



### Overcoming Distance in North America

When Europeans began to colonize beyond their shores, the prospects for economic growth in North America seemed remote. During the Seven Years' War (1756–63), as the French and British battled over Canada, Voltaire wondered why they should fight over “a few acres of snow.” They should have been more interested in the economic potential of the Caribbean, where climate and soil were good for growing sugarcane, and they were. Manhattan was famously traded away by the Dutch in exchange for land around Suriname. But over time, it has been the few acres of snow and the rocky landscape of Plymouth (Massachusetts) that gave birth to the “reversal of fortune” between frigid northeastern America and the warmer south.<sup>1</sup>

To understand how this reversal happened, one has to understand how North Americans managed the growing density, the vast distances in the continent, and the sharp divisions between slaves and their owners, between natives and colonialists, between French and English—in short, how North America's economic geography has been reshaped.

#### Size and American economic ascendancy

Size is the most obvious feature of the United States' economic geography.<sup>2</sup> In 1800 5.3 million individuals lived on the 865,000 squares miles of land given to the fledgling nation under the Treaty of Versailles (1783). By 1900 a little more than 2 million square miles had been added through outright purchase, spoils of war, or treaty. Today the United States has more than 300 million people and a territory of 3.5 million square miles. Since 1790 the population *density* of the country has multiplied nearly 18 times.

The challenges of distributing population and production over such a vast space are enormous. Both people and productive land have moved west and south. In 1800 the population was centered in Maryland, on the eastern seaboard (see map G1.1). By 1900 the center had moved to Indiana. Over the twentieth century, the center veered

southwest, ending up in Missouri in 2000. By this time, America's population had settled mostly on its two coasts. Americans are as physically distant as they have ever been.

How did America overcome these vast physical distances? Initially, institutional mechanisms to allocate land and secure property rights

were paramount. The Constitution and the Northwest Ordinance (1787) provided the procedural mechanisms for transforming unsettled areas into states. Public land was disposed of through sales to private individuals and outright grants. Eminent domain was used to put land to its best use, especially when required for railroads.

Map G1.1 The U.S. geographic center of population gravity moved 1,371 kilometers between 1790 and 2000



Source: Geography Division, U.S. Census Bureau.

The first transcontinental railroad was completed in 1864. Indigenous populations were removed forcibly, where necessary, by the U.S. Army. States and local governments encouraged Americans to move by offering land, building canals, and supplying schools, roads, and other public goods. These local governments competed with each other to attract people and firms, offering tax and other incentives.

People and firms were also encouraged to move by the commerce clause of the U.S. Constitution, which explicitly prohibits state governments from engaging in restraint of trade across state boundaries. The institutional structure thus permitted the free movement of people (except slaves), capital, and goods, with attendant property rights so that movement could occur without economic loss.

In this policy environment, the “transport revolution” of the nineteenth century and growing density permitted a fundamental change in American economic structures. The combination of rail, canals, and steamboats vastly reduced the costs of medium- and long-haul transport compared with wagon transport alone.<sup>3</sup> The country became more urban and dense, while regional economic structures diverged. New England, which had been 80 percent agricultural in 1800 despite its poor soils and climate, started to develop manufactures, while the Midwest specialized in food. By the beginning of the twentieth century, the United States had become the largest manufacturer in the world.

The growing density and the migration of people and firms were driven largely by market forces. Most settlement was cautious. Railroads were built when (and where) investors thought they could make a profit and moved incrementally across the country. Occasionally settlement did “leapfrog,” jumping over large expanses of land to get someplace else, as in California after the discovery of gold in 1849. But that simply accelerated the pace of reallocation of labor in America.

### Convergence in living standards

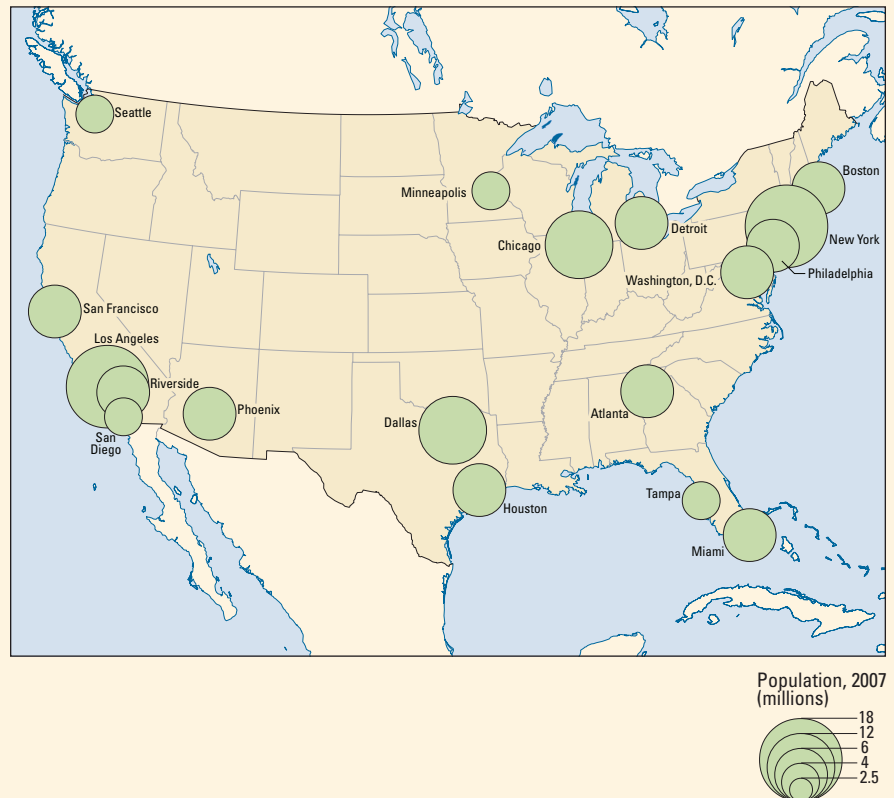
The American Civil War had long-lasting economic effects that *divided* the country. Per capita incomes fell sharply in the South after the Civil War, both absolutely and relative to the rest of the country. In 1900 per capita income in Alabama was still half of the national average. In 1938 Franklin Roosevelt famously remarked that the South was the nation’s “number one economic problem.” America had its lagging areas. But the twentieth century experience was one of steady convergence of living standards.

