

# Religious Violence and Coalition Politics in History

Desiree Desierto and Mark Koyama\*

February 24, 2023

**Preliminary. Please do not quote or post online**

## **Abstract**

We employ selectorate theory to model how coalition-based politics determines the intensity of religious persecution and violence. A coalition of elites provides political support to the ruler and, in exchange, the ruler shares rents and sets policy on religious persecution. In equilibrium, persecution is more intense the larger the size of the ruler's coalition. For empirical applications, we provide historical narratives on the Roman Empire c. 30 CE to 312 CE, the medieval period after the fall of the Roman Empire, and Reformation-era England, and employ regression analysis using a comprehensive dataset of the executions of Catholics in England during Elizabeth I's reign.

JEL: N43; K42; D7; Z13

Keywords: Religious Persecution; Selectorate Theory; State Capacity; Conflict.

---

\*Desiree Desierto: Department of Economics, George Mason University. Email: ddesiert@gmu.edu. Mark Koyama: Department of Economics, George Mason University. Email: mkoyama2@gmu.edu. This work is funded by Grant 62593 from the John Templeton Foundation and by a Civil Exchange and Pluralism Grant from the Mercatus Center. We are grateful to Linghui Han, Marcus Shera, and Alex Taylor for research assistance, and Steven Pfaff for comments.

# 1 INTRODUCTION

Religiously motivated violence remains a serious problem in the modern world. The causes and consequences of religious violence are the subject of an extensive debate and controversy across the social sciences (see, *inter alla* Juergensmeyer, 2000; Cavanaugh, 2009; Clarke, 2014) and history (see Nirenberg, 1996).

We investigate how the internal structure of a polity influences the observed variation in religion persecution and violence over time and space. To do so, we propose a formal model and use it to consider several historical episodes characterized by exceptional levels of violent religious conflict, from the Roman Empire in the 3rd to 4th centuries to Early Modern England.

We build on a body of earlier work. Drawing on the growing literature that studies political legitimacy, and focuses on the role played by religious legitimation (e.g. Coggel and Miceli, 2009; Rubin, 2017; Greif and Rubin, 2023), Johnson and Koyama (2019) provide an analytical framework for thinking about the relationship between religion and the state. They argue that when there is a single dominant religion, a bargain naturally suggests itself, in which that religion provides legitimacy to the ruler. In exchange, that religion may demand that the ruler suppresses its rival religions.

We add to this insight by focusing on another kind of political constraint faced by the ruler. Even if the ruler is legitimate, she still needs to maintain the support of a coalition of elites in order to stay in power. This is a natural perspective for studying premodern Europe states. Indeed, in a recent paper, Kulkarni and Pfaff (2022a) argue that understanding the religious politics of early modern England requires a framework that allows for coalition-based politics.<sup>1</sup>

Drawing on the selectorate theory of de Mesquita et al. (2003), we construct a model of religious persecution in which a coalition of elites provides political support to the ruler in exchange for rents and public policy – specifically, the persecution of non-dominant religions.

---

<sup>1</sup>Arguing for a “parsimonious political selectorate theory’ (de Mesquita et al., 2003)” theory of political change in England during the Glorious Revolution whereby the “consequences of the revolution depended largely on which side of the Jacobite- Williamite conflict a group stood on during the events of 1688–91. Whereas groups that were part of the winning Williamite coalition reaped the rewards of victory, those that were on the losing Jacobite side could count on little protection” (Kulkarni and Pfaff, 2022a, 3).

Each member is pivotal in that the ruler is deposed if any one member withdraws support. This induces the ruler to provide policy that would be optimal to any member of the coalition.

We thus find that the larger the size of the ruler's coalition, the more intensely it persecutes non-dominant religions. Since the ruling coalition shares the total costs of and, therefore, accountability for, persecutions, a larger coalition makes any one coalition member personally less accountable, making that member more willing to accede to persecutions at the margin. In equilibrium, there is greater persecution.

This result does not rely on the religion of the ruler, nor her preferences regarding religious toleration or persecution. In fact, a tolerant ruler can sanction persecutions if at least some member of her coalition derives some utility from it. Given that there is some demand for persecution, a larger coalition is more likely to support such policy, since any one member shoulders only a small cost. A kind of mob mentality prevails.

To our best knowledge, our paper is the first to explicitly contribute this key insight to a large and rapidly growing social scientific literature on religious persecution, and on the broader topic of inter-ethnic and inter-religious violence. We provide several empirical evidence – rich narratives on religious persecution in the Roman Empire, the Medieval period, and Reformation-era England; and regression analysis using data on all the executions of Catholics in England during the reign of Elizabeth I.

Numerous studies have examined other conditions that generate ethnic and/or religious violence. Mitra and Ray (2014), for instance, study Hindu-Muslim violence in India. Yanagizawa-Drott (2014); Blouin and Mukand (2019); Rogall (2021) study the various causes of the Rwandan genocide. Among recent work exploring religious violence in a historical context, Ticku et al. (2018) studies the relationship between economic shocks and temple desecrations in medieval England. It has examined the persecution of Jews in medieval and early modern Europe (Anderson, Johnson, and Koyama, 2017; Jedwab, Johnson, and Koyama, 2019; Finley and Koyama, 2018; Becker and Pascali, 2019; Doten-Snitker, 2021) and Russia (Grosfeld, Sakalli, and Zhuravskaya, 2020). Other papers have studied the persecution of witches in Europe generally (Leeson and Russ, 2017); in France (Johnson and Koyama, 2014); and in Scotland (Christian, 2019; Kulkarni and Pfaff, 2022b). Turning to the Reformation era, Johnson and Koyama (2013) consider the persecution of Protestants

in 16th century France and the reasons for the Edict of Nantes (which granted them a form of conditional toleration that lasted until the end of the 17th century).

Many papers on religious violence consider pogroms and localized violence. In contrast, systematic and organized episodes of religious persecution had to be coordinated at the level of the state. To explain these episodes, which is the focus of this paper, we need a model of the political incentives to engage in persecution.

Several different conceptual frameworks have been proposed for understanding patterns of religious violence and persecution. The traditional historical scholarship tended to be ideational (important older accounts in this tradition include Jordan (1932, 1936); Lecler (1960) whereas more recent accounts include Sutherland (1984); Laursen and Nederman (1998); Zagorin (2003)).

Johnson and Koyama (2019) examine the relationship between state development and religious persecution over the long *durée*. Distinguishing between conditional toleration and genuine religious freedom, they note that many societies have offered conditional toleration, but only modern liberal states have aspired to full religious freedom. They argue that the reason for this is that most preindustrial societies relied upon identity rules — rules that depended on social or religious distinctions between people— and that reliance on such rules is incompatible with religious freedom. For Johnson and Koyama (2019), it was the particular combination of growing state power and increased religious diversity following the Reformation that accounts for the both dramatic rise in the intensity of religious violence in the 16th century and the eventual rise of states able to quell it and to protect minority groups.

Becker, Mukand, and Yotzov (2022) provide a related conceptual framework for thinking about ethnic and/or religious persecution. This framework can be summarized as a 2-by-2 quadrant which persecution intensity on the horizontal axis and the degree to which exit is available on the vertical axis. They argue that genocide is mostly when exit is not availability and there is high intensity persecution. Where there is lower intensity persecution but exit is not available, they argue internal segregation is more likely to result. They place the 17th century persecutions of French Protestants in the upper-left quadrant: high intensity persecution with the option to exit.

Recent scholarship has also tackled the conditions under which peaceful coexistence is possible among members of different religions. For example, Jha (2013) argues that cities which had a history of inter-religious trade experienced less Hindu-Muslim violence following Indian independence. Economic interlinkages have also been shown to matter for whether Jews faced persecution (Becker and Pascali, 2019). Minority religious groups often had specialized skills and could be important contributors to local economies (see Hornung, 2014; Johnson and Koyama, 2016). But this did not always prevent their persecution. In this paper, therefore, we focus on the political structure of the persecuting state.

