

# Institutional Change and English Economic Development: Evidence from the Early Transport Revolution, 1600-1750

By Dan Bogart  
Department of Economics, UC Irvine  
dbogart@uci.edu

Note: This paper is intended to be an Introduction for a proposed book with the same title

## Abstract

There is a growing consensus that institutions are linked with economic development, but identifying the effects of institutional changes has proven to be difficult. This book offers new insights by studying the role of political and legal changes in fostering investment during the early transportation revolution in England. First, it argues that the political settlement between Crown and Parliament made improvement rights more secure and increased incentives for investment. Conflict between political parties had little effect however. Second, it argues that greater competition for seats in the Commons contributed to investment by lowering the cost of obtaining transportation improvement rights. The effects of electoral competition changed, however, depending on whether MPs belonged to the majority party. Third, the book argues that the empowerment of juries in eminent domain proceedings had mixed effects. Juries lowered incentives by granting compensation well above the market value of land, but they helped to diffuse opposition to transportation improvement bills in Parliament.

This introductory chapter reviews the contemporary and historical debate on institutions and provides an overview of the early transportation revolution in England. It also gives a summary of the argument and previews the evidence.

## **I. Institutions and Economic Development: the Debate**

Throughout the social sciences there is great debate about the role of institutions in economic development. To some scholars institutions are the fundamental determinant of economic performance; others question the primacy of institutions and argue for the importance other factors, like geography and culture.

Institutions can be defined as the underlying rules of the game. A major strand of the literature emphasizes political rules. Hayek (1960), North (1981), and others argue that the separation of powers between the executive branch, the legislature, and the judiciary is a crucial issue. In their model, if the executive is able to change contracts or property

rights without consulting another branch then investors can expect the ruler to exploit its power under some circumstances. A sufficiently high expropriation risk implies lower financial returns on average and therefore less investment. If on the other hand, the executive faces some restrictions on their power, then the ruler is expected to respect contracts and property rights, resulting in greater incentives for investment.

The degree of political competition is considered to be another fundamental feature of political institutions. A classical view proposed by the Chicago school postulates that when politicians compete for their positions, say a seat in a legislature, their political rents are lower (Stigler 1972, Wittman 1995). Lower political rents might imply a higher ratio of public good provision to taxation or greater effort when working for constituent interests. On the other hand if there is weak competition between politicians, which often occurs under oligarchies or one-party rule, then political rents increase, resulting in worse outcomes for citizens and constituents. In this view vigorous competition in the 'political market' can have similar social benefits as competition in product or factor markets.

Legal rules are thought to be another key institution in economic development. According to one view, Countries with common law legal systems have better protections for investors, less regulation, and less government ownership than civil law legal systems (LLSV 1997). One explanation for this difference lies in nature of judicial decision making. Posner (1977) argues that common law judges tend to overturn more inefficient rules, even if they are not interested in efficiency, because inefficient rules tend to be more litigated more often (p. 44). Other arguments emphasize norms associated with a legal system. La Porta, Lopez-de-Silanes, and Shleifer (2007), for example, argue that differences in laws, tools, and attitudes imply that governments in civil law countries are

more likely to repress or replace the market system when challenges emerge. Repression of the market is often, although not always, associated with less efficiency.

The hypothesis that political and legal institutions play crucial role in development has been tested in a number of ways. A number of highly regarded papers employ the cross-country methodology. In a series of papers, Acemoglu, Johnson, and Robinson (2001, 2003) find a large causal effect of political institutions on income per capita. On this basis they argue that institutions are the fundamental determinant of development. Their findings have not gone uncontested. Glaeser et. al (2004) argue that human capital is a more crucial factor and that institutions are themselves caused by good economic performance. Other scholars like Sachs (2003) emphasizes the greater importance of geography, further calling into question the primacy of institutions.

The cross-country institutions literature has generated some interesting findings but it has not yielded a consensus view on effects of institutions on economic development. More empirical work is needed to move the literature forward. One approach is to study the effects of institutional *changes* with a country. By examining change over time one can see whether economies develop or regress with the evolution of their institutions. One can also examine the mechanisms in more detail. At the same time one has to be careful about the endogeneity of institutions, since they may be determined by the same economic outcomes one is trying to explain.

This book seeks to advance the literature by analyzing the link between institutional changes and economic development in England—the birthplace of the Industrial Revolution. It focuses on a topic that has received little attention in the literature: investment in the early transportation revolution. The crux of the argument is that

political and legal changes affected infrastructure investment and in the long run influenced England's economic development. The following two sections review the evolution of England's legal and political system from 1600 to 1750 and the existing literature on their economic effects. Readers well versed in the history and literature could skip to section IV which outlines the main arguments in the book.

## **II. Political and Legal Changes in England: an Overview**

In the seventeenth and early eighteenth centuries England experienced a number of important legal and political changes. The struggle between the Crown and Parliament is the most well known as it led to the rise of representative government. Another is the emergence of competitive electoral politics and organized political parties. Last, the judiciary became more independent helping to preserve and enhance common law.

Monarchies were common throughout Europe in the seventeenth century, but parliaments (also known as parlements or estates) were less common. The English Parliament had two houses, the Commons and the Lords. Seats in the Lords were held by hereditary right and included the nobility and the clergy. In the Commons, Members of Parliament (MPs) were elected. Elections were held in over 200 constituencies which included English and Welsh counties, municipal boroughs, and the two universities Cambridge and Oxford. Constituencies were represented by one, two, or four MPs, with two being the norm.

The monarchy's prerogative *vis-a-vis* Parliament was a key source of conflict in the seventeenth century. Traditionally Parliament would be called into session with the ascension of a new king (or queen). The House of Commons would grant the king a set of

tax revenues for life and in return Parliamentary leaders could give advice on economic and foreign policies. The king and Parliament might also agree on some specific policy changes, which if approved by the House of Lords were then codified into acts of Parliament. After the first session of a reign closed, relations between the king and Parliament could go in different directions. The king might continue to call Parliament into session resulting in further consultation with legislators and additional acts; or the king might try to rule independently, consulting his own ministers and issuing proclamations to implement policies. Herein lay the tension. The royal bureaucracy had a strong basis for ruling. The king's closest advisers on the Privy Council controlled the army, the courts, and the emerging public service sector. Therefore, if relations with Parliament soured, the king could potentially expand its power by levying new taxes and forming new legal and administrative bodies.

