Civil Liberties and Social Structure

Selman Erol and Camilo García-Jimeno

February 14, 2024

WP 2024-05

https://doi.org/10.21033/wp-2024-05

FEDERAL RESERVE BANK of CHICAGO

CIVIL LIBERTIES AND SOCIAL STRUCTURE*†

Selman Erol[1] and Camilo García-Jimeno ‡[2]

[1]Tepper School of Business, Carnegie-Mellon University
[2]Federal Reserve Bank of Chicago

This Version: February 14, 2024

Abstract

Governments use coercion to aggregate distributed information relevant to governmental objectives—from the prosecution of regime-stability threats to terrorism or epidemics. A cohesive social structure facilitates this task, as reliable information will often come from friends and acquaintances. A cohesive citizenry can more easily exercise collective action to resist such intrusions, however. We present an equilibrium theory where this tension mediates the joint determination of social structure and civil liberties. We show that segregation and unequal treatment sustain each other as coordination failures: citizens choose to segregate along the lines of an arbitrary trait only when the government exercises unequal treatment as a function of the trait, and the government engages in unequal treatment only when citizens choose to segregate based on the trait. We characterize when unequal treatment against a minority or a majority can be sustained, and how equilibrium social cohesiveness and civil liberties respond to the arrival of widespread surveillance technologies, shocks to collective perceptions about the likelihood of threats or the importance of privacy, or to community norms such as codes of silence.

Keywords: Civil liberties, socialization, segregation, information aggregation.

JEL Codes: D23, D73, D85.

*The views expressed in this article are those of the authors and do not necessarily reflect the position of the Federal Reserve Bank of Chicago or the Federal Reserve System.

†We thank Daron Acemoglu, Gadi Barlevy, Serhat Dogan, Pablo Montagnes, James A. Robinson, Rakesh Vohra, and participants at the 2019 Network Science and Economics conference and the 2022 Petralia Political Economy conference for their suggestions. We also thank Helen Burkhardt for her excellent research assistance.

‡Corresponding Author: cgarcia@mit.edu, 230 S. LaSalle Street, Of. 11-226, Chicago, IL 60603.

1 Introduction

Social scientists agree that civil liberties are a key buffer protecting the rights and well-being of minorities from the whims and desires of majorities. Governments often have objectives of their own, however, such as the containment of regime stability threats, or the prosecution of terrorism or epidemic outbreaks. These objectives have in common that their pursuit requires aggregating information that is distributed across the citizenry, and governments can exercise coercion to collect this information. Common institutional expressions of this are the intelligence agencies and secret police services of most contemporary states. More recently, many states have begun using sophisticated digital surveillance tools over their citizens. Courts of law also partially fulfill this role.

In this paper we propose a model to study how concerns about state intrusion, and the limits imposed on it by civil liberties, affect individual socialization choices, and consequently features of the social structure such as the density and distribution of social ties across citizens. We go beyond this arguing that understanding this problem requires a general equilibrium perspective, as the social structure in turn shapes the government's ability to aggregate information: in our model, social structure and civil liberties are jointly determined. Our starting point is to observe that the government's information aggregation ability depends not just on the civil liberties in place, which constrain its information collection capacity, but crucially, also on the underlying social structure. For example, more cohesive societies where individuals are better informed about their acquaintances may allow the government to search for information more effectively. Searching for information over a fragmented citizenry, in contrast, makes following clues and extracting accurate information more difficult. Information aggregation, thus, depends both on the civil liberties standard and on the underlying social network.

A variety of scholars have pointed out that governmental coercion and repression result in an erosion of social ties, as citizens respond to the government's exercise of coercion by reshaping their social networks.[1] Discussing the French Revolution, DeTocqueville (1856, p. 5) argued that "Despotism... deprives citizens of... all necessity to reach a common understanding... It immures them... in private life. They were already apt to hold one another at arm's length. Despotism isolated them. Relations between them had grown chilly; despotism froze them." In a similar vein, discussing the Soviet experience Jowitt (1993, p. 304) argued that "The Leninist Legacy in Eastern Europe consists largely... of fragmented, mutually suspicious societies..." By constraining the government's ability to

[1] Acemoglu et al. (2017) study network formation when agents have privacy concerns vis-a-vis each other –rather than vis-a-vis a government–. The resulting networks exhibit clustering and homophily.

collect information, civil liberties can reshape the underlying social structure. Governments thus face a trade-off: weaker civil liberties standards facilitate information collection but also weaken the underlying social fabric, undermining the quality of the information.

This logic, however, is incomplete. It ignores that the civil liberties in place are a political outcome closely dependent on the ability of citizens to get organized, and that a cohesive citizenry can more easily exercise such collective action. Besides mediating the effectiveness of the government's information aggregation efforts, thus, the social structure shapes civil liberties by determining the citizens' effectiveness at collective resistance. The recent rise and widespread diffusion of social media exemplifies this tension clearly, as it has become simultaneously a key tool for governments' information collection and surveillance (e.g., Qin et al. (2017)), and for citizens' collective action coordination (e.g., Fergusson and Molina (2019); Qin et al. (2022)).

Our model, thus, incorporates all of these elements into a novel equilibrium framework where civil liberties and the social structure are jointly determined. It rests on two premises. i) There is a potential threat, and information about it is distributed across the population. ii) While the preferences of citizens and the government regarding this threat are mis-aligned, there is no conflict between citizens. Against this background, the model has the following elements: there is a continuum of citizens, for whom socialization is valuable. When people socialize with each other, they learn information about each other. The government exploits those social ties to collect information, interrogating citizens about their acquaintances. It can then arrest individuals perceived as a threat based on the information collected. We consider two main dimensions of civil liberties, as limits on the coercive behavior of the government: an endogenous limit on how many people can be questioned (e.g., a "limit on searches and seizures"), and an exogenous restriction on how strong the evidence against a citizen must be for an arrest to be possible (e.g., a "standard of proof"). Faced with the prospect of being perceived as a threat, citizens make socialization choices. Finally, society's ability to resist excessive coercion can depend on the strength of its underlying 'civic values', which we take as exogenous, and more importantly, on features of the endogenous social structure.

A key trade-off shapes citizens' socialization efforts: while social ties are intrinsically valuable, the government collects better information about citizens with more ties. Weak civil liberties exacerbate this trade off by increasing the cost of becoming a subject of interest to the government. To prevent the government from learning about them, citizens reduce the intensity of their socialization. The citizens' response brings about a commitment problem for the government: at the interim stage after citizens have socialized, more intensive interrogation allows more information collection. Ex-ante, citizens' expectations of aggressive interrogation weaken their socialization incentives. Such erosion of social ties weakens the information aggregation ability of the government. Strong civil liberties both protect citizens, and are a valuable commitment device for the government. In partial equilibrium, weak civil liberties make friendships scarce and the government unable to aggregate information effectively. Strong civil liberties make friendships abundant and the government effective at aggregating information.

In general equilibrium, prevailing civil liberties and social structure are jointly determined. We model the constraints on the government's information collection capacity as pinned down by societal resistance to excessive intrusion. Resistance, in turn, is mediated by the ease with which collective action against the government spreads in the population. This 'no-riot constraint' depends both on the underlying strength of society's 'civic values', and on the density of social ties across citizens. The government's strategic problem is now more involved: expectations of low levels of intrusion still benefit the government by giving citizens incentives for socialization, which facilitate information collection. At the same time, the resulting cohesive social structure makes collective action more effective, making it harder for the government to interrogate widely without triggering a collective action response from citizens.

We first study the simple case of symmetric strategies, where the government interrogates citizens uniformly and all citizens use the same socialization strategy. The more cohesive the social structure, the harder it is to satisfy the constraint preventing collective action from spreading widely. At equilibrium, the density of social ties and the strength of civil liberties covary positively with the strength of civic values. This sets the stage for the heart of our analysis: could interrogating different groups of citizens at different rates allow the government to relax the no-riot constraint? We refer to this possibility as *unequal treatment*. To explore it we now allow for asymmetric strategies, where the players can condition their strategies on a payoff irrelevant dimension of observable heterogeneity across citizens (e.g., a group trait).[2] In equilibrium, citizens' socialization decisions respond to the governments' asymmetric treatment of them.[3] This is because forming friendships with citizens who are targets of government interrogation becomes unattractive. We show that social segregation can arise in this case[4]: in the absence of any in-group biases in citizens'

[2]As pointed out by Bisin and Verdier (2011), the literature on intergroup socialization, starting at least with Schelling (1969), requires *imperfect empathy*, even if small, to rationalize equilibrium segregation. Here we provide a mechanism where segregation arises despite no ex-ante differences in preferences.

[3]In Fang and Norman (2006) the government discriminates between two groups on public sector hiring. The unfavorably treated group then specializes in the private sector. In that model, there is occupational segregation but the paper does not explore social segregation, and takes as given the government's ability to discriminate.

[4]Thus, our study also relates to the literature on socialization and segregation (e.g., Akerlof (1976); Alesina

socialization preferences, and in the absence of ex-ante government favoritism towards any group, multiple equilibria with unequal treatment under the law (different standards of government intrusion across groups) and segregation (different rates of socialization across groups) exist.[5] These are sustained by self-fulfilling beliefs. An expectation of unequal treatment is necessary for citizens to segregate, and a segregated social structure is necessary for the government to find unequal treatment profitable.[6]

Two key externalities shape the unequal treatment equilibria: first, a citizen who socializes more intensely increases the mass of friends of other citizens, making it more likely that the government receives information about them. Second, a citizen who socializes more intensely facilitates contagion, tightening the collective action constraint faced by the government. As a result, these are coordination failures from the citizens' point of view.[7] All citizens are hurt by unequal treatment, including those from the group experiencing better treatment. The government, in contrast, can be strictly better off under unequal treatment, but only when equal treatment would entail high levels of social cohesiveness. The equilibria with unequal treatment are robust: whenever they exist, they are the unique strict equilibria.

The model yields sharp qualitative predictions about the resulting social structures, and about the distribution of traits required to sustain unequal treatment. In the benchmark case, the largest group experiences a higher rate of interrogation. When the minority is relatively

and LaFerrara (2000); Bisin and Verdier (2011); Lang (1986); Schelling (1969)). Most of this literature explores the relationship between patterns of socialization and culture or individual preferences. Instead, we focus on how these relate to political institutions and the behavior of the state. Related literature exploring the relationship between socialization and social capital includes Letki (2008); Putnam (2007).

[5]In Mukand and Rodrik (2020) equal treatment is also a key aspect of civil liberties. There, they arise for a different reason: when a minority facing the threat of coercion happens to be pivotal within the political bargain between the elite and the majority, civil liberties protections arise as part of the social bargain. From a different angle, Lagunoff (2001) proposes a theory of civil liberties where a majority refrains from imposing restrictive legal standards towards behaviors preferred by a minority when there can be errors in the interpretation of the symbolic content of behavior that could potentially lead to punishment of members of the majority. In these and papers, political conflict between minorities and majorities is at the heart of the emergence (or not) of civil liberties. Thus, the focus is on the conditions that can allow some extent of protection for minorities. We take a different approach, suggesting that civil liberties mediate the conflict between citizens and governments with mis-aligned preferences over information aggregation, and show that endogenous social cleavages can emerge.

[6]The unequal treatment of citizens from different groups here is reminiscent of the vast literature on labor market discrimination. In a recent essay, Lang and Khan-Lang (2020) argue that while most of it has focused on either taste-based discrimination –driven by preferences–, or statistical discrimination –driven by inferences over relevant characteristic based upon group membership–, little work has attempted to model "discrimination as a system": "This idea of discrimination as a system is not easy for economists to address. Developing truly general equilibrium models is difficult, especially when the endogenous variables go beyond prices and quantities" (p. 85). Our model is one attempt to take on this challenge.

[7]In Weingast (1997), coordination failures can also impede the emergence of the 'rule of law'. The nature of this coordination failure, however, is different to the one here. There, the government can make an agreement with one group whose support it needs, allowing it to mis-treat the other group. There is coordination failure because both groups could be better of if they agreed on ousting the ruler.

large and incentives for socialization are relatively weak, society segregates completely. In this case, cohesiveness and segregation covary positively. When the minority is relatively small and incentives for socialization are relatively strong, there is only partial segregation, and cohesiveness and segregation covary negatively. In this case, there is more unequal treatment in the sense that the gap between the interrogation rates applied to both groups is larger. In the equilibria with unequal treatment, the extent of segregation is pinned down by the more favorably treated group: while the unfavorably treated group wants to fully socialize with the favorably treated group, the favorably treated group chooses a low cross-group socialization.

Experiences of extreme use of coercion for information aggregation purposes abound. Well documented are the medieval witch hunts in Europe (Briggs (1996)), the Salem witch hunt of 1692 (Godbeer (2011)), the Spanish Inquisition (Hassner (2020)) or Stalin's, Mao's, and Pinochet's purges. Another well known example is Senator McCarthy's persecution of alleged communism sympathizers in the 1950s (Klingaman (1996); Oshinsky (1983)).[8] Civil liberties, as a buffer between the government and civil society, are often seen as an attempt to compromise between the conflicting objectives of prosecuting potential threats and protecting citizens from state intrusion. The Bill of Rights of the U.S. Constitution, for example, imposes restrictions on the government's ability to undertake searches and seizures and on the use of cruel punishments, and imposes minimal requirements for prosecution in the form of probable cause, Miranda rights, or varying degrees of evidentiary standards of proof. Indeed, our model can capture a variety of threats: actual terrorism threats, where some citizens are members of a criminal organization; an epidemic, where a subset of individuals is sick with a contagious disease; threats to the government only, as when a group of citizens has an interest in toppling a regime, and the government is trying to crack down on this opposition; imaginary threats, such as a witch hunt, where the government believes a subset of citizens poses a collective risk to society.

We explore a few extensions of the model. First, we show that unequal treatment against the minority can be sustained when the collective action technology is such that unequally treating the majority would be enough to make the social resistance constraint bind. Thus, the government's group targeting is purely driven by its desire to collect as much information as possible. Second, we explore an alternative micro-foundation for the government's ability to extract information from its citizens. While in the benchmark model societal resistance to intrusion imposes a limit on the government's interrogating ability, in some settings the

[8] See also Johnson and Koyama (2014); Langbein (1977); Roper (2004) on the European experience. In the US, intelligence agencies were allowed to use water boarding for terrorism suspect interrogations following 9/11. Also, advanced information-verification technologies involving massive databases are now deployed to track unlawfully present immigrants in the US (Ciancio and García-Jimeno (2022)).

nature of social ties may matter for its ability to interrogate effectively. For example, social norms such as Banfield (1958)'s *amoral familism* among Southern Italians, or the well-known codes of silence of the mafia (see Servadio (1976)), would suggest that a government will be ineffective at extracting accurate information from people who can sustain social norms of this kind. We consider an extension of our model where community enforcement of a norm not to disclose information to the government can be sustained through common friendships between citizens.

Our results highlight that civil liberties, beyond their intrinsic value, sustain social cohesion. We are not the first suggesting a relationship between coercion and the erosion of trust (see Badescu and Uslaner (2003); Traps (2009) in the context of Eastern European countries under communist regimes, or Nunn and Wantchekon (2011) in the context of the slave trade in tropical Africa). Our model provides a novel framework, however, that highlights how features of the informational environment are key mediators between citizens' willingness to socialize and the state's ability to exercise coercion over them. We discuss how different dimensions relevant to the informational environment shape equilibria. The increasing use of real-time monitoring technologies by governments (video-cameras, social media tracking, large databases, etc.) makes these comparative static results particularly relevant. Moreover, our model highlights the endogenous and dual role of the social structure, both as a component of the government's information aggregation technology and as a determinant of society's ability to resist coercion.

2 Model

We consider a static economy with a mass 1 of citizens, who make socialization efforts leading to friendships. Friendships are inherently valuable, but also allow citizens to (imperfectly) learn information about each other. After friendships are formed, citizens exogenously may become members of a threat. The government tries to learn which citizens are members of this threat by interrogating them about their friends. Civil liberties and civil resistance limit the government's ability to interrogate citizens (e.g., search and seizure restrictions) and to subsequently arrest those who are deemed likely members of the threat (e.g., standard of proof restrictions). We first describe the environment. Then we present a simple case where citizens play symmetric strategies to highlight some initial intuitions. In section 3 we study the more general case allowing for asymmetric strategies, under which we present our main results.

2.1 Preferences and Socialization Efforts

Each citizen $i \in S = [0,1]$ chooses private socialization strategy $p_{ij} \in [\underline{\rho}, 1]$ towards each other citizen j. For each pair of citizens i and j, a friendship is formed between them with probability $p_{ij}p_{ji}$. Ties are drawn independently across pairs of citizens.[9] We write $e_{ij} = 1$ if a friendship is formed, and $e_{ij} = 0$ otherwise. As a result, the realized *degree* of citizen i will be:[10]

$$d_i = \int_{j \in S} e_{ij} \mathrm{d}j = \int_{j \in S} p_{ij} p_{ji} \mathrm{d}j. \tag{1}$$

After friendships are realized, each citizen independently becomes member of a "threat" with probability χ.[11] This prior probability is common knowledge. We denote by T the set of citizens who belong to the threat, so that $\lambda(T) = \chi$ is the measure of the threat set.[12] We also suppose that each citizen, regardless of threat-membership status, receives information about each of his friends, as we will describe in detail below. Citizens value friendships and incur a cost if arrested according to the payoff function

$$U_i = \sqrt{d_i} - \kappa \mathbb{1}_{i \in A}, \tag{2}$$

where A denotes the set of arrested citizens.[13] Although in (2) κ is a utility parameter, notice that it may also be interpreted as partly reflecting the civil liberties standards of

[9] Golub and Livne (2010) model socialization choices in a similar vein in a network formation model where not only direct links but also higher order connections are valuable.

[10] Here we restrict the action set to $(p_{ij})_{j \in S/i}$ such that $f_i(j) \equiv p_{ij}$ is a measurable function. $f_{ii}(j) \equiv p_{ij}p_{ji}$ does not need to be integrable as a function of j, however. Throughout the paper we focus on symmetric strategy equilibria, or symmetric across finite subsets of citizens, so all integrals that follow are well defined. To encompass the general case without restriction to any subset of equilibria, all integrals can be changed to lower integrals. In general each citizen i can choose a mixed strategy in $\Delta([\underline{\rho}, 1]^{S/i})$. The only payoff relevant aspect of i's strategy is the realized degree d_i. As it will be clear later, i's best reply, in equilibrium, must always entail a deterministic d_i even under alternative socialization rates over his peers. Thus, we simplify the exposition focusing on pure strategies. This is without loss of generality for the resulting network structure and payoffs.

[11] Assuming the threat is realized only after socialization decisions are made implies socialization strategies will not depend on membership status. This is inconsequential when the government cannot observe citizens' realized degree: citizens don't value links based on threat membership directly, and the government is unable to target citizens based on their degree. If the government could observe citizens' degree, in the resulting asymmetric information game threat members would need to play a pooling socialization strategy; otherwise, their differential degree would reveal their type.

[12] Throughout, $\lambda(X)$ denotes the measure of set X.

[13] Concavity in degree of the payoff function allows us to derive necessary and sufficient conditions for equilibrium. Under linearity we obtain sufficient conditions only, but equilibria are qualitatively the same as in our benchmark specification. For simplicity we do not allow for a cost of being interrogated, but this is without loss of generality. Citizens could also directly value the prosecution of the threat –e.g., if it is a terrorist threat or an epidemic–. Because each citizen is infinitesimal, their individual actions do not affect any aggregates, and any such additional component of their payoff will not affect their optimal behavior.

this economy. The Eight Amendment to the US Constitution, for example, directly bans excessive bail and fines, and forbids cruel and unusual punishments.

The government, on the other hand, cares about prosecuting the potential threat. Here we assume its payoff function is simply

$$V = \lambda(A). \tag{3}$$

Under (3), the government cares only about the mass of citizens arrested, and thus, does not face a cost from arresting non-threat members. This payoff function can be interpreted as a reduced-form of a micro-founded objective where the government cares about regime survival, for example, as long as regime survival depends positively on the mass of arrests of threat members. The government can undertake two actions: first, it selects a subset of citizens for interrogation. We denote by N the set of citizens brought forth for interrogation. Second, once interrogations have happened, it selects a subset of citizens to arrest. Neither set needs to be a subset of the other. We interpret the interrogating and arresting limits faced by the government as reflecting the extent of civil liberties in place.

