

Gregory Clark

The Political Foundations of Modern Economic

Growth: England, 1540-1800 In a recent article, North and Weingast argue that the political history of England in the period before the Industrial Revolution illustrates two important propositions: the first, that the establishment of secure and stable property rights for private citizens is a necessary and sufficient condition for economic growth, and the second, that the establishment of such rights depended on the creation of a representative democracy. Thus, they believe that there was an intimate connection between the Glorious Revolution of 1688 and the Industrial Revolution of 1760 and thereafter.¹

Many scholars cite England during the seventeenth and eighteenth centuries as an example of how stable democratic politics causes economic growth. The Glorious Revolution replaced a corrupt, autocratic monarchy, which financed itself by a variety of extortionary means, with a political system in which Parliament, admittedly drawn from a limited franchise, controlled the monarch. This political system was remarkably stable. There were no coups, and few attempted coups, after 1689, but an unbroken line of governments elected by a popular franchise. When James II was deposed, the throne passed first to William of Orange and James' daughter Mary, and then to Mary's sister Anne. When Anne died childless in 1714 (despite giving birth to eighteen children),

Gregory Clark is Associate Professor of Economics, University of California, Davis. He is the author of "Factory Discipline," *Journal of Economic History*, LIV (1994), 128-163; coauthor, with Michael Huberman and Peter Lindert, of "A British Food Puzzle," *Economic History Review*, LXVIII (1995), 215-237.

The data used in this article was made possible by NSF grant SES-91-22191-1 and a scholarship from the IRIS (Institutional Reform and the Informal Sector) program at the University of Maryland. The author thanks Peter Lindert, Larry Neal, and the participants of the ALL-UC Economic History Conference at the University of California, Los Angeles, in 1993 for helpful comments and suggestions. Eddy Van Cauwenberghe kindly supplied data about the silver content of pond groten from 1550 to 1750.

© 1996 by the Massachusetts Institute of Technology and the editors of *The Journal of Interdisciplinary History*.

1 Douglass C. North and Barry Weingast, "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth Century England," *Journal of Economic History*, XLIX (1989) 803-832.

James II's son was laying claim to the throne from exile in France. Yet, Parliament was able to install in his place an obscure German princeling who never learned to speak English well, without any serious threat to its control.

The years between the Glorious Revolution and the Industrial Revolution saw widespread change in the British economy: The transport system was radically improved; a large scale conversion to a purely private agriculture was accelerated; new institutions of finance and commerce were put in place; and the government's debt was regarded as the safest asset in the economy. Hence, many have been tempted to argue that the Glorious Revolution created the preconditions for the Industrial Revolution. As Olson notes,

With a carefully constrained monarchy, an independent judiciary, and a Bill of Rights, people in England in due course came to have a relatively high degree of confidence that any contracts they entered into would be enforced and that private property rights, even for critics of the government, were relatively secure. Individual rights to property and contract enforcement were probably more secure in Britain after 1689 than anywhere else, and it was in Britain, not very long after the Glorious Revolution, that the Industrial Revolution began.²

Cameron agrees with North and Weingast on the importance of the Glorious Revolution, though his reasoning focuses more on the stability of public credit.

The so-called Revolution of 1688-9 constitutes a major turning point not only in political and constitutional history, but in economic history as well. . . . [T]he ease, cheapness, and stability of credit for public finance reacted favorably on private capital markets, making funds available for investment in agriculture, commerce, and industry.³

This article argues, to the contrary, that 1688 did not represent a significant change in regime for private actors in the English economy. It employs data about the return on capital and about

2 Mancur Olson, "Dictatorship, Democracy, and Development," *American Political Science Review*, LXXXVII (1993), 574.

3 Rondo Cameron, *A Concise Economic History of the World* (Oxford, 1989), 155.

land prices to show that secure private property rights existed in England at least as early as 1600, and probably much earlier. As far as most private investors were concerned, nothing special happened in 1688, or, for that matter, in any period between 1600 and 1688; yet, for most of this long period before 1688, there was little economic growth. Secure and stable property rights may be a necessary condition for economic growth, but the history of England shows that they are not a sufficient one. Moreover, the information from capital markets implies that the move to a representative democracy was not necessary for the establishment of secure private property rights. For most people, such rights existed under the plethora of political arrangements that occurred in England between 1540 and 1688, including the autocracy of Charles II and the dictatorship of Oliver Cromwell.

POLITICS AND ECONOMIC GROWTH North and Weingast argue that to produce economic growth, political systems need to be both stable and nonautocratic. A key assumption that this article shares with North and Weingast is that adverse political regimes reduce material output principally by driving up the return on capital, and hence reducing its supply. This state of affairs affects both the immediate output and the rate of economic growth, since the advance of production technique depends on the investment of resources. Innovation does not just happen; it occurs because producers spend time looking for new techniques.

Consider, for example, political instability. As factions vie for control of the state, property rights are uncertain, especially if the successful factions seek to reward their members and punish their opponents. It is estimated, for example, that nearly one-fifth of all land was confiscated from the king's followers after the Civil War in England, and that approximately the same amount of land was seized from the supporters of Parliament after the Restoration. When political struggles involve the use of force, property may be destroyed in the fighting and economic activity disrupted. Insecure regimes may suppress economic activity if the groups who benefit from it include those hostile to the regime. Driven by the short-term needs of survival, the insecure regime may plunder capital owners or innovators periodically, depriving the economy of investment or innovation and keeping it impoverished. Thus, in the 1630s, Charles I fined those enclosing common

lands largely as a revenue expediency, even though enclosure increased the rental value of lands. The contest for political power can make all property insecure and all private attempts at accumulation fruitless; it supports the enrichment of individuals only through the capacity of the state to confiscate it from others. This political climate tends to deter investment in capital or in new techniques unless the return on capital rises sufficiently to compensate for the enhanced risk.⁴

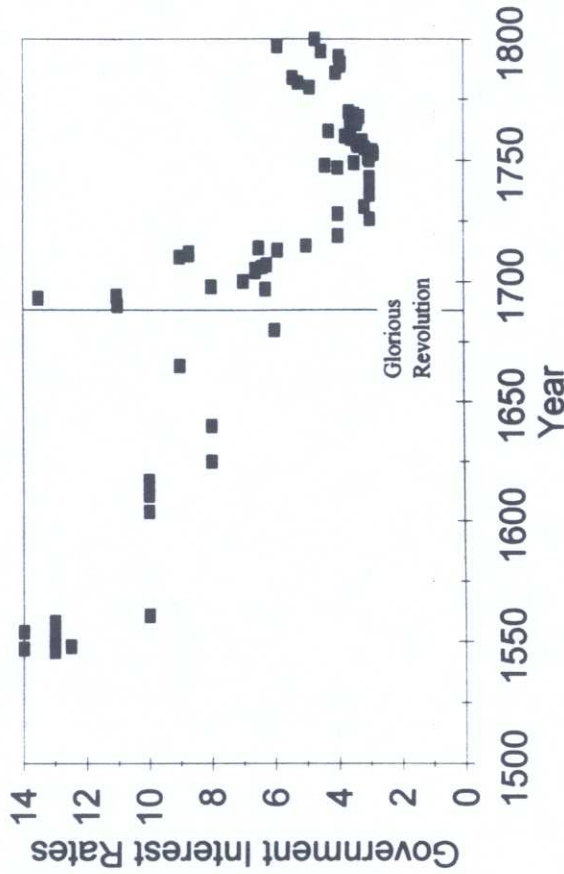
The expected effect of political instability on returns on capital is evident in a number of cases. At the end of the English Civil War in 1650, for example, the victorious Parliament sold most of the deposed king's estates. In 1650, the perpetuities owned by the crown sold for an average implied rate of return of 11.2 percent, at a time when private perpetuities yielded a return of about 5.5 percent. Land confiscated from royalists, church, and crown sold for an implied return of 9.5 percent; the return on private lands was just above 5 percent. The huge premium in returns available to investors in the confiscated property reflected the political uncertainty that attached to these property rights; and, indeed, the purchasers lost those assets upon the Restoration in 1660.⁵

