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6

Two Roads to the Transportation Revolution
Early Corporations in the United Kingdom and the United States

Dan Bogart and John Majewski

6.1 Introduction

The complex relationship between geography and institutions was a key theme of Ken Sokloff's work. In analyzing the development of the Americas, Sokoloff and Engerman famously argued that factor endowments like geography and population density profoundly influenced the evolution of important economic institutions. The cultivation of highly profitable staple crops—and a readily available pool of exploitable labor—created high levels of inequality in Latin America and the Caribbean. Powerful groups of influential insiders had little to gain (and often much to lose) from open incorporation, public schooling, expanded suffrage, and other institutions associated with long-term development. In North America (especially in the U.S. North and Canada), environmental conditions prevented the cultivation of staple crops, which encouraged entrepreneurs to focus on raising long-term land values via settlement. Landowners created relatively open political institutions, which led to the development of open, competitive economies with higher levels of public goods.[1] While Sokloff saw an intimate connection between geography and institutions, he also realized that institutions (once created) could have their own independent impact. Sokoloff and Khan, for example, argued that the British government established a complex patenting system with high fees that essentially limited patenting to those with access to capital and specialized information regarding patenting procedures.[2] Inventors in the United States paid far less in patenting fees and could rely upon

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1. Engerman and Sokoloff (1997).
2. Khan and Sokoloff (1998, 298).

far more efficient judicial protection of their claims. Patenting rates in the United States, not surprisingly, were far higher than in Britain.

Following Sokoloff's example, we explore the interaction of factor endowments and institutions through a comparison of the transportation revolution in the United Kingdom and the United States. A long and vibrant literature has recognized that the transportation revolution—the emergence of turnpikes, improved bridges, canals, and railroads in the eighteenth and nineteenth centuries—helped generate economic growth.[3] Improvements in transportation expanded markets, thus setting the stage for productivity advances in both agriculture and manufacturing. Although new technologies, like steam locomotives, played an important role in the transportation revolution, many of the key breakthroughs involved institutional and organizational changes. Common law, which insisted that landowners near roads and rivers should pay for their maintenance, restricted collective efforts to improve transport. To overcome the limitations of common law, legislative bodies in Britain and the United States chartered trusts, joint-stock companies, and corporations to build and oversee transportation improvements. Individual promoters collected tolls and user fees, which in turn allowed capital to be raised from a wider variety of sources. Flexible and adaptable to a wide range of improvements, these organizations provided incentives for private individuals to invest in projects with high rates of social return. Institutions, in essence, created the framework in which new transportation technologies could be developed and implemented.

Our comparison of transportation organizations in the United Kingdom and the United States seeks to shed light on the critical question of how the United States managed to overtake the United Kingdom as a global economic leader. Both nations are rightly considered "success stories," but by the late nineteenth century the United States had shed its status as a settler economy to become one of the world's preeminent economies. A leading question is whether the United States overtook the United Kingdom as the global economic leader because of its political institutions or differences in factor endowments. Analyzing the evolution of transportation improvements offers a unique lens because they were closely linked with population densities and natural resources and had "natural monopoly" characteristics that often led to government regulation.

Our comparison begins in the early nineteenth century long after Britain's Parliament wrestled the authority to grant charters away from the Crown. Parliament jealously guarded its right to grant charters and was the sole authority for obtaining rights-of-way and the authority to collect tolls. Parliament was quite open to passing bills creating transportation organizations, but promoters paid handsomely for their rights through fees to clerks and solicitors.

3. Freeman (1983, 1–30).

The United States adapted (with considerable revision) Britain's basic institutions for improving transport. Following the American Revolution state governments from Massachusetts to South Carolina viewed it as their right to issue charters. Unlike Parliament, U.S. states extracted little in the way of rents—fees, bribes, or other charges were marginal. With corporate charters cheap and relatively easy to obtain, incorporations in the United States proceeded as a series of dramatic booms. In the first part of this chaper, we show that U.S. state governments incorporated far more transport companies per person with far lower fees than did the U.K. Parliament.

The second part of the chapter focuses on why it was relatively more expensive to get a transport charter from Parliament and why more charters were issued per person in the United States. We view these outcomes as a political economy equilibrium, in which there was different demand for charters in each country and different political institutions governing supply. We argue that differences in urbanization and urban structure were key factors in determining the profitability of transport investments and the transaction costs associated with authorizing transport investments. The United States had a largely rural population dispersed over a large area. Most transportation projects paid little in the way of direct returns. Investors, almost all of whom lived close to the improvement in question, instead hoped for "indirect" returns captured through higher land values. While it might have been possible for legislatures to force organizers to pay a portion of their expected higher land values in the way of fees and bribes, in reality the speculative nature of U.S. transportation improvements made the extraction of rents far less likely. The dearth of direct profits for U.S. transportation companies, in other words, created a highly elastic demand in which charging for charters would dramatically lower the number of organized companies. The United States also lacked a central city that could act as a natural anchor for a transportation network. Cities competed to develop their transport links to the West. The emerging urban network fostered boosterism and the developmental impetus behind early U.S. transport development.

The United Kingdom, on the other hand, was a far more developed and densely populated country. It also had a wealthy central city—London—which dominated the structuring of the network and yielded more certain revenue streams. Most U.K. transportation projects paid investors some direct return in the form of interest on bonds or dividends on equity and because they expected some direct return, organizers could more readily pay the fees that Parliament demanded. The urban environment in the United Kingdom created more opportunities for rent extraction. Operating in a more developed and thickly settled country also meant that transportation projects in Britain confronted more vested interests, whether property owners who feared eminent domain damages or merchants and artisans who feared new projects would endanger their livelihood. Parliament's desire to

sort out of these conflicts—which might be thought of as political transactions costs—helped give long-term credibility to Britain's transportation revolution, but they also added to the cost of getting charters.

Differences in political institutions were another key factor. The United States had an active democratic political system where a large percentage of white males could vote. Disgruntled constituents denied a corporate charter could vent their frustrations at the next election. Indeed, they often voiced their opposition to corporations that they perceived as "monopolists" or as "privileged." Approval of turnpikes, toll bridges, and other transportation corporations soon became routine legislative business. Larger corporations such as railroads generated more substantial controversy, but the democratic political culture in the United States allowed different groups and localities to successfully pursue charters for "their" railroads.

British politics were far less democratic. Voting was restricted to a smaller percentage of males and seats in the House of Commons were often uncontested. Moreover, elections were rarely swayed by populist rhetoric that corporations represented monopoly and privilege. Popular uprisings against transport authorities did occur, but they were exceptional compared to the United States.