The structure of the remainder of the paper is as follows. Section 2 provides a formal model couched in the selectorate framework to show how the size of the coalition affects the decision of the ruler to persecute a religious group. Section 3 presents the main comparative static results. In Section 4, we demonstrate how the insights of the model can contribute to our understanding of some large-scale religious persecutions in history. Section 5 concludes.

## 2 A MODEL OF SELECTORATE THEORY AND RELIGIOUS PERSECUTION

We are interested in modeling the optimal choice of a ruler of how much to persecute non-dominant religions, when that ruler is constrained to satisfy a core group of supporters in order to remain in power. We are interested in state persecution rather than local religious violence. We abstract from reasons *why* non-dominant religions are persecuted, but only aim to understand how the ruler decides the intensity of persecution, given that persecution is to be undertaken.

The focus is on how the political constraints facing the ruler affect this policy of religious persecution. For our historical application, the constraints do not come from some broad base of electors but, rather, from a small coalition of elites. We thus use the selectorate framework of de Mesquita, Morrow, Siverson, and Smith (2003) in which the ruler has to maintain the support of a coalition of ‘selectors’, by giving them rents and providing public goods or policy that is optimal to them.

## 2.1 Coalition-based politics

A realm has a set of elites  $E$  from which its ruler draws political support. In particular, the ruler needs a coalition  $W \subseteq E$  of elites of size  $W$  to stay in power. Each member of this coalition is pivotal — if any one of them withdrew support from the ruler, the ruler is deposed with some probability which, without loss of generality, we set equal to one.

To keep her coalition loyal, the ruler gives each member some rents out of the ruler's discretionary revenues — the total revenues that the ruler extracts from the realm minus the costs of providing public goods or policy. Because the latter decreases discretionary revenues and, therefore, potential rents that the coalition members obtain, these members also care about the kinds of public goods and policies that the ruler provides. We focus on policy regarding religious toleration or persecution.

An elite  $i \in E$  derives utility from engaging in ordinary activities  $x_i$  and religious practices  $r_i$ . In particular, let her utility be some concave function  $u_i = f(x_i, r_i)$ , with  $u'(x_i), u'(r_i) > 0$  and  $u''(x_i), u''(r_i) < 0$ . The cost of engaging in  $r_i$  is denoted by  $c$ , while  $x_i$  is the numeraire.

Now assume that there are two kinds of religion  $j = \{1, 2\}$ , with 1 indexing the religion of the ruler — the dominant religion, and 2 the non-dominant one. Practicing the non-dominant religion is regulated by a maximum level  $\bar{r}_2$ , such that if one is caught practicing it above  $\bar{r}_2$ , the ruler extracts penalty  $v$ .

The higher  $\bar{r}_2$  is, the more lenient the policy towards religion 2, and the lower it is, the more strict the policy. Thus,  $\bar{r}_2$  captures the intensity with which the ruler persecutes the non-dominant religion — the lower it is, the more intense the persecution. Let the probability of getting caught practicing the non-dominant religion be  $\theta(\bar{r}_2)$ , with  $\theta'(\bar{r}_2) < 0$  and  $\theta''(\bar{r}_2) < 0$ . That is, the more intense the persecution, the greater the probability of getting caught.

The elite allocates her disposable income towards  $x_i$  and  $r_i$ . This disposable income is composed of some productive income  $y_i$  net of taxes, with the tax rate set at  $\tau$ , and the rents  $t_i$  given by the ruler if the elite belongs to her coalition. Her budget constraint is thus

$$(1 - \tau)y_i + \mathbb{1}_W t_i = x_i + cr_i + \mathbb{1}_2 \mathbb{1}_v v \theta(r_i - \bar{r}_2),$$

where  $\mathbb{1}_W$  indicates membership in the ruling coalition,  $\mathbb{1}_2$  indicates that  $i$  practices the non-dominant religion, and  $\mathbb{1}_v$  is equal to one if  $r_i > \bar{r}_2$  and zero otherwise.

With this budget constraint, one can set the largest value that  $\bar{r}_2$  can take. (The smallest value is 0, i.e. when no amount of religious practice from the non-dominant religion is tolerated.) The ruler is most tolerant if an elite that practices the non-dominant religion allocates all of her income to  $r_i$  without incurring any penalty. We can thus set  $x_i = 0$ ,  $\mathbb{1}_W = 1$  and  $\mathbb{1}_v = 0$  in  $i$ 's budget constraint and solve for  $r_i$  to obtain the highest amount of religious practice  $r_i = \frac{(1-\tau)y_i+t_i}{c}$ . The most tolerant ruler then sets  $\bar{r}_{2\max} = \frac{(1-\tau)y_i+t_i}{c}$ , which implies, focusing on interior solutions, that  $\bar{r}_2 \in (0, \bar{r}_{2\max})$ .

The ruler not only chooses  $\bar{r}_2$ , but also the amount of rents  $t_i$  given to each member of her coalition. She has at her disposal tax revenues  $\tau \sum_i y_i$  and non-tax revenues  $R$ , and incurs cost  $\kappa(\bar{r}_2)$  of enforcing  $\bar{r}_2$  that is increasing in the intensity of religious persecution, i.e.  $\kappa'(\bar{r}_2) < 0$  and  $\kappa''(\bar{r}_2) < 0$ . The ruler's budget constraint is thus

$$\tau \sum_i y_i + R = \kappa(\bar{r}_2)\bar{r}_2 + Wt_i.$$

Consider, thus, an infinitely-repeated game in which the following events occur at each time  $t = 1, 2, \dots, \infty$ :

1. The incumbent ruler  $I$  forms a coalition of size  $W$  from the set of elites  $E$  with whom she has the highest affinity.<sup>2</sup> A political challenger  $C$  nominates her own coalition from  $E$ , also of size  $W$ , and which includes at least one member of  $I$ 's coalition.  $I$  proposes to give to each member of her coalition rents  $t_i^I$ , while  $C$  offers rents  $t_i^C$  to each member of her own coalition.  $I$  and  $C$  also propose their respective policy on religious toleration or persecution, by setting the maximum allowable religious practice of the non-dominant religion at, respectively,  $\bar{r}_2^I$  and  $\bar{r}_2^C$ .
2. Each member  $i \in E$  chooses to support either  $I$  and  $C$ .  $I$  is deposed if at least one member of her coalition defects, i.e. chooses  $C$ .
3. Incomes are taxed and transfers given by the chosen leader; each  $i$  allocates her disposable income toward ordinary activities  $x_i$  and religious practices  $r_i$ ; and religious policy of the chosen leader is enforced. That is, anyone practicing the non-dominant

---

<sup>2</sup>It does not matter what the basis of affinity is. The ruler can have the highest affinity for elites who share her own religion, ancestry, or ethnicity, or it could be totally idiosyncratic. None of the results depend on the specific basis of affinity.

religion beyond the allowable limit is punished when caught, with  $\theta$  the probability of getting caught.

## 2.2 Equilibrium

We construct a stationary equilibrium in which the incumbent ruler remains in power. We proceed by backwards induction.