King's James I and Charles I were both accused of pushing England towards absolutism when they took the throne in the early 1600s. Charles I was seen by Parliamentarians as more egregious because he rarely called Parliament into session and was more reliant on the Privy Council than his father. During the so-called era of personal rule in the 1630s, Charles I ruled England with little consultation from parliament.

Charles I also weakened the judiciary. Judges were traditionally appointed by the king under advisement by the Privy Council. Some judges started to oppose the king's decisions, one of the most famous being the issuance of monopolies for revenue. Charles I tried to undermine the authority of common law courts by using the Star Chamber as an alternative legal venue. Star Chamber practices differed from Common law courts in a

number of ways, including the absence of juries and written evidence. Seeing the Crown as a threat to their interests some judges started giving greater support to Parliament.

The Civil Wars of the 1640s changed the power structure greatly. One of the most important changes was the abolition of the monarchy and with it a number of royal institutions, like the Star Chamber. The House of Lords was also abolished, leaving the House of Commons as the only surviving legislative body in Parliament. In the 1650s the army came to have a greater influence through the power and influence of its leader, Oliver Cromwell. In the 1650s Cromwell declared himself the protector of the British people and its government. Once again Britain seemed to be veering towards absolutism.

Following Cromwell's death in 1658, there was a movement to restore the throne in the hands of Charles II, the son of Charles I. The 'Restoration' in 1660-61 accomplished this goal and in the process reestablished much of the old constitutional structure including the monarchy and the House of Lords. Charles II was initially conciliatory and regularly called Parliament into session. Parliament accordingly agreed to give Charles II a substantial increase taxes. Eventually, though, conflict reemerged. The future succession to the throne of James II, the king's brother and a devoted Catholic, was a key point of disagreement. Protestant interests saw James as a threat and created one of the first political parties—the Whigs—to exclude him from the throne. Supporters of James formed their own party—the Tories—to maintain his right of succession.

The exclusion crisis was ultimately resolved in favor of James and he came to the throne in 1685. James reign was brief as his actions angered many in the Commons. James took the bold step of disenfranchising many municipal corporations and thereby packing Parliament with his supporters. Anti-monarchical sentiment increased with the

discovery that James II had an heir. Protestants in Parliament moved to create an alliance with William of Orange, the Stadholder of Holland and the husband of James' daughter Mary. In 1688 William of Orange invaded England. James II fled to France and lost his throne with little resistance.

The revolution of 1688 has been dubbed the Glorious Revolution by Whig historians. It was arguably Glorious because it led to a number of constitutional changes. Leaders in Parliament agreed that William and Mary would be named king and queen subject to limits on their power. The English Bill of Rights written by the revolutionaries in Parliament declared that there could be no trial interference in the law, that elections to parliament ought to be free, and that parliaments ought to be held frequently. The Bill of Rights was not a formal constitution, but it did provide the basic principles that would guide relations between Crown and Parliament for at least a century.

The Glorious Revolution also led to changes in the judiciary. The Bill of Rights reestablished the right to trial by a jury of freeholders. This provision was partly a response to the Crown's attempts to create alternative judicial bodies like the Star Chamber. But it also marked an attempt to broaden the common law principle that juries were a fundamental actor in the judicial system. There is also a link between the Glorious Revolution and judicial independence. The 1701 act of Settlement included a provision that the House of Commons and Lords must approve any decision by the king to remove a judge (Klerman and Mahoney 2005). The Commons tended to support the judiciary and thus the Settlement Act strengthened the position of judges.

The frequency and regularity of elections also changed after 1689. Before 1688 there was an election every four to five years on average. Long periods could pass with an

election like 1630 to 1640, 1641 to 1653, and 1662 to 1678. From 1689 to 1714 there was an election every two years on average. Many of these elections were also contested, with two or more candidates seeking office.

The reemergence of the Whig and Tory parties also fueled electoral competition. Both parties sought to control the Commons and the power which flowed from it. The Whig and Tory parties both drew their strength from the landowning class, but they differentiated themselves by taking different positions on divisive issues. The Whigs came to represent religious tolerance, a more aggressive foreign policy, and the commercial interests of large corporations, like the Bank of England and the East India Company. The Tories represented the interests of Church of England, a conservative foreign policy, and less influence from monied companies. The Whigs and Tories traded positions as the majority party on several occasions from 1690 to 1714. Their competition was so fierce that historians have described it as the 'Rage of Party'.

MPs and Parties ultimately had to win over the electorate. Landowners were the largest group followed by merchants and artisans. Voting rights were linked to the ownership of property in a county or municipal corporation. In counties the norm was that landowners with at least 40 shillings of annual income were eligible to vote. Municipal boroughs differed from counties and each other. Some had close to universal male suffrage among freeman of the city; others were controlled by a single landowner or family. The size of the composition of the electorate was relatively constant from the 1600s through the 1700s with the exception of Kings James II attempt to disenfranchise municipalities in the 1680s. After the Glorious Revolution the voting rights of municipalities were restored.



From the 1690s through the early 1710s Britain's political system underwent a number of changes including the establishment of a new monarchy and the 'Rage of Party'. In 1714 queen Anne, the last descendent of the Stuarts, died. By the Act of Succession the throne was to be passed to a protestant, George I of Hanover. The Hanovarian succession brought uprisings against the Crown by the supporters of the Stuarts but they were unsuccessful. From the early 1720s there was increasing acceptance of the Hanoverian monarchy and its need to consult Parliament on key matters of state.

In the early 1700s there were additional changes in parliamentary elections and parties. The Septennial act of 1719 declared that elections would be held every seven years, reducing the frequency of elections. The House of Commons also came to be controlled by the Whig party. The Whigs gained a majority in the 1715 election and its Members held a larger proportion of seats than any other party or faction until the 1760s. In the process Britain moved closer to a system of one-party rule known as the Whig Oligarchy.

Robert Walpole was a key factor in the Whig maintenance of power. Walpole was named as the Lord Treasurer in 1721 and is regarded as Britain's first Prime Minister. As Lord Treasurer, Walpole was successful in satisfying the king's need for tax revenues. Walpole could command a majority in the Commons when a key tax bill came before the House. He did so through patronage and creative coalition building. Walpole was replaced by Henry Pelham in 1742, another Whig leader, but the workings of the party and parliament changed little for another twenty years.