2.2 Institutions and Technologies

To prosecute a perceived threat the government needs to aggregate information distributed across the citizenry. Technologies, institutions, and the underlying social structure all shape the information aggregation process. Exploiting the social network of friendships, the government interrogates some citizens to collect information about other citizens.[14] While social resistance can limit the scope of interrogations, as we will describe in detail below, the value of the information gathered will depend on the nature of the relationships between friends, and on the information aggregation technologies available to the government. The government uses the gathered information to subsequently target citizens for arrest.[15] The scope of arrests, in turn, can also be limited by rules. We first describe the information aggregation technology for a given set of interrogated citizens, and then describe the limits on arrests and interrogations.

Information aggregation The government has access to an information aggregation technology it employs over interrogated citizens. For simplicity, we suppose it operates as follows:

[14]For simplicity we will assume that a citizen does not provide evidence about himself, only about his friends. This could, for example, follow from an existing right not to testify against oneself. In the context of an epidemic, what we call interrogations can take the form of, for example, ‘contact tracing’.

[15]In the Spanish Inquisition context, for example, (Hassner, 2020, p. 2) discusses “... how information provided under torture by one detainee led to the arrest, interrogation, or torture of others in their network”.

each interrogated citizen $j \in N$ generates a clue about each of his friends. As a result, the government receives a measure s_i of clues about citizen i:

$$s_i = \int_{j \in N} e_{ij} \mathtt{d} j. \tag{4}$$

The government then receives a binary signal θ_i about i's membership in the threat with precision proportional to s_i. We suppose, in particular that

$$\begin{aligned} \sigma_0(s_i) &\equiv \mathbb{P}(\theta_i = 1 | i \notin T, s_i) = a_0 - b_0 s_i \\ \sigma_1(s_i) &\equiv \mathbb{P}(\theta_i = 1 | i \in T, s_i) = a_1 + b_1 s_i, \end{aligned} \tag{5}$$

where $a_0, a_1, b_0, b_1 > 0$, $b_0 < a_0 < 1$, $a_0 \leq a_1$, and $a_1 + b_1 < 1$. Larger values for b_0 and b_1 map into more efficient information aggregation. This information structure satisfies the monotone likelihood ratio property. The government will learn more accurately the type of a citizen who had a larger fraction of his friends interrogated. Under this technology, governments facing more cohesive social structures–as measured by citizens' average degree–, can aggregate information more effectively. Moreover, under this technology interrogated citizens cannot provide, on average, misleading information to the government. This may capture the idea that most governments rely on specialized bureaucracies that can corroborate information obtained from citizens using a variety of surveillance technologies, for example.[16] It does rule out other mechanisms through which citizens may resist the government's use of the social network to aggregate information. In section 4 we will present an extension exploring the implications of a community enforcement mechanism through which citizens may partially undermine the government's attempt to exploit the social structure of friendships.

After observing the realized signals for each citizen, the government updates its beliefs using Bayes' rule. χ_i denotes the posterior belief that $i \in T$, after observing $\theta_i = 1$:

$$\chi_i \equiv \mathbb{P}(i \in T | \theta_i = 1, s_i) = \left(1 + \frac{1-\chi}{\chi} \frac{\sigma_0(s_i)}{\sigma_1(s_i)}\right)^{-1}.$$

We incorporate civil liberties into our model as (possibly endogenous) restrictions on the government's ability to interrogate and arrest citizens.

Limits on Arrests We suppose that the government faces a lower bound $\underline{\chi}$ 'standard of proof', so that only citizens with posterior above $\underline{\chi}$ can be arrested. We will further suppose

[16]Facing this technology, a government that could observe citizens' degree would have incentives to target highly connected individuals for interrogation. Here we rule out this possibility by assuming that the government does not observe citizens' degree at the time of deciding whom to interrogate.

that this civil liberty restriction is drawn from a uniform distribution

$$\underline{\chi} \sim U\left[\underline{\chi}_L, \underline{\chi}_H\right],$$

with $0 < \underline{\chi}_L < \underline{\chi}_H < 1$ so that the 'standard of proof' is subject to some ex-ante uncertainty.[17] This constraint captures the idea that societies may require minimum levels of evidence to allow an arrest or a conviction, for example through the use of probable cause or varying degrees of standards of proof. Its uncertainty, in turn, can reflect the margin of leeway that judges or courts often have in interpreting a given legal standard. Higher values of $\underline{\chi}_L$ imply stronger expected civil liberties protections, while $\underline{\chi}_H < 1$ ensures there will always be some posterior evidence convincing enough to warrant an arrest. We will maintain the following assumption:

Assumption 1.

$$\chi < \underline{\chi}_L < \left(1 + \frac{1-\chi}{\chi}\frac{a_0}{a_1}\right)^{-1} < \left(1 + \frac{1-\chi}{\chi}\frac{a_0 - b_0}{a_1 + b_1}\right)^{-1} < \underline{\chi}_H.$$

The first inequality rules out 'blind arrests': the government cannot arrest citizens based on the prior alone. Information is necessary for an arrest. Moreover, Bayesian updating implies that citizens for whom a signal $\theta_i = 0$ is realized cannot be arrested either, as the posterior over them will fall below the prior. The remaining inequalities imply that all feasible posteriors following a signal $\theta_i = 1$ are in the support of $\underline{\chi}$. Upon updating its beliefs about every citizen, the government proceeds to make arrests.

Limits on interrogations Taking a step back, we now describe interrogations. Governments face limits in their ability to arbitrarily interrogate citizens or collect evidence through, for example, search and seizure restrictions. We expect the extent to which a society can enforce restrictions on the government's coercive abilities to be endogenous to its social structure in the long run. We propose a network-based micro-foundation for the emergence of an endogenous constraint on this ability.[18] After socialization choices are realized, the government can interrogate as many citizens as it wants. Excessive interrogation, however, generates a response from civil society in the form of a protest or riot, based on a simple form

[17] The randomness in $\underline{\chi}$ simply allows us to smooth out a discontinuity in the citizens' payoff function arising when citizens can perfectly predict a threshold level of civil liberties. The discontinuity gives rise to an uninteresting equilibrium where citizens chose a level of socialization just below the discontinuity.

[18] We choose to make endogenous the limit on interrogations rather than the standard of proof as this leads to a more tractable model. This choice, however, provides us with an exogenous model parameter, namely $\underline{\chi}_L$, that allows us to ask comparative statics questions related to other characteristics of government coerciveness that one may still want to consider exogenous to the model.

of contagion across citizens. The possibility of this form of backlash will set a limit on the government's willingness to interrogate indiscriminately. This echoes the idea that effective coordination, in the form of collective action, allows citizens to pose credible threats to the survival of governments that violate expected limits on its behavior (Weingast (1997)). In this way, we allow for citizens' ability to resist arbitrary levels of government coerciveness to depend on key features of its social structure.[19] Crucially, the density of friendships across citizens mediates the contagiousness of collective action.[20]

Citizens become 'reactive' over rounds of contagion, and we suppose the interrogated citizens are the seed of the contagion process (e.g., Erol et al. (2020); Morris (2000)). A citizen who observes more than share ψ of his friends be reactive, becomes reactive himself into the next round.[21] Denoting R_t to be the set of reactive citizens in step t, with $R_0 = N$, the contagion dynamics are given by

$$R_t = R_{t-1} \cup \left\{ i \in [0,1] : \int_{j \in R_{t-1}} p_{ij} p_{ji} \mathtt{d}j > \psi d_i \right\}.$$

The set of citizens who eventually become reactive is $R_* = \cup_{t \geq 0} R_t$.[22] If fraction ν of society eventually becomes reactive, citizens engage in a form of collective action that, for simplicity, we suppose prevents the government from undertaking any arrests. Thus, the *no-riot constraint* (NRC) is

$$\lambda(R_*) \leq \nu. \tag{NRC}$$

Throughout we assume $\nu \in [\psi, 1)$. If $\nu = 1$, the NRC would never be violated. We also rule out $\nu < \psi$ because below we will restrict attention to symmetric strategies. In that range, there would either be no contagion, or any measure of interrogations would directly induce backlash even without any contagion. If backlash takes place, the government cannot make

[19] The literature on collective action, for example, points out that group features such as its size, ethnic or demographic homogeneity, social connectedness, etc., are key determinants of participation in community activities, political engagement, and public goods provision (see Alesina and LaFerrara (2000); Banerjee et al. (2008); Chay and Munshi (2015); Dippel (2014)).

[20] That social cohesiveness is a key constraint on state coercion is well illustrated by scholars of the Soviet Union, arguing how, recognizing the threat of a strong civil society, the regime focused its efforts on co-opting all forms of social organization: "Autonomous social organization was ... replaced by state-administered apparatuses that coordinated the behavior of ... trade unions, professional associations, youth groups, the mass media, the education system, and even, at the high point of totalitarian aspirations, leisure-time clubs" (Bernhard and Karakoc, 2007, p. 545-6).

[21] Recent empirical studies provide evidence of the importance of social network ties in fostering the spread of collective action (e.g., Bursztyn et al. (2019); García-Jimeno et al. (2022)).

[22] Under our restriction to symmetric strategies (or symmetric across finite subsets of citizens), R_t is measurable for all t. The countable union of measurable sets is also measurable, so R_* is measurable as well.

any arrests and its payoff is zero. Because the government can always satisfy (NRC), in any equilibrium this constraint will be satisfied. Thus, without loss of generality, we will treat the (NRC) as a constraint on the government's choice set.

Timeline and definition of equilibrium The timeline of the game, which we illustrate in Figure A.1, is as follows:

1. Citizens make socialization choices, and friendships are formed.
2. Nature choses the threat set T.
3. The government chooses N and interrogates citizens in this set.
4. Interrogated citizens react, and reactions spread via social ties. If reaction reaches fraction ν of society, backlash happens and the game ends with no arrests.
5. If there is no backlash, the government observe signals θ_i, the standard of proof $\underline{\chi}$ is realized, and the government undertakes arrests A.

We are now ready to formally define an equilibrium of this economy.

Definition 1. An equilibrium is a collection $\left(((p_{ij})_{j\in S})_{i\in S}, N, A\right)$ with

- Strategies for all citizens $i \in S$, $(p_{ij})_{j\in S}$, where $p_{ij} \in [\underline{\rho}, 1]$,
- an interrogation strategy for the government, $N \subset S$,
- and an arrest strategy for the government, $A : \Theta \times [0, 1] \to 2^S$, where $\theta \in \Theta$ denotes all the information that is generated by interrogations, and $\underline{\chi} \in [\underline{\chi}_L, \underline{\chi}_H]$ denotes the realized standard of proof, such that:

1. $(p_{ij})_{j\in S}$ maximizes citizen i's expected payoff (2) given $((p_{jj'})_{j'\in S})_{j\in S/i}$, N, and A.
2. N maximizes the government's payoff (3) subject to $\lambda(R_*) \leq \nu$, given citizens' strategies and A.
3. $A(\theta, \underline{\chi})$ maximizes the government's payoff (3) subject to $\chi_i \geq \underline{\chi}$, for all i, given citizens' strategies and N.[23]

[23]For every citizen in $A(\theta, \underline{\chi})$, the posterior belief is larger than $\underline{\chi}$ given the information θ.

2.2.1 Discussion

The dimensions of civil liberties we emphasize here are two of the main buffers between governmental exercise of coercion and civil society. Our discussion relates them to specific provisions in the US Bill of Rights. They can be given a more general interpretation, however, as effective restrictions that state agents face when exercising authority over the public. These are not the only dimensions of civil liberties that matter for social cohesiveness. Equal treatment under the law is another major dimension of civil liberties. Indeed, it was arguably the prime concern of the Civil Rights movement in the US, and is also clearly addressed in the US Constitution. After describing a simple case of our model under symmetric strategies, we will allow for asymmetric strategies and delve into the relationship between unequal treatment and social structure.

Finally, notice that the nature of the threat (e.g., terrorism, an epidemic, a subversive opposition, etc.) may be related to the information aggregation technology (σ_0, σ_1). For example, during medieval witch trials, a simple rumor might suffice to convince a prosecutor or community, of the guilt of an alleged witch. In a terrorism context, a weak civil liberties environment that allows the use of torture during interrogations may lead to a relatively inefficient information aggregation technology: as is well known, confessions extracted through physical coercion are often unreliable. Moreover, prosecutors allowed to use torture face commitment problems so that ex-post it is hard for them not to rely on it even if ex-ante relinquishing its use is more likely to lead to valuable information collection (e.g., see Baliga and Ely (2016)).

2.3 Simple Case: Symmetric Strategies

We begin our analysis restricting attention to an environment with *fully symmetric strategies*, where i) each citizen chooses the same socialization rate towards all other citizens: $p_{ij} = p$ for all $i, j \in S$, and ii) the government interrogates uniformly at random: each citizen faces the same probability of being interrogated. In any equilibrium under fully symmetric strategies, (1) implies a homogeneous society where all citizens will have the same degree equal to $d_i = p^2$.

2.3.1 The Government's Problem

We can first characterize the optimal arresting behavior, which takes place after the standard of proof has been drawn, and the optimal interrogation behavior, which takes place after citizens have made their socialization decisions and the threat set has been drawn. In our baseline model the government does not care about type 1 or type 2 errors, and wants to maximize the number of arrests. Accordingly, the government will want to arrest any citizen whose signal is $\theta_i = 1$, regardless of the signal's precision. This in turn implies that conditional on $\theta_i = 1$, the government's arresting strategy is easily characterized: an arrest happens if and only if $\chi_i > \underline{\chi}$.

In a symmetric equilibrium where each citizen socializes at rate p, each of them has p^2 friends. The government chooses a fraction t to interrogate uniformly at random because it does not observe citizens' socialization choices or their realized degree.[24] Thus, each citizen observes $p^2 t$ friends be interrogated. Then from (NRC), if

$$p^2 t \leq p^2 \psi, \tag{NRC$'$}$$

there is no contagion –none of the non-interrogated citizens becomes reactive–, and the total mass of reactive citizens is $t \leq \psi < \nu$. In this case, there is no backlash and the government can execute arrests. If $p^2 t > p^2 \psi$, all citizens become reactive through contagion ($\lambda(R_*) = 1 > \nu$), and (NRC) would be violated. The government's interim payoff is strictly increasing in the measure of arrested citizens, so it will make sure (NRC$'$) binds $t(p) = \psi$.[25]

2.3.2 The Citizens' Problem

Consider now the previous sub-game, where citizens make socialization decisions. Their problem is to choose socialization strategies p_{ij}, taking as given all other citizens' socialization efforts and the expected interrogation and arrest behavior of the government. Denote the average socialization of citizen i by p_i, where

$$p_i \equiv \int_{j \in S/i} p_{ij} \mathtt{d}j.$$

Using this statistic, we can express a citizen's degree as $d_i = p_i p$. When citizens believe the government will interrogate a mass τ of citizens, we can similarly express the amount of information generated about a citizen as $s_i = p_i p \tau$. Our starting point for characterizing the optimal socialization effort of citizens is the following result:

Lemma 1. *When citizens believe the government will interrogate at rate τ, their expected*

[24]Because the government does not observe the network structure, even if a citizen deviated from an equilibrium socialization strategy, the government would not be able to respond to such a deviation.

[25]Our modeling of the (NRC) leads to an inelastic relationship between t and p, which will imply a unique equilibrium (see Figure A.2). Alternative ways of micro-founding the response of civil liberties to social structure exist, where, for example, t is a decreasing function of p. In that case, multiple equilibria are possible. Because this source of multiplicity is well understood (high interrogation-low socialization, and low interrogation-high socialization), we preferred to rule it out here.

payoff, $\mathbb{E}_{\underline{\chi}}[u_i]$*, is proportional to*

$$\sqrt{pp_i} - \frac{\tau}{2\omega} pp_i, \tag{6}$$

where

$$\omega \equiv \frac{\underline{\chi}_H - \underline{\chi}_L}{2\kappa[\chi(1-\underline{\chi}_L)b_1 + \underline{\chi}_L(1-\chi)b_0]} > 0.$$

ω is a reduced-form parameter capturing how the strength of civil liberties shapes socialization incentives. It depends on the threat prior, χ, on the support of the standard of proof $[\underline{\chi}_L, \underline{\chi}_H]$, on the parameters governing the informativeness of signals (b_0, b_1), and on the disutility of an arrest κ. Together with τ, it mediates the trade-off faced by a citizen when deciding how intensely to socialize. This trade-off can be seen in (6). The expression is strictly concave in p_i and has a unique optimum: holding the average socialization of others constant, the marginal gains from increased socialization are decreasing, while the marginal costs associated with a higher likelihood of being arrested are constant.[26]

Recall that $p_{ij} \in [\underline{\rho}, 1]$. Throughout the rest of the paper we focus on small $\underline{\rho} > 0$, and take the limit as $\underline{\rho} \to 0$. This allows us to rule out the trivial equilibrium in which no citizen socializes because no other citizen is socializing. Rather, our interest is in equilibria where citizens' socialization choices are shaped by civil liberties. For convenience we will use $x \simeq y$ to denote $x - y = O(\underline{\rho})$ as $\underline{\rho} \to 0$, $x \succeq y$ to denote $x - y \geq O(\underline{\rho})$ as $\underline{\rho} \to 0$, and $[\![x]\!] = \max\{\underline{\rho}, \min\{1, x\}\}$.

Lemma 1 implies that citizen i's best reply is

$$p_{ij} \simeq \left[\!\!\left[\frac{1}{p} \left(\frac{\omega}{\tau} \right)^2 \right]\!\!\right]. \tag{7}$$

Perhaps surprisingly, citizens' strategies are strategic substitutes. Citizen i's best reply shifts down with the expected interrogation intensity not because a higher τ will make him more likely to be interrogated, but rather because it will make his friends more likely to be interrogated.

2.3.3 Equilibrium

The citizens' and government's problems determine the density of friendships in society, the extent of interrogations, the amount of information aggregated by the government, and the

[26] In our benchmark model the government cannot target citizens based on their network characteristics. Although we do no explore the alternative possibility, if the government could target people with many friends, this would be an additional reason to reduce socialization efforts.

mass of arrests. In a fully symmetric equilibrium, $p_{ij} = p$ for all citizens, and the interrogation constraint binds. Because citizens are infinitesimal, the best reply in (7) implies the following:

Proposition 1. *In the unique equilibrium under fully symmetric strategies, the average level of socialization is*

$$p^* \simeq \left[\!\left[\frac{\omega}{\psi} \right]\!\right],$$

and the government interrogates at rate $\tau^* = \psi$.

Figure A.2 illustrates the economy's unique (interior) symmetric equilibrium from Proposition 1 when socialization and civil liberties are jointly determined. A few observations are in order. First, in terms of social structure, the equilibrium implies a society with a homogeneous degree distribution –each citizen has $d_i = p^{*2}$ friends.[27] Average degree, a measure of cohesiveness, is thus also equal to p^{*2}. Through ω, equilibrium socialization depends on civil liberties, on the threat likelihood, and on the information aggregation technology. In the remainder of this paper we will restrict attention to the range of parameters $\omega < 1$. This is motivated by Proposition 1: because $\tau \leq 1$, any economy where $\omega > 1$ will be fully cohesive ($p^* = 1$) regardless of the civil liberties restriction on interrogations. Our interest will be to study economies where civil liberties are in the range where they can generate variation in social cohesiveness.

Second, equilibrium socialization is inversely related to ψ, as small values of it tighten the (NRC) improving civil liberties and leading to higher equilibrium socialization. Because lower values of ψ require lower levels of government coercion for contagion to spread across social ties, ψ can be interpreted as an (inverse) measure of civic engagement or the strength of civil society. This echoes Besley and Persson (2019), for example, who argue that society's ability to organize depends on its social capital and democratic values. Thus, our model predicts that social cohesiveness and the strength of civil liberties should covary positively with the strength of civic engagement.[28]

A comparison of Scandinavian and former Soviet countries is suggestive of this pattern: Contemporary Scandinavian societies are recognized to be highly cohesive and trustful, and

[27]The restriction to symmetric strategies directly implies a homogeneous society. However, allowing for mixed strategies, which we have omitted for ease of exposition, all of our results on network structure and payoffs hold.

[28]In our model civic engagement as captured by ψ, is exogenous. Naturally, in practice it is likely to respond to the government's exercise of coercion and to society's cohesiveness. For example, Bautista (2016) documents how Chilean citizens who suffered human rights abuses as young adults under the Pinochet dictatorship report low political engagement thirty years later. In the Soviet context, Jowitt (1993) similarly argued that "The population at large viewed the political realm as something... to avoid" (p. 288).

also highly politically engaged. In turn their governments show a remarkable capacity to collect information about their citizens. In former Soviet republics, in contrast, citizens were highly suspicious of each other (Havel (1985)). Civic engagement was also low, as effective collective action is limited by the inability of citizens to publicly express their preferences (Kuran (1995)). In turn, these governments had to invest heavily in intelligence agencies and secret police services, possibly to compensate for their ineffectiveness at information aggregation (see our empirical discussion in Appendix B, with its associated scatter-plots in Figure B.1). Johnson and Koyama (2014) provide another example of this kind of feedback between the strength of civil liberties and social cohesiveness in the context of witch trials in 16th Century France. They argue that in regions where local courts could exercise more discretion by ignoring standard rules of evidence, more trials took place because the trials themselves triggered fears of witchcraft among the population, leading to increased demand for further trials.