Political decentralization was also relevant to chartering regimes in the United States and United Kingdom. The British Parliament issued all charters in England, Wales, and Scotland. Facing no domestic political competition, it could charge promoters dearly for its blessing without fearing a substantial loss of economic activity to neighboring jurisdictions. U.S. state governments, on the other hand, faced a competitive environment that worked to dissipate rents. Failure to improve transportation might result in the loss of commerce and population to other states, thus encouraging state legislators to facilitate local projects. In support of this view, we show that the British and Irish Parliament facilitated the passage of acts in their competing counties relatively more before 1801, when the Irish Parliament lost its independent authority to issue charters. Qualitative evidence also indicates that greater decentralization in the United States facilitated transport acts in areas where economic competition was greatest.

An important general point of our story was the ultimate success of both the United States and Britain. Each nation had enough flexibility to tailor corporate institutions to fit their differing economies. The more open chartering environment in the United States helped a relatively sparsely populated country rapidly develop, leading to what one scholar has described as a remarkable "release of energy." It is not clear, however, that the same permissive system would have worked equally well in the United Kingdom. We conclude with a brief assessment of the costs and benefits of decentralized, open chartering in the United States with the greater centralization and somewhat less open system in Britain.

6.2 Background

In both the United Kingdom and the United States, improving transportation involved creating organizations that relied heavily on private capital. Local governments in each nation possessed neither the revenue streams nor the administrative ability to improve long-distance transportation routes. A locality that wanted to improve a road or a river in its jurisdiction faced a pronounced coordination problem—if adjoining towns failed to keep up the road or river, the effort of any single town or parish would largely be wasted. There was strikingly little enthusiasm in either Britain or the United States for creating centralized government bureaucracies powerful enough to improve roads, clear rivers, or construct canals.[4] Instead, both nations established private and quasi-private organizations to build projects such as turnpike roads, toll bridges, and river improvements. The U.K. Parliament authorized trusts, which had the power to issue bonds and collect tolls, to oversee turnpike construction and operation. Other British transportation improvements, such as canals and railways, organized themselves as joint-stock companies or corporations that could issue equity or debt. The corporate form was especially popular in the United States, where state legislatures chartered most turnpikes, toll bridges, and river improvements as corporations. States sometimes chartered U.S. canals as corporations as well, but the governments of New York, Pennsylvania, Ohio, and several other states owned and operated large-scale canal systems.[5] The profusion of different organizational types—private corporations, mixed enterprises, and outright state ownership—reflects the degree to which decentralization allowed states to experiment with different organizational forms.

Even when organized as private corporations, most of the transportation organizations involved a complex mix of private initiative and public authority that often defied our modern dichotomy of private and public. While the trusts and corporations allowed groups of private individuals to raise capital, governments in Britain and the United States made clear that such organizations depended upon government authority for their existence. Theoretically, transportation organizations acted as agents of the state, which gave Parliament and U.S. state governments authority to heavily regulate these organizations. As befitting the public nature of transportation trusts and corporations, British and U.S. state governments approved specific routes, detailed procedures for resolving eminent domain disputes, and instituted complex regulations governing tolls and fees. Political and judicial authorities in both Britain and the United States saw transportation

4. The U.S. national government financed the National Road and scattered funding for other projects, but such spending was only 10 percent of state investment in internal improvements and banks. Wallis (1999, 283).

5. Goodrich (1960, 270–71).

improvements, even when improved via private capital, as a public affair that demanded regulatory oversight.

6.3 The Low Price of Transport Charters in the United States

In the United States, it was surprisingly easy to secure legislative permission for a transportation project. We focus on Middle Atlantic states (New York, New Jersey, Maryland, and Pennsylvania) plus the relatively new state of Ohio. The economies of these states—containing a mix of farming, manufacturing, and commerce—resembled the United Kingdom far more than the slave states or newly settled states in the West. Readily available data for these states shows that the number of charters for turnpikes, toll bridges, canals, and railroads is astounding (see table 6.1). These five states chartered more than a total of 1,800 companies between 1800 and 1840. The 1810s and the 1830s stand out as particularly significant; these two decades saw rapid growth that eventually ended in financial panic and recession. New York led in the absolute number of charters, and was well ahead in per capita terms until the number of corporate charters had trouble keeping pace with the state's tremendous population growth. Ohio, settled by Americans for less than a generation, was the per capita leader in the 1830s. Charters for U.S. transportation companies seemed cheap and easy to secure.

The corporate charters themselves bear out this point. States rarely (if ever) charged companies for the privilege of incorporation. The secondary literature on turnpikes and toll bridges—as well as a review of a sample of charters—reveals that legislatures did not even bother to assess modest administrative fees for transportation charters. The absence of such fees is striking. In Pennsylvania, for example, the state legislature required a corporation to sell a certain percentage of its stock before it could begin operations. To insure these requirements were met, the incorporators often had to send the governor a list of initial share subscribers. Such a process afforded the state government a perfect opportunity to collect fees in addition to the names of initial stockholders, but the legislature failed to do so.

Perhaps it is possible that individual members of the legislature—as opposed to the legislature as an institution—collected fees via bribes. The secondary literature does not associate charters for early transportation with widespread legislative corruption, but then again neither incorporators nor the legislators had any incentive to leave behind a readily visible paper trail.[6] One important fact, however, militates against the story of widespread (but hidden) bribery: most of the transportation corporations chartered in the United States did not become operating concerns. In New York, for ex-

6. Individual companies might have had corruption among corporate officers—say a treasurer or president using company funds for their own personal use—but that is far different than legislators taking bribes for charters.

Table 6.1 **Corporate charters for U.S. transport companies in selected states, 1800–1839**

	1800–09	1810–19	1820–29	1830–39
	A. Number of charters			
Ohio	2	18	28	241
New Jersey	29	29	13	49
Maryland	10	46	31	32
New York	145	185	143	240
Pennsylvania	45	153	101	284
TOTAL	231	431	316	846
	B. Number of charters per 10,000 residents			
Ohio	0.146	0.443	0.368	1.961
New Jersey	1.338	1.149	0.441	1.416
Maryland	0.396	1.616	0.962	0.883
New York	1.921	1.603	0.871	1.104
Pennsylvania	0.638	1.646	0.842	1.848
TOTAL	1.117	1.423	0.749	1.497

Sources: Evans (1948).

ample, only about one-third of chartered turnpikes actually built enough roadway to justify a toll gate.[7] Many projects, moreover, received multiple charters. When a company failed to sell a certain percentage of its stock before beginning operations, they sometimes went back to the legislature and asked for a new charter, perhaps with modifications to the route that might help attract new investors.[8] Such behavior suggests that corporate charters were sufficiently inexpensive that organizers secured their charter first and worried about viability later.

