# Rents and Reformation

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**Abstract**

We model the political economy of the English Reformation to show how the Dissolution of the Monasteries (1536-1540) cemented Protestantism. Property rights over former Catholic monastic lands were insecure for as long as there was a possibility of return to Catholicism. Beneficiaries of monastic-land rents had a vested interest in preventing this. To provide evidence, we compile a new dataset of 16th-17th c. Members of Parliament (MPs) and their respective borough constituencies. We show that MPs representing boroughs with more monastic lands were more likely to support Protestantism during the reign of Mary I (r. 1553-1558). Those who had personal connections to such lands were also more likely to do so. In the reign of Elizabeth I (r. 1558-1603), parishes with more monastic lands had fewer 'recusants' (Catholics). In 1679-1681, MPs from boroughs with more monastic lands were more likely to support the exclusion of the Catholic future king James II (r. 1685-1688) from the throne. Finally, we show that the transition to Protestantism was a long process. Even after the 1688 Glorious Revolution, boroughs with more monastic lands still had lower percentage of Catholics. This reveals that by the 18th century, England had not yet attained what the model calls a Complete Reformation Equilibrium but, rather, only a T-stable Reformation Equilibrium.

JEL: N43; K42; D7; Z13

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> Cromwell's motive ... was merely loot. But the ultimate effect ... [of the Dissolution] was to create a strong vested interest against reconciliation with Rome. The looted land was sold and resold ... England had been, as it were, "bribed", not to admit England's being made Catholic again

Hilaire Belloc (1936, 81-82)

> ... the surest Champions for our Religion against the Papacy, are our *Abby landed-men;*

Anonymous, *An Address to the Honourable* City of London, 1681

# 1 Introduction

History is marked by critical junctures, periods during which institutions and/or culture radically changed. One such instance is the English Reformation, one of the most dramatic episodes of religious, cultural and institutional change in history. While King Henry VIII's (r. 1509-1547) divorce from Catherine of Aragon severed England from Papal authority, the separation need not have been permanent. How did a once-staunch Catholic country become decidedly Protestant? The answer, as we will argue, lies in the Dissolution of the Monasteries (1536-1540) – the disbanding and sale of Catholic monastic houses and lands.

The Reformation was a tremendous shock to Europe's religious landscape and political economy (Ekelund, Hébert, and Tollison, 2002; Becker, Pfaff, and Rubin, 2016; Cantoni, Dittmar, and Yuchtman, 2018). It forged a new Protestant identity in England, and played a critical role in subsequent struggles between the Parliament and the King, as well as England's relations with other European Powers.[1] Protestantism was later transmitted to England's colonies in America where it shaped its culture and political economy (Fisher, 1989). And its legacy was at the heart of the Troubles in Ireland in the 20th century. Understanding how the English Reformation cemented Protestantism remains a question of first-order importance.

It is also important for studying institutional change. Historians emphasize the significance of Protestantism and conflict over religion in both the English Civil War (see Royle, 2004) and the Glorious Revolution (Pincus, 2009; Sowerby, 2013). Religious conflict was a driver of constitutional change: scholarship shows that the English Parliament grew in influence as the need for religious legitimation diminished (Rubin, 2017; Greif and Rubin, 2024). By focusing on the English Reformation, we contribute a new understanding of institutional development in

[1] As Marshall (2022, 239) notes England was "the only truly front-rank power to opt for the Reformation, the pre-eminent Protestant nation of the sixteenth- and seventeenth-century Europe". Collinson (1998, 5) goes so far as to note that the notion that England was "God's peculiar place, not just an elect nation but the elect nation ... was born out of the experience of the Protestant Reformation and its immediate consequences" then the Reformation was "a root, perhaps even the taproot, of English imperialism."

England, a topic of general interest given England's centrality in the history of constitutional government.

The Catholic Church had owned vast swathes of land in medieval England (approx. 25-33% of all land), and its monastic houses had dominated large parts of the English countryside. The monasteries were dissolved by Henry VIII and his chief minister Thomas Cromwell, during a four year period between 1536-1540 (henceforth the "Dissolution"), and the lands were sold by the crown and passed into the hands of a broad swath of aristocrats, gentry, and richer yeomen (Heldring, Robinson, and Vollmer, 2021). While historians debate the precise motivations of the King and Cromwell, there is little disagreement that the Dissolution was a sudden shock to English society.[2] Modern research indicates that the monasteries were not in terminal decline prior to the Dissolution. While some radical or Protestant ideas had spread from the continent, traditional Christianity was thriving (Haigh, 1987; Duffy, 1992). The Dissolution was a largely exogenous shock—the product of Henry VIII's *magisterial* Reformation.[3]

This paper analyzes the Dissolution within the political economy of the English Reformation, and demonstrates its impact on religious, cultural, and institutional change.

We first build a model that integrates cultural transmission into a political economy framework tailored for Early Modern England. Amidst the Reformation, traditional (Catholic) religious practices can survive to the extent that they are transmitted vertically – from parent to offspring and horizontally – by the memory of pre-Reformation Catholic sentiment in the district where the individual resides. However, such practices can also die out as religious policy becomes more restrictive against them.

The monarch determines this policy at each time period. While more restrictive policy (anti-Catholic) makes it more difficult to practice the traditional religion, it can benefit beneficiaries of monastic-land rents as it makes it less likely that monastic lands are returned to the Catholic Church. In other words, policy that is more restrictive against Catholicism also makes property rights over monastic lands more secure.

To enact policy, the monarch relies on Members of Parliament (MPs) whose support reduces the cost of implementation and whose opposition raises it. In turn, each MP is incentivized to take the policy stance that promotes the interest of the constituents of his district, whose support determines the survival of the MP's political dynasty, i.e. the probability that the MP's offspring will also become an MP in the future.

We construct two kinds of long-run equilibria. A Complete Reformation Equilibrium is one in which religious policy in every period becomes more and more restrictive against Catholicism (more Protestant). Thus, reversion to Catholicism is impossible, and property rights over monastic lands become completely secure. A weaker equilibrium concept is the T-stable Reformation Equilibrium in which policy becomes more and more restrictive against Catholicism within some time interval,

[2]See discussions in Clark (2021).

[3]See Appendix 4 for a further discussion.

after which it does not become less restrictive than some threshold. Thus, while reversion to Catholicism is still a possibility, and therefore property rights are not completely secure, the probability of reversion is bounded from above.

Our model generates two predictions. First, more monastic lands in the MP's district make it more likely for an MP to adopt an anti-Catholic/pro-Protestant, policy stance. Beneficiaries of monastic-land rents prefer such a stance to secure property rights over monastic lands. The more monastic lands in the district, the more beneficiaries there are, and the more likely that the MP promotes their interest.

Second, under a Complete Reformation Equilibrium, only the strength of Catholic sentiment in the district should predict residual Catholicism. That is, religious policy, which is now fully Protestant, and therefore monastic lands, whose property rights are now completely secure, should no longer matter. In contrast, if only a T-stable Reformation Equilibrium is attained, then policy and monastic lands will remain relevant, as there is still a chance of Catholic reversion, albeit small. In other words, Catholicism in the district would not only be indicative of religious sentiment, but also of concerns about the security of monastic-land rents. The greater these concerns, i.e. the more monastic lands in the district, the fewer remaining Catholics there ought to be, after controlling for Catholic sentiment in the district.

To test these predictions, we combine newly collected data on English MPs, their respective districts and constituents in the 16th and 17th centuries, with the locations of the monasteries and monastic lands from Heldring, Robinson, and Vollmer (2021) and a host of other novel data.

We first look at support for Protestantism during the reign of Mary I (r. 1553-1558) who restored England to Rome. First, at the individual-level we find that individual MPs who were likely beneficiaries of monastic lands were 2.7 times more likely to support Protestantism in 1553 and to oppose the Catholic Queen Mary in 1555. Second, looking at Parliamentary boroughs (districts), we find that a higher proportion of nearby parishes with monastic lands is associated with a higher proportion of MPs from that borough supporting Protestantism in 1553, and opposing Mary in 1555. These results are correlational. But they are robust to the inclusion of important covariates including geography controls, trade and political controls as well as region fixed effects. And we establish pre-treatment balance on observables. The most obvious threat to identification is the spread of Protestant ideology prior to 1540. We control for this directly using individual-level data on early English Protestants.

To demonstrate the historical significance of these findings we establish that in boroughs which had more monastic lands, there were fewer Protestants executed during the Marian persecutions (though there were more Protestants). A one standard deviation increase in monastic land share is associated with approximately 2 fewer Protestants executed in the nearby area, a large-effect in the context of the intense but short-lived Marian persecutions. Furthermore, we show that by 1603 (during the reign of Elizabeth I), there were fewer Catholics in parishes with more monastic lands,

which suggests that the population in countries where local elites who benefited from monastic lands themselves were less likely to be Catholic within two to three generations of the Dissolution.

Next, we move forward into the late 17th century, a period of renewed turmoil of religious policy. Qualitative evidence indicates that possession of monastic lands was linked to anti-Catholic policies. First, it is important to note that we do not find evidence that ancestral or familial ties to the Dissolution predict policy. This is perhaps unsurprising given that monastic lands were sold and resold throughout the period and are difficult to trace at the individual level. The diffusion of anti-Catholic views operated at a collective level. At the borough-level we find evidence that the distribution of monastic lands predict anti-Catholic policies both during the Exclusion Crisis of 1679-1681 and during the reign of James II (r. 1685-1688).

The Exclusion Crisis arose because strong Protestants opposed the ascension to the throne of the Catholic James, Duke of York, and future king James II. Some elites feared that a return to Catholicism would mean returning lands, particularly monastic lands taken from the Church. We find that a higher proportion of nearby parishes with monastic lands is associated with a higher proportion of MPs from that borough supporting Exclusion in 1679. Electoral pressure from nearby landowners is a plausible mechanism for this result as these results are stronger in more competitive electoral boroughs whereas whether an individual MP's ancestors held former monastic lands does not seem to affect their voting behavior. Furthermore, we show these results hold when we restrict the sample to MPs who were also local landowners. We also provide suggestive evidence that they were more likely to oppose the policies of James II once he became king.

Finally, we provide evidence that by the early 18th century, only a T-stable, and not a Complete, Reformation Equilibrium was attained. The Glorious Revolution in 1688 and resulting Act of Settlement in 1701 barred any Catholic from ascending the throne, and thus made it unlikely for England to return to the Catholic Church. To show that the latter was still possible, albeit unlikely, we demonstrate that property rights over monastic lands were still a concern. Parishes with more monastic lands still predict a lower percentage of Catholics, even after controlling for various proxies for Catholic sentiment. Our model and empirical results together describe a cumulative process of religious and cultural change. The Dissolution was a one-time material shock: monastic lands were redistributed to a broad class of landowners whose property rights were only secure so long as England remained Protestant. Empirically, we show that this initial material incentive generated political opposition to re-Catholicization during the reign of Mary I, which in turn shaped the local religious and cultural environment—areas with more monastic land experienced less intense persecution of Protestants, and by the early 17th century had fewer Catholics.

Crucially, we find that this was not primarily due to a process of dynastic transmission, in which specific families passed down anti-Catholic values from generation to generation. This

vertical transmission may have occurred, but the effects we find in the 17th century suggest that the mechanism operated at the level of localities: boroughs and parishes with greater exposure to monastic lands developed a more Protestant character over time, as the political actions of local elites shaped the cultural environment in which subsequent generations were socialized.

By the time of the Exclusion Crisis of 1679, more than a century after the Dissolution, monastic land exposure still predicted anti-Catholic voting. The effect is strongest where MPs had local land connections, suggesting that what mattered was the residential exposure of elites to communities shaped by the legacy of the Dissolution, rather than the inheritance of specific monastic estates.

These findings are of first-order importance for understanding a critical episode of institutional and religious change: the English Reformation. Our findings explain why the English Reformation was such a long and drawn out period of institutional change. They provide support for the arguments of historians who argue that religion was a critical factor in England's constitutional development even late into the 18th and 19th centuries. This is important, as religion has not been the focus of traditional political economy accounts of the rise of constitutional government (North and Weingast, 1989; Acemoglu, Johnson, and Robinson, 2005; Acemoglu and Robinson, 2012).

Our paper is related to several literatures. While the scholarly literature on the English Reformation is vast, less attention has been paid to it by social scientists. In an important paper Heldring, Robinson, and Vollmer (2021) study the economic consequences of the Dissolution. They argue that by placing previously unavailable land on the market the Dissolution helped match productive individuals to land. Because monastic land was less encumbered than other forms of property, land tenure contracts on this land could be more easily renegotiated. Both factors favored economic development and more capital intensive agriculture. In contrast, we draw attention to a key political economy aspect of the Dissolution: so long as a Catholic restoration was possible, property rights over monastic lands were insecure. In so doing, we uncover the role that this economic redistribution of religious resources played in cementing this transformative episode of institutional change.

Second, we contribute to a growing literature on culture and institutions and particularly to the evolution of cultural values over time. The dynamics of cultural transmission have been modeled in Bisin and Verdier (2001); Bisin et al. (2011); Bisin and Verdier (2024), Carvalho et al. (2024), and Bisin, Rubin, Seror, and Verdier (2023). A large empirical literature establishes cultural values as a mechanism for the persistence of political and economic shocks. Within this literature, recent scholarship studies the political consequences of *activated* memories (Ochsner and Roesel, 2024). Not all events are equally well remembered. Persistent cultural memories are those that are political salient and reinforced by media or political entrepreneurs.[4]

[4]For example, Ang (2023) find that showings of the 1915 film *Birth of a Nation* increased racial violence. Esposito et al. (2023) similarly argue that the film cemented the lost cause narrative in the US South. Taylor (2025) finds that Confederate monuments in the US South built after Reconstruction increased Democratic vote

Third, we provide new insights into the political economy of the Reformation. The Reformation is the subject of a vast literature that we can only touch upon here but which we discuss in more detail in the Appendix. We contribute to a new understanding of the Reformation in economics and economic history. This literature has moved beyond an initial concern with the implications of the Weber hypothesis (see Becker and Woessmann, 2009) to consider both the immediate causes and consequences of the 16th century religious schism (Becker, Pfaff, and Rubin, 2016).[5] Cantoni, Dittmar, and Yuchtman (2018) study the consequences of secularization in Germany following the Reformation. Dittmar and Meisenzahl (2019) examine public goods provision in the wake of the Reformation. Cappelen and Hariri (2022) examine the secularization of Church property in the context of state-building across Europe. Motivated by the example of Denmark, they argue that the wealth taken from the Church enabled a stronger and unconstrained monarchy to be established. We examine the case of England where this did not occur as the early sales of former monastic lands meant a broad section of elites came into possession of this land.

Fourth, we contribute to an ongoing revaluation of institutional development in England. Canonical accounts of England's institutional development such as North and Weingast (1989); North (1990) and Acemoglu, Johnson, and Robinson (2005); Acemoglu and Robinson (2012) focused on the link between constitutional conflict and economic development. The emphasis on the Glorious Revolution of 1688 as decisive break-point in institutional development has come under renewed scrutiny and criticism (see Murrell, 2017; Hodgson, 2017; Henriques and Palma, 2023; Grajzl and Murrell, 2024). Henriques and Palma (2023), for example, point to the mid-17th century as a period of institutional divergence between England and continental Europe.[6]

More generally our work contributes to a growing literature on the political economy of religion. This literature draws attention to the important ways in which religion has been used to legitimate political authority (Coşgel and Miceli, 2009; Rubin, 2017; Johnson and Koyama, 2019; Bentzen and Gokmen, 2023). Johnson and Koyama (2019) discuss how the Reformation shocked Europe's preexisting political economy equilibrium, resulting in mass violence and religious persecution. Some studies have focused on the sale of church lands following the French Revolution. Finley, Franck, and Johnson (2021) explore the effects of the church land confiscation on future agricultural productivity, irrigation investment, and land-use. Finally, in an important new work, Rouanet and Tallec (2024) find that regions in France that had church lands were more likely to support the Republican anti-traditional party during the Third Republic almost a century later. They argue that the redistribution of monastic lands cemented French Republicanism in the 19th century.

share while reducing overall voter turnout and inducing Black out-migration.

[5]In terms of the causes of Reformation, this literature has investigated the role of the printing press (Rubin, 2014; Boerner et al., 2021) and more recently the role of pivotal individuals such as Martin Luther and Erasmus (Becker et al., 2020). For a general survey, see Becker, Rubin, and Woessmann (2021).

[6]In terms of the development of the fiscal system, critical developments such as the end of tax farming took place before the Glorious Revolution as discussed in Johnson and Koyama (2014).

# 2 Historical Background

## *2.1 Reformation-era England*

Henry VII (r. 1485-1509) and Henry VIII prior to his divorce were closely aligned with the Papacy. This changed when Henry VIII's petition to divorce Catherine of Aragon was rejected by the Papacy and, in response, Henry made himself head of the Church of England. Historians refer to this as the Henrician or magisterial Reformation. Prior to this, the ideas of Luther and other reformers had gradually been percolating, particularly at the University of Cambridge. The translation of the Bible into English by William Tyndale was also attracting attention. But it required Henry's divorce to prompt the break with Rome. Scholarly disagreement remains over the extent to which Henry intended the religious changes that his reforms brought about. In some respects, he sought a Catholicism without the Pope and kept many elements of traditional religiosity. But he also sought to create a form of "sacred kingship" modeling himself as an Old Testament ruler.[7]

Henry's Reformation was accompanied by repression. Most elites were willing to support his reforms. But a minority resisted: 329 people were executed for treason between 1532 and 1540 including those who refused to assent to the Royal Supremacy such as Thomas Moore and John Fisher, Bishop of Rochester (Marshall, 2012, 54). Throughout the remainder of his reign there was ongoing conflict between traditionalists and reformers that was only resolved decisively in favor of the latter with the ascension of Edward VI (r. 1547-1553).

## *2.2 The Dissolution of the Monasteries*

In 1535, Henry's main advisor Thomas Cromwell sent a commission to assess the status of the monasteries. Their assessment became the *Valor Ecclesiasticus*, which is ultimately the source of the data used in this paper. After the commission was completed, Cromwell sent four "Visitors" whose job was to find evidence of monastic decline. The Visitors carried a questionnaire for each monk and a list of injunctions to remind them of the Oath of Succession making Anne Boleyn's daughter Elizabeth the legitimate heir (Knowles, 1959, 274). They returned with reports of drunkenness, fornication, and homosexuality, though the means by which such confessions were obtained are suspect.

The report of the Visitors was the primary impetus for the Act for the Dissolution of the Lesser Houses passed in 1536. This dissolved the houses with an income of less than £200 and promised that any religious could be transported to other houses. From late 1537 onwards, however, it became clear that Henry and Cromwell intended the suppression of monasticism in general.

[7] Marshall argues that because he saw the main threat to his rule as coming from Papists or continental powers, he was forced into an alliance with the leading evangelicals, chief among them Cromwell and Thomas Cranmer (Marshall, 2012).

Individual monasteries were encouraged to voluntarily "surrender" the monastery to the crown in return for pensions for the abbots and monks. In 1539, a second act was passed that dissolved the remainder of the houses. The final monasteries were dissolved in 1540.

Three related reasons for the policy of Dissolution are prominent in the literature: (i) religious; (ii) political; and (iii) fiscal.

**Religious Reasons for the Dissolution.** The need for reforming the monasteries was widely acknowledged even by traditionalists (see Hoyle, 1995, 282-283). In the 1520s Cardinal Wolsey dissolved 30 small monasteries between 1525 and 1528 that he found inefficiently managed (Knowles, 1959, 470). But there was no precedent for the dissolutions that took place after 1536. The English monasteries were not in irreversible decline. While they were criticized by reformers, there was still demand for their services (Cross, 1988). Moreover, the Dissolution of the English monasteries was "unmatched in its scale" (Clark, 2021, 7). While in other areas such as doctrine, Henry's Reformation was modest and halting, in destroying the monasteries he acted decisively.

**Political Reasons for the Dissolution.** Following the Act of Supremacy of 1534, opposition to Henry's program of religious reform grew. Elizabeth Barton, sometimes called the Maid of Kent, a nun who denounced the king's divorce was executed for treason. Potentially, the monasteries could offer a base for political opposition. Indeed, following the Act for the Dissolution of the Lesser Houses in 1536, a series of uprisings occurred in Lincolnshire, partly in protest. The movement spread into the North and a group of nobles led by Robert Aske joined the revolt. The rebellion, called the Pilgrimage of Grace, was soon suppressed (Hoyle, 2001). This resistance likely strengthened Henry and Cromwell's resolve to dissolve all of the religious houses. Nonetheless, this point should not be taken too far as the vast majority of the clergy acceded to the royal supremacy: "Persistent resistance to the supremacy was confined to just eight religious houses" (Clark, 2021, 218).

**Fiscal Reasons for the Dissolution.** Many historians emphasize fiscal motives. Woodward (1966, 53) concluded "...the financial aspect of the dissolution remains undoubtedly the most prominent". Royal revenues were running far short of expenditure in the early 1530s and both Henry's advisors and Parliament were searching for new sources of revenue. As Hoyle (1995, 290) writes: "[a]lthough it cannot be proved conclusively that the attack on the church was undertaken for financial reasons, the fines and compositions which the church paid were an enormous aid to the crown at a time when its coffers were apparently bare".

Overall, these fiscal, religious, and political motives were not independent but operated in conjunction with one another in such a way that once started, the policy of fully dissolving all of England's monasteries became impossible for England's policymakers to resist.

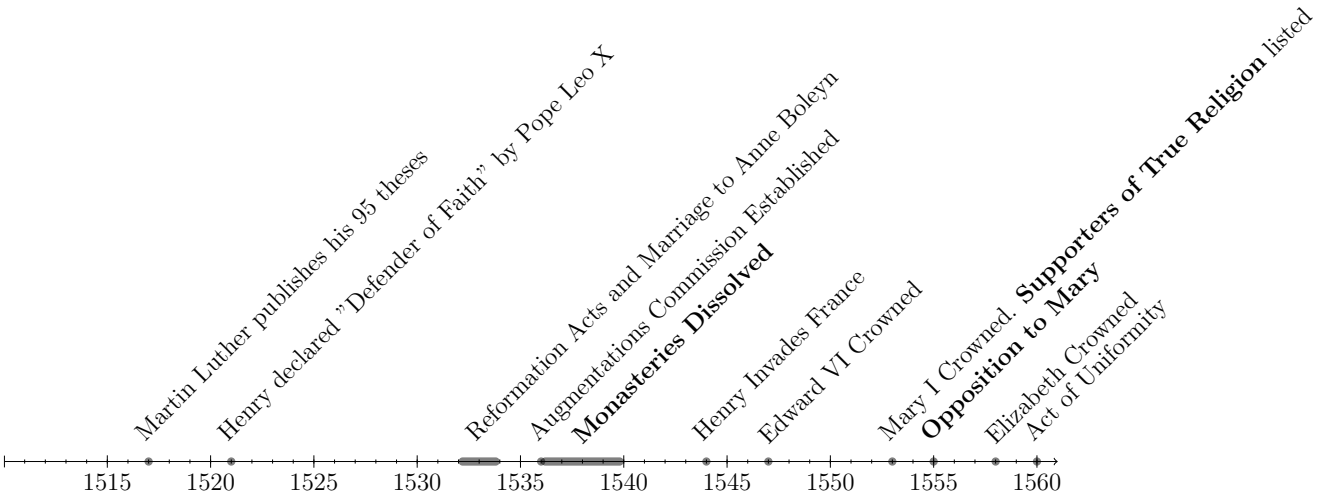


Figure 1: A Timeline of the Early English Reformation

In 1536 the "Court of Augmentations of the Revenues of the King's Crown" was established. This court was responsible for overseeing the flood of new properties that came into the king's hands. The initial intention was to use the incomes of monastic properties to augment existing royal revenue, but soon the lands simply had to be sold or leased out as the sheer volume was impossible to manage. Initially, many of those who were given or purchased monastic lands were court favorites or connected to Cromwell, but over time a far larger and broader class of individuals became involved (Liljegren, 1924). Rather than augmenting the Crown's permanent income, monastic lands continued to be sold off until they were depleted during Elizabeth's reign.

### *2.3 Mary's Dilemma*

After the short reign of Henry's son Edward who intensified the program of reform, the daughter of his first wife Catharine, Mary, took the throne in the summer of 1553 after a brief succession crisis. Mary was Catholic. Her dilemma was that returning to Rome meant undoing in their entirety the acts of her father and brother (see Loades, 1965). However, such a policy was (i) guaranteed to alienate the elites who had acceded to Mary's ascension; and (ii) extremely expensive, at a time when the crown's finances were already stretched.

Facts on the ground had shifted since the 1530s. The infrastructure and personnel of pre-Reformation Christianity had been dismantled. Church lands had been secularized. The monasteries had been entirely dissolved. As Knowles (1959, 422) observed: "where were the monks and canons, and what were now their rights . . . if a restoration were to be made?".

Former monastic lands was a central issue. As Pogson (1974, 250) writes: "[i]f the Roman Church was to recover its traditional authority in England, it had to recover also the wealth which it had surrendered in the schism". Once Mary's key advisor Cardinal Reginald Pole became Archbishop of Canterbury, he had to face this problem squarely, for he knew "he could not re-endow many monasteries without the confiscated monastic lands" (Pogson, 1974, 251). Together

with Mary, he took two approaches.

First, they appealed to beneficiaries of the dissolution to voluntarily give up land or moveable goods that they had received. This happened in a few cases. The duchess of Richmond returned Sheen House to the Carthusian order, one of four monastic houses that were restored (Lyon, 2022, 52). Mary set a personal example, returning crown revenues to the Church. This, however, created a "fear that the queen's surrender of her property was but the first step towards a general restoration: the Venetian envoy said that some men believed that they might be forced by virtue of the statute to make a similar cession of their own former church property at a later point" (Loach, 1986, 137).

Second, they called Parliament. Parliament insisted on a distinction being made between moveable goods (which could be returned to reendow churches) and land, which was not to be touched. The initial Papal Bull in July 1554 was rejected because it was not specific enough:

> "... many councillors seem to have been quite prepared to shelve the reconciliation until they had organized *the full reassurance that the land was safe in lay hands*." (Pogson, 1974, 54, emphasis added).

These promises were obtained. Nonetheless, insecurity of former monastic property remained a concern during Mary's reign. Contemporaries worried that security of property rights rested on the promise made by a ruler (Mary), her chief minister (Pole), or a foreign sovereign (the Pope).

