Missing Discussions: Institutional Constraints in the Islamic Political Tradition

Online Appendix

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A Welfare Inclusive of Revolt Costs

In this section, we argue that all the main results in the main text go through if the costs of revolt are included in the payoff of majority citizens, in addition to the policy payoff.

In the equilibrium of the coordination game, a citizen i revolts if and only if his direct cost of revolt c_i is below the equilibrium threshold c^* and the revolt succeeds if and only if the $\bar{c} < \bar{c}^*$. Moreover, in the limit as $\rho \to 0$: $\lim_{\rho\to 0} c^*(\rho) = \lim_{\rho\to 0} \bar{c}^*(\rho)$ (Boleslavsky, Shadmehr and Sonin, 2021). If $\bar{c} < \bar{c}^*$, then almost all citizens (members of the Majority) revolt; if $\bar{c} > \bar{c}^*$, then almost no citizen revolts. Thus, when revolt is attempted, the expected cost of revolt is:

$$\Pr(\bar{c} < \bar{c}^*) \cdot \mathbb{E}[\bar{c} \mid \bar{c} < \bar{c}^*]$$

Given $\bar{c} \sim U[0,1]$, this is equal to:

$$\Pr(\bar{c} < \bar{c}^*) \cdot \mathbb{E}[\bar{c} \mid \bar{c} < \bar{c}^*] = \frac{(\bar{c}^*)^2}{2}$$

Under the cost threshold c^*, there is a revolt with probability $\beta \in [0,1]$. Note that $\beta = \bar{c}^*$ whenever $\bar{c}^* > 0$ and $\beta = 0$ whenever $\bar{c}^* \leq 0$. Thus, $\Pr(\bar{c} < \bar{c}^*) \cdot \mathbb{E}[\bar{c}|\bar{c} < \bar{c}^*] = \beta^2/2$. This, in turn, implies that to account for the expected costs of revolt in the citizens' expected payoffs, we can simply subtract $\beta^2/2$ whenever a revolt is attempted by a strictly positive measure of citizens. Because when the revolt succeeds, the citizen payoff increases by 2, this means that to account for the expected costs of revolt in the citizen's payoffs, we can simply substitute β with $\beta_c(\beta) = \beta - \beta^2/4$ when calculating the value of the expected payoffs: $Pr(\textit{revolt attempted}) \cdot (2\beta - \beta^2/2) = 2Pr(\textit{revolt attempted}) \cdot (\beta - \beta^2/4)$. Because $\beta_c(0) = 0$,

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$\beta_c(1) = 1/2$, and $\beta_c(\beta)$ is strictly increasing in β, all our main results go through if we add the direct costs of revolt into the citizens' payoff, and then compare them under different institutional arrangements. For completeness, we derive these results below.

Recall that, in the equilibrium without institutional constraints, there is a revolt only if $\hat{s} = 0$ and the ruler takes action 1. In particular,

- When $\beta(1, M, \gamma) > 1 - \delta_0$, the threat of revolt disciplines the minority-congruent ruler, and the minority-congruent ruler takes action $a = 0$ when $\hat{s} = 0$. Consequently, there are no revolts, and there are no costs of revolt. In this case, payoffs inclusive of revolt costs are equal to policy payoffs. The majority citizens' expected payoff inclusive of revolt costs is:

$$1 - q(1 - p)$$

- When $\beta(1, M, \gamma) < 1 - \delta_0$, the minority-congruent ruler takes action $a = 1$ when $\hat{s} = 0$. When that happens, a revolt is attempted by a strictly positive measure of citizens. Therefore, a revolt is attempted by a strictly positive measure of citizens with probability

$$\Pr(t = b) \cdot \Pr(s = 0) \cdot \Pr(\hat{s} = 0 \mid s = 0) = q \cdot \frac{1}{2} \cdot p = \frac{qp}{2},$$

  in which case the expected costs of revolt is $\beta^2/2$.

  Thus, to calculate the expected payoff of majority citizens inclusive of revolt costs, one needs to subtract $(qp/2)(\beta^2/2) = qp\beta^2/4$ from the policy payoff. Recalling that $\beta_c(\beta) = \beta - \beta^2/4$, the majority citizens' expected payoff inclusive of revolt costs is:

$$1 - q\left(1 - p\beta\right) - \frac{qp\beta^2}{4} = 1 - q\left(1 - p\beta_c\right).$$

Proposition 2 in the main text is therefore modified as follows.

Proposition 1. *In equilibrium,*

$$\sigma(\hat{s}, 1) = \sigma(\hat{s} = \emptyset, 0) = 1 \quad \textit{and} \quad \sigma(\hat{s} = s, 0) = \begin{cases} 0 & ; \ \beta(1, M, \gamma) > 1 - \delta_0 \\ 1 & ; \ \beta(1, M, \gamma) < 1 - \delta_0 \end{cases}$$

There is a revolt only if $\hat{s} = 0$ and the ruler takes action 1. This revolt succeeds with probability $\beta(1, M, \gamma)$. Moreover, the expected payoff for a majority citizen, inclusive of policy payoffs and revolt costs, is

$$\begin{cases} 1 - q(1 - p) & ; \ \beta(1, M, \gamma) > 1 - \delta_0 \\ 1 - q(1 - p\beta_c(1, M, \gamma)) & ; \ \beta(1, M, \gamma) < 1 - \delta_0. \end{cases}$$

Following the same steps, Proposition 3 in the main text is modified as follows.

Proposition 2. *Recall that A is the aggregate government action, and $Pr_{(t_1,t_2)}(A)$ is the probability of A conditional on rulers' types (t_1, t_2). In equilibrium,*

$$Pr_{(t_1,t_2)}(A = s) = 1, \quad \textit{if } (t_1, t_2) \neq (b, b).$$

Otherwise,

$$Pr_{(b,b)}(A = 1|\hat{s}, s = 1) = Pr_{(b,b)}(A = 1|\hat{s} = \emptyset, s = 0) = 1$$

and

$$Pr_{(b,b)}(A = 1|\hat{s} = s, s = 0) = \begin{cases} 1 & ; \beta(1, M, \gamma) < 1 - \delta_0 \\ 0 & ; \textit{otherwise.} \end{cases}$$

There is a revolt only if $\hat{s} = 0$ and both rulers take action 1. This revolt succeeds with probability $\beta(1, M, \gamma)$. Moreover, the expected payoff for a majority citizen, inclusive of policy payoffs and revolt costs, is

$$\begin{cases} 1 - q^2(1 - p) - \mu & ; \beta(1, M, \gamma) > 1 - \delta_0 \\ 1 - q^2(1 - p\beta_c(1, M, \gamma)) - \mu & ; \beta(1, M, \gamma) < 1 - \delta_0. \end{cases}$$

Corollary 1 in the main text is modified as follows.

Corollary 1. *The value of institutional constraints is:*

$$\begin{cases} (1 - p)(q - q^2) - \mu & ; \beta(1, M, \gamma) > 1 - \delta_0 \\ (1 - p\beta_c(1, M, \gamma))(q - q^2) - \mu & ; \beta(1, M, \gamma) < 1 - \delta_0. \end{cases}$$

Proposition 4 in the main text is modified as follows.

Proposition 3. *There is threshold $p^*(M, \gamma, q, \mu)$ such that a majority citizen's expected payoff, inclusive of policy payoffs and revolt costs, is higher without institutional constraints if and only if the scope of the divine law $p > p^*$, where*

$$p^*(M, \gamma, q, \mu) = \begin{cases} 1 - \frac{\mu}{q(1-q)} & ; \beta(1, M, \gamma) > 1 - \delta_0 \\ \\ \frac{1}{\beta_c(1, M, \gamma)} \left(1 - \frac{\mu}{q(1-q)}\right) & ; \beta(1, M, \gamma) < 1 - \delta_0. \end{cases}$$

Moreover,

1. *If $p^*(M, \gamma, q, \mu) > 0$, then $p^*(M, \gamma, q, \mu)$ is decreasing in M and γ; strictly so if and only if $\beta(1, M, \gamma) < 1 - \delta_0$.*
2. *$p^*(M, \gamma, q, \mu = 0) \geq 1$. For $\mu > 0$, $p^*(M, \gamma, q, \mu)$ has an inverted U-shape in q, with*

$$lim_{q \to 0^+} p^*(M, \gamma, q, \mu) = lim_{q \to 1^-} p^*(M, \gamma, q, \mu) = -\infty.$$

Proposition 5 in the main text is modified as follows.

Proposition 4. *There is a cost threshold such that the majority citizen's expected payoff, inclusive of policy payoffs and revolt costs, is higher without institutional constraints if and only if $\mu > \mu^*$, where*

$$\mu^*(\beta, p, q) = \begin{cases} (1-p)(q-q^2) & ; \beta > 1-\delta_0 \\ \\ (1-p(\beta-\beta^2/4))(q-q^2) & ; \beta < 1-\delta_0, \end{cases}$$

where $\beta = \beta(1, M, \gamma)$. Moreover,

1. *μ^* is strictly decreasing in p, and weakly decreasing in $\beta(1, M, \gamma)$ (and hence in M and γ); strictly so when $\beta < 1 - \delta_0$.*
2. *Suppose $\delta_0 < T/M$, so that there is sufficient conflict of interest that the threat of revolt does not deter the minority-congruent ruler ($\beta < 1 - \delta_0$). Then,*
$$\frac{\partial^2 \mu^*(\beta, p, q)}{\partial p \partial \beta} = -(q-q^2)\left(1 - \frac{\beta}{2}\right) < 0.$$

Finally, Proposition 6 in the main text is modified as follows.

Proposition 5. *Suppose $\gamma \sim U[0,1]$. Let $Q = Pr_\gamma(\mu \leq \mu^*(\gamma))$ be the probability that institutional constraints improve the majority citizen's expected payoff, inclusive of policy payoffs and revolt costs. Suppose $\delta_0 < T/M$, so that there is sufficient conflict of interest that the threat of revolt does not deter the minority-congruent ($\beta < 1 - \delta_0$). Let $\mu' = \mu/(q - q^2)$. Then,*

1. *Q is decreasing in μ', p and in M; strictly so when $\mu' \in (1-p\left((1-T/M) - \frac{1}{4}(1-T/M)^2\right), 1)$.*
2. *$|Q(\mu'_2) - Q(\mu'_1)|$ is strictly decreasing in p and M for all μ'_1, μ'_2, with $\mu'_1, \mu'_2 \in (1 - p\left((1-T/M) - \frac{1}{4}(1-T/M)^2\right), 1)$.*

Proof. Using Proposition 4,

$$\begin{aligned} Q &= Pr_\gamma(\mu \leq \mu^*(\gamma) \mid \beta < 1 - \delta_0) \\ &= Pr_\gamma\left(\mu \leq (1 - p(\beta - \frac{\beta^2}{4}))(q-q^2)\right) \end{aligned}$$

Using the fact that $\beta = \beta(1, M, \gamma)$, and substituting Proposition 1 in the main text, we have: $\beta = H\left((1 - \frac{T}{M})\gamma\right)$. Because $H = U[0,1]$, $\beta = (1 - \frac{T}{M})\gamma$. Substituting, we have:

$$\begin{aligned} Q &= Pr_\gamma\left(\mu \leq (1 - p(\gamma(1 - \frac{T}{M}) - \frac{\gamma^2(1-\frac{T}{M})^2}{4}))(q-q^2)\right) \\ &= Pr_\gamma\left(\mu' \leq 1 - p(\gamma(1 - \frac{T}{M}) - \frac{\gamma^2(1-\frac{T}{M})^2}{4})\right) \\ &= Pr_\gamma\left(\gamma(1 - \frac{T}{M}) - \frac{\gamma^2}{4}(1 - \frac{T}{M})^2 \leq \frac{1-\mu'}{p}\right) \end{aligned}$$

For any $\gamma \in [0,1]$ and $M \in (T,1]$, let:

$$\zeta(\gamma, M) \equiv \gamma(1-\frac{T}{M}) - \frac{\gamma^2}{4}(1-\frac{T}{M})^2$$

Then,

$$Q = Pr_{\gamma}\left(\zeta(\gamma, M) \leq \frac{1-\mu'}{p}\right) \tag{1}$$

We continue with a few observations that will play a crucial role in the following arguments.

- $\zeta(\gamma, M)$ is strictly increasing in γ and M, because:

$$\begin{aligned} \frac{\partial \zeta}{\partial \gamma} &= 1 - \frac{T}{M} - \frac{\gamma}{2}(1-\frac{T}{M})^2 && > 0 \\ \frac{\partial \zeta}{\partial M} &= \gamma\frac{T}{M^2} - \frac{\gamma^2}{2}(1-\frac{T}{M})\frac{T}{M^2} && > 0 \end{aligned}$$

- $\zeta(\gamma, M)$ is strictly concave in γ, because:

$$\frac{\partial^2 \zeta}{\partial \gamma^2} = -\frac{1}{2}(1-\frac{T}{M})^2 \qquad < 0$$

- $\zeta(\gamma, M)$ is supermodular in γ and M, because:

$$\frac{\partial^2 \zeta}{\partial \gamma \partial M} = \frac{T}{M^2} - \gamma(1-\frac{T}{M})\frac{T}{M^2} \qquad > 0$$

  As a result, $\zeta(\gamma, M)$ satisfies strict increasing differences in (γ, M). That is, for any $\gamma_1 < \gamma_2$ and $M_1 < M_2$,

$$\zeta(\gamma_2, M_1) - \zeta(\gamma_1, M_1) < \zeta(\gamma_2, M_2) - \zeta(\gamma_1, M_2).$$

Because $\zeta(\gamma, M)$ is strictly increasing in γ, and since $\gamma \sim U[0,1]$, Equation (1) implies:

$$Q = \begin{cases} 0 & ;\ \frac{1-\mu'}{p} < \zeta(0, M) \\ \gamma^* \text{ s.t. } \zeta(\gamma^*, M) = \frac{1-\mu'}{p} & ;\ \zeta(0,M) \leq \frac{1-\mu'}{p} \leq \zeta(1, M) \\ 1 & ;\ \frac{1-\mu'}{p} > \zeta(1, M) \end{cases}$$

Substituting $\zeta(0, M) = 0$ and $\zeta(1, M) = (1-\frac{T}{M}) - \frac{1}{4}(1-\frac{T}{M})^2$,

$$Q = \begin{cases} 0 & ;\ \frac{1-\mu'}{p} < 0 \\ \gamma^* \text{ s.t. } \zeta(\gamma^*, M) = \frac{1-\mu'}{p} & ;\ 0 \leq \frac{1-\mu'}{p} \leq (1-\frac{T}{M}) - \frac{1}{4}(1-\frac{T}{M})^2 \\ 1 & ;\ \frac{1-\mu'}{p} > (1-\frac{T}{M}) - \frac{1}{4}(1-\frac{T}{M})^2 \end{cases}$$

Rearranging,

$$Q = \begin{cases} 1 & ; \ \mu' < 1 - p\left((1-\frac{T}{M}) - \frac{1}{4}(1-\frac{T}{M})^2\right) \\ \gamma^* \text{ s.t. } \zeta(\gamma^*, M) = \frac{1-\mu'}{p} & ; \ \mu' \in \left[1 - p\left((1-\frac{T}{M}) - \frac{1}{4}(1-\frac{T}{M})^2\right), 1\right] \\ 0 & ; \ \mu' > 1 \end{cases}$$

The fact that Q is decreasing in μ' and p, strictly so when $\mu' \in (1-p\left((1-\frac{T}{M}) - \frac{1}{4}(1-\frac{T}{M})^2\right), 1)$, follows from $\zeta(\gamma, M)$ being strictly increasing in γ. Moreover, the fact that Q is decreasing in M, strictly so when $\mu' \in (1-p\left((1-\frac{T}{M}) - \frac{1}{4}(1-\frac{T}{M})^2\right), 1)$, follows from $\zeta(\gamma, M)$ being strictly increasing in γ and strictly increasing in M.

Next, we show that $|Q(\mu_2') - Q(\mu_1')|$ is strictly decreasing in p for all μ_1', μ_2', with $\mu_1', \mu_2' \in (1-p\left((1-T/M) - \frac{1}{4}(1-T/M)^2\right), 1)$. Without loss of generality, take $\mu_1' < \mu_2'$ and $p_1 < p_2$ such that $\mu_1', \mu_2' \in (1-p_1\left((1-T/M) - \frac{1}{4}(1-T/M)^2\right), 1)$.

Let $Q(\mu_1' \mid p_1)$ and $Q(\mu_2' \mid p_1)$ denote the relevant probabilities under p_1. Note that $Q(\mu_1' \mid p_1) = \gamma_{11}$ and $Q(\mu_2' \mid p_1) = \gamma_{21}$, where:

$$\zeta(\gamma_{11}, M) = \frac{1-\mu_1'}{p_1} \qquad \zeta(\gamma_{21}, M) = \frac{1-\mu_2'}{p_1}$$

Similarly, $Q(\mu_1' \mid p_2) = \gamma_{12}$ and $Q(\mu_2' \mid p_2) = \gamma_{22}$, where:

$$\zeta(\gamma_{12}, M) = \frac{1-\mu_1'}{p_2} \qquad \zeta(\gamma_{22}, M) = \frac{1-\mu_2'}{p_2}$$

Now,

$$\zeta(\gamma_{11}, M) - \zeta(\gamma_{21}, M) = \frac{\mu_2' - \mu_1'}{p_1} > \frac{\mu_2' - \mu_1'}{p_2} = \zeta(\gamma_{12}, M) - \zeta(\gamma_{22}, M)$$

Therefore,

$$\zeta(\gamma_{11}, M) - \zeta(\gamma_{21}, M) > \zeta(\gamma_{12}, M) - \zeta(\gamma_{22}, M) \tag{2}$$

Because Q is strictly decreasing in μ' in the range considered, $\gamma_{11} > \gamma_{21}$ and $\gamma_{12} > \gamma_{22}$. Because Q is strictly decreasing in p in the range considered, $\gamma_{11} > \gamma_{12}$ and $\gamma_{21} > \gamma_{22}$. Finally, recall that $\zeta(\gamma, M)$ is strictly concave in γ. For Equation (2) to hold, therefore, one must have: $\gamma_{11} - \gamma_{21} > \gamma_{12} - \gamma_{22}$. Therefore,

$$\begin{aligned} |Q(\mu_2' \mid p_1) - Q(\mu_1' \mid p_1)| &= |\gamma_{21} - \gamma_{11}| \\ &= \gamma_{11} - \gamma_{21} \\ &> \gamma_{12} - \gamma_{22} \\ &= |\gamma_{22} - \gamma_{12}| \\ &= |Q(\mu_2' \mid p_2) - Q(\mu_1' \mid p_2)| \end{aligned}$$

and the result follows.