To say that corporate charters were inexpensive is not to say that they were free. Lobbying the legislature for a corporate charter took time and effort. Typically, organizers of a given project initiated a series of organizational meetings—usually advertised in local newspapers—and collected signatures for petitions. Organizers then incorporated these petitions to the state legislature, setting into motion the incorporation process. As the articles of incorporation made their way from committee to a general legislative vote, substantial political opposition might arise. A rival locality could oppose the bill, as might some local residents who resented paying tolls for a local road, bridge, or river improvement. Such opposition was particularly significant in the 1790s when the corporate form was relatively new and untested, but it tended to dissipate after 1800. Local travelers won significant toll exemp-

7. Klein and Majewski (1992, 482).

8. To cite but one example: The Rivanna Navigation Company, a rather small company located in central Virginia, had its charter changed numerous times. See Majewski (2000, 88–97).

tions that muted opposition, and state legislatures often adopted logrolling schemes that made it difficult for one locality to block the improvements of another.

6.4 The British Parliament: Charging for Corporations

How did the chartering regime differ in the United Kingdom? Data on the clerical summaries of all acts affecting local roads, bridges, canals, and railways can illuminate the patterns.[9] The clerical summaries identify acts creating authorities to improve transport and acts authorizing an existing trust or joint-stock company to undertake new projects or improvements. For the purposes of comparison we counted original acts creating new transport authorities along with acts that authorized more projects for an existing transport organization because U.S. charters contained similar information.[10]

Table 6.2 shows the number of turnpike, bridge, canal, and railway improvement acts in absolute and per capita terms for various subperiods from 1800 to 1839. The data cover the regions of England, Wales, Scotland, and Ireland with a combined land area of 121,124 square miles. For comparison, table 6.3 shows the number of turnpike, bridge, canal, and railroad charters in Ohio, New Jersey, Maryland, New York, and Pennsylvania for all years between 1800 and 1839. The combined land area of these five states is 150,167 square miles. During the nineteenth century there were far fewer acts per capita in the United Kingdom than charters per capita in the U.S. states we examine. Even if all the transport improvement acts in the eighteenth century were added to the U.K. total, it would still come to around 40 percent fewer transport improvement acts per 10,000 residents than the U.S. states analyzed above.

Comparing railroad charters is particularly illuminating because this technology evolved in both countries at roughly the same time. Ohio, New Jersey, Maryland, New York, and Pennsylvania together had far more railroad charters per capita than the United Kingdom by 1840—in fact, nearly ten times as many. The higher number of acts translated into a higher number of railroad miles per capita. By 1840 the United States had 1.65 railroad miles per 10,000 residents. The United Kingdom had 0.69 railroad miles per 10,000 residents.[11]

Unlike U.S. corporations, U.K. projects paid significant costs to secure permission to operate. Promoters often hired solicitors or agents who paid

9. See Bogart and Richardson (2006).

10. Some acts in the second category simply extended the term of a transport authority. For example, a turnpike trust often obtained a renewal act after their original authority expired in twenty-one years.

11. The data on railroad miles in Britain and the United States comes from Mitchell (1988).

Table 6.2 **Acts for U.K. transportation authorities, 1800–1839**

	1800–09	1810–19	1820–29	1830–39	1800–39
	A. Number of acts for new transport improvements				
Turnpike	185	199	363	207	954
Bridges	18	21	38	37	114
Canals	47	36	28	33	144
Railways	10	11	42	94	157
TOTAL	260	267	471	371	1369
	B. Number of acts per 10,000 residents				
Turnpike	0.11	0.102	0.161	0.084	0.388
Bridges	0.01	0.01	0.016	0.015	0.046
Canals	0.027	0.018	0.012	0.013	0.058
Railways	0.005	0.005	0.018	0.038	0.063
TOTAL	0.154	0.137	0.209	0.151	0.557

Sources: Bogart and Richardson (2006).

Table 6.3 **U.S. transport charters by mode, 1800–1839**

A. Number of transport charters	
Turnpike	997
Bridges	361
Canals	153
Railways	364
Total	1875
B. Number of charters per 10,000 residents	
Turnpike	1.764
Bridges	0.638
Canals	0.270
Railways	0.644
Total	3.317

Sources: See tables 6.1 and 6.2.

all the fees and guided their bill through Parliament. The fees include payments to officers in the Commons and Lords as well as other expenses. Table 6.4 reports the bills paid to solicitors and agents for a sample of transport acts from 1825 to 1833. The average solicitors' or agents' bill was £505 or $2,405. For comparison, annual incomes for white-collar workers in Britain were between £175 and £500 in the 1820s. Manufacturing workers earned between £60 and £80 per year in the same period.[12] Thus, the fees for charters were well beyond the means of most individuals.

The evidence suggests that the high price of acts in Britain encouraged promoters to select projects that were more likely to be completed. Table

12. For annual earnings see Lindert and Williamson (1983, 4).

Table 6.4 Solicitor and agents bills for the passage of transport improvement acts

Act	Year	Bill in (in £)
Birmingham Roads	1825	740
Limerick Railway	1828	723
Shipley Roads	1828	325
Hammersmith Bridge	1829	363
Finchley Roads	1829	416
Highham Bridge	1830	359
Rickmansworth Roads	1830	74
Festiniog Railway	1832	667
Bradford and Leeds Railway	1832	903
Hull and Hedon Roads	1832	495
East London and London Railway	1828	458
East London and London Railway	1829	535
Average solicitors' and agents' bills		505

Source: Great Britain, House of Commons (1833, 424–29).

6.5 shows the completion history for a sample of canal projects identified from a 10 percent random sample of canal acts.[13] The vast majority of canal projects authorized by acts were implemented within five years. Only two (or 10 percent) were never completed. The percentage of turnpike acts that were implemented can be estimated by the number of trusts that obtained renewal acts after twenty-one years. Since renewal acts were expensive, they would only be sought if the trust was still in operation. Table 6.6 shows that among all trusts created before 1729, only 7 percent failed to obtain a renewal act before their term expired. Unlike the U.S. states, the vast majority of projects that Parliament authorized were actually completed.

6.5 The Role of Urbanization

Urbanization contributed to the differences in chartering regimes by affecting the profitability of transport projects and the transaction costs of implementing projects. We begin by analyzing the link between urbanization, profitability, and the willingness to pay for charters.

Although formally organized as for-profit corporations, most U.S. companies paid little in the way of direct profits (dividends and stock appreciation). This was especially true of turnpikes, which typically generated just enough revenue to pay for operating expenses. In 1825, the Pennsylvania state government (which invested heavily in transportation companies) held just over $1.8 million in turnpike stock, yet received only $540 in dividend

13. The percentage of canal acts that were implemented can be estimated using the detailed histories put together by Jim Shead (2008) and Joseph Priestley (1831).