Third, the mass of arrests the government can undertake in equilibrium is strictly larger than if it were unconstrained by civil society.[29] In that sense, strong civic values, leading to stronger equilibrium civil liberties, are a source of commitment for the government. In the absence of a no-riot constraint, the government would choose $\lambda(N) = 1$, and its equilibrium payoff would be ω^2, the minimum possible. Thus, civil liberties in our model both protect citizens from the government, and protect the government from itself.[30] The reason is that a fragmented social structure hurts the government's ability to aggregate information effectively. In fact, the erosion of social cohesion induced by citizens' expectations of the government's behavior undermines the effectiveness of the information aggregation technology more than one to one with the interrogation rate. This is not an artifact of the linearity in the information aggregation technology. Rather, it is driven by the strategic substitutability of citizens' socialization efforts: an increase in the interrogation rate has a direct effect that reduces incentives to build social connections. It has an additional indirect effect, because the marginal benefits of socialization effort fall as other citizens socialize less intensely.

From the government's point of view, effective information aggregation requires widespread interrogations and a dense social network. High levels of social cohesiveness, however, require stronger civil liberties protections which limit the government's ability to aggregate information. In the following section we will explore how the possibility of asymmetric strategies can alter this trade-off and have significant implications over equilibrium social structure.

[29] Because the measure A_τ of arrests under civil liberties τ corresponds to the ex-ante probability faced by a citizen of being arrested, $\mathbb{E}_{\underline{\chi}}\left[\mathbb{1}\{\chi_i > \underline{\chi}\}\mathbb{P}(\theta_i = 1)\right]$, it is easily verified from the proof of Lemma 1 that A_τ is decreasing in τ so that $A_1 < A_\psi$.

[30] For $\omega < 1$, the government would like to commit to $\lambda(N) \leq \omega$, in which case its payoff would be ω.

3 Unequal Treatment and Social Segregation

So far we have restricted attention to symmetric equilibria, where all citizens play the same socialization strategy. In the unique symmetric equilibrium, the government exercises equal treatment in the sense that all citizens are equally likely to be interrogated. Scholars, in fact, consider equal treatment as another important dimension of civil liberties. In many societies, *unequal treatment* is pervasive: equally situated citizens are treated differently by the government or the law. We now generalize our model allowing for asymmetric strategies (where unequal treatment may arise endogenously), suggesting a novel relationship between social structure and the prevalence of unequal treatment.

Our analysis from the previous section highlights how features of the underlying social structure, such as the density of social ties across the citizenry, play a dual role vis-a-vis the government's attempts to aggregate information. On one hand, a more cohesive society allows the government to aggregate information more effectively because each interrogated citizen can provide information about a larger number of other citizens. On the other hand, a more cohesive society is one where collective action may more easily galvanize in response to excessive coercion by the government. This environment creates a tension between the ex-ante and the ex-post incentives of the government. Whereas for a given social structure the government benefits from weak civil liberties that allow widespread information collection, before citizens have made their socialization decisions expectations of strong civil liberties lead to more intense socialization that results in more efficient information aggregation.

This analysis, however, restricted the strategy space to symmetric strategies where, as a result, there is equal treatment: the government interrogates citizens uniformly at random. Taking a look at the (NRC) suggests a possible avenue for a government facing these conflicting incentives to attempt to increase its payoff. Because societal resistance spreads through contagion via social ties, and citizens' socialization choices respond to beliefs about interrogation intensity over peers, a government may attempt relaxing the (NRC) by playing an asymmetric strategy that treats subsets of citizens differently. The expectation that the government will target a subset of the population with a high interrogation rate, for example, should decrease the willingness of citizens to socialize with that group, as it becomes costly to be friends with citizens likely to reveal information about you. The erosion of social ties can in turn undermine the effectiveness of contagion, relaxing the (NRC), allowing the government to fulfill the expectation. While some citizens remain unwilling to riot because they face a low interrogation rate and have made few friendships with highly interrogated citizens, the group of highly interrogated citizens is not large enough to trigger backlash. The government will have to trade off the erosion of social ties implied by such interrogating behavior, against the increased interrogation rate it can afford under the consequently relaxed (NRC).

In this section we formalize this intuition showing that asymmetric equilibria with unequal treatment exist. We also discuss their properties and implications over social structure. Take an arbitrary partition of S into two groups, $\mathcal{G} = \{\mathcal{A}, \mathcal{B}\}$. We will now allow for socialization strategies by citizens, and interrogation strategies by the government, that condition on $\mathcal{G}$. Accordingly, instead of full symmetry, in this section we impose only *$\mathcal{G}$-group symmetry*: for $g, g' \in \mathcal{G}$, for all $i \in g$ and $j \in g'$, $p_{ij} = p_{gg'}$. Here $p_{gg'}$ denotes the average socialization level of citizens of type g towards citizens of type g'. Within a group, the government interrogates uniformly at random: any citizen in $g \in \mathcal{G}$ is interrogated with probability τ_g.

A partition $\mathcal{G}$, for example, could be induced by an observed and immutable characteristic that is payoff irrelevant (it is independent of threat membership, and for all citizens, the utility from forming friendships with members of either group is the same).[31] Throughout, for a given partition $\mathcal{G}$, we refer to citizen $i \in g \in \mathcal{G}$ as having characteristic g. The share of citizens with characteristic $\mathcal{A}$ is $\lambda_{\mathcal{A}} \equiv \lambda(\mathcal{A})$, and the share of citizens with characteristic $\mathcal{B}$ is $\lambda_{\mathcal{B}} \equiv \lambda(\mathcal{B}) = 1 - \lambda_{\mathcal{A}}$.

3.1 The Government's Problem

We begin analyzing the problem of the government at the interim stage, after citizens have made their socialization choices. At this point, the government must choose possibly different interrogation rates $t_{\mathcal{A}}$ and $t_{\mathcal{B}}$ for each group. Because the government gets a payoff of zero if contagion across all of society happens, it will avoid choosing interrogation rates that lead to full contagion.

Lemma 2. *The government's interim expected payoff after citizens have socialized at rates* $\mathbf{p} = (p_{\mathcal{A}\mathcal{A}}, p_{\mathcal{A}\mathcal{B}}, p_{\mathcal{B}\mathcal{A}}, p_{\mathcal{B}\mathcal{B}})$*,* $\mathbb{E}_{\underline{\chi}}[V]$*, is proportional to*

$$\widetilde{V} = \left(\lambda_{\mathcal{A}}^2 p_{\mathcal{A}\mathcal{A}}^2 + \lambda_{\mathcal{A}}\lambda_{\mathcal{B}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}}\right) t_{\mathcal{A}} + \left(\lambda_{\mathcal{B}}^2 p_{\mathcal{B}\mathcal{B}}^2 + \lambda_{\mathcal{A}}\lambda_{\mathcal{B}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}}\right) t_{\mathcal{B}}$$

The government's objective is linear in both interrogation rates, with slopes that depend on the average degree of citizens of the corresponding group. The degree of $\mathcal{A}$ citizens, for example is $\lambda_{\mathcal{A}} p_{\mathcal{A}\mathcal{A}}^2 + \lambda_{\mathcal{B}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}}$. Therefore, its indifference contours are straight lines. To characterize the solution to the government's problem, let's define Γ_g recursively as the

[31] In many settings the likelihood of threat membership may be correlated with group membership. In that case, asymmetric treatment would be a trivial outcome of any setting where the government cares about the threat. Our purpose is to explore the possibility of asymmetric equilibria in the absence of payoff-relevant heterogeneity. Imposing independence of threat and group membership effectively ties our hands to studying the least likely case for the existence of such equilibria.

fraction of reactive citizens in group g, when the group experiences interrogation rate t_g. This is equal to the mass of interrogated citizens from that group, t_g, if the no-contagion constraint holds for the group, and it is 1 otherwise:

$$\Gamma_g \equiv \begin{cases} t_g & \text{if NC-g holds} \\ 1 & \text{otherwise} \end{cases}$$

In turn, the no-contagion constraint for group $\mathcal{A}$ takes the form

$$\lambda_{\mathcal{A}} p_{\mathcal{A}\mathcal{A}}^2 t_{\mathcal{A}} + \lambda_{\mathcal{B}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}} \Gamma_{\mathcal{B}} \leq \psi \left(\lambda_{\mathcal{A}} p_{\mathcal{A}\mathcal{A}}^2 + \lambda_{\mathcal{B}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}} \right) \tag{NC-$\mathcal{A}$}$$

The left-hand side represents the mass of reactive citizens with whom a citizen from group $\mathcal{A}$ has a social tie. This includes all his interrogated friends from group $\mathcal{A}$, $\lambda_{\mathcal{A}} p_{\mathcal{A}\mathcal{A}}^2 t_{\mathcal{A}}$, and all his reactive friends from group $\mathcal{B}$, $\lambda_{\mathcal{B}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}} \Gamma_{\mathcal{B}}$. This citizen will not become reactive himself if this is not larger than fraction ψ of all his friends. Analogously for citizens from group $\mathcal{B}$, there is no contagion in that group if

$$\lambda_{\mathcal{A}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}} \Gamma_{\mathcal{A}} + \lambda_{\mathcal{B}} p_{\mathcal{B}\mathcal{B}}^2 t_{\mathcal{B}} \leq \psi \left(\lambda_{\mathcal{A}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}} + \lambda_{\mathcal{B}} p_{\mathcal{B}\mathcal{B}}^2 \right) \tag{NC-$\mathcal{B}$}$$

The government will never want both (NC-$\mathcal{A}$) and (NC-$\mathcal{B}$) to be violated simultaneously, as this would lead to contagion of all citizens, and a riot would take place. In fact, the government will need to make sure that the total mass of reactive citizens does not exceed ν. Thus, the government's best reply to a given $\mathbf{p} = (p_{\mathcal{A}\mathcal{A}}, p_{\mathcal{A}\mathcal{B}}, p_{\mathcal{B}\mathcal{A}}, p_{\mathcal{B}\mathcal{B}})$, is the solution to:

$$\boldsymbol{\tau}(\mathbf{p}|\psi, \lambda_{\mathcal{A}}) = \underset{(t_{\mathcal{A}}, t_{\mathcal{B}}) \in [0,1]^2}{\text{argmax}} \ \widetilde{V}$$

subject to

$$\Gamma_{\mathcal{A}} \lambda_{\mathcal{A}} + \Gamma_{\mathcal{B}} \lambda_{\mathcal{B}} \leq \nu. \tag{NRC$''$}$$

This optimization problem can be represented as a linear programming problem: the objective is linear in $(t_{\mathcal{A}}, t_{\mathcal{B}})$, and the constraint set is piece-wise linear as well. Moreover, it is straightforward to show that the slope of the indifference curves is a weighted average of the slopes of the no-contagion constraints when neither group experiences contagion.

There are only three possibilities for the government's best reply: an interior solution with equal treatment, or corner solutions with unequal treatment:[32]

[32] In the non-generic case in which contagion on only one group is feasible and the slope of the indifference

1. Equal treatment: $\tau_{\mathcal{A}} = \tau_{\mathcal{B}} = \psi$;

2. Unequal treatment against group $\mathcal{A}$: $\tau_{\mathcal{A}} = 1, \tau_{\mathcal{B}} = \min\left\{1 - \frac{1-\nu}{\lambda_{\mathcal{B}}}, \psi - (1-\psi)\frac{p_{\mathcal{AB}}p_{\mathcal{BA}}}{p_{\mathcal{BB}}^2}\frac{\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right\}$;

3. Unequal treatment against group $\mathcal{B}$: $\tau_{\mathcal{B}} = 1, \tau_{\mathcal{A}} = \min\left\{1 - \frac{1-\nu}{\lambda_{\mathcal{A}}}, \psi - (1-\psi)\frac{p_{\mathcal{AB}}p_{\mathcal{BA}}}{p_{\mathcal{AA}}^2}\frac{\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}\right\}$.[33]

The reason is that in a setting with two groups and symmetric strategies *within* group, the contagion dynamics are fairly simple: either there is no contagion so only the interrogated group is reactive, there is contagion among all citizens of only one group, or there is contagion of all citizens. The government always avoids contagion of all citizens as this would trigger backlash. If contagion across both groups cannot be avoided with differential interrogation rates, the government is limited to exercise equal treatment. If contagion can be limited to only one group, the government will depress the interrogation rate over the other group to prevent contagion in it, and will maximally interrogate the group that experiences contagion.

To illustrate the logic of the government's problem more clearly, in what follows we will focus on the case where ν is close to 1. We believe this is the case of most interest; under this case, backlash cannot happen without second-round contagion. Figure A.3 illustrates graphically the government's optimization problem. In the case represented in panel (a), citizens' socialization rates are such that neither of the no-contagion constraints can be violated without triggering contagion on the other group. In this case, the constraint set is convex with a kink at (ψ, ψ), making *equal treatment* the unique best response. Note that (ψ, ψ) is always a feasible choice that avoids contagion in both groups. In the case represented in panel (b), in contrast, citizens' socialization rates make it possible to violate only one of the no-contagion constraints. When the government chooses a high enough interrogation rate for group $\mathcal{B}$ citizens such that this group experiences contagion, for example, the (NC-$\mathcal{A}$) becomes a horizontal line, and the constraint set is non-convex. Symmetry within a group implies that if contagion happens within the group, then the whole group becomes reactive. In such case it must be optimal for the government to interrogate all citizens of the group. It follows that the unique optimum entails a corner solution with *unequal treatment*, where $\tau_{\mathcal{B}} = 1$. In this case the (NC-$\mathcal{A}$) and the (NRC$''$) coincide. Accordingly, $\tau_{\mathcal{A}}$ is sufficiently low that (NC-$\mathcal{A}$) exactly binds and a second round of contagion is prevented. Group $\mathcal{B}$ citizens are unequally treated, experiencing the maximum possible interrogation rate, while group $\mathcal{A}$

curves $\widetilde{V}$ is such that an indifference curve passes through both the intersection of (NC-$\mathcal{A}$) with $t_{\mathcal{B}} = 1$, and of (NC-$\mathcal{B}$) with $t_{\mathcal{A}} = 1$, the government's best reply is not unique (it has two elements).

[33] Note that if the expression for $\tau_{\mathcal{A}}$ is negative, the first round of contagion guarantees the second round of contagion and a riot. Thus, this is a feasible option only if the prescribed $\tau_{\mathcal{A}}$ is positive. A symmetric logic applies to the case in which group $\mathcal{A}$ is the one experiencing unequal treatment.

citizens experience an interrogation rate equal to

$$\tau_{\mathcal{A}} = \psi - (1-\psi)\frac{p_{\mathcal{AB}}p_{\mathcal{BA}}}{p_{\mathcal{AA}}^2}\frac{\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}} \tag{8}$$

This is lower than the interrogation rate that would prevail under equal treatment.

As equation (8) and our previous discussion illustrate, the extent to which the government's best reply will entail unequal treatment depends on the intensity of cross-group socialization relative to within-group socialization of the favorably treated group. The lower is the intensity of socialization across groups, the easier it will be for the government to satisfy the (NC-$\mathcal{A}$), and correspondingly, the larger the interrogation rate it will be able to impose on the more favorably treated group. Thus, a more segregated society enhances the government's ability to implement worse civil liberties. Relative group sizes are also a key determinant of the feasibility and extent of unequal treatment. Holding socialization rates constant, when the unequally treated group is smaller relative to the favorably treated group, the government can afford a higher interrogation rate for the favorably treated group. Finally, a stronger civil society (lower ψ) forces the government to chose a more favorable interrogation rate toward the favorably treated group. Note this *increases* the extent of inequality in treatment across groups.

3.2 Citizens' Socialization Decision

We can now consider the problem of a citizen from group $g \in \mathcal{G}$, allowing for citizens from different groups to choose possibly different socialization strategies, but restricting attention to symmetric strategies within each group. In this case, the degree and the amount of information collected by the government about citizen i depend on how intensely citizens socialize within their own group, and across groups.

Lemma 3. *When citizens believe the government will interrogate citizens of groups $\mathcal{A}$ and $\mathcal{B}$ at rates $\tau_{\mathcal{A}}$ and $\tau_{\mathcal{B}}$, the expected payoff of citizen $i \in g$, $\mathbb{E}_{\underline{\chi}}[u_i]$, is proportional to*

$$\sqrt{\sum_{h\in\mathcal{G}} p_{ih}p_{hg}\lambda_h} - \frac{1}{2\omega}\left(\sum_{h\in\mathcal{G}} p_{ih}p_{hg}\lambda_h\tau_h\right) \tag{9}$$

Here p_{ih} simply denotes the socialization choice by a citizen i belonging to group g towards citizens from group h. Straightforward first order conditions from (9) with respect to these strategies yield citizens' best responses to each other. Further imposing symmetry within groups, for citizens from group $\mathcal{A}$ we have

$$p_{\mathcal{A}\mathcal{A}} = \left[\!\left[\frac{(\omega/\tau_{\mathcal{A}})^2 - \lambda_{\mathcal{B}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}}}{\lambda_{\mathcal{A}} p_{\mathcal{A}\mathcal{A}}} \right]\!\right], \qquad p_{\mathcal{A}\mathcal{B}} = \left[\!\left[\frac{(\omega/\tau_{\mathcal{B}})^2 - \lambda_{\mathcal{A}} p_{\mathcal{A}\mathcal{A}}^2}{\lambda_{\mathcal{B}} p_{\mathcal{B}\mathcal{A}}} \right]\!\right], \tag{10}$$

and for citizens from group $\mathcal{B}$,

$$p_{\mathcal{B}\mathcal{A}} = \left[\!\left[\frac{(\omega/\tau_{\mathcal{A}})^2 - \lambda_{\mathcal{B}} p_{\mathcal{B}\mathcal{B}}^2}{\lambda_{\mathcal{A}} p_{\mathcal{A}\mathcal{B}}} \right]\!\right], \qquad p_{\mathcal{B}\mathcal{B}} = \left[\!\left[\frac{(\omega/\tau_{\mathcal{B}})^2 - \lambda_{\mathcal{A}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}}}{\lambda_{\mathcal{B}} p_{\mathcal{B}\mathcal{B}}} \right]\!\right], \tag{11}$$

which is a system of four non-linear equations in the four socialization rates. Higher interrogation rates on one's group reduce the willingness to socialize with fellow group members, and higher interrogation rates on the other group reduce the willingness to socialize with members of the other group. We can express this system of equations more compactly as

$$\mathbf{p} = \Psi(\mathbf{p}|\boldsymbol{\tau}, \omega, \lambda_{\mathcal{A}}). \tag{12}$$

Fixed points of Ψ on $[0,1]^4$ are mutually consistent in-group and out-group socialization strategies for a given vector of interrogation rates $\boldsymbol{\tau}$.

Proposition 2. *The fixed points of $\Psi(\mathbf{p}|\boldsymbol{\tau}, \omega, \lambda_{\mathcal{A}})$ can be characterized as follows:*

1. *For $\tau_{\mathcal{A}} \neq \tau_{\mathcal{B}}$, $\Psi(\mathbf{p}|\boldsymbol{\tau}, \omega, \lambda_{\mathcal{A}})$ has a unique fixed point, where some of the socialization rates are interior.*

2. *For $\tau_{\mathcal{A}} = \tau_{\mathcal{B}} = \tau$,*

   - *If $\omega \geq \tau$, $\Psi(\mathbf{p}|\boldsymbol{\tau}, \omega, \lambda_{\mathcal{A}})$ has a unique fixed point. Furthermore, it implies full socialization within and across all groups: $p_{gh} = 1$ for all $g, h \in \mathcal{G}$.*
   - *If $\omega < \tau$, $\Psi(\mathbf{p}|\boldsymbol{\tau}, \omega, \lambda_{\mathcal{A}})$ has a continuum of payoff-equivalent fixed points, all payoff-equivalent to the fixed point $p_{gh} = \omega/\tau$ for all $g, h \in \mathcal{G}$.*

Proposition 2 illustrates the forces shaping citizens' socialization decisions. First, expectations about the government's behavior. Within-group ($p_{\mathcal{A}\mathcal{A}}$ and $p_{\mathcal{B}\mathcal{B}}$) and cross-group ($p_{\mathcal{A}\mathcal{B}}$ and $p_{\mathcal{B}\mathcal{A}}$) socialization decisions depend on the interrogation rates expected on the own group but also on the other group. Expectations of equal or unequal treatment are key. When citizens expect unequal treatment ($\tau_{\mathcal{A}} \neq \tau_{\mathcal{B}}$), Ψ has a unique fixed point where some of the socialization rates are interior.[34] Consider, for example, the best replies for group $\mathcal{A}$ in (10). Note that these two equations cannot hold simultaneously at interior values for

[34]The proof of Proposition 2 in Appendix D explicitly computes the fixed points in each case.