According to North and Weingast, even the stable regimes before 1688 created conditions of uncertainty that drove up private returns. Such autocratic rulers as James I and Charles II could not offer their subjects the security to invest without fear of expropriation. The argument of North and Weingast, however, depends crucially on autocrats being purely self-interested and having limited time horizons. If autocrats have dynastic ambitions,

4 Christopher Clay, *Economic Expansion and Social Change: England, 1500-1700* (Cambridge, 1984), I, 80.

5 For crown perpetuities (fee-farm rents), see Sidney J. Madge, *The Domesday of Crown Lands* (London, 1938), 237. See figures 4 and 5 herein for private perpetuities and land. H. J. (John) Habakkuk, "Public Finance and the Sale of Confiscated Property during the Interregnum," *Economic History Review*, XV (1962), 70-88, discusses the sale of land by Parliament. Land was sold mostly in exchange for government debt, but, since this debt had a market price, the implied return can be calculated. A more modern example of the effect of uncertainty on returns from capital is the Mexican Revolution of 1910-1917, which left industrial capital largely undamaged by the fighting but created great uncertainty about which property rights would prevail in the end. Investment nearly ceased, and share values plummeted. See Stephen Haber, *Industry and Underdevelopment: The Industrialization of Mexico, 1800-1940* (Stanford, 1989), 122-149.

Fig. 1 Interest Rates on New Issues of Government Debt, 1540-1800



NOTE The loans before 1688 often had an element of coercion in them, so the actual rates would be higher.

SOURCES Robert Ashton, *The Crown and the Money Market, 1603-1640* (Oxford, 1960), 118-119, 123, 127; Peter G. M. Dickson, *The Financial Revolution in England* (London, 1967), 48-49, 60-63; Sidney Homer and Richard Sylla, *A History of Interest Rates* (New Brunswick, 1991), 113, 126.

then they can credibly commit to moderate expropriation without stifling investment.⁶

Whatever the source of the alleged political pathology, if it is to have pervasive effects in the economy, it should appear as a widespread increase in the rate of return on capital. North and Weingast themselves point to the sharp decline in the rate of return on government borrowing in the decades after 1689 as a sign that the government operated differently after the Glorious Revolution. Rates of return of 10 percent gave way to rates as low as 3 percent by the mid-eighteenth century. Figure 1 shows the rate of return on a variety of government loans between 1540 and 1800.

North and Weingast interpret the dramatic decline in government interest rates in the 1690s and in the 1710s as showing

that, in the new stable regime, private capital markets with low interest rates flourished, and private incentives to invest improved, fueling growth: "Thus were the institutional foundations of modern capital markets laid in England." North and Weingast note that, unfortunately, data about capital markets for the period before the Glorious Revolution are "almost non-existent."⁷

THE POLITICAL BACKGROUND Between 1540 and 1770, England experienced numerous periods of political turmoil, internal warfare, and important changes of political regime. In the late sixteenth century, the impending death of the childless Elizabeth I created great political uncertainty. By 1578 when Elizabeth reached the age of forty-five, it was clear that she would die childless and that the Tudor dynasty would come to an end. The end of her reign saw five serious contenders for the throne, none of whom the aging Elizabeth seems to have shown any favor. Although James VI of Scotland was the successor by the laws of primogenitor, he was king of the traditional enemy of England, Elizabeth had executed his mother in 1586, and Henry VIII, through parliamentary act and his own will, had barred the house of Stuart from the succession. Lady Arbella Stuart was descended from the same line as James, but had the advantage of being English. Under the terms of Henry VIII's will, the crown should have passed to the House of Suffolk and to the descendants of Catherine Grey. But her marriage as well as that of her mother to the Duke of Suffolk was of doubtful validity. The last major claimant was Philip II of Spain and, barring him, his daughter the Infanta. The claims of the Infanta were pushed by the Catholic minority. Elizabeth herself increased the confusion by having an act passed imposing severe penalties on anyone making claim to the royal succession without Parliament's affirmation but then preventing Parliament from making a selection.⁸

The implication is that rates of return on capital should have risen for two reasons in Elizabeth's waning years: The uncertainty of the succession presaged a bloody power struggle after her death, but it also meant that Elizabeth could not credibly commit to any

7 *Ibid.*, 825, 826.

8 Joel Hurstfield, *Freedom, Corruption and Government in Elizabethan England* (London, 1973), 104-134, gives the details of the succession debate. Peter Wentworth—an MP who spoke in the House of Commons about the succession and published a pamphlet—was sent to the Tower in 1593 and died there four years later (107).

6 North and Weingast, "Constitutions and Commitment."

long term contract with her subjects, if monarchs indeed behave like predators in North and Weingast fashion. Elizabeth could have expropriated property in the declining years of her reign at little cost to herself.

After the death of Elizabeth I in 1603, the Crown passed peaceably to the Scottish House of Stuart. But the Stuart kings did not enjoy a happy relationship with the English Parliament. The interminable power struggle between Crown and Parliament between 1603 and 1688 was fueled after 1660 by the Catholic sympathies of the monarchy and the Protestantism of the people. Unlike in many other European countries where the monarch had control of taxation, in England this power belonged to Parliament. The monarch had the revenue of the royal estates at his or her disposal, but even Elizabeth I had to deplete these estates by sales to meet war and other expenses because of Parliament's reluctance to levy taxes. As a result, the monarchy was always short of funds and had to resort to various illegal and semilegal exactions and confiscations to raise revenue.⁹

The Crown had some success with these measures in the early seventeenth century. It deliberately allowed obsolete regulations introduced in the mid-sixteenth century that limited economic activity to remain in force, and then encouraged professional informers to inform against transgressors, who were fined. So systematic was this revenue-collecting device that, in some cases, private individuals were given the monopoly of the right to inform and the power to treat with transgressors for payment of fines. The Crown similarly sold monopoly privileges for new and for existing products, and resorted to forced loans and to the revival of feudal privileges in its scramble for money. Even when Parliament consented to levy taxes, the assessment of wealth was often wildly unrealistic and heavily influenced by political connections. Thus, the tax burden on the richest was light, some magnates being omitted from the tax lists altogether. The middle income groups, being less influential, bore more than a proportionate burden.¹⁰

9 See Robert Ashton, *The English Civil War: Conservatism and Revolution, 1603-1649* (London, 1978); Christopher Hill, *The Century of Revolution, 1603-1714* (Edinburgh, 1961); James Rees Jones, *Country and Court: England, 1658-1714* (Cambridge, Mass., 1978).