Finally, we show that $|Q(\mu_2') - Q(\mu_1')|$ is strictly decreasing in M for all μ_1', μ_2', with $\mu_1', \mu_2' \in (1 - p\left((1 - T/M) - \frac{1}{4}(1 - T/M)^2\right), 1)$. Without loss of generality, take $\mu_1' < \mu_2'$ and $M_1 < M_2$ such that $\mu_1', \mu_2' \in (1 - p\left((1 - T/M_1) - \frac{1}{4}(1 - T/M_1)^2\right), 1)$.

Let $Q(\mu_1' \mid M_1)$ and $Q(\mu_2' \mid M_1)$ denote the relevant probabilities under M_1. Note that $Q(\mu_1' \mid M_1) = \gamma_{11}$ and $Q(\mu_2' \mid M_1) = \gamma_{21}$, where:

$$\zeta(\gamma_{11}, M_1) = \frac{1 - \mu_1'}{p} \qquad \zeta(\gamma_{21}, M_1) = \frac{1 - \mu_2'}{p}$$

Similarly, $Q(\mu_1' \mid M_2) = \gamma_{12}$ and $Q(\mu_2' \mid M_2) = \gamma_{22}$, where:

$$\zeta(\gamma_{12}, M_2) = \frac{1 - \mu_1'}{p} \qquad \zeta(\gamma_{22}, M_2) = \frac{1 - \mu_2'}{p}$$

Now,

$$\zeta(\gamma_{11}, M_1) - \zeta(\gamma_{21}, M_1) = \frac{\mu_2' - \mu_1'}{p} = \zeta(\gamma_{12}, M_2) - \zeta(\gamma_{22}, M_2) \tag{3}$$

Because Q is strictly decreasing in μ' in the range considered, $\gamma_{11} > \gamma_{21}$. Because $\zeta(\gamma, M)$ satisfies strictly increasing differences in (γ, M), $\zeta(\gamma_{11}, M_1) - \zeta(\gamma_{21}, M_1) < \zeta(\gamma_{11}, M_2) - \zeta(\gamma_{21}, M_2)$. This, along with Equation (3), implies:

$$\zeta(\gamma_{11}, M_2) - \zeta(\gamma_{21}, M_2) > \zeta(\gamma_{12}, M_2) - \zeta(\gamma_{22}, M_2) \tag{4}$$

Because Q is strictly decreasing in μ' in the range considered, $\gamma_{12} > \gamma_{22}$. Because Q is strictly decreasing in M in the range considered, $\gamma_{11} > \gamma_{12}$ and $\gamma_{21} > \gamma_{22}$. Finally, recall that $\zeta(\gamma, M)$ is strictly concave in γ. For Equation (4) to hold, therefore, one must have: $\gamma_{11} - \gamma_{21} > \gamma_{12} - \gamma_{22}$. Therefore,

$$\begin{aligned}
|Q(\mu_2' \mid M_1) - Q(\mu_1' \mid M_1)| &= |\gamma_{21} - \gamma_{11}| \\
&= \gamma_{11} - \gamma_{21} \\
&> \gamma_{12} - \gamma_{22} \\
&= |\gamma_{22} - \gamma_{12}| \\
&= |Q(\mu_2' \mid M_2) - Q(\mu_1' \mid M_2)|
\end{aligned}$$

and the result follows. □

B An Alternative Model of Institutional Constraints

In this section, we present an alternative model with institutional constraints and provide a characterization. Throughout this section, we maintain our assumption that $0 = \delta_1 < \delta_0 < 1$ in the main text. The difference is that we consider $y(a_1, a_2) = \max\{a_1, a_2\}$. That is, in the setup considered here, if one of the rulers choose the minority-congruent policy $a_i = 1$, the aggregate policy is $A = 1$. A majority-congruent ruler, therefore, does not have the blocking power by himself. However, since citizens observe (a_1, a_2), they can still receive information from the majority-congruent ruler's proposed policy and base their revolt decisions on this information. In this sense, the institutional arrangement has a learning benefit for the citizens.

B.1 Formal Definition of Equilibrium

The majority-congruent ruler $j \in \{1, 2\}$ (i.e., ruler j of type $t_j = g$) always chooses $a_j = s$ by assumption.

The strategy of the minority-congruent ruler 1 (i.e., ruler 1 of type $t_1 = b$) in state s, when public signal is $\hat{s}$ and ruler 2's type is $t_2 \in \{b, g\}$ is:

$$\sigma_1(\widehat{s}, s, t_2) \equiv \Pr(a_1 = 1 | s, \hat{s}, t_2) \quad \in [0, 1]$$

The strategy of minority-congruent ruler 2 (i.e., ruler 2 of type $t_2 = b$) in state s, given the public signal is $\hat{s}$ and ruler 1's action a_1 is:[1]

$$\sigma_2(\widehat{s}, s, a_1) \equiv \Pr(a_2 = 1 | s, \hat{s}, a_1) \quad \in [0, 1]$$

The posterior beliefs of citizens that the aggregate policy is incongruent, given information $(\hat{s}, a_1, a_2)$, is denoted by:

$$q(\hat{s}, a_1, a_2) \equiv \Pr\left(\max\{a_1, a_2\} \neq s | \hat{s}, a_1, a_2\right) \quad \in [0, 1]$$

The strategy of a citizen i when with posterior beliefs q' and the cost of revolt is c_i is denoted by:

$$\varphi(q', c_i) \equiv \Pr(r_i = 1 | q', c_i) \quad \in [0, 1]$$

The Perfect Bayesian Nash Equilibrium of the game is a quadruple $(\sigma_1^*, \sigma_2^*, \varphi^*, q^*)$ such that the following are satisfied.

1. $\varphi^*(q', c_i)$ maximizes the payoff of the citizens in majority for any $q' = q^*(\hat{s}, a_1, a_2)$.
2. $q^*(\hat{s}, a_1, a_2)$ is given by Bayes' Rule.
3. Given φ^* and σ_2^*, σ_1^* maximizes the payoff of the minority-congruent ruler 1. Similarly, given φ^* and σ_1^*, σ_2^* maximizes the payoff of the minority-congruent ruler 2.

[1] As discussed in the main text, ruler 2's strategy may also condition on t_1. However, because t_1 is not payoff-relevant for ruler 2, the dependence can be dropped.

We consider the symmetric cutoff strategy equilibrium with cutoffs greater than one as $\rho \to 0$. Once again, there are multiple equilibria in this model. As an equilibrium selection device, we impose the following assumption on the minority-congruent ruler.

Assumption 1. *When a minority-congruent ruler j is indifferent between the two actions, he chooses $a_j = 1$ with probability 1.*

Assumption 1 is a mild restriction on the minority-congruent ruler's behavior: it applies only when the ruler is indifferent between the two actions. It can be microfounded by assuming that the minority-congruent ruler j obtains some infinitesimal material payoff from taking action $a_j = 1$.

B.2 Equilibrium Characterization

B.2.1 Citizens' Actions

As we will show later, the members of minority never take part in a revolution in equilibrium. Therefore, the only citizens who potentially participate in a revolution are majority citizens, whose size is M. As discussed in Proposition 1 in the main text, in a symmetric cutoff strategy equilibrium as $\rho \to 0$, a successful revolution occurs with probability:

$$\beta(q', M, \gamma) = H\left((1 - \frac{T}{M}) \cdot \gamma \cdot (2q' - 1)\right)$$

B.2.2 Beliefs Following Proposed Policy

When $\hat{s} \in \{0, 1\}$, $q^*(\hat{s}, a_1, a_2) = |\hat{s} - \max\{a_1, a_2\}| \in \{0, 1\}$. When $\hat{s} = \emptyset$, the posterior beliefs are given by:

$$\begin{aligned}
q^*(\emptyset, 0, 0) &\equiv \Pr(\max\{a_1, a_2\} \neq s | a_1 = a_2 = 0, \hat{s} = \emptyset) \\
&= \Pr(s = 1 | a_1 = a_2 = 0, \hat{s} = \emptyset) \\
&= \frac{\Pr(s = 1, a_1 = a_2 = 0, \hat{s} = \emptyset)}{\Pr(s = 1, a_1 = a_2 = 0, \hat{s} = \emptyset) + \Pr(s = 0, a_1 = a_2 = 0, \hat{s} = \emptyset)} \\
&= \frac{\frac{1}{2}q^2(1 - \sigma_1^*(\emptyset, 1, b))(1 - \sigma_2^*(\emptyset, 1, 0))}{\frac{1}{2}q^2(1 - \sigma_1^*(\emptyset, 1, b))(1 - \sigma_2^*(\emptyset, 1, 0)) + \frac{1}{2}\left(q^2(1 - \sigma_1^*(\emptyset, 0, b))(1 - \sigma_2^*(\emptyset, 0, 0)) + q(1 - q)(1 - \sigma_1^*(\emptyset, 0, g)) + (1 - q)q(1 - \sigma_2^*(\emptyset, 0, 0)) + (1 - q)^2\right)} \\
&= \frac{q^2(1 - \sigma_1^*(\emptyset, 1, b))(1 - \sigma_2^*(\emptyset, 1, 0))}{q^2(1 - \sigma_1^*(\emptyset, 1, b))(1 - \sigma_2^*(\emptyset, 1, 0)) + \left(q^2(1 - \sigma_1^*(\emptyset, 0, b))(1 - \sigma_2^*(\emptyset, 0, 0)) + q(1 - q)(1 - \sigma_1^*(\emptyset, 0, g)) + (1 - q)q(1 - \sigma_2^*(\emptyset, 0, 0)) + (1 - q)^2\right)}
\end{aligned}$$

$$\begin{aligned}
q^*(\emptyset, 0, 1) &\equiv \Pr(\max\{a_1, a_2\} \neq s | a_1 = 0, a_2 = 1, \hat{s} = \emptyset) \\
&= \Pr(s = 0 | a_1 = 0, a_2 = 1, \hat{s} = \emptyset) \\
&= \frac{\Pr(s = 0, a_1 = 0, a_2 = 1, \hat{s} = \emptyset)}{\Pr(s = 0, a_1 = 0, a_2 = 1, \hat{s} = \emptyset) + \Pr(s = 1, a_1 = 0, a_2 = 1, \hat{s} = \emptyset)} \\
&= \frac{\frac{1}{2}q^2(1 - \sigma_1^*(\emptyset, 0, b))\sigma_2^*(\emptyset, 0, 0) + (1 - q)q(1 - \sigma_2^*(\emptyset, 0, 0))}{\frac{1}{2}q^2(1 - \sigma_1^*(\emptyset, 0, b))\sigma_2^*(\emptyset, 0, 0) + (1 - q)q(1 - \sigma_2^*(\emptyset, 0, 0)) + \frac{1}{2}\left(q^2(1 - \sigma_1^*(\emptyset, 1, b))\sigma_2^*(\emptyset, 1, 0) + q(1 - q)(1 - \sigma_1^*(\emptyset, 1, g))\right)}
\end{aligned}$$

$$\begin{aligned}
q^*(\emptyset, 1, 0) &\equiv \Pr(\max\{a_1, a_2\} \neq s | a_1 = 1, a_2 = 0, \hat{s} = \emptyset) \\
&= \Pr(s = 0 | a_1 = 1, a_2 = 0, \hat{s} = \emptyset) \\
&= \frac{\Pr(s = 0, a_1 = 1, a_2 = 0, \hat{s} = \emptyset)}{\Pr(s = 0, a_1 = 1, a_2 = 0, \hat{s} = \emptyset) + \Pr(s = 1, a_1 = 1, a_2 = 0, \hat{s} = \emptyset)} \\
&= \frac{\frac{1}{2}q^2\sigma_1^*(\emptyset, 0, b)(1 - \sigma_2^*(\emptyset, 0, 1)) + q(1 - q)\sigma_1^*(\emptyset, 0, g)}{\frac{1}{2}q^2\sigma_1^*(\emptyset, 0, b)(1 - \sigma_2^*(\emptyset, 0, 1)) + q(1 - q)\sigma_1^*(\emptyset, 0, g) + \frac{1}{2}\left(q^2\sigma_1^*(\emptyset, 1, b)(1 - \sigma_2^*(\emptyset, 1, 1)) + (1 - q)q(1 - \sigma_2^*(\emptyset, 1, 1))\right)}
\end{aligned}$$

$$
\begin{aligned}
q^*(\emptyset,1,1) &\equiv \Pr(\max\{a_1,a_2\} \neq s | a_1 = a_2 = 1, \hat{s} = \emptyset)\\
&= \Pr(s=0|a_1=a_2=1,\hat{s}=\emptyset)\\
&= \frac{\Pr(s=0,a_1=a_2=1,\hat{s}=\emptyset)}{\Pr(s=0,a_1=a_2=1,\hat{s}=\emptyset)+\Pr(s=1,a_1=a_2=1,\hat{s}=\emptyset)}\\
&= \frac{\frac{1}{2}q^2\sigma_1^*(\emptyset,0,b)\sigma_2^*(\emptyset,0,1)}{\frac{1}{2}q^2\sigma_1^*(\emptyset,0,b)\sigma_2^*(\emptyset,0,1)+\frac{1}{2}\left(q^2\sigma_1^*(\emptyset,1,b)\sigma_2^*(\emptyset,1,1)+q(1-q)\sigma_1^*(\emptyset,1,g)+(1-q)q\sigma_2^*(\emptyset,1,1)+(1-q)^2\right)}
\end{aligned}
$$

B.2.3 Rulers' Actions

When the Issue is Preordained We begin by pinning down the strategies of minority-congruent ruler 2 at every history.

1. Consider the case $\hat{s} = s = 0$ and $a_1 = 0$. In this case, $\max\{a_1, a_2\} = a_2$ and $q^*(0, 0, a_2) = a_2$ for any $a_2 \in \{0, 1\}$.

   The majority members never revolt against $a_2 = 0$, and since $M > 1/2$, there is never a revolt against $a_2 = 0$. In contrast, the minority members never revolt against $a_2 = 1$, and therefore the probability of a successful revolt against $a_2 = 1$ is $\beta(1, M, \gamma)$. Thus, ruler 2's policy when $(\hat{s}, s, a_1) = (0, 0, 0)$ is:

   $$\sigma_2^*(0,0,0) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot (1-\beta(1,M,\gamma)) + (1-\sigma)\cdot\delta_0$$

   Therefore, ruler 2's PBE strategy is:

   $$\sigma_2^*(0,0,0) = \begin{cases} 0 & ;\delta_0 > 1-\beta(1,M,\gamma) \\ 1 & ;\delta_0 < 1-\beta(1,M,\gamma) \end{cases}$$

2. Consider the case $\hat{s} = s = 0$ and $a_1 = 1$. In this case, $\max\{a_1, a_2\} = 1$ regardless of a_2, and $q^*(0, 1, a_2) = 1$ for any $a_2 \in \{0, 1\}$. Ruler 2 is indifferent between the two actions, and by Assumption 1, $\sigma_2^*(0, 0, 1) = 1$.

3. Consider the case $\hat{s} = s = 1$ and $a_1 = 0$. In this case, $\max\{a_1, a_2\} = a_2$ and $q^*(1, 0, a_2) = 1 - a_2$ for any $a_2 \in \{0, 1\}$.

   Because $\delta_1 = 0$, ruler 2 receives a payoff of 0 if he chooses $a_2 = 0$. If he chooses $a_2 = 1$, the citizens will not revolt, and ruler 2 will receive a payoff of 1. Therefore, $\sigma_2^*(1, 1, 0) = 1$.

4. Consider the case $\hat{s} = s = 1$ and $a_1 = 1$. In this case, $\max\{a_1, a_2\} = 1$ regardless of a_2, and $q^*(1, 1, a_2) = 0$ for any $a_2 \in \{0, 1\}$. Ruler 2 is indifferent between the two actions, and by Assumption 1, $\sigma_2^*(1, 1, 1) = 1$.

Next, we pin down the strategy of minority-congruent ruler 1 in every history.

1. Consider the case $\hat{s} = s = 0$ and $t_2 = g$. In this case, $a_2 = 0$, and $\max\{a_1, a_2\} = a_1 \in \{0, 1\}$. Moreover, $q^*(0, a_1, a_2) = a_1$ for any $a_1 \in \{0, 1\}$.