Given rents  $t_i$ , and policy  $\bar{r}_2$  (and hence  $\theta$ ), a member of the elite allocates her disposable income towards  $x_i$  and  $r_i$  in an optimal manner. That is,  $i$  solves

$$\begin{aligned} \max_{x_i, r_i} u_i &= f(x_i, r_i) \\ \text{s.t. } (1 - \tau)y_i + \mathbb{1}_W t_i &= x_i + cr_i + \mathbb{1}_2 \mathbb{1}_v v\theta(r_i - \bar{r}_2). \end{aligned}$$

In equilibrium,  $i$  chooses to practice her religion at level  $r_i^*$  and engage in ordinary activities at level  $x_i^* = (1 - \tau)y_i + \mathbb{1}_W t_i - cr_i^* - \mathbb{1}_2 \mathbb{1}_v v\theta(r_i^* - \bar{r}_2)$  at each  $t$ . Thus, her per period utility is

$$u_i^* = f\left((1 - \tau)y_i + \mathbb{1}_W t_i - cr_i^* - \mathbb{1}_2 \mathbb{1}_v v\theta(r_i^* - \bar{r}_2), r_i^*\right).$$

Now the best that any challenger can offer to any elite is to use all of the ruler's revenues to meet  $u_i^*$  once  $C$  becomes the ruler. One can re-write the ruler's budget constraint as  $t_i = \frac{\tau \sum y_i + R - \kappa(\bar{r}_2)\bar{r}_2}{W}$  and plug it into  $u_i^*$  to get  $U_i = f\left((1 - \tau)y_i + \mathbb{1}_W \left(\frac{\tau \sum y_i + R - \kappa(\bar{r}_2)\bar{r}_2}{W}\right) - cr_i^* - \mathbb{1}_2 \mathbb{1}_v v\theta(r_i - \bar{r}_2), r_i^*\right)$ .  $C$  then chooses  $\bar{r}_2$  that maximizes  $U_i$ . That is,  $C$  solves

$$\max_{\bar{r}_2} U_i = f\left((1 - \tau)y_i + \mathbb{1}_W \left(\frac{\tau \sum y_i + R - \kappa(\bar{r}_2)\bar{r}_2}{W}\right) - cr_i^* - \mathbb{1}_2 \mathbb{1}_v v\theta(\bar{r}_2)(r_i - \bar{r}_2), r_i^*\right),$$

whose first-order condition (FOC) for optimal  $\bar{r}_2$  is

$$\mathbb{1}_2 \mathbb{1}_v v[\theta(\bar{r}_2) - \theta'(\bar{r}_2)(r_i - \bar{r}_2)] = \mathbb{1}_W \left(\frac{\kappa(\bar{r}_2) + \kappa'(\bar{r}_2)\bar{r}_2}{W}\right). \quad (1)$$

Denoting as  $\bar{r}_i^C$  the optimal level of  $\bar{r}_2$ , the amount of transfers that  $C$  proposes to give to each member of her nominated coalition is thus  $t_i^C = \frac{\tau \sum y_i + R - \kappa(\bar{r}_i^C)\bar{r}_i^C}{W}$ . The proposal of  $\bar{r}_i^C$  and  $t_i^C$  is thus tantamount to offering per-period utility  $U(t_i^C, \bar{r}_i^C)$  to each member of this coalition. This offer, however, is not credible. This is because any member of  $C$ 's nominated coalition can be dropped by  $C$  once she becomes the incumbent, and replaced by someone with whom  $C$  has greater affinity.

Thus, the present value  $V^C$  of the infinite stream of payoffs from choosing  $C$  as leader does not consist of earning  $U(t_i^C, \bar{r}_2^C)$  per period. Rather,  $V^C$  is given by

$$V^C = U(t_i^C, \bar{r}_2^C) + \delta[\omega V^I + (1 - \omega)V^O], \quad (2)$$

where  $V^I$  is the value of being inside the ruler's coalition,  $V^O$  the value of being outside of it,  $\delta$  is the discount rate, and  $\omega$  the probability that the elite in  $C$ 's nominated coalition remains in it once  $C$  becomes the incumbent ruler. Now, an elite gets transfers only while she is in the incumbent ruler's coalition, but the policy is implemented whether or not she is in it. Thus,  $V^I = \frac{U(t_i^I, \bar{r}_2^I)}{1 - \delta}$  and  $V^O = \frac{U(0, \bar{r}_2^I)}{1 - \delta}$ .

Now in an equilibrium in which the incumbent ruler is never deposed by a challenger but stays in power, it must be that the value of the incumbent's offer at least matches that of any challenger. Since  $V^C$  is the value of the best offer that any challenger can make, it must be that  $V^I = V^C$ , which implies  $V^I = U(t_i^C, \bar{r}_2^C) + \delta[\omega V^I + (1 - \omega)V^O]$  or, simplifying:

$$V^I = \frac{1}{1 - \delta\omega} [U(t_i^C, \bar{r}_2^C) + \delta(1 - \omega)V^O]. \quad (3)$$

What, then, would be the values of  $t_i^I$  and  $\bar{r}_2^I$  that can satisfy equation (3)? Since no elite can be credibly excluded from policy  $\bar{r}_2$ , there is no gain to the incumbent from choosing to provide a different policy than  $C$ 's. Thus, in equilibrium,  $\bar{r}_2^I = \bar{r}_2^C$  which, with some abuse of notation, we denote as  $\bar{r}_2$ . Thus, we can re-write  $V^I = \frac{U(t_i^I, \bar{r}_2)}{1 - \delta}$  and  $V^O = \frac{U(0, \bar{r}_2)}{1 - \delta}$ . Substituting these into equation (3) gives  $\frac{U(t_i^I, \bar{r}_2)}{1 - \delta} = \frac{1}{1 - \delta\omega} [U(t_i^C, \bar{r}_2) + \delta(1 - \omega)\frac{U(0, \bar{r}_2)}{1 - \delta}]$  or, rearranging:

$$U(t_i^I, \bar{r}_2) = \frac{1 - \delta}{1 - \delta\omega} [U(t_i^C, \bar{r}_2) + \delta(1 - \omega)U(0, \bar{r}_2)]. \quad (4)$$

### 3 RESULTS

The following results can be obtained from the foregoing discussion.

**Theorem 1** *To stay in power, the incumbent leader:*

1. *gives to each of her coalition member rents that are less than any challenger leader can offer, i.e.  $t_i^I < t_i^C$ , and*

2. chooses the intensity of religious persecution at  $\bar{r}_2^I = \bar{r}_2 : \mathbb{1}_2 \mathbb{1}_v v[\theta(\bar{r}_2) - \theta'(\bar{r}_2)(r_i - \bar{r}_2)] = \mathbb{1}_W(\frac{\kappa(\bar{r}_2) + \kappa'(\bar{r}_2)\bar{r}_2}{W})$ , i.e. where the marginal expected penalty to a violator of religious policy is equal to the marginal cost, to a single coalition member, of enforcing the policy.

**Proof** Result (2) is from equation (1).

Result (1) is true if  $U(t_i^I, \bar{r}_2) - U(t_i^C, \bar{r}_2) < 0$ . To show that the latter inequality is true, subtract  $U(t_i^C, \bar{r}_2)$  from the RHS of (4) to get

$$\frac{\delta\omega - \delta}{1 - \delta\omega} U(t_i^C, \bar{r}_2) + \frac{(1 - \delta)\delta(1 - \omega)}{1 - \delta\omega} U(0, \bar{r}_2).$$

This expression is negative and, therefore,  $U(t_i^I, \bar{r}_2) - U(t_i^C, \bar{r}_2) < 0$ , since  $\frac{\delta\omega - \delta}{1 - \delta\omega} < 0$ ,  $U(t_i^C, \bar{r}_2) > U(0, \bar{r}_2)$ , and  $\frac{(1 - \delta)\delta(1 - \omega)}{1 - \delta\omega} < 1$ .

Result 1 of Theorem 1 is a standard result in selectorate models. Because any challenger cannot credibly promise that she will keep her nominated elites in her coalition once she is in power, the rent offer of the challenger is not credible. Thus, members of the incumbent ruler's coalition discount the challenger's offer and do not readily defect to the challenger. The incumbent then takes advantage of this "loyalty norm" and is able to provide less rents to her coalition than the challenger would offer.

Result 2 is specific to our policy of interest, that of religious persecution, but it has a generalizable insight that is not articulated in other selectorate models. The specific result is that the ruler persecutes the non-dominant religion up to the point at which the marginal expected penalty it can extract is equal to the marginal enforcement cost of a coalition member. What is generalizable, however, is that the relevant marginal enforcement cost (of any policy) is not that of the entire coalition, but of a single coalition member. This is due to the nature of coalition-based politics. Since each member is pivotal, the ruler has to ensure that the marginal enforcement cost to that member is acceptable to that member. Otherwise, if any one of them is dissatisfied, then the ruler cannot stay in power.