10 Clay, *Economic Expansion and Social Change: England, 1500-1700* (Cambridge, 1984), II, 256-257. In 1616, James I also began to raise revenue by selling peccages.

In the early seventeenth century, taxation was slight and collection inefficient, unpredictable, and subject to political influence and corruption. A measure of the corruption in the governing classes is evident in the admission by Francis Bacon—the famous philosopher and the chief justice of the land—to his accusers in 1621 that he had taken substantial “gifts” from those on whose cases he was ruling (he denied any venal intent).¹¹

The conflict between king and Parliament resulted in open warfare in the years 1639-1640, 1642-1646, 1648, and 1651, when rival Royalist and Parliamentary armies vied for control of the country. One author describes these years as “one of the most damaging periods in the history of England.” Armies marched across the countryside destroying crops and requisitioning food. Property damage resulted from sieges, raids, and the strengthening of fortifications in such towns as Birmingham, Colchester, Gloucester, Worcester, and York.¹²

From 1649 to 1660, the country fell under vacillating Puritan control that gradually dissolved internally. The property of the king and his supporters formed a major source of revenue in the years 1649-1653. Meanwhile, Parliament debated all kinds of radical proposals that would have affected property rights—proposals for further sales of Royalist lands, and for the abolition of tithes. As the control of the Puritans unraveled, the army had to quarter itself on the population, and open plunder seemed but a short step distant.

The restoration of the monarchy in the person of Charles II in 1660 led to further uncertainty. Some, but not all, confiscated property was restored to its original owners, and the conflict between Crown and Parliament was seemingly resolved. But soon the old strains were appearing. Charles had Catholic sympathies in a Protestant country where religion was an important political issue. In 1670, Charles entered into a secret treaty with France, wherein the French committed to subsidizing him and, in return, he agreed to collaborate with the French in a war on Holland and to declare himself a Catholic at a suitable moment. As the 1670s

11 See “Political Corruption in Modern England: The Historian’s Problem,” in Hurstfield, *Freedom, Corruption, and Government*, 145-147.

12 Anthony Baker, *A Battlefield Atlas of the English Civil War* (London, 1986), 8; Stephen Porter, “Property Destruction in the English Civil Wars,” *History Today*, XXXVI (1986), 36-41.

proceeded, it became clear that Charles would be succeeded by his openly Catholic brother, James, the Duke of York. In 1679 after a rebellion by Protestant dissenters in Scotland, Parliament passed a bill excluding James from the succession. Disaffected Royal advisors planned a coup in 1682, and, in 1683, a plot to murder Charles II and James was uncovered.

When James II became king in 1685, there was an unsuccessful Protestant rebellion in the west, led by Charles' illegitimate son, the Duke of Monmouth. Nevertheless, the policies of James, particularly his introduction of Catholic officers into the army and his raising of an Irish army of dubious loyalty to the English Parliament, resulted in widespread fear and disaffection. When James II had a son and heir in 1688, William of Orange—a claimant to the throne in his own right and the husband of James' daughter Mary from a previous marriage—invaded from Holland in collusion with English allies. James found little support and fled, and, in 1689, the Parliament announced his abdication, installing William and Mary as monarchs. Under the new constitutional order—the foundation of the modern British state—Parliament gained more control over the actions of the monarchy. In 1700, it so discouraged William that he left for Holland and threatened to abdicate.

The success of the Glorious Revolution was not immediately obvious, for its outcome depended on the power struggle that engaged Europe in the late seventeenth century. William had claimed the English throne, in part, because the Dutch needed to preserve England as an ally against French hegemony. From 1688 to 1695, William's new regime waged war against France on the continent, and against the partisans of James in Ireland and Scotland, who were supported by the French. Only in 1697, when William and Louis XIV made a peace treaty that recognized William as king of England did the new political settlement appear secure.¹³

Though most historians give little importance to it after 1695, the Jacobite cause did not die immediately; it was the popular rallying point for various disaffected groups until the 1740s. In

1715 and in 1745/6 Jacobite rebels in Scotland penetrated as far south as Derby, causing a brief panic in London.

The new political regime ushered in a host of political and administrative changes, among them the Land Tax of 1692, which provided a large new source of funds for the government, from a relatively predictable exaction on property owners. Since reassessments were rare, it entailed no disincentive to investments in land improvement. In 1694, the Bank of England was formed as the principal lender to the government, ushering in a series of financial developments now called "The Financial Revolution."

THE DATA The existing information about the English private capital market before 1725 is limited, particularly before 1650. A few studies treat the rate of return on land—mainly in the south—but information for the period before 1688 has been largely impressionistic.¹⁴

This article uses information from 2,882 transactions or wills recorded in the Charity Commission reports, as well as supplementary information, mainly about land sales from the depositions of the directors of the South Sea Company in 1721, to examine the operation of the private capital market from 1540 to 1837. Also employed are 1,824 observations on land sales between 1600 and 1749 from the Charity Commission reports to examine the movement of land prices. The Charity Commission examined the asset holdings of charities in most parishes in England and Wales during the course of its investigation, which lasted from 1818 to 1837. The commissioners often gave details on the purchases and sales of such assets as land, tithes, houses, rent charges, mortgages, and private bonds that they could glean from the documents retained by the charity to ensure that no land had been lost to the charity over time, and that rent charges bought earlier were all still being paid. The Charity Commission reports generally gave the location of the asset purchased or sold, permitting a determi-

14 Clay, "The Price of Freehold Land in the Later Seventeenth and Eighteenth Centuries," *Economic History Review*, XXVII (1974), 173-189, calculates the rate of return on farmland in the south of England and the midlands for 1650-1659, 1670-1689, and 1700-1813 from 248 transactions or offers for sale. Habakkuk, "The Long-Term Rate of Interest and the Price of Land in the Seventeenth Century," *Economic History Review*, V (1952), 26-45, gives an impressionistic survey of the market for land in the sixteenth and seventeenth centuries.

13 See Daniel Szechi, *The Jacobites: Britain and Europe, 1688-1788* (Manchester, 1994), 41-58; Jones, *Country and Court*, 256-278.

nation of how representative the data are. Since the commissioners wanted to ascertain whether the charities were being used for the purposes specified in the donors' wills, they also frequently detailed what donors expected as rates of return on their charitable assets. For example, a donor might have bequeathed £100 to buy land or a rent charge at a yield of at least £5 per year to purchase bread for the poor.¹⁵

The various types of capital instrument are to be distinguished according to their ramifications. Land and houses were real assets, the current returns of which would approximate to their real rate of return so long as real land and house rents were not changing rapidly. There were no usury restrictions on returns on land. Rent charges were nominal assets with an infinite term the real return of which depended on the rate of price inflation; these were not affected by usury restrictions either. Bonds and mortgages were also nominal assets, but the return on them was limited by usury restrictions. Bonds were short term assets that could be terminated by either side of the contract at will.