   The majority members never revolt against $a_1 = 0$, and since $M > 1/2$, there is never a revolt against $a_1 = 0$. The minority members never revolt against $a_1 = 1$, and therefore the probability of a successful revolt against $a_1 = 1$ is $\beta(1, M, \gamma)$. Thus, ruler 1's policy when $(\hat{s}, s, t_2) = (0, 0, g)$ is:

$$\sigma_1^*(0,0,g) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot (1 - \beta(1, M, \gamma)) + (1 - \sigma) \cdot \delta_0$$

Therefore, ruler 1's PBE strategy is:

$$\sigma_1^*(0,0,g) = \begin{cases} 0 & ; \delta_0 > 1 - \beta(1, M, \gamma) \\ 1 & ; \delta_0 < 1 - \beta(1, M, \gamma) \end{cases}$$

2. Consider the case $\hat{s} = s = 0$ and $t_2 = b$. In this case,

$$a_2 = \begin{cases} 0 & ; \delta_0 > 1 - \beta(1, M, \gamma) \\ 1 & ; \delta_0 < 1 - \beta(1, M, \gamma) \end{cases}$$

   - If $\delta_0 > 1 - \beta(1, M, \gamma)$, ruler 1's optimal strategy is:

     $$\sigma_1^*(0,0,b) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot (1 - \beta(1, M, \gamma)) + (1 - \sigma) \cdot \delta_0$$

     which is maximized when $\sigma_1^*(0, 0, b) = 0$.
   - If $\delta_0 < 1 - \beta(1, M, \gamma)$, $\max\{a_1, a_2\} = 1$ for any $a_1 \in \{0, 1\}$ in any PBE. Ruler 1 is indifferent between the two actions. By Assumption 1, $\sigma_1^*(0, 0, b) = 1$.

3. Consider the case $\hat{s} = s = 1$ and $t_2 = g$. In this case, $a_2 = 1$, and $\max\{a_1, a_2\} = 1$ for any $a_1 \in \{0, 1\}$ in any PBE. Ruler 1 is indifferent between the two actions. By Assumption 1, $\sigma_1^*(1, 1, g) = 1$.

4. Consider the case $\hat{s} = s = 1$ and $t_2 = b$. Since $\sigma_2^*(1, 1, 0) = \sigma_2^*(1, 1, 1) = 1$, $a_2 = 1$ with probability one. Then, $\max\{a_1, a_2\} = 1$ for any $a_1 \in \{0, 1\}$ in any PBE. Ruler 1 is indifferent between the two actions, and by Assumption 1, $\sigma_1^*(1, 1, b) = 1$.

Note that $\sigma_1^*(1, 1) = \sigma_2^*(1, 1, 1) = 1$ in any PBE. That is, when $\hat{s} = s = 1$, the aggregate policy is $A = 1$ with probability one.

If $\delta_0 < 1 - \beta(1, M, \gamma)$, $\sigma_1^*(0, 0, b) = \sigma_1^*(0, 0, g) = \sigma_2^*(0, 0, 0) = 1$. That is, when $\hat{s} = s = 0$, the aggregate policy taken by two rulers, when at least one of them is minority-congruent, is $A = 1$ with probability one. This is accompanied by a revolt with probability $\beta(1, M, \gamma)$.

If $\delta_0 > 1 - \beta(1, M, \gamma)$, $\sigma_1^*(0, 0, b) = \sigma_1^*(0, 0, g) = \sigma_2^*(0, 0, 0) = 0$. That is, when $\hat{s} = s = 0$, the aggregate policy is $A = 0$ with probability one.

When the Issue is Non-Preordained We begin this analysis with two observations, which will considerably simplify the following arguments.

Remark 1. *In any PBE, $\sigma_2^*(\emptyset, 1, 0) = 1$. This is because when $s = 1$ and $a_1 = 0$, choosing $a_2 = 0$ yields a payoff of 0 to ruler 2 (recall that $\delta_1 = 0$). On the other hand, choosing $a_2 = 1$ yields a strictly positive payoff because the probability of revolt is strictly less than one.*

Remark 2. *In any PBE, $q^*(\emptyset,0,0)=0$. This follows from Remark 1 and the Equation defining $q^*(\emptyset,0,0)$ in Section B.2.2. In words, the citizens know that when $s=1$, ruler 2 follows up $a_1=0$ with $a_2=1$. Therefore, whenever $a_1=0$ is followed up with $a_2=0$, the citizens deduce that the state is $s=0$.*

By Remark 2, the majority citizens do not revolt upon observing $(\hat{s},a_1,a_2)=(\emptyset,0,0)$. Since $M>1/2$, the minority members do not revolt either, and there are no revolts. In any other $(\hat{s},a_1,a_2)=(\emptyset,a_1,a_2)$, the aggregate action is $A=1$. The minority citizens never attempt revolt against this action, and thus the only citizens possibly attempting revolt are the majority citizens. The probability of revolt is given by $\beta(q',M,\gamma)$.

Given these observations, the equilibrium strategy of minority-congruent ruler 2 the remaining histories is characterized by the following equations.

$$\sigma_2^*(\emptyset,0,0)\in\arg\max_{\sigma\in[0,1]}\sigma\cdot(1-\beta(q^*(\emptyset,0,1),M,\gamma))+(1-\sigma)\cdot\delta_0 \tag{5}$$

$$\sigma_2^*(\emptyset,0,1)\in\arg\max_{\sigma\in[0,1]}\sigma\cdot(1-\beta(q^*(\emptyset,1,1),M,\gamma))+(1-\sigma)\cdot(1-\beta(q^*(\emptyset,1,0),M,\gamma)) \tag{6}$$

$$\sigma_2^*(\emptyset,1,1)\in\arg\max_{\sigma\in[0,1]}\sigma\cdot(1-\beta(q^*(\emptyset,1,1),M,\gamma))+(1-\sigma)\cdot(1-\beta(q^*(\emptyset,1,0),M,\gamma)) \tag{7}$$

We continue with two observations.

- In any PBE, $1-\beta(q^*(\emptyset,1,1),M)\geq 1-\beta(q^*(\emptyset,1,0),M)$. To see this, suppose not: suppose $1-\beta(q^*(\emptyset,1,1),M)<1-\beta(q^*(\emptyset,1,0),M)$. Then, by (6), $\sigma_2^*(\emptyset,0,1)=0$. Then, by the equation defining $q^*(\emptyset,1,1)$ in Section B.2.2, $q^*(\emptyset,1,1)=0$. But then, $\beta(q^*(\emptyset,1,1),M)=0$, a contradiction.
- The observation above, along with Assumption 1, implies that $\sigma_2^*(\emptyset,0,1)=\sigma_2^*(\emptyset,1,1)=1$ in any PBE.

The only part of ruler 2's PBE strategy we have not pinned down so far is $\sigma_2^*(\emptyset,0,0)$.

We now proceed with ruler 1. For the equilibrium strategy of minority-congruent ruler 1, consider four possible histories.

1. Consider the case when $\hat{s}=\emptyset$, $s=0$ and $t_2=g$. Ruler 2 chooses $a_2=0$ with probability one, and the aggregate action is $A=\max\{a_1,a_2\}=a_1$.

   If ruler 1 chooses $a_1=1$, there is a revolt with probability $\beta(q^*(\emptyset,1,0),M,\gamma)$. If ruler 1 chooses $a_1=0$, there is a revolt with probability $\beta(q^*(\emptyset,0,0),M,\gamma)=0$. Therefore, minority-congruent ruler 1's optimal strategy when $(\hat{s},s,t_2)=(\emptyset,0,g)$ is:

   $$\sigma_1^*(\emptyset,0,g)\in\arg\max_{\sigma\in[0,1]}\sigma\cdot(1-\beta(q^*(\emptyset,1,0),M,\gamma))+(1-\sigma)\cdot\delta_0 \tag{8}$$

2. Consider the case when $\hat{s}=\emptyset$, $s=0$ and $t_2=b$.

   If ruler 1 chooses $a_1=1$, ruler 2 will follow with $a_2=1$ with probability one, because we established that $\sigma_2^*(\emptyset,0,1)=1$. The aggregate action will be $A=1$ and there will be a revolt with probability $\beta(q^*(\emptyset,1,1),M,\gamma)$.

If ruler 1 chooses $a_1 = 0$, ruler 2 will follow with a_2 with probability $\sigma_2^*(\emptyset, 0, 0)$. The aggregate action will be a_2, and ruler 1's payoff will be:

$$\sigma_2^*(\emptyset, 0, 0) \cdot (1 - \beta(q^*(\emptyset, 0, 1), M, \gamma)) + (1 - \sigma_2^*(\emptyset, 0, 0)) \cdot \delta_0$$

which, by (5), equals: $\max\{1 - \beta(q^*(\emptyset, 0, 1), M, \gamma), \delta_0\}$.

Therefore, minority-congruent ruler 1's optimal strategy when $(\hat{s}, s, t_2) = (\emptyset, 0, b)$ is:

$$\sigma_1^*(\emptyset, 0, b) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot (1 - \beta(q^*(\emptyset, 1, 1), M, \gamma)) + (1 - \sigma) \cdot \max\{1 - \beta(q^*(\emptyset, 0, 1), M, \gamma), \delta_0\} \tag{9}$$

3. Consider the case when $\hat{s} = \emptyset$, $s = 1$ and $t_2 = g$. Ruler 2 chooses $a_2 = 1$ with probability one, and the aggregate action will be $A = 1$ with probability one.

   If ruler 1 chooses $a_1 = 1$, there will be a revolt with probability $\beta(q^*(\emptyset, 1, 1), M, \gamma)$. If ruler 1 chooses $a_1 = 0$, there will be a revolt with probability $\beta(q^*(\emptyset, 0, 1), M, \gamma)$. Therefore, minority-congruent ruler 1's optimal strategy when $(\hat{s}, s, t_2) = (\emptyset, 1, g)$ is:

$$\sigma_1^*(\emptyset, 1, g) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot (1 - \beta(q^*(\emptyset, 1, 1), M, \gamma)) + (1 - \sigma) \cdot (1 - \beta(q^*(\emptyset, 0, 1), M, \gamma)) \tag{10}$$

4. Consider the case when $\hat{s} = \emptyset$, $s = 1$ and $t_2 = b$. We have already established that $\sigma_2^*(\emptyset, 1, 0) = \sigma_2^*(\emptyset, 1, 1) = 1$ in any PBE. Thus, ruler 2 chooses $a_2 = 1$ with probability one, and the aggregate action will be $A = 1$ with probability one.

   If ruler 1 takes $a_1 = 1$, there will be a revolt with probability $\beta(q^*(\emptyset, 1, 1), M, \gamma)$. If ruler 1 chooses $a_1 = 0$, there will be a revolt with probability $\beta(q^*(\emptyset, 0, 1), M, \gamma)$. Therefore, minority-congruent ruler 1's optimal strategy when $(\hat{s}, s, t_2) = (\emptyset, 1, b)$ is:

$$\sigma_1^*(\emptyset, 1, b) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot (1 - \beta(q^*(\emptyset, 1, 1), M, \gamma)) + (1 - \sigma) \cdot (1 - \beta(q^*(\emptyset, 0, 1), M, \gamma)) \tag{11}$$

Once again, we continue with two observations.

- In any PBE, $1 - \beta(q^*(\emptyset, 1, 1), M, \gamma) \geq 1 - \beta(q^*(\emptyset, 0, 1), M, \gamma)$. To see this, suppose not: suppose $1 - \beta(q^*(\emptyset, 1, 1), M, \gamma) < 1 - \beta(q^*(\emptyset, 0, 1), M, \gamma)$. Then, by (9), $\sigma_1^*(\emptyset, 0, b) = 0$. Then, by the equation defining $q^*(\emptyset, 1, 1)$ in Section B.2.2, $q^*(\emptyset, 1, 1) = 0$. But then, $\beta(q^*(\emptyset, 1, 1), M, \gamma) = 0$, a contradiction.
- The observation above, along with Assumption 1, implies that $\sigma_1^*(\emptyset, 1, g) = \sigma_1^*(\emptyset, 1, b) = 1$ in any PBE.

So far we have argued that $\sigma_2^*(\emptyset, 0, 1) = \sigma_2^*(\emptyset, 1, 1) = \sigma_1^*(\emptyset, 1, g) = \sigma_1^*(\emptyset, 1, b) = 1$. Substituting these into the equation defining $q^*(\emptyset, 1, 1)$ in Section B.2.2,

$$q^*(\emptyset,1,1) = \frac{q^2\sigma_1^*(\emptyset,0,b)\sigma_2^*(\emptyset,0,1)}{q^2\sigma_1^*(\emptyset,0,b)\sigma_2^*(\emptyset,0,1) + (q^2\sigma_1^*(\emptyset,1,b)\sigma_2^*(\emptyset,1,1) + q(1-q)\sigma_1^*(\emptyset,1,g) + (1-q)q\sigma_2^*(\emptyset,1,1) + (1-q)^2)}$$
$$= \frac{q^2\sigma_1^*(\emptyset,0,b)}{q^2\sigma_1^*(\emptyset,0,b) + q^2 + q(1-q) + (1-q)q + (1-q)^2} \leq \frac{1}{2}$$

Therefore, $\beta(q^*(\emptyset,1,1),M,\gamma) = 0$. This, along with Assumption 1 and $\delta_0 < 1$, implies that $\sigma_1^*(\emptyset,0,b) = 1$ in any PBE.

The only part of ruler 1's PBE strategy we have not pinned down so far is $\sigma_1^*(\emptyset,0,g)$. The rest of the analysis considers two separate cases.

- Suppose $\delta_0 < 1-\beta(1,M,\gamma)$. By (5), $\sigma_2^*(\emptyset,0,0) = 1$. By (8), $\sigma_1^*(\emptyset,0,g) = 1$. This completes the characterization of equilibrium strategies.

  Note that under these strategies, $q^*(\emptyset,1,0) = q^*(\emptyset,0,1) = 1$. Therefore, whenever $(\hat{s},s) = (\emptyset,0)$ and $t_1 \neq t_2$, there is a mismatch in the actions, and there is a successful revolution with probability $\beta(1,M,\gamma)$.

- Suppose $\delta_0 > 1-\beta(1,M,\gamma)$.

  Our first claim is that $\sigma_2^*(\emptyset,0,0) = 0$. To see why, suppose not: $\sigma_2^*(\emptyset,0,0) > 0$. Given the strategies pinned down so far and the equation defining $q^*(\emptyset,0,1)$ in Section B.2.2, $q^*(\emptyset,0,1) = 1$. But then, by (5), $\sigma_2^*(\emptyset,0,0) = 0$, a contradiction. On the other hand, when $\sigma_2^*(\emptyset,0,0) = 0$, the history $(\emptyset,0,1)$ is never reached on equilibrium path. The Bayes' rule does not apply to $q^*(\emptyset,0,1)$. Then, any choice of $q^*(\emptyset,0,1)$ high enough so that $1-\beta(q^*(\emptyset,0,1),M,\gamma) \leq \delta_0$ is consistent with $\sigma_2^*(\emptyset,0,0) = 0$ as an equilibrium strategy.

  Next, we similarly claim that $\sigma_1^*(\emptyset,0,g) = 0$. Suppose not: $\sigma_1^*(\emptyset,0,g) > 0$. Given the strategies pinned down so far and the equation defining $q^*(\emptyset,1,0)$ in Section B.2.2, $q^*(\emptyset,1,0) = 1$. But then, by (8), $\sigma_1^*(\emptyset,0,g) = 0$, a contradiction. On the other hand, when $\sigma_1^*(\emptyset,0,g) = 0$, the history $(\emptyset,1,0)$ is never reached on equilibrium path. The Bayes' rule does not apply to $q^*(\emptyset,1,0)$. Then, any choice of $q^*(\emptyset,1,0)$ high enough so that $1-\beta(q^*(\emptyset,1,0),M,\gamma) \leq \delta_0$ is consistent with $\sigma_1^*(\emptyset,0,g) = 0$ as an equilibrium strategy.

  We conclude that $\sigma_2^*(\emptyset,0,0) = \sigma_1^*(\emptyset,0,g) = 0$ in any PBE. This completes the characterization of equilibrium strategies.

  Note that under these strategies, whenever $(\hat{s},s) = (\emptyset,0)$ and $t_1 \neq t_2$, the aggregate action is $A = 0$ and there are no revolts.

Our findings imply the following result.

Proposition 6. *Recall that A is the aggregate government action, and $Pr_{(t_1,t_2)}(A)$ be the equilibrium probability of A conditional on rulers' types (t_1,t_2).*

- *When $\beta(1,M,\gamma) > 1-\delta_0$, the equilibrium outcomes are identical to those of the model* *in the main text. That is, in equilibrium,*

$$Pr_{(t_1,t_2)}(A = s) = 1, \quad \textit{if } (t_1, t_2) \neq (b, b).$$

Otherwise,

$$Pr_{(b,b)}(A = s|\hat{s} = s) = Pr_{(b,b)}(A = 1|\hat{s} = \emptyset) = 1$$

There are no revolts in equilibrium.

- *When* $\beta(1, M, \gamma) < 1 - \delta_0$,

$$Pr_{(t_1,t_2)}(A = 1) = 1, \quad \textit{if } (t_1, t_2) \neq (g, g).$$

There is a revolt when $\hat{s} = 0$ *and at least one ruler takes action* 1*, and when* $\hat{s} = \emptyset$ *and the rulers' actions do not match each other. These revolts succeed with probability* $\beta(1, M, \gamma)$.

The expected policy payoff for a majority citizen is

$$\begin{cases} 1 - q^2(1-p) - \mu & ; \beta(1, M, \gamma) > 1 - \delta_0 \\ (1-q)^2 + \left(2q(1-q) + pq^2\right)\beta(1, M, \gamma) - \mu & ; \beta(1, M, \gamma) < 1 - \delta_0. \end{cases}$$

Corollary 1 of the main text is then modified as follows:

Corollary 2. *The value of institutional constraints is:*

$$\begin{cases} (1-p)(q - q^2) - \mu & ; \beta(1, M, \gamma) > 1 - \delta_0 \\ \left((2-p)\beta(1, M, \gamma) - 1\right)(q - q^2) - \mu & ; \beta(1, M, \gamma) < 1 - \delta_0. \end{cases}$$

Proposition 4 of the main text is modified as follows.