Indeed, events revealed that such assurances could be reversed. Pole secured an agreement over monastic lands with Pope Julius III. But Julius III died in 1555 and his successor Paul IV was a hardliner. Among his first acts was to denounce the alienation of church lands. In response to concerns among Mary's ministers, Pole asked the Pope to specify that this did not apply to England and Paul IV relented: "[w]hen this second bull arrived it was read publicly at Paul's Cross and, at the council's insistence, it was published in Latin and English. Most significant of all, it was read in the House of Commons on 23 October, the first day of business" (Loach, 1986, 129). Nonetheless, it was clear that property rights resting on a verbal promise could never be fully secure.[8]

### *2.4 Reactivating Fears of a Return of Monastic Lands*

During Elizabeth I's (1558-1603) long reign, Protestantism gradually established itself as the dominant religion in England. The Act of Uniformity passed in 1559 mandated worship in the

[8]This argument connects to more general claims about the insecurity of property rights in premodern England. The argument that property rights were insecure in England before the Glorious Revolution of 1688 was made famous by North and Weingast (1989). Subsequent research has established that there was no *general* insecurity of property rights (barring perhaps during the Civil War). See Clark (1996) for evidence that, in general, landed property rights were secure. As Hodgson (2017) notes: "In England, property rights (of a kind) existed and were relatively secure long before 1688". But this does not imply that *all* property rights were viewed as secure as discussed by Cox (2015).

Church of England. By the end of Elizabeth's reign, due to both coercive measures and social pressure, open Catholics were a tiny minority of the population.

Despite the small number of actual Catholics, "popery" was greatly feared. Popery referred to the perceived threat that the Counter-Reformation posed to the Protestant religious establishment. This fear was rooted both in English history, specifically the persecutions during the reign of Mary I, the threat of Spanish invasion during the 1580s and 1590s, and the Gunpowder Plot of 1605; and in developments abroad, such as the advance of the Catholic Counter-Reformation in Europe, and the repression of the Huguenots in France (see Miller, 1972).

Fears of popery reached a new fervor in the 1670s during "The Exclusion Crisis" (Figure 5 provides a chronology). The Exclusion Crisis arose because Charles II (r. 1660-1685) had no legitimate male heir. On coming to the throne in 1660, Charles was initially popular, associated with a return of political stability after Civil War and Republican rule.

Charles' marriage to Catherine of Braganza in 1662 had produced no children. This left as heir his brother James, Duke of York. James had secretly converted to Catholicism. By the early 1670s, knowledge of his conversion was becoming widespread. This raised the possibility of a Catholic ruler for the first time since the reign of Mary I, a prospect that alarmed many. James, moreover, was known to be sympathetic to the Catholic absolutism being pioneered in France by Louis XIV (see Pincus, 2009).[9]

Initially, Parliamentarians tried to get Charles to divorce and remarry but he refused. The succession beyond James was also a matter of concern. James had two daughters from his first marriage: Mary and Anne, who had been raised as Protestants but no son. James' second marriage to the Catholic Mary of Modena in 1673 increased the likelihood of a Catholic male heir and cemented the perceived threat to England's religious settlement.

During this succession crisis, a series of conspiracy theories about Catholics close to James came to light. A former priest, Titus Oates, constructed an elaborate plot about a Jesuit plot to assassinate Charles II and to facilitate a Catholic takeover. While many suspected Oates of lying (including the King), his claims were seemingly confirmed when the justice of the peace who was investigating them, Sir Edmund Godfrey, died in mysterious circumstances and when James's private secretary was searched at the behest of Oates and found with incriminating papers (Slater, 2022). These papers did not indicate the existence of a Catholic conspiracy, but they did suggest that James intended to subvert Parliament and appeared to provide independent confirmation of Oates's claims of a far-reaching plot.

The Earl of Shaftesbury used these charges to try to force Charles to remove his brother from the line of succession. Longstanding anti-Catholic sentiment stirred up by pamphlets and politicians provided the crucial enabling conditions for these attempts to exclude James from the throne. Fears about monastic lands were reactivated.

[9]See also Scott (1991) who emphasizes the foreign policy aspect of this crisis.

Oates spoke to these fears when addressing Parliament in November, 1680: "For our Souls, we are Heretics, they will burn us, and damn us. *For our Estates, they will take our lands, and put Monks and Fryars upon them*"' (quoted in Grey, 1769, emphasis added). In the same debate, the MP for Portsmouth, George Legge declared that "I have Church-Lands, and reason to apprehend Popery coming in as other men" (Grey, 1769).

While these concerns were unrealistic—James did not plan to expropriate holders of monastic lands—they speak to genuine fears that holders of these lands had.

### *2.5 James II's Reign*

The demands for James's exclusion from the line of succession were defeated by Charles II. During the period of "Tory Reaction," many exclusionists were purged from local government. Leading Whigs fled the country. James II acceded to the throne in 1685 in a powerful position and he initially reassured his Tory (Anglican) supporters that he would uphold the Church of England (Speck, 1988, 41).

James's priority was relaxing the burdens on Catholics, specifically the Penal Laws (introduced during the reign of Elizabeth I (See Appendix D) and the Test Acts, which prevented Catholics from sitting in Parliament or in the House of Lords. In 1685, James prorogued Parliament because the Tories who were his main supporters within Parliament were reluctant to undertake any reforms that they saw as threatening the position of the Church of England (Walker, 2011, 63). Thus, in 1687, he decided to court the support of Protestant Dissenters and radical Whigs in favor of a general policy of religious toleration.[10]

James understood that landowners who had acquired monastic land worried about losing it if Catholicism were restored. He commissioned Nathanial Johnson to write a book that would demonstrate that the "'abb[e]y lands are so secured that none neede feare any resumption"' (quoted in Sowerby, 2013, 38). James was closely involved in the production of the resulting book "The Assurance of Abby and Other Church Lands in England to the Possessors" (Johnson, 1687).[11] Of

[10]Historians debate the extent to which James was sincere in pursuing greater religious freedom (see Pincus, 2009; Sowerby, 2013). For Speck (1988, 173), on the one hand, "James's preference for tolerance were probably sincere" but on the other hand, James did not disapprove of the aim of Louis XIV (only the methods) to make France entirely Catholic.

[11]Johnson provides set of detailed historical arguments for why the owners of former monastic lands should not be worried under James II. He describes various other expropriations of church lands, often under Catholic rulers, going back to Charles Martel and observes there are no cases of the Church later expropriating the descendants of those who had taken possession of those lands. Such a restitution would never occur, according to Johnson as it would require an act of Parliament. Moreover it would be impossible to implement. It could not be implemented in the 1550s "when some of each House were alive, who knew the Lands; and the inextricable Confusion that then it was thought it would bring up on Purchasers, was sufficient to hinder the Houses and the Convocation to think it a work feasible ... what must we think now of the difficulty of separating the Sacred from the Profane? which I can compare to nothing more resembling, than the difficulties some Philosophers suggest in apprehending the Resurrection of our Bodies by brining again these individual Atoms which were once part of them" (Johnson, 1687, 204).

course, the fact that the book had to be commissioned and written speaks for how seriously these concerns were taken.

### *2.6 The Glorious Revolution*

From late 1687 onwards, opposition to James sharpened for several reasons: an inept attempt to appoint Catholics to Oxford colleges, further intrusions into local government, and the appointment of Catholics to positions in the army. Until late 1687, James's heir was his Protestant daughter, married to William Prince of Orange and Stadholder of the Dutch Republic. Protestant elites could view his reign as a short Catholic interlude, as James was already in his mid-50s. This was changed dramatically with the birth of a male heir in June 1688.[12] At the same time, a trial of the bishops alienated the Tories who had initially provided the bulk of James's political support. At this point that William of Orange "committed himself to intervene against James both to preserve his wife's and his own claims to the throne and to bring the island kingdoms into the alliance against France" (Horwitz, 1977, 5).

William invaded England with a large army in November 1688. Following the defections of numerous army commanders and his own daughter, Anne, James decided to flee rather than fight. Following a heated constitutional debate, Parliament agreed that William and Mary should accede to the throne as joint monarchs (see Kishansky, 1996).

Research on the Glorious Revolution has focused on its impact on capital markets, cabinet responsibility, infrastructure and property rights (e.g. North and Weingast, 1989; Stasavage, 2003; Cox, 2012; Hodgson, 2023) but it has rarely considered its impact on religion. However, from a contemporary perspective one of its most important legacies was securing Protestantism in England. The Act of Settlement of 1701 would bar any Catholic from ascending the throne.

Importantly, however, there was always a chance that the Glorious Revolution might be reversed. During the reign of Queen Anne (1701-1714) there were continuous rumors that she might pass her throne to her half-brother James Stuart rather than the Hanoverians.[13] There were several Jacobite uprisings that sought to return the Stuarts to the throne. Had any of these succeeded, then it was possible that a Catholic monarchy could have been restored, though as the 18th century went on this was an increasingly unlikely prospect.

[12] "As the queen's 'big belly' waxed and the king's measures became more extreme, the pregnancy was an omen (to Catholics) of a long- continuing enjoyment of power by Catholics and (to Protestants) of doom for Protestantism in the British Isles. For the daughters of James's first marriage, Princesses Mary and Anne, it meant postponement, if not negation, of their rights to succession if the queen gave birth to a male child" (Jones, 1990, 56).

[13] As discussed by Biddle (1975), Anne's two chief ministers Robert Harley and Henry St. John were in contract with the Stuart Pretender.

### 2.7 Overview and Summary

This discussion suggests the following. First, while religious policy was determined by the monarch, the degree of elite support influenced how costly it was to enforce those policies. Second, the Dissolution and the sale of monastic lands created a strong vested interest among elites who wished to ensure that these property rights were as secure as possible. While the promises made by Mary and her ministers might partially assuage these concerns, they could not do so fully. So long as a Catholic sat on the throne, there was a chance that some of these lands might be returned to the Church. We therefore expect holders and beneficiaries of former monastic lands to be more likely supportive of the Protestant regime, all else equal.

Third, the process of religious and cultural change itself was slow and fears of a Catholic revival could be reawakened. It was also highly heterogeneous as attachment to traditional Catholicism varied geographically.

We construct a model of religious and institutional change that captures these features. We use this model to understand how pecuniary incentives to change religion interacted with religious motives to transmit religious practices across generations.

## 3 A Model of Religious, Institutional, and Cultural Change

### 3.1 Setup

At the beginning of any time period $t$, there is a large generation $N = \{i\}$ of individuals residing across $D = \{d\}$ districts, each of whom gives birth to one offspring, dies at the end of the time period, and is replaced by the offspring in the next time period. Thus, the number of individuals, $|N|$, the number of districts, $|D|$, the number of individuals in each district, and the location of each individual, are the same for every generation and therefore fixed over time.

Individuals differ as to whether or not the individual owns monastic land, and let $\mathbb{1}_M$ indicate ownership thereof. To simplify, we assume that monastic lands are completely heritable, which allows us to fix $\mathbb{1}_M$ across generations.[14] Let $\delta_d^M \in [0, 1]$ denote the proportion of individuals in district $d$ that own monastic land. Since monastic lands are inherited, $\delta_d^M$ is also fixed across generations.

Each district $d$ has some tangible 'memory' of the strength of its sentiment towards the traditional (Catholic) religion which remains fixed over time, that is, even when actual religious practices become more Protestant.[15] An example would be monuments, churches, and places

[14] The assumption approximates empirical reality, as monastic lands were usually passed on to generations. An earlier version of the draft relaxes the assumption by letting Nature assign ownership of monastic lands in every generation. The results are unaffected.

[15] Historians prefer using the term traditional religion to denote the religious practices of those who resisted the Protestant Reformation and Roman Catholicism for the distinctive Counter-Reformation program that emerged after the Council of Trent (1555). For simplicity and ease of interpretation, we refer to these beliefs as "Catholic".

of pilgrimages, heresies, and religious persecutions that act as enduring reminders of religious (Catholic) fervor prior to the Reformation. Let this sentiment in district $d$ be measured by $\delta_d^R \in [0,1]$, with $\delta_d^R \to 1$ capturing stronger sentiment for the traditional religion, which is fixed across generations for each $d$.

Each generation is governed by a monarch of type $k = \{1,2\}$, where $k = 1$ has sentiment for the traditional religion, and $k = 2$ has no such sentiment. Regardless of the actual identity of the monarch – which may be different, or the same, across generations, the monarch's type is allowed to vary for each generation. Specifically, at each $t$, let Nature draw a monarch type from a binomial distribution $\mathcal{G}_t$, with $\mu_t$ the probability that $k = 1$.

Notice, then, that not only can the monarch's type change randomly over time, but the particular distribution from which it is drawn – and, hence, the probability of drawing a type 1, can also change over time. We allow this much flexibility in order to take into account factors that are unique to a monarch. Unlike ordinary individuals who tend to marry into similar families, a monarch can marry for political reasons which can subsequently affect the religious sentiment of his offspring. Henry VIII, for instance, in his desire to produce a male heir, divorced a Catholic (Catherine of Aragon) and married a Protestant (Anne Boleyn), thereby decreasing the likelihood that his successor would have Catholic sentiment. Similarly, political events can have ramifications on the subsequent types of monarchs that can be drawn. An important example is the Glorious Revolution and the resulting Act of Settlement in 1701 which barred any Catholic from ascending the throne, which meant that in subsequent periods the probability of drawing a monarch with Catholic sentiment became much closer to zero.

In each generation, the monarch sets religious policy $p \in [0,1]$, where $p = 0$ is when there are no restrictions against practicing the traditional (Catholic) religion, while $p \to 1$ captures more restrictions and, hence, greater support for Protestantism. Policy is enforced by a coalition $C \subset N$ of ruling elites – individuals that have been selected by the other individuals in their respective district to represent the latter in Parliament. Thus, an individual $i \in C$ in this coalition is a member of Parliament (MP). Each MP votes whether to support the monarch's policy, which lowers the cost of enforcing the policy, or oppose it, which increases the cost of enforcement.[16] The costs of enforcement are deducted from the monarch's discretionary income.

In turn, the MP's voting choice determines whether the MP can maintain a political dynasty, that is, whether his offspring can inherit his position in Parliament in the next generation. (Details below.) Irrespective of $i \in C$'s choice, that is, just by serving as MP, he obtains (fixed) rents from the Crown.

**Individuals' Preferences** Each individual has wealth $W$, which consists of any inherited wealth from his parent, and newly acquired wealth, which may include income from any monastic land

[16] Our choice of how to model the selection of MPs is based on Kishansky (1986) which is the seminal work on the topic "Parliamentary selection".

he owns, rents from the Crown if he is a member of $C$, and all other incomes. Let $\mathbb{1}_C$ indicate membership in $C$. We normalize both Crown rents and monastic-land income to one. However, monastic-land income can only be obtained to the extent that property rights over such land is secure. For simplicity, we let the security of such property rights be equal to religious policy $p$, since a move towards Protestantism, i.e. $p \to 1$, decreases the probability that monastic lands are reverted to the Catholic Church. Thus, an individual's actual income from monastic land is $\mathbb{1}_M p$. Meanwhile, let all other incomes be denoted by $Y$.

The individual's wealth is therefore given by the following equation:

$$W = [\underline{e}\underline{W}] + [\mathbb{1}_M p + \mathbb{1}_C + Y], \tag{1}$$

where the term in the first square brackets – $\underline{e}\underline{W}$, is the individual's inherited wealth, with $\underline{W}$ denoting his parent's wealth and $\underline{e} \in (0,1)$ the fraction thereof that his parent has bequeathed, while the terms in the second square brackets are newly acquired wealth.

Of this wealth, the individual spends a fraction $r \in (0,1)$ on activities that preserve the traditional religion (Catholicism), the size of which is determined by three things. One is the influence of his parent, which moves the individual to imitate his parent's own spending, $\underline{r}$, on activities that preserve Catholicism. Second, the individual is also influenced by the strength $\delta_d^R$ of Catholic sentiment in his district – the greater the sentiment, the more he wants to preserve Catholicism. Finally, policy that is less restrictive against Catholicism enables him to practice it more easily and therefore encourages him to spend more on it. Thus, Catholicism is transmitted to the individual according to the following dynamic:

$$r = \alpha(\underline{r}) + \beta\delta_d^R + (1-\alpha-\beta)(1-p), \tag{2}$$

with $\alpha \in (0,1)$ capturing the extent of influence of the parent, $\beta \in (0,1)$ the extent of influence of the Catholic sentiment in the district, and $(1-\alpha-\beta)$ the extent to which policy restrictions deter the individual from practicing Catholicism.

Given that the individual allocates fraction $r$ of his wealth on religious (Catholic) activities, he chooses how to spend the remaining wealth. In particular, he can set aside fraction $e \in (0,1)$ of his wealth $W$ to bequeath to his offspring, and consume the rest.

The individual is concerned with leaving both spiritual and material legacies to his offspring. Taking equation (2) one period forward, it is clear that the individual's spending $r$ also affects his offspring's practice of the traditional (Catholic) religion. Thus, $r$ captures the size of the spiritual legacy – the extent to which the traditional religion is preserved for the offspring. Meanwhile, the material legacy is the amount of wealth that the individual leaves for his offspring, which is $eW$. Thus, let the individual's utility be given by

$$u = f(r, eW), \tag{3}$$

where $f$ is a concave function that is increasing at a decreasing rate in its arguments. The individual then chooses $e$ to maximize (3) subject to his budget constraint $e+r+c=1$, where $c$ is the fraction of his wealth that he consumes.[17] Note from equation (1) that policy $p$ increases the wealth of an individual who owns monastic land. We thus make the assumption that the effect of $p$ on this individual's choice of $e$ is sufficiently large such that $\frac{\partial e}{\partial p}_{|\mathbb{1}_M=1} \geq (1-\alpha-\beta)$.

**Monarch's Preferences** A monarch of type $k$ derives (quasi-linear) utility from policy and rents: $U^k = \psi g^k(p) + (1-\psi)B$, where $B$ is discretionary income (specified below) which the monarch keeps as rents, and $\psi \in (0,1)$ is the extent to which it prioritizes policy over rents. Note that function $g^k$ varies across monarch types. Let it be decreasing in religious (anti-Catholic) policy $p$ if the monarch has Catholic sentiment, and increasing if she is not. That is, $g' < 0$ if $k=1$, $g' > 0$ if $k=2$, and $g'' < 0$. In the Reformation era, we assume that the monarch had a desire to reform Catholic practices such that her marginal utility from $p$ is positive, *unless* the monarch has Catholic sentiment, in which case she derives negative marginal utility.

This difference between monarch types is intentionally stark. It captures instances in which the monarch had so much power that her preferences can dictate policy. Henry VIII single-handedly changed England's religion, without regard to religious preferences of his subjects, which were largely traditional (that is, Catholic).[18]

The monarch has revenues $T$ which can be spent enforcing policy $p$. The cost of enforcing $p$ decreases with the number of MPs who support it, i.e. with proportion $\nu$ of $C$ that votes for policy approval. However, it increases with the euclidean distance of $p$ from the previous period's policy, $\underline{p}$, as more drastic changes in policy are harder to implement. Thus, let the cost of enforcing $p$ be given by $\kappa(\nu, |p-\underline{p}|)$, a twice-differentiable function, with: $\kappa'_\nu < 0$, $\kappa''_\nu < 0$; $\kappa'_{(|p-\underline{p}|)} > 0$, $\kappa''_{|p-\underline{p}|} < 0$; and $\kappa''_{\nu|p-\underline{p}|} \neq 0$, $\kappa''_{|p-\underline{p}|\nu} \neq 0$.

The monarch keeps as rents disposable income $B \equiv T - \kappa(\nu, |p-\underline{p}|)$. Her utility over policy and rents is thus given by:

$$U^k = \psi g^k(p) + (1-\psi)\Big[T - \kappa(\nu, |p-\underline{p}|)\Big]. \tag{4}$$

**MP's Preferences** An individual who is a member of Parliament, $i \in C$, wants to maintain his political dynasty. That is, he wants to maximize the probability $\epsilon$ that his offspring becomes an MP.[19] We assume that an individual who is satisfied with how his MP votes on policy is supportive

[17] By letting $r$ be determined solely by parental and environmental influences, we depict the practice of the traditional religion as a kind of habit that is out of the individual's control, allowing us to simplify his optimization problem to the choice of $e$.

[18] It can also be shown that if all monarch types instead derived some positive marginal utility from anti-Catholic policy, i.e. $g'(p) > 0$ for $k = \{1,2\}$, then a reversion to Catholicism after a move towards Protestantism is theoretically impossible. Instead of ruling this out ex ante, we instead show how it may or may not be obtained. A necessary assumption is that $g'(p) < 0$ for $k=1$. See subsequent discussion of the Reformation Equilibrium.

[19] Political dynasties were common in early modern England. Among the MPs between 1558-1603, 1/3 or 742 members had at least one ancestor in Parliament. There were several families like the Wingfield, Cecils, Hydes,

of the dynasty. Thus, to simplify, we let $\epsilon$ be equal to the proportion of individuals in a district who are satisfied with their MP's vote.

What is the satisfaction criterion? It can be shown that $p$ increases the utility of an individual who owns monastic land.[20] Such individual would then prefer any $p \geq \underline{p}$ – that is, he would prefer religious policy to be at least as restrictive against Catholicism as the previous period. In contrast, the utility of individual without monastic land decreases with $p$, and so such individual would prefer any policy that is less restrictive than before, i.e. $p < \underline{p}$.

### *3.2 A Game in One Generation*

Consider, then, game $G$ that is played by a single generation of individuals $N = \{i\}$ who are spatially distributed across $D = \{d\}$ districts, their respective district representatives or MPs who together form the ruling coalition $C \subset N$ or Parliament, and the monarch, and in which the following takes place:

1. The monarch's type $k = \{1, 2\}$ is randomly drawn from a binomial distribution $\mathcal{G}_t$, with $\mu_t$ the probability that $k = 1$.

2. The monarch chooses religious policy $p \in [0, 1]$.

3. Each MP, $i \in C$, votes to either support the policy, $v = 1$, or not support it, $v = 0$.

4. Policy is enforced, and each $i \in N$ earns respective incomes.

5. Each $i \in N$ gives birth to one offspring, and spends fraction $r \in [0, 1]$ of his wealth on the practice of the traditional (Catholic) religion. He chooses fraction $e \in [0, 1]$ of his wealth to leave as inheritance for his offspring, and consumes the rest.

6. Each $i \in N$ dies and is replaced by his offspring in his respective district. Each offspring inherits the wealth saved by his parent. He also inherits his parent's position in the ruling coalition with probability $\varepsilon$ that is equal to the proportion of parents in his district who were satisfied by their MP's choice of $v$. With probability $1-\varepsilon$, his parent's position is given to a randomly drawn offspring in the district. Thus, the probability $\chi^d$ that the offspring of an individual residing in district $d$, $i^d$, occupies a position in the next generation's ruling coalition is $\varepsilon$ if $i^d$ was in $C$, and otherwise $\frac{(1-\varepsilon)}{|d|}$, with $|d|$ the number of offspring in $i^d$'s

Russells, and Stanhope's who supplied multiple generations of members (see Hasler, 1984). Patronage was the main way Parliamentary seats were allocated (Kishansky, 1986, 37).

[20] That is, for an individual who owns monastic land, $\frac{\partial u}{\partial p} = f'(r)\frac{\partial r}{\partial p} + f'(eW)\frac{\partial eW}{\partial p} = f'(r)\frac{\partial r}{\partial p} + f'(eW)(\frac{\partial e}{\partial p}W + e)$, which is greater than zero, even when $\frac{\partial r}{\partial p} = \alpha + \beta - 1$ is less than zero, since $\frac{\partial e}{\partial p}_{|\mathbb{1}_M=1} \geq (1 - \alpha - \beta) = |\frac{\partial r}{\partial p}|$. Meanwhile, for an individual with no monastic land, $\frac{\partial eW}{\partial p} = 0$, and so $\frac{\partial u}{\partial p}$ is less than zero.

district. That is:

$$\chi^d = \begin{cases} \varepsilon & \text{if } i^d \in C \\ \dfrac{(1-\varepsilon)}{|d|} & \text{otherwise} \end{cases}$$

A strategy profile of game $G$ is $\Sigma = (p, \{v\}_{i\in C}, \{e\}_{i\in N})$, which induces respective payoffs for the monarch, each MP $i \in C$, and each individual $i \in N$: $V(\Sigma)$, $\{V^C(\Sigma)\}_{i\in C}, \{V^N(\Sigma)\}_{i\in N}$.

### *3.3 Equilibrium Outcomes for One Generation*

We can characterize equilibrium outcomes – religious policy, policy support, and individual (material and spiritual) legacies, for a single generation. We first define equilibria.

**Definition 1** *An equilibrium of game $G$ is a strategy profile $\Sigma^* = (p^*, \{v^*\}_{i\in C}, \{e^*\}_{i\in N})$ that generates the following payoffs for the monarch, for each $i \in C$, and for each $i \in N$:*

$$V(\Sigma^*) = \arg\max V(\Sigma^*)_{|k}$$
$$\{V^C(\Sigma^*)\}_{i\in C} = \{\arg\max V^C(\Sigma^*)\}_{i\in C}$$
$$\{V^N(\Sigma^*)\}_{i\in N} = \{\arg\max V^N(\Sigma^*)\}_{i\in N}$$

In other words, an equilibrium of game $G$ is a subgame perfect equilibrium and can thus be obtained by backward induction.

The best response of individual $i \in N$ is obvious and not relevant for our empirical exercise; nonetheless, we state it here for completeness.

**Lemma 1** *In any equilibrium of $G$, each individual $i \in N$ chooses*

$$e^* = \{e \in (0,1) : f'(eW) = \frac{1}{W} f'(r)\}, \tag{5}$$

*that is, the value of $e$ such that the individual's marginal rate of substitution between material and spiritual legacies is $\frac{1}{W}$.*

More important for our empirical exercise is the voting choice of MPs in equilibrium. Recall that the proportion $\delta_d^M$ of individuals who have monastic land in the district would prefer any $p \geq \underline{p}$, while proportion $1-\delta_d^M$ would prefer $p < \underline{p}$. This implies that proportion $\delta_d^M$ of constituents in $d$ would then be satisfied with their MP, and would support his dynasty, if the MP votes in favor of policy $p$ when $p \geq \underline{p}$, while $(1-\delta_d^M)$ would be satisfied if he votes against it. Otherwise, if $p < \underline{p}$, then proportion $(1-\delta_d^M)$ would support the MP's dynasty if the MP votes in favor of $p$, and $\delta_d^M$ if he votes against it.

Thus, to maximize the probability $\varepsilon$ of his offspring inheriting his position, the MP votes for the interest of constituents in his district who have monastic land if they are the majority, i.e. $\delta_d^M \geq \frac{1}{2}$. Otherwise, he votes against their interest. The following result is immediate.