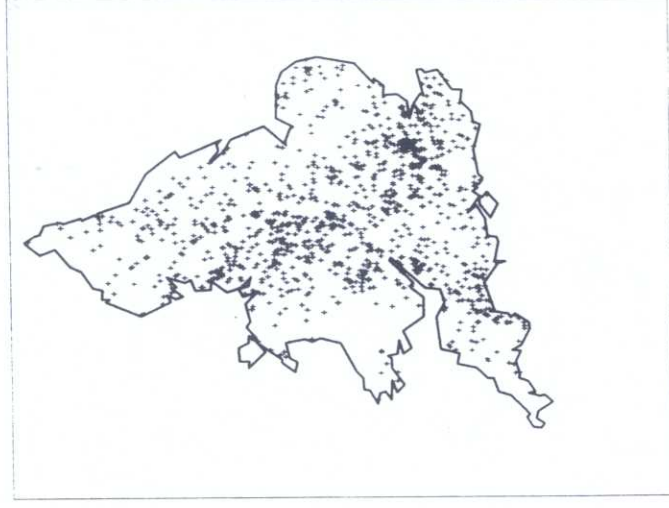
How representative are the Charity Commission observations of capital market conditions for the country as a whole? The observations from these sources are well distributed geographi-

¹⁵ Between the years 1819 and 1840, the Charity Commission published 32 reports containing 27,000 pages in the House of Commons papers. A typical reference to the return on capital is "By indenture, bearing date 22nd March 1772, . . . John Sampson, in consideration of £20, granted to the parties of the second part and their heirs an annuity of £1 issuing out of the said John Sampson's one-fourth part of the messuages, lands, and tenements, called Colehouse, situate in the parish of Broadwood Kelly" (Great Britain, Parliamentary Papers, *Reports of the Charity Commissioners*, Vol. 11, XIV [1824], 24).

The data assembled herein represents a set of transactions in the land and rent charge markets—typically with the charity as a buyer—as well as a set of dated wills recording the amount of each bequest and the return that each bequestor expected the charity to achieve from investment in land or as a rent charge. A rent charge was a fixed perpetual nominal obligation secured by a house or a piece of land. It could be redeemed only if the owner of the rent charge agreed to accept a capital sum for it.

Rent charges, sometimes referred to as "fee farm rents," existed from at least the twelfth century and were still being created in the eighteenth century. Eventually, the main transactions involving them were sales to third parties, or to the owners of the land. When tithes were commuted after 1839, they were often replaced by "tithes rent charges," which were fixed money payments from the land to the tithe holder in perpetuity. The legal properties of the rent charge went largely unchanged between the middle ages and the twentieth century. See William Douglas Edwards, *A Compendium of the Law of Property in Land and Conveyancing* (London, 1904; 4th ed.); Geoffrey Chevalier Cheshire, *The Modern Law of Real Property* (London, 1962; 9th ed.); Frederick Pollock and Frederick W. Maitland, *The History of English Law before the Time of Edward I* (Cambridge, 1895).

Fig. 2 The Distribution of Observations Geographically, Prior to 1770



cally, as Figure 2 shows. The local clusters around London, Bristol, south Lancashire, and the West Midlands correspond with areas of dense population before 1837. The land purchase data similarly cover most of England and Wales.

As is illustrated in Table 1, breaking down the Charity Commission data into various types by location, the data pertain to both urban and rural capital markets. London and the four other large towns of preindustrial England—Bristol, Exeter, Norwich, and York—are all well represented in the data set in terms of returns from land and rent charges. London alone is responsible for 13.5 percent of the observations on returns from both land and rent charges, but this figure is close to the city's share of the population in England and Wales in 1700. There is almost no land actually purchased in London, but many dated wills record legacies from Londoners to buy land, stipulating a rate of return to be achieved. The Charity Commission data seem to be representative of the urban/rural split of the population as well.

The distribution of observations for each type of asset is not uniform across time. For the early period, the most numerous

Table 1 Distribution of Return Observations

	TOTAL		URBAN (LONDON, BRISTOL, EXETER, NORWICH, YORK)		%
	N	N	N	N	
All Returns	690	115	115	16.7	
Land	117	58	58	49.6	
Houses	753	131	131	17.4	
Rent charges	287	56	56	19.5	
Bonds and mortgages					
Actual Returns					
Land	309	6	6	1.9	
Houses	51	20	20	39.2	
Rent charges	606	88	88	14.5	
Bonds and mortgages	193	37	37	19.2	
Expected Returns					
Land	381	109	109	28.6	
Houses	66	37	37	56.1	
Rent charges	147	43	43	29.3	
Bonds and mortgages	94	19	19	20.2	

observations are the actual and expected returns on land holding and rent charges and in the later period, private bonds and mortgage lending.

The changing frequency of observations for different types of lending over time reflects the development of the capital market and the survival of certain types of records. Rent charges, for example, were steadily superseded by government perpetuities after 1727, since the latter were as secure as rent charges and much more liquid. Thus, many of the observations in the later period are rates of return at which rent charges were bought out by the owners of property charged with them. However, since these deals could have been done only with the consent of both parties, they still should have represented a market interest rate. Records of bond and mortgage lending in the early years tended not to survive because such lending had a higher default rate than investments in land or rent charges, meaning that the money would be lost over time, and also because when the loans were paid, there was no reason to keep the records on them. The distribution of the observations in different time periods is shown in Table 2.

The data also suggest that, from an early period, the capital market was reasonably integrated both by location and by type of

Table 2 Composition of Rate of Return Observations, 1540-1770

TYPE	PRE-1642	1642-1688	1689-1770	TOTAL
Real Assets				
Land	203	159	328	690
Tithes	6	3	3	12
Houses	40	14	62	117
Nominal Assets				
Rent charges	218	248	287	753
Mortgages	0	6	40	46
Bonds	32	45	164	241
Total	499	475	884	1858

NOTES The number of observations from The Parliamentary Papers, *Reports of the Charity Commissioners*, Vols. 1-32 (1819-1840) is 1,699; for the years 1715 to 1721, from The Parliamentary Papers, *The Particulars and Inventories of the Estates of the Late Sub-Governor, Deputy-Governor, and Directors of the South-Sea Company (1721)*, reprinted in Sheila Lambert (ed.), *House of Commons Sessional Papers of the Eighteenth Century*, Vols. 4-6 (Wilmington, Del., 1975), 159 observations.

asset. The period before 1700 shows evidence of a slight increase in returns as distance from London increases for both rent charges and land, but the remotest parts of England and Wales still returned less than 0.5 percent more on capital than the London market. The decline in returns in London between 1630 and 1730 is echoed in all the other parts of the country. Land and rent charges were almost equally secure, though only returns on land were secure against inflation. Since, on average, rates of inflation were less than 1 percent per year between 1550 and 1837, the average difference between these two assets should have been a slightly lower return for land, which was indeed the case. In all decades but one, land yielded less than rent charges, but the overall difference was merely 0.5 percent. Thus, at least these two different capital assets seem to have been traded in an integrated market.¹⁶

A more important issue is how representative of the private capital market these returns from charity would be. Could charities have been careless purchasers and poor managers of assets with returns lower than those in the general marketplace? Two pieces of evidence prove otherwise:

16 For more details, see Clark, "The Land Market in Pre-Industrial Society: England and Wales 1540-1837," working paper 76 (Agricultural History Center, University of California, Davis, 1995).