Proposition 7. *There is threshold* $p^*(M, \gamma, q, \mu)$ *such that a majority citizen's policy payoff is higher without institutional constraints if and only if the scope of the divine law* $p > p^*$*, where*

$$p^*(M, \gamma, q, \mu) = \begin{cases} 1 - \frac{\mu}{q(1-q)} & ; \beta(1, M, \gamma) > 1 - \delta_0 \\ \\ 2 - \frac{1}{\beta(1,M,\gamma)}\left(1 + \frac{\mu}{q(1-q)}\right) & ; \beta(1, M, \gamma) < 1 - \delta_0. \end{cases}$$

Moreover,

1. $p^*(M, \gamma, q, \mu)$ *is increasing in* M *and* γ*; strictly so if and only if* $\beta(1, M, \gamma) < 1 - \delta_0$.
2. *For* $\mu > 0$, $p^*(M, \gamma, q, \mu)$ *has an inverted U-shape in* q*, with*

$$lim_{q \to 0^+} p^*(M, \gamma, q, \mu) = lim_{q \to 1^-} p^*(M, \gamma, q, \mu) = -\infty.$$

As in the model in the main text, a higher scope of the law makes it less likely for a society to adopt institutional constraints. The difference is regarding the comparative statics with respect to M and γ. In this model, a more homogeneous society and a society with higher solidarity is *more* likely to adopt institutional constraints.

Why are the comparative statics going in the opposite direction? In the model with $y(a_1, a_2) = \min\{a_1, a_2\}$, the main advantage of institutional constraints is that a good ruler can *block* the bad ruler: he can just impose $a_j = 0$ on the aggregate action. Therefore, when institutional constraints are imposed, society needs to resort to revolt *less* than it would without institutional constraints. However, in the model with $y(a_1, a_2) = \max\{a_1, a_2\}$, the bad ruler *cannot* block the good ruler: even when the good ruler takes $a_j = 0$, the aggregate action is dictated by the other ruler's choice. In this model, the main advantage of institutional constraints is that the good ruler can *inform* the citizens by taking a different action than the bad ruler. The citizens can learn the state better with institutional constraints, yet, it still needs to revolt against an incongruent policy. In this model, therefore, when institutional constraints are imposed, the society resorts to revolt *more* than it would without institutional constraints. Because higher M and higher γ facilitate revolt, they favor the adoption of institutional constraints.

Proposition 5 of the main text is modified as follows.

Proposition 8. *There is a cost threshold such that the majority citizen's policy payoff is higher without institutional constraints if and only if $\mu > \mu^*$, where*

$$\mu^*(\beta, p, q) = \begin{cases} (1-p)(q-q^2) & ; \beta > 1 - \delta_0 \\ \\ ((2-p)\beta - 1)(q - q^2) & ; \beta < 1 - \delta_0, \end{cases}$$

where $\beta = \beta(1, M, \gamma)$. Moreover,

1. *μ^* is strictly decreasing in p. μ^* is weakly increasing in $\beta(1, M, \gamma)$ (and hence in M and γ), strictly so when $\beta < 1 - \delta_0$.*
2. *Suppose $\delta_0 < T/M$, so that there is sufficient conflict of interest that the threat of revolt does not deter the minority-congruent ruler ($\beta < 1 - \delta_0$). Then,*

$$\frac{\partial^2 \mu^*(\beta, p, q)}{\partial p \partial \beta} = -(q - q^2) < 0.$$

As in the model in the main text, higher scope of the law p improves the majority's ability to control the ruler, thereby reducing the marginal value of institutional constraints, and hence the cost threshold below which they are adopted. Recall that societal homogeneity M or solidarity γ improve the majority's ability to revolt. Contrary to the model in the main text, in this model, institutional constraints provide information about incongruent policies, leading the majority towards revolting more. Therefore, societal homogeneity and solidarity increase the marginal value of institutional constraints, and hence they increase the cost threshold below which they are adopted. Indeed, if M and γ are low enough so that

$\beta < 1 - \delta_0$ and $(2-p)\beta < 1$, it follows that $\mu^*(\beta, p, q) < 0$, and institutional constraints are never adopted. That is, in societies where homogeneity and solidarity are extremely low, it is never worth adopting institutional constraints. Intuitively, in this model, institutional constraints provide information to citizens and citizens use this information to revolt against incongruent policies. When the threat of revolt does not discipline the ruler and it is not likely to overturn incongruent policies, such information has no value, and it is not worth bringing in a second ruler for the sole purpose of providing information.

Note, however, that even though the comparative statics with respect to M and γ change, the second part of Proposition 5 remains intact. Recall that μ^* is decreasing in p, and it decreases faster when β is higher. Therefore, this model maintains the idea that homogeneity M and solidarity γ complements the scope of the law p. Intuitively, higher scope of the law is useful insofar as it is accompanied by a revolt. On the other hand, μ^* is increasing in β, and it increases slower when p is higher. Therefore, in this model, the scope of the law p substitutes homogeneity M and solidarity γ. Intuitively, the information provided through institutional constraints is more useful when revolt capabilities are higher. Yet, a higher scope of the law renders this information (and therefore the revolt capability) less useful by providing information regardless of institutions.

Regarding the inertia of institutional constraints, Proposition 6 of the main text is modified as follows. As in Proposition 6 in the main text, we focus on the case where institutional constraints may be adopted or not. This means restricting attention to the $(2-p)\beta > 1$ case; otherwise, institutional constraints are never adopted.

Proposition 9. *Suppose $\gamma \sim U[0,1]$. Let $Q = Pr_\gamma(\mu \leq \mu^*(\gamma))$ be the probability that institutional constraints improve the majority citizen's policy payoff. Suppose $\delta_0 < T/M$, so that there is sufficient conflict of interest that the threat of revolt does not deter the minority-congruent ($\beta < 1 - \delta_0$). Moreover, suppose $(2-p)(1-\frac{T}{M}) > 1$, so that the institutional constraints are sometimes adopted ($(2-p)\beta > 1$ for high enough γ). Then,*

$$Q(\mu'; M, p) = \begin{cases} 1 - \frac{1+\mu'}{(2-p)(1-T/M)} & ; \mu' \leq (2-p)(1-T/M) - 1 \\ 0 & ; \mu' > (2-p)(1-T/M) - 1, \end{cases}$$

where $\mu' = \mu/(q-q^2)$. Moreover,

1. *Q is decreasing in p and increasing in M; strictly so when $\mu' \leq (2-p)(1-T/M) - 1$.*
2. *$|Q(\mu_2') - Q(\mu_1')|$ is strictly increasing in p and strictly decreasing in M for all $\mu_2' > \mu_1'$, with $\mu_2' \leq (2-p)(1-T/M) - 1$.*

Proof. Using Proposition 8,

$$\begin{aligned} Q &= Pr_\gamma(\mu \leq \mu^*(\gamma) \mid \beta < 1 - \delta_0) \\ &= Pr_\gamma\left(\mu \leq ((2-p)\beta - 1)\,(q-q^2)\right) \end{aligned}$$

Using the fact that $\beta = \beta(1, M, \gamma)$, and substituting Proposition 1 in the main text, we have:

$\beta = H\left((1-\frac{T}{M})\gamma\right)$. Because $H = U[0,1]$, $\beta = (1-\frac{T}{M})\gamma$. Substituting, we have:

$$\begin{aligned} Q &= Pr_\gamma\left(\mu \leq \left((2-p)(1-\frac{T}{M})\gamma - 1\right)(q-q^2)\right) \\ &= Pr_\gamma\left(\mu' \leq \left((2-p)(1-\frac{T}{M})\gamma - 1\right)\right) \\ &= Pr_\gamma\left((2-p)(1-\frac{T}{M})\gamma \geq 1+\mu'\right) \\ &= Pr_\gamma\left(\gamma \geq \frac{1+\mu'}{(2-p)(1-\frac{T}{M})}\right) \end{aligned}$$

Recall that $\gamma \sim U[0,1]$. Under the restriction $(2-p)(1-\frac{T}{M}) > 1$, $\frac{1}{(2-p)(1-\frac{T}{M})} < 1$, which means Q is strictly positive for $\mu' = 0$. Moreover, as long as $\mu' \leq (2-p)(1-T/M) - 1$, $\frac{1+\mu'}{(2-p)(1-\frac{T}{M})} \leq 1$, which means Q is positive. Indeed, when $\mu' \leq (2-p)(1-T/M)-1$,

$$Q = Pr_\gamma\left(\gamma \geq \frac{1+\mu'}{(2-p)(1-\frac{T}{M})}\right) = 1 - \frac{1+\mu'}{(2-p)(1-\frac{T}{M})}$$

On the other hand, when $\mu' > (2-p)(1-T/M)-1$, $\frac{1+\mu'}{(2-p)(1-\frac{T}{M})} > 1$, which means $Q = 0$.

The first part of Proposition 9 is evident from these formulas. Regarding the second part, as $Q(\mu')$ is decreasing in μ', with $\mu'_1 < \mu'_2$:

$$|Q(\mu'_2) - Q(\mu'_1)| = Q(\mu'_1) - Q(\mu'_2)$$

Moreover, since $\mu'_1 < \mu'_2 \leq (2-p)(1-T/M)-1$, $Q(\mu'_1) = 1 - \frac{1+\mu'_1}{(2-p)(1-\frac{T}{M})}$ and $Q(\mu'_2) = 1 - \frac{1+\mu'_2}{(2-p)(1-\frac{T}{M})}$. Therefore,

$$\begin{aligned} Q(\mu'_1) - Q(\mu'_2) &= \left(1 - \frac{1+\mu'_1}{(2-p)(1-\frac{T}{M})}\right) - \left(1 - \frac{1+\mu'_2}{(2-p)(1-\frac{T}{M})}\right) \\ &= \frac{\mu'_2 - \mu'_1}{(2-p)(1-\frac{T}{M})} \end{aligned}$$

which is strictly increasing in p and strictly decreasing in M. □

Proposition 9 provides new insights into the effect of changes in the costs of institutions. For a given μ', societies with sufficiently high solidarity levels adopt institutional constraints. Consider a reduction in the costs of institutional constraints from μ'_2 to μ'_1, e.g., due to peacetime. Then, societies with even lower levels of γ tend to adopt institutional constraints. As part 2 of the Proposition shows, this change tends to be larger when p is larger. This is because the scope of the law substitutes solidarity in this model: when the scope of the law p is larger, the capacity of revolt obtained through γ needs to change a lot for a society to adopt institutional constraints. Therefore, the cutoff of solidarity above which institutional constraints are adopted varies strongly with μ'. Consequently, societies with high scope of law are more responsive to a decrease in μ'.

We conclude our discussion by presenting the analogue of Proposition in the main text. Given that institutional constraints make revolt more likely by providing information, the following result is not surprising.

Proposition 10. *Suppose that $p^* \in (0,1)$ and that $\delta_0 < T/M$, so that there is sufficient conflict of interest and the threat of revolt does not deter the minority-congruent ruler ($\beta < 1-\delta_0$). Focusing on the scope of the law p as the only source of variation, the equilibrium probabilities of revolt attempts and successful revolt are both higher in societies with institutional constraints. Formally,*

$$\mathbb{E}[\frac{pq}{2} \mid p > p^*] < \mathbb{E}[q(1-q)+\frac{pq^2}{2} \mid p < p^*] \quad \textit{and} \quad \mathbb{E}[\frac{pq\beta}{2} \mid p > p^*] < \mathbb{E}[\left(2q(1-q)+\frac{pq^2}{2}\right)\beta \mid p < p^*],$$

for a given q and $\beta = \beta(1, M, \gamma)$.

C An Extended Model of Institutional Constraints

In this section, we present an extended version of the model with institutional constraints in Section 2.1 of the main text and provide a characterization of the equilibrium. The extended model is different from our main model in two ways. First, we do not require that the rulers observe each others' types. Second, we allow for $\delta_1 > 0$, but we still maintain the assumption that $\delta_1 < \delta_0 < 1$. That is, throughout this section, we will maintain the following assumption.

Assumption 2. $\delta_1 < \delta_0 < 1$, *i.e., the minority-congruent ruler always prefers to propose* $a = 1$, *and his incentives to propose* $a = 0$ *are stronger in state* $s = 0$.

Note that under Assumption 2, the PBE with one ruler discussed in the main text (Proposition 2) applies verbatim. This is because $\delta_1 < \delta_0$ ensures $\sigma(\emptyset, 1) \geq \sigma(\emptyset, 0)$ in any PBE. Then, Bayesian updating implies that following $\hat{s} = \emptyset$ and $a = 0$, the belief that the ruler's action does not match the state satisfies $q'(a) \leq \frac{1}{2}$. As a result, there are no revolts following $\hat{s} = \emptyset$. Throughout the reminder of this section, we analyze the game with two rulers.

Timing The timing of the game is as follows.

1. The nature determines the realizations of rulers' types, the state of the world s, signal $\hat{s}$, the common value of costs $\bar{c}$, and idiosyncratic elements of costs ϵ_i's.
2. Each ruler observes his own type, the state s, and $\hat{s}$. Each citizen i observes $\hat{s}$ and her private cost c_i.
3. Ruler 1 proposes action a_1, which ruler 2 and the citizens observe.
4. Ruler 2 proposes action a_2, which the citizens observe.
5. The aggregate policy is $A = \min\{a_1, a_2\}$. Citizens simultaneously decide whether or not to revolt against the aggregate policy A.
6. Success of revolution r is determined, payoffs are received, and the game ends.

We consider the Perfect Bayesian Nash Equilibrium of this game. The existence of two rulers who do not observe each others' types can generate multiple equilibria, in which case we use *forward induction* criterion of Govindan and Wilson (2009) to select an outcome. This criterion implies the Intuitive Criterion of Cho and Kreps (1987) for simple signaling games with one sender. The formal definition of forward induction criterion is provided below in Section C.2.

C.1 Formal Definition of Equilibrium

The majority-congruent ruler $j \in \{1, 2\}$ (i.e., ruler j of type $t_j = g$) always chooses $a_j = s$ by assumption. The strategy of the minority-congruent ruler 1 (i.e., ruler 1 of type $t_1 = b$) in state s when public signal is $\hat{s}$ is:

$$\sigma_1(\widehat{s}, s) \equiv \Pr(a_1 = 1 | s, \hat{s}) \quad \in [0, 1]$$

The strategy of minority-congruent ruler 2 (i.e., ruler 2 of type $t_2 = b$) in state s, given public signal $\hat{s}$ and ruler 1's action a_1 is:

$$\sigma_2(\widehat{s}, s, a_1) \equiv \Pr(a_2 = 1|s, \hat{s}, a_1) \quad \in [0,1]$$

The posterior beliefs of citizens that the aggregate policy is incongruent, given information $(\hat{s}, a_1, a_2)$, is denoted by:

$$q(\hat{s}, a_1, a_2) \equiv \Pr\left(\min\{a_1, a_2\} \neq s|\hat{s}, a_1, a_2\right) \quad \in [0,1]$$

Let $r_i \in \{0,1\}$ denote the revolting decision of citizen i, with $r_i = 1$ corresponding to revolting. The strategy of a majority citizen i when posterior beliefs are q' and the cost of revolt is c_i is denoted by:

$$\varphi(q', c_i) \equiv \Pr(r_i = 1|q', c_i) \quad \in [0,1]$$

As we will see later, in this version of the model, the minority citizens sometimes participate in revolt against $A = 0$ when they believe a sufficient number of majority citizens participate as well. The strategy of a minority citizen i when the aggregate action is $A = 0$, the posterior beliefs are q', and the cost of revolt is c_i, is denoted by:

$$\phi(q', c_i) \equiv \Pr(r_i = 1|q', c_i) \quad \in [0,1]$$

The Perfect Bayesian Nash Equilibrium of the game is a tuple $(\sigma_1^*, \sigma_2^*, \varphi^*, \phi^*, q^*)$ such that the following are satisfied.

1. $\varphi^*(q', c_i)$ maximizes the payoff of the citizens in majority for any $q' = q^*(\hat{s}, a_1, a_2)$.
2. $\phi^*(q', c_i)$ maximizes the payoff of the citizens in minority for any $q' = q^*(\hat{s}, a_1, a_2)$ when $A = 0$.
3. $q^*(\hat{s}, a_1, a_2)$ is given by Bayes' Rule.
4. Given φ^*, ϕ^* and σ_2^*, σ_1^* maximizes the payoff of the minority-congruent ruler 1. Similarly, given φ^*, ϕ^* and σ_1^*, σ_2^* maximizes the payoff of the minority-congruent ruler 2.

C.2 Forward Induction

The following definitions are adapted from Govindan and Wilson (2009).

A **terminal node** of the game with two rulers is:

$$(s, \hat{s}, a_1, a_2, r) \qquad \in \{(0,0), (1,1), (0,\emptyset), (1,\emptyset)\} \times \{0,1\} \times \{0,1\} \times \{0,1\}$$

As we will demonstrate later, any subgame following $\hat{s} = s$ has a unique PBE. While refining the equilibrium, we will focus on the subgame following $\hat{s} = \emptyset$.

We begin by a formal definition of an outcome.