We can use Theorem 1 (result 2) to further characterize the intensity of religious persecution in equilibrium. In particular, we conduct comparative statics to show the effect of  $W$  on  $\bar{r}_2^I$ . s

**Theorem 2** *The larger the size of the ruler’s coalition, the more intensely it persecutes the non-dominant religion. That is,  $\frac{\partial \bar{r}_2^I}{\partial W} < 0$ .*

**Proof** Re-write equation (1) as

$$F \equiv \mathbb{1}_2 \mathbb{1}_v v [\theta(\bar{r}_2^I) - \theta'(\bar{r}_2^I)(r_i - \bar{r}_2^I)] - \mathbb{1}_W \left( \frac{\kappa(\bar{r}_2^I) + \kappa'(\bar{r}_2^I)\bar{r}_2^I}{W} \right).$$

Then  $\frac{\partial \bar{r}_2^I}{\partial W} = -\frac{\partial F}{\partial W} / \frac{\partial F}{\partial \bar{r}_2^I}$ , with  $\frac{\partial F}{\partial \bar{r}_2^I} \neq 0$ . One can obtain

$$-\frac{\partial F}{\partial W} = -\mathbb{1}_W \left( \frac{\kappa(\bar{r}_2^I) + \kappa'(\bar{r}_2^I)\bar{r}_2^I}{W^2} \right),$$

which is less than zero since  $\kappa(\bar{r}_2^I) + \kappa'(\bar{r}_2^I)\bar{r}_2^I > 0$ , and

$$\frac{\partial F}{\partial \bar{r}_2^I} = \mathbb{1}_2 \mathbb{1}_v v [2\theta'(\bar{r}_2^I) - \theta''(\bar{r}_2^I)(r_i - \bar{r}_2^I)] - \mathbb{1}_W \left( \frac{2\kappa'(\bar{r}_2^I) + \kappa''(\bar{r}_2^I)}{W} \right),$$

which is greater than zero. Thus,  $\frac{\partial \bar{r}_2^I}{\partial W} = -\frac{\partial F}{\partial W} / \frac{\partial F}{\partial \bar{r}_2^I} < 0$ .

The intuition is that when total enforcement costs can be spread out to more coalition members, as when  $W$  is large, the marginal enforcement cost to any one member is small. This, then, makes any one member willing to persecute with more intensity and the ruler, to satisfy any and all members, makes this happen. It is as though each member becomes less accountable for the persecution when there are many other members with whom ‘blame’ can be shared, inducing everyone to persecute a lot more than if each one had greater accountability.

This result may appear to contradict the standard result in other selectorate models that a larger coalition – a more inclusive polity, induces the ruler to provide more public goods or better public policy. However, this is not the case. In our context, the public policy that elites care about is that of persecuting the non-dominant religion. With a larger coalition, the ruler provides more of it. Larger coalition size is thus a double-edged sword – it generates more intense policy, whether that policy is good or bad.

## 4 APPLYING THE MODEL

We now apply our model to explain variation over time and across societies in the prevalence and intensity of (religious) persecution of minority groups. Ultimately, we aim to show that

persecutions are more likely to occur in periods in which rulers have larger, rather than smaller, coalitions. We first provide narratives on the history of religious persecutions in the Roman Empire, the Medieval period, and Reformation-era England. To provide rich analyses, we do not omit other key episodes and factors – besides the size of the ruling coalition, that might have contributed to the persecutions. Then we employ regression analysis using a comprehensive dataset of all executions of Catholics during the reign of Elizabeth I in England.

#### *4.1 The Persecution of Christians in the Roman Empire*

We first consider the persecution of Christians in the Roman Empire from c. 30 CE to 312 CE. Persecutions were sporadic and localized until the mid-3rd century. Roman emperors inaugurated a policy of mass repression in response to the disasters that occurred during the mid-3rd century. This policy of systematic persecution of Christianity was a response to the political incentives.

It has long been recognized that Rome’s treatment of Christians stood out from their general attitude towards other religions. In most instances, the Romans had a pluralistic and synchronistic attitude to the religions of the people they conquered (an exception were the druids of Britain and Gaul).

The apparent tolerance of the Roman empire, however, did not stem from a liberal commitment to religious freedom. Rather it reflected commonalities across the traditional religions of the Mediterranean.<sup>3</sup> These religions recognized a concept of impiety or offense to the gods. Within the civic community, an act of impiety could have collective consequences. It was for this reason that impious individuals were to be punished, often through exile, though sometimes by death (Scheid, 2016).

Christianity challenged and threatened traditional Roman religiosity. It was seen as a form of impiety or atheism (see Wilken, 1984). Early Christians saw the Roman gods as mere demons. Roman persecutors saw Christianity as heinous and as destructive of the bonds of political and social life and, by the mid-3rd century, of the political order itself.

For the first two and half centuries of the empire, however, persecution of Christians was

---

<sup>3</sup>Our assessment of traditional Roman religiosity is drawn from Lane Fox (1986), Beard et al. (1996) and Hopkins (1999). A recent and interesting discussion of these issues is Smith (2018).

sporadic and localized. There were infamous episodes of persecution under Nero in the 60s CE in the city of Rome itself and local persecutions in the reigns of Trajan and Marcus Aurelius. But most of the time Christians were more or less left alone. The empire during the 2nd century CE was stable and successful. Roman officials like Pliny the Younger were willing to persecute open Christians as impious subversives but they did not see them as major threats to the political order itself. Christianity was illegal but the Roman state did not hunt them out; if a persecution occurred it was due to local pressures (and not a political decision made by the emperor).

This changed following the military and epidemiological disasters of the mid-3rd century. The first empire-wide persecution of Christians was under the reign of Decius (r. 249-251 CE). Sacrifices to the Roman gods and particularly to the cult of the emperor were mandated by law. As this was a period of military and political crisis for the empire, the Christian rejection of the imperial cult was seen as much more pernicious than previously: now it was seen as endangering the stability of the empire. Decius himself was the first Roman emperor to die in battle against a barbarian people (the Goths). Christianity or impiety became an urgent threat to the empire.

Historians debate the precise reasons for the shift in policy towards empire-wide persecution. The documentary record for the 3rd century is extremely sparse which makes a full analysis impossible. The emperors of the mid-3rd century lacked legitimacy and they were reliant on support from political elites in the army and in senate. Decius was a distinguished senator and his policies were likely supported by members of the senatorial elite. Similarly, the Emperor Valerian (r. 253-260) who revived the policy of persecution faced a series of political crises but was “closely allied with the Senate throughout” as fact that is “significant because of the Senate’s longstanding hostility to well as its devotion to the old gods” (Haas, 1983, 141).<sup>4</sup>

Our model thus has important explanatory power in explaining the shift towards a more systemic policy of persecution. The reliance of emperors like Decius and Valerian on a

---

<sup>4</sup>Keresztes (1975, 89-90), for example, writes: “The long list of Imperial woes, the deadly menace especially on the Eastern front, the chaotic situation of economy, the still ravaging plague and other ills appeared to be beyond control. In this desperate situation, it would be no surprise if Valerian, like some of his predecessors had turned to such desperate measures such as a resort to the ‘super the subsequent measures against putting the blame on them as scapegoats for the disastrous situation of the Empire.

broader swathe of senatorial support helps to explain why it was that state policy shifted towards a more intense policy of persecution in the mid-3rd century.

This analysis also holds for the large-scale persecutions launched at the end of the reign of Diocletian (r. 285-306). The so-called Great Persecution initiated in 303 CE was the largest and most systematic persecution in Roman history. Unlike the localized persecutions of the 1st-2nd centuries, it was the product of imperial policy and designed to destroy the Christian church.

While our main historical sources blame Diocletian's co-emperor Galerius for the persecution, historians think that Diocletian was responding to interest groups within his own court. Diocletian himself may not have been especially anti-Christian: his wife and daughter are alleged to have been Christian and several senior palace officials were revealed to be Christian (though, see Williams, 1997, who is skeptical of this): rather "Diocletian was very strongly influenced by Imperial counsellors, who were often anti-Christian, in his decision to issue edicts of persecution ... there was an anti-Christian clique around Diocletian" (Keresztes, 1983, 381). According to the Christian writer Lactantius, on the eve of the persecution, Diocletian "decided therefore to sound out the opinions of his friends and advisers ... He called in a number of civil officials and military commanders to give their views. The question was put to each of them in turn, according to their rank. Some, out of personal malice towards the Christians, answered that they ought to be extirpated as enemies of the gods and of the established religious ceremonies" (quoted in Williams, 1997, 175). At first this policy targeted Christians in the army and in elite circles. Then in 303, all clergy were ordered to be arrested and between 303-304, the policy escalated as large numbers refused to sacrifice to the traditional gods and large numbers were judicially executed or in some cases killed en masse.