Table 6.5 The completion rate for U.K. canal projects authorized by acts

Projects identified in 10% random sample of canal acts	Year original act	Year when completed
Cromford	1789	1794
Kennet and Avon	1796	1810
Birmingham to Bilstone to Autherley	1768	before 1784
Neath canal	1791	1795
Trent and Mersey Canal, tunnel Harecastle Hill	1823	c1825
Birmingham and Liverpool Junction Canal	1826	1835
Birmingham and Liverpool Junction Canal, Newport Branch	1827	1835
Lough Corrib to Galway Bay canal	1830	c1835
Sankey Bridges to Widnes branch canal	1830	1833
Chard Canal	1834	1842
Canal from Forth and Clyde to Campsie in Stirling	1837	never built
Montgomershire canal, Newton Branch	1815	1819
Edinburgh to Falkirk	1821	c1825
Bradford canal	1771	1774
Wyrley and Essington Canal	1792	1797
Rochdale canal	1794	1804
Bath to Bristol	1811	never built
Between Birmingham and Worcester and Birmingham Canals	1815	c1820
Calder and Hebble, Halifax branch	1825	1828
Forth and Cart Canal	1836	1840
Stourbridge Extension Canal	1837	1840
Number of canal projects		21
% that were not started or completed		10%

Sources: Priestly (1831); Shead (2008).
Notes: Canal projects were identified through a 10% random sample of acts.

payments—a rate of return of far less than 1 percent. Not surprisingly, there was little in the way of a secondary market for these unprofitable stocks. In 1817, Biddle and Company of Philadelphia, one of the nation's biggest securities brokers, traded a grand total of 118 shares in transportation companies, a tiny fraction of the 71,369 total shares that the company handled.[14] In Virginia, an 1847 government report declared that stock of the state's turnpike and navigation companies "had no public value." No systematic data exists for other states, but observers frequently noted that turnpike stock was unprofitable. Speaking of New York's turnpikes, DeWitt Bloodgood noted in 1838 that, "Generally they have never remunerated their proprietors, nor paid much more than the expense of their actual repairs."[15] Even in New England, where high population densities resulted in more

14. Calculated from Wright (2002, 155).
15. Klein and Majewski (1992, 499).

Table 6.6 **English turnpike trusts before 1730 that did not obtain a renewal act before their term expired**

Turnpike road	Year created	Term expired	Year authority was resumed
Great North Road in Hert., Cam. and Hunt.	1663	1672	1693
Ryegate and Crawley in Surrey	1697	1712	1755
Barnhill and Hutton Heath in Cheshire	1706	1727	?
London Norwich road, St. Stephen to Norfolk	1726	1747	1767
Roads into Tewkesbury in Gloucester	1726	1747	1756
Roads into Bridgewater in Somerset	1730	1751	1758
Number of trusts created between 1663 and 1730			87
% that did not renew their authority			7%

Sources: The data for Turnpike acts come from 1663 and 1750 in *Statutes of the Realm.* (Great Britain, various years).

traffic and more revenue, turnpikes made little money. According to one historian, "it is doubtful whether more than five or six [New England's turnpikes] paid their proprietors even reasonably well."[16]

Other types of early U.S. corporations generated more direct profits, but not much more. Table 6.7 summarizes the share prices in Pennsylvania, when the state government tried to auction off its stock in various improvements in 1842. Turnpike stock sold for an average of $3.35 per share, well below the initial par value (what investors initially paid for each share) of $50 to $100. What's more, the state found it impossible to auction off thousands of other turnpike shares—no buyers could be found at any price. The profitability of toll bridges was better, as they sometimes held quasi-monopoly status in large urban areas divided by rivers.[17] The state auctioned its toll bridge stock for $9.66 per share, which still represented a steep loss for shares that it initially paid $25 to $100 apiece. The same pattern held true of navigation and canal companies—the state managed to unload most of its shares, but at a substantial loss.

It is more difficult to find comprehensive data on the profitability of early U.S. railroads. Railroads would eventually pay far higher dividends than other improvements, but it took several years for them to generate revenues and profits. Most of the railroads chartered in the 1830s were hit particularly hard by the Panic of 1837, which depressed revenues and profitability. The shares of three companies sold by the state of Pennsylvania—which fetched the rock-bottom price of $2.37 per share—reflected the rather dire short-term outlook for railroad stocks.

16. Taylor (1934, 266).

17. It was also far easier for bridges to collect tolls. Unlike turnpikes, toll bridges did not have to worry about informal "shunpikes" skirting around toll gates.

Table 6.7 Stock prices for Pennsylvania corporations at 1842 state auctions

Corporation type	Number of companies	Number of shares sold	Average price of shares	Par value of shares ($)
Turnpikes	40	16,069	$3.35	50–$100
Toll bridges	21	17,046	$9.66	25–$100
Canals and navigation companies	6	7,350	$12.35	50–$100
Railroads	3	710	$2.37	50

Source: Hartz (1948).

The poor profitability of early U.S. transportation companies (at least from the standpoint of direct returns) stands in sharp contrast to their British counterparts. The dividends paid by joint-stock canal companies have been extensively studied in the literature. Duckham summarizes the results of an 1825 report by the *Quarterly Review* on the dividends of eighty canal companies.[18] The average divided equaled 5.7 percent of total capital. Studying the average is somewhat misleading because some canal companies paid very large dividends and most others paid less than 4 percent. Nevertheless, the fact that U.K. canal companies paid some dividends stands in stark contrast to the U.S. case. U.K. turnpike authorities did not issue shares, but they issued bonds secured on the income of the tolls. How well did these bonds pay? Albert has argued that a large percentage of trusts in 1821 and 1837 were in adverse financial condition.[19] Many trusts (more than half), nevertheless, regularly paid interest on their bonds. Charity Commission records also suggest that turnpike bonds were not being traded at a heavy discount like U.S. turnpike shares.[20]

Underlying population densities are surely one reason why British transportation organizations generated direct returns for investors while U.S. companies did not. Figure 6.1 compares British population densities with those of the Middle Atlantic states and Ohio. The differences were striking. British population densities in 1800 were some five to fifteen times higher than the various U.S. states; by 1840, British population density was still five times greater than that of the United States. The differences in population density resulted in a far larger urban population. In 1801, the proportion of British residents living in cities of at least 5,000 was 25 percent. More people lived in London (900,000) than all U.S. residents in census-defined

18. Duckham (1983, 123) and Ward (1974).

19. Albert (1972).

20. Charity commission records report the prices paid for assets by charities in England from the 1500s to the early 1900s. The prices of turnpike bonds were often purchased or sold at prices around £25 or £50, which was their usual denomination. See Clark (1998) for more details on the source.