Definition 1. *The* **outcome** *of a Perfect Bayesian Nash Equilibrium is the induced probability distribution over the terminal nodes.*

Definition 2. *Consider an outcome. A pure strategy of a player is* **relevant** *for that outcome if:*

1. *There is a Perfect Bayesian Nash Equilibrium with that outcome, and,*
2. *The pure strategy is optimal under the beliefs in the said equilibrium.*

In words, given an outcome, the relevant strategies are reasonable deviations that a player may consider.

Definition 3. *Consider an outcome. An information set is* **relevant** *for that outcome if it is reached with strictly positive probability by some relevant strategy for that outcome.*

In words, relevant information sets are those that can be reached via reasonable deviations by some players.

Definition 4. *An outcome satisfies* **forward induction** *if it results from a Perfect Bayesian Nash Equilibrium in which at every information set that is relevant for that outcome the support of the beliefs are confined to profiles of Nature's strategies and other players' strategies that are relevant for that outcome.*

In words, an outcome satisfies forward induction if, in any relevant information set, the players believe that information set is reached via a reasonable deviation.

C.3 Equilibrium Characterization

C.3.1 Citizens' Actions

Suppose $A = 1$. In this case, the minority citizens never participate in the revolt, and the measure of citizens who may contemplate a revolt is M. As discussed in Proposition 1 of the main text, in a symmetric cutoff strategy equilibrium as $\rho \to 0$, a successful revolution occurs with probability:

$$\beta(q', M, \gamma) = H\left((1 - \frac{T}{M}) \cdot \gamma \cdot (2q' - 1)\right)$$

In contrast, when $A = 0$, the minority citizens always prefer to participate in the revolt, if they believe a sufficient number of majority citizens also revolt. In this case, the measure of citizens who may contemplate a revolt is 1. In any equilibrium, let the probability of a successful revolt be given by:

$$\bar{\beta}(q') \qquad \in [0, 1]$$

For our purposes, a closed-form equation characterizing $\bar{\beta}(q')$ is unnecessary. This is because we will show that in PBE that survives forward induction, there are no revolts against

$A = 0$.[2] However, we will maintain the assumption that $\bar{\beta}(q')$ is continuous in q', and:

$$\bar{\beta}(q') = 0 \qquad \text{for any } q' \leq \frac{1}{2} \tag{12}$$

Equation (12) holds because, in any equilibrium, majority citizens do not participate in a revolt against $A = 0$ when $q' \leq \frac{1}{2}$. Foreseeing this, minority members do not participate either, and hence there are no revolts.

C.3.2 Beliefs Following Proposed Policy

When the issue is predordained ($\hat{s} \in \{0, 1\}$), $q^*(\hat{s}, a_1, a_2) = |\hat{s} - \min\{a_1, a_2\}| \in \{0, 1\}$.

When the issue is non-preordained ($\hat{s} = \emptyset$), the posterior beliefs are given by:

$$\begin{aligned}
q^*(\emptyset, 0, 0) &\equiv \Pr(\min\{a_1, a_2\} \neq s | a_1 = a_2 = 0, \hat{s} = \emptyset) \\
&= \Pr(s = 1 | a_1 = a_2 = 0, \hat{s} = \emptyset) \\
&= \frac{\Pr(s = 1, a_1 = a_2 = 0, \hat{s} = \emptyset)}{\Pr(s = 1, a_1 = a_2 = 0, \hat{s} = \emptyset) + \Pr(s = 0, a_1 = a_2 = 0, \hat{s} = \emptyset)} \\
&= \frac{\frac{1}{2} q^2 (1 - \sigma_1^*(\emptyset, 1))(1 - \sigma_2^*(\emptyset, 1, 0))}{\frac{1}{2} q^2 (1 - \sigma_1^*(\emptyset, 1))(1 - \sigma_2^*(\emptyset, 1, 0)) + \frac{1}{2}\left(q^2 (1 - \sigma_1^*(\emptyset, 0))(1 - \sigma_2^*(\emptyset, 0, 0)) + q(1-q)(1 - \sigma_1^*(\emptyset, 0)) + (1-q)q(1 - \sigma_2^*(\emptyset, 0, 0)) + (1-q)^2\right)} \\
&= \frac{q^2 (1 - \sigma_1^*(\emptyset, 1))(1 - \sigma_2^*(\emptyset, 1, 0))}{q^2 (1 - \sigma_1^*(\emptyset, 1))(1 - \sigma_2^*(\emptyset, 1, 0)) + \left(q^2 (1 - \sigma_1^*(\emptyset, 0))(1 - \sigma_2^*(\emptyset, 0, 0)) + q(1-q)(1 - \sigma_1^*(\emptyset, 0)) + (1-q)q(1 - \sigma_2^*(\emptyset, 0, 0)) + (1-q)^2\right)}
\end{aligned}$$

$$\begin{aligned}
q^*(\emptyset, 0, 1) &\equiv \Pr(\min\{a_1, a_2\} \neq s | a_1 = 0, a_2 = 1, \hat{s} = \emptyset) \\
&= \Pr(s = 1 | a_1 = 0, a_2 = 1, \hat{s} = \emptyset) \\
&= \frac{\Pr(s = 1, a_1 = 0, a_2 = 1, \hat{s} = \emptyset)}{\Pr(s = 1, a_1 = 0, a_2 = 1, \hat{s} = \emptyset) + \Pr(s = 0, a_1 = 0, a_2 = 1, \hat{s} = \emptyset)} \\
&= \frac{\frac{1}{2} q^2 (1 - \sigma_1^*(\emptyset, 1)) \sigma_2^*(\emptyset, 1, 0) + q(1-q)(1 - \sigma_1^*(\emptyset, 1))}{\frac{1}{2} q^2 (1 - \sigma_1^*(\emptyset, 1)) \sigma_2^*(\emptyset, 1, 0) + q(1-q)(1 - \sigma_1^*(\emptyset, 1)) + \frac{1}{2}\left(q^2 (1 - \sigma_1^*(\emptyset, 0)) \sigma_2^*(\emptyset, 0, 0) + (1-q) q \sigma_2^*(\emptyset, 0, 0)\right)}
\end{aligned}$$

$$\begin{aligned}
q^*(\emptyset, 1, 0) &\equiv \Pr(\min\{a_1, a_2\} \neq s | a_1 = 1, a_2 = 0, \hat{s} = \emptyset) \\
&= \Pr(s = 1 | a_1 = 1, a_2 = 0, \hat{s} = \emptyset) \\
&= \frac{\Pr(s = 1, a_1 = 1, a_2 = 0, \hat{s} = \emptyset)}{\Pr(s = 1, a_1 = 1, a_2 = 0, \hat{s} = \emptyset) + \Pr(s = 0, a_1 = 1, a_2 = 0, \hat{s} = \emptyset)} \\
&= \frac{\frac{1}{2} q^2 \sigma_1^*(\emptyset, 1)(1 - \sigma_2^*(\emptyset, 1, 1)) + (1-q) q (1 - \sigma_2^*(\emptyset, 1, 1))}{\frac{1}{2} q^2 \sigma_1^*(\emptyset, 1)(1 - \sigma_2^*(\emptyset, 1, 1)) + q(1-q)(1 - \sigma_2^*(\emptyset, 1, 1)) + \frac{1}{2}\left(q^2 \sigma_1^*(\emptyset, 0)(1 - \sigma_2^*(\emptyset, 0, 1)) + q(1-q) \sigma_1^*(\emptyset, 0)\right)}
\end{aligned}$$

[2] It is, however, possible to characterize the value of $\bar{\beta}(q')$. In any symmetric cutoff strategy equilibrium as $\rho \to 0$, the minority citizens use a cutoff c^m such that $r_i = 1$ if and only if $c_i \leq c^m$. Similarly, majority citizens use a cutoff c^M such that $r_i = 1$ if and only if $c_i \leq c^M$. The revolution is successful as long as $\bar{c} \leq \bar{c}^*$ for some c^*. The three cutoff values, c^m, c^M and $\bar{c}^*$ satisfy:

$$\begin{aligned}
\gamma \cdot \Pr\left(\bar{c} \leq \bar{c}^* | c_i = c^m\right) &= c^m \\
\gamma \cdot (2q' - 1) \cdot \Pr\left(\bar{c} \leq \bar{c}^* | c_i = c^M\right) &= c^M \\
(1 - M) \cdot \Pr(c_i \leq c^m | \bar{c} = \bar{c}^*) + M \cdot \Pr(c_i \leq c^M | \bar{c} = \bar{c}^*) &= T
\end{aligned}$$

The probability of a successful revolt is $\bar{\beta}(q') = H(\bar{c}^*)$.

$$\begin{aligned}
q^*(\emptyset,1,1) &\equiv \Pr(\min\{a_1,a_2\}\neq s|a_1=a_2=1,\hat{s}=\emptyset)\\
&= \Pr(s=0|a_1=a_2=1,\hat{s}=\emptyset)\\
&= \frac{\Pr(s=0,a_1=a_2=1,\hat{s}=\emptyset)}{\Pr(s=0,a_1=a_2=1,\hat{s}=\emptyset)+\Pr(s=1,a_1=a_2=1,\hat{s}=\emptyset)}\\
&= \frac{\frac{1}{2}q^2\sigma_1^*(\emptyset,0)\sigma_2^*(\emptyset,0,1)}{\frac{1}{2}q^2\sigma_1^*(\emptyset,0)\sigma_2^*(\emptyset,0,1)+\frac{1}{2}\left(q^2\sigma_1^*(\emptyset,1)\sigma_2^*(\emptyset,1,1)+q(1-q)\sigma_1^*(\emptyset,1)+(1-q)q\sigma_2^*(\emptyset,1,1)+(1-q)^2\right)}
\end{aligned}$$

C.3.3 Rulers' Actions

When the Issue is Preordained We proceed in the fashion of backward induction, first pinning down the strategies of minority-congruent ruler 2 at every history.

1. Consider the case $\hat{s}=s=a_1=0$. In this case, $\min\{a_1,a_2\}=0$ regardless of a_2, and $q^*(0,0,a_2)=0$ for any $a_2\in\{0,1\}$. We conclude that any $\sigma_2^*(0,0,0)\in[0,1]$ can be a part of a PBE.

   Note that because $q^*(0,0,a_2)=0$, the majority citizens never participate in revolt, and consequently, there are no revolts. Therefore, the payoff of minority-congruent ruler 2 is δ_0 in any PBE.

2. Now, consider the case $\hat{s}=s=0$ and $a_1=1$. In this case, $\min\{a_1,a_2\}=a_2$ and $q^*(0,1,a_2)=a_2$ for any $a_2\in\{0,1\}$. When $a_2=0$, majority citizens do not participate in the revolt and there are no revolts. When $a_2=1$, only majority citizens participate in the revolt, which is successful with probability $\beta(1,M,\gamma)$. Thus, ruler 2's optimal strategy when $(\hat{s},s,a_1)=(0,0,1)$ is:

   $$\sigma_2^*(0,0,1)\in\arg\max_{\sigma\in[0,1]}\sigma\cdot(1-\beta(1,M,\gamma))+(1-\sigma)\cdot\delta_0$$

   Therefore, ruler 2's PBE strategy is:

   $$\sigma_2^*(0,0,1)=\begin{cases}0 & ;\delta_0>1-\beta(1,M,\gamma)\\ 1 & ;\delta_0<1-\beta(1,M,\gamma)\end{cases}$$

3. Now, consider the case $\hat{s}=s=1$ and $a_1=0$. In this case, $\min\{a_1,a_2\}=0$ regardless of a_2, and $q^*(1,0,a_2)=1$ for any $a_2\in\{0,1\}$. We conclude that any $\sigma_2^*(1,1,0)\in[0,1]$ can be a part of a PBE.

   Note that because $q^*(1,0,a_2)=1$, majority citizens participate in a revolt against $A=0$. Foreseeing this, minority citizens also participate. Therefore, all citizens contemplate participating in a revolt, which is successful with probability $\bar{\beta}(1)$. The payoff of minority-congruent ruler 2 is $\delta_0\cdot\left(1-\bar{\beta}(1)\right)$ in any PBE.

4. Finally, consider the case $\hat{s}=s=a_1=1$. In this case, $\min\{a_1,a_2\}=a_2$ and $q^*(1,1,a_2)=1-a_2$ for any $a_2\in\{0,1\}$. When $a_2=0$, all citizens contemplate participating in a revolt, which is successful with probability $\bar{\beta}(1)$. When $a_2=1$, none of the citizens revolt. Thus, ruler 2's optimal strategy when $(\hat{s},s,a_1)=(1,1,1)$ is:

   $$\sigma_2^*(1,1,1)\in\arg\max_{\sigma\in[0,1]}\sigma+(1-\sigma)\cdot\delta_0\cdot\left(1-\bar{\beta}(1)\right)$$

   Given Assumption 2, we conclude that $\sigma_2^*(1,1,1)=1$.

Next, we pin down the strategy of minority-congruent ruler 1 in every history.

1. Consider the case $\hat{s} = s = 0$. If ruler 1 chooses a_1, the probability that ruler 2 chooses $a_2 = 0$ is:

$$(1-q) + q \cdot (1 - \sigma_2^*(0,0,a_1))$$

and the probability that ruler 2 chooses $a_2 = 1$ is:

$$q \cdot \sigma_2^*(0,0,a_1)$$

Therefore, ruler 1's optimal strategy when $\hat{s} = s = 0$ is:

$$\begin{aligned}\sigma_1^*(0,0) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot (((1-q) + q \cdot (1-\sigma_2^*(0,0,1))) \cdot \delta_0 + q \cdot \sigma_2^*(0,0,1) \cdot (1 - \beta(1,M,\gamma))) \\ + (1-\sigma) \cdot \delta_0\end{aligned}$$

- If $1 - \beta(1,M,\gamma) > \delta_0$, $\sigma_2^*(0,0,1) = 1$ and thus ruler 1's optimal strategy is:

$$\begin{aligned}\sigma_1^*(0,0) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot ((1-q) \cdot \delta_0 + q \cdot (1 - \beta(1,M,\gamma))) \\ + (1-\sigma) \cdot \delta_0\end{aligned}$$

which is maximized when $\sigma_1^*(0,0) = 1$.

- If $1 - \beta(1,M,\gamma) < \delta_0$, $\sigma_2^*(0,0,1) = 0$ and $\min\{a_1,a_2\} = 0$ for any $a_1 \in \{0,1\}$ in any PBE. We conclude that any $\sigma_1^*(0,0) \in [0,1]$ can be a part of a PBE.

  Note that majority citizens never participate in a revolt, and there are no revolts. Therefore, the payoff of minority-congruent ruler 1 is δ_0 in any PBE.

2. Now, consider the case $\hat{s} = s = 1$. If ruler 1 chooses a_1, the probability that ruler 2 chooses $a_2 = 0$ is:

$$q \cdot (1 - \sigma_2^*(1,1,a_1))$$

and the probability that ruler 2 chooses $a_2 = 1$ is:

$$(1-q) + q \cdot \sigma_2^*(1,1,a_1)$$

Thus, ruler 1's optimal strategy when $\hat{s} = s = 1$ is:

$$\begin{aligned}\sigma_1^*(1,1) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot \big(q \cdot (1-\sigma_2^*(1,1,1)) \cdot (1-\bar{\beta}(1)) \cdot \delta_1 + (1-q) + q \cdot \sigma_2^*(1,1,1)\big) \\ + (1-\sigma) \cdot (1-\bar{\beta}(1)) \cdot \delta_1\end{aligned}$$

But recall that $\sigma_2^*(1,1,1) = 1$. Thus, ruler 1's choice simplifies to:

$$\sigma_1^*(1,1) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot 1 + (1-\sigma) \cdot \delta_1 \cdot (1 - \bar{\beta}(1))$$

Given Assumption 2, we conclude that $\sigma_1^*(1,1) = 1$.

Note that $\sigma_1^*(1,1) \cdot \sigma_2^*(1,1,1) = 1$ in any PBE. That is, when $\hat{s} = s = 1$, the aggregate policy is $A = 1$ with probability one and there are no revolts.

If $1 - \beta(1, M, \gamma) > \delta_0$, $\sigma_1^*(0,0) \cdot \sigma_2^*(0,0,1) = 1$. That is, when $\hat{s} = s = 0$, the aggregate policy taken by two minority-congruent rulers is $A = 1$ with probability one. This is followed with a revolt with probability $\beta(1, M, \gamma)$.

If $1 - \beta(1, M, \gamma) < \delta_0$, $\sigma_1^*(0,0) \cdot \sigma_2^*(0,0,1) = 0$. That is, when $\hat{s} = s = 0$, the aggregate policy is $A = 0$ with probability one and there are no revolts.

When the Issue is Non-Preordained The equilibrium strategy of minority-congruent ruler 2 in any history is characterized by the following equations.

$$\sigma_2^*(\emptyset, 0, 0) \in \arg\max_{\sigma \in [0,1]} \sigma \cdot \delta_0 \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 1))) + (1 - \sigma) \cdot \delta_0 \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 0))) \tag{13}$$

$$\sigma_2^*(\emptyset, 0, 1) \in \arg\max_{\sigma \in [0,1]} \sigma \cdot (1 - \beta(q^*(\emptyset, 1, 1), M, \gamma)) + (1 - \sigma) \cdot \delta_0 \cdot (1 - \bar{\beta}(q^*(\emptyset, 1, 0))) \tag{14}$$

$$\sigma_2^*(\emptyset, 1, 0) \in \arg\max_{\sigma \in [0,1]} \sigma \cdot \delta_1 \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 1))) + (1 - \sigma) \cdot \delta_1 \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 0))) \tag{15}$$

$$\sigma_2^*(\emptyset, 1, 1) \in \arg\max_{\sigma \in [0,1]} \sigma \cdot (1 - \beta(q^*(\emptyset, 1, 1), M, \gamma)) + (1 - \sigma) \cdot \delta_1 \cdot (1 - \bar{\beta}(q^*(\emptyset, 1, 0))) \tag{16}$$

For the equilibrium strategy of minority-congruent ruler 1, consider two possible histories.