$(p_{\mathcal{AA}}, p_{\mathcal{AB}})$ when $\tau_{\mathcal{A}} \neq \tau_{\mathcal{B}}$. In this case, one of the socialization rates must be at a corner ($\simeq 0$ or $= 1$). As we will see below, relative group sizes will pin down when the different corner solution socialization rates can arise. When citizens expect equal treatment ($\tau_{\mathcal{A}} = \tau_{\mathcal{B}}$), in contrast, each pair of best replies in (10) and (11) reduces to the same equation, so we have two equations in four unknowns. This explains why homogeneous socialization rates are a solution as stated in the second part of Proposition 2, as well as why in this case Ψ has a continuum of fixed points.

Equations (10) and (11) make explicit the form of strategic interactions taking place across groups. For all citizens, both within and cross-group socialization best replies depend negatively on the cross-socialization choice of citizens from the other group. This is true regardless of whether citizens expect interrogation rates to be the same across groups or not.

3.3 Equilibria

We now discuss equilibria in the game with asymmetric strategies. To characterize the equilibria of this game, without loss of generality we will assume that $\lambda_{\mathcal{A}} < 1/2$ so that group $\mathcal{A}$ is the *minority*. Just as it was the case when restricting attention to symmetric strategies across all citizens, the infinitesimal nature of each citizen implies that: (i) $\boldsymbol{\tau}(\mathbf{p}|\psi, \lambda_{\mathcal{A}})$ describes the government's best reply to all citizens' strategies, and (ii) the fixed points of $\Psi(\mathbf{p}|\boldsymbol{\tau}, \omega, \lambda_{\mathcal{A}})$ describe the citizens' equilibrium play against each other and the government's interrogation response. For the remainder of this section we will examine an environment where ν is close to 1. In such environment, backlash can only happen if and only if both groups become reactive. This case provides all of the main intuitions we are interested in exploring, and spares us from examining a number of less interesting sub-cases over the parameter space. Thus, defining

$$\widetilde{\Psi}(\mathbf{p}|\psi, \omega, \lambda_{\mathcal{A}}) \equiv \Psi\left(\mathbf{p}|\boldsymbol{\tau}(\mathbf{p}|\psi, \lambda_{\mathcal{A}}), \omega, \lambda_{\mathcal{A}}\right),$$

the equilibria of this game are the $(\mathbf{p}^*, \boldsymbol{\tau}^*)$ such that: (i) $\mathbf{p}^*$ is a fixed point of $\widetilde{\Psi}(\mathbf{p}|\psi, \omega, \lambda_{\mathcal{A}})$, and (ii), $\boldsymbol{\tau}^* = \boldsymbol{\tau}(\mathbf{p}^*|\psi, \lambda_{\mathcal{A}})$. Our main result is as follows:

Theorem 1. *Suppose $\lambda_{\mathcal{A}} < 1/2$ and $\omega, \psi \in [0, 1]$. The set of all $\mathcal{G}$-group symmetric equilibria is described by:*

1. *(UTE1). For $(\lambda_{\mathcal{A}}, \omega) \in \left[\left(0, \frac{\psi^2}{1+\psi^2}\right) \times \left[0, \sqrt{\lambda_{\mathcal{A}}}\right)\right] \cup \left[\left[\frac{\psi^2}{1+\psi^2}, 1/2\right) \times \left[\frac{\lambda_{\mathcal{A}}}{\sqrt{1-\lambda_{\mathcal{A}}}}, \sqrt{\lambda_{\mathcal{A}}}\right]\right]$, unequal treatment against the majority, with a non-homogeneous and fully segregated*

society is the unique strict equilibrium:

$$(p^*_{\mathcal{AA}}, p^*_{\mathcal{AB}}, p^*_{\mathcal{BA}}, p^*_{\mathcal{BB}}) \simeq \left(\left[\!\!\left[\frac{\omega}{\psi\sqrt{\lambda_{\mathcal{A}}}} \right]\!\!\right], 0, 1, \left[\!\!\left[\frac{\omega}{\sqrt{\lambda_{\mathcal{B}}}} \right]\!\!\right] \right)$$

and

$$(\tau^*_{\mathcal{A}}, \tau^*_{\mathcal{B}}) \simeq (\psi, 1).$$

2. *(UTE2). For* $(\lambda_{\mathcal{A}}, \omega) \in \left[(0, 1-\psi] \times \left(\sqrt{\lambda_{\mathcal{A}}}, \frac{\sqrt{\lambda_{\mathcal{A}}}}{1-\psi}\right]\right] \cup \left[(1-\psi, 1/2) \times \left(\sqrt{\lambda_{\mathcal{A}}}, 1\right]\right]$*, unequal treatment against the majority, with a non-homogeneous and partially segregated society is the unique strict equilibrium:*

$$(p^*_{\mathcal{AA}}, p^*_{\mathcal{AB}}, p^*_{\mathcal{BA}}, p^*_{\mathcal{BB}}) = \left(1, \frac{\omega^2 - \lambda_A}{\lambda_B}, 1, \frac{\sqrt{\omega^2(\lambda_{\mathcal{B}} - \lambda_{\mathcal{A}}) + \lambda_A^2}}{\lambda_{\mathcal{B}}} \right)$$

and

$$(\tau^*_{\mathcal{A}}, \tau^*_{\mathcal{B}}) = \left(\psi - (1-\psi)\frac{\omega^2 - \lambda_{\mathcal{A}}}{\lambda_{\mathcal{A}}}, 1 \right).$$

3. *(ETE). Equal treatment with a homogeneous society is a (non-strict) equilibrium:*

$$p^*_{gh} = \left[\!\!\left[\frac{\omega}{\psi} \right]\!\!\right] \quad \textit{for all } g, h, \in \{\mathcal{A}, \mathcal{B}\}$$

and

$$(\tau^*_{\mathcal{A}}, \tau^*_{\mathcal{B}}) = (\psi, \psi).$$

3.3.1 Discussion

There are a number of results that follow from Theorem 1. It establishes the existence of unequal treatment equilibria, and describes several key features of the resulting civil liberties and social structures under such equilibria. Foremost, under asymmetric strategies that condition on group membership, there can be multiple equilibria. Equal treatment (ETE), where the government and citizens ignore group membership, is a (non-strict) equilibrium for any economy $(\psi, \omega, \lambda_{\mathcal{A}})$. This equilibrium simply replicates the unique equilibrium we discussed in subsection 2.3. This is no surprise, as the group labels in our model are economically irrelevant. In an equal treatment equilibrium, the belief that the government will use the same civil liberties standard for both groups justifies homogeneous socialization rates within and across them. A homogeneous society, in turn, implies that there is no value for the government from interrogating the groups at different rates. This is a key insight from our analysis: heterogeneous socialization rates across groups are a necessary condition for unequal treatment to be of any value to the government.[35]

Indeed, for the economies described in parts 1 and 2 of Theorem 1, there exists an additional strict equilibrium that entails both unequal treatment (UTE) and some heterogeneity in socialization rates across groups. These correspond to corner solutions to the government's best reply, as illustrated in panel (b) of Figure A.3. When a UTE exists, it is the unique strict equilibrium. In any such equilibrium, the government unfavorably treats the larger group. Historical experiences of majorities being the subjects of unequal treatment are not uncommon. Just to mention a few examples, between the 17th and the 19th centuries the population of the British Caribbean was at least three fifths black, the vast majority of whom were enslaved (Engerman and Higman (2003)). In Apartheid South Africa, by the 1950s native blacks constituted around three quarters of the population (Chimere-dan (1992)). In contemporary Syria, the advantaged Alawite Shia minority is around 15 percent of the population while the Sunni majority constitutes around three quarters of the population (CIA (2023)).

Unequal treatment for the disadvantaged group is maximal in the sense that the whole group gets interrogated. The favorably treated group (the minority), in contrast, is subject to an interrogation rate weakly lower than ψ. The extent of inequality in treatment across groups is thus pinned down by how favorably the minority is treated. In an unequal treatment equilibrium, the belief that the government will target the majority with a high interrogation rate gives citizens of both groups incentives to reduce the intensity with which they socialize with members of the majority. This leads to a segregated and less cohesive social structure that weakens the effectiveness of social contagion of civic unrest. Weakened contagion relaxes the no-contagion constraints, allowing the government to impose a high interrogation rate on the majority group without triggering contagion on the minority, thus fulfilling the citizens' belief of unequal treatment. Thus, in the parameter regions where UTE exist, multiplicity is sustained by different self-fulfilling beliefs about civil liberties and patterns of socialization. Unequal treatment and uneven socialization across groups sustain each other: the government will only chose to exercise unequal treatment when society exhibits some segregation, and individuals will only socialize asymmetrically across groups when the government treats both groups differently.

Figure A.4 presents diagrams illustrating the parameter regions in $(\lambda_{\mathcal{A}}, \omega)$ space where the different types of equilibria exist, and how these regions change as we vary ψ, the parameter

[35] Note that when $p_{\mathcal{AA}} = p_{\mathcal{AB}} = p_{\mathcal{BA}} = p_{\mathcal{BB}}$, the no contagion constraints for both groups exactly coincide, and thus each group's constraint binds if the constraint for the other group binds. The government cannot improve upon equal treatment without triggering a riot. Moreover, in this case the slope of the government's indifference curves coincides with the slope of the no-contagion constraints, which is the reason why the ETE from Theorem 1 is not a strict equilibrium.

capturing civic values. Self-fulfilling beliefs sustaining unequal treatment are not consistent in economies with relatively large minorities and relatively strong civil liberties (high ω), and in economies with relatively small minorities and relatively weak civil liberties (low ω). As ψ increases, the regions where multiplicity (and thus unequal treatment) is possible expand. For $\psi \approx 1$, when civil society is unable to pose a riot threat, unequal treatment can be sustained in all economies. Unequal treatment equilibria of the first type described in Theorem 1 arise in economies in the south-east region of the parameter space, where the minority is relatively large, and civil liberties are relatively weak (below the curve $\omega = \sqrt{\lambda_{\mathcal{A}}}$). Unequal treatment equilibria of the second type described in Theorem 1 arise, in contrast, in economies in the north-west region of the parameter space, where the minority is relatively small, and civil liberties are relatively strong (above the curve $\omega = \sqrt{\lambda_{\mathcal{A}}}$). The figure also illustrates that even for $\psi \approx 0$, there are economies where (type 1) UTE will still exist (green lens-shaped region in subfigure (a)). In this case, however, type 2 UTE vanish.

3.3.2 Social structure

Theorem 1 has sharp implications over the resulting equilibrium social structures. Before discussing them, we introduce two definitions:

Definition 2. Cohesiveness ($\mathcal{H}$): The likelihood that two randomly drawn citizens are friends with each other is a measure of society's cohesiveness:

$$\mathcal{H} = \lambda_{\mathcal{A}}^2 p_{\mathcal{AA}}^2 + 2\lambda_{\mathcal{A}}\lambda_{\mathcal{B}} p_{\mathcal{AB}} p_{\mathcal{BA}} + \lambda_{\mathcal{B}}^2 p_{\mathcal{BB}}^2.$$

Definition 3. Segregation ($\mathcal{S}$): The average absolute difference across groups in intra-group socialization compared to cross-group socialization is a measure of society's segregation:

$$\mathcal{S} = \lambda_{\mathcal{A}} |p_{\mathcal{AA}}^2 - p_{\mathcal{AB}} p_{\mathcal{BA}}| + \lambda_{\mathcal{B}} |p_{\mathcal{BB}}^2 - p_{\mathcal{AB}} p_{\mathcal{BA}}|.$$

In the context of our model, $\mathcal{H}$ and $\mathcal{S}$ are simple statistics that capture the key aggregate features of society that our model speaks to: as a measure of cohesiveness, the overall density of social ties across citizens; as a measure of segregation, what amounts to the dissimilarity index (see Davis et al. (2019); Echenique and Fryer (2007)), measuring the extent to which socialization choices towards each group differ by group.[36] It is illustrative to compare these

[36] The literature has proposed and debated a wide variety of measures of cohesiveness and segregation. Echenique and Fryer (2007), for example, suggest that measures of segregation should have the feature that "an individual is more segregated the more segregated are the agents with whom she interacts". We do not use a recursive measure of segregation here because we only study equilibria that are symmetric within groups (see also Esteban and Ray (1994); Fryer (2011)).

statistics under the UTEs and under the fully symmetric equilibrium from subsection 2.3. There, $\mathcal{H}$ reduces to the average degree of citizens, and by construction, in that setting $\mathcal{S} = 0$. In the equal treatment equilibria from Theorem 1, which we illustrate graphically in Figure A.5a, $\mathcal{H} = [\![\omega/\psi]\!]^2$ similarly coincides with average degree, and $\mathcal{S} = 0$ as expected.

Consider, in contrast, the first type of unequal treatment equilibrium from Theorem 1. We illustrate its implied social structure in Figure A.5b. Here members of the minority completely cut off their socialization with the majority ($p^*_{\mathcal{AB}} \simeq 0$), leading to a highly segregated society where all socialization happens exclusively within groups.[37] This is despite the willingness of citizens from the majority to socialize with members of the minority ($p^*_{\mathcal{BA}} = 1$). In this equilibrium, the average degree of citizens from the minority is higher than the average degree of citizens from the majority ($(\omega/\psi)^2$ vs ω^2). Here the segregation index takes the value $\mathcal{S} = (\omega/\psi)^2(1+\psi^2)$. Paradoxically, this is decreasing in ψ; as civil society becomes stronger, segregation increases. This happens because in a UTE1 equilibrium, the minority's incentives to completely segregate from the majority do not change with marginal changes in ψ, whereas their willingness to socialize within their own group increases, leading to a larger gap between within-group and cross-group socialization rates. The increased willingness of minority citizens to socialize within their group also implies that cohesiveness, equal to $\mathcal{H} = (\omega/\psi)^2(\psi^2 + (1-\psi^2)\lambda_{\mathcal{A}})$, is also decreasing in ψ. Under UTE1, more cohesive societies are also more segregated, and $\mathcal{H}$ and $\mathcal{S}$ covary positively with changes in ψ. Finally, in this equilibrium $p^*_{\mathcal{AA}}$ is decreasing, while $p^*_{\mathcal{BB}}$ is increasing in $\lambda_{\mathcal{A}}$. While their net effect makes cohesiveness increasing in the size of the minority, they exert exactly offsetting influences over $\mathcal{S}$, making equilibrium segregation invariant to $\lambda_{\mathcal{A}}$.

Figure A.5c illustrates the resulting social structures under the second type of UTE from Theorem 1. To avoid contagion over the minority, here the government reduces below ψ the interrogation rate on that group. This allows the minority to become a fully connected group ($p^*_{\mathcal{AA}} = 1$), and to socialize with the unequally treated majority albeit at a lower rate ($p^*_{\mathcal{AB}} > 0$). As in the UTE1, the unequally treated group attempts to fully socialize with the minority, so that in both cases, the degree of segregation is limited only by the minority's willingness to socialize with the majority. Indeed, it is precisely the increased social contact between groups what tightens the no-contagion constraints in this case, illustrating that less segregated societies are more successful at disciplining the government. Because the minority experiences a low interrogation rate, members of the unequally treated majority prefer to undertake more intense cross-group than within-group socialization efforts. However, the low out-group socialization rate of the minority leads, in equilibrium, to a social structure

[37]Note that in this case one of the cross-group socialization rates goes to zero, so one of the equilibrium no-contagion constraints from Figure A.3 is a horizontal line, and the other one is a vertical line.

where members of the majority have more friends from their own group than from the minority ($p^*_{\mathcal{AB}}p^*_{\mathcal{BA}} < p^{*2}_{\mathcal{BB}}$). Also note that in equilibrium, within-group socialization efforts of the majority and cross-group socialization efforts of the minority are strategic substitutes. What in the absence of a government would be a game of strategic complements (as the socialization technology is a simple quadratic matching function), turns into a game of strategic substitutes as the government chooses differential socialization rates across groups to prevent collective action contagion.

Social structures under UTE1 and UTE2 look different from each other. Under UTE2, the degree of both types of citizens is ω^2, cohesiveness is $\mathcal{H} = \omega^2$ as well, and the segregation index is $\mathcal{S} = 2(\lambda_{\mathcal{A}}/\lambda_{\mathcal{B}})(1-\omega^2)$. Thus, there is some socialization between groups, and both $\mathcal{H}$ and $\mathcal{S}$ are invariant to the strength of civic values. In sharp contrast with UTE1, under UTE2 more cohesive societies are less segregated, as $\mathcal{H}$ and $\mathcal{S}$ covary negatively with changes in ω. Also in contrast with UTE1, although under UTE2 $p^*_{\mathcal{AA}}$ and $p^*_{\mathcal{BB}}$ are similarly decreasing and increasing in $\lambda_{\mathcal{A}}$, here equilibrium cohesiveness is invariant to the size of the minority while equilibrium segregation increases as the groups become closer in size. This is driven by the government's interrogation behavior: as the size of the minority increases, the government can afford a higher interrogation rate on this group, reducing cross-socialization incentives.[38] Finally, it is worth pointing out that holding fixed the value of ψ, the extent of inequality in treatment (as measured by $\tau^*_{\mathcal{B}} - \tau^*_{\mathcal{A}}$), is strictly higher under UTE2 than under UTE1. This is because in both types of equilibria the majority experiences $\tau^*_{\mathcal{B}} = 1$, while the minority experiences a lower interrogation rate under UTE2 than under UTE1.[39]

Our results from Theorem 1 stand in contrast to the previous literature on intergroup socialization. As Bisin and Verdier (2011) point out, to rationalize segregation all models of socialization, starting at least with Schelling (1969), rely on *imperfect empathy* –assumed differences in payoffs, even if small, from interacting with individuals of different types–. Our model assumes no such differences. Society may still experience segregation even when citizens have no inherent bias for interacting with their own type. In our setting, self-fulfilling beliefs about differences in the government's treatment of people from different groups induce the heterogeneity in willingness to socialize differentially across groups.

[38]Notice from (NC-$\mathcal{A}$) that starting from an interrogation rate $t_{\mathcal{A}} < \psi$, an increase in group size relaxes the constraint as it increases the right-hand side more than one to one compared to the left-hand side. This is because in our model, the contagion technology makes collective action harder to achieve in larger groups.

[39]Under UTE1, inequality in treatment is $\tau^*_{\mathcal{B}} - \tau^*_{\mathcal{A}} = 1 - \psi$. Under UTE2, inequality in treatment is $\tau^*_{\mathcal{B}} - \tau^*_{\mathcal{A}} = (1-\psi)(\omega^2/\lambda_A)$, which is strictly larger than $1-\psi$ as $\omega^2 > \lambda_A$ for UTE2 to exist.

3.3.3 Equilibrium payoffs and coordination failure

In the unequal treatment equilibria we have discussed, socialization and interrogation rates differ from those in an equal treatment equilibrium. Under the UTE2, for example, citizens from group $\mathcal{A}$ experience a lower interrogation rate than under the ETE. Even under a UTE1, where citizens from group $\mathcal{A}$ experience the same interrogation rate they do under an ETE and citizens from group $\mathcal{B}$ experience a higher one, their socialization choices are depressed compared to those under an ETE. This raises the question of whether the government is aggregating more information under the unequal treatment equilibria, and even whether citizens are better or worse off under a UTE or an ETE.

Proposition 3. *Fix an economy $(\psi, \omega, \lambda_{\mathcal{A}})$ where unequal treatment is an equilibrium. The government's ex-ante payoff is strictly higher under the unequal treatment equilibrium than under the equal treatment equilibrium only if $\omega > \psi$, this is, when the equal treatment equilibrium implies a fully cohesive society.*

Proposition 3 highlights the importance of the government's commitment problem. It arises from the tension between the ex-ante and the ex-post value for the government of strong civil liberties. For economies where $\omega < \psi$ (the government's information aggregation technology is very effective or punishments on arrested citizens can be very harsh and society's civic values are weak), the commitment problem is present: the government would be better off if it could commit to equal treatment. The reduction in information aggregation stemming from the erosion of the social fabric induced by expectations of unequal treatment outweighs the increased information collection possible under the higher interrogation rate on the unequally treated group. Even when the government does worse under an UTE than under an ETE, if citizens decide to segregate, at the interim stage the government's best reply is to exercise unequal treatment. Thus, in our model segregation behavior by citizens is as much a cause of unequal treatment by government, as expectations of government discrimination are a cause of a segregated society. This is in contrast to models of 'divide and rule', for example, where governments exploit cross-group cleavages. Such models rely on underlying differences between groups (productivity, comparative advantages, etc.), and the governments benefit at the expense of the citizenry which needs not be the case here (e.g., Acemoglu et al. (2004); i Miquel (2007)).