#### 4.2 *The Medieval Period*

The period from the fall of the Roman empire in Western Europe to 1100 saw periods of religious violence, like the Vandal persecutions of Catholics in Spain and North Africa, and Charlemagne's repression of Saxon paganism. But in general there were few (or at least few well documented) examples of sustained religious persecution (see Moore, 1987). Moreover,

political authority fractured and devolved to local lords. Rulers and states lost control of the apparatus of government. This resulted in a feudal world for which our model is not best placed to study.<sup>5</sup>

This changed in the 12-13th centuries as documented by Johnson and Koyama (2019). The Church started to view heresy as a major threat and it empowered secular rulers to search for and repress heretics. The most notorious episode of persecution was associated with the Albigensian Crusade (discussed in Johnson and Koyama (2013) and Johnson and Koyama (2019, 60-64)). In England, the first major example of repressing a Christian heresy comes from the late 14th century when the lollards were suppressed.

Johnson and Koyama (2019) argue that the increased reliance of Henry IV (r. 1399-1413) on the Church for religious legitimation was critical in his decision to suppress the lollards (who had previously had the favor of his father John of Gaunt). But this decision can also be explained in terms of an expansion of the King's coalition. Churchmen like the Archbishop of Canterbury, Thomas Arnold were now a crucial part of the new Lancastrian coalition.

The Tudors were similarly lacking in dynastic legitimacy (Greif and Rubin, 2023) and had to widen the sphere of elites who they relied on to govern. In order to counterbalance the traditional nobility they brought commoners into the ruling coalition (men like Cardinal Wolsey, Thomas Moore, and Thomas Cromwell). During Henry VII's reign lollards continued to be persecuted and as Protestant ideas crept into England in the 1520s and 1530s Henry VIII's government engaged in persecutions. We consider the Reformation-era next.

### *4.3 Reformation-era England*

Politically Henry VII (r. 1485-1509) and Henry VIII (r. 1509-1547), prior to his divorce, were close aligned with the Papacy. This changed with Henry VIII's decision to break with Rome. Henry VIII's petition to divorce Catharine of Aragon was rejected and in response, Henry made himself head of the Church of England. Historians refer to this as the Henrician Reformation. During the 1520s, the ideas of Luther and other reformers had gradually been percolating, particularly at the University of Cambridge. Henry's leading advisor Thomas Cromwell and his new wife, Anne Boleyn favored religious reformers. Scholarly

---

<sup>5</sup>We study this in a separate paper (see Desierto and Koyama, 2022).

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 (or return to) a form of “sacred kingship” modeling himself as an Old Testament ruler. 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 Crammer (Marshall, 2012).

Henry’s reformation was accompanied by widespread repression. Most elites were willing to support the King’s reforms. But a non-trivial minority resisted. The repression was violent. There were 329 people executed for treason between 1532 and 1540 including those who refused to ascent to the Royal Supremacy such as Thomas Moore and John Fisher, Archbishop of Canterbury (Marshall, 2012, 54). The dissolution of the Monasteries and other reforms provoked the Pilgrimage of Grace and other uprisings in the North, all of which the Tudor state suppressed violently. Henry continued to persecute evangelical Protestants while he executed traditionalists as traitors. In 1540 Henry VIII burned three Protestants for heresy and executed three traditionalist Catholics for treason on the same day. Throughout the remainder of Henry VIII’s reign there was ongoing conflict between traditionalists and reformers that was only resolved decisively in favor of the latter with Henry’s death and the ascension of the young Edward VI (r. 1547-1553).

Edward VI’s councilors introduced a more radical Protestant reformation. But these polices came to a halt with Edward’s premature death at the age of 15. His successor, Mary I (r. 1553-1558) was a staunch Catholic. Her 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. As Marshall (2012, 111) writes: “it would have been difficult, if not impossible, for sixteenth-century Catholics to condone or ignore some of the offences with which heretics were charged – in particular, behaving irreverently towards the blessed sacrament which they (the Catholics) believed to be the very body of God”. In particular, they targeted the evangelical leadership who they saw as guilty of leading the rest of the population into heresy.

Most victims came from the south-east—a third, more than 100, came from the greater London area.<sup>6</sup> In total during the reign of Mary I, 280 people were executed for heresy, four times the number burnt in the reign of Henry VIII, and three times the total figure executed between 1401 and 1529 (Solt, 1990, 60). This reflects the fact that Protestantism at this point was a geographically localized phenomenon, particularly popular among the tradesmen and craftsmen of England’s eastern towns.

But the intensity of these persecutions also reflects the broadening of the coalition that supported the Tudor State. One consequence of the Reformation was that Parliament had become more important than before in providing legitimacy to the state (Rubin, 2017; Greif and Rubin, 2023). The Tudor state relied on broad support from local elites and it was those elites, often acting as justices of the peace, who played a critical role in enforcing the new heresy laws. Local bishops played a critical role but the “burden of enforcing the persecution, rounding up the suspects, delivering them to the bishops for interrogation and then arranging for sentences to be carried out fell principally on the local secular authorities: the sheriffs and justices of the peace” (Marshall, 2012, 112). In the language of our model, then,  $W$  was relatively high.

Our model can also be applied to the repression of Catholics during Elizabeth’s reign. Had Mary lived longer or had a Catholic heir, it is entirely feasible that England would have returned to the traditional religion. However, Mary was childless and already unhealthy and her heir, Elizabeth, was known to be sympathetic to Protestantism. Elizabeth I’s (r. 1558-1603) long reign established the Church of England as the national church. Church attendance was legally enforced. Those who did not attend were known to be Catholic recusants and subject to an escalating series of fines that could bankrupt families and lead to the imprisonment of those who could not pay.

It took time for this regime to emerge. The Act of Uniformity of 1560 made Church attendance on Sunday compulsory and punishable by a sizable fine. It did not enquire deeply into an individual’s actual beliefs, and so-called Church Papists—those who confirmed to Anglican worship but considered themselves Catholic—were tolerated (Walsham, 1993).

---

<sup>6</sup>See Edwards (2011, 253–265). See Hall (2003) for a discussion of Mary’s intentions. Approximately 800 individuals fled Mary’s persecution—they were predominantly members of the political and religious elite who had played administrative roles in Edward VI’s reign (McGrath, 1967).

During the 1560s, the majority of the population probably remained sympathetic to the traditional religion. But the vast majority were willing to conform to the state religion. In 1559 only 300 of the clergy were unwilling to swear the oath of supremacy (Marshall, 2012, 159). There were some who were unsympathetic to the reforms, as documented at a local level by Duffy (2001) for small villages like Morebath. Nonetheless, over time, Roman Catholicism, as it was increasingly referred to, became the minority religion, with much of the work of Protestantism being achieved through the turnover of generations (Magee, 1938).

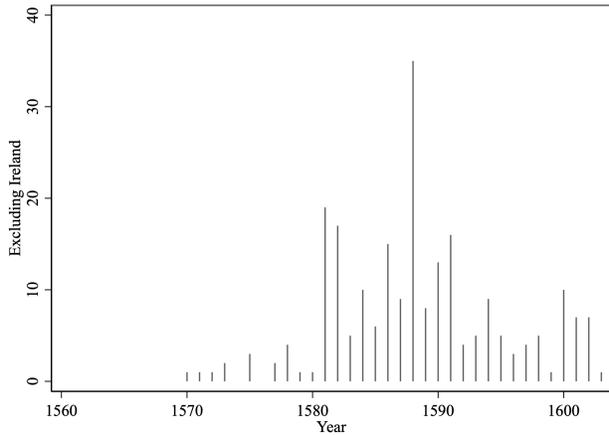
Elizabeth, like her sister Mary, was unmarried and without an heir. Contemporaries in the early 1560s had no way of knowing that she would rule for more than four decades. It was therefore easy for them to anticipate another change of regime and religion: “Catholics could hold their noses and bide their time, attending church in accordance with the law, but showing scant respect for what went on there” (Marshall, 2012, 191).