**Lemma 2** *In any equilibrium of G, an MP in district d votes for or against policy p according to:*

$$v^* = \begin{cases} 1 & \text{if } \delta_d^M \geq \frac{1}{2} \text{ and } p \geq \underline{p} \\ & \text{or } \delta_d^M < \frac{1}{2} \text{ and } p < \underline{p} \\ 0 & \text{otherwise} \end{cases} \tag{6}$$

Finally, we derive the best response of the monarch. She takes as given the previous period's policy $\underline{p}$, and knows that a bigger move (distance) away from it entails greater cost of enforcement. She also anticipates that each MP $i \in C$ would choose $v^*$, which would also affect the cost of enforcement. In particular, the cost decreases with the proportion $\nu$ of MPs who vote in favor of the policy.

From equation (6), we obtain the following expression for this proportion $\nu = \{\nu_{|p \geq \underline{p}}, \nu_{|p < \underline{p}}\}$, where

$$\nu_{|p \geq \underline{p}} = \frac{\Sigma_{d=1}^{|D|} \mathbb{1}_{\delta_d^M \geq 1/2}}{|D|}$$

$$\nu_{|p < \underline{p}} = 1 - \frac{\Sigma_{d=1}^{|D|} \mathbb{1}_{\delta_d^M \geq 1/2}}{|D|},$$

and where $\mathbb{1}_{\delta_d^M \geq 1/2}$ indicates a district in which at least half of its constituency owns monastic land.

The monarch of type $k$ thus chooses policy $p$ that maximizes her utility (equation (4)), taking as given $\underline{p}$ and anticipating $\nu$. That is, she solves

$$\max_p = \psi g^k(p) + (1 - \psi)[T - \kappa^*(\cdot)],$$

$$\kappa^* \equiv \begin{cases} \kappa(\nu_{|p \geq \underline{p}}, (p - \underline{p})) & \text{if } p \geq \underline{p} \\ \kappa(\nu_{|p < \underline{p}}, (\underline{p} - p)) & \text{otherwise} \end{cases}$$

with $g' < 0$ if $k = 1$ and $g' > 0$ if $k = 2$.

From this, we obtain:

**Lemma 3** *In any equilibrium of G, a monarch of type $k = \{1, 2\}$ chooses religious policy*

$$p^* \equiv p^k, \textit{ where} \tag{7}$$

$$p^1 = \begin{cases} 0 & \text{if } \underline{p} = 0 \\ (0, \underline{p}) & \text{if } \underline{p} \in (0, 1] \end{cases}$$

$$p^2 = \begin{cases} [\underline{p} + \epsilon, 1) & \text{if } \underline{p} \in [0, 1) \\ (0, \underline{p}) & \text{if } \underline{p} = 1, \end{cases}$$

*and $\epsilon$ arbitrarily small.*

Lemmas (1) to (3) (equations (5) to (7)) provide the unique Nash equilibrium of each subgame of game $G$, and therefore together prove the existence of a unique (subgame perfect) equilibrium for $G$.

**Proposition 1** *Game $G$ has a unique equilibrium $\Sigma^* = (p^*, \{v^*\}_{i\in C}, \{e^*\}_{i\in N})$, where $p^*$ is given by (7), $v^*$ by (6) for each $i \in C$, and $e^*$ by (5) for each $i \in N$.*

### *3.4 Reformation Equilibria*

Now let each generation $t = 1, 2, ..., \infty$ play $G$. One can then construct a sequence of religious policies $\vec{p} = (p_0, p_1, p_2, ...)$ starting from a period with no anti-Catholic bias, i.e. $p_0 = 0$, and where $p_t = p^*_{|t}$ is the equilibrium policy outcome in generation $t$ (given by equation (7)). We are particularly interested in analyzing sequences that describe a decisive move away from Catholicism, and thus define the following:

**Definition 2.** Consider any sequence of religious (anti-Catholic) policies, i.e. any **policy path** $\vec{p} = (p_0, p_1, p_2, ...)$, where $p_0 = 0$ and $p_t = p^*_{|t}$ is the equilibrium policy outcome in generation $t = 1, 2, ...\infty$. A **Complete Reformation Equilibrium (RE)** is a policy path $\vec{p}_{RE} = (0, ..., p_T < p_{T+1} < p_{T+2} < ...)$ where $T \geq 1$. A **T-stable Reformation Equilibrium (TRE)** is a policy path $\vec{p}_{TRE} = (0, ..., p_T < p_{T+1} < ... < p_{T+H}, p_{T+H+1}, p_{T+H+2}, ...)$, where $T \geq 1, H \geq 0$, and $p_{T+H+j} \geq p_T$, $j = 1, 2, ....$

In a Complete Reformation Equilibrium (RE), $p$ moves closer to one at each time period from $T$ onwards. Thus, at the limit, $p = 1$, which means property rights over monastic lands are completely secure. In a T-stable Reformation Equilibrium (TRE), $p$ moves closer to one at each period from $T$ to $(T + H)$, and takes on any value not less than $p_T$ each period thereafter. Thus, property rights over monastic lands remain at least as secure as threshold $p_T$.

Also, at the limit $p = 1$ of an $RE$, the Catholic practice of an individual of type $\theta$ residing in district $d$ has the following steady-state value:[21]

$$r_s^{\theta,d} = \frac{\beta^\theta \delta_d^R}{1 - \alpha^\theta}, \tag{8}$$

which, as we show in the Appendix, is asymptotically stable (AS). Thus, in districts with no inherent Catholic sentiment, i.e. $\delta_d^R = 0$, Catholic practices in the steady state is $r_s^{\theta,d} = 0$, which means that such practices completely die out.

In other words, in an $RE$, generations become less and less Catholic until, at the limit, only in districts with some inherent Catholic sentiment can there be found some individuals who still practice the Catholic religion.

[21] Set $p_t = 1$ in equation (2) and let $r_s^{\theta,d} = \underline{r}_s^{\theta,d}$, where $\underline{r}$ denotes the spiritual legacy from the parent.

Meanwhile, in a $TRE$, religious policy during time periods $T$ to $(T+H)$ is at least as large as $p_T$, and from $T+H+1$ onwards, remains in the region $[p_T, 1)$. Thus, after $T$, policy will never be less anti-Catholic than it was at $T$. This puts the following upper bound on the practice of Catholicism in a steady state:

$$\bar{r}_s^{\theta,d} = r_s^{\theta,d} + \frac{(1-\alpha^\theta-\beta^\theta)(1-p_T)}{1-\alpha^\theta}, \tag{9}$$

which, as we show in the Appendix, is Lyapunov stable (LS), although not AS.

Our main results, Theorems 1 and 2, thus provide conditions under which a Complete or T-stable Reformation Equilibrium exists, and characterize steady state Catholic practices in such equilibria.

**Theorem 1** ***The Reformation Equilibrium***

- *A Complete Reformation Equilibrium (RE) is guaranteed to exist if and only if there is a time period $T \geq 1$ such that $\mathcal{G}_T, \mathcal{G}_{T+1}, \mathcal{G}_{T+2}, ...$ are degenerate binomial distributions with $\mu_T = \mu_{T+1} = \mu_{T+2} = ... = 0$. In other words, from $T$ onwards, Nature can only draw type-2 monarchs (no Catholic sentiment).*

- *No T-stable Reformation Equilibrium (TRE) is guaranteed to exist unless there are consecutive time periods $T+1, T+2, ..., T+H$ in which $\mathcal{G}_T, \mathcal{G}_{T+1}, ..., \mathcal{G}_{T+H}$ are degenerate binomial distributions with $\mu_T = \mu_{T+1} = ... = \mu_{T+H} = 0$. In other words, from $T$ to $T+H$, Nature can only draw type-2 monarchs.*

The restrictive condition $\mu_t = 0$ for $t \geq T$ is required for $RE$ because we have defined $RE$ to be a very strong concept. One could, of course, consider weaker versions – for instance, a equilibrium in which $Pr(\lim_{t\to\infty} p_t = 1) = 1$, which would only require $\lim_{t\to\infty} \mu_t = 0$. We choose to adopt our strong concept as it is clean and unambiguous – because $p$ follows a monotonic path from $T$ onwards, it obviously converges to one. For the purposes of our empirical application, we only need to distinguish periods in which the probability $\mu_t$ of drawing a type-2 monarch has become very small or approximately zero, and those in which it remains bounded above zero. Our notions of $RE$ and $TRE$ achieve this in the simplest way possible.

Theorem 1 implies that an $RE$ is a $TRE$, but not vice versa. Hence, $RE$ is a strong, while $TRE$ a weak, notion of (Reformation) equilibrium. In addition, drawing only type-2 monarchs after time $T$ is a necessary and sufficient condition for the existence of an $RE$, while it is not necessary, but sufficient, for the existence of a $TRE$. What is only necessary for the latter is drawing only type-2 monarchs in the time interval $T$ to $(T+H)$. This, however, is not sufficient – if, say, only a type 1 monarch can be drawn in each period from $(T+H+1)$ onwards, then there will eventually be a period in which $p$ falls below $p_T$. (See proof of Theorem 1.)

This generates the following corollary concerning individuals' religious practice in a steady state.

**Theorem 2** ***Religious (Catholic) Practices in a Steady State***

- *In a Complete Reformation Equilibrium (RE),* $r_s^{\theta,d} > 0$ *if* $\delta_d^R > 0$*, and zero otherwise. That is, in a steady state, catholic practices have died out in districts where no individual has Catholic sentiment; they only remain in districts where such sentiment can be found.*

- *In a T-stable Reformation Equilibrium (TRE),* $\bar{r}_s^{\theta,d} > 0$ *which is small when* $p_T$ *is close to one and* $\delta_d^R = 0$*. That is, in a steady state, Catholic practices have not completely died out, but are reduced to an upper bound which is lower when religious policy is more anti-Catholic and in districts where no individual has Catholic sentiment.*

We draw some implications from these theoretical results, which will guide our empirical analysis. First, Lemma 2 implies that an MP from a district with more monastic lands is more likely to support anti-Catholic policy. This is because the more monastic lands there are in the district, the more likely that majority of the district constituents benefit from them, which induces the MP to protect property rights over these lands by supporting anti-Catholic policy.[22] That is, the underlying assumption is that a likely majority of constituents would prefer a move towards Protestantism, which the MP promotes (to strengthen his political dynasty).

Second, Theorem 1 implies that neither a Complete (RE) nor a T-stable (TRE) Reformation Equilibrium is attained unless there is at least some time interval, $T$ to $(T + H)$, during which the monarch is of type 2 (no Catholic sentiment). If all succeeding monarchs after $(T + H)$ are also type 2, then an RE is reached. If sufficiently most of the monarchs after $(T + H)$ are type 2 such that succeeding policy does not fall below $p_T$, then a TRE is reached. Approximately, then, a TRE is likely attained if there is a period after which it becomes unlikely that the monarch is type 1. An RE is attained only if there is absolutely no possibility that the monarch is type 1.

Third, Theorem 2 implies that when a Complete Reformation Equilibrium has been reached, Catholic practices in a steady state, i.e. in which intergenerational practices are the same, should only be determined by the extent of Catholic sentiment in the district. Since property rights over monastic lands have become completely secure, policy should no longer matter. In turn, MP support over policy should no longer be determined by the presence of monastic lands. Thus, in a Complete Reformation Equilibrium, monastic lands should have no effect on the extent of Catholicism in the district – only district Catholic sentiment should determine it. In contrast, when the Reformation equilibrium is only T-stable, then policy, and therefore monastic lands, should still affect steady state Catholic practices in the district (as well as district Catholic sentiment). In other words, one should be able to predict steady state Catholic practices in a district based on the number of monastic lands and the strength of Catholic sentiment in the district.

From these implications we can derive two predictions.

[22] This should hold in general, even if some monastic lands are owned by individuals outside the district. Local individuals may be employed to work on the land, and the land could generate other productive activities in the vicinity.

**Prediction 1** *The presence of monastic lands in a district is associated with MPs adopting a more "anti-Catholic" policy stance.*

**Prediction 2** *In the period following the Glorious Revolution and the Act of Settlement, which barred any Catholic from ascending the throne and therefore made it unlikely – but not impossible, for any succeeding monarch to be type 1, both the presence of monastic lands and district Catholic sentiment predict the extent of Catholicism, with more monastic lands associated with a smaller percentage of Catholics.*

# 4 Data

## *4.1 Individual MPs*

We build a novel dataset of individual MPs. The main outcome variable used for the borough-level analysis are two political lists from the *History of Parliament* website. The first is a list of MPs from the Oct. 1553 Parliament designating those who are of the "true religion", which at this time referred to Protestants. The second is a list of MPs from the 1555 Parliament who oppose Mary's religious policy. We link these MPs with the boroughs they represented in these parliaments.

We also collected data about each MP for an individual level-analysis. By analyzing the biographies of MPs on the *History of Parliament* website, we ascertain whether they were involved in the acquisition or trade of monastic land.[23] Other details gathered from the biographies that serve as controls are information about their occupation, if they had an association with Cromwell, and their age at the time of the Parliament.

For the Exclusion Acts, we code MPs as supporting the Exclusion based on hand-coding their biographies on the *History of Parliament* website. We then count the number of MPs who support exclusion of James from the throne by borough to construct our measure. This measure is cross-checked and verified by consulting the lists of Shaftsbury's supporters in Jones (1957) and the lists included in Browning (1951).

We also create an individual-level measure of traditional religiosity by the examining the naming practices of the MPs in our dataset. That is, following the work of Andersen and Bentzen (2024), we look at the names the MPs chose for their children and construct a "Catholic Name Index".

## *4.2 Parliamentary Boroughs*

The House of Commons in the 16th and 17th centuries was made up of members who represented county and borough seats. In our main analysis, we focus on MPs who represent boroughs. We build this borough-level dataset using the *History of Parliament* website. There were 149 boroughs

[23]For an example see Appendix I.

represented in the Marian Parliaments (1553 and 1555) and 201 in the Exclusion parliaments (1679-1681). They include approximately 3/4 of sitting MPs. This data provides us with the location of these boroughs. We obtain control variables for these English boroughs using data provided by Angelucci, Meraglia, and Voigtländer (2022). We categorize our control variables into two groups: geographic controls and trade and government controls. Geographic controls include navigable rivers, sea coast, and soil quality. Trade and government controls include Roman roads, 14th century commercial activity, and justices of the peace. We also use borough population estimates for the mid-seventeenth century. For robustness purposes we replicate our main analysis using the smaller number of county MPs.

### *4.3 Ancestral Monastic Land Holdings*

To construct a measure of MPs' ancestral connections to the Dissolution, we trace the family histories of MPs serving in the first Exclusion Parliament (1679) backwards to identify ancestors who may have acquired monastic lands. We used two main sources: the biographical entries in the *History of Parliament* and genealogical records from the website *WikiTree*.

For each MP, we traced paternal lineages back to either their great-great-grandfathers or if necessary great-great-great-grandfathers—individuals who would have been active during the decades 1530-1560 when monastic lands were being distributed and sold. This generational depth corresponds to approximately 120-150 years, matching the interval between the Dissolution and the Exclusion Crisis.

We identify ancestral connections to monastic lands through two methods. First, for ancestors who were themselves MPs, we read their biographical entries in the History of Parliament to identify any mention of purchasing or receiving grants of monastic property. Second, we cross-referenced our genealogies against a list of 341 individuals documented as recipients of monastic lands that we extracted from Liljegren (1924). This source documents early and prominent acquisitions of monastic lands during the reign of Henry VIII. Its main drawback is that it does not have information on the universe of monastic land sales. Many transactions, particularly smaller purchases on secondary markets, left no surviving records. So the resulting information may be a lower bound on the distribution of ancestral monastic land among MPs in the late 17th century. We identify 89 MPs in the first Exclusion Parliament (19% of the 495 MPs) whose ancestors can be connected to the acquisition of monastic lands.

### *4.4 Catholic Recusants*

We hand-coded the number of recusants and non-communicants at parish level from Dyer and Palliser (2005). Recusants were individuals who were guilty of the statutory offense of not attending Church of England services. Non-Communicants were individuals who attended Church

of England services but refused to take communion. We combine the number of recusants and non-communicants to create a measure of potential Catholics in a parish.

### *4.5 Monasteries and Monastic Lands*

Data on the location of monasteries and monastic lands is from Heldring et al. (2021). There are 845 monasteries and these were all dissolved between 1535 and 1539. As this data is at the parish level, a dummy variable indicates if a parish contained a monastery. In order to link this to the borough-level, we count the number of monasteries within a 20 kilometer buffer. For monastic lands, we create a variable that is the proportion of parishes within a 20km buffer that had monastic lands.

### *4.6 Pre-existing Protestant Sentiments?*

To measure local Protestant activity, we hand-coded information from *A Biographical Register of Early English Protestants: 1525-1558* by John Fines. The source includes approximately 3000 known Protestants during this time period and often includes their primary location. We assign Protestants active before 1540 to Parliamentary boroughs.[24]

As an alternative measure of nascent Protestant sentiment we use data on the presence of Lollards between 1414-1522. The Lollards anticipated the criticism of the Church authored by Protestant Reformers, though the extent of their relationship to early Protestantism is contested (see Dickens, 1964, 46-60).[25] Data on the presence of Lollards comes from Král, Mertel, and Zbíral (2019). It reports the place of origin of all English religious dissidents investigated for Lollardy or other related heterodox beliefs between 1414 and 1522.

A third proxy for early Protestant influence is based on geography. The University of Cambridge was prominent in the diffusion of Protestant ideas (Rupp, 1949; Rex, 1999).[26] Thomas Bilney and Robert Barnes formed a group of influential reformers who cultivated young clergymen including Hugh Latimer and Thomas Cranmer and laymen who would become influential in the latter part of Henry VIII's reign such as William Butts, and Anthony Denny. Bilney and Barnes were executed for heresy but Cambridge continued to be a center for reform sentiments. In the next generation, there was again as Hudson (1980) demonstrates, a "Cambridge connection" among the influential group who would play an important role in the Elizabethan settlement of 1559 that

[24]See Appendix 4 for the details of assignment.

[25]Dickens (1964) argued that Lollardy persisted into the 16th century and provided fertile soil for the ideas of continental reformers as they were being imported into England in the 1520s and 1530s. Also see his earlier work Dickens (1959). Subsequent historians have criticized this claim noting that Lollardy was "a highly amorphous phenomenon" (Haigh, 1987, 4). McSheffrey (2005) emphasizes definitions of orthodoxy and heresy remained permeable in the early 16th century.

[26]In the words of Rupp (1949, 15): "The University of Cambridge bore its own coherent part in the making of the English Reformation by providing a series of theological and ecclesiastical leaders such that its contribution, had it been isolated from the context of a wider upheaval, might have become known to historians as 'the Cambridge Movement'."

cemented the Reformation.[27] We operationalize this measure by constructing a measure based on distance to Cambridge.

### *4.7 Other Variables*

Mary I was a staunch Catholic. She did not immediately initiate a persecution of Protestants upon coming to the throne. But her ultimate desire to return to Rome made the resumption of heresy trials inevitable. We geocode the place of execution of the 284 Protestants executed by Mary I between 1553 and 1558.

### *4.8 Distribution of Catholics post-Glorious Revolution*

To test prediction 2, we also obtain data on the distribution of Catholics in 1767 from Heldring et al. (2021). This data is depicted in Figure A.2. To measure Catholic, or Pre-Reformation Christian, sentiment, we collected data on the location of Catholic shrines based on Wikipedia.

As a further measure of pre-Reformation attachment to Catholicism, we geocode the location of the Pilgrimage of Grace based on a map from MacCulloch and Fletcher (1988).[28]

[27] There were Reformers who attended Oxford as well as or instead of Cambridge. But as Hudson (1980, 47) writes, interest in classical humanism was flourishing in Cambridge in the early 16th century whereas "it was withering in Oxford". Erasmus had lectured at Cambridge and the two colleges he "'founded as homes of orthodox religion,' became nurseries of Protestantism".

[28] The map and further details of construction are available in Appendix 2.

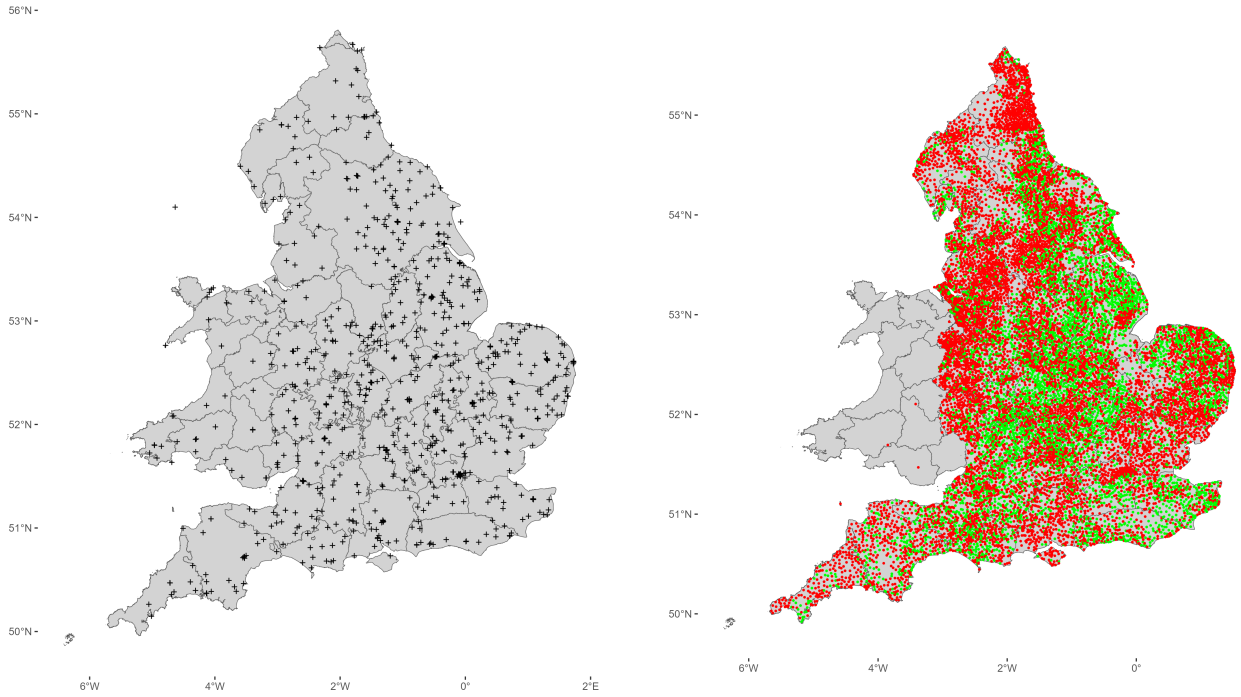



Figure 2: Monasteries and parishes with and without monastic land prior to the Dissolution according to the Valor Ecclesiasticus (Source: Heldring et al. (2021)). Parishes with monastic land are green. Parishes without monastic land are red.

# 5 Mary's Parliaments (1553-1555)

## *5.1 Individual-level Analysis*

Our individual-level employs the following Logit specification:

$$y_i = \beta_0 + \beta_1 \text{Monastic Land}_i + \Gamma \mathbf{X}' + \varepsilon_b. \tag{10}$$

$y_i$ is a dummy variable equal to one if MP $i$ supports pro-Protestant policies and Monastic Land$_i$ is a dummy variable equal to one if MP $i$ or his family members obtained monastic land. $\mathbf{X}$ is a vector of individual controls.

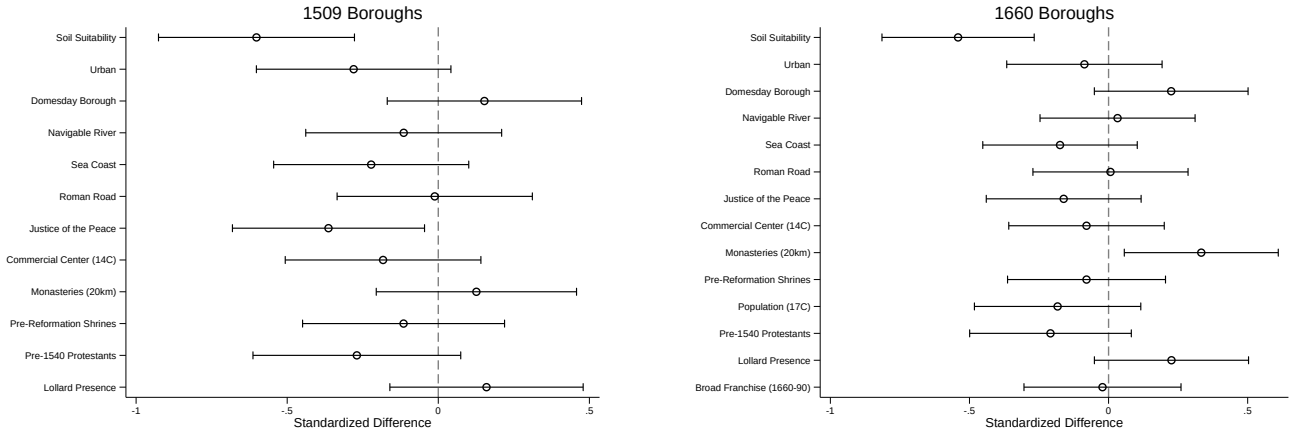
Table 1 presents the results for the individual-level regressions. We include controls for age, a dummy for if they were a merchant and for personal connections with Cromwell. Columns (1) and (2) show the effects with True Religion as the outcome variable without and with, controls, while columns (3) and (4) employ Opponents in 1555 as an outcome variable. We find clear support for Prediction 1. The odds ratio in Column (2) suggests that an MP with monastic lands was 2.7 times more likely to support Protestantism (Figures 4(c) and (d) visualizes these results).

Our borough-level analysis draws on two samples of Parliamentary boroughs. The first comprises boroughs that returned MPs in the period 1509-1558 and is used for our analysis of Mary's Parliaments in the 1550s. The second comprises boroughs that returned MPs to the Restoration Parliament (1660-1679) and is used for our analysis of the Exclusion Crisis in

Table 1: Mary's Parliaments: Individual Level Analysis: MPs with direct links to Monastic Lands (Logit)

| | True Religion 1553 | | Opposed Mary 1555 | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Monastic Lands=1 | 0.814** | 1.023*** | 0.532* | 0.644** |
| | (0.341) | (0.372) | (0.293) | (0.323) |
| Merchant (0/1) | | Yes | | Yes |
| Links to Cromwell (0/1) | | Yes | | Yes |
| Age | | Yes | | Yes |
| Constant | -2.018*** | -1.048* | -1.206*** | -0.320 |
| | (0.233) | (0.596) | (0.167) | (0.525) |
| Observations | 270 | 256 | 281 | 262 |
| Pseudo $R^2$ | 0.024 | 0.041 | 0.010 | 0.023 |

**Table Notes:** This table reports estimations using Logit at the level of an individual MP. It indicates that MPs whose biographies mention monastic lands were more likely to support Protestantism and opposed Mary I. Robust standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.