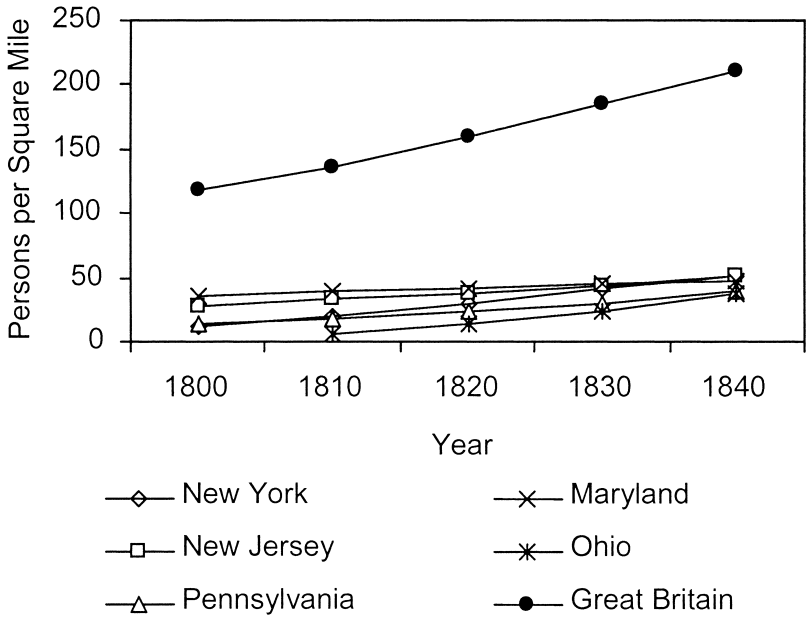

Fig. 6.1 Population per square mile, 1800–1840 Great Britain vs. selected U.S. States
Sources: Mitchell (1988, 1998).

urban areas (322,371).[21] America's urban population and manufacturing output would expand dramatically over the next three decades, but even in 1830 London's 1.9 million residents surpassed the 1.3 million persons living in all U.S. cities.[22] British transportation improvements could rely on more people—and hence great economic activity—to generate more revenue for each mile of turnpike, canal, or railroad. No wonder that few U.S. companies could hope for even minimal direct profits, while British companies typically rewarded investors well.

The financial difficulties of U.S. transport authorities lessened the incentives for U.S. legislatures to extract fees for their charters. The demand for charters in the rural United States was effectively elastic. Higher fees would have resulted in far fewer charters. Even in the case of railroads, where construction costs were far higher, greater fees could discourage marginal projects. In urban Britain, Parliament could charge higher fees for acts. Demand was less elastic because the financial prospects were far brighter.

Differences in demand elasticity suggest one straightforward explanation for the differences in chartering between the United States and Britain.

21. U.S. Bureau of the Census (1998a,14).
22. B. R. Mitchell (1988, 25), (1998, 14). U.S. Bureau of the Census (1998b).

Assuming that Parliament acted as a monopolist, it would set the fees at the point where the marginal revenue from acts equaled the marginal cost. At this fee level, some promoters would not petition for acts because they had a low willingness to pay. Parliament did not mind the loss in revenues from the marginal project because it was more than compensated by the higher fees charged to other petitioners willing to pay for the act. In the United States, monopolistic state legislatures had greater difficulty extracting rents because more promoters would have exited the market if fees were raised to the British level. By undermining profits, low population density reduced the profit-maximizing fee in the United States.

The pure rent-extraction hypothesis has some qualitative support in the data. For example, promoters often complained about the fees charged by Parliament and the resulting erosion of their profits.[23] However, simply having the ability to charge higher fees does not necessarily account for why Parliament charged so much more for transportation charters. The higher fees in the United Kingdom also reflected the expenses incurred in convincing members of Parliament (henceforth MPs) of a project's merits and in negotiating with opposition groups. This view is suggested by the relatively small proportion of total costs directly charged by Parliament. Promoters were required to pay fees to clerks in the Commons and Lords, who drafted the legal documents and ensured that MPs received copies of the bills. The fees paid to clerks were generally smaller than the fees paid to solicitors and parliamentary agents who were not employed by Parliament.[24]

Solicitors and agents handled a variety of tasks for promoters and were especially important when bills were opposed. In such cases, committee proceedings in Parliament resembled a courtroom. Expert witnesses were selected by each side and were examined and cross-examined by MPs. The Birmingham to Worcester canal bill in 1791 provides an illustrative example. It was opposed by a rival canal company, by mill owners and landowners along the route, merchants in neighboring cities who feared trade diversion, and a segment of the manufacturing community in Birmingham who feared higher prices for coal once it was exported.[25] Seventeen witnesses were examined resulting in a lengthy proceeding. Solicitors of agents helped to organize the witnesses who were favorable to the project. Behind the scenes the solicitors were also involved in negotiation with opposition groups. The act for the Birmingham and Worcester canal, for example, contained a clause prohibiting the company from building close to its rival

23. Clifford (1968, 734).

24. Turnpike acts between £50 and £100 went to fees for House of Commons officers. Bridge acts between £95 and £180 went to fees for House of Commons officers. For railway and canal acts, officer fees were between £60 and £330. See table 6.4 for data sources.

25. Counterpetitions and the details of the proceedings for this bill in the House of Lords are available at the Parliamentary Archives in the House of Lords, Main Papers, 30/3/04, May 1791.

canal and even required they provide compensation in the event their rival's profits fell.[26]

The time and resources required to argue against opponents' claims were "political transaction" costs. Transaction costs were higher in Britain than the United States because of its greater urbanization. Land is more valuable in urbanized societies, making rights-of-way problems more difficult. Opposition is also greater because more is invested in mills, coal mines, neighboring cities, and rival transport operators. U.K. transport charters were more expensive, in part, because it is costly to reorganize property rights in a highly urbanized society.

6.6 Developmental Aims and Inter-City Competition

The different chartering regime in the United States was driven by additional factors that were related to its frontier context and emerging urban structure. U.S. improvements promised substantial indirect benefits from higher property values. Many contemporary observers noted a strong relationship between transportation improvements and higher land values. Pennsylvania gazetteer Thomas F. Gordon reported in 1832 that, "None [of the turnpikes] have yielded profitable returns to the stockholders, but everyone feels that he has been repaid for his expenditures in the improved value lands, and the economy of business."[27] An article in the *Poughkeepsie Journal* urged residents to invest in the New Paltz Turnpike not because of dividend payments, "but from an expectation that the investment would be returned with treble interest, in the addition which would be made to business and the value of property." A number of scholarly studies confirm such assessments; they have found that transportation improvements such as navigation companies and early railroads raised land values anywhere from 4 to 10 percent. Property owners living closest to the lines of improvement typically benefited the most.[28]

The combination of poor direct profits and high indirect returns made early U.S. transportation companies, to some degree, public goods. If many local landowners benefited from the improvements, then why buy unprofitable stock? Why not let neighbors buy shares that would quickly depreciate in value? Historians have documented how a vigorous spirit of civic boosterism—including rousing speeches, well-attended public meetings, and widespread publicity in local newspapers—helped to motivate local investment.[29] Analysis of shareholder lists bolsters that interpretation. Investors tended to live near the improvement in question, which makes sense given that those