Fig. 3 Return on Farmland, 1540-1837

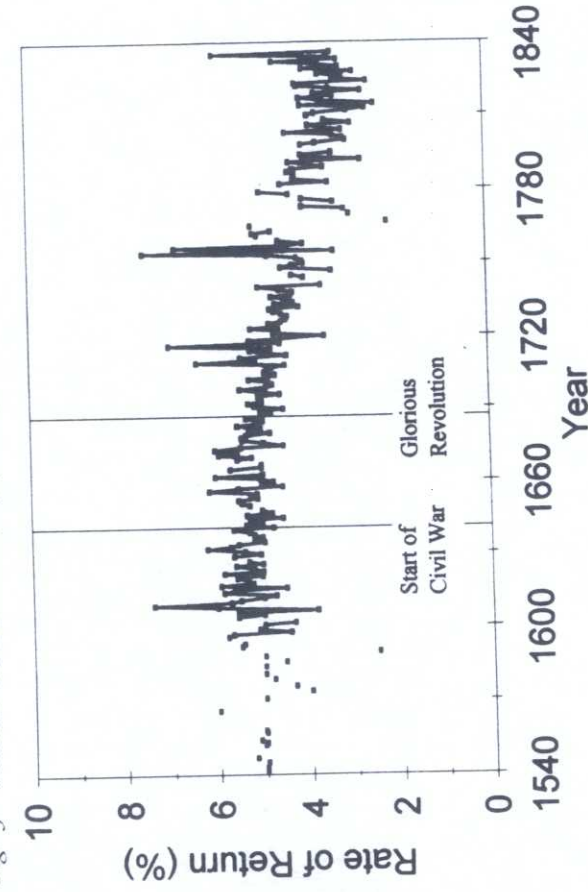
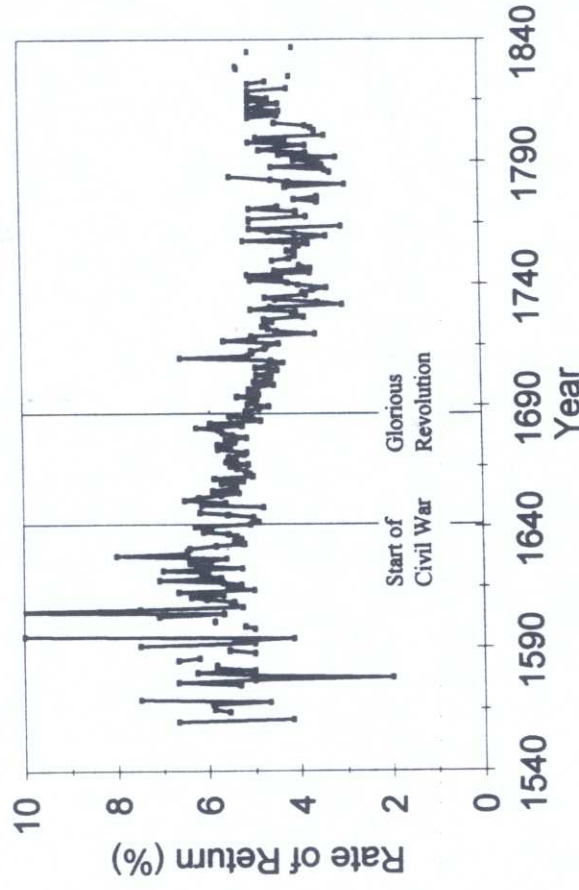


Fig. 4 Return on Rent Charges, 1560-1837



(1) Comparison of the returns expected on land and rent charges, as expressed in wills, with the actual returns charities achieved when they purchased land or rent charges shows that, for both land and rent charges, the actual returns are insignificantly different from the expected returns, both quantitatively and statistically.

(2) Comparison of the returns that charities achieved on land purchases with the returns achieved by private purchasers of land in the eighteenth and early nineteenth centuries, as reported by Clay, and Norton, Trist, and Gilbert, shows that these are close when the series overlap.¹⁷

Even if charities, on average, achieved marginally lower returns on capital invested in land or rent charges than private purchasers, detecting the effects of changes in political regime on rates of return would be a problem, as long as this difference in returns was stable over time. There is no reason to expect that

charities would perform any better or worse than private purchasers in 1550 than in 1750.

POLITICAL REGIMES AND THE RATE OF RETURN Did any of the supposedly important political events of the sixteenth and seventeenth century affect rates of return in the private capital market? Figures 3 and 4 show the annual average rates of return on farmland and rent charges from 1540 to 1770. The private rates of return change slowly with time, indicating no dramatic upward movement in any of the periods of political uncertainty: neither the last years of Elizabeth's reign (1578-1603); the period of turmoil before and during the Civil War (1639-1648); the interregnum (1649-1659); the final years of the Stuart dynasty (1670-1688); nor the difficult years of the new regime (1689-1696). Instead, the trends in returns on both land and rent charges are longer and smoother. Both seem to have increased slowly and slightly from the 1550s to the 1620s, before beginning a long gradual decline that continued for more than 100 years.

A formal test of three series—real property (land, houses, and tithes), rent charges, and bonds and mortgages—demonstrates

17 Clay, "The Price of Freehold Land"; Norton, Trist, and Gilbert (law firm), "A Century of Land Values: England and Wales," in Eleanora Carus-Wilson (ed.), *Essays in Economic History, III*, (London, 1962), 128-131. The comparison is done explicitly in Clark, "The Land Market in Pre-Industrial Society."

Table 3 Definition of Variables in Regression Equations

VARIABLE	DEFINITION
T	Year
DX	Dummy equal to 1 when the return is expected (as in a will)
DH	Dummy equal to 1 when the asset is a house
DT	Dummy equal to 1 when the asset is a tithe right
DBUB	Dummy equal to 1 in 1720 (South Sea Bubble)
DOLD	Dummy equal to 1 in 1578-1602 (years of Elizabeth's reign with clear absence of successor)
DCIV	Dummy equal to 1 in 1639-1648 (Civil War)
DINT	Dummy equal to 1 in 1649-1659 (interregnum)
DSTU	Dummy equal to 1 in 1670-1688 (last years of the Stuarts)
DNEWREV	Dummy equal to 1 in 1689-1696 (early Glorious Revolution)
DREV	Dummy equal to 1 in 1697-1770 (Glorious Revolution established)

whether the periods of political turmoil had any effect on rates of return in private capital markets. Did rates of return on any of these three classes of asset rise during periods of political instability? For real assets, the estimated coefficients of the regression equation are

$$RET = \alpha + \beta_1 T + \beta_2 T^2 + \gamma_1 DX + \gamma_2 DH + \gamma_3 DT + \delta_1 DBUB + \delta_2 DOLD + \delta_3 DCIV + \delta_4 DINT + \delta_5 DSTU + \delta_6 DNEWREV + \delta_7 DREV + \epsilon, \quad (1)$$

the variables of which are defined in Table 3. The regression formally tests for any break from long term trends in interest rates during periods of turmoil or regime changes. If political uncertainty mattered, then the estimated values of δ_2 , δ_3 , δ_4 , and δ_5 should be large positives, reflecting the periods of turmoil, and either δ_6 or δ_7 should be a large negative, depending upon perceptions of when a new regime was established. Included also is an estimate of a similar regression for rent charges, as well as a further estimate of the same equation for both types of returns with only two regime dummies—the Civil War and the years after 1696, when the new regime was established.