(a) 1509 Boroughs (Mary's Parliaments)

(b) 1660 Boroughs (Exclusion Crisis)

Figure 3: Balance on Pre-Treatment Covariates. Each point shows the standardized mean difference between boroughs above and below the mean monastic land share (20km), with 95% confidence intervals from robust standard errors. The dashed line at zero indicates perfect balance.

1679. By 1660, a number of new boroughs had been created or re-enfranchised, so this sample is somewhat larger. Figure 3 shows that both samples are generally well-balanced on pre-determined characteristics, with similar patterns of balance across the two periods. The soil quality variable, where the sample is not balanced reflects the fact that monastic lands tended to more abundant in the East of England.

### *5.2 Borough-level Analysis*

We estimate equations of the following form using ordinary least squares (OLS):

$$\%\text{MPs}_b = \beta_0 + \beta_1 \text{Monastic Land}_b + \beta_2 \text{Monasteries}_b + \Gamma \mathbf{X}' + \varepsilon_b. \tag{11}$$

%MPs$_b$ is the proportion of MPs from borough $b$ who support pro-Protestant policies. Specifically, we report results for two separate outcomes: (i) MPs were described as supporters of "true religion" or Protestantism in 1553; and (ii) MPs listed as opponents of Mary's explicitly Catholic government in 1555.

Our main explanatory variable Monastic Land$_b$ is the proportion of parishes within 20km that had monastic land, Monasteries$_b$ is the count of monastic houses within 20km, and $\mathbf{X}$ is a vector of controls. We report heteroskedasticity-robust and spatially adjusted standard errors, using the approach of Colella et al. (2019). We include controls for geography and economic geography as well as political factors. Region fixed effects are included in some specifications.

In an ideal quasi-experimental setting, boroughs with and without monastic lands would be extremely similar on observable characteristics. As our "treatment" is continuous rather than binary, we report balance on boroughs with above and below the mean amount of monastic land (Appendix Tables A.4 and A.5; Figure 3). Overall, we find that boroughs with more or less monastic lands were highly comparable across both samples. The main exception is that a greater density of monastic lands is associated with better quality soil. We control for soil quality along with other covariates in our main regression specifications below.

Table 2 reports our results. In our baseline, $\hat{\beta}_1$ is positive and significant in line with Prediction 1. In column (2), we control for monastic houses directly. In columns (3) to (4), we add geographic then economic and political controls. Finally we include regional fixed effects. In terms of magnitude, column (4) implies that a standard deviation increase in the proportion of nearby monastic lands is associated with an increase of 25% of a standard deviation of the proportion of MPs supporting Protestantism.

We obtain consistent but less precise estimates when we examine those MPs listed as opponents of Mary in 1555: a one standardized increase in the percentage of nearby monastic lands is associated with an 18% standard deviation increase in the percentage of local MPs opposing Mary (col. 9). That these results are weaker is in line with our expectations: between 1553 and 1555 pressure was exerted to select MPs who were more likely to acquiesce to a return to Rome. Importantly, similar results obtain when we conduct the analysis at the county rather than the borough level (Table A.9).

### *5.3 Mechanism: Opposition Slowed Re-Catholicization*

The preceding results show that MPs with stakes in monastic lands were more likely to oppose Mary's pro-Catholic policies. But did this opposition have real effects? As we saw above, historical evidence suggests that parliamentary resistance slowed Mary's efforts to restore Catholicism.

First, it took Mary over two years (from 1553 to 1555) to restore papal authority. Parliament was reluctant to acquiesce, and Mary had to explicitly guarantee that monastic land titles would not be reversed—direct evidence that landowners' concerns shaped policy.

Table 2: Testing Prediction 1: Borough-Level Analysis: MPs who "supported the True (Protestant) Religion" and Opposed Mary

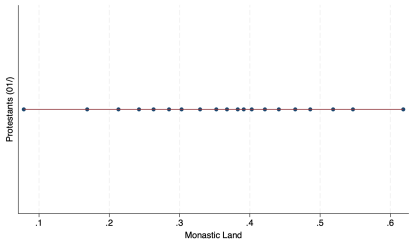
| | Supporters of True Religion (Protestantism) in 1553 | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Monastic Land % (20km) | 0.432 | 0.429 | 0.474 | 0.456 | 0.337 |
| | (0.154)*** | (0.154)*** | (0.166)*** | (0.169)*** | (0.172)** |
| | [0.179]** | [0.160]*** | [0.161]*** | [0.195** | [0.177]* |
| Monasteries (20km) | | Yes | Yes | Yes | Yes |
| Geography Controls | | | Yes | Yes | Yes |
| Econ/Political Controls | | | | Yes | Yes |
| Region FEs | | | | | Yes |
| Constant | 0.00780 | -0.0164 | -0.118 | -0.0651 | -0.0157 |
| | (0.0536) | (0.0612) | (0.143) | (0.151) | (0.155) |
| Standardized $\beta$ | 0.245 | 0.243 | 0.269 | 0.251 | 0.191 |
| Observations | 141 | 141 | 141 | 141 | 141 |
| $R^2$ | 0.060 | 0.065 | 0.071 | 0.101 | 0.164 |
| | Opponents of Mary in 1555 | | | | |
| | (6) | (7) | (8) | (9) | (10) |
| Monastic Land % (20km) | 0.394 | 0.398 | 0.369 | 0.411 | 0.335 |
| | (0.223)* | (0.222)* | (0.241) | (0.255) | (0.258) |
| | [0.201]* | [0.177]** | [0.202]* | [0.242]* | [0.181]* |
| Monasteries (20km) | | Yes | Yes | Yes | Yes |
| Geography Controls | | | Yes | Yes | Yes |
| Econ/Political/Religious Controls | | | | Yes | Yes |
| Region FEs | | | | | Yes |
| Constant | 0.120 | 0.154 | 0.182 | 0.116 | 0.168 |
| | (0.0896) | (0.0945) | (0.156) | (0.187) | (0.182) |
| Standardized $\beta$ | 0.163 | 0.163 | 0.151 | 0.179 | 0.139 |
| Observations | 143 | 143 | 143 | 143 | 143 |
| $R^2$ | 0.027 | 0.031 | 0.045 | 0.056 | 0.110 |

**Table Notes:** This table establishes a link between monastic lands and support for Protestantism and opposition to Mary I. Geographic and economic controls include agricultural land quality, a dummy variable for being on an ocean, the presence of a river, and a Roman road. Economic, political and religious controls include the presence of a 14th century commercial center, the presence of a Justice of the Peace and the presence of a pre-Reformation Catholic shrine. Robust standard errors in parentheses. Conley standard errors at a radius of 100km in square brackets * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

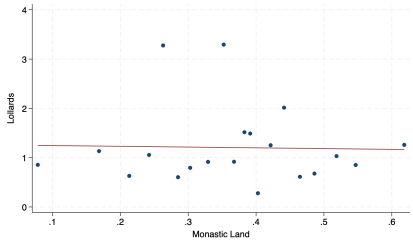
Second, local enforcement of re-Catholicization varied. Table 3 tests whether areas with more monastic land experienced less intense Marian persecution. If local elites with stakes in monastic property were reluctant to enforce Mary's policies, we would expect fewer Protestant martyrs in areas with more monastic land exposure (even conditioning on underlying measures of Protestant sentiment). The intensity of persecutions following the reintroduction of medieval heresy laws varied across the country and depended heavily on the cooperation of local elites.

According to our preferred specifications (columns 2-4), a one standard deviation increase in

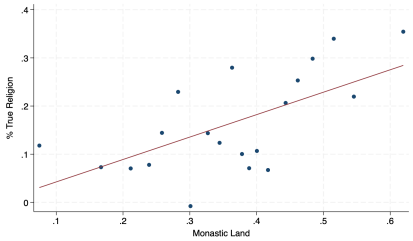
Figure 4: Testing Prediction 1: Monastic Lands and Support for "Protestantism" Before and After the Dissolution



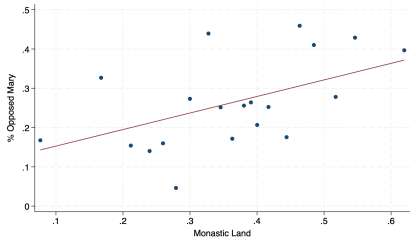

(a) **Before the Dissolution:** Notable early Protestants (0/1) and monastic land at the borough level.



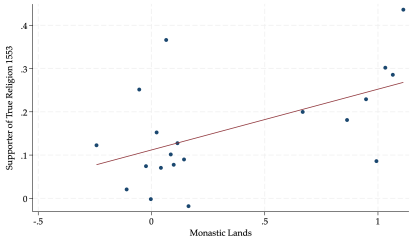

(b) **Before the Dissolution:** Lollards prior to 1520 and monastic land at the borough level.



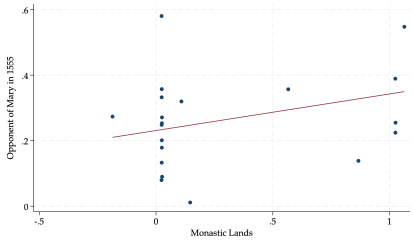

(c) **After the Dissolution:** Support for "true religion" in 1553 at the borough level.




(d) **After the Dissolution:** Opposition to Mary in 1555 at the borough level.




(e) **After the Dissolution:** Support for "true religion" in 1553 at the individual MP level.




(f) **After the Dissolution:** Opposition to Mary in 1555 at the individual MP level.

*Binscatter plots.* Borough-level controls include the presence of monasteries, soil quality, whether the borough is on the sea coast, a navigable river or a Roman road, whether it has a justice of the peace and whether it was a commercial center in the middle ages. Individual-level controls include whether an MP was a merchant and whether he was connected to Cromwell.

monastic land share (about 14 percentage points) is associated with approximately 2 fewer Marian martyrs within 20km of a borough. This is a very large effect – roughly a 65-68% reduction relative to the mean.

Finally, Mary's short reign (she died in 1558) meant that the process of re-Catholicization was never completed. The resistance of monastic landowners—both in Parliament and in local enforcement—contributed to the incomplete nature of the Counter-Reformation in England.

### *5.4 Endogeneity Concerns and Further Robustness Checks*

In a non-experimental setting, there are natural concerns with selection into treatment. Historical scholarship supports our assumption that the distribution of monastic *lands* was orthogonal to

Table 3: Mechanism: Did Monastic Land Areas Experience Less Marian Persecution?

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Monastic Land % (20km) | -11.256 | -13.648* | -13.222** | -14.134** |
| | (7.626) | (7.724) | (6.543) | (6.569) |
| | [7.452] | [6.953]** | [5.848]** | [5.303]*** |
| Constant | -1.187 | 2.069 | -13.461** | -12.507** |
| | (1.398) | (2.799) | (6.166) | (5.945) |
| | [2.234] | [1.866] | [7.672]* | [7.454]* |
| Monasteries (20km) | Yes | Yes | Yes | Yes |
| Protestant Presence | No | Yes | Yes | Yes |
| Geography Controls | No | No | Yes | Yes |
| Economic/Political Controls | No | No | No | Yes |
| Observations | 202 | 202 | 202 | 202 |
| Adjusted $R^2$ | 0.270 | 0.272 | 0.367 | 0.379 |

**Table Notes:** This table tests whether areas with more monastic land experienced fewer Marian martyrs, suggesting reluctant local enforcement by elites who had stakes in monastic property. The dependent variable is the count of Protestant martyrs executed within 20km of the borough during Mary's reign. Robust standard errors in parentheses. Conley standard errors at a radius of 100km in square brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

latter developments. This is also the assumption made by Heldring et al. (2021, 2097-2098) who support this by showing that parishes with and without monastic lands were on parallel economic trends prior to the Dissolution. As we discuss further in Appendix A, monastic lands were often inalienable and the vast majority of monastic foundings in England were before 1300.[29] Monasteries acquired land either by purchasing or by receiving gifts from wealthy patrons. Furthermore, the properties of a given monastery were often far from the monastic house itself. There is no reason to suppose that the presence of these lands alone should be associated with the development of Protestantism in the early Reformation or with other reasons to oppose Mary.

Second, we provide empirical support for this identifying assumption by estimating placebo regressions. Monastic lands do not predict the presence of Protestants before the Dissolution. Figure 4 provides a visual illustration: before the Dissolution, monastic lands are not associated with our two preference measures of early Protestantism: the presence of notable early Protestants (Figure 4(a)) or Lollard activities (Figure 4(b)). However, after the Dissolution, the presence of monastic lands is strongly associated with elites supporting Protestantism and opposing Mary's policy of returning to Rome.

Third, we can control for several measures of pre-Dissolution Protestant or proto-Protestant sentiments. Appendix Table A.6 presents our results when we control for our three main proxies for possible support for the Reformation prior to the Dissolution. First, we control for the number

[29]That is, before any heretical or proto-Protestant movements like Lollardy had developed. As discussed in Johnson and Koyama (2019, 52–72), there were no known heretical movements in England prior to the late 14th century.

of pre-1540 Protestants per location. Second, we control for any mention of Lollard activity between 1409-1540. Finally, we control for distance to Cambridge. These proxies are all positively correlated with our dependent variable, but including them in our regression specifications do not meaningfully affect the size of our coefficient on monastic lands.

Each of these proxies has potential measurement error. For example, the data on Lollards is based on trial data. Distance to Cambridge has the issues that affect all distance-based measures (see Zhao, 2023). Nonetheless, there is no reason to suppose that measurement errors across these different proxies should be correlated. Therefore, by taking into account these three different measures, we are confident that we are doing as good a job as possible in controlling for observable measures of Protestant sentiment.[30]

Another concern is that Protestants may have been more likely to purchase monastic lands. The historical consensus, however, is religious identities were in flux at this point and that both Catholics and Protestants participated in the dissolution. According to Woodward (1966, 133) "For men of all religious sympathies such purchases were straightforward business deals into which considerations of faith or sentiment did not enter, and among the biggest buyers of monastic lands are to be found as frequently those who later became recusants as those who became puritans". Nevertheless, to address this concern, we examine the naming practices of the MPs in our dataset. Andersen and Bentzen (2024) establish that religiosity can be established from parents' choice of name for their children. We examine the names that they choose for their children as a proxy for their attachment to traditional (Catholic) religiosity. Using a list of names associated with the Apostles and prominent saints we construct a "Catholic Name Index". Overall, we find no relationship between this proxy for Catholic religiosity and monastic lands (Table A.7).

Perhaps areas that were more commercially developed in the Middle Ages were both more likely to be endowed with more monastic lands and more likely to become Protestant in the 16th century? Indeed, the possibility of selection into Protestantism is well-known in the literature (see Ekelund et al., 2002; Cantoni, 2015). To a large degree, such concerns should be alleviated by our various geographical and economic level controls: the coefficient estimates we obtain do not shrink when we include more covariates. Nonetheless, to demonstrate the robustness of our results we also report similar results when dropping (i) boroughs that were commercial centers in the 14th century; (ii) boroughs that were reported being in the top 10% of taxable wealth in the Domesday book; and (iii) in the top 10% of registered payers of the poll-tax in 1377 (see Table A.8). We investigate spatial dependence in our dependent variables in Appendix G following the guidance of Becker, Boll, and Voth (2025).

Finally, in Appendix L, we perform a range of sensitivity tests to bound any potential bias from unobservables. First, we follow Oster (2019) and estimate what our coefficients would be

[30]Note that we do not use data on Protestants executed during the reign of Mary I for our 16th century analysis as these executions occurred between 1555-1558 and thus postdate our dependent variables. We do use this in our analysis of the late 17th century in Section 6.2.1.

under the assumption of equal selection on unobservables as on observables ($\delta = 1$). In this case, the size of our estimated relationship between monastic lands and support for "True Religion" and "Opposition to Mary" variables remains very robust. Similarly, when we allow $\delta$ to vary we find that we obtain $\delta > 1$ which Oster suggests as a benchmark for robustness. We also use several other approaches including Cinelli and Hazlett (2019) and Masten and Poirier (2022) with similar results. In general, our results for support of "True Religion" are highly robust while those for "Opposition to Mary" are more suggestive (consistent with the results in Table 2).

# 6 The Lasting Effects of Monastic Lands

Our model predicts that the political economy incentives created by the Dissolution would have lasting effects on religious attitudes and Catholic populations. We now examine whether the effects of monastic land on religious preferences persisted beyond Mary's reign.

## *6.1 Fewer Catholic "Recusants" in 1603*

Responding to concerns about clerical incompetence and the flagging of Reformation efforts, in 1603 the Crown surveyed the Church. This survey included information on individuals who did not attend Church of England services – recusants, and those who attended but did not receive (Church of England) communion – non-communicants. The survey has the advantage of containing highly disaggregated, parish-level data. Some of the original returns have survived; in other cases only summaries are available and they have been compiled and edited by Dyer and Palliser (2005) who discuss their reliability.

We estimate the relationship between monastic lands and the proportion of potential Catholics in the parish. We count as potential Catholics those who were either recusants or non-communicants in the Church of England. We include parish level controls from Heldring et al. (2021) and fixed effects at the diocese, deanery and county level. As the mean of the dependent variable is very small (approx. 2.5% of the population were potential Catholics), we use a fractional Logit estimator.

We find a consistently negative relationship between the presence of monastic lands and potential Catholics. The average marginal effect corresponding to the odds ratio in column (6) of Table 4 is -0.0016 ($p = 0.070$), suggesting about a 0.16 percentage point decrease in the predicted probability of being a potential Catholic. This is a 62% decrease relative to the mean of the dependent variable. We report very similar results using a linear probability model (Appendix Table A.18).[31]

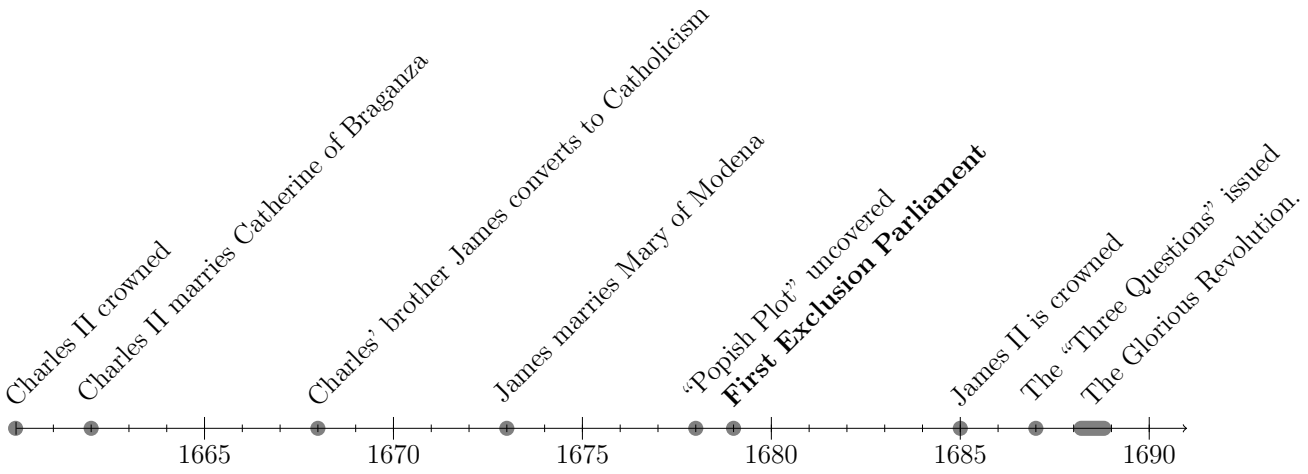
[31] This also allows us to take into account potential issues of spatial correlation.

Table 4: Testing Prediction 1: Analysis of the Diocesan Population Returns: Logit

| | Potential Catholics in 1603 | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Monastic Lands | -0.702*** | -0.673 | -0.776** | -0.691** | -0.659** | -0.690** |
| | (0.266) | (1.003) | (0.318) | (0.280) | (0.299) | (0.299) |
| Marginal Effects ($\frac{dy}{dx}(*)$) | -0.00181 | -0.00173 | -0.00185 | -0.00172 | -0.00164 | -0.00158 |
| Geography Controls | | Yes | Yes | | Yes | Yes |
| Economic Controls | | | Yes | | | Yes |
| Diocese, Deanery and County FEs | | | | Yes | Yes | Yes |
| Constant | -5.426*** | -5.805*** | -5.842*** | -5.485*** | -5.059** | -6.396** |
| | (0.298) | (1.863) | (0.974) | (1.846) | (2.226) | (3.213) |
| Observations | 1654 | 1654 | 1309 | 1632 | 1632 | 1291 |

**Table Notes:** The relationship between monastic lands and potential Catholics in 1603. Our dependent variable is the ratio of recusants and non-communicants divided by the total population. We estimate a fractional Logit model and report odds ratios the corresponding marginal effects. Geographic controls include parish area, terrain elevation, wheat suitability and distance to the nearest river. Economic controls include distance to market town, distance to the sea or the Scottish border, distance to London, the Lay Subsidy income per capita in 1332, and the number of gentry between 1399-1477. Robust standard errors in parentheses.

Figure 5: A Timeline of the Exclusion Crisis




### *6.2 The Exclusion Crisis and James II (1679-1688)*

Over a century after the Dissolution, concerns about monastic lands resurfaced during the political crises of the late Stuart period. The Exclusion Crisis of 1679-1681 and James II's attempts to secure religious toleration for Catholics in 1687-1688 provide further tests of our hypothesis that monastic land ownership shaped political behavior on religious issues.

#### *6.2.1 More Likely to Support Excluding the Catholic James, Duke of York from the Succession*

**Empirical Analysis of the Exclusion Crisis** We now conduct a similar analysis as above for the Exclusion Crisis. Recall that there is qualitative evidence that concerns about property rights about monastic lands were reawakened during the Exclusion Crisis. An anonymous address to the

City of London argued that "the surest Champions for our Religion against the Papacy, are our *Abby landed-men*" because they had the most reason to fear that their property rights would be overturned (C.B, 1681).[32] Charles Blout similarly expounded on the argument that the Papacy would not recognize previous promises because it would not concede that its predecessors had any right to permanently aliened lands that had belonged to the Church (Blount, 1681).[33]

Our outcome variable is the percentage of borough MPs who supported the exclusion of the Catholic James Duke of York from the throne. Our main explanatory variables are the same as before: Monastic Land % (20 km) is the proportion of parishes within 20km of Parliamentary borough that had monastic land. We include comparable control variables as before.[34]

Results for the MPs in the Exclusion Parliament are reported in Table 5. Column (1) reports baseline results that show that MPs from boroughs with more monastic lands were more likely to support exclusion of James II. Column (2) adds a control for seventeenth century population (which drops several observations). Column (3) adds historical locations of monastic houses. Columns (4) and (5) add geographic and political controls. Column (6) adds region fixed effects. In terms of magnitude, the standardized beta coefficients for column (5) are 0.17: slightly smaller in magnitude relative to our 16th century analysis but still economically meaningful.

We include the same controls for pre-Dissolution Protestantism in Table 5 as in Table A.6. But we also might be concerned about Mary's persecution of Protestants as possible confounder. To address this, we geocode the place of execution of the 284 Protestants executed by Mary I between 1553 and 1558. We report results controlling for their presence because historians suggest that they may have been an independent factor in the rise of Protestantism and anti-Catholic sentiments. Collinson (2003, 114) notes that "Colchester in Essex, which was not a Protestant town before the persecution, became one as a result of it; and in later years it served as a shrewd blow against a political opponent to accuse him of having been party to the persecution".[35] Overall, our estimates are unaffected by controlling for the number of Protestant executed.

[32]The full passage is "the surest Champions for our Religion against the Papacy, are our *Abby landed-men*; for notwithstanding the registred Dispensation to Harry the Eighth from the Pope, for the seizing of those Monasteries and Lands, yet of late they pretend that the Pope had not power to alien them from the Church; wherefore the present possessors can never trust or rely upon any new Promises or actual Grants thereof, especially from him whose everlasting and declared Maxim it is, Never to keep Faith with hereticks".

[33]The full quote is:"...forasmuch as in this corrupt Age wherein we live, men are not so spiritual as they ought to be, it is not amiss to seek for those, whose spiritual interests is seconded by a temporal one. Wherefore the surest Champions for our Religion against the Papacy, are our *Abby landed-men*; for notwithstanding the registered Dispensation to Harry the Eighth from the Pope, for the seizing of those Monasteries and Lands, yet of late they pretend that the Pope had not power to alien them from the Church; wherefore the present possessors can never trust or rely upon any new Promises or actual Grants thereof, especially from him whose everlasting and declared Maxim it is, Never to keep Faith with hereticks".

[34]It is empirically difficult to separate out more general Whig sentiment or ideology from specifically anti-Catholic sentiments; this is because they tended to be tightly fused together. The formation of the Whigs in the 1670s as a result of the Exclusion Crisis is the subject of a large literature e.g. Jones (1961); Harris (2014).

[35]These persecutions postdate the Dissolution itself, so they are arguably a "bad control' so should be interpreted with caution.

Table 5: Borough-Level Analysis: Percentage of MPs who supported Exclusion of James II in 1679

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Monastic Land % (20km) | 0.395 | 0.333 | 0.463 | 0.538 | 0.434 |
| | (0.182)** | (0.198)* | (0.217)** | (0.219)** | (0.222)** |
| | [0.226]* | [0.183]* | [0.162]*** | [0.149]*** | [0.146]*** |
| Population | | Yes | Yes | Yes | Yes |
| Monasteries (20km) | | Yes | Yes | Yes | Yes |
| Pre-Dissolution Protestantism | | | Yes | Yes | Yes |
| Geography Controls | | | Yes | Yes | Yes |
| Political/Econ Controls | | | | Yes | Yes |
| Region FEs | | | | | Yes |
| Constant | 0.243*** | 0.192*** | 0.372* | 0.331 | 0.413* |
| | (0.0642) | (0.0695) | (0.212) | (0.215) | (0.212) |
| Standardized $\beta$ | 0.148 | 0.124 | 0.172 | 0.199 | 0.161 |
| Observations | 202 | 190 | 189 | 189 | 189 |
| Adjusted $R^2$ | 0.017 | 0.031 | 0.042 | 0.069 | 0.079 |

**Table Notes:** This table establishes an association between the presence of monastic lands and voting for the exclusion of the Catholic future James II from the throne. Geographic, economic, and political controls are the same as in Table 2. Robust standard errors in parentheses. Conley standard errors at a radius of 100km in square brackets.

**Borough-Level Interests rather than Ancestral Monastic Lands Matter** In our analysis of the 1553 and 1555 parliaments, we found that whether an individual MP had links to the sale of monastic lands strongly predicted their stance of opposing pro-Catholic policies. Now we ask whether an individual's ancestors acquired monastic lands *still* had predictive power in explaining their stance during the Exclusion crisis.