In some economies where $\omega > \psi$, however, the government's ex-ante payoff can be larger under an UTE than under an ETE. These are economies with strong civil liberties and strong collective action capacity, so that, as Proposition 3 points out, the ETE leads to a fully cohesive society ($p^*_{gh} = 1$ for all g, h). In this case the government can aggregate too little information in the ETE, so that the increased interrogation rate on the majority that it can impose under the UTE does allow for more information aggregation despite the erosion of social cohesion it entails.[40] Moving on to the citizens' payoffs, we have the following result:

Lemma 4. *Fix an economy $(\psi, \omega, \lambda_{\mathcal{A}})$ where unequal treatment is an equilibrium. The equilibrium payoff for citizens of both groups is lower under the UTE than under the ETE.*

Regardless of whether the government is worse or better off under a UTE than under the corresponding ETE, citizens are always worse off in the presence of unequal treatment, *including* the members of the more favorably treated group in the equilibria where the interrogation rate they experience is lower than ψ. Unequal treatment equilibria, hence segregation, represent coordination failures from the point of view of citizens of both groups. This is a novel result. It arises from the network effects embedded in our model, through which depressed socialization rates hurt all citizens. Equilibrium segregation in our model is of a different nature than in Lang (1986), for example, where a (transaction) cost of interaction between the two groups (in the form of a language barrier) is a primitive of the model. Here the differential cost from interacting across groups is endogenous. It is also in contrast to other models of socialization such as Alesina and LaFerrara (2000)'s model of participation in collective activities, where segregation can make one group better off at the expense of the other.[41]

Social segregation in the presence of coordination failure is reminiscent of models where social norms arise to sustain non-myopic behavior as in the caste model of Akerlof (1976) or the class systems model of Cole et al. (1998). In Akerlof's model, for example, a segregated caste system is sustained by a norm that excludes from the caste anyone who interacts with members of another caste. In our model, in contrast, members of the more favorably treated group reduce their socialization with members of the unfavorably treated group because the high interrogation rate imposed by the government on this group makes it costly to interact with them. Neither members of the favorably treated group nor the government face inter-temporal repercussions from deviating from equilibrium behavior. In our setting, social norms are not necessary to sustain segregation. In fact, in Appendix C we show that a caste system along the lines of Akerlof (1976) can only arise in the context of our model if group sizes are such that the optimal interrogation rates *do not* entail unequal treatment.

[40] $\omega > \psi$ is only a necessary condition for the government's payoff to be higher under a UTE than under an ETE. The sufficient conditions are $\omega > \sqrt{\psi(1+\lambda_{\mathcal{A}})}$ under a UTE1, and $\omega > \sqrt{\psi/(1-\psi)}$ under a UTE2.

[41] In classic labor market discrimination models (e.g., Coate and Loury (1993); Foster and Vohra (1992)), coordination failure happens only within the discriminated group: the advantaged group is unaffected. In subsequent labor market discrimination models (e.g., Mailath et al. (2000); Moro and Norman (2004)), the advantaged group benefits from discrimination on the disadvantaged group. In our model, both groups are hurt by unequal treatment albeit to different extents, and the coordination failure involves citizens from both groups.

In Appendix C we also discuss the comparative statics of the unequal treatment equilibria in relation to the key parameters governing the economic environment.

4 Additional Results

4.1 Unequal Treatment against the Minority

In all the unequal treatment equilibria from Theorem 1, members of the the majority group are unfavorably treated. Because in our model the government does not have an inherent preference for one group over the other, the inequality in treatment across groups is not driven by differences in their political influence. Rather, it is driven by how social structure shapes the government's incentives to aggregate information.

Here we relax the assumption that ν is large, and show that unequal treatment against the minority is possible.[42] Suppose, thus, that $\nu < \lambda_{\mathcal{B}}$. Naturally, avoiding successful collective action is now harder for the government because contagion over the larger group would now be sufficient to trigger backlash. The question is whether in this case, there exist unequal treatment equilibria where the government exercises unequal treatment against the minority. The following result answers this question in the affirmative.

Theorem 2. *Suppose that $\lambda_{\mathcal{B}} > \nu > \psi\lambda_{\mathcal{B}} + \lambda_{\mathcal{A}}$.*[43] *The set of all equilibria is given by:*

1. *(UTE1). For $\omega < \sqrt{\lambda_{\mathcal{B}}}$, unequal treatment against the minority, with a non-homogeneous and fully segregated society is the unique strict equilibrium:*

$$(p^*_{\mathcal{A}\mathcal{A}}, p^*_{\mathcal{A}\mathcal{B}}, p^*_{\mathcal{B}\mathcal{A}}, p^*_{\mathcal{B}\mathcal{B}}) \simeq \left(\left[\!\left[\frac{\omega}{\sqrt{\lambda_{\mathcal{A}}}} \right]\!\right], 1, 0, \left[\!\left[\frac{\omega}{\psi\sqrt{\lambda_{\mathcal{B}}}} \right]\!\right] \right)$$

and

$$(\tau^*_{\mathcal{A}}, \tau^*_{\mathcal{B}}) \simeq (1, \psi).$$

2. *(UTE2). For $\omega > \sqrt{\lambda_{\mathcal{B}}}$, unequal treatment against the minority, with a non-homogeneous and partially segregated society is the unique strict equilibrium:*

$$(p^*_{\mathcal{A}\mathcal{A}}, p^*_{\mathcal{A}\mathcal{B}}, p^*_{\mathcal{B}\mathcal{A}}, p^*_{\mathcal{B}\mathcal{B}}) \simeq \left(\left[\!\left[\sqrt{\frac{\omega^2(\lambda_{\mathcal{B}} - \lambda_{\mathcal{A}}) + \lambda_{\mathcal{A}}^2}{\lambda_{\mathcal{B}}^2}} \right]\!\right], 1, \frac{\omega^2 - \lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}, 1 \right)$$

[42] In the model of Mailath et al. (2000), relative group sizes similarly matter for the direction of labor market discrimination. There, group sizes are relevant as they determine the magnitude of the externality that is imposed on one group when firms search more intensively for workers from the other group.

[43] Notice that in this region of the parameter space, $\lambda_{\mathcal{A}} < \frac{1-\psi}{2-\psi} < 1/2$ so group $\mathcal{A}$ is indeed the minority.

and

$$(\tau_{\mathcal{A}}^{*}, \tau_{\mathcal{B}}^{*}) \simeq \left(1, \psi - (1-\psi)\frac{\omega^{2} - \lambda_{\mathcal{B}}}{\lambda_{\mathcal{B}}}\right).$$

3. (ETE). Equal treatment with a homogeneous society is a (non-strict) equilibrium.

Theorem 2 provides a sufficient condition for unequal treatment equilibria against the minority to exist (and fully characterizes the set of equilibria for the economies in that range of the parameter space). The result suggests that unequal treatment against minorities may be observed when unequally treating majorities is infeasible given their strength in numbers. It also highlights that in the benchmark model, the government's preference for unequally treating the majority is driven only by its interim incentive to aggregate as much information as possible. Moreover, the desire to segregate (fully or partially) by the group experiencing the lower interrogation rate is independent of its relative size, and depends only on how costly it is to interact with citizens being interrogated at a high rate. Thus, the reason why the minority is the 'favored' group in the benchmark case is different from Olson (1971)'s well-known argument about the success of minorities being driven by their comparative ability to avoid free-rider problems. It is also in contrast with the more traditional view of civil liberties as societal protections for minorities from majorities.

4.2 Information Aggregation under Community Enforcement

We have considered an environment where citizens provide information to the government whenever they are interrogated. This, of course, hurts the citizens about whom information is revealed. While above we endogenized civil liberties (the limit on interrogations) through a collective action mechanism, here we provide an alternative, considering the existence of endogenous social norms limiting the ability of the government to interrogate effectively. Social norms such as Banfield (1958)'s *amoral familism* among Southern Italians, or the well-known codes of silence of the mafia (e.g., Servadio (1976)), for example, suggest that community enforcement of social norms against collaboration with the government may emerge and limit its ability to exploit the social structure to aggregate information.

To formalize this idea, consider an extension of our model (under symmetric strategies) where interrogated citizens can choose to resist sharing information about their friends. The government provides incentives in the form of punishments for resisting. We suppose that talking is publicly observed, so friends of a talking citizen may punish him for talking (ostracism, severing of economic relations, etc.). When the punishment for talking scales with the number of friends about whom an interrogated citizen talked, more cohesive social networks will be more effective at enforcing a code of silence. Citizens who resist are punishers.

Formally, we introduce two new sub-games: i) after a citizen is taken for interrogation, he decides whether to talk or resist. If he resists, the government imposes on him a cost $r_i \sim U[0, \tilde{r}]$, which is iid and realized at the time it is imposed. ii) This decision is observed by his $\tilde{d}_i$ punisher friends, who then impose a punishment $\tilde{r}\sqrt{\tilde{d}_i}$ if he talked, where $\tilde{r}$ is a constant. The extent of social punishment for talkers is determined by the mass of punishers and talkers. These masses, in turn, are determined by the cost of social punishment.

In symmetric equilibrium, all citizens choose a socialization rate p, so every citizen's degree is $d = p^2$. Denote by $r \in [0, \tilde{r}]$ the marginal resistance cost: if $r_i < r$, interrogated citizen i is willing to bear this cost, does not talk, and joins the group of punishers. If $r_i \geq r$, the punishment is too high and citizen i talks. Thus, $r/\tilde{r}$ is the fraction of punishers, and $1-(r/\tilde{r})$ is the fraction of talkers. Accordingly, the mass of punisher friends is $\tilde{d} = (r/\tilde{r})d$, and the cost of talking is $\sqrt{dr\tilde{r}}$. The marginal talker is thus pinned down by $r = \min\left\{\tilde{r}, \sqrt{dr\tilde{r}}\right\}$.

This talking sub-game has two equilibria. The first is $r = 0$. Here all citizens are talkers, and none punish, so no citizen has an incentive to resist. We call it the all-talk equilibrium. Because the continuation game is governed by the all-talk equilibrium, equilibrium socialization is simply $p^* = \omega$.

The second equilibrium of the talking sub-game is $r = d\tilde{r}$, which implies $d = r/\tilde{r}$. Fraction d of citizens are punishers and fraction $1 - d$ are talkers. We call it the community enforcement equilibrum. We now characterize the equilibrium socialization rate for this case. Consider a citizen i deciding on p_i given all other citizens choose p. His degree will be $d_i = p_i p$. During his interrogation, he can resist and suffer cost r_i. Alternatively, he can talk and suffer the social punishment $\tilde{r}\sqrt{d_i d}$ since, in equilibrium, fraction d of his friends will be punishers. The ex-ante expected interrogation cost for citizen i is thus,

$$\mathbb{E}_{r_i}\left[\min\left\{r_i, \tilde{r}\sqrt{d_i d}\right\}\right] = \tilde{r}\left(\sqrt{d_i d} - \frac{1}{2}d_i d\right).$$

Citizen i also must consider the expected cost of being arrested. There will be $d_i(1-d)$ talkers among his friends, so the government will receive $s_i = d_i(1-d)$ clues about him. The expected arrest cost is thus $\frac{d_i(1-d)}{2\omega}$, and his ex-ante expected utility is proportional to

$$\sqrt{d_i} - \tilde{r}\left(2\sqrt{d_i d} - \frac{1}{2}d_i d\right) - \frac{d_i(1-d)}{2\omega}.$$

Taking the first order condition and imposing symmetry ($d_i = d$), we find

$$\frac{1}{\sqrt{d}} - \left(\tilde{r} + \frac{1}{\omega}\right)(1-d) = 0 \quad \Longleftrightarrow \quad p(p-1)(p+1) + a = 0$$

since in equilibrium $p = \sqrt{d}$, and $a \equiv ((1/\omega) + \tilde{r})^{-1}$. This cubic equation has a solution iff $a \leq \frac{2}{3\sqrt{3}}$, in which case it has two positive roots in $[0, 1]$. The first solution is increasing in a, ranging from $p = 0$ to $p = 1/3$ as a increases from 0 to $\frac{2}{3\sqrt{3}}$. The second solution is decreasing in a, ranging from $p = 1$ to $p = 1/3$ as a increases from 0 to $\frac{2}{3\sqrt{3}}$.[44]

5 Conclusion

Civil liberties in the form of restrictions on the use of coercion by government agents are a key buffer between citizens and the state. Much of this coercion is directed toward aggregating information that is distributed across the social network of citizens. The social structure, in turn, mediates both the government's ability to collect information efficiently and the citizens' ability to resist it. In this paper we have offered a first look at how the governments' ability to collect information and citizens' socialization decisions are jointly determined.

We have argued here that when civil liberties are weak, governments attempting to exploit their coercive advantages will be ineffective at aggregating information because such efforts will erode the social network of citizens. This is because a cohesive social structure is necessary for information collection when information is distributed in the population. Iron Curtain governments were characterized by their unconstrained ability to exercise coercion over their citizens, and concomitantly by mistrustful societies with eroded social fabrics. The massive investments in intelligence agencies, secret police services, and prison camps of these governments may well have been a symptom of their ineffectiveness at aggregating information about their citizens. Thus, civil liberties that can be sustained in equilibrium not only protect citizens from the state, they also protect the government from itself.

Cohesive social structures facilitate information aggregation, but they also strengthen the ability of civil society to resist it. We have shown this opens the door to the possibility of unequal treatment, where the government treats ex-ante identical citizens differently. By making some citizens the targets of more interrogation, the government makes them unattractive partners for socialization. The government can thus provide incentives that fracture the social structure, weakening civil society's resistance, and leading to segregation.

[44] This simple extension rationalizes the decision to reveal information to the government. It does not however, provide a rationale for why punishers would want to punish. We can justify equilibrium punishment with the following argument: suppose that part of the social norm prescribes that punishers who refuse to punish talkers are treated as talkers and punished accordingly. As long as punishers have a large enough number of friends, punishing will be incentive compatible. This is true in the symmetric equilibrium we described above. What if a positive-mass coalition of punishers wanted to jointly deviate and not punish? It is easy to verify that in this model, no coalition within the set of punishers can benefit from jointly deviating: for any positive-mass coalition, the reduction in expected punishment (from there being less punishers) is strictly lower than the margin by which any citizen prefers to resist talking over talking.

We showed here that unequal treatment is necessary for social segregation to arise, and segregation is necessary for unequal treatment to be justified. We also found these equilibria are robust when they exist, providing a novel rationale for segregation. These equilibria are reminiscent of the high levels of segregation along ethnic lines inside US prisons. An intriguing avenue for future research could explore whether ideas along the lines of our model can help explain inmates' socialization decisions and the corresponding behavior of guards and prison administrators.

Our model can be extended in several directions. It could be specialized, for example, to a setting where the underlying threat is an epidemic, so that socialization choices involve contagion externalities. Naturally, it also has many limitations. Throughout we took society's ability to engage in collective action as exogenous. In practice, civil liberties and the social structure likely shape some aspects of civic engagement. We also abstained from exploring the political economy shaping the government's information aggregation objective. Exploring these relationships would be a valuable avenue of future research.

References

Acemoglu, D., Makhdoumi, A., Malekian, A., Ozdaglar, A., 2017. Privacy-constrained network formation. Games and Economic Behavior 105, 255–275.

Acemoglu, D., Robinson, J.A., Verdier, T., 2004. Kleptocracy and divide-and-rule: A model of personal rule. Journal of the European Economic Association 2, 162–192.

Akerlof, G., 1976. The economics of caste and of the rat race and other woeful tales. Quarterly Journal of Economics 90, 599–617.

Alesina, A., LaFerrara, E., 2000. Participation in heterogeneous communities. Quarterly Journal of Economics 115, 847–904.

Badescu, G., Uslaner, E., 2003. Social Capital and the Transition to Democracy. Routledge, London, UK.

Baliga, S., Ely, J., 2016. Torture and the commitment problem. Review of Economic Studies 83, 1406–1439.

Banerjee, A., Iyer, L., Somanathan, R., 2008. Public action for public goods, in: Schultz, T., Strauss, J. (Eds.), Handbook of Development Economics. North-Holland. volume 4. chapter 49, pp. 3117–3154.

Banfield, E., 1958. The Moral Basis of a Backward Society. Free Press, New York, NY.

Bautista, M.A., 2016. Social and political consequences of state-led repression: The chilean case. The Pearson Institute, University of Chicago.

Bernhard, M., Karakoc, E., 2007. Civil society and the legacies of dictatorship. World Politics 59, 539–567.

Besley, T., Persson, T., 2019. Democratic values and institutions. American Economic Review: Insights 1, 1–18.

Bisin, A., Verdier, T., 2011. Handbook of Social Economics. North-Holland. volume 1A. chapter The Economics of Cultural Transmission and Socialization.

Briggs, R., 1996. Witches and Neighbors: The Social and Cultural Contex of European Witchcraft. Viking, New York, NY.

Bursztyn, L., Cantoni, D., Yang, D., Yuchtman, N., Zhang, J., 2019. Persistent political engagement: Social interactions and the dynamics of protest movements. Unpublished.

Chay, K., Munshi, K., 2015. Black networks after emancipation: Evidence from reconstruction and the great migration.

Chimere-dan, O., 1992. Apartheid and demography in south africa. Etude Popul Afr 7, 26–36.

CIA, 2023. Syria: www.cia.gov/the-world-factbook/countries/syria. URL: cia.gov/the-world-factbook/countries/syria.

Ciancio, A., García-Jimeno, C., 2022. The political economy of immigration enforcement: Conflict and cooperation under federalism. The Review of Economics and Statistics Forthcoming.

Coate, S., Loury, G., 1993. Will affirmative-action policies eliminate negative stereotypes? American Economic Review 83, 1220–1240.

Cole, H., Mailath, G., Postlewaite, A., 1998. Class systems and the enforcement of social norms. Journal of Public Economics 70, 5–35.

Davis, D., Dingel, J., Monras, J., Morales, E., 2019. How segregated is urban consumption? Journal of Political Economy 127, 1684–1738.

DeTocqueville, A., 1856. The Ancien Regime and the French Revolution. Cambridge University Press, New York, NY.

Dippel, C., 2014. Forced coexistence and economic development: Evidence from native american reservations. Econometrica 82, 2131–2165.

Echenique, F., Fryer, R., 2007. A measure of segregation based on social interactions. Quarterly Journal of Economics 122, 441–485.

Engerman, S.L., Higman, B.W., 2003. General History of the Caribbean. Macmillan, New York. chapter The Demographic Structure of the Caribbean Slave Societies in the Eighteenth and Nineteenth Centuries.

Erol, S., Parise, F., Teytelboym, A., 2020. Contagion in graphons.

Esteban, J.M., Ray, D., 1994. On the measurement of polarization. Econometrica 62, 819–851.

Fang, H., Norman, P., 2006. Government-mandated discriminatory policies: Theory and evidence. International Economic Review 47, 361–389.

Fergusson, L., Molina, C., 2019. Facebook causes protests. Documento CEDE 41.

Foster, D., Vohra, R., 1992. An economic argument for affirmative action. Rationality and Society 4, 176–188.

Fryer, R., 2011. Handbook of Social Economics. North-Holland, Amsterdam. volume 1B. chapter The Importance of Segregation, Discrimination, Peer Dynamics, and Identity in Explaining Trends in the Racial Acheivement Gap.

García-Jimeno, C., Iglesias, A., Yildirim, P., 2022. Women, rails, and telegraphs: An empirical study of information diffusion and collective action. The American Economic Review 112, 41–80.

Godbeer, R., 2011. The Salem Witch Hunt: A Brief History with Documents. Bedford/St. Martins, Boston, MA.

Golub, B., Livne, Y., 2010. Strategic random networks and tipping points in network formation.

Hassner, R., 2020. The cost of torture: Evidence from the spanish inquisition. Securities Studies Forthcoming.

Havel, V., 1985. The Power of the Powerless. Palach Press, Armonk, New York.

Johnson, N., Koyama, M., 2014. Taxes, lawyers, and the decline of witch trials in france. Journal of Law and Economics 57, 77–112.

Jowitt, K., 1993. New World Disorder. University of California Press.

Klingaman, W., 1996. Encyclopedia of the McCarthy Era. Facts on File, New York, NY.

Kuran, T., 1995. Private Truths, Public Lies. Harvard University Press, Cambridge, MA.

Lagunoff, R., 2001. A theory of constitutional standards and civil liberty. The Review of Economic Studies 68, 109–132.