Table 4 Rates of Return and Political Changes, 1540-1770

PERIOD	LAND, HOUSES, AND TITHES	RENT CHARGES
1720 (Bubble)	-1.18** (0.13)	-0.95 (.56)
1578-1602 (Elizabeth's reign without clear successor)	-0.47* (0.19)	-0.33 (0.21)
1639-1648 (Civil War)	-0.26 (0.15)	-0.04 (0.18)
1649-1659 (Interregnum)	-0.13 (0.18)	0.00 (0.16)
1670-1688 (Last years of Stuarts)	-0.23 (0.15)	0.05 (0.15)
1689-1696 (Early Glorious Revolution)	-0.27 (0.22)	-0.35 (0.21)
1697-1770 (Late Glorious Revolution)	-0.09 (0.20)	-0.25 (0.21)
R ²	0.27	0.29
N	819	753

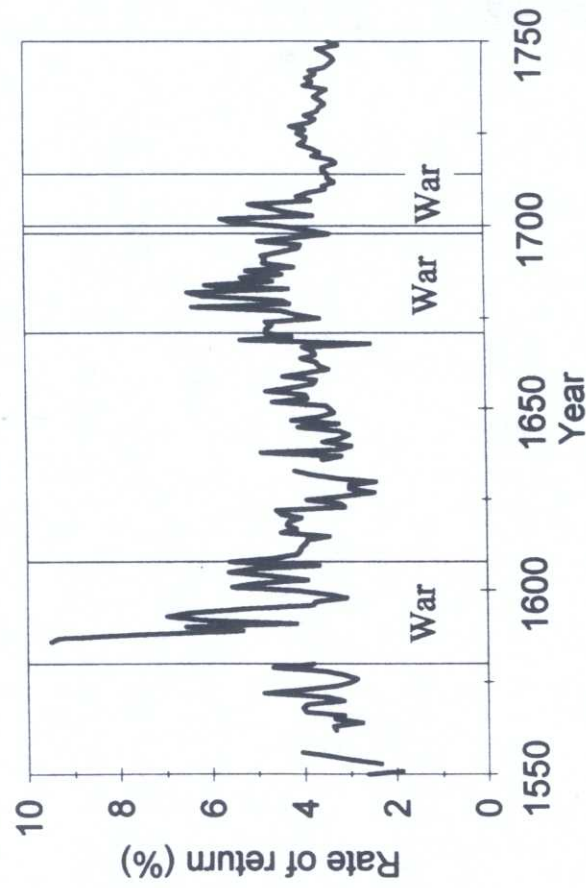
* The estimate is significantly different from 0 at the 5% level.
 ** The estimate is significantly different from 0 at the 1% level.
 NOTE The numbers in parentheses are standard errors.

Table 4 shows the estimated values of the coefficients for each of the seven crucial periods. None of the political and military convulsions of the seventeenth century seems to have had any quantitatively significant effect on private capital markets in the predicted direction. The estimated movement of interest rates are mostly by fractions of a percent and mostly in the wrong direction. Yet the precision of the estimates is high enough that, in most of the episodes, a 0.5 percent movement up or down in interest rates would be detected as a significant deviation by the regression estimate. The only episode before 1770 that seemed to make any difference to rates of return was the South Sea Bubble, when, for six months in 1720 the prices of South Sea stock rose to extraordinary heights in a speculative mania. Rates of return on both real assets and rent charges fell by about 1 percent in the year of the Bubble. The Glorious Revolution, counted either as an event of 1689 or of 1697, once the new regime achieved a measure of security, is associated with, at best, a 0.14 percent estimated decline of returns on land from the late Stuart period, and a decline of 0.40 percent for rent charges.

Redoing the estimates and keeping just two indicators of political instability—the dummy for the Civil War period and the dummy for the confirmation of the new regime in 1697—finds very small effects—an estimated rise of 0.12 percent on returns on land and a decline of only 0.18 percent in returns on rent charges. Political events in the period 1540 to 1770 do not seem to have mattered in the private capital market.

The experience in southern Netherlands during the same period is in direct contrast to that of England and Wales. De Wever reports the rate of return implied by land purchases in the town of Zele, Flanders, between 1550 and 1795. The countryside near Zele was subject to several long periods of destructive military activity and of uncertainty from 1550 to 1750. The struggle for Dutch independence took place mainly in Flanders during the years 1581-1592. Both Dendermonde to the northeast and Ghent to the west were recaptured from the rebels in 1584 after fierce fighting. After 1585, most of Flanders was in Spanish hands, but the Dutch continued to raid the countryside until 1607. There was also warfare in Flanders from 1672 to 1697, during the wars of the Dutch and the Habsburgs against Louis XIV and later during the War of the Spanish Succession. In 1706, the French besieged Dendermonde and, in 1707, captured Ghent, only to lose it to the Allies again in 1709. As Figure 5 shows, the three major military convulsions—particularly the War of Independence in 1581-1607—drove up the rate of return on land sharply in Zele.¹⁸

Fig. 5 Return on Land Holding, Zele, 1550-1750



The rate of return from land holding at Zele was estimated from the regression

$$RET = \alpha + \beta_1 T + \beta_2 T_2 + \gamma DWAR_1 + \delta DWAR_2 + \phi DWAR_3, \quad (2)$$

where $DWAR_1$ is 1 for the years 1581-1607, and 0 otherwise, $DWAR_2$ is 1 for 1672-1697 and 0 otherwise, and $DWAR_3$ is 1 for 1701-1713 and 0 otherwise. All the periods of warfare were associated with much higher rates of return. The estimated increase in the rate of return for the years of the Spanish reconquest of Flanders is 1.6 percent, on a base rate of 3-4 percent. This warfare seems to have driven up the rate of return to capital either by destruction of the capital stock, making capital scarcer, or by increasing the risks attached to investments in land. The second long period of warfare from 1672 to 1697 produced an increase of 0.9 percent from a base rate of 4 percent. The third period produced the smallest effect—an increase in rates of return of about 0.5 percent again on a base of 4 percent. In all three