A priori we would expect that the individual material interests generated by family acquiring monastic land many generations ago would have been severely attenuated by the 1670s. Our model, moreover, emphasizes the importance of horizontal transmission of religious values as well as vertical transmission.

In Appendix Table A.14, we find little evidence of ancestral acquisition of monastic lands predicting voting patterns in the late 17th century. There is no relationship between an MP's family connections to the Dissolution and their support for exclusion. Rather, our findings are consistent with the preferences of localities having changed as a result of the Dissolution. What mattered was whether local landowners in a borough had stakes in monastic property—not whether the MP himself descended from Dissolution beneficiaries.

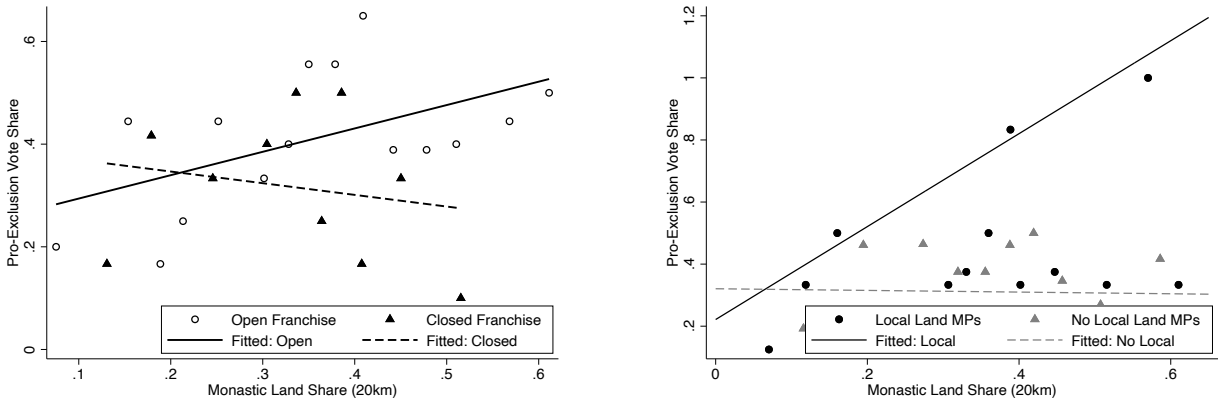
While we cannot rule out this null result as reflecting measurement error, we believe that the direct material interest generated by the Dissolution had become diluted. What was more salient to MPs were their constituency interests and what mattered was whether local landowners in a borough had stakes in monastic property—not whether the MP himself descended from Dissolution

beneficiaries.[36]

Further support for this comes from the finding that the relationship between monastic lands and support for Exclusion is strongest among open boroughs. Historians distinguish between closed or narrow franchise boroughs and open or broad franchise boroughs. Closed boroughs were dominated by a small number of aldermen, often merchants who may have been insulated from the concerns of the gentry nearby. In contrast open boroughs would be more competitive and more likely to reflect the economic concerns of the nearby landowning classes.

By the late 17th century, elections across England were increasingly open (Kishansky, 1986, 192). Using a measure of whether the borough franchise was open from Angelucci et al. (2022), we show in Appendix Table A.15 and Figure 6(a) that the association between monastic lands was much stronger in open franchise boroughs than in closed boroughs. Similarly, Figure 6(b) shows that the relationship is stronger in boroughs where MPs had local land connections compared to boroughs where they did not. Together, these results reinforce the interpretation that MPs were responding to the interests of local landowners with stakes in monastic property (see also Appendix Tables A.16 and A.17). Further robustness checks are available in Appendix 3 including sensitivity analysis (Appendix 3L).

Figure 6: The Constituency Mechanism: Open vs Closed Boroughs and Local vs Non-Local MPs




(a) Open vs Closed Franchise Boroughs. The steeper slope for open franchise boroughs indicates that the constituency mechanism operated more strongly where voters had influence over their representatives.

(b) MPs with vs without Local Land Connections. The steeper slope for boroughs with locally connected MPs indicates that the effect is stronger where MPs had personal stakes in local monastic property.

*Binscatter* Both panels show the relationship between monastic land share and pro-exclusion voting, split by characteristics that proxy for the strength of the constituency mechanism. Controls are the same as in Column (5) of Table 5.

[36]This is consistent with our model's prediction of persistence at the level of localities rather than lineages: boroughs with more monastic land elect MPs who support more Protestant policy, which makes the local environment less Catholic, which in turn shapes the next generation of residents — regardless of whether those residents descend from the original monastic landowners. Vertical transmission exists, but it is the horizontal channel that anchors long-run persistence.

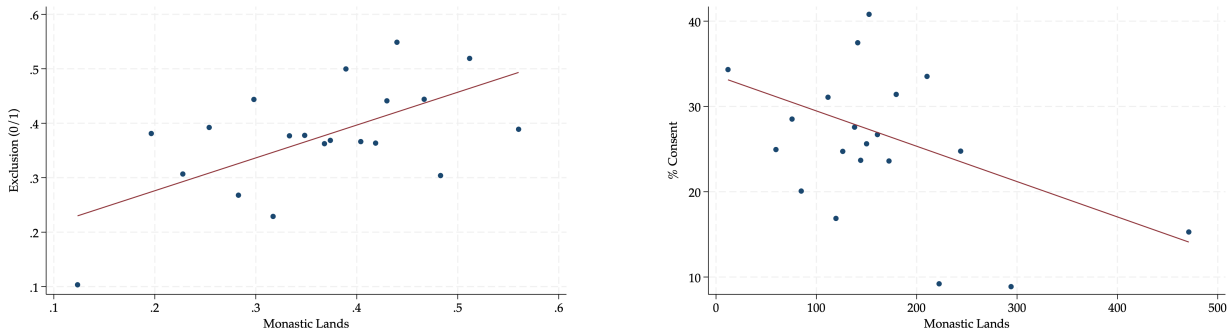
### 6.2.2 *Less Likely to Support Religious Toleration for Catholics in James II's Reign*

In April 1687 James issued a Declaration of Indulgence which suspended the Penal Laws and Test Acts. The logical next step was to pass a law repealing these laws in Parliament. For this James needed a Parliament that would comply with his wishes. James and his advisors then embarked on a novel policy experiment, the "Three Questions". They came up with idea of canvassing the opinions of local elites to assess their favorability to repealing the Test Acts. We use this data to estimate support for religious toleration at the county-level. In total, they surveyed 1357 individuals in England or around 10% of the gentry.

A detailed assessment of the Three Questions is provided by Walker (2011) and we rely on his coding of the data. Several caveats are needed to interpret this data.[37] The returns for several counties has not survived so the sample is small. Nonetheless, the surviving information provides a unique insight into the preferences of local elites across the entire country.

Overall, the response to the canvasing suggested serious opposition to James's policy among the gentry (Sowerby, 2013, 113). While in some counties like Worcester as many as 62.5% of respondents gave their consent to supporting James's policies, overall less than 1/3 of those canvased were supportive. Figure 7(b) depicts a suggestive negative relationship between the number of parishes with monastic land in a county and the percentage of respondents in that county supporting James's policy of repeal.

Figure 7: Monastic Land and Opposition to James II




(a) Exclusion Crisis (Borough-Level). The positive relationship between monastic lands in a borough and the percentage of borough MPs voting to exclude James from the throne.

(b) Three Questions (County-Level). The negative relationship between parishes with monastic lands in a county and the % of respondents supporting James's policy of greater religious toleration.

*Binscatter* Both panels show the relationship between monastic land and opposition to James II. Controls are the same as in Column (4) of Table 5.

[37] In Appendix 2.K we provide the precise wording of the questions and more background information on issues of sampling and selectivity.

### *6.3 Catholics in 1767*

We now return to the question of the effect of religious policy on religiosity in the long-run. Having examined political behavior during the Exclusion Crisis, we test whether the effects of monastic land on religious demography persisted into the 18th century. We provide evidence that as late as 1767, the reformation (equilibrium) was not yet complete, but only T-stable.

The Glorious Reformation settled the issue of a Catholic ever coming to the throne. Following the Act of Settlement of 1701, no Catholic could inherit the throne. This made it unlikely, although not impossible, that any succeeding monarch would have Catholic sentiment, that is, would be of type 1 in our model.[38] In this case, the model predicts (Prediction 2) that monastic lands should still matter – in particular, places with more monastic lands should still have fewer Catholics. (Otherwise, if a Complete Reformation Equilibrium has been attained, then monastic lands would no longer have predictive power.) In addition, places with stronger Catholic sentiment should have more Catholics.

To test Prediction 2, we combine parish-level data on the percentage of Catholics in 1767 from Heldring et al. (2021) with information on the location of pre-Reformation Catholic shrines and on the location of the Pilgrimage of Grace.[39] Our dependent variable is the percentage of Catholics in the parish. Our main proxy for parish Catholic sentiment is the presence of pre-Reformation Catholic shrines. As a second proxy, we use proximity (within 15 km) to the path of the Pilgrimage of Grace. As discussed above, this was a popular revolt that was motivated by the King's religious policy and specifically his treatment of the monasteries (MacCulloch and Fletcher, 1988).

The distribution of Catholics in 1767 was highly zero weighted and non-linear (mean $\approx 3\%$ with almost 70% (8,747/12546) of parishes recording no Catholics). For this reason, we use a fractional logit model as our main specification (Papke and Wooldridge, 1996).[40] Due to the high proportion of zeros, we also estimate an zero-inflated beta specification (Table 6, Col. 4).

Table 6 provides evidence that the presence of monastic lands is associated with a lower Catholic share. The magnitude of this effect is around 0.8 to 1 percentage points. This is a large effect relative to the average share of Catholics. In contrast, the presence of a pre-Reformation shrine is associated with a 1.6 percentage point higher share of Catholics. Being within 15km of a Pilgrimage of Grace site increases the Catholic percentage by 2.13 percentage points. This is a very large effect — it's equivalent to increasing the Catholic population by about 70% relative to

[38] While anti-Catholic sentiment in the population remained, as demonstrated notably by riots led by Lord Gordon in 1778 against the Catholic Relief Bill, it became less prominent over time: "gradually the active animus against them died away. The eighteenth century approached religious issues less enthusiastically than the seventeenth" (Miller, 1972, 262). The number of Catholics, moreover dwindled to a tiny percentage.

[39] This date is ideal since by the mid-18th century, the question of the Protestant succession was entirely settled, but this also predates large-scale Irish immigration due to industrialization.

[40] Qualitatively similar reasons are obtained using both OLS and a zero-inflation binomial but the former fails to account for the bounded nature of proportional data (0-1), potentially leading to predicted values outside this range. This is especially problematic with heavily zero-coded dependent variables, as the model can predict negative values. See Wooldridge (2002, 661-663).

Table 6: Testing Prediction 2: Monastic Lands and the Distribution of Catholics in 1767: Parish-Level

| *Marginal Effects* | Share Catholic in 1767 | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Pre-Reformation Shrines | 0.0197*** | 0.0191*** | 0.00675*** | 0.00365*** |
| | (0.00161) | (0.00171) | (0.00167) | (0.000993) |
| Monastic Lands (dummy) | -0.0172*** | -0.00935*** | -0.00659*** | -0.00312*** |
| | (0.00216) | (0.00213) | (0.00205) | (0.000744) |
| Controls | | ✓ | ✓ | ✓ |
| County FE | | | ✓ | ✓ |
| Constant | -3.435*** | -3.211*** | -4.563*** | -2.044*** |
| | (0.0426) | (0.106) | (0.522) | (0.154) |
| Observations | 12546 | 12523 | 12523 | 12523 |
| | (5) | (6) | (7) | (8) |
| Pilgrimage of Grace | 0.0263*** | 0.0213*** | 0.00536* | 0.00487*** |
| | (0.00221) | (0.00228) | (0.00293) | (0.00140) |
| Monastic Lands (dummy) | -0.0171*** | -0.00985*** | -0.00687*** | -0.00318*** |
| | (0.00216) | (0.00213) | (0.00211) | (0.000745) |
| Controls | | ✓ | ✓ | ✓ |
| County FE | | | ✓ | ✓ |
| Constant | -3.504*** | -3.085*** | -5.223*** | -1.900*** |
| | (0.0443) | (0.0974) | (0.507) | (0.153) |
| Observations | 12546 | 12523 | 12523 | 12523 |
| Estimator | | Fractional Logit | | Zero-Inflated Beta |

**Table Notes:** This table tests Prediction 2 using data on the distribution of Catholics in 1767. The unit of observation is a parish. We measure proximity to a pre-Reformation shrine using a 25km radius. The Pilgrimage of Grace is constructed based on a 15km band around the route of the rebels in 1536. Regressions (1)-(3) and (5)-(7) are estimated as fractional logits using a maximum likelihood estimator. Regressions (4) and (8) are zero-inflated beta regressions. We report marginal effects. Controls include the presence of monastery, distance to the nearest river, coast, and Roman road, proportion enclosed, and tax revenue per capita in 1525. Note that we drop distance to Roman Roads in columns (5)-(8) as this is highly collinear with the route of the Pilgrimage of Grace. * $p < 0.10$, ** $p < 0.05$, ***.

the mean ($2.13/3.0 \approx 70\%$). Including county fixed effects reduces the size of these coefficients but they retain their precision and economic significance. In our preferred fixed effects specifications, Pre-Reformation shrines are associated with 0.7 of a percentage point more Catholics in 1767 and the Pilgrimage of Grace is associated with 1/2 a percentage point more Catholics. In the Appendix we also report several specification checks and discuss various approaches to dealing with spatial correlation.

# 7 Discussion and Conclusion

The Reformation remains one of the most important and formative events in European history. This paper has sought to examine the political economy underpinnings of the Reformation in England. By constructing a model, deriving predictions and testing them with several data sets, including newly compiled data on the religious and political attitudes of members of Parliament (MPs) across the 16th and 17th centuries, we uncover the role played by the rents created by the Dissolution of the Monasteries in reinforcing a distinctively Protestant political order. In particular, we show that beneficiaries of monastic-land rents had an incentive to secure property rights over such land by preventing a return to Catholicism.

We establish a link between the distribution of monastic lands and support for Protestantism (Prediction 1) for the reign of Mary I. While historians are aware of the importance of monastic lands in discussions of Mary's return to Catholicism, to our knowledge, no one has shown this link previously. We find evidence for this link both for individual MPs and at the borough level.

The distribution of monastic lands thus set in motion a flywheel effect which led to the spread and entrenchment of Protestantism over time in England. In the early 17th century, there were fewer Catholic recusants in areas with more monastic lands. The presence of monastic lands made it more likely for MPs to vote for the exclusion of (Catholic) James II from the throne, and engendered opposition to him during his reign. The cumulative process we document operated through localities where local elites pushed for more Protestant policies and selected MPs who would represent these policies in Parliament. As local elites opposed re-Catholicization, they shaped a more Protestant environment that socialized subsequent generations of residents.

Lastly, we find that by the 18th century, England has attained a 'T-stable Reformation Equilibrium', in which property rights over monastic lands are almost completely secure, as England's return to Catholicism has become very unlikely (albeit not impossible). We show that monastic lands still have predictive power, with more monastic lands being associated with fewer Catholics.

Overall, these findings contribute to our understanding of the Reformation and the process of institutional and cultural change. The historical literature has been divided by those who focus on "top down" factors, such as the decisions of actors like Henry VIII, Thomas Cromwell, Mary I, or Elizabeth I and those who emphasize "bottom-up" factors such as the rapid diffusion of Protestant ideas, the printing press, and popular culture.[41] Combining a formal model with empirical evidence, we develop a synthesis that is consistent with the historical evidence and that generates novel insights into the process through which England became Protestant.

There is growing interest in the relationship between institutional and cultural change. The literature has largely focused on the vertical transmission of cultural values from parents to children

[41] We provide a synopsis of current scholarly understandings of the English Reformation in Appendix C.

(i.e. Bisin and Verdier, 2001; Bisin, Patacchini, Verdier, and Zenou, 2011), though recent papers such as Bisin and Verdier (2024); Carvalho, Koyama, and Williams (2024) also consider other sources of socialization. Taking the English Reformation as a natural experiment, we investigate to what degree can material incentives and the actions of policymakers drive cultural change. We allow for vertical and horizontal transmission of cultural/religious values, and include a role for policy. And we provide evidence for the role of material incentives in forming a political coalition that supported lasting cultural and religious change.

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# Online Appendix

## 1 Theory Appendix

*Proof of Lemma 1*

From the individual's budget constraint, one can write $r = 1 - e - c$. Thus, the FOC for optimal $e$ is given by $f'(r)(-1) = f'(eW)\frac{\partial eW}{\partial e} = 0$, or

$$f'(eW) = \frac{1}{W} f'(r) \tag{12}$$

*Proof of Lemma 2*

The proof is in the text, immediately preceding the Lemma.

*Proof of Lemma 3*

The FOC for optimal $p$ is given by

$$\psi g'_p - (1 - \psi)\frac{\partial \kappa^*}{\partial p} = 0. \tag{13}$$

Now, $\frac{\partial \kappa^*}{\partial p} = \frac{\partial \kappa}{\partial (p - \underline{p})} \cdot 1$ if $p \geq \underline{p}$ and $\frac{\partial \kappa^*}{\partial p} = \frac{\partial \kappa}{\partial (\underline{p} - p)} \cdot (-1)$ if $p < \underline{p}$. Note that $\frac{\partial \kappa}{\partial (p - \underline{p})}$ and $\frac{\partial \kappa}{\partial (\underline{p} - p)}$ depend on $\nu$ and, therefore, on the distribution of monastic-land income across districts. In particular, $\frac{\partial \kappa}{\partial (p - \underline{p})}$ increases, while $\frac{\partial \kappa}{\partial (\underline{p} - p)}$ decreases, with the number of districts in which $\delta_d^M \geq \frac{1}{2}$. Thus, given $\nu$, $\frac{\partial \kappa}{\partial (p - \underline{p})} > \frac{\partial \kappa}{\partial (\underline{p} - p)} > 0$.

This implies that for a monarch of type 1 (for which $g'_p < 0$), (13) yields an interior solution only for $p < \underline{p}$. Otherwise, for $p \geq \underline{p}$, $\frac{\partial \kappa^*}{\partial p} < 0$. This means that the LHS of (13) is negative which, in turn, implies that the optimal policy is at the boundary $p = 0$, which means that $\underline{p}$ is also zero (so that $p \geq \underline{p}$).

The above demonstrates that the best response for a type-1 monarch is given by

$$p^1 = \begin{cases} 0 & \text{if } \underline{p} = 0 \\ (0, \underline{p}) & \text{if } \underline{p} \in (0, 1]. \end{cases}$$

As for a type-2 monarch (for which $g'_p > 0$, (13) yields an interior solution only for $p \geq \underline{p}$. Otherwise, for $p < \underline{p}$, the LHS of (13) is positive, which suggests that the optimal policy tends towards $p = 1$. However, $p = 1$ cannot be exactly reached since $p < \underline{p}$ and $\underline{p}$ cannot be greater than one.

The above implies that for $\underline{p} \in [0, 1)$, $p$ is anywhere from above $\underline{p}$ to below one; but for $\underline{p} = 1$, $p$ tends to one but is still less than one. That is, the best response for a type-2 monarch is given by

$$p^2 = \begin{cases} [\underline{p} + \epsilon, 1) & \text{if } \underline{p} \in [0, 1) \\ (0, \underline{p}) & \text{if } \underline{p} = 1, \end{cases}$$

with $\epsilon$ arbitrarily small.

*Proof of Proposition 1*

The proof is immediate from Lemmas 1, 2, and 3, which give the unique equilibrium of each subgame of $G$.

*Proof that $r_s^{\theta,d}$ is AS and $\bar{r}_s^{\theta,d}$ is LS*

We first prove that $r_s^{\theta,d}$ is asymptotically stable (AS) by showing that $\lim_{t\to\infty}|r^{\theta,d}-r_s^{\theta,d}|=0$, and that $r_s^{\theta,d}$ is Lyapunov stable (LS). From equations (2) and (8),

$$|r^{\theta,d}-r_s^{\theta,d}|=|\alpha^\theta \underline{r}^{\theta,d}+(1-\alpha^\theta-\beta^\theta)(1-p)-\frac{\alpha^\theta\beta^\theta\delta_d^R}{1-\alpha^\theta}|$$

at each $t$. At the limit, $p=1$, which means $\lim_{t\to\infty}|r^{\theta,d}-r_s^{\theta,d}|=|\alpha^\theta \underline{r}^{\theta,d}-\frac{\alpha^\theta\beta^\theta\delta_d^R}{1-\alpha^\theta}|$, which is equal to zero since, at the steady state, $\underline{r}^{\theta,d}=r^{\theta,d}=r_s^{\theta,d}=\frac{\beta^\theta\delta_d^R}{1-\alpha^\theta}$.

Next, to show that $r_s^{\theta,d}$ is LS, we demonstrate that there is an upper bound for $|r^{\theta,d}-r_s^{\theta,d}|$. The latter is biggest when $\underline{r}^{\theta,d}=1$, $p=0$, and $\delta_d^R=0$. In this case:

$$|r^{\theta,d}-r_s^{\theta,d}|=|\alpha^\theta+(1-\alpha^\theta-\beta^\theta)|=1-\beta^\theta.$$

This upper bound exists since $(1-\beta^\theta)<1$, and $|r^{\theta,d}-r_s^{\theta,d}|$ cannot be greater than one. At any $t$ at which $\underline{r}^{\theta,d}<1$, or $p>0$, or $\delta_d^R>0$, $|r^{\theta,d}-r_s^{\theta,d}|<1-\beta^\theta$. Hence, $r_s^{\theta,d}$ is LS.

Finally, we prove that $\bar{r}_s^{\theta,d}$ is LS but not AS. To show that it is not AS, it is enough to demonstrate that $\lim_{t\to\infty}|r^{\theta,d}-\bar{r}_s^{\theta,d}|\neq 0$. From equations (2) and (9),

$$|r^{\theta,d}-\bar{r}_s^{\theta,d}|=|\alpha^\theta \underline{r}^{\theta,d}+(1-\alpha^\theta-\beta^\theta)(1-p)-\frac{\alpha^\theta\beta^\theta\delta_d^R}{1-\alpha^\theta}-\frac{(1-\alpha^\theta-\beta^\theta)(1-p_T)}{1-\alpha^\theta}|$$

at each $t$. Given that at the steady state, $\underline{r}^{\theta,d}=r^{\theta,d}=\bar{r}_s^{\theta,d}$, the limiting value of $|r^{\theta,d}-\bar{r}_s^{\theta,d}|$ can be written as $(1-\alpha^\theta-\beta^\theta)(1-p)$, which is greater than zero since, at the limit, $p\in[p_T,1)$ and therefore cannot be equal to one. Hence, $\bar{r}_s^{\theta,d}$ is not AS.

It is, however, LS, since there exists an upper bound for $|r^{\theta,d}-\bar{r}_s^{\theta,d}|$. The biggest value that the latter can take is when $\underline{r}^{\theta,d}=1$, $p=0$, and $\delta_d^R=0$. In this case,

$$|r^{\theta,d}-\bar{r}_s^{\theta,d}|=|1-\beta^\theta-\frac{(1-\alpha^\theta-\beta^\theta)(1-p_T)}{1-\alpha^\theta}|.$$

This upper bound exists since $|1-\beta^\theta-\frac{(1-\alpha^\theta-\beta^\theta)(1-p_T)}{1-\alpha^\theta}|<1$ and $|r^{\theta,d}-\bar{r}_s^{\theta,d}|$ cannot be greater than one. At any $t$ at which $\underline{r}^{\theta,d}<1$, or $p>0$, or $\delta_d^R>0$, $|r^{\theta,d}-\bar{r}_s^{\theta,d}|<|1-\beta^\theta-\frac{(1-\alpha^\theta-\beta^\theta)(1-p_T)}{1-\alpha^\theta}|$. Hence, $\bar{r}_s^{\theta,d}$ is LS.

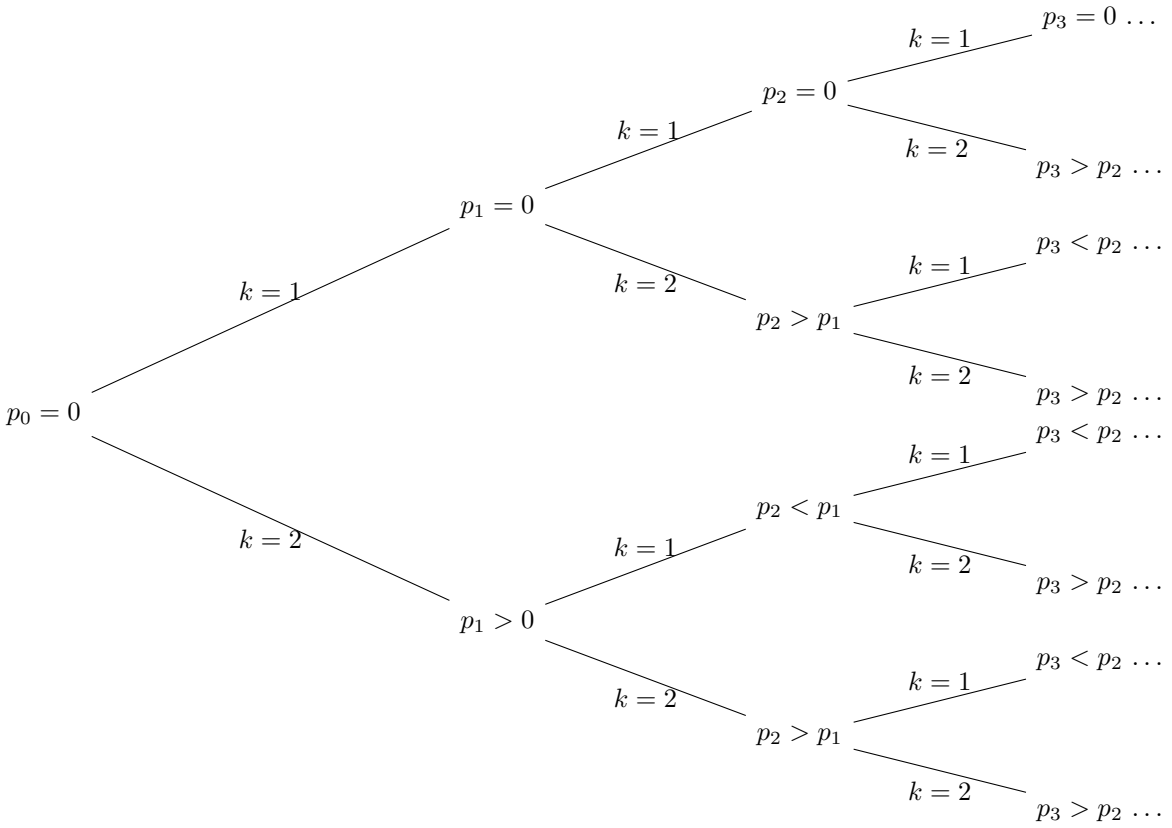
*Proof of Theorem 1*

One can use equation (7) to construct religious policy paths from $p_0=0$, as in Figure A.1:

The foregoing clearly shows that policy only increases (from previous period's policy) whenever the monarch is of type 2. Thus, if after some time period $T$, Nature can never draw a type 1 monarch, that is, $\mu=0$, then each time period after $T$ will always have a policy $p$ that is closer to one than the previous period's policy. Hence, $p$ approaches one from $T$ onwards – an $RE$ exists.