Britain's political and legal system c1750 had a degree of stability that was absent in the 1600s. Gone was the concern that the Crown would rule independent of Parliament and that it would seek to undermine the authority of judges. The frequency and regularity of elections also increased by the 1700s and candidates faced greater competition for seats. Last Parliament came to be run by political parties. Parties were founded in the late 1600s at time when the country was divided on a number of issues. They continued to operate through the 1700s albeit with weaker the ideological ties by 1750.

### **III. Institutional and Economic Change in England: a review of the literature**

There is a substantial literature on the links between political, legal, and economic changes in Britain. One well known thesis argues that the shift in power from the Crown to Parliament following the Glorious Revolution increased the security of property rights. North and Weingast (1989) argue that the Crown was unable to make credible commitments to investors and property owners. After the Glorious Revolution the Crown was more constrained and could not easily violate property rights. North and Weingast claim that the rising volume of government debt and declining interest rates after 1689 provide evidence consistent with their view that political changes fostered secure property rights and economic development.

There are various critics of North and Weingast. Sussman and Yafeh (2006) argue that interest rates on government debt declined slowly in the early 1700s and were more influenced by movements in international capital markets. Quinn (2001) investigates the effects of the Glorious Revolution on private capital markets and finds that in short term political changes led to higher private interest rates because of crowding out effects of

greater government debt. Clark (1996) examines the return on holding land and finds no downward shift in interest rates following political changes.

Some scholars have found evidence consistent with the North and Weingast view by examining the protection of corporate rights. Wells and Wills (2001) hypothesize that corporate rights were contingent on the maintenance of the post-1689 regime. They test this view by examining whether stock market returns for large corporations, like the Bank of England and the East India Company, decreased in response to events signaling that the post-1689 regime could fall. Wells and Wills find that events like the Jacobite Uprising of 1715 did indeed lower stock market returns. Klerman and Mahoney (2005) perform a similar test on the effects of judicial independence. They find that market returns for corporations increased substantially when a provision requiring the Commons to approve the removal of judges was added to the bill for the act of Settlement. They argue that investors reacted positively because judicial independence yielded economic benefits, such as more secure rights.

The corporate rights literature suggests that political stability or checks and balances within the government increased the security of some property rights. But other scholars advocate a different mechanism. Stasavage (2003), for example, argues that most landowners did not hold government debt in the early 1700s and therefore MPs did not have a clear incentive to honor bondholders' rights. Default did not occur, Stasavage argues, because of party politics. The Whigs and Tories were divided relatively equally on issues of religious freedom and foreign policy. The Whigs agreed to honor bondholders' rights as long as they remained in the Whig coalition. Stasavage supports

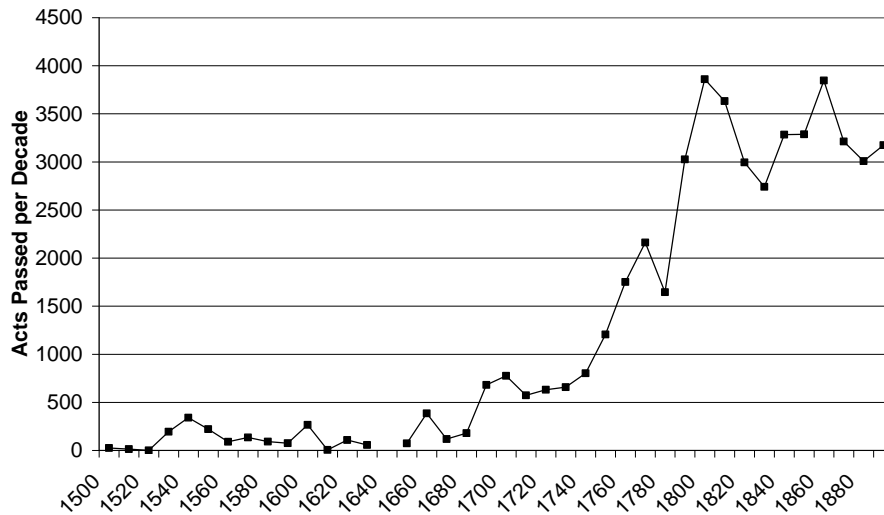
his argument with evidence that government bond yields tended to be lower when the Whigs had a majority in the Commons.

The literature has focused on other channels by which political change influenced the economy. One area emphasizes the creation of rights through patents or acts of parliament. Some scholars view grants of privilege as a form of rent-seeking which mainly hindered the functioning of markets. Elickson and Tollison (1981) argue that Parliament and the Crown both wanted to control the 'supply' of privileges because monopoly rights could be exchanged for revenues. In their view rent-seeking declined in England only after power shifted from the Crown to Parliament because of the higher costs of obtaining privileges from a legislature.

Ellickson and Tollison's work raises a number of interesting issues which have been largely ignored in the North and Weingast debate. Their account of British history however runs into some factual problems. Patentees often received monopoly rights but they were also regulated and were required to implement investments in infrastructure. Therefore, it is not clear that privileges should be thought of as rent-seeking activities exclusively. There are also problems with the argument that privileges were more costly to obtain in Parliament. After 1689 when Parliament took power the number of privileges authorized by acts of Parliament increased dramatically.

The latter point concerning the growth of parliamentary legislation has been a major topic of research. Figure 1 shows the long-run trends in acts of Parliament per year. Legislation was fairly constant from the 1500s through the late 1600s. After the 1690s the number of acts grew exponentially through the 1820s.

Figure 1: Total Number of Acts of Parliament, 1500 and 1899



Hoppit (1996) establishes a number of important facts about the growth in legislation between 1660 and 1800. Much of the legislation involved changes in law specific to individuals and communities. Some common types included estate acts affecting property held by landed families, turnpike acts calling for road improvements in an area, and enclosure acts eliminating open fields in agricultural villages. Handley (1990) examines the nature of local legislation in Lancashire in the early 1700s. Handley documents how individuals and communities promoted the legislation through petitions. They were clearly designed to serve petitioners interests, but they also provided new infrastructure like roads, rivers, and poor relief. Handley also notes that local bills could be quite controversial. For example, that a bill to change poor relief spending ignited much opposition and became intertwined with local politics.

In my work with Gary Richardson (2010), we advance the view that personal and local acts of Parliament were fundamentally about changing or creating property rights. In our view petitioners wanted to implement an investment but were prohibited from

doing so because of existing property rights arrangements. The acts then enabled the investment by reorganizing rights. For example, a turnpike act gave an organization of trustees the right to levy tolls for the purposes of road improvement. Previously a road under the control of trustees would have been maintained by individual parishes with no right to levy tolls and little ability to enforce agreements among parishes along the route. The turnpike act helped to enable road improvements by creating an organization with rights to levy tolls and enforce agreements.

