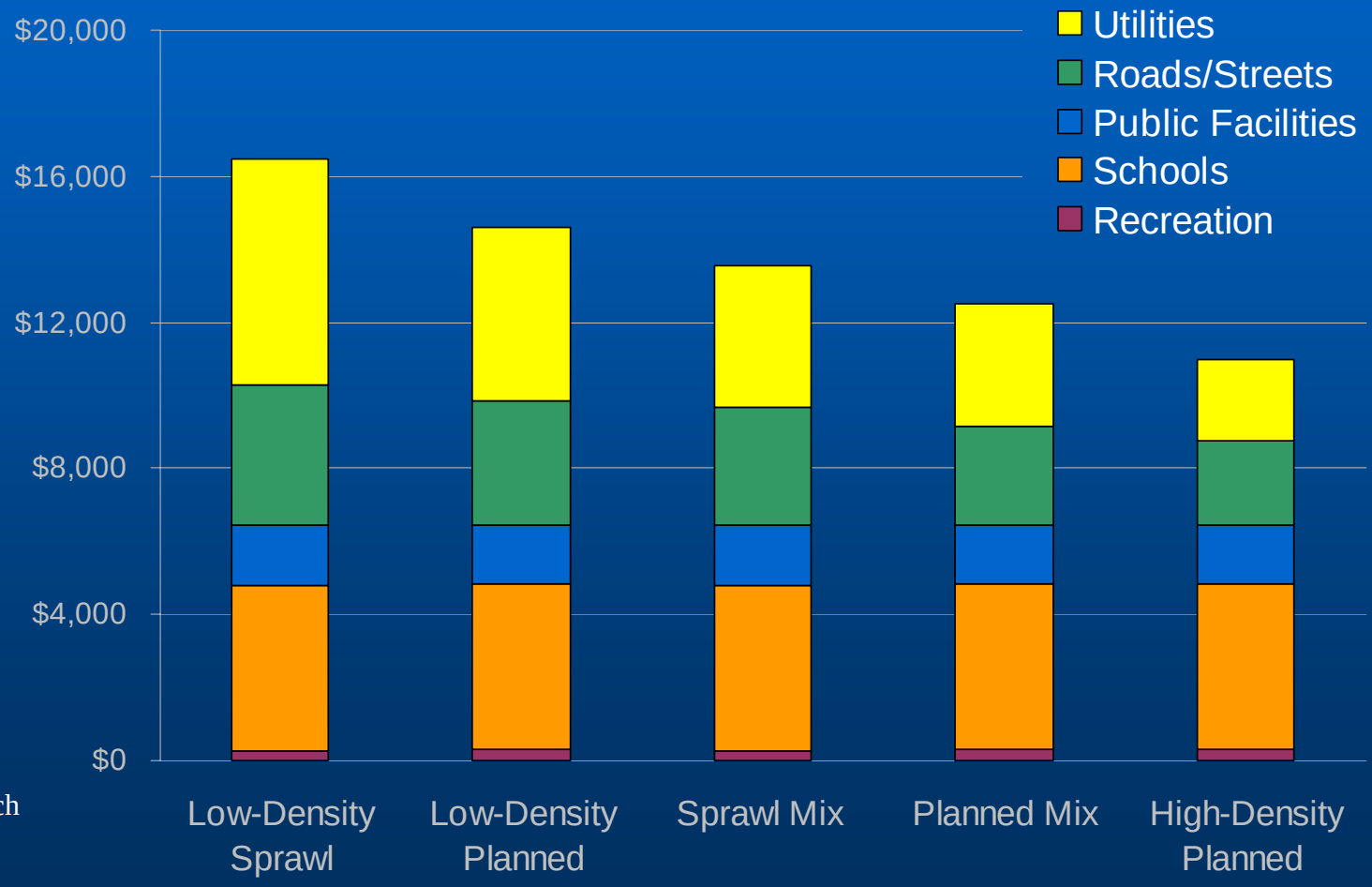
- Utilities
- Roads
- Streets

Low density development increases the costs of key services:

- Police
- Fire
- Emergency medical

Alternatively, high-density developments have shown a 47 percent reduction in infrastructure costs

Estimated cost savings by community prototype



Source: Real Estate Research Corporation (1974)

A 1989 study in Florida showed that the costs for providing infrastructure per dwelling unit is lowest and most efficient for more compact developments

Efficiency Rank	Study Area	Urban Form	Cost
1	Downtown	Compact	**$9,252**
2	Southpoint	Contiguous	**$9,767**
3	Countryside	Contiguous	**$12,693**
4	Cantonment	Scattered	**$15,316**
5	Tampa Palms	Satellite	**$15,447**
6	University	Linear	**$16,260**
7	Kendall	Linear	**$16,514**
8	Wellington	Scattered	**$23,960**
Average			**$14,901**

A 2001 study in Kentucky showed that the cost to a family of four to provide services for every 1,000 new residents is less in a more compact county than a decentralized one

Dollar costs of new services (including police, fire, highway, schools, and solid waste) per 1,000 new residents for a family of 4 in Kentucky

	Development Pattern	Cost
Central city counties		
Fayette	(more concentrated)	($1.08)
Jefferson	(more spread out)	$37.55
Suburban counties		
Shelby	(more concentrated)	$88.27
Pendelton	(more spread out)	$1,222.39
Counties with small towns		
Warren	(more concentrated)	$53.89
Pulaski	(more spread out)	$239.93
Outer ring and rural		
Garrard	(more concentrated)	$454.51
McCracken	(more spread out)	$618.90

Source: Bollinger, Berger, and Thompson (2001)

www.brookings.edu/metro