26. Priestly (1831, 1691).
27. Gordon (1832, 35).
28. Coffman and Gregson (1998, 191–204); Craig, Palmquist, and Weiss (1998, 173–189); Majewski (2000, 28–32); Wallis (2003, 238–244).
29. Klein (1990); Majewski (1996).

owning property closest to the project stood to gain the most. The distribution of shares tended to reflect the distribution of property. The top 10 percent of investors (typically large local landowners and prominent merchants) owned around 40 percent of a given company's shares, while a large number of more modest investors purchased the rest.[30] In Pennsylvania, for example, the average holding of turnpike investors was around $200, while the median holding was $100. The large number of modest investors seemed to be spreading the pain of low-direct returns as widely as possible, while still contributing to a project that promised to deliver substantial indirect benefits.[31]

The strong developmental impetus of early U.S. corporations helps account for why state legislatures never attached fees for charters. U.S. transportation companies could ill afford additional costs, especially up-front costs that would have forced many local organizers to raise a substantial sum of capital even before formally organizing their company. Obtaining a corporate charter cheaply and easily allowed local organizers to gauge the depth of community sentiment and their ability to attract investment into what were essential nonprofit enterprises that still promised significant economic benefits to the community at large. That so many companies obtained charters, yet never built the actual project, suggests the underlying fragility of these enterprises. State governments had no incentive to see more fail, in part because individual legislators—who owned land in the localities they represented—had considerable incentive to speedily approve transportation corporations.

The more "open" urban hierarchy in the United States added to the boisterous booster spirit that animated early transportation companies. Commercial and urban growth, of course, would fuel capital gains resulting in urban real estate speculation. On the flip side, cities that failed to keep pace might suffer absolute declines in trade and population. Urban boosters exaggerated such fears, but an overwhelming amount of qualitative evidence indicates that civic leaders saw the race for commerce as a zero-sum game in which some cities would win while others would lose. On the national level, New York, Philadelphia, Boston, and Baltimore battled for commercial supremacy, while scores of small towns and cities sought to become preeminent within their own region or county. Civic leaders who feared losing population, wealth, and prestige to rival cities could hardly tolerate restrictive and expensive corporate-chartering policies. Urban rivalries, in fact, may have led to too much investment in transportation. The great success of New York's Erie Canal led Philadelphia, Baltimore, and Richmond to try to emulate the Empire State's great success. The resulting state-financed canals ultimately failed in their quest to redirect trade and saddled Pennsylvania, Maryland, and Virginia with significant debt.

30. Hilt (2008, 664).
31. Majewski (2006, 309).

The developmental impetus was also present in the United Kingdom, but it appears to have been weaker. The absence of strong boosterism suggests that transport improvements were viewed as complements to property values and urban status rather than a fundamental determinant of wealth and comparative advantage. The dominance of London in the British urban hierarchy is perhaps one reason. No British city envisioned that it would overtake the metropolis in terms of its economic and political functions. Philadelphia, Boston, and Richmond all had such ambitions vis-à-vis New York. Down the urban ladder there was more competition in the United Kingdom, like that between Bristol and Liverpool who both vied for leadership in the Atlantic trade, but there was no equivalent to the race to link the Eastern Seaboard with western areas in the United States.

6.7 The Role of Democracy

Thus far we have focused on economic differences. There were also, of course, significant political differences, with the United States being more democratic than the United Kingdom. Although the various colonies had significant restrictions on white male suffrage, states slowly began to relax these restrictions once the United States had won its independence. Tax-based qualifications, which were significantly easier to meet, replaced property qualifications in many of the original states. New western states, eager to attract new migrants, generally adapted universal white manhood suffrage. Older states followed their lead. In 1840, 78 percent of all adult white males voted in the presidential election.[32] In Britain, the franchise was far more restricted. In 1774, the estimates are that 13.9 percent of adult males in England and Wales voted and in 1831 only 12.2 percent of adult males voted.[33] Even that number does not fully capture the relative lack of democracy in Britain, as many parliamentary seats were simply given to members of prominent families or their political allies. In 1774, 18 percent of seats in the Commons were contested (i.e., more than two candidates ran for a two seat constituency); in 1818 the figure was the same.[34]

Not only was the United States more democratic, but its wealth was also distributed more equally than Britain's more hierarchal and aristocratic society. In 1810, the top 1 percent of British households owned almost 55 percent of marketable net worth, a figure that rose to 61 percent by 1875. For the United States, the top 1 percent in 1860 owned 29 percent of all assets.[35] State and local studies are consistent with the aggregate U.S. figures. Steckel and Moehling, for example, have recently calculated that the total taxable

32. Engerman and Sokoloff (2005, 906).
33. Jupp (2006, 236).
34. Jupp (2006, 236).
35. Lindert (2000, 181, 188).

wealth owned by the top 1 percent of households in Massachusetts fluctuated between the range of 20 to 33 percent between 1820 and 1860.[36]

The greater degree of democracy and economic equality in the United States made it more difficult to limit the availability of corporate charters. Aggrieved citizens denied corporate charters could use their power at the ballot box to make their voices heard. Those seeking corporate charters used a republican rhetoric suspicious of "privilege," "corruption," and "monopolists" to paint political opponents as "aristocrats" who used political power for individual gain. Such rhetoric was most indentified with Jeffersonian Republicans and Jacksonian Democrats, but it could be used by any group who believed that they had been unfairly denied access to corporate charters.[37] Rather than risk the mobilization of potential political opponents, legislators found it expedient to issue new charters. Restricting access to charters became politically difficult. Local communities flooded the legislature with requests for charters and approval for turnpikes, toll bridges, and other local improvements became routine.

There is some quantitative evidence within the United States that greater democracy contributed to higher numbers of charters for transport improvement. Table 6.8 shows the number of transport charters per capita in the 1820s and 1830s for five U.S. states as well as the average percentage of males who voted in the presidential elections in the same decades. If greater democracy contributed to lower fees for acts or greater effort by politicians, then there should have been a higher increase in acts per capita from the 1820s to the 1830s in states where there was a greater increase in the percentage of males who voted. The bottom panel of table 6.8 shows that this was indeed the case. Ohio had the greatest increase in acts per capita and the greatest increase in the percentage of males who voted. Maryland had the lowest increase in acts per capita and it had the lowest increase in the percentage of males who voted. It is difficult to draw strong conclusions from this analysis because of the myriad of factors influencing relative chartering rates across U.S. states, but it is notable that the correlation between the change in transport charters per capita and the change in the percent voting was 0.78.

Conditions were quite different in Britain where democracy was more muted. The small proportion of males who voted has already been noted. Consistent with this fact, the general view among historians is that elections had little influence on economic policies in the early nineteenth century.[38] This conclusion seems to apply to charters as well. In Britain the number of contested seats provides a local measure of democracy, as data on the number of males who voted in each county is lacking. If elections mattered

36. Steckel and Moehling (2001, 167).
37. Wallis (1999, 294–99); Wood (1992, 305–25); Majewski (2000, 85–110).
38. Jupp (2006, 245).