Lang, K., 1986. A language theory of discrimination. Quarterly Journal of Economics 101, 363–382.

Lang, K., Khan-Lang, A., 2020. Race discrimination: An economic perspective. Journal of Economic Perspectives 34, 68–89.

Langbein, J., 1977. Torture and the Law of Proof: Europe and England in the Ancien Regime. U of Chicago Press, Chicago, IL.

Letki, N., 2008. Does diversity erode social cohesion? social capital and race in british neighborhoods. Political Studies 56, 99–126.

Mailath, G., Samuelson, L., Shaked, A., 2000. Endogenous inequality in integrated labor markets with two-sided search. American Economic Review 90, 46–72.

i Miquel, G.P., 2007. The control of politicians in divided societies: The politics of fear. Review of Economic Studies 74, 1259–1274.

Moro, A., Norman, P., 2004. A general equilibrium model of statistical discrimination. Journal of Economic Theory 114, 1–30.

Morris, S., 2000. Contagion. Review of Economic Studies 67, 57–78.

Mukand, S.W., Rodrik, D., 2020. The political economy of liberal democracy. The Economic Journal 130, 765–792.

Nunn, N., Wantchekon, L., 2011. The slave trade and the origins of mistrust in africa. The American Economic Review 101, 3221–3252.

Olson, M., 1971. The Logic of Collective Action: Public Goods and the Theory of Groups. Harvard University Press.

Oshinsky, D., 1983. A Conspiracy so Immense: The World of Joe McCarthy. Free Press, New York.

Putnam, R., 2007. E pluribus unum: Diversity and community in the twenty-first century. Scandinavian Political Studies 30, 137–174.

Qin, B., Stromberg, D., Wu, Y., 2017. Why does chica allow freer social media? protest versus surveillance and propaganda. Journal of Economic Perspectives 31, 117–140.

Qin, B., Stromberg, D., Wu, Y., 2022. Social media and collective action in china. CEPR Discussion paper. No. DP16731.

Roper, L., 2004. Witch Craze: Terror and Fantasy in Baroque Germany. Yale U Press, New Haven.

Schelling, T., 1969. Models of segregation. American Economic Review 59, 488–493.

Servadio, G., 1976. Mafioso. A History of the Mafia from its Origins to the Present Day. Delta Books, New York, NY.

Traps, L., 2009. Communism and trust. Journal of Politics and International Affairs 5, 63–76.

Weingast, B., 1997. The political foundations of democracy and the rule of law. The American Political Science Review 91, 245–263.

A Figures

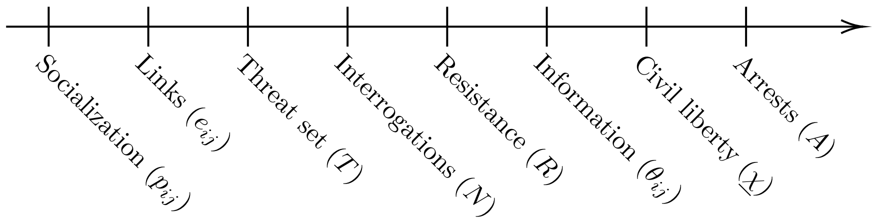


Figure A.1: Timeline of Events. The figure illustrates the timing of events within the baseline game.

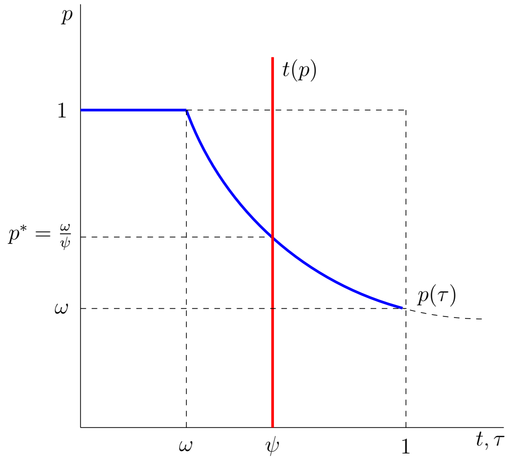
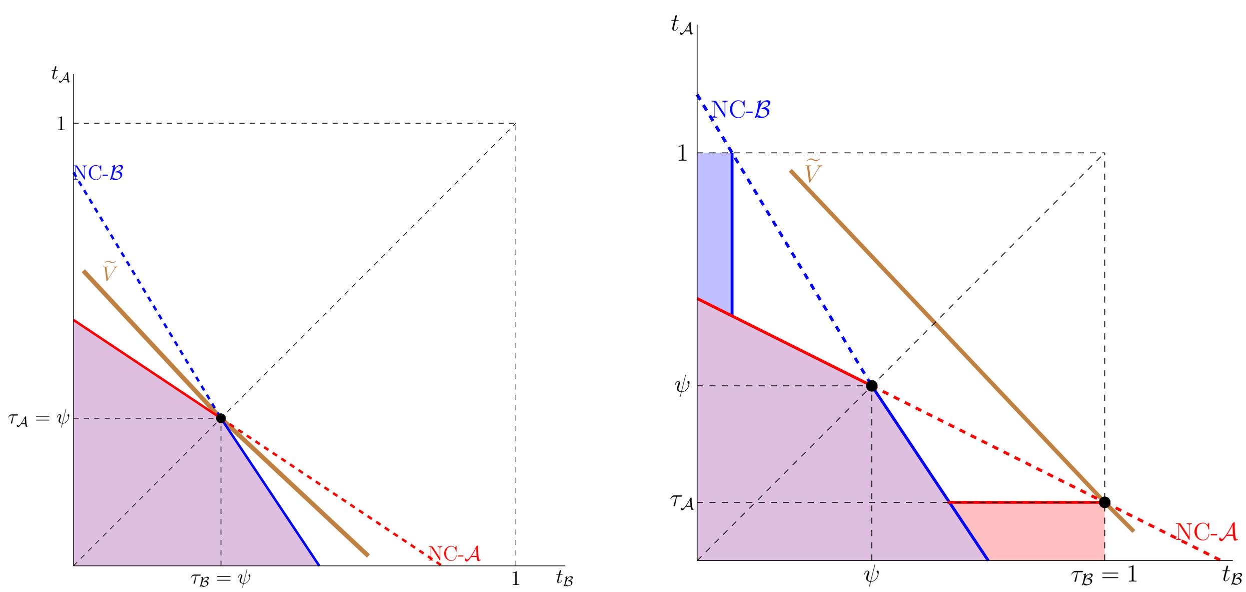
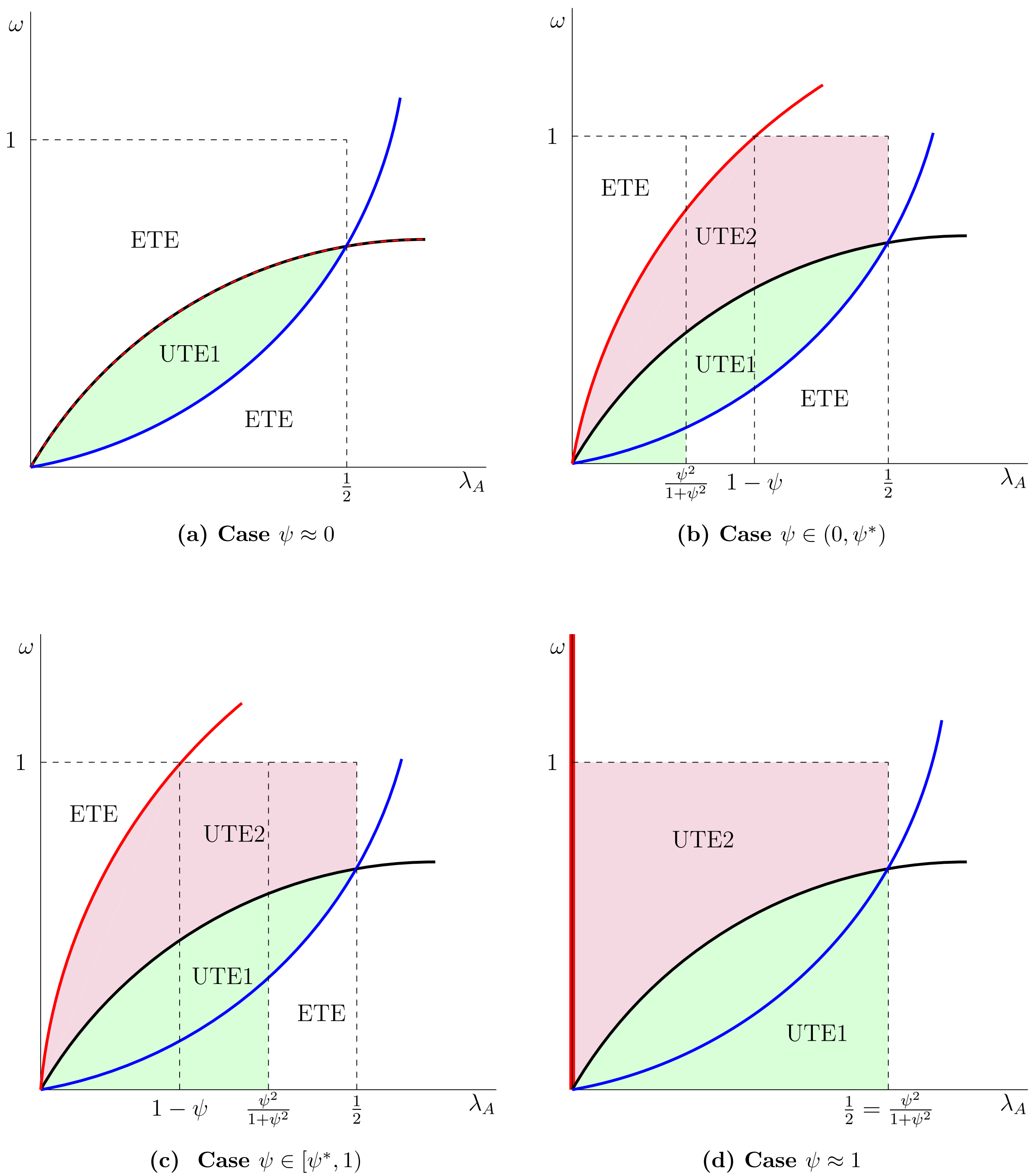


Figure A.2: Symmetric Equilibrium with Endogenous Civil Liberties. The blue curve is the citizens' average socialization as a function of their expected interrogation rate, $p(\tau)$. The red curve is the binding no-riot constraint, $t(p)$.



(a) Interior (equal treatment) **(b) Corner (unequal treatment)**

Figure A.3: Government's Best Response: The figure illustrates the optimal choice of interrogation rates by the government for fixed socialization rates, when ν is close to 1. Panel (a) represents the case in which the optimum entails no contagion on either group, and equal treatment. Panel (b) represents the case in which one group experiences contagion and unequal treatment. The brown lines labeled $\widetilde{V}$ represent the highest indifference curves that satisfy the constraint set. The red and blue curves represent the no-contagion constraints for groups $\mathcal{A}$ and $\mathcal{B}$.



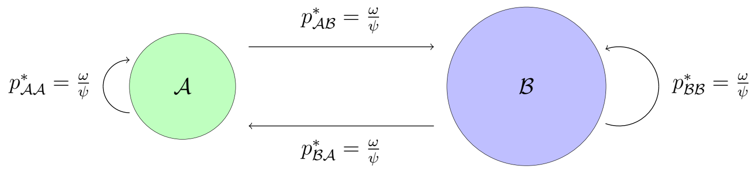
(a) Case $\psi \approx 0$

(b) Case $\psi \in (0, \psi^*)$

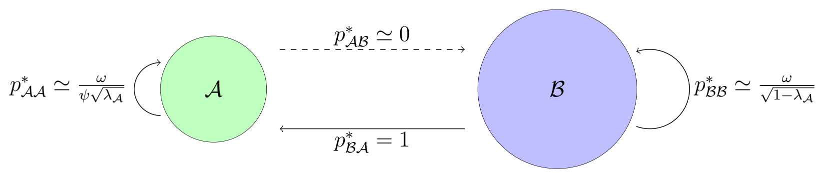
(c) Case $\psi \in [\psi^*, 1)$

(d) Case $\psi \approx 1$

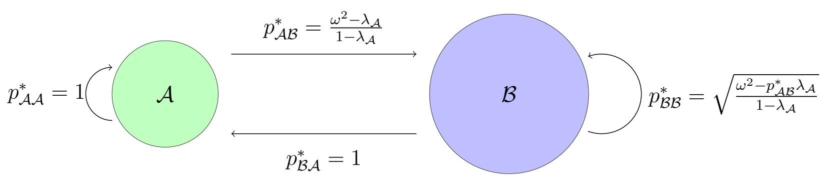
Figure A.4: Types of Equilibria from Theorem 1: Each figure plots in $(\lambda_{\mathcal{A}}, \omega)$ space, the regions where only the Equal Treatment Equilibrium exists (in white), where the type 1 Unequal Treatment Equilibrium exists (in green), and where the type 2 Unequal Treatment Equilibrium exists (in pink), for different values of ψ. In all figures, the blue curve represents the condition $\omega = \lambda_{\mathcal{A}}/\sqrt{1-\lambda_{\mathcal{A}}}$, the red curve represents the condition $\omega = \sqrt{\lambda_{\mathcal{A}}}/\sqrt{1-\psi}$, and the black curve represents the condition $\omega = \sqrt{\lambda_{\mathcal{A}}}$. Subfigure (a) illustrates the case where $\psi \approx 0$. Subfigure (b) illustrates the case where $\psi \in (0, \psi^*]$, where ψ^* is the solution to $1 - \psi = \psi^2/(1+\psi^2)$. Subfigure (c) illustrates the case where $\psi \in [\psi^*, 1)$. Subfigure (d) represents the case where $\psi \approx 1$.



(a) Equilibrium Social Structure under Equal Treatment. All players ignore the arbitrary group labels, leading to a homogeneous society where all citizens have the same degree, and where segregation is low.



(b) Equilibrium Social Structure under Unequal Treatment – 1. Members of the group subject to a high interrogation rate –the majority– have a lower degree than members of the group subject to a low interrogation rate –the minority–. Members of the group subject to a low interrogation rate do not socialize with members of the group subject to a high interrogation rate, leading to complete segregation.



(c) Equilibrium Social Structure under Unequal Treatment – 2. Members of the group subject to a high interrogation rate –the majority– have a lower degree than members of the group subject to a low interrogation rate –the minority–. Members of the group subject to a low interrogation rate socialize at a low rate with members of the group subject to a high interrogation rate, leading to partial segregation.

Figure A.5: Equilibrium Social Structures from Theorem 1.

B Appendix

B.1 Discussion: some cross-country empirical patterns

In the model described in section 2 –under symmetric strategies–, as civil liberties worsen average socialization falls, and as civic engagement weakens, civil liberties worsen. The inelastic relationship between τ and p implied by the form of the no-riot constraint further predicts that conditional on ψ, there should be no relationship between p and τ. Measuring socialization, civil liberties, and civic engagement is difficult, and a cross-country comparison will be fraught with innumerable confounders. Despite these difficulties, we collected data from the World Values Survey (WVS) and the World Bank's World Development Indicators (WDI). We computed country-level proxies for p, τ, and ψ based on these sources. As a measure of p, we rely on the WVS, and compute for each country the average share of respondents answering affirmatively that they participate in one of the following: a group sport, a labor union, or an arts, environmental, professional, charitable, consumer, or other organization.[45] As a measure of (the negative of) ψ we similarly use the WVS, and compute for each country the average share of respondents answering affirmatively that they would participate in a demonstration or protest, or would sign a petition to the government. We see these responses as signaling people's willingness to engage in broad social interaction, and to participate in collective action. Finally, as a measure of (the negative of) τ, we rely on the WDI, and compute for each country the average of the standardized indices measuring the prevalence of 'Rule of Law' and 'Voice and Accountability'.

	τ		p			
	(1)	(2)	(3)	(4)	(5)	(6)
τ			-2.19	-2.26	-0.92	-1.16
			(0.57)	(0.71)	(0.59)	(0.71)
ψ	0.03	0.01			-0.11	-0.09
	(0.004)	(0.003)			(0.02)	(0.03)
Income p.c	No	Yes	No	Yes	No	Yes
No. of Countries	94	90	92	88	88	84
R^2	0.35	0.70	0.21	0.29	0.30	0.38

Table B.1: Cross-country relationships between p, τ, and ψ. The table presents coefficients from cross-country regressions. All models include year fixed effects. In columns controlling for income per capita, we include a third-degree polynomial on the log of income per capita at constant prices. τ is measured as the negative of the average standardized indices of Rule of Law and Voice and Accountability from the World Development Indicators. ψ is measured as the negative of the average share of respondents answering affirmatively that they would participate in a demonstration from the World Values Survey. p is measured as the average share of respondents answering affirmatively that they participate in one of the following activities: a group sport, a labor union, or an arts, environmental, professional, charitable, consumer, or other type of organization from the World Values Survey. Standard errors (in parentheses) are robust to arbitrary heteroskedasticity and clustered at the country level.

In Table B.1 we report the results from a series of cross-country regressions using our measures of p, τ, and ψ. Our data sources allowed us to compute these measures for several years, so all the results we discuss here include year fixed effects. Unsurprisingly, participation in groups, institutional quality measures, and civic engagement are all strongly correlated with the level of income, so we further control flexibly for this variable with a third-degree polynomial on log income per capita. In the equilibrium of our model, τ is proportional to ψ. Column 1 in the table reproduces the slope of this relationship. We estimate a highly statistically significant slope of 0.03. After flexibly controlling for income in column 2, the slope shrinks to 0.01, but it remains highly statistically significant (with a t-statistic above 3). The inclusion of the polynomial

[45] See Alesina and LaFerrara (2000), who use responses to similar questions from the General Social Survey to study the relationship between group participation and racial heterogeneity in the US.

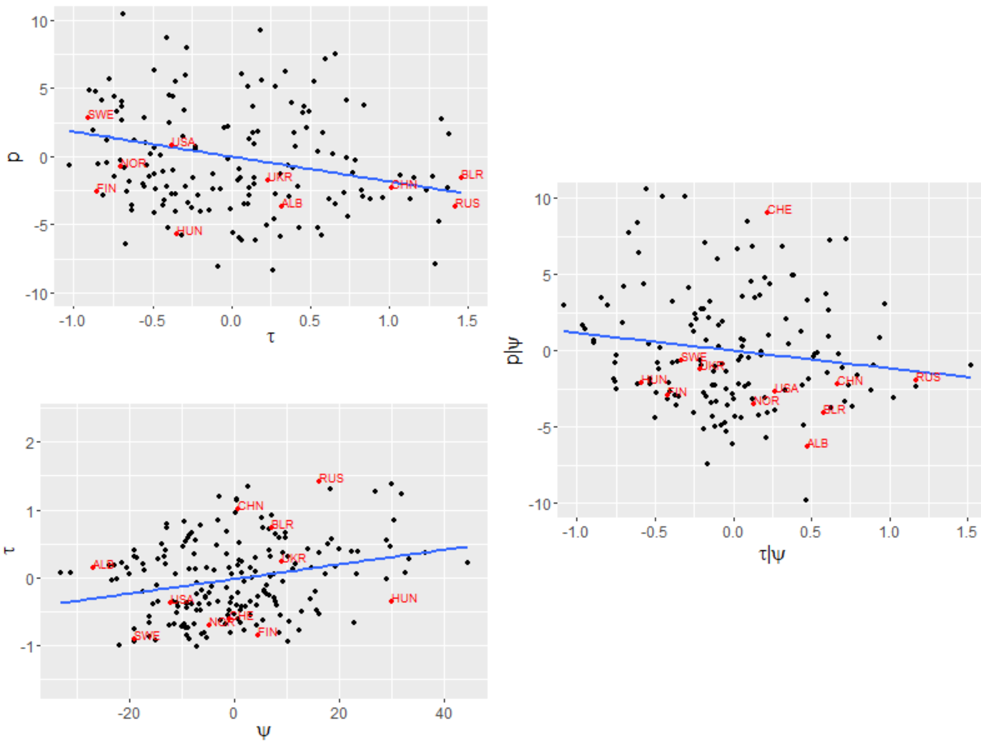


Figure B.1: Cross-country relationships between p, τ, and ψ. The figure presents cross-country scatterplots of the following residualized bivariate relationships: In the top-left panel, $p(\tau)$ from column (4) in Table B.1. In the bottom-left panel, $\tau(\psi)$ from column (2) in Table B.1. In the right panel, $p(\tau|\psi)$ from column (6) in Table B.1. The blue line is the correponding slope of the regression line. The figures label a subset of countries.

on income per capita raises the R squared from 0.35 to 0.7. We illustrate this relationship graphically in the bottom-left panel of Figure B.1. Controlling for income differences, countries with citizens who report being less willing to participate in collective action also are classified as having worse civil liberties protections.