It also follows that the only way to guarantee that policy is increasing between periods $T$ to $T+H$ is to guarantee that Nature keeps drawing only type-2 monarchs, that is, $\mu=0$, from $T+1$ to $T+H$ This does not mean, however, that policy does not eventually fall towards zero some time

Figure A.1: Religious Policy Paths from $p_0 = 0$




after $T + H$. In fact, this could happen if after $T + H$, Nature drew only type-1 monarchs, in which case the monarch would always choose policy $p$ that is less than the previous period's policy. Thus, drawing type-2 monarchs with certainty between periods $T + 1$ to $T + H$ is a necessary, but not sufficient, condition for a $TRE$ to exist.

*Proof of Theorem 2*

In an $RE$, Catholic practices in the steady state, $r_s^{\theta,d}$, is given by equation (8), which is zero when $\delta_d^R = 0$, that is, when the proportion of individuals in district $d$ with Catholic sentiment is zero. Note that $r_s^{\theta,d}$ is only positive when $\delta_d^R > 0$.

In a $TRE$, Catholic practices in the steady state, $\bar{r}_s^{\theta,d}$ is given by equation (9), which is greater than zero, but lower when $\delta_d^R = 0$ since, in this case, $r_s^{\theta,d} = 0$.

## 2 Data Appendix

In this section we provide details of data collection and data sources.

### *A Dependent Variables*

### *B Parliamentary Opposition*

The *History of Parliament* website contains biographical entries on each member of parliament. The website also includes several resources useful for assessing the political alignments of various MPs.

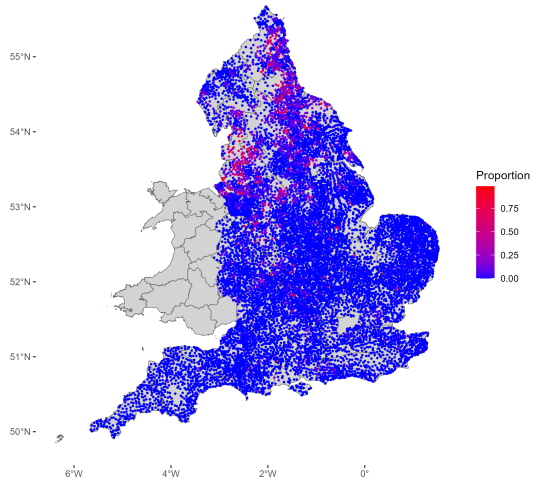



Figure A.2: The Distribution of Catholics in 1767.

We use the MPs representing boroughs to tie our variables on monastic lands to political stances.

For the Marian Parliaments, we refer to two lists given on the HoP website. The first is a list of 60 MPs in the Oct. 1553 parliament who reportedly "stood for the true religion" (that is Protestantism) (Bindoff, 1982a). The second is a list of 106 MPs in the 1555 parliament of whom it is said "All these in Queen Mary's time were in the Parliament first holden against the general repeal of all treasons etc. whereby the Statute of Supremacy was repealed" (Bindoff, 1982b). We counted the number of MPs in each borough that were listed to construct our two outcome variables for this period. The MPs who represent counties were dropped for our main analysis (We use this data for a separate robustness check).

For the Exclusion Acts, we code MPs as supporting the Exclusion Acts based on their biographies on the *History of Parliament* website. We then count the number of MPs who support exclusion of James from the throne by borough to construct our measure. This measure is cross-checked and verified by consulting the lists of Shaftsbury's supporters in Jones (1957) and the lists included in Browning (1951).

We assign each MP to the borough that they represented in the first 1679 parliament.

## *C Parliamentary Boroughs*

There were two types of constituencies in early modern England: county seats and borough seats.

Borough seats had been granted as towns and cities acquired rights of self-government and were called or permitted to seat members to Parliament (Angelucci et al., 2022).

Whereas county seats had a common standard for who could vote, the franchise varied greatly across borough seats. While we focus on borough seats in our main analysis, our results are robust to just focusing on county seats.

## *D The Distribution of Catholics in 1767*

We obtain data on the distribution of Catholics in 1767 from Heldring et al. (2021). This data is depicted in Figure A.2.

Table A.1: Descriptive Statistics

| Variable | N | Mean | Min | P25 | Median | P75 | Max |
|---|---|---|---|---|---|---|---|
| **Boroughs** | | | | | | | |
| True Religion MPs 1553 % | 140 | 0.16 | 0 | 0 | 0 | 0.50 | 1 |
| Opponents of Mary 1555 % | 142 | 0.26 | 0 | 0 | 0 | 0.50 | 1 |
| Monastic Land % (20km) | 202 | 0.34 | 0 | 0.22 | 0.35 | 0.45 | 0.64 |
| Monasteries (20km) | 203 | 7.51 | 0 | 4 | 7 | 9.50 | 29 |
| Soil Suitability Index (10km) | 203 | 4.80 | 2.60 | 4.33 | 4.80 | 5.20 | 7.80 |
| Sea Coast | 203 | 0.33 | 0 | 0 | 0 | 1 | 1 |
| Navigable River | 203 | 0.26 | 0 | 0 | 0 | 1 | 1 |
| Roman Road | 203 | 0.36 | 0 | 0 | 0 | 1 | 1 |
| Justice of the Peace | 203 | 0.39 | 0 | 0 | 0 | 1 | 1 |
| 14th C. Commercial Center | 203 | 0.24 | 0 | 0 | 0 | 0 | 1 |
| Catholic Shrines | 203 | 0.08 | 0 | 0 | 0 | 0 | 3 |
| # of Early Protestants (1550s) | 150 | 3.19 | 0 | 0 | 1 | 2 | 88 |
| Early Protestant Dummy (1550s) | 150 | 0.55 | 0 | 0 | 1 | 1 | 1 |
| Early Lollard Activity | 203 | 0.90 | 0 | 0 | 0 | 1 | 17 |
| Distance to Cambridge (km) | 203 | 189.32 | 0 | 113.25 | 167.95 | 243.63 | 432.65 |
| MPs Support Exclusion % | 203 | 0.38 | 0 | 0 | 0.50 | 0.50 | 1 |
| Population 17th Century (1000s) | 191 | 3,703.81 | 140 | 665 | 1,120 | 2,165 | 310,941 |
| # of Early Protestants (1660s) | 202 | 2.37 | 0 | 0 | 0 | 1 | 88 |
| Early Protestant Dummy (1660s) | 202 | 0.47 | 0 | 0 | 0 | 1 | 1 |
| Domesday Taxable Wealth | 113 | 16.96 | 0.10 | 3 | 6.30 | 16.70 | 155 |
| Poll Tax 1377 | 94 | 1,097.95 | 10 | 200 | 555 | 1,543.25 | 7,248 |
| **Counties** | | | | | | | |
| True Religion (%) | 39 | 0.15 | 0 | 0 | 0.12 | 0.25 | 0.50 |
| Opponents (%) | 39 | 0.22 | 0 | 0 | 0.25 | 0.36 | 0.75 |
| Monastic Parish/Parishes | 39 | 0.33 | 0.02 | 0.20 | 0.34 | 0.47 | 0.67 |
| Monasteries | 39 | 18.21 | 1 | 11.25 | 17 | 21 | 72 |
| River Share | 38 | 0.11 | 0.03 | 0.10 | 0.11 | 0.13 | 0.18 |
| Ocean Dummy | 38 | 0.53 | 0 | 0 | 1 | 1 | 1 |
| Agricultural Quality | 38 | 0.18 | 0.01 | 0.07 | 0.12 | 0.24 | 0.73 |
| Log area | 38 | 7.91 | 5.97 | 7.65 | 7.88 | 8.28 | 8.85 |
| Roads | 38 | 0.06 | 0 | 0.05 | 0.06 | 0.07 | 0.12 |
| Marian Exiles | 39 | 1.05 | 0 | 0 | 1 | 2 | 5 |
| Early Protestant Dummy | 39 | 2.10 | 0 | 1 | 2 | 3 | 8 |
| Catholic Shrines | 39 | 0.28 | 0 | 0 | 0 | 0 | 2 |
| Catholic Martyrs | 39 | 4.85 | 0 | 1 | 3 | 4.50 | 48 |
| **Parishes** | | | | | | | |
| Parish Area ($km^2$) | 16,246 | 7.94 | 0 | 3.29 | 5.94 | 9.88 | 198.19 |
| Percentage Catholic (1767) | 12,546 | 0.03 | 0 | 0 | 0 | 0 | 0.99 |
| No. of Shrines in 25km | 16,290 | 0.21 | 0 | 0 | 0 | 0 | 3 |

Continued on next page

**Table A.1 – continued from previous page**

| Variable | N | Mean | Min | P25 | Median | P75 | Max |
|---|---|---|---|---|---|---|---|
| Monastery Dummy | 16,290 | 0.04 | 0 | 0 | 0 | 0 | 1 |
| Parliamentary Enclosure 1750-1840 | 16,290 | 0.37 | 0 | 0 | 0 | 1 | 1 |
| No. of Gentry | 16,290 | 0.67 | 0 | 0 | 0 | 1 | 12 |
| ln(Lay Subsidy income per capita) | 16,290 | 1.65 | 0 | 0 | 0 | 3.37 | 8.80 |
| Distance to Road (km) | 16,290 | 10.32 | 0 | 2.74 | 6.77 | 13.11 | 142.57 |
| Distance to River (km) | 16,290 | 65.53 | 0 | 22.55 | 50.36 | 94.64 | 290.34 |
| Distance to Coast (km) | 16,290 | 36.13 | 0 | 13.56 | 32.09 | 54.38 | 106.77 |
| Pilgrimage Proximity Dummy (15km) | 16,290 | 0.16 | 0 | 0 | 0 | 0 | 1 |
| Market in 1600 | 2,146 | 0.31 | 0 | 0 | 0 | 1 | 1 |
| Population 1603 | 1,656 | 181.32 | 0 | 79.75 | 123 | 220 | 1,838 |
| Potential Catholic % (1603) | 1,654 | 0 | 0 | 0 | 0 | 0 | 0.31 |
| Mean Elevation | 1,656 | 69.20 | 0.86 | 23.56 | 62.28 | 103.80 | 260.38 |
| **MPs** | | | | | | | |
| True Religion 1553 | 541 | 0.08 | 0 | 0 | 0 | 0 | 1 |
| Opponents of Mary 1555 | 541 | 0.16 | 0 | 0 | 0 | 0 | 1 |
| Monastic Land | 541 | 0.31 | 0 | 0 | 0 | 1 | 1 |
| Merchant Dummy | 541 | 0.11 | 0 | 0 | 0 | 0 | 1 |
| Cromwell Dummy | 541 | 0.11 | 0 | 0 | 0 | 0 | 1 |
| Age1553 | 309 | 38.88 | 19 | 31 | 35 | 44 | 93 |
| Age1555 | 312 | 37.79 | 18 | 29 | 36 | 43 | 97 |

All variables rounded to two decimal places.

## *E Explanatory Variables*

**Measures of Monastic Land** Heldring et al. (2021) provides the locations of monasteries and land owned by monasteries, both of which were confiscated in the dissolution. The dataset includes 845 monasteries.[42] The dataset also includes information on monastic land located at the parish level.

Information on the monastic lands are originally from the *Valor Ecclesiasticus* (VE), the 1535 survey of monastic lands overseen by Thomas Cromwell. Heldring et al. (2021) assign monastic lands to parishes from the *GIS of the Ancient Parishes of England and Wales*. The GIS of Ancient Parishes uses the administrative structure of England around 1850, whereas the data on monastic land is from several centuries earlier. Even though the parishes are not from the same time period, since we are concerned with location, this is not a problem for the variables we construct. Heldring et al. (2021) then assigns monastic lands according to the VE to each parish either by name or by referring to Ordnance Survey grid references if the names were unavailable. The data that we use includes the location of 16,290 parishes and a dummy variable for the presence of monastic land.

To assign monastic lands to MPs representing boroughs we obtain information on the locations of Parliamentary boroughs from Angelucci et al. (2022). We use the website *History of Parliament* to find which boroughs were represented in parliament in our time period (https://www.historyofparliamentonline.org/). There were 151 boroughs represented in the period

[42] It excludes a small number of insignificant monasteries.

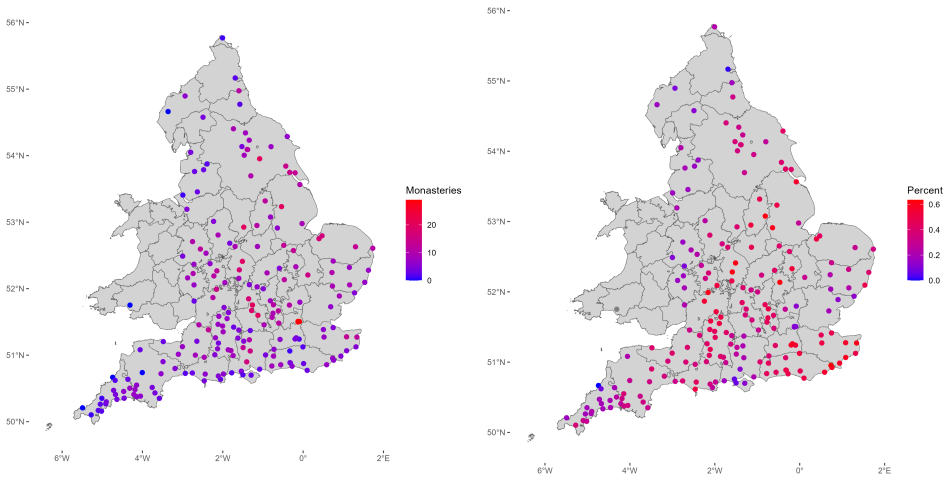



Figure A.3: Monasteries and Monastic Lands assigned to 20km Borough Buffers

from 1509-1558 and 201 boroughs represented in the 1660-1690 period. Both of these time periods will cover the outcome variables we are interested in for the Marian Parliaments and the Exclusion Parliaments respectively.

In order to construct our variables, we create buffers of 20km around each borough. Within the buffer we count the number of monasteries present, and the proportion of parishes that had monastic land. So if there are 5 parishes within 20km of a borough and 3 of them had monastic land, the borough has a monastic land proportion of 0.6. We use a proportion in order to avoid monastic land counts correlating with population size or economic activity. See Figure A.3 for a representation of these measures geographically across boroughs. We also report results using larger and smaller buffers.

### *E.1 Measures of Early Catholic Sentiment*

We construct a measure of Pre-Reformation Christian, that is, Catholic sentiment, using the location of Catholic shrines. We use 15 shrines from `https://en.wikipedia.org/wiki/Category:Roman_Catholic_shrines_in_the_United_Kingdom` that are from prior to the reformation. For each parish, we count the number of shrines that are within 25 kilometers.

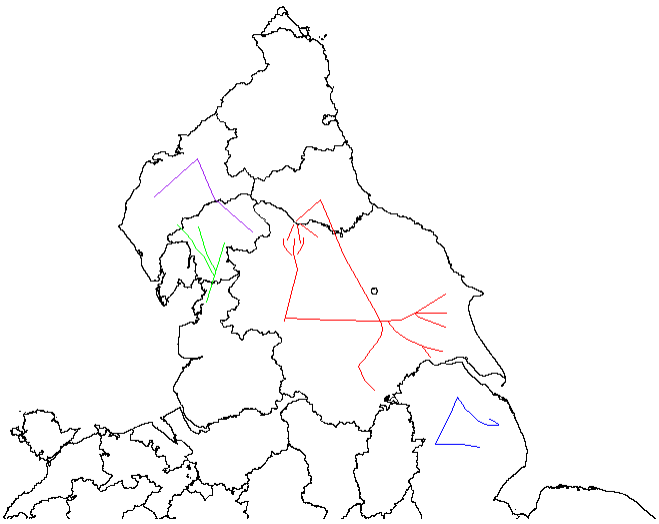
In order to identify parishes with proximity to the Pilgrimage of Grace, we used the software QGIS to generate a shapefile of the four paths of the rebels in Figure A.4. We then generated a distance for each parish to the nearest map and identified all parishes within 15 km of any of the paths.

## *F Control Variables*

## *G Early Protestants*

The data for Protestants before the dissolution was taken from *A Biographical Register of Early English Protestants: 1525-1558* (Fines, 1981, 1985). The *Register* is a list of nearly 3,000 Protestants who we are aware of from either their public reputation or their mention in public documents. For a large number of these biographical entries we have their primary location, as well as the year in which they are first noted for Protestantism. We subset this register to all those whose Protestant activity was noted for years before 1540, the year in which monasteries and monastic land began to

Figure A.4: The Path of the Pilgrimage of Grace in 1536/7



We denote the route of Lincolnshire rebels in blue; the route of Yorkshire rebels in red; the route of Cumberland rebels in purple; the route of Westmorland rebels is in green. Created by the authors based on MacCulloch and Fletcher (1988).

WINGRAVE, William
Hughenden, Buckinghamshire

Attended meeting at John Taylor's house, 1530

F., iv, 584

Figure A.5: Entry for William Wingrave in Fines (1985)

be sold in large quantities. We identify 604 Protestants noted before 1540. These individuals serve as a proxy for Protestant sentiment exogenous to the effects of the dissolution of the monasteries. The individuals were identified with boroughs in our dataset. In cases where the individual was from a parish or smaller entity not yet represented in Parliament they were identified with the nearest borough for the relevant time period. If they were not connected with any location, they were dropped.

See Figure A.5 for an example entry. William Wingrave was noted for attending a Protestant meeting in 1530 placing him in our relevant time period. The location he is associated with Hughenden, Buckinghamshire, however, was not represented in Parliament in time period. Thus, we assign Wingrave to Wycombe, the nearest borough represented in Parliament in our time period.

See Figure A.6 for a map of Protestants before 1540. The highest concentration of early Protestantism is around London, at the universities, and in the southeastern counties.

### *H The Marian Martyrs*

Mary I was a staunch Catholic. She did not immediately initiate a persecution of Protestants upon coming to the throne. But her ultimate desire to return to Rome made the resumption of heresy trials inevitable. Resurrecting the heresy legislation of her predecessors in an environment in which religious preferences had dramatically changed meant criminalizing a non-trivial part of the population.

Figure A.7 reports the place of execution and residence of the 284 Protestants executed by Mary

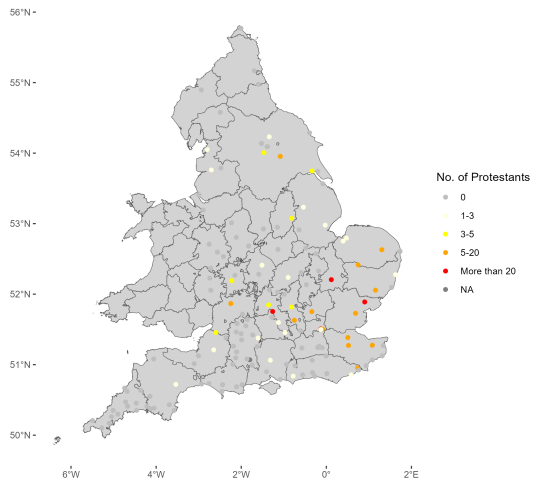
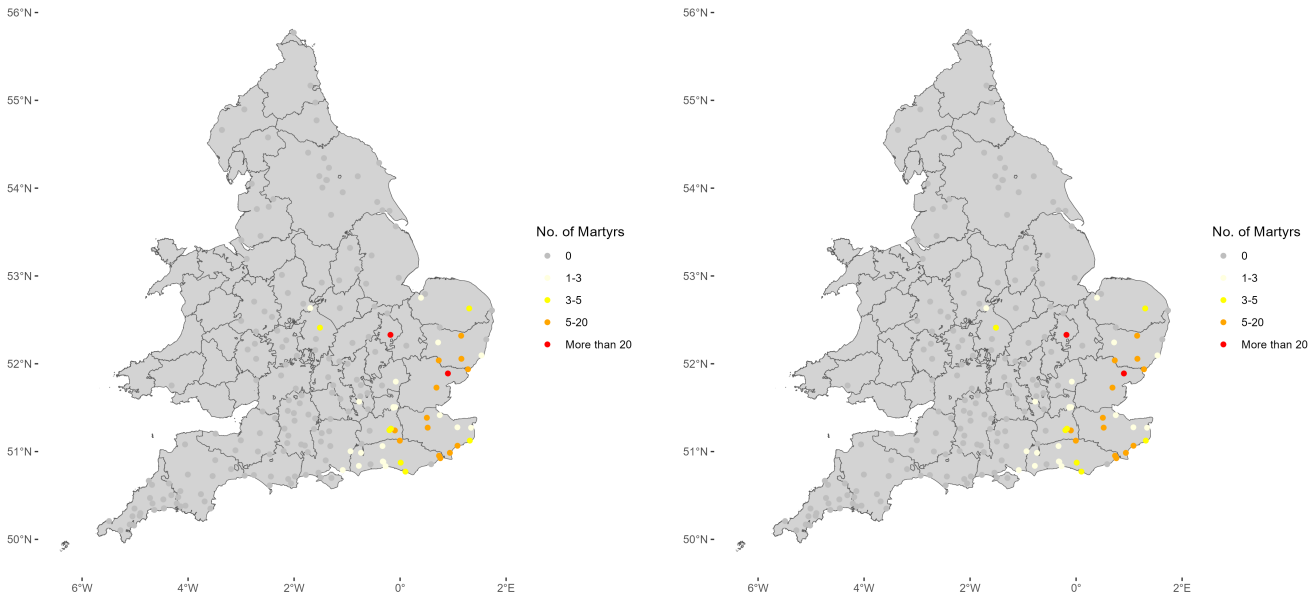



Figure A.6: Distribution of Early (pre-1540) Protestants at the Parliamentary borough-level.

Figure A.7: The place of execution and residence of Protestants ("Marian Martyrs") executed for heresy during the reign of Mary I




(a) "Marian Martyrs" by place of execution at the Parliamentary borough-level

(b) "Marian Martyrs" by place of residence at the Parliamentary borough-level

as heretics between 1555 and 1558. In general, victims came from the south-east and were not members of the elite. The majority of the elite who had become Protestants in the previous reign now returned to Catholics, though a number fled to the Netherlands.

Table A.2: County Assignments to Region

| Region Name | Counties |
|---|---|
| North | Westmoreland, Yorkshire, Cumberland, Durham, Northumberland, Lancashire |
| Midlands | Lincolnshire, Buckinghamshire, Nottinghamshire, Worcestershire, Berkshire, Cheshire, Staffordshire, Warwickshire, Northamptonshire, Derbyshire, Huntingdonshire, Leicestershire, Salop, Rutland |
| West & South-West | Gloucestershire, Wiltshire, Dorset, Cornwall, Devon, Wales, Herefordshire, Somerset, Monmouthshire |
| East & South-East | Kent, Hampshire, Oxfordshire, Berkshire, Middlesex, Sussex, Surrey, Hertfordshire, Huntingdonshire, Essex, Cambridgeshire, Norfolk, Suffolk, Bedfordshire |

### *H.1 Borough Controls*

The other controls for each borough were taken from Angelucci et al. (2022). We separate these controls into two groups: Geographic Controls and Trade and Government Controls.

**Geographic Controls** *Navigable Rivers* is a dummy for whether the borough was on a medieval navigable river (see Angelucci et al., 2022). *Sea Coast* indicates whether boroughs are on the sea coast or on a navigable river within 5km of the coast. *Soil Suitability* measures the suitability of soil in a 10km radius to grow low-input rain-fed cereals (FAO data; see Angelucci et al. 2022).

**Trade and Government Controls** *Roman Roads* indicates proximity to a Roman road (data from Hindle, 1976; Angelucci et al., 2022). *Justice of the Peace* indicates whether a borough had governing body members listed as JPs between 1373 and 1660 (from Weinbaum, 1973; Angelucci et al., 2022). *14th Century Commercial Center* indicates boroughs identified as commercial centers by Masschaele (1997).

**Population** We also use a variable from Angelucci et al. (2022) for mid-seventeenth century population estimates, the first time period for which such a figure is widely available at the borough level. They collected the data from https://discover.ukdataservice.ac.uk/catalogue?sn=7154 and Langton (2000).

### *H.2 Regional Fixed Effects*

We use the counties for each borough to define the regions. We construct region variables based according to Table A.2. We use Claude Sonnet (3.5) to allocate historical counties to evenly sized geographical regions.

### *I Individual MP Data*

The data used for the individual regressions in Table 1 was also collected from the History of Parliament website. The data was collected by RAs who read the biographical entries for each MP coding for various items. Most notably we recorded whether they were noted as being involved in the purchase or trade of monastic lands. For example, Nicholas Arnold's biography notes "Arnold attended the reception of Anne of Cleves in 1540 and fought in France four years later. He profited by his services, securing valuable church property, his most important acquisition being lands on the

Table A.3: Prominent Religious and Secular Male Names

| Prominent "Religious" Names | Prominent "Secular" Names |
|---|---|
| John | William |
| James | Henry |
| Nicholas | Richard |
| Thomas | Ralph |
| Christopher | Edmund |
| Jerome | Arthur |
| Anthony | Alexander |
| Simon | Giles |
| Martin | Gilbert |
| Mathew | Rhys |
| Lawrence | Roger |
| George | |

Gloucester-Monmouthshire border formerly belonging to the monastery of Llanthony."[43] Arnold was rewarded for his services to Henry VIII in monastic land and is listed as an opponent of Mary in the 1555 parliament. The age variable was estimated from the birth information provided with each biography. The other variables on merchant activity and connections to Cromwell were also gathered from the biographies. Arnold is also noted as being a "Servant of Cromwell" so we assign him as a 1 for that variable.

## *J Religious Naming Index*

Following Andersen and Bentzen (2024), we create an index of traditional religiosity based on the naming practices of MPs in our dataset. We classify names as "religious" (associated with Christ, the apostles, or major saints, e.g. John, Thomas, Christopher) or "secular" (e.g. William, Henry, Richard). Table A.3 lists the prominent names in each category. Some names are ambiguous — for example, Edward could honor Saint Edward the Confessor or simply King Edward I — and we explore alternative codings for robustness. We conduct a comparable analysis for female names.