Table 6.8 **Democracy and transport acts across five U.S. states**

A. Voting rates and acts per capita

State	Period	Acts per capita	Voting rate
Ohio	1820s	0.368	55.3
New Jersey	1820s	0.441	51
Maryland	1820s	0.962	64.95
New York	1820s	0.871	50.75
Pennsylvania	1820s	0.842	38.1
Ohio	1830s	1.961	74.65
New Jersey	1830s	1.416	65.1
Maryland	1830s	0.883	61.55
New York	1830s	1.104	66.15
Pennsylvania	1830s	1.848	52.9

B. Changes from 1820s to 1830s

State	(1) Change in transport acts per capita	(2) Change in vote rate
Ohio	1.593	19.35
New Jersey	0.975	14.1
Maryland	–0.079	–3.4
New York	0.233	15.4
Pennsylvania	1.006	14.8
Correlation between (1) and (2)		0.776

Sources: For voting rates see Engerman and Sokoloff (2005, 906).

in Britain, then one would expect a positive relationship between the number of transport charters and the number of contested seats in a county. This relationship can be tested using Thorne's data on contested elections in each county around 1800.[39] A simple regression analysis was performed using the number of road acts and the number of contested elections for all constituencies in each English county in two separate periods, 1790 to 1806 and 1807 to 1818. The results show that the change in the number of road acts between the 1790 to 1806 and 1807 to 1817 periods is insignificantly related to the change in contested elections over the same period after controlling for the change in population growth for the county from 1791 to 1801 and 1811 to 1821 (see table 6.9). The same result holds for canal acts over the same two periods. Thus a preliminary analysis of the data suggests little evidence linking electoral competition and transport acts in Britain. The difference with the United States is not surprising. In early nineteenth century Britain,

39. Thorne (1986, 358–67).

Table 6.9 **The effect of contested elections on transport acts across English counties c. 1800**

Variable	Road acts coeff (*t*-stat)	Canal acts coeff (*t*-stat)
Dependent variable: Change in number of transport acts between 1790 to 1806 and 1807 to 1821		
Change in contested elections between 1790–1806 and 1807–1821	0.633 (1.33)	–0.25 (–1.39)
Change in population growth between 1791–1801 and 1801–1811	245 (1.82)	9.22 (0.09)
constant	–1.3 (–2.01)	–2.33 (–4.25)
N	39	39
R-Square	0.13	0.05

Notes: For data on acts see the text. For data on contested elections see Thorne (1986). For data on county level population growth, see Wrigley (2007).

there was a striking absence of the republican rhetoric focusing on privilege, corruption, and monopoly.

A greater degree of democracy in the United States, it should be stressed, did not always lead to more open economic institutions. Some states restricted charters as part of a fiscal strategy of asset finance. Instead of levying taxes, state governments sometimes borrowed money to invest in enterprises that could generate large and steady rates of return. Investment in banks, which frequently generated healthy profits, was the most common strategy. States such as Pennsylvania essentially granted a few favored banks quasi-monopoly status in return for generous bonuses and grants of bank stock. Such practices smacked of giving privileges to favored insiders, but politicians aggressively defended such practices as a means of eliminating taxation. In Pennsylvania, the state derived 23 percent of its revenue from bank investments, which essentially allowed the state to forgo a property tax.[40] Such arrangements broke down in the late 1830s, when bank panics, falling land values, and declining economic activity put many asset finance states near the edge of bankruptcy.

Could transportation enterprises fulfill the same function as banks? New York's famously successful Erie Canal supplied most of the state's revenue for many years, and legislators were therefore leery of chartering railroads that might cut into its operating profits. New Jersey's Camden and Amboy Railroad and Delaware and Raritan Canal were even better examples. In 1830, the New Jersey legislature granted the two corporations (which became known as the Joint Companies) a monopoly on the immensely profitable traffic between New York City and Philadelphia. In return, the state received preferred shares and levied transit duties on goods and passengers. The

40. Wallis (2003b, 239–40); Wallis (1999, 291–94); Wallis (2000, 40–1).

resulting revenue allowed the state to abolish the property tax and expand state support for public education.[41]

New Jersey's unusual arrangement with the Joint Companies was clearly exceptional. The Joint Companies obviously benefited from New Jersey's peculiar geography. Lying between New York and Philadelphia, the Joint Companies monopolized a lucrative route to produce profits that most other transportation companies could not generate. Shippers and passengers residing in New York and Philadelphia—and not residents of New Jersey—suffered the most from the monopoly. In many ways, the monopoly was a crafty means of levying a tax on interstate commerce. Rival entrepreneurs, hoping to charter competing railroad companies, resented the Joint Companies' monopoly status, yet their pleas fell on deaf ears. The stockholders of the Joint Companies managed to align their own interests with the interests of the state's taxpayers and politicians. The state legislature, in fact, explicitly adopted the policy of "the principle of protection as means of revenue" in defending the monopoly.[42] New Jersey's Jacksonian Democrats, usually hostile to privilege, readily supported the state's arrangement as an antitax measure. Despite campaigns to end the monopoly, it persisted until 1870. The political insiders who controlled the Joint Companies certainly benefited from their legal monopoly, but with the public support.

6.8 The Role of Political Decentralization and Centralization

One reason why few states emulated New Jersey was the fear that people and commerce might relocate to another state. Pennsylvania, for example, viewed New York and Maryland as rivals in the race to attract trade from the newly settled West. Granting a legislative monopoly to a company or even restricting access to charters might ultimately result in the loss of new trade opportunities, stoking fears of economic and political decline relative to other states. In the United Kingdom regions also competed with one another, but there was a potentially important difference in how competition was mediated through the political system of each country. In the United States, state legislatures had the authority to issue charters for transport improvement in their state only. They could neither authorize nor prevent the authorization of projects in nearby states. By contrast, United Kingdom regions like England, Wales, and Scotland did not have the direct authority to pass transport acts. This right belonged to the British Parliament as a whole before 1801 and the U.K. Parliament after 1801 when Ireland was incorporated. Thus, in the United States several legislatures possessed monopolies on charters in their own territory, while in the United Kingdom only a single legislature held such power.

41. Cadman (1949, 50–61).
42. Quoted in Cadman (1949, 58).

How did these differences in political structure influence transport acts or charters? One hypothesis is that U.S. state legislators did not charge higher fees because it would lead to a diversion of economic activity to other U.S. states, which would affect legislators' incomes adversely in the long run. In the United Kingdom, Parliament did not face the same cost because trade would be diverted to other areas in the United Kingdom that remained under its control. Parliament could therefore keep the fees high.