Columns 3-6 then focus on our measure of socialization. In columns 3 and 4 we estimate a negative and statistically significant cross-country relationship between p and τ. Its slope (-2.2) and significance are barely altered when controlling for income in column 4. We present the scatterplot corresponding to this regression in the top-left panel of Figure B.1. The equilibrium of our model also predicts no relationship between p and τ conditional on ψ. Thus, in columns 5 and 6 we additionally include our measure of ψ in the regression model. The slope on τ falls to half its magnitude from columns 3 and 4, and is no longer statistically significant (t-statistic of 1.6 in column 6). In contrast, the coefficient on ψ is highly statistically significant (-0.09 with an associated t-statistic of 3). Its magnitude barely changes from columns 5 to 6 when additionally controlling for income. The right panel of Figure B.1 illustrates the lack of a statistically significant relationship between our measures of p and τ conditional on ψ. Controlling for income differences, countries with citizens who report being more willing to participate in collective action also report more engagement in socialization activities. Controlling for differences in civic engagement, differences in the strength of civil liberties across countries –which strongly predict collective action participation–, do not correlate with socialization efforts. We find the consistency of these cross-country empirical patterns with the predictions of our model intriguing at the very least, especially as they are robust to controlling for income differences, and we had to rely on highly imperfect measures of the relevant variables.

C Appendix

C.1 Changes in the Economic Environment

Here we turn to a description of the comparative statics with respect to several parameters of interest. Conveniently, these affect equilibrium quantities exclusively through ω, the reduced-form parameter capturing how the information technology shapes socialization incentives. Because the ETE mimics the equilibrium under symmetric strategies, here we discuss only the UTEs. In all unequal treatment equilibria, comparative statics over social structure statistics –socialization rates, cohesiveness, and segregation–, and over civil liberties –interrogation rates– are monotone in the key parameters of the model (within an equilibrium). For the remainder of the analysis, we will rely on the following Corollary to Theorem 1:

Corollary C.1. *Comparative statics with respect to ω:*

1. *UTE1:*

$$\frac{\partial p^*_{\mathcal{A}\mathcal{A}}}{\partial \omega} > 0, \quad \frac{\partial p^*_{\mathcal{A}\mathcal{B}}}{\partial \omega} = \frac{\partial p^*_{\mathcal{B}\mathcal{A}}}{\partial \omega} = 0, \quad \frac{\partial p^*_{\mathcal{B}\mathcal{B}}}{\partial \omega} > 0,$$
$$\frac{\partial \mathcal{H}}{\partial \omega} > 0, \quad \frac{\partial \mathcal{S}}{\partial \omega} > 0, \quad \frac{\partial \tau^*_{\mathcal{A}}}{\partial \omega} = \frac{\partial \tau^*_{\mathcal{B}}}{\partial \omega} = 0.$$

2. *UTE2:*

$$\frac{\partial p^*_{\mathcal{A}\mathcal{A}}}{\partial \omega} = 0, \quad \frac{\partial p^*_{\mathcal{A}\mathcal{B}}}{\partial \omega} > 0, \quad \frac{\partial p^*_{\mathcal{B}\mathcal{A}}}{\partial \omega} = 0, \quad \frac{\partial p^*_{\mathcal{B}\mathcal{B}}}{\partial \omega} > 0,$$
$$\frac{\partial \mathcal{H}}{\partial \omega} > 0, \quad \frac{\partial \mathcal{S}}{\partial \omega} < 0, \quad \frac{\partial \tau^*_{\mathcal{A}}}{\partial \omega} < 0, \quad \frac{\partial \tau^*_{\mathcal{B}}}{\partial \omega} = 0.$$

Increases in the likelihood of a threat χ:

$$\frac{\partial \omega}{\partial \chi} > 0 \iff \frac{\underline{\chi}_L}{1-\underline{\chi}_L} > \frac{b_1}{b_0}. \tag{C.1}$$

Whether a threat that is perceived to be more likely (e.g., the US following the 9/11 terrorist attacks, or Turkey after the failed coup attempt of 2016) increases or decreases incentives for socialization depends on the lower bound on the standard of proof, and on the likelihood ratio. Recall that b_0 measures how fast marginal increases in information s_i decrease the likelihood of a wrong signal of threat membership. In turn, b_1 measures how fast marginal increases in information s_i increase the likelihood of a correct signal of threat membership. In economies where b_1/b_0 is sufficiently small, marginal increases in information increase the likelihood of a threat signal for a threat member by less than they increase the likelihood of a no-threat signal for a non-threat member. At higher values of χ, citizen i is more likely to be a member of the threat, making social ties more valuable from his ex-ante point of view. As the standard of proof becomes stricter, the larger the range where these incentives hold.

Thus, from Corollary C.1, when the inequality in (C.1) holds, a more likely threat leads to more cohesiveness and more segregation under UTE1, and it leads to more cohesiveness, less segregation, and more unequal treatment between groups (a wider gap between $\tau^*_{\mathcal{A}}$ and $\tau^*_{\mathcal{B}}$) under UTE2. When the inequality is reversed, the comparative statics are the opposite.

Improvements in the information technology (b_0, b_1):

$$\frac{\partial \omega}{\partial b_0} < 0, \quad \frac{\partial \omega}{\partial b_1} < 0.$$

Improvements in the efficiency of the government's information aggregation technology (e.g., better internet surveillance protocols, diffusion of videocamera use by law enforcement) reduce incentives for socialization. Recall that a signal $\theta_i = 1$ is necessary for citizen i to be arrested. Conditional on such a signal, the posterior probability of threat membership will be higher the better the technology at correctly detecting threat members (the larger b_1), and the better the technology at avoiding wrong threat membership signals (the larger b_0). Because citizens unambiguously benefit from a lower probability of a signal $\theta_i = 1$, information technologies that make less of both type I and type II errors will reduce ex-ante socialization incentives.

Corollary C.1 implies that under UTE1, more efficient information aggregation technologies lead to lower cohesiveness and segregation. Under UTE2, they lead to lower cohesiveness, higher segregation, and a higher interrogation rate on the more favorably treated group.

Improvements in the 'standard of proof' $[\underline{\chi}_L, \underline{\chi}_H]$: To consider improvements in the expected 'standard of proof', we fix the size of the support of $\underline{\chi}$. In this way its variance is fixed, and our comparative statics results refer only to changes in the mean of $\underline{\chi}$. Let $\Delta \equiv \underline{\chi}_H - \underline{\chi}_L$ be a fixed quantity. We have that

$$\frac{\partial \omega}{\partial \underline{\chi}_H} > 0 \iff \frac{\chi}{1-\chi} > \frac{b_0}{b_1}. \tag{C.2}$$

Perhaps surprisingly, whether a more stringent standard of proof leads to stronger socialization incentives is not unambiguous. It depends on other features of the informational environment. As (C.2) indicates, higher ranges for the standard of proof requirement, which make it harder for the government to undertake arrests ex-post, increase socialization incentives if and only if b_0/b_1 is sufficiently small. In economies where b_0/b_1 is sufficiently small, marginal increases in information increase the likelihood of a threat signal for a threat member by more than they increase the likelihood of a no-threat signal for a non-threat member. In such case, additional information hurts citizens ex-ante, and their willingness to socialize will only strengthen when they face stronger standard of proof protections. As the likelihood of the threat becomes higher, the larger the range where these incentives hold.

Corollary C.1 indicates that when the inequality in (C.2) holds, a more stringent standard of proof leads to more cohesiveness and segregation under UTE1, and to more cohesiveness, less segregation, and more unequal treatment between groups (a wider gap between $\tau^*_{\mathcal{A}}$ and $\tau^*_{\mathcal{B}}$) under UTE2. When the inequality is reversed, the comparative statics are the opposite.

C.2 Unequal Treatment in the Akerlof (1976) Model

Suppose a group with label $\mathcal{B}$ and endogenous size $\lambda_{\mathcal{B}}$ is the outcast group. A social norm exists according to which any citizen who forms a link with an outcast is also an outcast (naturally, here we must allow for $\underline{\rho} = 0$). Group identities and socialization choices are determined simultaneously. Each citizen chooses $(\rho_{i,\mathcal{A}}, \rho_{i,\mathcal{B}})$, and $\mathcal{B}$ is determined as $\mathcal{B} = \{i \in \mathcal{B} \text{ iff } \rho_{iB} > 0\}$. As in our benchmark model, interrogation rates $(\tau_{\mathcal{A}}, \tau_{\mathcal{B}})$ are determined after socialization decisions have taken place. Notice that by construction, $\mathcal{A}$ and $\mathcal{B}$ are two disjoint groups. Consider symmetric equilibria where members of $\mathcal{A}$ play $(\rho_{\mathcal{A}\mathcal{A}}, 0)$, and members of $\mathcal{B}$ play $(0, \rho_{\mathcal{B}\mathcal{B}})$. Assuming no agent is born an outcast, $\mathcal{A} = \varnothing$ and $\mathcal{B} = \varnothing$ are both equilibrium group compositions. Are there (symmetric) equilibria where $\lambda_{\mathcal{B}} \neq 0$? Given $p_{\mathcal{A}\mathcal{A}}, p_{\mathcal{B}\mathcal{B}}$ and the expectations $t_{\mathcal{A}}, t_{\mathcal{B}}$, citizens' best replies can be characterized as follows: citizen i playing $(p_{i\mathcal{A}}, p_{i\mathcal{B}})$ has payoff

$$\begin{cases} \sqrt{p_{i\mathcal{A}} p_{\mathcal{A}\mathcal{A}} \lambda_{\mathcal{A}}} - \frac{1}{2\omega} p_{i\mathcal{A}} p_{\mathcal{A}\mathcal{A}} \lambda_{\mathcal{A}} t_{\mathcal{A}} \text{ if } p_{i\mathcal{B}} = 0 \\ \sqrt{p_{i\mathcal{B}} p_{\mathcal{B}\mathcal{B}} \lambda_{\mathcal{B}}} - \frac{1}{2\omega} p_{i\mathcal{B}} p_{\mathcal{B}\mathcal{B}} \lambda_{\mathcal{B}} t_{\mathcal{B}} \text{ if } p_{i\mathcal{B}} > 0 \end{cases}$$

Thus, in equilibrium,

$$\max_{p_{i\mathcal{A}}} \sqrt{p_{i\mathcal{A}} p_{\mathcal{A}\mathcal{A}} \lambda_{\mathcal{A}}} - \frac{1}{2\omega} p_{i\mathcal{A}} p_{\mathcal{A}\mathcal{A}} \lambda_{\mathcal{A}} t_{\mathcal{A}} = \max_{p_{i\mathcal{B}}} \sqrt{p_{i\mathcal{B}} p_{\mathcal{B}\mathcal{B}} \lambda_{\mathcal{B}}} - \frac{1}{2\omega} p_{i\mathcal{B}} p_{\mathcal{B}\mathcal{B}} \lambda_{\mathcal{B}} t_{\mathcal{B}},$$

which implies

$$\frac{\omega}{2t_{\mathcal{A}}} = \frac{\omega}{2t_{\mathcal{B}}} \Longrightarrow t_{\mathcal{A}} = t_{\mathcal{B}}.$$

D Appendix For Online Publication

D.1 Proofs

D.1.1 Proof of Lemma 1

Citizen i is arrested in the event that his posterior $\chi_i > \underline{\chi}$, and signal $\theta_i = 1$ is realized. Thus, the expected payoff to citizen i is

$$\begin{aligned}
\mathbb{E}_{\underline{\chi}}[u_i] &= \mathbb{E}_{\underline{\chi}}\left[\sqrt{d_i} - \mathbb{1}[\chi_i > \underline{\chi}](\chi\sigma_1(s_i) + (1-\chi)\sigma_0(s_i))\kappa\right] \\
&= \sqrt{p_i p} - \frac{\chi_i - \underline{\chi}_L}{\underline{\chi}_H - \underline{\chi}_L}(\chi\sigma_1(s_i) + (1-\chi)\sigma_0(s_i))\kappa \\
&= \sqrt{p_i p} - \frac{\left(\chi(1-\underline{\chi}_L)a_1 - \underline{\chi}_L(1-\chi)a_0\right) + \left(\chi(1-\underline{\chi}_L)b_1 + \underline{\chi}_L(1-\chi)b_0\right)p_i p\tau}{\underline{\chi}_H - \underline{\chi}_L}\kappa \\
&\propto \sqrt{p_i p} - \frac{\chi(1-\underline{\chi}_L)b_1 + \underline{\chi}_L(1-\chi)b_0}{\underline{\chi}_H - \underline{\chi}_L}\kappa\tau p p_i \\
&= \sqrt{p_i p} - \frac{\tau}{2\omega}p p_i.
\end{aligned}$$

D.1.2 Proof of Proposition 1

Denote by χ_p the posterior belief for a citizen for whom the signal drawn was $\theta_i = 1$. When each citizen socializes at rate p, and the interrogation rate is t, each citizen's signal strength is $s_i = p^2 t$. Thus, the government's interim expected payoff is

$$\begin{aligned}
\mathbb{E}_{\underline{\chi}}[V] &= \mathbb{E}_{\underline{\chi}}[\mathbb{1}[\chi_p > \underline{\chi}](\chi\sigma_1(p^2 t) + (1-\chi)\sigma_0(p^2 t))] \\
&= \frac{\chi(1-\underline{\chi}_L)(a_1 + b_1 p^2 t) - \underline{\chi}_L(1-\chi)(a_0 - b_0 p^2 t)}{\underline{\chi}_H - \underline{\chi}_L} \\
&\propto p^2 t.
\end{aligned}$$

The result now follows trivially from replacing $p_i = p$ in the best reply (7) and solving for p.

D.1.3 Proof of Lemma 2

When citizens socialize at rates $\mathbf{p} = (p_{\mathcal{AA}}, p_{\mathcal{AB}}, p_{\mathcal{BA}}, p_{\mathcal{BB}})$, and the government interrogates at rates $t_{\mathcal{A}}$ and $t_{\mathcal{B}}$, the measure of clues about citizen i from group $g \in \{\mathcal{A}, \mathcal{B}\}$ received by the government is

$$s_g = \sum_{h \in \{\mathcal{A}, \mathcal{B}\}} \lambda_h p_{gh} p_{hg} t_h.$$

Denote by χ_g the posterior belief for a citizen of group $g \in \{\mathcal{A}, \mathcal{B}\}$ for whom the signal drawn was $\theta_i = 1$. The government's expected payoff corresponds to the mass of expected arrests:

$$
\begin{aligned}
\mathbb{E}_{\underline{\chi}}[V] &= \mathbb{E}_{\underline{\chi}}\left[\sum_{g\in\{\mathcal{A},\mathcal{B}\}} \lambda_g \mathbb{1}[\chi_g > \underline{\chi}]\left(\chi\sigma_1(s_g) + (1-\chi)\sigma_0(s_g)\right)\right] \\
&= \sum_{g\in\{\mathcal{A},\mathcal{B}\}} \lambda_g \frac{\chi_g - \underline{\chi}_L}{\underline{\chi}_H - \underline{\chi}_L}\left(\chi\sigma_1(s_g) + (1-\chi)\sigma_0(s_g)\right) \\
&= \sum_{g\in\{\mathcal{A},\mathcal{B}\}} \lambda_g \frac{\chi(1-\underline{\chi}_L)(a_1 + b_1 s_g) - \underline{\chi}_L(1-\chi)(a_0 - b_0 s_g)}{\underline{\chi}_H - \underline{\chi}_L} \\
&\propto \sum_{g\in\{\mathcal{A},\mathcal{B}\}} \lambda_g s_g = \sum_{g\in\{\mathcal{A},\mathcal{B}\}} \sum_{h\in\{\mathcal{A},\mathcal{B}\}} \lambda_h \lambda_g p_{gh} p_{hg} t_h \\
&= \left(\lambda_{\mathcal{A}}^2 p_{\mathcal{A}\mathcal{A}}^2 + \lambda_{\mathcal{A}}\lambda_{\mathcal{B}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}}\right) t_{\mathcal{A}} + \left(\lambda_{\mathcal{B}}^2 p_{\mathcal{B}\mathcal{B}}^2 + \lambda_{\mathcal{A}}\lambda_{\mathcal{B}} p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}}\right) t_{\mathcal{B}}.
\end{aligned}
$$

D.1.4 Proof of Lemma 3

The proof is similar to the one for Lemma 1 so we omit it.

D.1.5 Proof of Proposition 2

Case A: $\tau_{\mathcal{A}} < \tau_{\mathcal{B}}$.

Case A.1: $p_{\mathcal{A}\mathcal{B}} = \underline{\rho}$.

First, $p_{\mathcal{A}\mathcal{B}} = \underline{\rho}$ implies

$$(\omega/\tau_{\mathcal{A}})^2 - p_{\mathcal{A}\mathcal{B}} p_{\mathcal{B}\mathcal{A}} \lambda_{\mathcal{B}} > 0.$$

Together with the best reply of citizens from group $\mathcal{A}$ towards citizens of group $\mathcal{A}$,

$$p_{\mathcal{A}\mathcal{A}} = min\left\{1, \sqrt{\frac{(\omega/\tau_{\mathcal{A}})^2 - \underline{\rho} p_{\mathcal{B}\mathcal{A}} \lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}}\right\}.$$

Second, the best reply for citizens of group $\mathcal{B}$ towards citizens of group $\mathcal{B}$ similarly implies

$$p_{\mathcal{B}\mathcal{B}} = min\left\{1, \sqrt{\frac{(\omega/\tau_{\mathcal{B}})^2 - \underline{\rho} p_{\mathcal{B}\mathcal{A}} \lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}}\right\}.$$

Third, $\tau_{\mathcal{A}} < \tau_{\mathcal{B}}$ implies

$$(\omega/\tau_{\mathcal{A}})^2 - p_{\mathcal{B}\mathcal{B}}^2 \lambda_{\mathcal{B}} > (\omega/\tau_{\mathcal{A}})^2 - \frac{(\omega/\tau_{\mathcal{B}})^2 - \underline{\rho} p_{\mathcal{B}\mathcal{A}} \lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}} \lambda_{\mathcal{B}} > (\omega/\tau_{\mathcal{A}})^2 - (\omega/\tau_{\mathcal{B}})^2 > 0.$$

Then, the best reply for citizens of group $\mathcal{B}$ toward citizens of group $\mathcal{A}$ implies that $p_{\mathcal{B}\mathcal{A}} > \underline{\rho}$. In particular,

$$p_{\mathcal{B}\mathcal{A}} = min\left\{1, \frac{(\omega/\tau_{\mathcal{A}})^2 - p_{\mathcal{B}\mathcal{B}}^2 \lambda_{\mathcal{B}}}{\underline{\rho}\lambda_{\mathcal{A}}}\right\} > min\left\{1, \frac{(\omega/\tau_{\mathcal{A}})^2 - (\omega/\tau_{\mathcal{B}})^2}{\underline{\rho}\lambda_{\mathcal{A}}}\right\} = 1$$

since $\underline{\rho}$ is arbitrarily small. Collecting these results,

$$p_{\mathcal{A}\mathcal{A}} = min\left\{1, \sqrt{\frac{(\omega/\tau_{\mathcal{A}})^2 - \underline{\rho}\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}}\right\}, \quad p_{\mathcal{A}\mathcal{B}} = \underline{\rho}, \quad p_{\mathcal{B}\mathcal{A}} = 1, \quad p_{\mathcal{B}\mathcal{B}} = min\left\{1, \sqrt{\frac{(\omega/\tau_{\mathcal{B}})^2 - \underline{\rho}\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}}\right\}.$$

These necessary conditions are also sufficient if they satisfy the best replies in (12). This entails making sure the best reply for citizens of group $\mathcal{A}$ towards citizens of group $\mathcal{B}$ holds, which becomes

$$\begin{aligned}(\omega/\tau_{\mathcal{B}})^2 &< p_{\mathcal{A}\mathcal{A}}^2\lambda_{\mathcal{A}} + \underline{\rho} p_{\mathcal{B}\mathcal{A}}\lambda_{\mathcal{B}} \\ &= min\left\{1, \frac{(\omega/\tau_{\mathcal{A}})^2 - \underline{\rho}\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}\right\}\lambda_{\mathcal{A}} + \underline{\rho}\lambda_{\mathcal{B}} \\ &= min\left\{\lambda_{\mathcal{A}} + \underline{\rho}\lambda_{\mathcal{B}}, (\omega/\tau_{\mathcal{A}})^2\right\}.\end{aligned}$$

Case A.2: $p_{\mathcal{B}\mathcal{A}} = \underline{\rho}$.