This changed in the late 1560s. Several developments precipitated the persecution of Catholics under Elizabeth’s reign. First, Mary Stuart, Queen of Scots fled to England and became the focus of religious plots against the Crown. In 1569, northern lords, many of whom were sympathetic to the old religion rose against the crown (with the intention of freeing Mary Stuart). This rebellion was popular in spirit and a serious threat to the regime and it was savagely repressed.

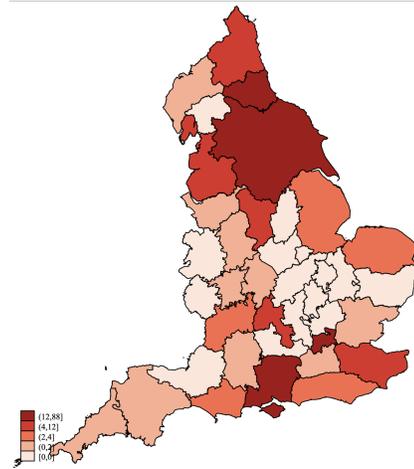
Second, Pope Pius V excommunicated Elizabeth in 1570 freeing her Catholic subjects from their oaths of allegiance. This dramatically increased the threat level associated with Catholics who now became associated with the threat of foreign invasion. In 1571 it became treason to bring papal bulls into the country or to call the Queen a heretic. As the threat of Spanish invasion increased, so the sanctions imposed on England’s Catholics intensified.

Consistent with our model, the impetus for these laws came from below; from parliament rather than from the Queen (see McGrath, 1967, 102-103). Parliament tried to effectively outlaw Catholic belief in 1571, 1576, and 1581. But this did not meet with support from Elizabeth who vetoed the measures (Marshall, 2012, 199). As Neale (1958, 28) writes: “the House of Commons was militantly Protestant . . . Invariably they wanted action: too often for their liking, she was resolved on inaction”.

Figure 1: Individuals Executed for Religious Reasons in Elizabethan England



Individuals executed for religious reasons during the reign of Elizabeth 1 (r. 1558-1603) over time. Source: see text.



Number of Individuals executed for religious reasons during the reign of Elizabeth 1 (r. 1558-1603) by county. Source: see text.

#### 4.4 Regression Analysis

We now conduct a more thorough statistical analysis of the persecution of Catholics in the Elizabethan era. In particular, we test whether a broadening of the ruler’s coalition is associated with more intense persecution.

To measure the intensity of persecution, we compiled a list of all individuals executed for reasons related to their religious faith during the reign of Elizabeth I (r. 1558-1603). This includes priests executed as traitors, such as Cuthbert Mayne who was executed in 1577. It also includes individuals like Thomas Plumtree, a priest who was executed for preaching support for the Northern Rebellion of 1569.<sup>7</sup> In 1585 all priests ordained outside the country became automatically guilty of treason on arrival in England. In total, by the end of Elizabeth I’s reign, 138 Catholic priests died as traitors and 60 laymen were executed for harboring them. We count all individuals killed for their religion in Figure 1.<sup>8</sup>

<sup>7</sup>Cases like Plumtree illustrate the complexities involved in categorizing individuals or executions as religious or not. Plumtree was a priest who had confirmed to Anglican practice after 1560. He was reconciled to Rome in 1569 and is listed as a Catholic martyr though he was executed at the time for his participation in a rebellion.

<sup>8</sup>Specifically, we curated from *Wikipedia* and from the *Catholic Encyclopedia* all individuals executed for heresy between 1500 and 1700, and all individuals subsequently recognized as martyrs by the Catholic Church. This list includes the approximately 287 individuals executed for heresy under Mary I (but excludes the approximately 30 individuals thought to have died in prison). It includes all priests executed for treason between 1577 and 1700 or individuals executed for harboring priests. But it excludes other individuals guilty

We assign these individuals to the counties where they were executed and the year of execution, and are thus able to construct a county-year panel.

An important assumption we rely on is that the county of an individual's execution was also the county where s/he was actively practicing the Catholic religion, e.g. saying and attending Mass, hearing confessions, or harboring other Catholics. (This information is often not available). Our data, therefore, does not include individuals executed in the city of London. It does, however, include individuals executed at Tyburn as this was in the county of Middlesex. Due to general concerns about measurement error and the large number of executions at Tyburn, we construct a binary measure  $Executions_{c,t}$ , which take on 1 if there was an execution in county  $c$  in year  $t$ .

Elizabeth ruled largely through her privy council but to pass laws and to raise taxes she required the support of Parliament (see Neale, 1958). Our main proxy for the size of the coalition is a binary variable  $Parliament_t$  which indicates whether parliament was in session at year  $t$ . During these years, the ruler consults a broader set of elites, i.e. the members of the House of Commons rather than a smaller body of advisers during ordinary years.

$Parliament_t$  varies only through time — to get county-level variation, we interact it with measures of the extent of Protestantism in the county. In areas where the elites had already adopted Protestantism, it would have been unlikely to sustain a network of Catholic priests and supporters. The number of practicing Catholics would be very small, as there would be no priests to administer the sacraments, and no elites to host them. We therefore expect that if years during which Parliament was in session were associated with more executions, this pattern would more likely hold in counties where there would likely be practicing Catholics, that is, where Protestantism was less extensive.

Our main proxy for the extent of Protestantism, *Protestantism*, is the number of Protestants killed in the reign of Mary I (r. 1553-1558).<sup>9</sup> We also employ alternative measures, including the dissolved monasteries in 1534 by county, taken from Heldring, Robinson, and Vollmer (2021). These were all dissolved by Henry VIII and the lands taken from the monasteries were sold to members of the ruling elite and gentry. As Desierto,

---

of treason who happened to be Catholic such as the conspirators in the Gunpowder Plot.

<sup>9</sup>The distribution of Protestants killed in Mary's reign corresponds with the views of historians such as Dickens (1987).

Koyama, and Shera (2023) show, this provided a powerful incentive for local elites to support the new religious settlement of Elizabeth I. The number of dissolved monasteries can thus also proxy for elite support for Protestantism at the county-level.

To test whether a broader coalition induces greater persecution (in places where there are individuals to persecute), we therefore run regressions of the following form:

$$\text{Executions}_{c,t} = \alpha + \text{Parliament}_t + \text{Parliament} * \text{Protestantism}_{c,t} + \gamma_c + \lambda_t + \epsilon_{c,t}, \quad (5)$$

where  $\gamma_c$  captures county fixed effects, absorbing county-specific, time-invariant unobservables, and  $\lambda_t$  are year fixed effects that absorb time-varying common shocks. We estimate this equation by OLS, as a linear probability model is easiest to interpret.<sup>10</sup>

Our main results are presented in Table 1. At the median number of *Protestantism* (i.e. 1 execution during Mary I’s reign), the net effect of Parliament being in a session on the probability of an execution is 0.36% (0.00436 – 0.000724). We obtain very similar results when we include controls for the years when invasion from Spain was a threat and when there were rebellions associated with either Catholic nobles or Mary Queen of Scots. We obtain a larger effect ( $\approx 0.6\%$ ) if we interact our year fixed effects with a dummy variable for counties in the North or Midlands.

Table 2 shows that the results generally hold when we drop certain regions from the dataset. In Table 3 we report the results where we use as explanatory variable, the number of dissolved monasteries in 1536 interacted with when Parliament was in session. These results appear to confirm that executions were more likely when Parliament was in session in counties where there were more likely to be Catholics.

Overall, these results demonstrate that our theoretical framework has explanatory power in explaining variation in the intensity of religious persecution historically.

---

<sup>10</sup>Summary statistics for our variables are listed in Table 4.