The literature has begun to examine the determinants of legislation. Hoppit and Innes (1997) argue that more frequent sessions of parliament increased the efficiency of law making. Annual sessions helped MPs accumulate experience and form coalitions more readily, making them better at passing bills. Hoppit and Innes also point to the importance of Standing Orders or legislative procedures for handling bills. Standing orders could help promoters overcome opposition to their bills. Tennyson (2010), for example, argues that standing orders easing unanimous consent clauses allowed landowners to overcome hold-outs to enclosure bills.

The nature of legislative demand and legislative supply has been studied in my work with Richardson (2010). We argue that in the eighteenth century Parliament supplied property rights acts elastically, that is when the demand increased the quantity of acts increased as well. In this framework, demand was determined by macroeconomic factors such as interest rates and trade. Supply was determined by the costs associated with getting an act, such as organizing supporters, hiring parliamentary agents, bribing politicians, and overcoming opposition. Our econometric analysis shows that changes in demand (i.e. proxied by interest rates and trade) led to changes in the quantity of property

rights acts. We conclude that the costs of passing property rights bills did not increase significantly in times of greater legislative activity. Parliament in other words had great capacity to meet its constituent demands.

The expansion of local and personal parliamentary legislation after 1690 represented a cumulative change in the degree of government intervention in the economy. The literature has begun to characterize and analyze economic legislation, but the role of political and legal changes which were the focus of the North and Weingast debate remain unclear. My work on transportation improvements suggests that changing relations between the Crown and Parliament, the rise of political parties and political competition, and the evolution of the judiciary all influenced the promotion of local bills and ultimately impacted the economy. This book will expand on these issues and analyze the link between institutional changes and investments in the early transportation revolution. The following section discusses the early transportation revolution and how key investments were organized.

#### **IV. The Early Transportation Revolution**

The medieval British economy had a reasonably developed network of inland waterways and roads. There were around 1000 miles of navigable river, including some famous rivers like the Thames and Severn. They were used by coastal ships and some larger vessels. There were probably around 5000 miles of road in Britain. Most were near London and the larger cities; some roads could be used by wagons and carriages but many could only be used by packhorses especially in winter. Despite having an initial transport network, the British economy of the early 1600s needed more infrastructure.





Contemporaries like Defoe noted the effects of improvements to river navigation on commerce. His description of the changes resulting from the Trent Navigation is illustrative of the gains from river improvement:

[The River Trent navigation]...is a great support to, and increase of the trade of those counties which border upon it; especially for the cheese trade from Cheshire and Warwickshire, which have otherwise no navigation but about from West Chester to London; whereas by this river it is brought by water to Hull, and from thence to all the south and north coasts on the east side of Britain; 'tis calculated that there is about four thousand tons of Cheshire cheese only, brought down the Trent every year from those parts of England to Gainsborough and Hull; and especially in time of the late war, when the seas on the other side of England were too dangerous to bring it by long-sea (from Letter 8, Part 1: The Trent Valley).

The road network was also improved through resurfacing and widening. By 1750 Britain had over 3000 miles of turnpike road which were often improved roads. Many turnpike roads developed around London. The beginnings of an improved road network also formed in the midland and north, near cities like Manchester and Leeds.

The road and river improvements of the early 1700s marked the beginnings of the transportation revolution. By reducing transportation costs and increasing trade they demonstrated the effects of infrastructure investment for local economies. The decades after the 1750s would see a much larger increase in investment through the construction of canals, harbors, bridges, and more roads. In the early 1800s, the transport revolution culminated in the construction of railways.

The most revolutionary aspect of early road and river investments was their organizational structure. Essentially they set the model for all transportation investments through the railway era. To understand the organization of transport investment one first needs to understand that the medieval monarchy made very few public investments. Part of the problem was that Parliament would not grant enough tax revenues. But even if

Parliament was more forthcoming with revenues, it is not clear the Crown would have used these funds to improve transport. Hoffman and Rosenthal (2001) provide an analysis of the general problem of public provision under European absolutism.

During the seventeenth century there were a series of organizational innovations which eventually resulted in a substitute mechanism for public investment. Projects were undertaken by private individuals and local governments through acts of Parliament. Local Promoters would submit a petition to the House of Commons proposing a project. The petition was examined by a committee of MPs and reviewed by both Houses and the King. If successful, promoters were often named as undertakers in an act. They were authorized to levy tolls subject to a maximum schedule. Acts also specified a body of commissioners who assisted the undertakers in purchasing land. Landowners and promoters could also request a jury which would make recommendations regarding compensation. Once the project was completed, additional acts of Parliament provided further regulation. In some cases, undertakers were required to renew their authority every 21 years. In others, the undertakers would voluntarily return to Parliament to alter the terms of their original act.

The preceding organizational model was standard in transportation investment by the early 1700s and proved to be very effective in implementing investment. It came into being through an evolutionary process punctuated by political events in the seventeenth century. A brief review of the history of road and river improvement illustrates how political changes impacted the organizational structure.

In 1600 most tidal rivers were under the authority of a Commission of Sewers. Commissions had rights to compel landowners to cleanse the river and to levy a property

tax to pay for maintenance, but they had no authority to tax inhabitants other than those adjacent to the river, and they could not purchase land or divert the path of the river.<sup>1</sup>

Road maintenance was the responsibility of parishes. These local governments could claim labor and materials from their inhabitants, but they could not levy property taxes or tolls and had no legal capacity to purchase land for new roads.<sup>2</sup>

In the early 1600s individuals turned to Parliament to address these limitations. There were several petitions aiming to extend the navigation of tidal rivers through dredging, diverting, and making new cuts. None of the transport bills submitted to Parliament in the early 1600s was approved and so little was accomplished in terms of investment.

The Crown began to play a greater role in the 1610s and early 1620s. In 1617 King James awarded a patent to Jason Gason giving him powers over any river improvement in England.<sup>3</sup> In 1619 the King narrowed the scope of patents and gave the Mayor and Alderman of Bath rights to improve the river Avon.<sup>4</sup> The process by which individuals petitioned and obtained patents or grants of privilege shared some similarities with acts of Parliament. Individuals usually approached the king or his advisors in the Privy Council and described a particular project.<sup>5</sup> Patents gave the authority to levy tolls and established commissioners to mediate disputes with property-owners. The main difference was that the Privy Council was the final court of appeal in disputes over river improvement patents. For acts, Parliament served as the final court of appeal.