The index is the proportion of an MP's children with Catholic names. For example, Thomas Stoughton (1521-1576), likely a Catholic into Elizabeth's reign, named his sons Lawrence and Adrian and daughters Mary and Katherine, giving him a score of 100%. This measure is specific to the mid-16th century, before distinctively Protestant naming patterns (such as Old Testament names) had become widespread.

## *K James II's Three Questions*

In November 1687 James II ordered his lord lieutenants to canvas the opinions of local elites across all of England and Wales with respect to his proposed policy of repealing. the Penal Acts and Test laws that applied to Catholics and Protestant dissenters. Three questions were asked:

1. *If in case he shall be chosen Knight of the Shire, or Burgess of a Town, when the King shall think fitt to call a Parliament, whether he will be for taking off the Penal Laws and the Tests?*
2. *Whether he will assist and contribute to the election of such members as shall be for taking off the Penal Laws and Tests?*
3. *Whether he will support the King's Declaration for Liberty of Conscience, by living friendly with those of all perswasions, as subjects of the same Prince, and good Christians ought to do?*

[43] Arnold's biography can be found here: http://www.historyofparliamentonline.org/volume/1509-1558/member/arnold-nicholas-1509-80

> *As he shall ask these questions of all Deputy Lieutenants and Justices of the Peace, so shall he particularly write down what every one answers, whether he consents, refuseth, or is doubtfull. That he likewise do bring the King as good an account, as he can of all the several Corporations within his Lieutenancy, what powers of such as are willing to comply with these measures have creditt enough of their own to be chosen Parliament men, or may be chosen if assisted by their friends. And lastly what Catholicks and what Dissenters are fitt to be added either to the list of Deputy Lieutenants, or to the Commission of the Peace throughout the said Lieutenancy* (quoted in Walker, 2011, 69).

This canvassing was intended to gauge local support among the landed gentry for James's policy. However, those asked were *not* a random sample of local elites. Lord Lieutenants likely approached local elites who they felt might be amenable to James's policies. Moreover, the methods used in different counties varied. The reports for some counties contain detailed answers to the questions whereas the answers for counties are simply "yes" or "no's". Lord Lieutenants in some counties were more aggressive than others in insisting that local notable obey their summons (even visiting their homes). Importantly, the canvassing took a long time to be completed. Therefore, counties canvassed earlier tended to show more support for the King's policies than counties canvassed later (we take this into account by using month fixed effects in some specifications. Finally, the results from several counties, such as Cambridgeshire, have not survived (the reasons for which survived and which didn't appear idiosyncratic so we are not concerned about selective survival bias).

The total number of individuals canvassed in England was 1357 with an additional 273 canvassed in Wales. The attention of historians has focused on the respondents answers to Question 1, whether or not they would support the repeal of the Penal Laws and the Test Acts. Overall around 30% of respondents in England and 9% of Welsh respondents supported repeal. But there was a lot of regional variation with 62.5% supporting repeal in Worcestershire and just 2.4% supporting it in Cornwall.

These questions have been analyzed by several scholars. Carswell (1969) compiled this data at the county level based on the versions of the records published by Duckett (1882). However, there are several inconsistencies in this data, so we rely on the updated lists published by Walker (2011). Our main dependent variable is the percentage of respondents supporting repeal.

In addition to this data, Scott Sowerby provided us with a coding of the individual MPs who were asked the Three Questions.

# 3 Empirical Appendix

This section of the Appendix provides additional results and robustness checks to those in the main paper.

## *A Balance on Observables*

Tables A.4 and A.5 report balance on observables for the Parliamentary boroughs in the 1509 and 1660 samples respectively. Overall, the main differences in boroughs with more or fewer monastic lands are that the former are more likely to have high quality land, be inland, and to be close to Cambridge. This latter difference is mostly driven by the greater density of monastic lands in the historically more prosperous east of the country. We control for these variables in all of our main specifications.

Table A.4: Balance Table: 1509 Boroughs (Marian Parliaments Sample)

| | (1) | | | |
|---|---|---|---|---|
| | Below Mean | Above Mean | Difference | p-value |
| Soil Suitability Index (10km) | 5.130 | 4.603 | 0.527*** | 0.000 |
| Urban | 0.449 | 0.313 | 0.136* | 0.086 |
| Domesday Borough | 0.406 | 0.482 | -0.076 | 0.351 |
| Navigable River | 0.304 | 0.253 | 0.051 | 0.484 |
| Sea Coast | 0.420 | 0.313 | 0.107 | 0.174 |
| Roman Road | 0.391 | 0.386 | 0.006 | 0.943 |
| Justices of the Peace | 0.580 | 0.398 | 0.182** | 0.025 |
| Commercial Center (14th C) | 0.362 | 0.277 | 0.085 | 0.263 |
| Monasteries (20km) | 7.580 | 8.265 | -0.685 | 0.441 |
| Pre-Reformation Shrines | 0.130 | 0.084 | 0.046 | 0.483 |
| Pre-1540 Protestants | 4.551 | 2.012 | 2.539* | 0.099 |
| Lollard Presence | 0.986 | 1.373 | -0.388 | 0.329 |

Balance table for Marian Parliaments boroughs sample.
Boroughs split by above/below mean monastic land share (20km).
* p¡0.10, ** p¡0.05, *** p¡0.01

Table A.5: Balance Table: 1660 Boroughs (Exclusion Crisis Sample)

| | (1) | | | |
|---|---|---|---|---|
| | Below Mean | Above Mean | Difference | p-value |
| Soil Suitability Index (10km) | 5.047 | 4.572 | 0.475*** | 0.000 |
| Population (17th Century) | 5865.022 | 1742.929 | 4122.093 | 0.209 |
| Navigable River | 0.250 | 0.264 | -0.014 | 0.819 |
| Sea Coast | 0.375 | 0.292 | 0.083 | 0.215 |
| Roman Road | 0.365 | 0.368 | -0.003 | 0.961 |
| Distance to Cambridge | 228.588 | 152.765 | 75.823*** | 0.000 |
| Lollard Presence | 0.667 | 1.104 | -0.437 | 0.110 |
| Pre-1540 Protestants | 3.242 | 1.613 | 1.629 | 0.141 |
| Justices of the Peace | 0.438 | 0.358 | 0.079 | 0.254 |
| Broad Franchise (1660-90) | 0.716 | 0.706 | 0.010 | 0.879 |
| Commercial Center (14th C) | 0.260 | 0.226 | 0.034 | 0.576 |

Balance table for Exclusion boroughs sample.
Boroughs split by above/below mean monastic land share (20km).
* p¡0.10, ** p¡0.05, *** p¡0.01

## *B Controlling for Proxies for Pre-Dissolution Protestant Sentiment*

Table A.6: Controlling for Proxies for Pre-Dissolution Protestant Sentiment

| | True Religion 1553 | | | | Opposition to Mary 1555 | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Monastic Land % (20km) | 0.446 | 0.442** | 0.403 | 0.403 | 0.510 | 0.433 | 0.422 | 0.568 |
| | (0.172)** | (0.169)** | (0.187)** | (0.200)** | (0.257)** | (0.252)* | (0.272) | (0.274)* |
| | [0.203]** | [0.209]** | [0.200]** | [0.246]** | [0.238]* | [0.238]* | [0.248] | [0.245]** |
| ProtestantsPre1540_1509 | 0.000355 | | | -0.000143 | 0.00669** | | | 0.00654** |
| | (0.00266) | | | (0.00289) | (0.00275) | | | (0.00280) |
| Lollard Presence | | 0.00271 | | 0.00210 | | 0.0157 | | 0.0104 |
| | | (0.0107) | | (0.0112) | | (0.0167) | | (0.0157) |
| Distance to Cambridge | | | -0.000167 | -0.000161 | | | -0.0000440 | 0.000252 |
| | | | (0.000315) | (0.000345) | | | (0.000407) | (0.000419) |
| Monasteries | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Geographic Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Econ., Religious, & Pol. Controls | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 140 | 140 | 140 | 140 | 143 | 143 | 143 | 143 |
| Adjusted $R^2$ | 0.025 | 0.025 | 0.027 | 0.012 | 0.012 | 0.003 | -0.008 | 0.004 |

**Table Notes:** This table controls separately for three different measures of pre-Dissolution Protestant sentiment: the number of pre-1540 Protestants; the number of Lollards; and geographic distance to Cambridge, the intellectual center of the early Reformation. Geographic, economic, political, and religious controls are the same as in Table 2. Robust standard errors in parentheses. Conley standard errors at a radius of 100km in square brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

## *C No Relationship Between Catholic Naming Practices and Links to Monastic Lands*

Table A.7 establishes that there was no empirical link between religious names and acquiring monastic land among MPs. For this analysis we use the same MP data as in Table 1. We find no evidence that MPs with a more Catholic or religious background were less likely to acquire monastic lands. If anything the coefficient estimate we obtain is positive (though statistically insignificant). This is entirely consistent with anecdotal evidence about Catholic elites such as the Duke of Norfolk acquiring monastic properties.

Table A.7: Testing Prediction 1: No Relationship Between Catholic Naming Practices and Links to Monastic Lands

| | Links to Monastic Lands | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Catholic Name Index | 0.0853 | 0.0482 | 0.0808 | -0.0925 |
| | (0.291) | (0.292) | (0.293) | (0.297) |
| Number of Sons | | -0.0694 | -0.0728 | -0.0953 |
| | | (0.0600) | (0.0604) | (0.0652) |
| Merchant | | | -0.906 | -0.743 |
| | | | (0.561) | (0.567) |
| Links to Cromwell | | | | 1.384*** |
| | | | | (0.432) |
| Constant | -0.732*** | -0.634*** | -0.588*** | -0.628*** |
| | (0.197) | (0.212) | (0.214) | (0.215) |
| Observations | 287 | 287 | 287 | 287 |
| Adjusted $R^2$ | | | | |

**Table Notes:** This table provides evidence that MPs with more or less Catholic or Protestant sentiment were not more likely to purchase monastic lands. Controls are the same as in Table 4. Robust standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

## *D Dropping Boroughs*

In Table A.8 we drop commercially important boroughs. In Columns (1) and (5) we drop boroughs that were important commercial centers in the 14th century. In Columns (2) and (6) we drop boroughs that were assessed at being in the top 10% of distribution of taxable wealth in the Domesday book; and in Columns (3) and (7) we drop boroughs that were assessed as being in the top 10% of the distribution of the poll tax in 1377.

Table A.8: Testing Prediction 1: Dropping Commercially Developed Boroughs

| | "True Religion" | | | "Opposing Mary" | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Monastic Land % (20km) | 0.464 | 0.415 | 0.381 | 0.473 | 0.399 | 0.372 |
| | (0.189)** | (0.156)*** | (0.161)** | (0.281)* | (0.207)* | (0.233) |
| | [0.200]** | [0.147]*** | [0.153]*** | [0.235]** | [0.178]** | [0.190]* |
| Constant | -0.111 | 0.269 | -0.0915 | 0.168 | -0.0966 | 0.126 |
| | (0.151) | (0.290) | (0.149) | (0.224) | (0.153) | (0.239) |
| Observations | 94 | 96 | 133 | 134 | 134 | 136 |
| Adjusted $R^2$ | 0.046 | 0.051 | 0.033 | 0.020 | 0.015 | 0.015 |
| Dropping | 14th c. Com. Centers | Top 10% Domesday | Top 10% Poll Tax | 14th c. Com. Centers | Top 10% Domesday | Top 10% Poll Tax |

Geographic and economic controls include agricultural land quality, a dummy variable for being on an ocean, the presence of a river, and a Roman road. Robust standard errors in parentheses. Conley standard errors at a radius of 100km in square brackets * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

## *E County-Level Analysis*

Our main specifications employ borough MPs in order to conduct our analysis at the borough level. This enables us to make use of more disaggregated data and to exploit variation at a more granular level. Our results also hold at the historic county-level as we now demonstrate. The main limitation is that we are underpowered as there are only 37 historical English counties in our dataset.

Table A.9 reports these results. Cols. 1 and 4 presents the simple bivariate relationship between the proportion of parishes in a county that had monastic lands and support for Protestantism ("True Religion") in 1553 or opposition to Mary in 1555. In Cols. 2 and 5 we introduce a basic set of geographic and economic controls for the share of a county on the coast, with a river, average land quality, the natural logarithm of that county's area and the number of Roman roads passing through it. Finally, in Col. 3 and 6 we include the following set of controls for religious sentiment: the number of Marian exiles, a dummy variable for pre-1540 Protestants and the number of Catholic shrines. Overall, we find a strong relationship between our explanatory variable and support for Protestantism in the 1550s.

A second related issue is that in our main analysis we focus on the 140-143 borough MPs in our dataset. We do not include the 40 or so county MPs who represented county rather than borough seats. In Table A.9 we combine both county and borough MPs. In Table A.10 below we report our result *only* including these County MPs. The magnitudes we find are broadly inline with our main predictions, though they not estimated with any precision due to the small numbers of individuals involved.

Table A.9: Testing Prediction 1: County Level Analysis

| | Supporters of True Religion | | | Opponents of Mary | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Monastic Land | 0.358** | 0.306** | 0.361** | 0.396** | 0.612** | 0.616* |
| | (0.160) | (0.146) | (0.175) | (0.193) | (0.269) | (0.310) |
| Monasteries | | 0.00519*** | 0.00458** | | 0.00173 | 0.00234 |
| | | (0.00174) | (0.00191) | | (0.00306) | (0.00344) |
| Geographic & Economic Controls | | Yes | Yes | | Yes | Yes |
| Religious Controls | | | Yes | | | Yes |
| Constant | 0.0307 | -0.348 | -0.550 | 0.0918 | 0.115 | 0.159 |
| | (0.0500) | (0.291) | (0.410) | (0.0668) | (0.598) | (0.716) |
| Observations | 39 | 37 | 37 | 39 | 37 | 37 |
| Adjusted $R^2$ | 0.116 | 0.327 | 0.285 | 0.059 | -0.003 | -0.024 |

Geographic and economic controls include agricultural land quality, a dummy variable for being on an ocean, the presence of a river, and a Roman road. We also control for the natural logarithm of that county's area. Religious controls refer to the number of Marian exiles, a dummy variable for pre-1540 Protestants and the number of Catholic shrines. Robust standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.10: Testing Prediction 1: County MPs Only

| | Supporters of True Religion | | | Opponents of Mary | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Monastic Land | 0.578 | 0.972 | 1.302* | 0.993 | 1.604 | 1.705 |
| | (0.458) | (0.648) | (0.701) | (0.699) | (1.185) | (1.360) |
| Monasteries | | 0.000954 | -0.00236 | | -0.0161 | -0.0149 |
| | | (0.00787) | (0.00883) | | (0.0155) | (0.0181) |
| Geographic & Economic Controls | | Yes | Yes | | Yes | Yes |
| Religious Controls | | | Yes | | | Yes |
| Constant | 0.0307 | -0.348 | -0.550 | 0.0918 | 0.115 | 0.159 |
| | (0.0500) | (0.291) | (0.410) | (0.0668) | (0.598) | (0.716) |
| Observations | 39 | 37 | 37 | 39 | 37 | 37 |
| Adjusted $R^2$ | -0.001 | 0.084 | 0.042 | 0.015 | -0.118 | -0.184 |

Geographic and economic controls include agricultural land quality, a dummy variable for being on an ocean, the presence of a river, and a Roman road. We also control for the natural logarithm of that county's area. Religious controls refer to the number of Marian exiles, a dummy variable for pre-1540 Protestants and the number of Catholic shrines. Robust standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

## *F Varying the Size of the Conley Standard Error Radius*

A standard issue with Conley standard errors is choice of the size of the buffer. Kelly (2019) noted that many studies that use spatially corrected standard errors adopt restrictive or overly small bandwidths. As we are agnostic about the degree of spatial dependence in our data, in Table A.11 we experiment we varying the size of the buffer. We re-run the main regressions with Conley standard errors with and without Region FEs (that is columns (5) and (6) of the main tables above) for the three main outcome variables. The first column reports the effect size and the columns to the right report the Conley standard errors at buffers from 50km to 250km. Our estimates remain fairly precisely estimated as we vary the size of the buffer.

Table A.11: Varying the Size of the Buffer for Conley Standard Errors

| Dep. Var. | True Religion 1553 | | | Opponents 1555 | | | Exclusion Mar. 1679 | | |
|---|---|---|---|---|---|---|---|---|---|
| Monastic Land Buffer | (15km) | (20km) | (25km) | (15km) | (20km) | (25km) | (15km) | (20km) | (25km) |
| Effect Size | 0.357 | 0.456 | 0.545 | 0.299 | 0.411 | 0.537 | 0.421 | 0.538 | 0.456 |
| Robust Std. Errors | (0.153)** | (0.169)*** | (0.174)*** | (0.224) | (0.255) | (0.256)** | (0.209)** | (0.219)** | (0.236)* |
| 25km | [0.146]** | [0.164]*** | [0.180]*** | [0.217] | [0.110] | [0.249]** | [0.202]** | [0.224]** | [0.241]* |
| 50km | [0.179]* | [0.196]** | [0.205]*** | [0.198] | [0.114] | [0.247]** | [0.147]*** | [0.174]*** | [0.191]** |
| 75km | [0.203] | [0.215]** | [0.219]** | [0.154]* | [0.063]* | [0.221]** | [0.166]** | [0.227]** | [0.226]** |
| 100km | [0.202] | [0.202]** | [0.199]*** | [0.211] | [0.100] | [0.230]** | [0.096]*** | [0.151]*** | [0.122]*** |
| 125km | [0.201] | [0.193]** | [0.189]*** | [0.156]* | [0.039]** | [0.193]*** | [0.150]*** | [0.196]*** | [0.144]*** |
| 150km | [0.212] | [0.223]** | [0.227]** | [0.141]** | [0.015]** | [0.145]*** | [0.103]*** | [0.182]*** | [0.085]*** |
| 175km | [0.222] | [0.227]** | [0.237]** | [0.137]** | [0.007]*** | [0.150]*** | [0.188]** | [0.219]** | [0.152]*** |
| 200km | [0.214] | [0.210]** | [0.210]** | [0.173]* | [0.048]** | [0.206]** | [0.130]*** | [0.196]*** | [0.151]*** |
| N | 141 | 141 | 141 | 143 | 143 | 143 | 189 | 189 | 189 |
| **With Region FEs** | | | | | | | | | |
| Effect Size | 0.256 | 0.337 | 0.395 | 0.227 | 0.335 | 0.452 | 0.338 | 0.434 | 0.337 |
| Robust Std. Errors | (0.156) | (0.172)* | (0.182)** | (0.223) | (0.258) | (0.273) | (0.214) | (0.222)* | (0.236) |
| 25km | [0.147]* | [0.166]** | [0.187]** | [0.220] | [0.266] | [0.281] | [0.205] | [0.226]* | [0.246] |
| 50km | [0.169] | [0.188]* | [0.199]** | [0.183] | [0.254] | [0.259]* | [0.157]** | [0.178]** | [0.197]* |
| 75km | [0.201] | [0.212] | [0.216]* | [0.082]*** | [0.159]** | [0.162]*** | [0.172]* | [0.214]** | [0.217] |
| 100km | [0.182] | [0.187]* | [0.181]** | [0.159] | [0.186]* | [0.159]*** | [0.111]*** | [0.150]*** | [0.138]** |
| 125km | [0.185] | [0.176]* | [0.162]** | [0.068]*** | [0.098]*** | [0.094]*** | [0.167]** | [0.199]** | [0.144]** |
| 150km | [0.187] | [0.197]* | [0.196]** | [0.085]*** | [0.124]*** | [0.090]*** | [0.134]** | [0.185]** | [0.087]*** |
| 175km | [0.190] | [0.194]* | [0.204]* | [0.096]* | [0.168]** | [0.182]** | [0.205] | [0.215]** | [0.152]** |
| 200km | [0.191] | [0.184]* | [0.171]** | [0.155] | [0.213] | [0.232]* | [0.112]*** | [0.154]*** | [0.147]** |
| N | 141 | 141 | 141 | 143 | 143 | 143 | 189 | 189 | 189 |

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

## *G Spatial Unit Roots*

We employ spatially adjusted standard errors in all of our regressions. However, econometric advances by Müller and Watson (2022) suggest that this may be insufficient in the presence of strong spatial dependence. Specifically, analogously to well-established results in time series econometrics, the presence of spatial unit roots can lead to spurious statistical significance.

We follow the practitioners guide for testing for, and handling strong spatial dependence provided by Becker et al. (2025) and use their STATA package SPUR.

Specifically, following Becker et al. (2025), we test for a spatial unit root in our dependent variables using the SPURTEST command. We reject the presence of a spatial unit root for our two main dependent variables: True Religion (1553) and Expulsion (1679). Therefore the standard econometric methods employed in Table 2 are appropriate.

We cannot reject the null that there is spatial unit root in the Opponents of Mary in 1555 variable. We spatially differenced all our variables and rerun our regressions. The coefficient estimate we obtain is large in magnitude but statistically insignificant (p-value of 0.179).

## *H Placebo Testing for Effect on Early Protestants*

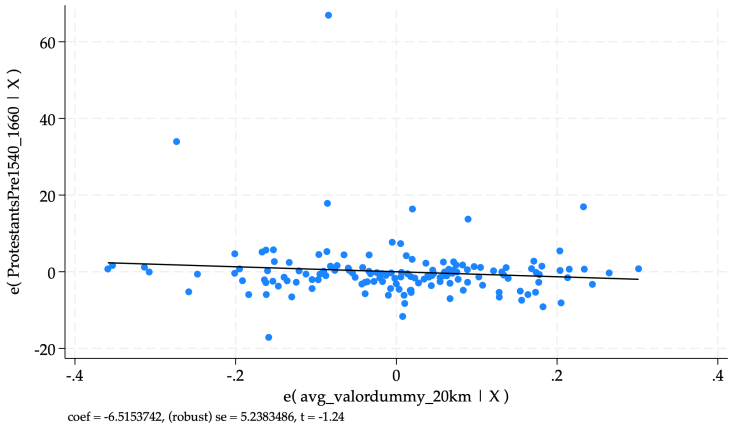
We conduct a placebo test between our main explanatory variable of monastic land concentration and the most important confounder that could affect our outcome variable, that is the intensity of Protestant activity. Table A.12 and Figure A.8 show that there is no relationship between those two measures.

Table A.12: Testing Prediction 1: Further Placebo Tests for Early Protestantism

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Monastic Land % (20km) | -6.312 | -9.332 | -7.987 | -7.959 | -7.854 |
| | (6.160) | (6.574) | (5.062) | (4.974) | (5.009) |
| | [7.371] | [6.017] | [6.669] | [6.698] | [5.332] |
| Monasteries (20km) | | 0.696** | 0.647* | 0.610* | 0.483 |
| | | (0.322) | (0.334) | (0.332) | (0.297) |
| Geography Controls | | | Yes | Yes | Yes |
| Political Controls | | | | Yes | Yes |
| Region FEs | | | | | Yes |
| Constant | 4.565 | 0.343 | -3.318 | -3.178 | -7.919 |
| Standardized $\beta$ | -0.114 | -0.168 | -0.144 | -0.144 | -0.142 |
| Observations | 201 | 201 | 201 | 201 | 201 |
| Adjusted $R^2$ | 0.008 | 0.208 | 0.204 | 0.199 | 0.272 |

**Tables Notes:** Robust standard errors in parentheses. Conley standard errors at a radius of 100km in square brackets * $p < 0.10$, ** $p < 0.05$, ***.

Figure A.8: No Relationship Between Monastic Lands and Pre-Dissolution Protestantism




This figure reports the results of a placebo regression that demonstrates that there was no relationship between monastic lands and pre-1540 measures of English Protestantism. Controls include the direct presence of monasteries, population, soil quality, whether the borough is on the sea coast, a navigable river or a Roman road, whether it has a justice of the peace and whether it was a commercial center in the middle ages

## *I Ancestral Monastic Land Holdings and the Exclusion Crisis*

In our analysis of the 1553 and 1555 parliaments, we found that whether an individual MP had direct links to the sale of monastic lands predicted their stance on opposing pro-Catholic policies. Here we ask whether an MP's *ancestors* having acquired monastic lands still had predictive power in explaining their stance during the Exclusion Crisis over a century later.

Table A.14 reports MP-level regressions where the dependent variable is whether an MP voted to exclude James, Duke of York from the succession. Our key explanatory variable is a dummy for whether the MP's ancestors received monastic land during the Dissolution. Across all specifications—from a simple bivariate regression (Column 1) to specifications including political affiliation, religion,

Table A.13: Testing Prediction 1: Controlling for Protestants Executed Under Mary

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Monastic Land % (20km) | 0.388 | 0.471 | 0.465 | 0.384 | 0.509 | 0.490 |
| | (0.208)* | (0.20)** | (0.246)* | (0.206)* | (0.224)** | (0.253)* |
| | [0.153]** | [0.139]*** | [0.153]*** | [0.146]** | [0.172]*** | [0.110]*** |
| Population | Yes | Yes | Yes | Yes | Yes | Yes |
| Monasteries (20km) | Yes | Yes | Yes | Yes | Yes | Yes |
| Pre-Dissolution Protestantism | | Yes | Yes | | Yes | Yes |
| Geography Controls | | Yes | Yes | | Yes | Yes |
| Political/Econ Controls | | | Yes | | | Yes |
| Region FEs | | | Yes | | | Yes |
| Number of Marian Martyrs | | | | Yes | Yes | Yes |
| Any Marian Martyrs | Yes | Yes | Yes | | | |
| Constant | 0.188*** | 0.397* | 0.449* | 0.183** | 0.400* | 0.453* |
| | (0.0702) | (0.212) | (0.233) | (0.0705) | (0.213) | (0.233) |
| Standardized $\beta$ | 0.14 | 0.26 | 0.31 | 0.14 | 0.25 | 0.31 |
| Observations | 190 | 189 | 189 | 190 | 189 | 189 |
| Adjusted $R^2$ | 0.039 | 0.044 | 0.054 | 0.035 | 0.045 | 0.055 |

**Table Notes:** This table establishes an association between the presence of monastic lands and voting for the exclusion of the Catholic future James II from the throne while controlling for the number of Protestants executed as heretics by Mary between 1555-1558 ("Marian Martyrs"). Controls are the same as in Table 5. Robust standard errors in parentheses. Conley standard errors at a radius of 100km in square brackets.

education, occupation, Civil War allegiance, and borough-level controls (Columns 2-6)—we find no statistically significant relationship between ancestral monastic land holdings and support for Exclusion.

This null result is consistent with our model. By the 1670s, the direct material interest generated by family acquisition of monastic lands many generations earlier had become severely attenuated. Much of the monastic land had been resold and redeveloped. What mattered for MPs' voting behavior were their constituency interests—whether local landowners in a borough had stakes in monastic property—not whether the MP himself descended from Dissolution beneficiaries.