1. Consider the case when $\hat{s} = \emptyset$ and $s = 0$. If ruler 1 chooses a_1, the probability that ruler 2 chooses $a_2 = 0$ is:

$$(1 - q) + q \cdot (1 - \sigma_2^*(\emptyset, 0, a_1))$$

   and the probability that ruler 2 chooses $a_2 = 1$ is:

$$q \cdot \sigma_2^*(\emptyset, 0, a_1)$$

   Therefore, minority-congruent ruler 1's policy when $(\hat{s}, s) = (\emptyset, 0)$ is:

$$\begin{aligned}\sigma_1^*(\emptyset, 0) \in \arg\max_{\sigma \in [0,1]} \sigma \cdot ((1 - q) + q \cdot (1 - \sigma_2^*(\emptyset, 0, 1))) \cdot \delta_0 \cdot (1 - \bar{\beta}(q^*(\emptyset, 1, 0))) \\ + \sigma \cdot q \cdot \sigma_2^*(\emptyset, 0, 1) \cdot (1 - \beta(q^*(\emptyset, 1, 1), M, \gamma)) \\ + (1 - \sigma) \cdot ((1 - q) + q \cdot (1 - \sigma_2^*(\emptyset, 0, 0))) \cdot \delta_0 \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 0))) \\ + (1 - \sigma) \cdot q \cdot \sigma_2^*(\emptyset, 0, 0) \cdot \delta_0 \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 1)))\end{aligned} \tag{17}$$

2. Consider the case when $\hat{s} = \emptyset$ and $s = 1$. If ruler 1 chooses a_1, the probability that ruler 2 chooses $a_2 = 0$ is:

$$q \cdot (1 - \sigma_2^*(\emptyset, 1, a_1))$$

   and the probability that ruler 2 chooses $a_2 = 1$ is:

$$(1 - q) + q \cdot \sigma_2^*(\emptyset, 1, a_1)$$

Therefore, minority-congruent ruler 1's optimal strategy when $(\hat{s}, s) = (\emptyset, 1)$ is:

$$\begin{aligned}\sigma_1^*(\emptyset,1) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot q \cdot (1-\sigma_2^*(\emptyset,1,1)) \cdot \delta_1 \cdot (1-\bar{\beta}(q^*(\emptyset,1,0))) \\ + \sigma \cdot ((1-q) + q\cdot \sigma_2^*(\emptyset,1,1)) \cdot (1-\beta(q^*(\emptyset,1,1),M,\gamma)) \\ + (1-\sigma)\cdot q \cdot (1-\sigma_2^*(\emptyset,1,0)) \cdot \delta_1 \cdot (1-\bar{\beta}(q^*(\emptyset,0,0))) \\ + (1-\sigma)\cdot ((1-q)+q\cdot\sigma_2^*(\emptyset,1,0)) \cdot \delta_1 \cdot (1-\bar{\beta}(q^*(\emptyset,0,1)))\end{aligned}$$

The analysis proceeds in a number of claims.

Claim 1. *In any PBE of the game with two rulers, $\sigma_2^*(\emptyset,1,1) = 1$.*

Proof. Suppose, towards a contradiction, that $\sigma_2^*(\emptyset,1,1) < 1$. By Equation (16), this implies:

$$1-\beta(q^*(\emptyset,1,1),M,\gamma) \leq \delta_1 \cdot (1-\bar{\beta}(q^*(\emptyset,1,0)))$$

By Assumption 2, then,

$$1-\beta(q^*(\emptyset,1,1),M,\gamma) < \delta_0 \cdot (1-\bar{\beta}(q^*(\emptyset,1,0)))$$

which, by Equation (14), implies: $\sigma_2^*(\emptyset,0,1) = 0$.

By equations in Section C.3.2, this implies: $q^*(\emptyset,1,1) = 0$. But then, $\beta(q^*(\emptyset,1,1),M,\gamma) = 0$. By Assumption 2, then:

$$1-\beta(q^*(\emptyset,1,1),M,\gamma) > \delta_1 \cdot (1-\bar{\beta}(q^*(\emptyset,1,0)))$$

and therefore $\sigma_2^*(\emptyset,1,1) = 1$, a contradiction. □

Given Claim 1, the beliefs following $(\hat{s}, a_1, a_2) = (\emptyset,1,1)$ in any PBE is:

$$q^*(\emptyset,1,1) = \frac{q^2\sigma_1^*(\emptyset,0)\sigma_2^*(\emptyset,0,1)}{q^2\sigma_1^*(\emptyset,0)\sigma_2^*(\emptyset,0,1) + q^2\sigma_1^*(\emptyset,1) + q(1-q)\sigma_1^*(\emptyset,1) + (1-q)q + (1-q)^2} \tag{18}$$

and minority-congruent ruler 1's optimal strategy when $(\hat{s}, s) = (\emptyset, 1)$ is:

$$\begin{aligned}\sigma_1^*(\emptyset,1) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot (1-\beta(q^*(\emptyset,1,1),M,\gamma)) \\ + (1-\sigma)\cdot q \cdot (1-\sigma_2^*(\emptyset,1,0)) \cdot \delta_1 \cdot (1-\bar{\beta}(q^*(\emptyset,0,0))) \\ + (1-\sigma)\cdot ((1-q)+q\cdot\sigma_2^*(\emptyset,1,0)) \cdot \delta_1 \cdot (1-\bar{\beta}(q^*(\emptyset,0,1)))\end{aligned} \tag{19}$$

Claim 2. *In any PBE of the game with two rulers, $\sigma_1^*(\emptyset,1) = 1$.*

Proof. Suppose, towards a contradiction, that $\sigma_1^*(\emptyset,1) < 1$. Then, by Equation (19),

$$\begin{aligned}1-\beta(q^*(\emptyset,1,1),M,\gamma) \leq & \delta_1 \cdot q \cdot (1-\sigma_2^*(\emptyset,1,0)) \cdot (1-\bar{\beta}(q^*(\emptyset,0,0))) \\ & + \delta_1 \cdot ((1-q) + q\cdot\sigma_2^*(\emptyset,1,0)) \cdot (1-\bar{\beta}(q^*(\emptyset,0,1)))\end{aligned} \tag{20}$$

Since the right hand-side of this inequality at most δ_1, and since $\delta_1 < 1$ by Assumption 2, we must have: $\beta(q^*(\emptyset, 1, 1), M, \gamma) > 0$. This means $q^*(\emptyset, 1, 1) > \frac{1}{2}$. By Equation (18), a necessary condition for this is:

$$\sigma_1^*(\emptyset, 0) \cdot \sigma_2^*(\emptyset, 0, 1) > \sigma_1^*(\emptyset, 1) \tag{21}$$

In particular, this requires $\sigma_1^*(\emptyset, 0) > 0$ and $\sigma_2^*(\emptyset, 0, 1) > 0$. We will investigate the implications of these observations separately.

- By Equation (17), $\sigma_1^*(\emptyset, 0) > 0$ implies:

$$\begin{aligned} &\delta_0 \cdot ((1-q) + q \cdot (1 - \sigma_2^*(\emptyset, 0, 1))) \cdot (1 - \bar{\beta}(q^*(\emptyset, 1, 0))) + q \cdot \sigma_2^*(\emptyset, 0, 1) \cdot (1 - \beta(q^*(\emptyset, 1, 1), M, \gamma)) \\ &\quad \geq \delta_0 \cdot ((1-q) + q \cdot (1 - \sigma_2^*(\emptyset, 0, 0))) \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 0))) + \delta_0 \cdot q \cdot \sigma_2^*(\emptyset, 0, 0) \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 1))) \end{aligned} \tag{22}$$

- By Equation (14), $\sigma_2^*(\emptyset, 0, 1) > 0$ implies:

$$1 - \beta(q^*(\emptyset, 1, 1), M, \gamma) \geq \delta_0 \cdot (1 - \bar{\beta}(q^*(\emptyset, 1, 0))) \tag{23}$$

By (23), the left-hand side of Equation (22) is bounded above by $1 - \beta(q^*(\emptyset, 1, 1), M, \gamma)$. By (20), this is further bounded above by $\delta_1 \cdot q \cdot (1 - \sigma_2^*(\emptyset, 1, 0)) \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 0))) + \delta_1 \cdot ((1-q) + q \cdot \sigma_2^*(\emptyset, 1, 0)) \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 1)))$. Therefore, the following inequality must hold:

$$\begin{aligned} &\delta_1 \cdot q \cdot (1 - \sigma_2^*(\emptyset, 1, 0)) \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 0))) + \delta_1 \cdot ((1-q) + q \cdot \sigma_2^*(\emptyset, 1, 0)) \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 1))) \\ &\quad \geq \delta_0 \cdot ((1-q) + q \cdot (1 - \sigma_2^*(\emptyset, 0, 0)) \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 0))) + \delta_0 \cdot q \cdot \sigma_2^*(\emptyset, 0, 0) \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 1))) \end{aligned} \tag{24}$$

Recall, by Assumption 2, that $\delta_0 > \delta_1$. Therefore, inequality (24) cannot hold when $1 - \beta(q^*(\emptyset, 0, 0), 1, \gamma) = 1 - \beta(q^*(\emptyset, 0, 1), 1, \gamma)$. We conclude that $1 - \beta(q^*(\emptyset, 0, 0), 1, \gamma) \neq 1 - \beta(q^*(\emptyset, 0, 1), 1, \gamma)$. There are two mutually exhaustive possibilities.

- Suppose $1 - \bar{\beta}(q^*(\emptyset, 0, 0)) > 1 - \bar{\beta}(q^*(\emptyset, 0, 1))$. Then, by Equation (13), $\sigma_2^*(\emptyset, 0, 0) = 0$. Moreover, by Equation (15), $\sigma_2^*(\emptyset, 1, 0) = 0$. Substituting these into (24):

$$\begin{aligned} &\delta_1 \cdot q \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 0))) + \delta_1 \cdot (1-q) \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 1))) \\ &\quad \geq \delta_0 \cdot (1 - \bar{\beta}(q^*(\emptyset, 0, 0))) \end{aligned}$$

  But recall that, by Assumption 2, $\delta_0 > \delta_1$. For the above inequality to hold, then, one must have $1 - \bar{\beta}(q^*(\emptyset, 0, 1)) > 1 - \bar{\beta}(q^*(\emptyset, 0, 0))$. This is a contradiction to the case we consider.

- Suppose $1 - \bar{\beta}(q^*(\emptyset, 0, 0)) < 1 - \bar{\beta}(q^*(\emptyset, 0, 1))$. Then, by Equation (15), $\sigma_2^*(\emptyset, 1, 0) = 1$. By equations in Appendix C.3.2, this implies $q^*(\emptyset, 0, 0) = 0$. But then, by Equation (12), $\bar{\beta}(q^*(\emptyset, 0, 0)) = 0$ and $1 - \bar{\beta}(q^*(\emptyset, 0, 0)) \geq 1 - \bar{\beta}(q^*(\emptyset, 0, 1))$, a contradiction to the case we consider.

In any case, we obtain a contradiction, and the result follows. □

Using Claim 2 to substitute $\sigma_1^*(\emptyset, 1) = 1$ into Equation (18) gives that, in any PBE:

$$\begin{aligned} q^*(\emptyset,1,1) &= \frac{q^2\sigma_1^*(\emptyset,0)\sigma_2^*(\emptyset,0,1)}{q^2\sigma_1^*(\emptyset,0)\sigma_2^*(\emptyset,0,1) + q^2 + q(1-q) + (1-q)q + (1-q)^2} \\ &= \frac{q^2\sigma_1^*(\emptyset,0)\sigma_2^*(\emptyset,0,1)}{q^2\sigma_1^*(\emptyset,0)\sigma_2^*(\emptyset,0,1) + 1} \leq \frac{1}{2} \end{aligned}$$

Then, $\beta(q^*(\emptyset,1,1), M, \gamma) = 0$. Because $\delta_0 < 1$ by Assumption 2, Equation (14) implies that $\sigma_2^*(\emptyset,0,1) = 1$ in any PBE.

Given these observations, Equation (17) simplifies to:

$$\begin{aligned} \sigma_1^*(\emptyset,0) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot \delta_0 \cdot (1-q) \cdot (1-\bar{\beta}(q^*(\emptyset,1,0))) \\ + \sigma \cdot q \\ + (1-\sigma) \cdot \delta_0 \cdot ((1-q) + q \cdot (1-\sigma_2^*(\emptyset,0,0))) \cdot (1-\bar{\beta}(q^*(\emptyset,0,0))) \\ + (1-\sigma) \cdot \delta_0 \cdot q \cdot \sigma_2^*(\emptyset,0,0) \cdot (1-\bar{\beta}(q^*(\emptyset,0,1))) \end{aligned} \tag{25}$$

Meanwhile, using Claim 2 to substitute $\sigma_1^*(\emptyset,1) = 1$ into the equation defining $q^*(\emptyset,0,0)$ in Section C.3.2 gives that, in any PBE:

$$q^*(\emptyset,0,0) = 0$$

Then, by Equation (12), $\bar{\beta}(q^*(\emptyset,0,0)) = 0$ in any PBE. Equation (13) simplifies to:

$$\sigma_2^*(\emptyset,0,0) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot \delta_0 \cdot (1-\bar{\beta}(q^*(\emptyset,0,1))) + (1-\sigma) \cdot \delta_0$$

This implies:

$$\sigma_2^*(\emptyset,0,0) \cdot \delta_0 \cdot (1-\bar{\beta}(q^*(\emptyset,0,1))) + (1-\sigma_2^*(\emptyset,0,0)) \cdot \delta_0 = \delta_0$$

Substituting this into (25), it further simplifies to:

$$\begin{aligned} \sigma_1^*(\emptyset,0) \in \arg\max_{\sigma\in[0,1]} \sigma \cdot \delta_0 \cdot (1-q) \cdot (1-\bar{\beta}(q^*(\emptyset,1,0))) \\ + \sigma \cdot q \\ + (1-\sigma) \cdot \delta_0 \end{aligned} \tag{26}$$

Where, subtituting our findings so far into the equation defining $q^*(\emptyset,1,0)$ gives that, in any PBE:

$$\begin{aligned} q^*(\emptyset,1,0) &= \frac{q\sigma_1^*(\emptyset,1)(1-\sigma_2^*(\emptyset,1,1)) + (1-q)(1-\sigma_2^*(\emptyset,1,1))}{q\sigma_1^*(\emptyset,1)(1-\sigma_2^*(\emptyset,1,1)) + (1-q)(1-\sigma_2^*(\emptyset,1,1)) + q\sigma_1^*(\emptyset,0)(1-\sigma_2^*(\emptyset,0,1)) + (1-q)\sigma_1^*(\emptyset,0)} \\ &= \frac{q \cdot 1 \cdot 0 + (1-q) \cdot 0}{q \cdot 1 \cdot 0 + (1-q) \cdot 0 + q\sigma_1^*(\emptyset,0)(1-\sigma_2^*(\emptyset,0,1)) + (1-q)\sigma_1^*(\emptyset,0)} \end{aligned}$$

Note that whenever $\sigma_1^*(\emptyset,0) > 0$, Bayes' rule applies and $q^*(\emptyset,1,0) = 0$. In this case, by Equation (12) and (26), $\sigma_1^*(\emptyset,0) = 1$. We conclude that there is always a PBE where $\sigma_1^*(\emptyset,0) = 1$. This completes the description of one PBE.

Remark 3. *There is always a PBE of the game with two rulers where:*

$$\sigma_1^*(\emptyset, 0) = \sigma_1^*(\emptyset, 1) = 1$$
$$\sigma_2^*(\emptyset, 0, 1) = \sigma_2^*(\emptyset, 1, 1) = 1$$

In this PBE, when the issue is non-preordained,

- *If $s = 1$, the aggregate policy is $a = 1$.*
- *If $s = 0$, the aggregate policy is $a = 1$ if and only if both rulers are minority-congruent.*

In any case, there are no revolts.

If $\delta_0 \cdot (1-q) \cdot (1-\bar{\beta}(q')) + q > \delta_0$ for all $q' \in [\frac{1}{2}, 1]$, any PBE of the game with two rulers is a PBE that is described in Remark 3. For the rest of the analysis, suppose $\delta_0 \cdot (1-q) \cdot (1-\bar{\beta}(q')) + q \leq \delta_0$ for some $q' \in [\frac{1}{2}, 1]$. In this case, there is another PBE where $\sigma_1^*(\emptyset, 0) = 0$. Now, Bayes' Rule does not apply to $(\hat{s}, a_1, a_2) = (\emptyset, 1, 0)$, so $q^*(\emptyset, 1, 0)$ can be chosen arbitrarily. Choosing it so that $\delta_0 \cdot (1-q) \cdot (1-\bar{\beta}(q^*(\emptyset, 1, 0))) + q \leq \delta_0$ ensures that $\sigma_1^*(\emptyset, 0) = 0$ is optimal.

Remark 4. *Suppose $\delta_0 \cdot (1-q) \cdot (1-\bar{\beta}(q')) + q \leq \delta_0$ for some $q' \in [\frac{1}{2}, 1]$. There is a PBE of the game with two rulers where:*

$$\sigma_1^*(\emptyset, 0) = 0$$
$$\sigma_1^*(\emptyset, 1) = 1$$
$$\sigma_2^*(\emptyset, 1, 1) = 1$$

In this PBE, when the issue is non-preordained,

- *If $s = 1$, the aggregate policy is $a = 1$.*
- *If $s = 0$, the aggregate policy is $a = 0$.*

In any case, there are no revolts on the equilibrium path.