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<sup>1</sup> Willan, *River Navigation*, p. 16.

<sup>2</sup> Albert, *Turnpike Road System*, p. 16.

<sup>3</sup> See Woodcroft, *Titles of Patents of Inventions*, pp. 1-2, for a description of Gason's patent.

<sup>4</sup> Willan, *River Navigation*, p. 25.

<sup>5</sup> For example, in 1633 there was a proposal to the Privy Council to create a navigable river between the Thames and Severn. See Bruce, *Calendar of State Papers Domestic: Charles I, 1633-4*, pp. 41-61, May 1, 1633'.

The growing use of patents aroused controversy. In 1623 Parliament passed the famous Statute of Monopolies, which made it illegal for the Crown to issue patents except for inventions. Around the same time a number of transport improvement bills were introduced in Parliament. Many dealt with important rivers like the Thames, the Medway, and the Yorkshire Ouse or proposed to repair and widen the main roads leading into London.<sup>6</sup>

Parliament was unable to pass road and river improvement bills during the era of ‘personal rule’ from 1629 to 1640. King Charles I avoided the restrictions in the Statute of Monopolies and issued numerous patents or other privileges to river promoters in exchange for annual payments. The 1630s marked a period in which patents were dominant and parliamentary bills were absent.

Following the Civil War, the House of Commons gained control over road and river improvement. In the 1650s, several proposals were submitted to the Commons. One of these proposals resulted in the first act explicitly authorizing the use of tolls to improve the river Wey.<sup>7</sup> There was a brief period in the mid-1650s when Oliver Cromwell was involved in river improvement, much like the Stuarts. In 1657, Cromwell granted a charter to undertake improvements on the Yorkshire Ouse.<sup>8</sup>

Following the Restoration there was once again uncertainty about the organizational structure. In 1661, there were two attempts to obtain rights to improve rivers; one went through the Crown directly and the other went through Parliament.<sup>9</sup> Matters became more

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<sup>6</sup> See Emmison, ‘The Earliest Turnpike Bill’, p. 108-132.

<sup>7</sup> See Firth and Rait, *Acts and Ordinances of the Interregnum, 1642-1660*, pp. 514-17.

<sup>8</sup> *H. of C. Journals*, VII (1651-1660), pp. 575-578, 26 June 1657. Priestly, *Historical Account*, p. 491.

<sup>9</sup> In November of 1660 a proposal was made to the Privy Council to improve the river Dee. See Green, *Calendar of State Papers Domestic: Charles II, 1660-1*, pp. 372-400, November 1660. In May of 1661 a bill was introduced in the Lords to improve the Stower and Salwerpe. See *H. of L. Journals*, XI (1660-1666), pp. 249-251, 11 May 1661.

unclear in February of 1662 when the Lords passed a bill that would have effectively enhanced the authority of the Crown.<sup>10</sup> It allowed any municipal corporation, hundred, or county to improve a river in its area without authorization from Parliament. Furthermore, if any municipal corporation, hundred, or county did not improve the river, then any private person could get rights from the Lord Chancellor to improve the river. In April 1662 the Commons received the bill.<sup>11</sup> It was read twice but did not proceed further when the session ended in May 1662.<sup>12</sup>

In the same session that the preceding bill failed, the Lords, Commons, and the King approved two bills authorizing improvements on two river projects.<sup>13</sup> Several more bills were introduced in the parliamentary sessions from February 1663 to August 1665, some of which were approved. Over a few short years in the 1660s acts of Parliament emerged as the primary tool for allocating rights to improve transport.

Improvement acts in the 1660s had some unique features. First, they did not empower juries and instead commissioners named in the act had complete authority to determine compensation. Second, bills for acts were proposed in either the House of Lords or the House of Commons. Later bills would be proposed in the Commons only. Third, King Charles II was far more involved in the process than later monarchs would be. Many of the undertakers who received rights in the 1660s were personally linked with the King.

From the mid 1660s to the early 1680s Charles II played a greater role in river improvements. More bills were introduced in Parliament, but some promoters directly

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<sup>10</sup> A draft of the bill is in the Parliamentary Archives, HL/PO/JO/10/1/311.

<sup>11</sup> *H. of C. Journals*, VIII (1660-1667), pp. 400-401, 9 April 1662.

<sup>12</sup> The last mention in the Journals is April 28 1662. See *H. of C. Journals*, VIII (1660-1667), pp. 414-415.

<sup>13</sup> See Private Act, 14 Charles II, c. 14 and Private Act, 14 Charles II, c. 15.

turned to Charles II, especially at times when Parliament was not in session.<sup>14</sup> In 1684 Charles II reinstated John Mallet's patent for the river Tone, making it the first awarded since the late 1630s.<sup>15</sup>

The Crown's role in granting privileges was permanently diminished after the Glorious Revolution. Only one river improvement proposal was made directly to the Crown during the reigns of William and Mary, Anne, and George I, compared to more than one-hundred bills introduced in Parliament.<sup>16</sup> Parliament, and more specifically the Commons, became the main forum for initiating new transport rights.

The Glorious Revolution also marked a change in how property disputes relating to transport improvements were resolved. After 1689, most acts gave landowners or undertakers the right to request that a jury investigate the facts and make recommendations. Juries were also consulted by parliamentary committees considering bills to alter undertakers' rights.

## **V. Transaction costs and Investment in the Early Transport Revolution**

The changing political and legal landscape of the seventeenth century impacted the organizational structure of transport investment and in the process changed a key feature of the environment: transaction costs. Ever since the work of Coase (1960) economists have appreciated the importance of transaction costs in determining economic efficiency. In this book, I argue that institutions affected investment through the cost of obtaining,

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<sup>14</sup> Parliament was not in session when the Earl of Bath proposed improvements on the Dee in April of 1669. See Green, *Calendar of State Papers, Domestic: Charles II, 1668-9*, pp. 258-305, April 1669.

<sup>15</sup> Green, *Calendar of State Papers Domestic: Charles II, 1684-5*, pp. 109-132, August 1684.

<sup>16</sup> The only proposal to the Crown, see Hardy, *Calendar of State Papers Domestic: William and Mary, 1693*, pp. 243-297, August 1693.

implementing, and enforcing transport improvement rights. The following list summarizes the main arguments.