Table 1: The Persecution of Catholics and Parliament, 1559-1603

	(1)	(2)	Executions (3)	(4)	(5)
Parliament in Session	0.00436* (0.00218)	0.00436* (0.00218)	0.00436* (0.00218)	0.00644** (0.00318)	0.00509 (0.00397)
Parliament*Protestants	-0.000724*** (0.000257)	-0.000724*** (0.000257)	-0.000724*** (0.000257)	-0.000722*** (0.000234)	
Spanish Armada		0.0513 (0.0362)			
Catholic Rebellions			0.103** (0.0499)		
Parliament*Marian Exiles					-0.00484 (0.00352)
Constant	2.31e-15 (0.0131)	2.07e-15 (0.0131)	3.85e-15 (0.0131)	2.36e-15 (0.0133)	2.32e-15 (0.0131)
Observations	1755	1755	1755	1755	1755
North + Midlands * Year FE				✓	
Year FE	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓
Adjusted $R^2$	0.0419	0.0419	0.0419	0.0520	0.0416

**Table notes:** This table reports the results of panel regressions at the county-level for England, 1559-1603. The dependent variable is a binary variable that takes the value of 1 if there is an execution for religion-related reasons in a county-year. The main explanatory variables are whether Parliament is in session and the interaction of our measure of Protestantism and whether Parliament is in session. The Spanish Armada variable takes the value of 1 for those years when there as threat of invasion (1587, 1588, 1596, 1597, 1601). The Catholic Rebellions variable takes a value of 1 for those years in which there was a major Catholic rebellion/conspiracy (1569, 1571, 1583, 1586). In Col (5) we employ the number of Protestant exiles from Mary's reign as an alternative measure of Protestantism. All regressions include year and county fixed effects. Standard errors are clustered at the county-level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*.

Table 2: The Persecution of Catholics and Parliament, 1559-1603: Dropping Regions

	Executions					
	(1)	(2)	(3)	(4)	(5)	(6)
Parliament in Session	0.00302 (0.00203)	0.00400** (0.00184)	0.00515* (0.00283)	0.00505* (0.00258)	0.00456* (0.00261)	0.00472* (0.00233)
Parliament*Protestants	-0.000625 (0.000430)	-0.000900*** (0.000231)	-0.000726** (0.000292)	-0.000764*** (0.000275)	-0.000711** (0.000275)	-0.000668*** (0.000212)
Constant	1.24e-15 (0.0131)	1.53e-15 (0.0149)	5.13e-16 (0.0159)	1.51e-15 (0.0150)	1.30e-15 (0.0151)	4.41e-16 (0.0105)
Observations	1395	1530	1440	1530	1530	1485
Year FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Dropping	South	East	Midlands	Southwest	West	North
Adjusted $R^2$	0.0407	0.0492	0.0446	0.0469	0.0322	0.0390

**Table notes:** This table reports the results of panel regressions at the county-level for England, 1559-1603. The dependent and main explanatory variables are the same as in Col. (1)-(4) of Table 1. For robustness purposes we sequentially drop regions. Column 1 drops the South (Hampshire, Surrey, Kent, Berkshire, Middlesex, London, Bedfordshire, Buckinghamshire, Oxfordshire). Column 2 drops the East (Cambridgeshire, Norfolk, Suffolk, Huntingdonshire, Essex). Column 3 drops the Midlands (Derbyshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire, Rutland, Warwickshire). Column 4 drops the Southwest (Cornwall, Devon, Dorset, Somerset, Wiltshire). Column 5 drops the West (Cheshire, Gloucestershire, Shropshire, Staffordshire, Worcestershire). Column 6 drops the North (Cumberland, Durham, Lancashire, Northumberland, Westmorland, Yorkshire). All regressions include year and county fixed effects. Standard errors are clustered at the county-level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*.

Table 3: The Persecution of Catholics and Parliament, 1559-1603

	Executions			
	(1)	(2)	(3)	(4)
Parliament in Session	0.0138** (0.00596)	0.0138** (0.00596)	0.0138** (0.00596)	0.0141** (0.00557)
Parliament*Dissolved Monasteries	-0.000759** (0.000320)	-0.000759** (0.000320)	-0.000759** (0.000320)	-0.000751** (0.000306)
Spanish Armada		0.0526 (0.0372)		
Catholic Rebellions			0.105** (0.0511)	
Constant	3.55e-15 (0.0135)	3.41e-15 (0.0135)	6.01e-15 (0.0135)	3.46e-15 (0.0136)
Observations	1710	1710	1710	1710
North + Midlands * Year FE				✓
Year FE	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Adjusted $R^2$	0.0432	0.0432	0.0432	0.0553

**Table notes:** This table reports the results of panel regressions at the county-level for England, 1559-1603. The dependent variable is a binary variable that takes the value of 1 if there is an execution for religion-related reasons in a county-year. The main explanatory variables are whether Parliament is in session and the interaction of the number of dissolved monasteries and whether Parliament is in session. The Spanish Armada variable takes the value of 1 for those years when there as threat of invasion (1587, 1588, 1596, 1597, 1601). The Catholic Rebellions variable takes a value of 1 for those years in which there was a major Catholic rebellion/conspiracy (1569, 1571, 1583, 1586) All regressions include year and county fixed effects. Standard errors are clustered at the county-level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*.

## 5 CONCLUSION

We have introduced a model of coalition formation to examine the conditions under which a non-dominant religion will be subject to intense persecution.

We explicitly model premodern states as coalitions of elites that provides political support to the ruler and, in exchange, shares in the ruler's rents and the determination of religious policy. This policy choice amounts to setting a limit on the permissible religious activities of the non-dominant religion. We show that persecution is more intense the larger the size of the ruler's coalition. When more elites share in the total cost of persecution, any one elite bears much less of this burden, which makes her more likely to support the persecution. In equilibrium, religious policy involves more persecution.

Our main contribution is to show that a policy like religious persecution can be integrated into selectorate theory. The coalition-based framework we propose is a toolkit for examining how premodern states functioned. Given that there is some demand for religious persecution, the extent to which that demand is met depends, not on the ruler, but on the size of her coalition. Thus, a tolerant and less autocratic ruler can end up sanctioning more, not less, persecutions.

A limitation of the paper is that it abstracts from the reasons why some elites would have demand for the persecution of religious minorities. Other papers have offered explanations. Prior research has, for instance, emphasized the importance of scapegoating, particularly during periods of economic or political stress (Anderson, Johnson, and Koyama, 2017). Christians were scapegoated for the ills of the Roman empire. Jews were frequent scapegoats in medieval Europe.

Another important reason for religious persecution was the need for legitimation from religious authorities (Johnson and Koyama, 2019). Religious persecution could both shore-up and also potentially undermine this legitimation. In future work we hope to integrate these motivations into our coalition-based analysis.

Table 4: Summary Statistics

	Mean	SD	Min	Max
Executions	.0456	.209	0	1
Parliament in Session	0.356	0.479	0	1
Protestant Executed	6.026	12.271	0	61
Protestant Executed*Parliament	2.143	7.865	0	61
Marian exiles	1.051	1.339	0	5
Marian exiles*Parliament	0.374	0.944	0	5
Monasteries	18.211	13.295	1	72
Monasteries*Parliament	6.475	11.785	0	72
Armada	0.111	0.314	0	1
Catholic Rebellions	.0889	.285	0	1