Although the PBE described in Remark 4 is a theoretical possibility, it is a very fragile equilibrium. This is because it relies on the belief $q^*(\emptyset, 1, 0)$ being above $\frac{1}{2}$, even though the scenario where $(\hat{s}, a_1, a_2) = (\emptyset, 1, 0)$ occurs with zero probability. In particular, for this equilibrium to be sustained, the citizens must believe, with high probability, that $s = 1$ following $(\hat{s}, a_1, a_2) = (\emptyset, 1, 0)$. Then, the minority-congruent type of ruler 1 is worried about having $a_2 = 0$ by the majority-congruent type of ruler 2.[3] The reason for this worry is **not** the aggregate action changing. Rather, it is the worry of **revolt**: when citizens encounter $(\hat{s}, a_1, a_2) = (\emptyset, 1, 0)$, they incorrectly infer that state is $s = 1$ with high probability and revolt against aggregate action $A = 0$.

Given the minority-congruent ruler's preference towards $A = 1$ (by Assumption 2), this is a counterintuitive equilibrium. If anything, $(\hat{s}, a_1, a_2) = (\emptyset, 1, 0)$ should make citizens infer that "The state must be $s = 0$, but ruler 1 is minority-congruent and could not resist the temptation of $a_1 = 1$. He is corrected by a majority-congruent ruler 2. But since $A = 0$,

[3]Note that this reasoning falls apart when ruler 1 can observe ruler 2's type, which is the reason why the setup described in the main text does not suffer from equilibrium multiplicity.

I will not revolt against it." The counterintuitivity of PBE described in Remark 4 can be formalized by showing that it fails forward induction. The next result shows this.

Claim 3. *Any PBE described in Remark 4 fails forward induction.*

Proof. Consider a PBE described in Remark 4. In the subgame following $\hat{s} = \emptyset$, the outcome of this PBE is:

$$(s, \hat{s}, a_1, a_2, r) = \begin{cases} (0, \emptyset, 0, 1, 0), & w.p.\ \frac{1}{2}\sigma_2^*(\emptyset, 0, 0), \\ (0, \emptyset, 0, 0, 0), & w.p.\ \frac{1}{2}(1 - \sigma_2^*(\emptyset, 0, 0)), \\ (1, \emptyset, 1, 1, 0), & w.p.\ \frac{1}{2} \end{cases}$$

Our first observation is that the pure strategy of ruler 1 defined as

$$\sigma_1(\emptyset, 0) = \sigma_1(\emptyset, 1) = 1 \tag{27}$$

is a relevant strategy for this outcome. To see this, among the PBE's described in Remark 4, take the one with $q^*(\emptyset, 1, 0)$ such that:

$$\delta_0 \cdot (1 - q) \cdot (1 - \bar{\beta}(q^*(\emptyset, 1, 0))) + q = \delta_0$$

This is the belief that leaves ruler 1 just indifferent between the two actions when $(s, \hat{s}) = (0, \emptyset)$, and such a belief exists due to continuity of $\bar{\beta}(q')$ in q'.

The strategy in (27) is optimal under these beliefs, and therefore it is a relevant strategy. Intuitively, under this PBE, ruler 1 may consider deviating to $a_1 = 1$ when $s = 0$.

Our next observation is that any strategy that includes

$$\begin{aligned} &\sigma_2(\emptyset, 0, 1) = 0, \qquad or \\ &\sigma_2(\emptyset, 1, 1) = 0 \end{aligned}$$

is irrelevant for this outcome. This is because, as discussed above, $q^*(\emptyset, 1, 1) < \frac{1}{2}$ in any PBE. Therefore, $\beta(q^*(\emptyset, 1, 1), M, \gamma) = 0$ in any PBE. By equations (14) and (16), and by Assumption 2, then, $\sigma_2^*(\emptyset, 0, 1) = 1$ and $\sigma_2^*(\emptyset, 1, 1) = 1$ are strict best responses in any PBE. Intuitively, because $a = 1$ is the minority-congruent ruler's favorite outcome, any minority-congruent ruler 2 will not consider deviating to $a_2 = 0$ following $a_1 = 1$.

The discussion above shows that information set $(\hat{s}, a_1, a_2) = (\emptyset, 1, 0)$ is relevant for the outcome under PBE in Remark 4. Moreover, for the outcome to satisfy forward induction, any beliefs in this information set must contain $\sigma_1(\emptyset, 0) = 1$ and rule out $\sigma_2(\emptyset, 0, 1) = 0$ as well as $\sigma_2(\emptyset, 1, 1) = 0$. Under this restriction, the only scenario consistent with $(\hat{s}, a_1, a_2) = (\emptyset, 1, 0)$ occurs when $s = 0$. Therefore, $q^*(\emptyset, 1, 0) = 0$. Under these beliefs, $\bar{\beta}(q^*(\emptyset, 1, 0)) = 0$, and $\sigma_1^*(\emptyset, 0) = 0$ ceases to be optimal. We conclude that any PBE of the type described in Remark 4 fails forward induction. □

In contrast, the outcome of the PBE described in Remark 3 survives forward induction. This is because:

- The strategies that include:

$$\sigma_1^*(\emptyset,0)=\sigma_1^*(\emptyset,1)=1$$
$$\sigma_2^*(\emptyset,0,1)=\sigma_2^*(\emptyset,1,1)=1$$

  are relevant for this outcome. After all, they are part of the PBE strategies, and thus they are always optimal.

- The information set $(\hat{s},a_1,a_2)=(\emptyset,1,1)$ is always relevant, because they are reached by the strategies above with strictly positive probability.

- In the information set $(\hat{s},a_1,a_2)=(\emptyset,1,1)$, with the relevant strategies specified above, an equilibrium belief such that $q^*(\emptyset,1,1)<\frac{1}{2}$ can always be constructed. Then, the relevant strategies mentioned above remain optimal.

Our findings so far imply the following result.

Proposition 11. *In the extended model of institutional constraints, there is a unique outcome that satisfies forward induction of the Perfect Bayesian Nash Equilibrium of the game. In this outcome,*

$$Pr_{(t_1,t_2)}(A=s)=1, \quad \textit{if } (t_1,t_2)\neq(b,b).$$

Otherwise,

$$Pr_{(b,b)}(A=1|\hat{s},s=1)=Pr_{(b,b)}(A=1|\hat{s}=\emptyset,s=0)=1$$

and

$$Pr_{(b,b)}(A=1|\hat{s}=s,s=0)=\begin{cases}1 & ;\beta(1,M,\gamma)<1-\delta_0\\ 0 & ;\textit{otherwise.}\end{cases}$$

There is a revolt only if $\hat{s}=0$ and both rulers take action 1. This revolt succeeds with probability $\beta(1,M,\gamma)$. Moreover, the expected policy payoff for a majority citizen is

$$\begin{cases}1-q^2(1-p)-\mu & ;\beta(1,M,\gamma)>1-\delta_0\\ 1-q^2(1-p\beta(1,M,\gamma))-\mu & ;\beta(1,M,\gamma)<1-\delta_0.\end{cases}$$

D Institutional Constraints on Rulers in Jewish, Greco-Roman, and Christian Traditions

D.1 Ancient Jewish Tradition

Institutional constraints on rulers are also absent in ancient Jewish traditions, covering the ancient Israelites to the end of the Hasmonean Kingdom in 37 BCE. After the period of tribal confederacy, kingship was established by the people (1 Samuel 8) as a Hobbesian remedy for a state of nature in which "everyone did what was right in his own eyes" (Judges 21:25). It is clear that Deuteronomic editors were aware of the downsides of centralized power. The arguments against monarchy in 1 Sam 8 are striking (1 Sam 8: 11-8):[4] "he [(the king)] will take your sons and place them for himself in his chariots and among his horsemen and they will run before his chariots. He will appoint for himself commanders of thousands and of fifties, and some to do his plowing and to reap his harvest and to make his weapons of war and equipment for his chariots. He will also take your daughters for perfumers and cooks and bakers. He will take the best of your fields and your vineyards and your olive groves and give them to his servants. He will take a tenth of your seed and of your vineyards and give to his officers and to his servants. He will also take your male servants and your female servants and your best young men and your donkeys and use them for his work. He will take a tenth of your flocks, and you yourselves will become his servants. Then you will cry out in that day because of your king whom you have chosen for yourselves, but the Lord will not answer you in that day." Subsequent history, according to the Bible, confirmed these prophecies. Halbertal and Holmes (2017, p.67) go as far as arguing that the books of Samuel are early political science, which draw attention to the problem of constraining rulers: "If the sovereign ruler amasses sufficient power to safeguard his people from outside threat, he will also be in a position to redirect that power to torment and abuse his people with sovereign impunity".

However, no institutional remedy is offered from antiquity throughout the Middle Ages, "Instead, the author [of 1-2 Samuel] turned a penetrating gaze onto the punishing costs of sovereign power as such" (Halbertal and Holmes, 2017, p.167). In his study of pre-modern Jewish political thought, Walzer (2012, p.71) argues that "the Bible does not provide... any effective constitutional or political check on the power of kings". "The body negotiating the elevation of the monarch has the opportunity to impose conditions, to extract promises, and to level ultimata. Whether the king after his accession actually paid attention to them is, of course, another matter, about which our sources are too inadequate to permit speculation" (Halpern, 1981, p.222). There was a separation of duties between the king, priests, and prophets. But that was not a substitute for institutional constraints, as the recorded actions of rulers from Saul to the Hasmoneans attest (1-2 Samuel, 1-2 Kings, Josephus's *Antiquities of the Jews*, books XIII-XVII). Kings appointed priests and judges and they promoted, banished or killed prophets to advance their interests.

The king was supposed to follow the divine law. In fact, according to Halpern (1981, p.xx), "Israel's was the first monarchy known to have deposited and preserved a written consti-

[4] All Scripture quotations are taken from the *New American Standard Bible* version 1995.

tution, a document imposing strictures on the exercise of royal authority (Deuteronomy 17-18)". For example, Deuteronomy 17-18 specifies that the king must be an Israelite, must not amass wealth, take many wives, or consider himself better than others; and he must write the laws and read them every day. "Throughout its history, then, Israel's elective autocracy was kingship under the law" (Halpern, 1981, p.249). However, once in power, there were no external constraints on kings except rebellion. The mode of holding a king accountable was mostly internal to the king (God, his conscience, and the prophets' advice and warnings). "A policy focus on political reason, debate in the assembly, popular decision-making – what we might think of as the Greek alternative – was never considered" (Walzer, 2012, p.211).

Why is it, then, that no institutional remedy was provided even in theory? As we discussed, Halbertal and Holmes (2017, p.167) argue that the problem was that the "The political horizons of the author of the Samuel". Similarly, Halpern (1981, p.239) senses "a charming naivite, an idealistic reliance on tribal conservatism, in Samuel's assumption that the 'prophet' could constrain a new and vigorous executive". Walzer (2012, p.204) argues that Jewish thinkers whose works have survived simply put the blame on human imperfections: "Worldly rulers, the power that be, whatever their social or political character, are more likely to disobey than to obey, but disobedience is a function of human recalcitrance and stiffneckedness, not of institutional imperfection".

These arguments ultimately place the problem in the inability of thinkers to even contemplate institutional solutions for a problem that they keenly identified. Thus, according to this literature, for centuries, these thinkers' "political horizon" did not reach that of the Greco-Roman traditions. We find this explanation unsatisfactory. Even more so if we recognize the interactions and cultural exchanges since Alexander's conquests of the late 4th century BCE. Indeed, the 1 Maccabees records a working knowledge of the institutions of the Roman Republic: "Yet with all this, they [Romans] never any of them put on a diadem or wore purple as a mark of magnificence. And they built themselves a senate house, and every day three hundred and twenty men deliberated, constantly planning for the people, that they might conduct themselves properly, and they intrusted the government to one man every year..." (1 Maccabees 8: 14-16).

Moreover, Melamed (2011, p.163) argues that even when Aristole's *Politics* became available to Jewish scholars through Christian-Latin tradition, "Jewish writers continued to translate, expound, and reproduce Plato's *Republic*, the *Ethics*, and commentaries on these works – and not by chance. Their conceptual framework remained Platonic, given the inertia of tradition and their theological commitment". From the 14th to early 17th century (before Spinoza), when, on rare occasions, they directly used *Politics*, it was "mainly to criticize the Platonic model of social organization. . . rather than the construction of a new political theory" (p.169). An exception is Rabbi Isaac Abravanel's analysis in the context of his commentary on 1 Samuel 8. Possibly reading *Politics* through misrepresentations of Medieval Christian scholars (p.174), he "mistakenly looked upon Aristotle as a partisan of absolute kingship" (p.173, also p. 174). However, he "insists. . . that this position is wrong. He maintains that monarchy is not a necessity and sees it as doomed to degenerate into tyranny, preferring a mixed regime like that of the Venetian Republic" (p. 173). In sum, in a period when we know that *Politics* was available to Jewish scholars, it was never used to develop a discussion of institutional constraints on rulers. When such discussions appeared, the author thought Aristotle was in favor of monarchy.

We argue that the comprehensive scope of the law in the Jewish tradition helps make sense of the absence of discussions about institutional constraints on rulers. While the law did not specify institutional constraints on rulers, its scope was extensive, covering various topics including inheritance, marriage, contracts, foreign policy, and various other aspects of criminal and civil law. As Walzer (2012, p.206) argues, "both the legal and prophetic texts have a great deal to say about what political leaders, whoever they are, ought to do. Policy is not free. Leaving royalist ideology [God's anointed king] aside, and speaking still in Greek mode, we can say that God as he was conceived in ancient Israel, did not decree a politics, but he certainty did decree an ethics [policy]". Walzer (2012) derives one consequence of this observation: "Obedience to God's law doesn't require deliberation or arguments or votes; it only requires a moral choice" (p.211). Our focus is on the consequences of these features for political thought. Walzer's (and others') observations point to the theoretical homogeneity of the population's preferences regarding public policy: preferences for God's law. Moreover, when divine law is more extensive, a ruler's wrongdoing is more observable. This, combined with higher societal homogeneity, facilitates disciplining rulers through rebellion. Indeed, Deuteronomic history records various such popular rebellions, e.g., against David and Rehoboam, Solomon's successor who refused to reduce taxes.

D.2 The Western Tradition

Constraining the executive is a common thread in the tradition that starts from Greco-Roman political thought. The existence of these constraints clearly antedates the written justifications we have for them. The Spartan Constitution of Lycurgus, possibly dating to the 7th century BC, divided powers in several important ways. Plutarch (1914) records how the period before Lycurgus had been one with "excessive absolutism" (p.209) and with kings "hated for trying to force their way with the multitude" (p.209). Aristotle comments on Lycurgus' attitudes towards the Spartan kings that "he shows a great distrust of their virtue" (Aristotle, 1996, p.53). Lycurgus therefore created a council of elders which countered the fact that the "ruling power was still in a feverish condition" (Plato, 2016, p.123) and "by having an equal vote with them in the matters of highest importance, brought safety and due moderation into the councils of state" (Plutarch, 1914, p.219-221). This was critical because "the civil polity was veering and unsteady, inclining at one time to follow the kings towards tyranny, and at another to follow the multitude towards democracy" (Plutarch, 1914, p.221). About 130 years later the *ephors* were added to the system of government and, as Plato puts it, "curbed it" (Plato, 2016, p.123). They were specifically tasked with monitoring the kings. The constitutional experiments of Athens as documented by Aristotle (1996) involve similar attempts to balance powers. By the time of the famous reforms of Solon in 594 BC, Athenian kings had already disappeared with the main executive body being nine archons who served for one year. There was an assembly of all adult male citizens and two councils the Boule and the Areopagus, where the latter had "the duty of watching over the laws" (Aristotle, 1996, p.216). Plutarch notes that this was designed "thinking that the city with its two councils, riding as it were at double anchor, would be less tossed by the surges, and would keep its populace in great quiet" (Plutarch, 1914, p.455). Solon tinkered with the organization and membership of the different councils and explicitly justified what he was doing as balancing power between different groups, particularly the rich and the poor. Further reforms which democratized and reorganized the institutions were implemented by Cleisthenes.

Plato and Aristotle subsequently theorized the success and failings of Greek constitutions.[5] Though Plato's *Republic* advanced a utopian solution, proposing mechanisms for abolishing political conflict, in his *Laws* he developed more practical institutions if utopia proved not to be possible. As von Fritz (1954, p.v) puts it "Plato is concerned with the danger inherent in absolute political power, and that he is of the opinion that there must be a check to all political power, and that this must be done by distributing power over several government agencies which counterbalance one another." Aristotle outlined a famous ranking of constitutions which started with the three ideal forms of government, followed by their perversions. The ideal forms ran in order from best to worst: kingship, aristocracy, polity. Their perversions were tyranny, oligarchy, democracy. Critically, while kingship might be best in theory, it relied on having someone of unlikely "excellence" and quickly deteriorated into tyranny, which was the worst form of government, even worse than democracy, the perversion of polity. Indeed, Aristotle follows his discussion of the likely character of kings with an exposition of the institution of ostracism (Aristotle, 1996, p.81-82).[6] Instead, Aristotle preferred a blend of aristocracy and polity – mixed government. In contrast to Plato's *Republic*, which focuses on the selection and training of rulers, institutional mechanisms to constrain rulers appear in Aristotle's *Politics* (Aristotle, 1996). These institutional constraints include term limits (Book 5, Ch. 8, Paragraphs 6-7, 12-13), audits (6,4,5-7), prevention of excessive power disparity (5,8,11; 3,16,16), control by setting interest against interest (5,8,14), and collective decision-making/multiple rulers (3,15,8). Ryan (2012, p.98-99) sums up the lessons from Aristotle's analysis in the following terms: "The problem in designing a constitution is to distribute power so as to give every incentive to those who have it to use it for the common good.... What is needed is what later came to be called checks and balances".