1. Political conflict between the Crown and Parliament deterred investment by making improvement rights less secure. The permanent shift in power to Parliament after 1689 made improvement rights more secure.
2. Changes in the majority between the Whigs and Tories had little effect on the security of rights because of multiple veto points in the Commons.
3. Electoral competition between candidates for the House of Commons increased investment by lowering the cost of obtaining improvement rights.
4. Walpole changed the effects of electoral competition. He used his authority as Prime Minister to lower the costs of obtaining rights in constituencies where Whig members faced electoral competition and raised costs in constituencies where opposition MPs faced competition.
5. Juries deterred investment by favoring landowners in condemnation proceedings, but they also lowering landowners' opposition to improvement bills and thus decreased the cost of obtaining rights.

A simple model of investment promotion forms a basis for examining these arguments. Consider the perspective of a promoter who has some project in mind. The promoter has to incur some sunk costs in order to get an improvement act or patent. These costs include fees to Parliament, expenses in hiring a parliamentary agent, and bribes to MPs, Peers, and the King. Promoters must also purchase land and pay other

investment costs associated with building the project. In the model, let all promotion and investment costs be denoted by  $c$ .

If the project is implemented then the promoter becomes an undertaker and earns a stream of benefits, like profits or increased property income. Let the net present value of the benefits be denoted by  $b$ . However, it is not certain that an undertaker will realize these benefits. Once a project is initiated there is some chance that the undertakers' rights will not be protected. The terms of the original act or patent can be changed at any time by Parliament and the Crown. The promoter believes there is some probability  $p$  that their rights will be protected and they earn  $b-c$ . With probability  $1-p$  the project gets expropriated immediately upon completion and the undertaker suffers a loss of  $c$  because promotion and investment costs are sunk. Putting all of these elements together the expected payoff to the promoter is given by the expression:  $pb - c$ . The expected payoff equals the product of the probability that rights will be maintained and the net present value of benefits minus the costs of promotion and investment.

The promoter will undertake the project if the expected payoff  $pb - c$  is greater than zero. Projects are more likely to be initiated if the net present value is large, if the probability that rights will be upheld is high, and if promotion and investment costs are low.

The terms  $p$ ,  $b$ , and  $c$  should not be interpreted as fixed parameters but rather as variables which change with the environment. For example, the net present value of the project will depend on macroeconomic conditions, like population, trade, and interest rates. Costs and probabilities can also be influenced by idiosyncratic factors. For example, if the promoter is especially skilled in construction then their investment costs could be



lower. The main purpose of my analysis is to investigate how institutions also influence the variables  $p$ ,  $b$ , and  $c$ .

First consider the effects of political conflict between the Crown and Parliament. Recall that in the seventeenth century, rights were granted through acts or patents. Patents were granted by the King and acts were approved by Parliament and in some cases the House of Commons. For the sake of argument, suppose that Parliament approves acts only for their supporters when they are in power. Now suppose that power shifts to the Crown. It has little incentive to enforce these rights because undertakers support Parliament. Similarly if the Crown grants rights to its supporters when they are in power, then Parliament they will have little incentive to enforce these rights if power shifts to Parliament. The conflict between Crown and Parliament was problematic because it leads to periodic purges of rights. Moreover there is uncertainty because undertakers will have difficulties anticipating shifts in power.

What happens if there is a permanent shift in power, either to the Crown or Parliament? A reputational argument would suggest that promoters should now expect that their rights will be maintained in the future because both the Crown and Parliament have an incentive to respect the rights which they grant to their supporters. As a result, investment promotion should increase if there is permanent shift in power. One could modify this argument in the spirit of North and Weingast and argue that the Crown could not credibly commit to protect rights granted to royal supporters. Parliament on the other could make a credible commitment because of checks and balances within the legislature or because of different norms. In this view, the incentives for investment promotion depended on who was victorious in the conflict: the Crown or Parliament.

Shifts in the majority party between the Whigs and Tories can be modeled in the same way as shifts in power between the Crown and Parliament. Rights granted by Whigs when they are in the majority may not be enforced by the Tories when they gain a majority and vice versa. This framework suggests that promoters will anticipate a lower probability of secure rights in periods where the Whigs and Tories fought bitter battles for the control of the Commons. There are some features of party conflict, however, which mitigated its effects. Political parties had to take action against undertakers within Parliament. Passing bills required approval by committees and both Houses. A political party would need to control all veto points in order to pass a bill undermining the rights of the opposition party's supporters. In an environment where parties rarely had large majorities, party conflict posed a smaller risk to undertakers' rights.

Electoral competition is another feature of the institutional environment. It affected promotion costs, like the expenses associated with committee hearings and bribes to officials. MPs from the area near the project often guided the bill and served on the committee. One can imagine an implicit contract between promoters and MPs. The MPs acted as the agent and the promoter was the principal. MPs worked to keep promotion costs low and promoters compensated MPs through bribes or support in elections. The implicit contract between MPs and promoters was unlikely to yield an optimal outcome for either side. MPs might shirk and promoters might renege on promises. The MPs incentives were sharpened, however, when they faced competition for their seat. In such cases they gained more from electoral support and thus their effort level would increase. Electoral competition therefore could lower promotion costs and increase investment promotion.

Electoral competition could induce a response by majority leaders in the Commons further changing promotion costs. Majority leaders' main objective was to maintain their majority in the Commons. A skilled party leader, like Walpole, would try to expedite committee proceedings for MPs in their own party who were facing electoral competition. A smooth committee proceeding would make their fellow MPs look better in the eyes of voters and increase the chances of maintaining a majority. The majority leader could also slow down committee proceedings for MPs that were in the opposition party when they faced electoral competition. This would make these MPs look less effective in the eyes of voters and increase their chances of maintaining a majority. Electoral competition therefore could have differing effects on promotion costs depending on whether MPs were affiliated with the majority party or not.

Juries influenced a different aspect of promotion: the cost of implementing rights. The price paid for land was a crucial issue. Because of hold-up problems a promoter would have a difficult time implementing their rights without effective eminent domain procedures. Juries were the key agent in eminent domain proceedings after the Glorious Revolution. Juries were selected from the population of freeholders in a county and thus they were likely to be favorable to landowners. If juries were indeed biased then they would set a higher price for the land. Higher land prices lowered payoffs for promoters and thus they would have less incentive to engage in promotion when juries had authority.