The effects of political structure are not easy to test. Ideally, one would like to observe the United States with one legislature or the United Kingdom with many regional parliaments. Irish unification offers one such test case. Ireland had its own parliament before 1801, when it was unified with Great Britain. The Irish Parliament was abolished and all acts relating to transport were passed in London through the U.K. Parliament. Prior to unification, the Irish Parliament might have kept fees low to prevent trade from being diverted to competing areas like the northwestern coast of Wales and England and the southwestern coast of Scotland. The British Parliament would have been sensitive to similar considerations in these same counties that competed with those in Ireland. However, after unification, the U.K. Parliament might have treated the competing regions the same as others because economic activity remained within the United Kingdom.

The preceding argument suggests that if the centralization of the U.K. Parliament mattered, then counties in Ireland, the northwestern coast of Wales and England, and the southwestern coast of Scotland should have had relatively fewer transport acts after unification in 1801 than before when compared to all other counties in Britain. Table 6.10 shows the number of road, canal, and harbor acts for each of the affected regions ten years before and after unification in 1801. The same comparison is made twenty years before and after unification to allow for a delayed response due to the Napoleonic Wars. The key comparison is between the treated counties (i.e., Ireland, the Welsh border, the Scottish border, and the English border) and the control counties (i.e., all other counties in Britain). There was a 57.3 percent drop in road acts in the treated counties between the 1790s and the 1800s, but in the control counties there was a 12.4 percent increase. The difference-in-difference in the percentage change was minus 69.7 percent. A similar set of results holds for canal acts that decreased in Ireland and the English border counties ten years after unification. In the control group canal acts decreased as well, but the difference-in-difference shows that canal acts declined more in the treatment group of counties in Ireland, the Welsh border, the Scottish border, and the English border. For harbor acts the results are mixed. In the ten-year period before and after unification harbor acts decreased more in the treatment counties, but in the twenty-year period before and after unification harbor acts increased more in the treatment counties.

Overall, the calculations provide suggestive evidence that British and Irish

Table 6.10 **Changes in transport acts before and after unification of the Irish and British Parliaments in 1801**

Act type	Ireland	Welsh border	Scottish border	English border	Total treatment	Treatment % diff	Control % diff	Diff-n-diff
Road acts								
1791 to 1800	33	6	12	24	75	–57.3	12.4	–69.7
1801 to 1810	5	4	3	20	32			
1781 to 1800	41	7	15	32	95	–37.9	35.9	–73.8
1801 to 1820	8	7	8	36	59			
Canal acts								
1791 to 1800	5	0	1	17	23	–69.6	–48.6	–21
1801 to 1810	0	1	3	3	7			
1781 to 1800	8	1	1	18	28	–64.3	–23	–41.3
1801 to 1820	1	1	3	5	10			
Harbor acts								
1791 to 1800	1	3	1	2	7	28.6	57.1	–28.5
1801 to 1810	2	4	3	0	9			
1781 to 1800	1	4	1	3	9	155.6	135.3	20.3
1801 to 1820	8	4	8	3	23			

Sources: Bogart and Richardson (2006).

Notes: Welsh border counties include Flint, Denbigh, Anglesey, Carnarvon, Merioneth, Cardigan, and Pembroke. English border counties include Cheshire, Lancashire, and Cumberland. Scottish border counties include Dumfireshire, Kirkcudbrightshire, Wigtownshire, Ayrshire, Renfrewshire, Dumbartonshire, Argyll, Bute, and Iverness-shire. The control group includes all British counties except Cheshire, Lancashire, and Cumberland.

MPs kept fees relatively low to facilitate transport acts in their respective counties that competed with one another before unification in 1801. More broadly, the results suggest that the high degree of political centralization in the United Kingdom tended to impede transport charters. In terms of the United States, the analysis is generally consistent with the view that political decentralization contributed to the higher number of transport charters. The potent combination of competitive urban rivalries and political decentralization reinforced one another and contributed to liberal chartering policies.

6.9 Concluding Thoughts

The nineteenth century United States had a similar institutional framework as the United Kingdom because of its colonial heritage. In the arena of transport policy the United States followed the British model in issuing charters to private organizations for specific projects. The United Kingdom and the United States differ considerably, however, in how they implemented their chartering regimes. The United States adopted a lower cost and more open charter policy than the United Kingdom.

We suggest that a number of different factors led to this outcome. Differences in urbanization and urban structure were primary factors. In the United States, state legislatures could not charge high fees because the low level of urbanization reduced the profitability of transport projects. The more open urban hierarchy and a highly competitive booster mentality also fueled the desire for cheap and readily available transportation charters. British companies, operating in a wealthier, more densely populated country, generated higher direct profits. British companies could more readily pay fees for charters. These fees might well have reflected the high costs of achieving political consensus in a more densely populated countryside with a greater variety of conflicting interests. In a more negative light, the fees may also have represented a way for Parliament to enrich itself and its members. Differences in political institutions were also contributing factors. The more democratic and decentralized political system in the United States readily responded (with some notable exceptions related to asset financing) to the demand for more charters. The more aristocratic and centralized political structure of Britain, on the other hand, created a more conservative chartering, which helped justify parliamentary fees.

In the end, what is the ultimate importance of understanding the two paths to the transportation revolution? On one level, our comparison comports with James W. Hurst's famous arguments that legal and political institutions led to a "release of energy" that transformed the U.S. economy.[43] The story, though, is more complex than celebrating the democratic and entrepreneur-

43. Hurst (1964, 3–32).

ial ethos of the United States while denigrating conservative and aristocratic Great Britain. British chartering policies undoubtedly slowed the pace of the transportation revolution, as the high costs of charters meant that more marginal projects were built slowly and sometimes not at all. While the British economy would have probably benefited from a more open chartering policy, Parliament still allowed considerable institutional innovation to take place. The U.S. system's emphasis on decentralization, moreover, produced its own set of problems. States sometimes prevented out-of-state rivals from obtaining charters, thus restraining competition. State competition sometimes encouraged desperate investment in transportation projects—such as the Pennsylvania Mainline Canal—that had little chance for success. The "release of energy" from open chartering policies certainly contributed to the rapid development of the U.S. economy, but the United States still had to grapple with its own institutional shortcomings.

In the United Kingdom the chartering regime had a number of shortcomings, but it was arguably more open than many of the chartering regimes in continental Europe in the early nineteenth century. It was difficult in most societies to form a corporation or organization without close ties to the monarchy. British transport policy had also progressed greatly from the seventeenth century when conflicts between the Crown and Parliament made it difficult to obtain acts and uncertainty in enforcement was substantial.[44] The two paths of the transportation revolution had their own potential pitfalls, but nevertheless allowed each nation to harness a complex mixture of political authority and private capital to jump-start economic development.

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44. Bogart (2010).

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