18 For the land sales, see F. de Wever, "Rents and Selling Prices of Land at Zele, Sixteenth to Eighteenth Century," in Herman van der Wee and Eddy Van Cauwenbergh (eds.), *The Agricultural Development of the Low Countries as Revealed by the Tithe and Rent Statistics, 1250-1800* (Leuven, 1978). For details about the conflicts in this period, see Geoffrey Parker, *The Dutch Revolt* (Ithaca, 1977); van der Wee, *The Growth of the Antwerp Market and the European Economy* (The Hague, 1963); E. Theon, "Warfare and the Countryside: Social and Economic Aspects of the Military Destruction in Flanders during the Late Middle Ages and the Early Modern Period," *The Low Countries History Yearbook*, XIII (1980), 25-39; John Childs, *The Nine Years' War and the British Army 1688-1697: The Operations in the Low Countries* (Manchester, 1991). Van der Wee notes that, in Flanders, "the situation until 1580 was generally speaking not so bad" (247), but "looting by freebooters, and not less by Spanish troops, did not cease in 1587" (269).

episodes, the effects of warfare were much greater than those from the civil strife or changes in regime that occurred in England during the same period.

Testing for a significant change in English rates of return in the years 1689, or 1697—when the new regime finally seemed secure from overt internal and external opposition—could be regarded as unfair. After all, it might have taken twenty or thirty years to convince the populace that the country actually had a new political regime. The decline in government interest rates portrayed in Figure 1 took nearly twenty-five years after 1689, and interest rates initially seemed to have increased between 1689 and 1695. Testing for a break in the series only after 1697 may not have given the new regime a fair chance. What transpired after 1689 could have been an acceleration of a decline in rates of return that figures 4 and 5 show to have been occurring before 1689, rather than a sudden break in the series. The estimated expression for this new test, done for returns on land, rent charges, and mortgages and bonds combined, is

$$RET = \alpha + \beta T + \gamma RET + \delta DBUB + \epsilon, \quad (3)$$

for the years 1660 (the Restoration of the Stuart monarchy) to 1729, where T is the year, RET is 0 from 1660 till 1696 and thereafter equals the year T , and $DBUB$ is a dummy variable equal to 1 in the year of the South Sea Bubble. The coefficient on RET measures how the trend in rates of return changed after 1697 as a result of the Glorious Revolution.¹⁹

In all cases, the coefficient on T , the time trend, is negative, showing that returns on all assets were falling before 1697. But neither in the case of real assets, rent charges, nor bonds and mortgages was the estimated coefficient γ significantly different from 0 either statistically or quantitatively, indicating no acceleration in decline of returns after 1697. The Glorious Revolution leaves no trace on rates of return in the English economy between 1660 and 1730. As shown in Table 5, rates of return were falling in the years 1660 to 1696, and they continued to fall at the same rate once the new regime was established. The same results obtain

19 Estimation of the bond and mortgage returns, as in equation (1), was not possible because the usury limit requires a Tobit estimation; the usury limits, however, changed several times between 1550 and 1770.

Table 5 Rates of Return and the Glorious Revolution

	LAND, HOUSES, AND TITHES (1660-1730)	RENT CHARGES (1660-1730)	BONDS AND MORTGAGES (1660-1714)
T	-0.0096*	-0.0128**	-0.0122
$REVT$	(0.0044)	(0.0034)	(0.0083)
	0.0002	-0.0001	-0.0002
$DBUB$	(0.0001)	(0.0001)	(0.0002)
	-1.11**	-0.97*	-
	(0.15)	(0.47)	-
R^2	0.30	0.18	-
N	521	413	86

* The estimate is significantly different from 0 at the 5% level.

** The estimate is significantly different from 0 at the 1% level.

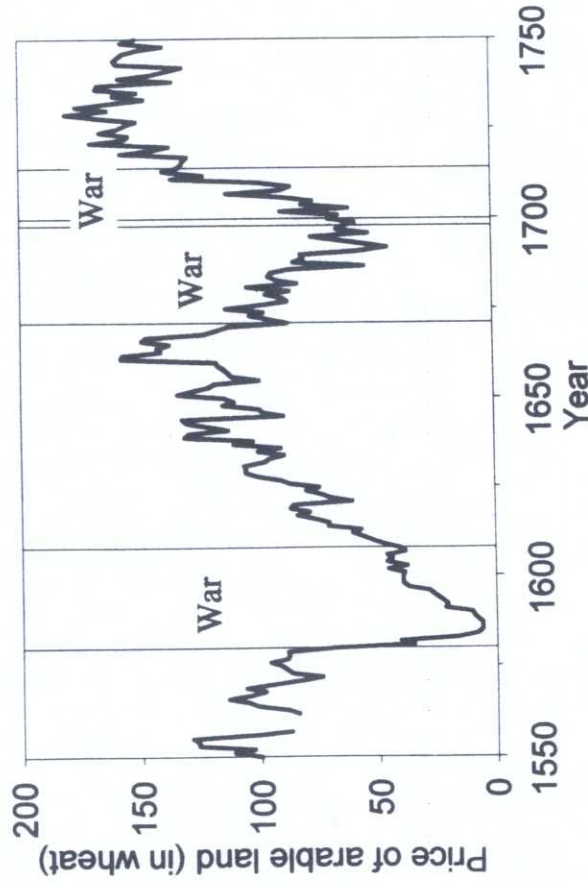
NOTES The numbers in parentheses are standard errors. The bond and mortgage equation was estimated using the Tobit procedure, because of usury limits, and only for the years 1660-1714, since the usury limit changed in 1715.

if we use 1689 as the break point between the old and new regimes.

Another way to measure the effect of politics on capital markets is to look at asset values—in particular, the value of land. Both England and Zele allow many more observations on land prices than on returns to land. Asset values should rise sharply in stable periods and decline in unstable periods. This effect is even more pronounced than the effect for returns on land in Zele. Figure 6 shows the average annual price of arable land in Zele between 1550 and 1749, measured in terms of bushels of wheat to control for the effects of movements in the price of output. Although there are modest long-run movements in land values, it is clear from Figure 6 that, in the war periods, land prices fell sharply. In certain years during the war of independence, real land prices fell to less than 6 percent of their value at the outset of the war. In the later war, land prices fell by more than 50 percent at their minimum. The average fall in prices during the first period was 84 percent, in the second, 30 percent, and in the third, 11 percent.²⁰

20 Both land rents and land values fell in the war periods, but the former more than the latter. The price of wheat is from Wilhelm Abel (trans. Olive Ordish), *Agricultural Fluctuations in Europe from the Thirteenth to the Twentieth Centuries* (London, 1980), 432-433, which gives