Jury bias could have an unintended positive effect for promoters. Landowners sometimes offered stiff opposition to improvement bills in Parliament. Opposition could lead to the failure of the bill or at the very least a longer committee proceeding. A key

concern for opposing landowners was the loss of land and damages to property. But if they knew that a jury would protect their interests or even be favorable then they would be less likely to oppose bills.

Opposition to bills can be modeled like a contest. Landowners exert effort to increase the chances of a bill's failure. Promoters also exert effort to increase the chances of a bill's success. Each side makes its effort decisions strategically. The outcome of the contest, in this case the success or failure of the bill, is determined by a contest success function. A key determinant of effort and outcomes is the value of the bill to the promoter and the cost to the landowner. If the landowner suffers less, say because of jury bias, then they exert less effort to fight the bill. The result is that the promoter has a higher chance of winning and they save on effort costs. Less opposition meant lower promotion costs and hence a greater incentive to promote investment.

To summarize there are several transaction costs affecting investment in the early transportation revolution. Promoters had to engage in the costly and uncertain exercise of lobbying and bribing MPs and the Crown for their rights or privileges. Even if they were successful in obtaining rights, they still had to deal with landowners and juries when implementing their project. The price paid for land and damages could be high, eating into profits. There were further complications once the project was completed. The terms of the original act or patent could be changed at any time by Parliament and the Crown. This risk was particularly problematic because investments were sunk. If the Crown or Parliament unfavorably changed the terms of the monopoly grant then investors would have little ability to scrap the project and recoup their costs. All of these costs were influenced by political and legal institutions. Thus a deep explanation for transportation

investment requires an analysis of transaction costs and their inter-connection with institutions.

## **VI. Data**

The link between institutions and investment in the early transport revolution will be tested using several data sets. First, I created a time series on the the nominal value of road and river investment proposed to Parliament and the Crown in each year from 1600 to 1749. I also created a time series on the nominal value of road and river investment completed by undertakers or trustees over the same period. The series are based on all proposed projects between 1607 and 1749 identified by entries in the Journals of the Commons, the Journals of the Lords, and the Calendar of State Papers. Parliamentary records and other sources identify the miles of road or river affected by each proposed project and whether they resulted in improved river navigation or repaired roads. The value of investment is estimated using the investments per mile for a sample of river navigation authorities and turnpike trusts. An appendix in the book describes the sources in detail.

The time series on investment is combined with macroeconomic series, like population, wages, interest rates, an index of coastal trade, and indicators for years when there was a foreign war or a significant harvest failure. Time series on the political system are also combined with the investment data. The political variables include the length of parliamentary sessions in each year, indicators for election years, an indicator for whether the Whigs or Tories were the majority party in the Commons, and the size of the majority party.

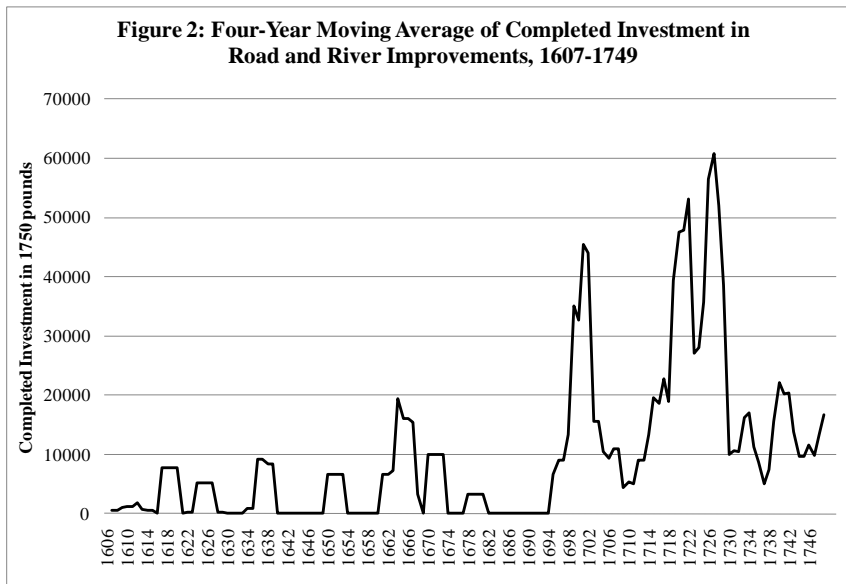
I also create a data set on the regulation of undertakers by the Crown and Parliament. I identify all cases where undertakers or trustees had their authority voided, their maximum tolls lowered, or were forced to pay subsidies after their original rights were granted. Violations of rights in Parliament are identified by studying acts of Parliament relating to road and river improvements. Violations by royal decrees are identified in the Calendar of State Papers.

For the analysis of elections I also created a data set on improvement bills by constituency. I matched each road and river bill with one of the 247 constituencies in the Commons. The constituencies are geo-coded by latitude and longitude using ordinance survey data for parishes and cities. County seats are assumed to be the location for the county. The constituency bill data set is matched with indicators for whether the constituency had a contested election in each session. The constituency bill data is also matched with data on the political affiliation of MPs in a constituency. Political affiliation includes the Court or Opposition party from 1661 to 1672, the Whigs and the Tories from 1690 to 1749, and the Opposition Whigs after 1724. An appendix provides the details on the sources and methods.

I also created a data set of jury awards for several river improvements projects using jury minute books. The sample contains information on the compensation awarded to each landowner in value per acre. We also know the average price of land in locations near the river projects from the charity commission records. Clark (1998) has compiled this data which includes all land transactions for charities from the 1600s to the 1900s.

## **VII. A Preview of the Evidence**

The chapters are organized around the hypotheses discussed above. The next chapter examines the effects of Crown-Parliament relations on investment and investment promotion. I investigate this argument in two ways. First, I examine the time series patterns of investment. A quick preview of the evidence is given by figure 2, which plots a four-year moving average of completed investment from 1607 to 1749 in constant 1750 prices. There was a sharp rise in completed investment starting in the mid-1690s and continuing through the decade of the 1700s. It appears therefore that investment increased sharply after the Glorious Revolution. The increase in investment could be due to non-political factors however. To confirm that it was not simply a macroeconomic change in the 1690s, I use structural breaks tests to demonstrate that the level of road and river investment was substantially higher after the mid-1690s even after controlling coastal trade, interest rates, foreign wars, harvest failures, and population growth.