### *J Open vs Closed Franchise Boroughs and the Exclusion Crisis*

Historians distinguish between closed or narrow franchise boroughs and open or broad franchise boroughs (Kishansky, 1986). Closed boroughs were dominated by a small number of aldermen or holders of specific burgage properties, while open boroughs extended voting rights to freemen or householders. In open boroughs, MPs were more responsive to the economic interests of local landowners. We therefore expect the relationship between monastic lands and support for Exclusion to be stronger in open franchise boroughs.

Table A.15 reports results restricting the sample to open franchise boroughs only. Comparing Column (5) of this table to Column (5) of Table 5, we find that the coefficient on monastic land is approximately 55% larger in open franchise boroughs (0.674 vs. 0.434) and more precisely estimated. This supports the interpretation that MPs were responding to constituency interests.

Figure 6a provides a visual comparison of the relationship between monastic lands and support for Exclusion in open versus closed franchise boroughs. The steeper slope for open franchise boroughs

Table A.14: MP-Level Analysis: Ancestral Monastic Land Holdings and Support for Exclusion

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Ancestral Monastic Lands | -0.031 | -0.060 | -0.064 | -0.059 |
| | (0.068) | (0.058) | (0.060) | (0.057) |
| Constant | 0.585*** | 0.533*** | 0.615*** | 0.604*** |
| | (0.029) | (0.036) | (0.067) | (0.069) |
| Political Party Controls | No | Yes | Yes | Yes |
| Religion & Education Controls | No | No | Yes | Yes |
| Occupation & Civil War Controls | No | No | No | Yes |
| Observations | 349 | 349 | 349 | 349 |
| Adjusted $R^2$ | -0.002 | 0.192 | 0.194 | 0.233 |

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

**Table Notes:** This table tests whether MPs whose ancestors received monastic land during the Dissolution were more likely to support excluding the Catholic James, Duke of York from the succession. The dependent variable is a dummy equal to one if the MP voted for exclusion. The explanatory variable (*Ancestral Monastic Land*) is a dummy equal to one if at least one of the MP's ancestors acquired monastic land during the Dissolution. MP-level controls include political affiliation (Whig, Tory), religion (Anglican), education (Oxford, Cambridge), occupation (lawyer), and Civil War allegiance. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.15: Borough-Level Analysis: Percentage of MPs who supported Exclusion of James II in 1679 (Open Franchise Boroughs Only)

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Monastic Land % (20km) | 0.490 | 0.503 | 0.632 | 0.727 | 0.674 |
| | (0.207)** | (0.224)** | (0.238)*** | (0.241)*** | (0.231)*** |
| Population | | Yes | Yes | Yes | Yes |
| Monasteries (20km) | | Yes | Yes | Yes | Yes |
| Pre-Dissolution Protestantism | | | Yes | Yes | Yes |
| Geography Controls | | | Yes | Yes | Yes |
| Political/Econ Controls | | | | Yes | Yes |
| Region FEs | | | | | Yes |
| Constant | 0.236*** | 0.184** | 0.331 | 0.275 | 0.400* |
| | (0.0736) | (0.0820) | (0.230) | (0.235) | (0.231) |
| Observations | 140 | 133 | 132 | 132 | 132 |
| Adjusted $R^2$ | 0.030 | 0.041 | 0.063 | 0.112 | 0.158 |

**Table Notes:** This table restricts the sample to boroughs with open or broad franchise as classified by Angelucci et al. (2022). The dependent variable is the percentage of borough MPs who voted to exclude the Catholic James, Duke of York from the succession. Geographic, economic, and political controls are the same as in Table 5. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

illustrates that the constituency mechanism operated more strongly where voters had actual influence over their MPs.

### *K MP Local Connections and the Exclusion Crisis*

A potential concern with our borough-level analysis is that MPs may not have had meaningful connections to the boroughs they represented. To address this, we coded local landholding information for all MPs in our Exclusion Crisis sample using the History of Parliament biographies. Nearly half (44.9%) of MPs have documented local land connections to their boroughs.

Table A.16 shows that our results are robust to controlling for the share of a borough's MPs with

Table A.16: Exclusion Crisis: Controlling for Share of MPs with Local Land Connections

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Monastic Land % (20km) | 0.325* | 0.302 | 0.441* | 0.506** | 0.414* |
| | (0.196) | (0.212) | (0.233) | (0.239) | (0.243) |
| share_local_land_connection | -0.032 | -0.072 | -0.052 | -0.065 | -0.069 |
| | (0.088) | (0.088) | (0.090) | (0.091) | (0.093) |
| Observations | 177 | 170 | 169 | 169 | 169 |
| Adjusted $R^2$ | 0.005 | 0.027 | 0.034 | 0.061 | 0.062 |

Standard errors in parentheses
Robust standard errors in parentheses.
Controls for share of MPs with local land connection.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

**Table Notes:** This table adds the share of a borough's MPs with local land connections as a control variable. The dependent variable is the percentage of borough MPs who voted to exclude the Catholic James, Duke of York from the succession. Geographic, economic, and political controls are the same as in Table 5. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.17: Exclusion Crisis: Controlling for Share of MPs who are Local Manor Owners

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Monastic Land % (20km) | 0.281 | 0.293 | 0.440* | 0.514** | 0.429* |
| | (0.189) | (0.207) | (0.228) | (0.232) | (0.235) |
| share_local_manor_owner | 0.205** | 0.149 | 0.122 | 0.147 | 0.141 |
| | (0.103) | (0.106) | (0.106) | (0.108) | (0.111) |
| Observations | 177 | 170 | 169 | 169 | 169 |
| Adjusted $R^2$ | 0.026 | 0.035 | 0.040 | 0.069 | 0.068 |

Standard errors in parentheses
Robust standard errors in parentheses.
Controls for share of MPs who are local manor owners.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

**Table Notes:** This table adds the share of a borough's MPs who are local manor owners as a control variable. The dependent variable is the percentage of borough MPs who voted to exclude the Catholic James, Duke of York from the succession. Geographic, economic, and political controls are the same as in Table 5. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

local land connections. The coefficient on monastic land exposure remains statistically significant and similar in magnitude, suggesting the effect operates beyond the local landowner channel.

Table A.17 repeats this exercise using the more restrictive measure of local manor ownership, with similar results.

Table A.18: Testing Prediction 1: Analysis of the Diocesan Population Returns, LPM

| | Potential Catholics in 1603 | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Monastic Lands | -0.00190 | -0.00185 | -0.00197 | -0.00195 | -0.00186 | -0.00175 |
| | (0.000885)** | (0.000863)** | (0.00103)* | (0.000987)** | (0.000975)* | (0.00105)* |
| | [0.00053]*** | [0.000570]*** | [0.000996]** | [0.000300]*** | [0.000320]*** | [0.000713]** |
| Geography Controls | | Yes | Yes | | Yes | Yes |
| Economic Controls | | | Yes | | | Yes |
| Diocese, Deanery and County FEs | | | | Yes | Yes | Yes |
| Constant | 0.00380*** | 0.00289** | 0.00291 | 0.00368 | 0.00578 | -0.00153 |
| | (0.000836) | (0.00146) | (0.00241) | (0.00291) | (0.00366) | (0.00810) |
| Standardized $\beta$ | -0.064 | -0.061 | -0.066 | -0.067 | -0.062 | -0.060 |
| Observations | 1654 | 1654 | 1309 | 1632 | 1632 | 1291 |
| Adjusted $R^2$ | 0.004 | 0.003 | -0.001 | 0.011 | 0.010 | 0.014 |

**Table Notes:** The relationship between monastic lands and potential Catholics in 1603. Our dependent variable is the ratio of recusants and non-communicants divided by the total population. We estimate a linear probability model. Geographic controls include parish area, terrain elevation, wheat suitability and distance to the nearest river. Economic controls include distance to market town, distance to the sea or the Scottish border, distance to London, the Lay Subsidy income per capita in 1332, and the number of gentry between 1399-1477. Robust standard errors in parentheses. Conley standard errors at a radius of 100km in square brackets * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.19: Testing Prediction 2: Monastic Lands and the Distribution of Catholics in 1767: Parish-Level

| *Marginal Effects* | Share Catholic in 1767 | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Pre-Reformation Shrines | 0.694*** | 0.681*** | 0.255*** | 0.140*** |
| | (0.0532) | (0.0582) | (0.0630) | (0.0376) |
| Monastic Lands (dummy) | -0.607*** | -0.334*** | -0.249*** | -0.120*** |
| | (0.0728) | (0.0752) | (0.0769) | (0.0280) |
| Controls | | ✓ | ✓ | ✓ |
| County FE | | | ✓ | ✓ |
| Constant | -3.476*** | -3.380*** | -4.618*** | -2.053*** |
| | (0.0425) | (0.109) | (0.523) | (0.155) |
| Observations | 12546 | 12523 | 12523 | 12523 |
| | (5) | (6) | (7) | (8) |
| Pilgrimage of Grace | 0.926*** | 0.756*** | 0.201* | 0.186*** |
| | (0.0730) | (0.0781) | (0.110) | (0.0531) |
| Monastic Lands (dummy) | -0.602*** | -0.350*** | -0.258*** | -0.122*** |
| | (0.0728) | (0.0748) | (0.0785) | (0.0280) |
| Controls | | ✓ | ✓ | ✓ |
| County FE | | | ✓ | ✓ |
| Constant | -3.504*** | -3.085*** | -5.223*** | -1.900*** |
| | (0.0443) | (0.0974) | (0.507) | (0.153) |
| Observations | 12546 | 12523 | 12523 | 12523 |
| Estimator | Fractional Logit | | | Zero-Inflated Beta |

**Table Notes:** This table tests Prediction 2 using data on the distribution of Catholics in 1767. The unit of observation is a parish. Regressions (1)-(3) and (5)-(7) are estimated as fractional logits using a maximum likelihood estimator. Regressions (4) and (8) are zero-inflated beta regressions. We report logit coefficients. Controls include the presence of monastery, distance to the nearest river, coast, and Roman road, proportion enclosed, and tax revenue per capita in 1525. Note that we drop distance to Roman Roads in columns (5)-(8) as this is highly collinear with the route of the Pilgrimage of Grace. * $p < 0.10$, ** $p < 0.05$, ***.

Table A.20: Testing Prediction 2: Monastic Lands and the Distribution of Catholics in 1767: Parish-Level: OLS with robust and spatially adjusted standard errors

| | Share Catholic in 1767 | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Pre-Reformation Shrines | 0.0309 | 0.0298 | 0.0188 | | | |
| | (0.00363)*** | (0.00365)*** | (0.00416)*** | | | |
| | [0.0116]*** | [0.0113]*** | [0.00729]*** | | | |
| Pilgrimage of Grace | | | | 0.0343 | 0.0289 | 0.00884 |
| | | | | (0.00350)*** | (0.00360)*** | (0.00594) |
| | | | | [0.0106]*** | [0.0103]*** | [0.00958] |
| Monastic Lands (dummy) | -0.0160 | -0.00823 | -0.00552 | -0.0157 | -0.00878 | -0.00538 |
| | (0.00182)*** | (0.00179)*** | (0.00176)*** | (0.00179)*** | (0.00177)*** | (0.00177)*** |
| | [0.00335]*** | [0.00269]*** | [0.00218] *** | [0.00338]*** | [0.00452]*** | [0.00221]*** |
| Controls | | ✓ | ✓ | | ✓ | ✓ |
| County FE | | | ✓ | | | ✓ |
| Constant | 0.0304*** | 0.0362*** | 0.0325*** | 0.0302*** | 0.0403*** | 0.0342*** |
| | (0.00130) | (0.00283) | (0.00714) | (0.00129) | (0.00294) | (0.00716) |
| Observations | 12546 | 12523 | 12523 | 12523 | 12523 | 12523 |

**Table Notes:** This table tests Prediction 2 using data on the distribution of Catholics in 1767. The unit of observation is a parish. We report Conley standard errors in squared parentheses. Controls include the presence of monastery, distance to the nearest river, coast, and Roman road, proportion enclosed, and tax revenue per capita in 1525. Note that we drop distance to Roman Roads in columns (5)-(8) as this is highly collinear with the route of the Pilgrimage of Grace. * $p < 0.10$, ** $p < 0.05$, ***.

## L Bounding Potential Bias from Unobservables

### L.1 Prediction 1

A standard way to assess the potential risk of bias from unobservables in a non-experimental setting is Oster (2019). Table A.21 reports this analysis for our tests of Prediction 1. $\delta$ captures the relative extent of selection on unobservables as on observables. First, we observe that the $R^2$ in our baseline regressions is 0.12. Oster (2019) recommends setting $R_max$ to 1.3(0.12). To be conservative, we choose to set it at 1.5(0.12) = 0.18. The first column, then reports our beta estimate under the assumption that there is equal selection on unobservables as on observables ($\delta = 1$). Recall our estimate in Table 2, col. 4 is 0.442. Under the assumption of equal selection on unobservables, we obtain a larger estimate of beta (0.607) which is highly reassuring.

Next, we allow $\delta$ to vary. The results in the second column suggest that selection on unobservables would have to be at least 2.7 times strong than selection on observables in order to overturn our results. Oster (2019) argues that $\delta > 1$ is an indication of robustness. We obtain similar results for our second outcome variable, opposition to Mary. The beta estimate here is a smaller but we still obtain a $\delta > 1$.

Table A.21: Testing Prediction 1: Sensitivity Analysis

| | Treatment: Monastic Lands (20km) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | True Religion (%) | | | | Opponents of Mary (%) | | | |
| | Oster $\beta$ | Oster $\delta$ | Sensemakr | RegSens | Oster $\beta$ | Oster $\delta$ | Sensemakr | RegSens |
| Estimate | 0.607 | 2.726 | | 0.613 | 0.132 | 1.108 | | 0.538 |
| Partial $R^2$ | | | 0.061 | | | | 0.023 | |
| RV (point) | | | 0.225 | | | | 0.141 | |
| RV (stat. sig.) | | | 0.081 | . | | | | |

Notes: All results use $R_{max} = 0.18$ (1.5 × baseline $R^2$). Sensemakr shows Partial $R^2(Y \sim D|X)$.
RV = Robustness Value for point estimate and statistical significance. RegSensitivity shows
$\bar{r}_x$ = minimum correlation with treatment needed when $\bar{c} = 0$.

We also use two other packages to further assess potential bias from unobservables: Sensemakr and RegressionSensitivity.

Sensemakr (Cinelli and Hazlett, 2019) uses a partial $R^2$ framework to quantify the robustness of regression coefficients to omitted variable bias. The key statistic is the Robustness Value (RV), which indicates what fraction of residual variance an unobserved confounder would need to explain in both the treatment and outcome to eliminate the estimated effect. For our True Religion outcome, the RV for the point estimate is 22.5%, suggesting that a confounder would need to explain more than one-fifth of the residual variance in both variables to overturn our results. The RV for statistical significance is lower at 8.1%, indicating it would be easier to render our results statistically insignificant than to eliminate the effect entirely. This is expected given our relatively small sample. For the Opponents of Mary, we obtain similar robustness values (19.4% and 10.4%), indicating moderate-to-strong robustness across both outcomes.

Finally, RegressionSensitivity (Masten and Poirier, 2022) provides another robustness metric based on correlations. The key parameter is $r_xbar$, which represents the minimum correlation an omitted variable would need with the treatment (assuming zero correlation with the outcome after

controlling for observables) to overturn the results. For True Religion, we find $rxbar$= 61.3%, while for Opponents, $r_xbar$= 53.8%. These thresholds suggest our results are highly robust —- an omitted variable would need to be more strongly correlated with treatment than most observed covariates typically are.

Taken together, all three sensitivity analyses provide consistent evidence that our results are robust to plausible levels of omitted variable bias. Across different frameworks and metrics, we find that confounders would need to be either much more important than observables (Oster), explain substantial residual variance (sensemakr), or have implausibly high correlations with treatment (regsensitivity) to overturn our findings.

Table A.22: Sensitivity Analysis: Exclusion Outcome

| | Outcome: Exclusion (0/1) Treatment: Monastic Lands | | | |
|---|---|---|---|---|
| | Oster $\beta$ | Oster $\delta$ | Sensemakr | Regsensitivity |
| Estimate | 0.636 | 9.051 | | 0.245 |
| Partial $R^2$ | | | 0.025 | |
| RV (point) | | | 0.148 | |
| RV (stat. sig.) | | | 0.011 | |

Notes: All results use Rmax = 0.18 (1.5 × baseline $R^2$). Full specification includes historical Protestant/Lollard controls. Sensemakr shows Partial $R^2$(Y∼D|X), RV = Robustness Value for point estimate and statistical significance. Regsensitivity shows rxbar = minimum correlation with treatment needed when cbar = 0.

Table A.22 presents similar sensitivity analyses for our Exclusion outcome. The results demonstrate even stronger robustness when we include historical Protestant/Lollard controls. Under equal selection on unobservables ($\delta = 1$), our beta estimate increases from 0.489 to 0.636. Most notably, the Oster $\delta$ of 9.051 indicates that selection on unobservables would need to be nine times stronger than selection on observables to overturn our results —substantially higher than the threshold of $\delta > 1$ that Oster (2019) suggests as a benchmark for robustness.

The Sensemakr analysis yields an RV of 14.8% for the point estimate and 1.1% for statistical significance, indicating moderate robustness. RegressionSensitivity finds $r_xbar$= 24.5%, suggesting an omitted variable would need at least a quarter correlation with treatment to eliminate the effect. Together, these results confirm that the relationship between monastic lands and support for Exclusion is robust to plausible unobserved confounding.

# 4 Historical Appendix

## *A Monastic Foundations*

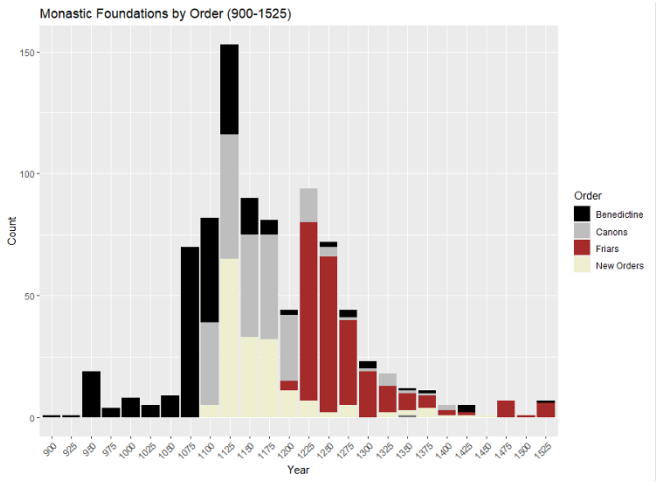
In this section we provide further information on the location and endowment of medieval monasteries.

One might be concerned that if monastic lands are correlated with other things that might predict later Protestant sentiment. In this case, we would suffer from potential omitted variable bias. As discussed in the main text, there are no reasons given in the historical literature for potential bias. Our control variables and various robustness exercises provide some preliminary evidence that this is not the case. Heldring, Robinson, and Vollmer (2021) whose data we use in this paper, also treat

the same properties as orthogonal to their outcome variables relating to industrial output in later periods.

Here we provide a richer discussion about the factors associated with the endowment of monastic lands. This discussion offers further confidence in our assumption that monastic lands are unlikely to be correlated with relevant outcomes in the sixteenth or seventeenth centuries. In Appendix 3 we provide some more formal tests to address remaining concerns.

Most monasteries in England were founded after the Norman Conquest and prior to the Black Death. There is a gap of more than 150 years between the last major period of monastic foundation and the time of the English Reformation (Figure A.9a).




(a) Monastic foundations by order, 900–1525. Source: Knowles and Hadcock (1971)




(b) Monastic land acquisitions[44]

Figure A.9: The Timing of Monastic Foundations and Land Acquisitions

Monasteries were typically founded with a patron's gift of land in exchange for spiritual and political rights (Wood, 1955; Burton, 1994; Stober, 2007). Over time, they accumulated additional land through purchases or further gifts.[45] Most land was acquired significantly before our period of interest (Figure A.9b), and its inalienability meant that gifts were irrevocable (Veitch, 1986; Shera, 2024).

Crucially, monastic lands were not necessarily close to the monasteries themselves, and the inalienability of monastic land meant that its distribution on the eve of the Dissolution was determined by decisions made centuries earlier, not by contemporary economic circumstances. The balance tests in Appendix A.4 are consistent with this: apart from a slight difference in soil suitability, there is little difference in economic geography or pre-Reformation predictors of Protestantism between areas above and below mean monastic land shares.

## *B What were the motives for the Dissolution?*

Neither Henry VIII nor many of the early English reformers opposed the monastic life in principle. The Dissolution was largely the project of Thomas Cromwell, who had served Cardinal Wolsey when

[44]This figure is generated from data available at: https://www.ucl.ac.uk/library/digital-collections/collections/monastic. The authors use the dataset compiled by the *Mind your Manors* project: https://github.com/mentionthewar/mind-your-manors.

[45]Mendicant orders such as the Dominicans and Franciscans were not land-owning, though their urban properties were also confiscated during the Dissolution.

the latter dissolved 30 monasteries between 1525 and 1528 to fund theological colleges (Knowles, 1959, 470). Continental precedents—the Swedish king Gustavus Vasa's appropriation of monastic lands and the Council of Zurich's dissolution of monasteries in 1524 (Knowles, 1959, 169–170)—demonstrated that confiscation of church properties was a viable strategy.

There does not appear to have been widespread demand for dissolving the monasteries; traditional religion remained popular (Cross, 1988). In 1535, Cromwell sent a commission whose assessment became the *Valor Ecclesiasticus*, estimating total monastic income at £165,500 (Savine, 1974). He then dispatched "Visitors" to extract evidence of monastic decline (Knowles, 1959, 274). Their reports provided ammunition for the Act for the Dissolution of the Lesser Houses (1536), which dissolved houses with income under £200. The act provoked uprisings in Lincolnshire and the North, culminating in the Pilgrimage of Grace (Hoyle, 2001). A second act in 1539 dissolved the remainder of the houses. Most monastics accepted pensions paid from the Court of Augmentations.

### *C Different Scholarly positions on the English Reformation*

Our paper builds on the scholarship of countless historians of the English Reformation. Our findings provide novel support to the view that the Reformation was initially driven in part by political elites who benefitted financially from the Dissolution and that the process of cultural change was gradual.

Traditional pro-Protestant interpretations depicted the Reformation as a natural development with popular support. Geoffrey Elton proposed a "top-down" interpretation emphasizing the coercive Tudor state and Cromwell's "revolution in government" (Elton, 1953, 1977), while Dickens (1964) stressed "bottom-up" popular movements. By the 1980s, revisionist historians—notably Christopher Haigh and Eamon Duffy[46]—established that traditional religion was flourishing in 16th century England. The medieval Church was not moribund. The English Reformation was initially a movement of elites, and the transformation in beliefs was generational. Scholars now speak of a "long Reformation" extending into the 17th century (Tyacke, 1998).[47] Haigh (1993, 2-3) distinguished between political "legislative Reformations" and a religious or evangelical Reformation involving persuasion and individual conversions. Recent scholarship has moved beyond this dichotomy (Collinson, 2003; Bates, 2010; Marshall, 2012).

The Dissolution itself has been studied intensively—the landmark work is Knowles (1959); a recent study is Clark (2021)—but it does not occupy a central place in most accounts of the Reformation. Collinson writes: "dissolution of the monasteries brought out onto the streets not protesters but opportunists who were eager to buy up monastic lands and to use the buildings as quarries, so that Catholic historians have written of a corrupt complicity in this tragedy."

### *D Anti-Catholic Policies under Elizabeth and her Successors*

Elizabeth, raised Protestant in the household of Katherine Parr, pursued radically different policies from her sister Mary after ascending to the throne in 1558. The Act of Uniformity (1560) made church attendance compulsory. While Elizabeth was famously uninterested in searching into people's souls, she expected public conformity to a single established religion, seen as "absolutely essential for the unity of a nation" (Russell, 1971, 38). Those who privately retained Catholicism while publicly conforming—known as Church Papists—were tolerated (Walsham, 1993; Johnson and Koyama, 2019).

Following the failed Northern Rebellion of 1569 and the Papal Bull of 1570, persecution intensified. It became a capital crime to be a Catholic priest in England; 138 priests died as traitors and 60

[46]Representative works include Haigh (1987, 1993) and Duffy (1992, 1998).

[47]See Bates (2010, 1052): "the rapid Reformation from above is dead; the long, slow painful struggle of eventual English acceptance of Protestantism ... is accepted by the vast majority of scholars."

laymen were executed for harboring them during Elizabeth's reign. A system of penal laws and civil disabilities was imposed on Catholics.

*E Selected Quotes from MPs in the late 17th Century*

> But when I consider, what will become of Gentlemen that have Abbey-Lands, when they are told by the Priests on their death-beds, that they cannot die in peace without restoring them? If we restrain not the Priests, there will be no need of an Act to restore Abbey-Lands, they will return to the Romish Church of themselves; as if to prevent Popery, you will pile up faggots to fire Protestants, and will need nothing but setting them on fire, and lay all this upon the Duke. For the regard I have for the Duke, I agree not to use the Duke hardly, but if the Duke cannot comply with the Oaths,&c. it is for his safety, that it is others, and not he, that are the cause of it; other men sheltering themselves under the Duke. No man knows, but that a settled opinion in the nation, when disturbed, may draw on a rebellion. No man can say but this Act, &c. is necessary, and is not this Proviso enough to raise all the people in rebellion? It is for the Duke's sake therefore that I would reject this Proviso.

Sir Thomas Lee, 1679, April

> "What the Gentleman said that spoke last, comes home to the point. It is high time to take consideration of this. If we do not something relating to the Succession, we must resolve, when we have a Prince of the Popish Religion, to be Papists, or burn. And I will do neither. We see now, by what is done under a Protestant Prince, what will be done under a Popish. This is the deciding day betwixt both Religions. I am transported, I confess, both with spiritual and temporal concerns. I have Abbey Lands, but I protest before God and man, I could not be more against Popery than I am, had I none. I despise such a ridiculous and nonsensical Religion—A piece of wafer, broken betwixt a Priest's fingers, to be our Saviour! And what becomes of it when eaten, and taken down, you know. The King, I believe, will do his part in this matter, if we do ours. In the last Parliament, I moved something of this nature, which was not a House to do great things; but I hope this House will neither be bribed, corrupted, nor cajoled, nor feasted, into the giving up the grand concerns of our Religion and property. Therefore I desire, "That a Committee may be appointed to draw up a Bill to secure our Religion and Properties in case of a Popish Successor."

Lord Russell, 1679, April