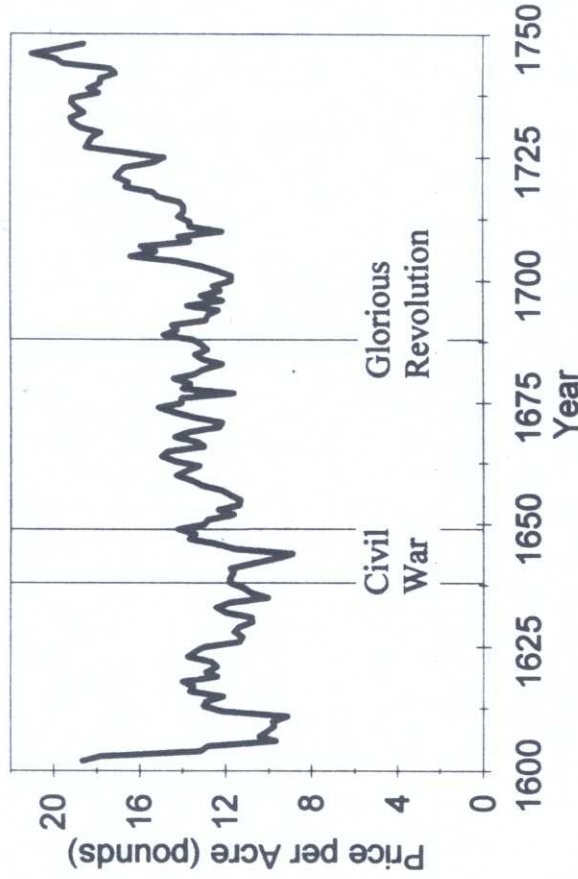
Fig. 6 Real Farmland Prices, Zele, 1550-1750



The Charity Commission data reports 1,824 land prices for the years 1600 to 1749, throughout England and Wales. Did land prices fall in periods of political instability, and did they rise after the Glorious Revolution? Because movement in the price of agricultural output will be associated with movement in land prices, as in Zele, all prices have been deflated according to Bowden's index of the price of output, which was constructed here as a ten-year moving average to avoid spurious variation caused by harvest failures and successes. Individual plot prices varied considerably. Information on land use, the enclosure status of land, the location of the land, and the numbers of buildings on the land are included to control for this variation. Figure 7 shows the average annual price of land in England and Wales from 1600 to 1749, controlling for these factors, constructed as a centered three-year moving average. The corrections were derived by regressing land prices on the variables, and then adjusting the price

the average wheat price in Bruges, Dixmude, Nieuport, Anvers, and Brussels, converted from silver to nominal values using information on the silver content of the pond grotten, supplied by Van Cauwenberghc.

Fig. 7 Real Farmland Prices, England and Wales, 1600-1750



NOTE The individual land prices were corrected for the parcel size, the use of the land, buildings upon the land, the location of the land, and the fraction of the land that was enclosed. The figure shows a centered three year moving average of land prices.

SOURCES Great Britain; Parliamentary Papers, *Reports of the Charity Commissioners, Vols. 1-32 (1819-1840)*. Nominal values deflated by agricultural output prices are from Peter Bowden, "Statistical Appendix," in Joan Thirsk (ed.), *The Agrarian History of England and Wales* (Cambridge, 1985), IV, 849-850; V, 847-849.

for each plot to remove the price variation caused by differences in land characteristics.²¹

As evident in Figure 7, the two major events of the period—the Civil War of 1639 to 1648 and the Glorious Revolution of 1688—had no obvious effect on land prices. The contrast with Zele is more marked for land prices than for rates of return. Political events had little effect on land prices in England from 1600 to 1749. Even if charities were not the most astute purchasers of land, there is no reason to suppose that their purchasing abilities improved or worsened as a result of changes in political regimes in this period.

21 Peter Bowden, "Statistical Appendix," in Joan Thirsk (ed.), *The Agrarian History of England and Wales* (Cambridge, 1985), IV, 849-850; V, 847-849.

A more formal test for the effect of political events on land prices is the regression equation predicting the logarithm of land prices per acre in terms of land characteristics, a time trend, and political changes. That is,

$$\begin{aligned} \text{LOG}(\text{RENT}) = & \alpha + \beta_1 T + \beta_2 T^2 + \sum_{i=1}^n \gamma_i \text{CHAR}_i \\ & + \delta_1 \text{DCIV} + \delta_2 \text{DREV} + \epsilon, \end{aligned} \quad (4)$$

where CHAR_i is a set of land characteristics, such as plot size, DCIV is a dummy variable for the Civil War period (1639-48), and DREV is a dummy for the Glorious Revolution (the years after 1688 or 1696). The logarithmic form for rent is chosen so that land characteristics and other independent variables have a proportionate effect on land values. Controlling for the long time trends in land values, the estimated effect of the Civil War is an increase of 0.1 percent in land values. The effect of the Glorious Revolution, as dated at 1697, is a 9.7 percent decline in land values, with an estimated coefficient significantly less than 0 at the 5 percent level. The decline in land values is stronger if 1689 is taken as the break point.

Did the Glorious Revolution represent just a turning point in the trend of land prices? That is, did land prices gradually rise after 1689 or 1697? The data from the period 1660 to 1730 reveal that real land values were rising before the Glorious Revolution and that the rate of increase of land values was the same after the Glorious Revolution. There was a growth of land prices from 0.6 percent to 0.8 percent per year that predated the Glorious Revolution (taking either 1689 or 1697 as its date) and that continued after the Revolution at almost exactly the same rate. Neither way of treating the problem indicates that the Glorious Revolution had an effect on land prices.

IMPLICATIONS The evidence suggests that England in the period prior to the Industrial Revolution cannot be cited as an example of the importance of political stability to economic development, contrary to institutionalists such as North, who seeks institutional explanations of growth and development. The key issue concerning the growth that began with the Industrial Revo-

lution is the investment of energy and resources in the development of production technology. North and his followers account for the rapid rate of technical progress in eighteenth-century Britain by an enhanced incentive to invest in new technology, created by an enhanced security of property rights. One measure of such security of property is the rate of return on capital. Institutionalists were stretching a point when forging the link between the institutional changes of 1688 and the Industrial Revolution beginning in 1760.

England, as far back as the reign of Henry VIII, seems to have enjoyed secure capital markets. The private economy in England after 1540 was largely insulated from political events—even from the strife of the Civil War. To read the Glorious Revolution as ushering in a stable regime of taxes and property rights that laid the foundation for the Industrial Revolution is to write Whig history of the most egregious sort.

Rates of return on capital fell in the 100 years prior to the Industrial Revolution, but in such a way as to show no connection with political events. Within the pre-1688 regime, rates of return on capital rose slowly to a peak in 1625 and then declined again. Within the post-1688 regime, rates of return on capital again moved, but with no indication that the change in regime was a causal factor.

Similarly, land values show little or no response to the political convulsions of the era. Farmland values are estimated to have fallen as a result of the Glorious Revolution. Given the sampling errors in the data, we can conclude that there is only one in twenty chance that land values actually rose by as much as 6 percent as a result of the Glorious Revolution. There is no evidence from returns on capital that, had James II remained on the throne and been succeeded by his son James III, the economic history of England in the eighteenth century would have been any different.

Stable property rights may have been a necessary condition for the Industrial Revolution, but, since they had existed in England and Wales for more than 200 years prior to the Industrial Revolution, they were certainly not a sufficient condition. An adequate explanation for the Industrial Revolution requires factors other than the emergence of stable private property rights.