Second, I examine the violation of rights for undertakers from 1600 to 1749. The evidence shows that violations were fairly common from the 1620s to the early 1660s.

Many violations occurred following major political changes, like the Civil War and the Restoration. Table 1 summarizes the violations to river undertakers from 1600 to 1688.

Table 1: Political Settlements, Royal Decrees, and Acts Violating the Rights of River Undertakers established between 1605 and 1688

River Act or Decree	Year
Thames Commissioners from Several counties eliminated by new act	1624
Great Ouse (St. Neots to St. Ives) Maximum tolls reduced by decree from Privy Council	1626
Lark Route cut in half by decree from King	1638
Avon (Warwickshire) Patentees rights voided by Commons and later by an act.	1641, 1661
Ouse (Yorkshire) Undertakers rights voided by Restoration Settlement	1661
Wey Undertakers rights voided by Restoration Settlement	1661
Great Ouse (Bedford to St. Neots) Undertakers rights voided by act	1665
# of Undertakers established between 1605 and 1688	21
Estimated Likelihood that undertakers established between 1605 and 1688 had their rights violated by at least one settlement, decree, or act.	33%

Sources: see text.

The likelihood of violations was lower from the 1690s to 1749. At most 6 percent of the undertakers experienced a violation of their rights through parliament. Before 1689 approximately 33 percent of undertakers experienced a violation. The decrease in violations is remarkable considering that a major shift in power occurred and numerous undertakers received rights.

To examine the effects of electoral competition, I test whether a turnpike bill was more likely to be introduced in a constituency if it had a contested election. I exploit the



panel structure of the data and analyze a fixed effects logit model. Let  $y_{it}$  be an indicator for whether constituency  $i$  has a turnpike bill in legislative session  $t$ . The probability of constituency having a bill is assumed to be the following:

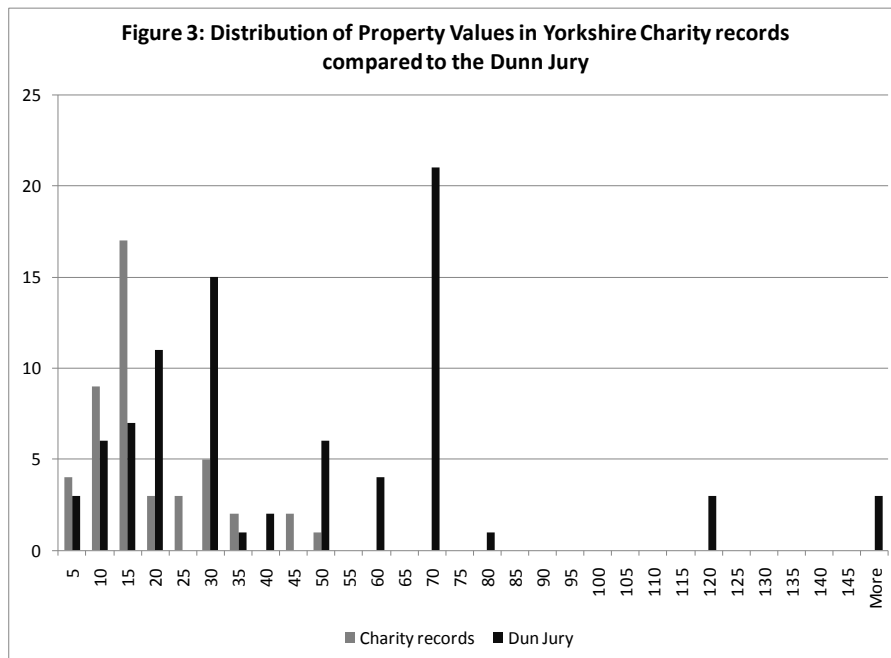
$$P(y_{it} = 1) = \Lambda(\alpha_i + \delta_t + \text{contest}_{it})$$

where  $\alpha_i$  is a fixed effect for the constituency,  $\delta_t$  is fixed effect for the session. The main variable is  $\text{contest}_{it}$ , which takes the value 1 if constituency  $i$  had a contested election for seats in the current legislative session. The results of this analysis are very clear. They show a positive and significant coefficient on  $\text{contest}_{it}$  indicating that when a constituency has a contested election it is more likely to have a turnpike bill introduced. One interpretation of this result is that electoral competition lowered the costs of introducing improvement bills. With a lower cost of obtaining rights, electoral competition thus contributed to investment.

The effects of political parties can also be tested with this framework. I add a variable for the fraction of MPs in the majority in constituency  $i$  in legislative session  $t$ . I also add an interaction term between the contested elections and the fraction of MPs in the ruling party. The logic is that electoral completion may have had different effects because of intervention by majority leaders, such as Walpole. The results yield an interesting but preliminary result. The interaction term is positive and significant. Thus bills are more likely to be introduced in constituencies where there is a contested election and the MP is from the ruling party. One interpretation is that Walpole tried to expedite committee proceedings for MPs in their own party to make them look better in the eyes of voters.

The analysis of juries is based on a comparison of compensation awarded by juries and measures of the market value of land. Preliminary evidence shows that juries

awarded landowners compensation well above the market value of land. The premiums ranged from 50% of the market value to as much as 270%. An illustration is given in figure 3 which compares the distribution of property value per acre in the Yorkshire Charity records and the property values per acre awarded by the Dun jury.



I also investigate whether jury premiums significantly affected investment incentives. A simulation analysis shows that internal rates of return would have increased by around 0.2% if juries engaged in no redistribution. The simulation also shows that without redistribution some navigation projects would have switched from earning a return below the yield on government bonds to earning a return above this threshold.

The findings suggest that juries redistributed profits from river navigation promoters to landowners and in the process discouraged projects at the margin of profitability. These conclusions need to be qualified because juries helped to diffuse opposition from landowners. There is evidence that the frequency of opposition to bill decreased in the early 1700s. It is possible that landowners stopped opposing bills because juries gave

them greater assurances. If so, then juries could have encouraged investment by reducing the cost of obtaining rights.

To summarize there is evidence that the political settlement between Crown and Parliament made improvement rights more secure and increased incentives for investment. There is also evidence that greater competition for seats in the Commons contributed to investment by lowering the cost of obtaining transportation improvement rights. The effects of electoral competition changed, however, depending on whether MPs belonged to the majority party. Last, there is evidence that juries lowered incentives by granting compensation well above the market value of land, but they helped to diffuse opposition to transportation improvement bills in Parliament.

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VIII.