In the United States, a clear negative relationship exists between the level of per capita income in a state in 1900 and the income growth in that state over the next century. That is, poorer states grew faster than richer states between 1900 and 2000, a phenomenon known as “beta-convergence.” The main explanation for this phenomenon is migration of people. In the twentieth century,

the dominant pattern of movement was from poorer to richer states. Probably the most important example is the migration of African Americans from the rural South to the urban North (and West), beginning in earnest during World War I and becoming a tidal wave during and just after World War II. States such as Mississippi and Louisiana now rank lowest in disposable income, but it is easy to imagine that they would have been much worse off without this migration.

Convergence has been aided by reductions in transport costs. Many of the most important inventions in transport and communications happened in the United States. In the twentieth century, the network expanded with the diffusion of the airplane, the automobile, and electronic communications. Today, 16 of the 30 busiest airports in the world are in the United States, and there are more than 75 automobiles for every 100 Americans.

Map G1.2 America’s large cities are in the Northeast and on the two coasts



Source: Population of Metropolitan Statistical Areas; U.S. Census Bureau.

The invention and diffusion of the automobile led to the enlargement of cities through a pronounced “flattening” of urban density as one moves from the center city to the suburbs. This helped magnify agglomeration economies, but it also produced social *divisions*. The U.S. system of local public finance, relying on local property taxes to fund services, is poorly designed to effect income redistribution. Rich and middle-class households can avoid subsidizing others by moving to new suburbs. Race also plays a role—the central city is predominantly “black” whereas the suburbs are “white.”

For better or for worse, growth in automobiles benefited from the Federal Highway Act of 1956, which authorized building of the Eisenhower Interstate System of highways. In a famous speech, President Eisenhower recounted how as a young officer he participated in the first transcontinental motor convoy from Washington, D.C., to San Francisco in 1919. The trip took 62 days, encountering every type of delay imaginable along the way. Today, courtesy of the system, a driver can cover the 2,819-mile journey in two days. Recent research shows that the 47,000-mile network of highways has integrated formerly isolated rural areas into the national economy and fostered metropolitan growth.

What have these connections done to the distribution of population and economic activity? Paradoxically, as the center of gravity moved toward the interior of North America, the interior—except for its metropolises—has hollowed out. Missouri has just 5.5 million people, more than half of them in the greater St. Louis area. Spreading out the transport infrastructure has not spread people out, but it has allowed growth from agglomeration economies to occur in more cities across the country. The distribution of population in 2000 is clustered in cit-

ies, in the Northeast and on the coasts, producing what is known as “sigma-convergence,” a reduction in the income inequality across states (see map G1.2). By one measure, the dispersion across states in per capita income had fallen to one-third its 1880 level by 2000.

### Rising density, falling disparities, persisting divisions

The long-run economic performance of the United States is exemplary. Per capita income growth has averaged 1.8 percent per year for the last 180 years, leading to a cumulative 26-fold improvement in living standards. Alongside this growth, income inequality across states has fallen. America has realized economies of scale—first at the plant level, then at the local level as towns specialized in manufacturing, and later at the metropolis level in the major urban agglomerations in places like Los Angeles and New York.

The United States today is composed of a highly effective set of national markets in goods and factors of production. Place still matters in determining income, but it matters in the short run, not the long, and the short run is much shorter than it was a century ago. Major local shocks like Hurricane Katrina have far less impact on local growth prospects than before. After the Mariel boatlift brought 125,000 Cuban refugees to Miami in the early 1980s, regional wages did not experience a perceptible impact.

The result is a seeming paradox: wages in America (corrected for human capital) are similar in different locations, while economic activity is highly unequal across space. Europe is lauded for having lower *social* inequality, but North America is more *spatially* equal. And it has a more spatially efficient distribution of economic production. The reason: a mobile labor force. Every year about 8 million Americans move

across states; over a decade, more than a quarter of the population changes its state of residence. By overcoming distance and division, and by permitting population and production to be uneven across space through free mobility, per capita incomes in the United States today are both high and remarkably similar across the different states.

A remaining challenge for the United States is the removal of divisions. The North American Free Trade Agreement (NAFTA) is a step in this direction. But it is a modest step. Consider Canadian-U.S. market integration. One study found that trade among Canadian provinces was much larger than between Canada and the United States, controlling for distance and the economic size (gross domestic products) of the trading partners, in this case, states and provinces.<sup>4</sup> Given California’s size, for example, its trade with Ontario should have been 10 times Ontario’s trade with British Columbia, California’s closest Canadian neighbor. In fact, Ontario’s trade with British Columbia was three times its trade with California. Even one of the thinnest borders in the world has a large negative influence on trade.

Along its northern boundary, the United States and Canada share 3,987 miles, the longest unguarded international border in the world. The situation is markedly different along the southern border with Mexico. The border is guarded—not closely enough for many U.S. citizens—to keep potential illegal immigrants from entering. There are even proposals to build a fence stretching across the 1,933 mile border. Such barriers are an obstacle to convergence between countries in the North American continent.

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