## REFERENCES

- Anderson, R. W., N. D. Johnson, and M. Koyama (2017). Jewish persecutions and weather shocks, 1100-1800. *Economic Journal* 127(602), 924–958.
- Beard, M., J. North, and S. Price (1996). *Religions of Rome*, Volume I. Cambridge: Cambridge University Press.
- Becker, S. O., S. Mukand, and I. Yotzov (2022). Persecution, pogroms and genocide: A conceptual framework and new evidence. *Explorations in Economic History*, 101471.
- Becker, S. O. and L. Pascali (2019, May). Religion, division of labor, and conflict: Anti-semitism in germany over 600 years. *American Economic Review* 109(5), 1764–1804.
- Blouin, A. and S. W. Mukand (2019). Erasing ethnicity? propaganda, nation building, and identity in Rwanda. *Journal of Political Economy* 127(3), 1008–1062.
- Cavanaugh, W. T. (2009). *The Myth of Religious Violence*. Oxford: Oxford University Press.
- Christian, C. (2019). The political and economic role of elites in persecution: Evidence from witchcraft trials in early modern Scotland. *Review of Economics and Institutions* 10(2).
- Clarke, S. (2014). *The Justification of Religious Violence*. Oxford: Wiley Blackwell.
- Coşgel, M. M. and T. J. Miceli (2009). State and religion. *Journal of Comparative Economics* 37(3), 402–416.
- de Mesquita, B. B., J. D. Morrow, R. M. Siverson, and A. Smith (2003). *The Logic of Political Survival*. Cambridge, MA: MIT Press.
- Desierto, D. and M. Koyama (2022, October). Feudal political economy. Technical Report 22-44, GMU Working Paper in Economics.
- Desierto, D. A., M. Koyama, and M. Shera (2023, November). Rent-seeking and the reformation. Manuscript.
- Dickens, A. G. (1987). The early expansion of Protestantism in England 1520-1558. *Archiv für Reformationsgeschichte* 78, 187–222.
- Doten-Snitker, K. (2021). Contexts of state violence: Jewish expulsions in the Holy Roman Empire. *Social Science History* 45(1), 131–163.
- Duffy, E. (2001). *The Voices of Morebath: Reformation & Rebellion in a English Village*. New Haven: Yale University Press.
- Edwards, J. (2011). *Mary I: England’s Catholic Queen*. New Haven: Yale University Press.

- Finley, T. and M. Koyama (2018). Plague, Politics, and Pogroms: The Black Death, the Rule of Law, and the Persecution of Jews in the Holy Roman Empire. *Journal of Law and Economics* 61(2), 253–277.
- Greif, A. and J. Rubin (2023, January). Endogenous political legitimacy: The tudor roots of england’s constitutional governance. Available at SSRN: <https://ssrn.com/abstract=4328669> or <http://dx.doi.org/10.2139/ssrn.4328669>.
- Grosfeld, I., S. O. Sakalli, and E. Zhuravskaya (2020). Middleman Minorities and Ethnic Violence: Anti-Jewish Pogroms in the Russian Empire. *Review of Economic Studies* 87(1), 289–342.
- Haas, C. J. (1983). Imperial Religious Policy and Valerian’s Persecution of the Church, A.D. 257–260. *Church History* 52(2), 133–144.
- Hall, F. (2003). *Reformation in Britain and Ireland*. Oxford: Oxford University Press.
- Heldring, L., J. A. Robinson, and S. Vollmer (2021). The Long-Run Impact of the Dissolution of the English Monasteries. *The Quarterly Journal of Economics* 136(4), 2093–2145.
- Hopkins, K. (1999). *World Full of Gods: The Strange Triumph of Christianity*. New York: The Free Press.
- Hornung, E. (2014, January). Immigration and the Diffusion of Technology: The Huguenot Diaspora in Prussia. *American Economic Review* 104(1), 84–122.
- Jedwab, R., N. D. Johnson, and M. Koyama (2019, December). Negative shocks and mass persecutions: evidence from the Black Death. *Journal of Economic Growth* 24(4), 345–395.
- Jha, S. (2013). Trade, complementaries and religious tolerance: evidence from India. *American Journal of Political Science* 107(4).
- Johnson, N. D. and M. Koyama (2013). Legal centralization and the birth of the secular state. *Journal of Comparative Economics* 41(4), 959–978.
- Johnson, N. D. and M. Koyama (2014). Taxes, lawyers, and the decline of witch trials in France. *Journal of Law and Economics* 57.
- Johnson, N. D. and M. Koyama (2016, March). Jewish communities and city growth in preindustrial europe. Memo.
- Johnson, N. D. and M. Koyama (2019). *Persecution & Toleration: The Long Road to Religious Freedom*. Cambridge: Cambridge University Press.
- Jordan, W. (1932). *The Development of Religious Toleration in England*, Volume I. Cambridge: Cambridge University Press.
- Jordan, W. (1936). *The Development of Religious Toleration in England*, Volume II. Cambridge: Cambridge University Press.
- Juergensmeyer, M. (2000). *Terror in the Mind of God: The Global Rise of Religious Violence*. Berkeley, Los Angeles, London: University of California Press.
- Keresztes, P. (1975). Two edicts of the emperor Valerian. *Vigiliae Christianae* 29(2), 81–95.
- Keresztes, P. (1983). From the great persecution to the peace of galerius. *Vigiliae Christianae* 37(4), 379–399.
- Kulkarni, P. and S. Pfaff (2022a). Church politics, sectarianism, and judicial terror: The Scottish witch-hunt, 1563 - 1736. *Explorations in Economic History* 84, 101447.
- Kulkarni, P. and S. Pfaff (2022b). The “Glorious” Revolution’s inglorious religious commitment: Why parliamentary rule failed to secure religious liberty. *Social Science History*, 1–26.
- Lane Fox, R. (1986). *Pagans and Christians in the Mediterranean World from the Second Century AD to the Conversaion of Constantine*. New York: Viking.
- Laursen, J. C. and C. J. Nederman (Eds.) (1998). *Beyond the Persecuting Society: Religious Toleration Before the Enlightenment*, Philadelphia. University of Pennsylvania Press.
- Lecler, J. (1960). *Toleration and The Reformation*, Volume II. New York: Association Press.

- Leeson, P. T. and J. W. Russ (2017). Witch trials. *The Economic Journal* Forthcoming.
- Magee, B. (1938). *The English Recusants*. London: Burns Oates & Washbourne Ltd.
- Marshall, P. (2012). *Reformation England 1480-1642*. London: Bloomsbury Academic.
- McGrath, P. (1967). *Papists and Puritans Under Elizabeth I*. London: Blandford Press.
- Mitra, A. and D. Ray (2014). Implications of an economic theory of conflict: Hindu-Muslim violence in India. *Journal of Political Economy* 122(4), pp. 719–765.
- Moore, R. I. (1987). *The Formation of a Persecuting Society: power and deviance in Western Europe, 950–1250*. Oxford: Basil Blackwell.
- Neale, J. E. (1958). *Elizabeth I and Her Parliaments, 1559-1581*. New York: St Martin's Press.
- Nirenberg, D. (1996). *Communities of Violence*. Princeton, New Jersey: Princeton University Press.
- Rogall, T. (2021, January). Mobilizing the masses for genocide. *American Economic Review* 111(1), 41–72.
- Rubin, J. (2017). *Rulers, Religion, and Riches: Why the West got rich and the Middle East did not*. Cambridge: Cambridge University Press.
- Scheid, J. (2016). *The Gods, the State, and the Individual*. Philadelphia: University of Pennsylvania Press.
- Smith, S. D. (2018). *Pagans and Christians in the City*. Grand Rapids, Michigan: William B. Eerdmans Publishing Company.
- Solt, L. F. (1990). *Church and State in Early Modern England, 1509-1640*. Oxford: Oxford University Press.
- Sutherland, N. (1984). Persecution and toleration in reformation Europe. In W. Sheils (Ed.), *Persecution and Toleration*, Oxford, pp. 153–162. Basil Blackwell.
- Ticku, R., A. Shrivastava, and S. Iyer (2018). Economic shocks and temple desecrations in medieval india. Cambridge working papers in economics, Faculty of Economics, University of Cambridge.
- Walsham, A. (1993). *Church Papists: Catholicism, Conformity and Confessional Polemic in Early Modern England*. Woodbridge, Suffolk: The Boydell Press.
- Wilken, R. L. (1984). *The Christians as the Romans Saw Them*. New Haven: Yale University Press.
- Williams, S. (1997). *Diocletian and the Roman recovery*. London: Routledge.
- Yanagizawa-Drott, D. (2014). Propaganda and conflict: Evidence from the Rwandan genocide. *The Quarterly Journal of Economics* Forthcoming.
- Zagorin, P. (2003). *How the Idea of Religious Toleration Came to the West*. Princeton, New Jersey: Princeton University Press.