These Greek beginnings had a profound influence over subsequent constitutional thought, particularly of the Roman Empire. Polybius, who was himself Greek, conducted a famous analysis of the success of Rome attributing it to the mixed constitution initially supposedly devised by Romulus. In it power was distributed between "the consuls... the Senate... and the common people" (Polybius, 2010, p.380). Polybius attributed the idea of such a system to the Spartans who "bundled together all the merits and distinctive characteristics of the best systems of government in order to prevent any of them going beyond the point where it would degenerate into its congenital vice" (Polybius, 2010, p.378-379). He is very clear, referring to the basic systems of government that were mixed, that Lycurgus "wanted the potency of each system to be counteracted by the others" (Polybius, 2010, p.379) so that "nowhere would any of them tip the scales or outweigh the others". Any one of them on their own has the same sorts of problems that Aristotle identified so that in the past, for example, "kingship gave way to tyranny" (Polybius, 2010, p.376). He is definitive that "we should take the best system of government to be the one that combines all three of these

[5] Previous writers discussed some aspects of them, though less comprehensively; see Sinclair (2012).

[6] See Teegarden (2013) for an analysis of ancient Greek legislation aimed at blocking the rise of tyrants.

constitutions" (Polybius, 2010, p.372). The view that the secret of the Romans' success was due to the type of mixed government that emerged was also asserted by Cicero. In his political life, contesting with Caesar and Pompey, Cicero was well aware of the danger of tyranny. In *The Republic* he discusses at length the dangers, pointing out that "although Cyrus of Persia was an exceptionally just and wise monarch" it was highly dangerous to have a government "managed by one man's nod and wish" since this led to the rule of the "cruelly capricious Phalaris. His is the image into which, by a smooth and easy process, the rule of one man degenerates" (Cicero, 1998, p.20-21). Cicero was also clear that the main advantage of a mixed government was "although those three original forms easily degenerate into their corrupt versions...such things rarely happen in a political structure which represents a combination and judicious mixture" (Cicero, 1998, p.32).

The rise of Christianity and the collapse of the western Roman empire created some significant challenges to the Greco-Roman tradition. This is most obvious is the work of St. Augustine, who wrote right after Alaric's sack of Rome in 410. For Augustine, the type of state Cicero had imagined here on earth was an impossibility and everything was focused on the afterlife. This led to a downgrading in the importance of political institutions. As he put it:

> As far as this mortal life is concerned, which is spent and finished in a few days, what difference does it make under what rule a man lives who is soon to die, provided only that those who rule him do not compel him to do what is impious and wicked. – Augustine (1998, p.217)

The standard interpretation of this is that God created the king and that unless one's religious beliefs were threatened, one had to accept his authority. In this, he built upon earlier churchmen, particularly St. Paul who argued that (Colossians 1:16):

> For by him were all things created that are in heaven, and that are in earth, visible and invisible, whether they be thrones, or dominions, or principalities, or powers: all things were created by him and for him.

Furthermore, "the powers that be are ordained by God...whosoever therefore resisteth the power, resisteth the ordinance of God" (Romans, 13:1-5). Augustine put it in the following way: "all these things he bestows upon good and evil men alike. And among these things is imperial sway also, of whatever scope, which He dispenses according to His plan for the government of the ages" (Augustine, 1998, p.235). Augustine, therefore, did not take a view on things like the mixed constitution, and tyrannicide, which was explicitly advocated by Cicero, was definitely out. The powers that be were created by God. In addition, the only reason that states existed was because of sin, and "the discipline that even bad rulers imposed provided a partial remedy for sin in that it restrained men from indulging to the full criminal proclivities of fallen nature" (Tierney, 2008, p.39).

Though Ryan (2012, p.199) uses the statements of St. Paul and St. Augustine to argue that "The conventional view down to the sixteenth century was that if a ruler required his subjects to repudiate Christ, they did not have to comply; short of that they had to obey", it is also clear that the rise of Christianity and Christian approaches to politics left the old concerns about tyranny alive. These concerns took different forms and institutional guises and parted ways until coming together in the late Middle Ages (see Acemoglu and Robinson, 2019 for a discussion of these channels).

First, and most directly, though works such as Aristotle's *Politics* were lost until the middle of the 13th century, and Polybius and Cicero re-discovered only later, clear manifestations of Greco-Roman political institutions persisted. This is most evident in the Italian city-states. Before Aristotle was translated into Latin, Venice already had its elaborate mixed constitution with its "monarchic doge, aristocratic Senate, and democratic Great Council" (Blythe, 1992, p.278). At the same time a score of northern polities, including Arezzo, Milan and Pisa, had created republican institutions, consuls, and were governed by an annually elected executive, known as the podestà, who was always an outsider and who was subjected to an elaborate system of accountability (Waley and Dean, 2010). Just as in classical Greece, the emergence of these institutions preceded their written justifications. Ryan (2012, p.281) argues that by "the eleventh century they reinvented many features of the early Roman republic, in particular the appointment of magistrates to very short periods of office as a defense against tyranny.... These city states were in many respects genuine revivals of the city-state of antiquity". These institutions were heavily theorized later, notably by Florentine writers such as Guicciardini and Machiavelli (particularly Machiavelli, 1903).

The second stream stemmed from the political institutions of the Germanic tribes that conquered the western Roman empire. They maintained key elements of their highly participatory politics based around assemblies; see King (1988) and Wickham (2017). These were famously described by the Roman historian Tacitus in his book *Germania*: "The leading men take counsel over minor issues, the major ones involve them all... The assembly is also the place to bring charges and initiate trials in capital cases.... Likewise in these assemblies are chosen the leaders who administer justice" (Tacitus, 1999, p.81-82). Almost 800 years later similar political institutions during the Carolingian polity were described by Hincmar of Rheims: "At that time the custom was followed that no more than two general assemblies were to be held each year.... All the important men, both clerics and laymen attended this general assembly. The important men came to participate in the deliberations, and those of lower station were present in order to hear the decisions and occasionally also to deliberate concerning them, and to confirm them not out of coercion but by their own understanding and agreement" (Hincmar, 1980, p.222). In Britain this assembly was called the *witan*. It is not a coincidence that King John signed the Magna Carta in 1215 on a site at Runnymede where the Anglo-Saxon *witans* used to meet (Pantos and Semple, 2004). This shows a direct continuity between pre-Norman institutions and the regime begun by William the Conqueror in 1066. Interestingly, the Magna Carta also specified a complex institutional design to monitor whether or not John implemented the policies. Maddicott (2012) develops in detail the argument that the roots of England's parliament are in its pre-Norman Germanic representative institutions and this view was common already in the 16th century, e.g., Fortescue (1997). In 1583 the Elizabethan courtier Sir Thomas Smith could write "The most high and absolute power or the realme of Englande, is in Parliament" (Smith, 1982, p.78). Part of the mechanism through which these institutions perpetuated themselves and ended up in theories of the state was via feudalism, since this was a set of institutions based on contract. In line with this, Figgis (1956, p.9) notes: "it is in the feudal system that the contractual theory of government took its rise".[7] Echos of these Germanic institutions arise all over western Europe. Charters similar to the Magna Carta were granted to Catalonia in 1205; Hungary in 1222; and Germany in 1220. Parliaments, estates and similar institutions sprouted up (Bisson, 1973; Myers, 1975), all prior to the rediscovery of Aristotle or Polybius.

The third stream flowed through the organization of the Catholic Church fused with elements of Roman Law. The church was viewed as a voluntary community and the pope was elected by the bishops. Roman law contained the idea of a corporation, which was an entity with a legal existence separate from that of its particular members, and the will of the corporation could be determined by a majority of its members. The members delegated power to an official who acted on behalf of the community. "In the normal doctrine of Roman private corporation law, the agent's powers were not only derivative, but revocable and subject to modification" (Tierney, 2008, p.26). In 1140 Gratian produced an influential collection of church law which led to a great deal of debate on the organization of the church. This debate entertained the fact that a pope could misbehave (Tierney, 2008, p.16). Then "Around 1200 [religious scholars] began to discern that the legal concept of a corporation could define the structure... of the universal church itself and of a general council representing the church" (Tierney, 2008, p.20). As early as 1214 Pope Innocent III convoked a general council of not just bishops but representatives of many churches and religious chapters. The implications of this Roman law model for secular authority were profound. "In this theory the ruler held a position analogous to that of any elected official of a Roman law corporation" (Tierney, 2008, p.26) and Tierney argues that it led to notions of government by consent and "a complex doctrine of mixed or limited monarchy" (Tierney, 2008, p.27). These arguments became particularly powerful within the church at the time of the Great Schism when rival popes emerged and a series of councils met to settle the dispute, most notably in Constance in 1415. These councils claimed supreme authority within the church and ended up deposing three popes. This "conciliar movement", for a constitutionally governed church, had repercussions for the organization of secular authority; see Black (1988).

In short, though Augustine's view was influential in the 840 years between the sack of Rome and the rediscovery of Aristotle, the old views about the potential abuse of power by kings, and the need to take institutional precautions against it, persisted. Supporting this, Ryan (2012, p.219) suggests in the context of the reaffirmation of John of Salisbury's vindication of tyrannicide in the mid-12th century, that "similar ideas must have been in circulation from the end of antiquity without leaving any written evidence of their existence". In the context of feudal institutions, Ryan (2012, p.195) also notes: "The Polybian view of mixed government aligns easily with the medieval idea that a king should rule with the advice of an aristocratic council and seek consent for taxation".

These different streams start to come together in Thomas Aquinas' 13th century attempt to synthesize Catholic teaching with classical philosophical ideas. He was perhaps the first writer to absorb the newly rediscovered works of Aristotle and, reflecting this, he notes that

[7] There is an extensive and controversial literature about the origins of representative institutions in Medieval Europe. Particularly disputed is the connection to Germanic tribal institutions. For our purposes, the main point is the prevalence of these institutions which clearly balanced and checked monarchical power; see Bisson (1973) for key essays and an overview of the literature.

"the rule of one, which is the best, is preferred, but that it can turn into tyranny, which is the worst" (Aquinas, 2002, p.17). When it came to political institutions the solution to this was that "all should have some share in the government; for an arrangement of this kind secures the peace of people, and all men love and defend it, as is stated in *Politics* II" (Aquinas, 2002, p.53-54). As in Cicero, there is no compunction against removing tyrants. In addition, political institutions should be structured to avoid tyranny: "governance of the kingdom should be so arranged that the opportunity to tyrannize be removed and the king's power should be so tempered that he cannot easily become a tyrant" (Blythe, 1992, p.48-49). Blythe (1992, p.49) concludes that Aquinas's discussion implies that "the king's power be limited or controlled by other governmental institutions so that it cannot exceed what is proper". Aquinas found direct inspiration for mixed government in the Bible in particular arguing that this was how the state was organized at the time of Moses:

> Moses and his successors governed the people in such a way that each of them was ruler over all. But they chose seventy two elders according to their virtue... and this was aristocracy. But this arrangement was also democratic in that they were chosen from all the people. – Aquinas (2002, p.54)

Tierney's summary of the logic is that "The mixed regime was best, he wrote, because each element checked, 'tempered', the other two" (Tierney, 2008, p.90).

Aquinas was followed by a series of writers who elaborated on his ideas and extended them in various ways sketching out theories of consent and constitutional rule. Marsilius of Padua (d. 1342) and William of Ockham (d. 1347) further advanced justifications for popular sovereignty. Marsilius extensively quotes Aristotle and discusses his taxonomy of different forms of government and makes it clear that a key advantage of popular sovereignty is that it avoids tyranny. He notes that government "savours of tyranny... the more it departs from these conditions, viz. the consent of those subjects and a law established to the common advantage" (Marsilius of Padua, 2005, p.47). Moreover, "giving the power of legislation to one alone creates a space for tyranny" (Marsilius of Padua, 2005, p.78). Marsilius also discusses other institutional mechanisms to reduce the potential for tyranny, for example, elected monarchs are to be preferred to hereditary ones (p.105). Ockham advocated for a mixed constitution with a king and council where "the element of balance is present in that the council exists in part to check the excesses of the king" (Blythe, 1992, p.183). One of his arguments in favor of such a constitution, as opposed to a simple monarchy, was that "one can be more easily corrupted than many" Blythe (1992, p.182). Finally, John of Paris advanced ideas about both mixed government and notions based on the corporation. His position was that "government is a stewardship... exercised for the common good of individual and corporate owners. Should it not carry out its mandate, it is removable on the authority of the people" (Coleman, 2000, p.133).

Nevertheless, sixteenth century Europe was ruled by powerful kings, even if most had to deal with parliaments. The century saw an ideological struggle between those who wished to make kings subject to popular sovereignty and those who wished to make kings more absolutist. Advocates of popular sovereignty coalesced around what is known as "resistance theory" – whether, contrary to the Augustine tradition, people had the legitimate right to resist and dethrone a king (see Kingdon, 1991 and Skinner, 1978 for authoritative discussions). Early versions of this emanated from the struggle of Luther and Calvin against papal control. Interestingly, the advocates of absolutism explicitly set themselves against the notion of a mixed constitution, instead emphasizing that many classical writers, such as Aristotle, Aquinas, and Cicero (e.g. Cicero, 1998, p.25), thought kingship the best type of government. Theoretically, as Bodin (1992, p.92) put it "to combine monarchy with democracy and aristocracy is impossible and contradictory.... For if sovereignty is indivisible, as we have shown, how can it be shared by a prince, the nobles, and the people at the same time?" To sustain this argument he went on to argue that previous writers, like Polybius or Cicero, had in fact misinterpreted the nature of the Spartan and Roman constitutions stating "We shall conclude, then, that there is not now, and never was, a state compounded of aristocracy and democracy, much less of the three forms of state" (Bodin, 1992, p.103). It was not just that sovereignty was indivisible, dividing powers led to anarchy as Sir Robert Filmer put it in a famous tract of 1648, *The Anarchy of a Limited or Mixed Monarchy* (Filmer, 1991).

Resistance theory began to take on a more institutionalized form at the start of the seventeenth century (Llord, 1991; Sommerville, 1999). Franklin (1991, p.304) notes, for example, that though notions of mixed government and executive constraints were well understood, other concepts like the separation of powers were only nascent in the sixteenth century. The first constitution to feature explicit separation of powers was the English Instrument of Government written after the parliamentary victory in the civil wars; see Vile (1967). This provided the basis for Locke's analysis in his *Second Treatise on Government*. Locke provides a clear rationale for the existence of the state but warns against tyranny since "monarchs are but men" and he asks whether "men are so foolish, that they take care to avoid what mischiefs may be done them by pole-cats and foxes; but are content, nay think it safety, to be devoured by lions?" (Locke, 2003, p.140). Locke then argues that the design of institutions is key to constraining potential lions. Power has to be devolved to a legislature containing "collective bodies of men, call them senate, parliament, or what you please" (Locke, 2003, p.141) and because of potential conflicts of interest, "the legislative and executive power come often to be separated" (Locke, 2003, p.164).

This tradition, by way of Montesquieu's *Spirit of the Laws*, subsequently had a major impact on the thinking and institutional design of the US and French constitutions. Though the Federalist Papers mention only Montesquieu explicitly, other writings confirm the importance of Locke; see, for example, Mace (1979) and Wills (1981). Of particular interest are the writings of John Adams. In his 1778 book *A Defence of the Constitutions of Government of the United States of America* he traces the genealogy of the key ideas of the constitution, particularly executive constraints, checks and balances, and the separation of powers. Included in the sources are Plato and Solon, with Polybius and Machiavelli's *Discourses of Livy* receiving particular attention.

An important factor underpinning this intellectual history is the fact that in the Greco-Roman and Christian traditions, humans legislated much of their own laws – the collection of Roman law in the 6th century under Justinian was one manifestation. Church law, Canon law, never had the same status as the Sharia. Indeed Pennington (2008, p.386) notes "Christian communities lived without a comprehensive body of written law for more than five centuries. Consequently, in the early church, 'canon law' as a system of norms that governed the church or even a large number of Christian communities did not exist." Instead, in Europe, local traditions and Roman law were powerful and "no single authoritative compilation of Church law came into existence before the twelfth century" (Herzog, 2018, p.49). When finally Canon law was systematized by Gratian, his compilation, the *Decretum* (Decree), had to compete with other sources of law. Pirie (2021, p.163) notes how there were "interminable debates about its relation to the 'civil law' ". Moreover, while the Decree was emerging "rulers and judges were inspired by the example of Justinian to create new codes for their people" (Pirie, 2021, p.163) all a very far cry from the Islamic world. At the same time there was also a clear sense of legislation and the legitimacy of legislation. Thus, Marsilius of Pauda wrote in *Defensor Pacis*, "the judgment, command, and execution of any arraignment of the prince for his demerit or transgression should take place through the legislator, or through a person or persons established for this purpose by the authority of the legislator" (Klosko, 2012, p.312-3; see also Coleman, 2000, Ch.4).

However, the concern with setting the best law or with the concentration of both legislative and executive power in the prince, king, caliph, *ḥākim*, *ulu al-amr*, or whoever was in charge was less concerning in Islamic (and Jewish) traditions, in which it was assumed that much of the law was divine and set by God. The comprehensive scope of the law and the perceived homogeneity of the society in Islamic and Jewish traditions (all were supposed to follow the divine law), in turn, would make a ruler's deviations more observable and coordination on revolt against such deviant rulers more expedient.

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