Following a similar argument to the first and second points from Case A.1, we have that

$$p_{\mathcal{A}\mathcal{A}} = min\left\{1, \sqrt{\frac{(\omega/\tau_{\mathcal{A}})^2 - \underline{\rho}\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}}\right\} \quad \text{and} \quad p_{\mathcal{B}\mathcal{B}} = min\left\{1, \sqrt{\frac{(\omega/\tau_{\mathcal{B}})^2 - \underline{\rho}\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}}\right\}.$$

Then, the best reply of citizens from group $\mathcal{B}$ toward citizens of group $\mathcal{A}$ implies

$$(\omega/\tau_{\mathcal{A}})^2 \leq \underline{\rho} p_{\mathcal{A}\mathcal{B}}\lambda_{\mathcal{A}} + p_{\mathcal{B}\mathcal{B}}^2\lambda_{\mathcal{B}} = \underline{\rho} p_{\mathcal{A}\mathcal{B}}\lambda_{\mathcal{A}} + min\left\{1, \frac{(\omega/\tau_{\mathcal{B}})^2 - \underline{\rho}\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right\}\lambda_{\mathcal{B}} \leq \underline{\rho} p_{\mathcal{A}\mathcal{B}}\lambda_{\mathcal{A}} + (\omega/\tau_{\mathcal{B}})^2 - \underline{\rho}\lambda_{\mathcal{A}}$$

which is a contradiction for small $\underline{\rho}$ because $\tau_{\mathcal{A}} < \tau_{\mathcal{B}}$. Thus, this case is not possible.

Case A.3: $p_{\mathcal{A}\mathcal{B}}, p_{\mathcal{B}\mathcal{A}} \neq \underline{\rho}$.

Since $p_{\mathcal{A}\mathcal{B}} \neq \underline{\rho}$, the best reply for citizens from group $\mathcal{A}$ towards citizens from group $\mathcal{B}$ implies

$$p_{\mathcal{A}\mathcal{B}} = min\left\{1, \frac{(\omega/\tau_{\mathcal{B}})^2 - p_{\mathcal{A}\mathcal{A}}^2\lambda_{\mathcal{A}}}{p_{\mathcal{B}\mathcal{A}}\lambda_{\mathcal{B}}}\right\},$$

which implies

$$\frac{(\omega/\tau_{\mathcal{B}})^2 - p_{\mathcal{A}\mathcal{A}}^2\lambda_{\mathcal{A}}}{p_{\mathcal{B}\mathcal{A}}\lambda_{\mathcal{B}}} \geq p_{\mathcal{A}\mathcal{B}}.$$

Then,

$$(\omega/\tau_{\mathcal{B}})^2 - p_{\mathcal{A}\mathcal{B}}p_{\mathcal{B}\mathcal{A}}\lambda_{\mathcal{B}} \geq p_{\mathcal{A}\mathcal{A}}^2\lambda_{\mathcal{A}}.$$

Since $\tau_{\mathcal{A}} < \tau_{\mathcal{B}}$, this implies

$$(\omega/\tau_{\mathcal{A}})^2 - p_{\mathcal{A}\mathcal{B}}p_{\mathcal{B}\mathcal{A}}\lambda_{\mathcal{B}} > p_{\mathcal{A}\mathcal{A}}^2\lambda_{\mathcal{A}}.$$

Thus, the best reply for citizens from group $\mathcal{A}$ towards citizens from group $\mathcal{A}$ implies $p_{\mathcal{A}\mathcal{A}} = 1$.

Case A.3.1: $p_{\mathcal{B}\mathcal{B}} \neq \underline{\rho}$.

The best reply for citizens from group $\mathcal{B}$ towards citizens from group $\mathcal{B}$ implies that

$$p_{\mathcal{B}\mathcal{B}} = min\left\{1, \frac{(\omega/\tau_{\mathcal{B}})^2 - p_{\mathcal{A}\mathcal{B}}p_{\mathcal{B}\mathcal{A}}\lambda_{\mathcal{A}}}{p_{\mathcal{B}\mathcal{B}}\lambda_{\mathcal{B}}}\right\},$$

which in turn implies

$$\frac{(\omega/\tau_{\mathcal{B}})^2 - p_{\mathcal{A}\mathcal{B}}p_{\mathcal{B}\mathcal{A}}\lambda_{\mathcal{A}}}{p_{\mathcal{B}\mathcal{B}}\lambda_{\mathcal{B}}} \geq p_{\mathcal{B}\mathcal{B}}.$$

Then,

$$(\omega/\tau_{\mathcal{B}})^2 - p_{\mathcal{B}\mathcal{B}}^2\lambda_{\mathcal{B}} \geq p_{\mathcal{A}\mathcal{B}}p_{\mathcal{B}\mathcal{A}}\lambda_{\mathcal{A}}.$$

Because $\tau_{\mathcal{A}} < \tau_{\mathcal{B}}$, we obtain

$$(\omega/\tau_{\mathcal{A}})^2 - p_{\mathcal{B}\mathcal{B}}^2\lambda_{\mathcal{B}} > p_{\mathcal{A}\mathcal{B}}p_{\mathcal{B}\mathcal{A}}\lambda_{\mathcal{A}}.$$

Then, the best reply for citizens of group $\mathcal{B}$ towards citizens of group $\mathcal{A}$ implies $p_{\mathcal{AB}} = 1$. Collecting these results,

$$p_{\mathcal{AA}} = 1, \qquad p_{\mathcal{AB}} = min\left\{1, \frac{(\omega/\tau_{\mathcal{B}})^2 - \lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right\}, \qquad p_{\mathcal{BA}} = 1,$$

$$p_{\mathcal{BB}} = min\left\{1, \sqrt{\frac{(\omega/\tau_{\mathcal{B}})^2 - p_{\mathcal{AB}}\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}}\right\} = min\left\{1, \sqrt{\frac{(\omega/\tau_{\mathcal{B}})^2 - min\left\{1, \frac{(\omega/\tau_{\mathcal{B}})^2 - \lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right\}\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}}\right\}.$$

The necessary conditions are also sufficient if they satisfy the four best replies in (12). This boils down tp making sure the best reply for citizens of group $\mathcal{A}$ towards citizens of group $\mathcal{B}$ holds, which becomes

$$(\omega/\tau_{\mathcal{B}})^2 > \underline{\rho}\lambda_{\mathcal{B}} + \lambda_{\mathcal{A}}.$$

Case A.3.2: $p_{\mathcal{BB}} = \underline{\rho}$.

If $p_{\mathcal{BB}} = \underline{\rho}$, then the best reply from citizens from group $\mathcal{B}$ towards citizens from group $\mathcal{B}$ implies

$$(\omega/\tau_{\mathcal{B}})^2 - p_{\mathcal{BA}}p_{\mathcal{AB}}\lambda_{\mathcal{A}} \leq \underline{\rho}^2\lambda_{\mathcal{B}}$$

Since $p_{\mathcal{AB}} \neq \underline{\rho}$, the best reply for citizens from group $\mathcal{A}$ towards citizens from group $\mathcal{B}$ implies

$$(\omega/\tau_{\mathcal{B}})^2 - \lambda_{\mathcal{A}} > \underline{\rho}p_{\mathcal{BA}}\lambda_{\mathcal{B}}$$

Then,

$$p_{\mathcal{BA}}p_{\mathcal{AB}}\lambda_{\mathcal{A}} + \underline{\rho}^2\lambda_{\mathcal{B}} > \lambda_{\mathcal{A}} + \underline{\rho}p_{\mathcal{AB}}\lambda_{\mathcal{B}},$$

which is a contradiction. This case is thus not possible.

Case B: $\tau_{\mathcal{A}} > \tau_{\mathcal{B}}$.

Just switch the labels for $\mathcal{A}$ and $\mathcal{B}$ from Case A.

Case C: $\tau_{\mathcal{A}} = \tau_{\mathcal{B}}$.

Let the common interrogation rate be τ. Clearly, any solution $p_{gh} \in [\underline{\rho}, 1]$ to

$$\lambda_{\mathcal{A}}p_{\mathcal{AA}}^2 + \lambda_{\mathcal{B}}p_{\mathcal{AB}}p_{\mathcal{BA}} = (\omega/\tau)^2 = \lambda_{\mathcal{B}}p_{\mathcal{BB}}^2 + \lambda_{\mathcal{A}}p_{\mathcal{AB}}p_{\mathcal{BA}}$$

solves the problem. There is a continuum of payoff-equivalent equilibria. We can select the symmetric equilibrium $p_{gh} = \llbracket \frac{\omega}{\tau} \rrbracket$. For completeness, notice that for any $p_{\mathcal{AB}}, p_{\mathcal{BA}} \in [\underline{\rho}, 1]$ such that

$$p_{\mathcal{AB}}p_{\mathcal{BA}} \in \left[\frac{(\omega/\tau)^2 - \lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}, \frac{(\omega/\tau)^2 - \underline{\rho}^2\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right] \cap \left[\frac{(\omega/\tau)^2 - \lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}, \frac{(\omega/\tau)^2 - \underline{\rho}^2\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}\right],$$

the following solves the problem:

$$p_{\mathcal{AA}} = \sqrt{\frac{(\omega/\tau)^2 - p_{\mathcal{AB}}p_{\mathcal{BA}}\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}}, \qquad p_{\mathcal{BB}} = \sqrt{\frac{(\omega/\tau)^2 - p_{\mathcal{AB}}p_{\mathcal{BA}}\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}}.$$

D.1.6 Proof of Theorem 1

Because citizens are infinitesimal, the partial equilibrium results from Proposition 2 give us the government's payoff from a given interrogations vector against a given socialization rates vector, citizens' payoffs from a given mutually consistent socialization rates vector against a given interrogations rate vector, and citizens best replies. Because the government can always choose $(\tau_{\mathcal{A}}, \tau_{\mathcal{B}})$ and avoid contagion, we can proceed by comparing the three candidate solutions to the government's problem:

1. Equal treatment: $\tau_{\mathcal{A}} = \tau_{\mathcal{B}} = \psi$;
2. Unequal treatment against group $\mathcal{A}$: $\tau_{\mathcal{A}} = 1, \tau_{\mathcal{B}} = \psi - (1-\psi)\frac{p_{\mathcal{AB}}p_{\mathcal{BA}}}{p_{\mathcal{BB}}^2}\frac{\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}$.
3. Unequal treatment against group $\mathcal{B}$: $\tau_{\mathcal{B}} = 1, \tau_{\mathcal{A}} = \psi - (1-\psi)\frac{p_{\mathcal{AB}}p_{\mathcal{BA}}}{p_{\mathcal{AA}}^2}\frac{\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}$;

Henceforth we will refer to these as options 1, 2, and 3, and will write $t_{\mathcal{A}i}, t_{\mathcal{B}i}, i = 1,2,3$ as the corresponding interrogation rates. Consider unequal treatment on group $\mathcal{B}$, option 3. This is, $\tau_{\mathcal{B}} = 1$ and $\tau_{\mathcal{A}} = \psi - (1-\psi)\frac{p_{\mathcal{AB}}p_{\mathcal{BA}}}{p_{\mathcal{AA}}^2}\frac{\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}} < 1$.

Case A: $\omega < \sqrt{\lambda_{\mathcal{A}}}$. Then,

$$(p_{\mathcal{AA}}, p_{\mathcal{AB}}, p_{\mathcal{BA}}, p_{\mathcal{BB}}) \simeq \left(\min\left\{1, \frac{\omega}{t_{\mathcal{A}}\sqrt{\lambda_{\mathcal{A}}}}\right\}, \underline{\rho}, 1, \min\left\{1, \frac{\omega}{t_{\mathcal{B}}\sqrt{\lambda_{\mathcal{B}}}}\right\}\right)$$

and

$$t_{\mathcal{A}} = \psi - (1-\psi)\frac{\underline{\rho}\lambda_{\mathcal{B}}}{\min\{\lambda_{\mathcal{A}}, (\omega^2/t_{\mathcal{A}})\}} \simeq \psi.$$

Thus, we can now compare

$$(p_{\mathcal{AA}}^2\lambda_{\mathcal{A}}^2 + p_{\mathcal{AB}}p_{\mathcal{BA}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}})t_{\mathcal{A}i} + (p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{AB}}p_{\mathcal{BA}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}})t_{\mathcal{B}i}$$

and show it is maximized at $i = 3$:

$$\begin{aligned}
\Delta_{32} \equiv \widetilde{V}_3 - \widetilde{V}_2 &= (t_{\mathcal{A}3} - t_{\mathcal{A}2})(p_{\mathcal{AA}}^2\lambda_{\mathcal{A}}^2 + p_{\mathcal{AB}}p_{\mathcal{BA}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) + (t_{\mathcal{B}3} - t_{\mathcal{B}2})(p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{AB}}p_{\mathcal{BA}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) \\
&\propto (p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{AB}}p_{\mathcal{BA}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) - (p_{\mathcal{AA}}^2\lambda_{\mathcal{A}}^2 + p_{\mathcal{AB}}p_{\mathcal{BA}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) \\
&\quad - \underline{\rho}\left(\frac{1}{p_{\mathcal{AA}}^2}\frac{\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}(p_{\mathcal{AA}}^2\lambda_{\mathcal{A}}^2 + p_{\mathcal{AB}}p_{\mathcal{BA}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) - \frac{1}{p_{\mathcal{BB}}^2}\frac{\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}(p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{AB}}p_{\mathcal{BA}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}})\right) \\
&= (p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 - p_{\mathcal{AA}}^2\lambda_{\mathcal{A}}^2)\left(1 - \frac{\underline{\rho}^2}{p_{\mathcal{AA}}^2 p_{\mathcal{BB}}^2}\right) \\
&\propto \min\left\{\lambda_{\mathcal{B}}, \omega^2 - \underline{\rho}\lambda_{\mathcal{A}}\right\}\lambda_{\mathcal{B}} - \min\left\{\lambda_{\mathcal{A}}, \frac{\omega^2}{\psi^2} - \underline{\rho}\lambda_{\mathcal{B}}\right\}\lambda_{\mathcal{A}} \\
&\simeq \min\left\{\lambda_{\mathcal{B}}, \omega^2\right\}\lambda_{\mathcal{B}} - \min\left\{\lambda_{\mathcal{A}}, \frac{\omega^2}{\psi^2}\right\}\lambda_{\mathcal{A}} \equiv \widetilde{\Delta}_{32}.
\end{aligned}$$

Note that $\Delta_{32} = 0$ or $\widetilde{\Delta}_{32} = 0$ is strongly non-generic. For any one of the parameters $\lambda_{\mathcal{A}}$ and ω^2, $\Delta_{32} = 0$ or $\widetilde{\Delta}_{32} = 0$ is non-generic keeping the remaining parameters fixed at any value. So we focus on the case of $\Delta_{32} \neq 0$ and $\widetilde{\Delta}_{32} \neq 0$. Then, for small $\underline{\rho}$, the signs of Δ_{32} and $\widetilde{\Delta}_{32}$ are the same. Thus, generically, if $\widetilde{\Delta}_{32} > 0$ then the best option for the government is $i = 3$, and if $\widetilde{\Delta}_{32} < 0$ then the best option for the government is $i = 2$. Without loss of generality, we focus on the generic case where $\omega^2 \neq \lambda_{\mathcal{B}} \neq \lambda_{\mathcal{A}}\psi^2 \neq \omega^2$.

Case A.1: $\omega^2 < \lambda_{\mathcal{B}}, \lambda_{\mathcal{A}}\psi^2, \lambda_{\mathcal{A}}$.

In this case, the condition amounts to $\omega^2\lambda_{\mathcal{B}} > \frac{\omega^2}{\psi^2}\lambda_{\mathcal{A}} \iff \psi^2\lambda_{\mathcal{B}} > \lambda_{\mathcal{A}}$. Thus, option $i = 3$ is preferred by the government if

$$\lambda_{\mathcal{A}} < \psi^2\lambda_{\mathcal{B}} \quad \text{and} \quad \omega^2 < \lambda_{\mathcal{A}}\psi^2.$$

Case A.2: $\lambda_{\mathcal{B}} < \omega^2 < \lambda_{\mathcal{A}}\psi^2, \lambda_{\mathcal{A}}$.

In this case, the condition amounts to $\lambda_{\mathcal{B}}^2 > \frac{\omega^2}{\psi^2}\lambda_{\mathcal{A}} \iff \omega^2 < \frac{\lambda_{\mathcal{B}}^2\psi^2}{\lambda_{\mathcal{A}}}$. But this implies $\lambda_{\mathcal{B}} < \omega^2 < \frac{\lambda_{\mathcal{B}}^2\psi^2}{\lambda_{\mathcal{A}}}$ and $\lambda_{\mathcal{B}} < \lambda_{\mathcal{A}}\psi^2$, which implies $\psi > 1$, a contradiction.

Case A.3: $\lambda_{\mathcal{A}}\psi^2 < \omega^2 < \lambda_{\mathcal{B}}$

In this case, the condition amounts to $\omega^2\lambda_{\mathcal{B}} > \lambda_{\mathcal{A}}^2$. Thus, option $i = 3$ is best if

$$\max\left\{\frac{\lambda_{\mathcal{A}}^2}{\lambda_{\mathcal{B}}}, \psi^2\lambda_{\mathcal{A}}\right\} < \omega^2 < \lambda_{\mathcal{A}}.$$

Case A.4: $\lambda_{\mathcal{B}}, \lambda_{\mathcal{A}}\psi^2 < \omega^2 < \lambda_{\mathcal{A}}$**.**

In this case, the condition amounts to $\lambda_{\mathcal{B}} > \lambda_{\mathcal{A}}$, which is a contradiction.

Combining cases A.1 to A.4, there is unequal treatment against group $\mathcal{B}$ under $\omega^2 < \lambda_{\mathcal{A}}$ if and only if

$$\omega^2 < \lambda_{\mathcal{A}} < \lambda_{\mathcal{B}}\psi^2 \quad \text{or} \quad \lambda_{\mathcal{A}}\psi^2 < \frac{\lambda_{\mathcal{A}}^2}{\lambda_{\mathcal{B}}} < \omega^2 < \lambda_{\mathcal{A}},$$

with corresponding equilibrium interrogation rates

$$(\tau_{\mathcal{A}}^*, \tau_{\mathcal{B}}^*) \simeq (\psi, 1)$$

and equilibrium socialization rates

$$(p_{\mathcal{AA}}^*, p_{\mathcal{AB}}^*, p_{\mathcal{BA}}^*, p_{\mathcal{BB}}^*) \simeq \left(min\left\{1, \frac{\omega}{\psi\sqrt{\lambda_{\mathcal{A}}}}\right\}, 0, 1, min\left\{1, \frac{\omega}{\sqrt{\lambda_{\mathcal{B}}}}\right\}\right).$$

Notice this is a strict equilibrium.

Case B: $\omega > \sqrt{\lambda_{\mathcal{A}}}$**.**

Then,

$$(p_{\mathcal{AA}}, p_{\mathcal{AB}}, p_{\mathcal{BA}}, p_{\mathcal{BB}}) \simeq \left(1, \min\left\{1, \frac{(\omega/t_{\mathcal{B}})^2 - \lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right\}, 1, \min\left\{1, \sqrt{\frac{(\omega/t_{\mathcal{B}})^2 - p_{\mathcal{AB}}\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}}\right\}\right)$$

and

$$t_{\mathcal{A}} = \psi - (1-\psi)p_{\mathcal{AB}}\frac{\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}.$$

Recall this expression must be non-negative, or a riot will be triggered. Thus, we must have

$$\psi - (1-\psi)p_{\mathcal{AB}}\frac{\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}} \geq 0 \Longleftrightarrow \frac{\lambda_{\mathcal{A}}}{1-\psi} \geq \min\left\{1, \omega^2\right\} \tag{D.1}$$

Without loss of generality we focus on the generic case $1 \neq \frac{\lambda_{\mathcal{A}}}{1-\psi} \neq \omega^2 \neq 1$. We begin comparing the government's payoff under options $i = 1$ and $i = 3$:

$$\begin{aligned}\Delta_{13} \equiv \widetilde{V}_3 - \widetilde{V}_1 &= (t_{\mathcal{A}3} - t_{\mathcal{A}1})(\lambda^2 + p_{\mathcal{AB}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) + (t_{\mathcal{B}3} - t_{\mathcal{B}1})(p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{AB}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) \\ &= -(1-\psi)p_{\mathcal{AB}}\frac{\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}(\lambda_{\mathcal{A}}^2 + p_{\mathcal{AB}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) + (1-\psi)(p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{AB}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) \\ &\propto -p_{\mathcal{AB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 \\ &\propto p_{\mathcal{BB}}^2 - p_{\mathcal{AB}}^2.\end{aligned}$$

Notice that $p_{\mathcal{AB}} = 1$ iff $\omega^2 > 1$. In this case, $p_{\mathcal{BB}} = 1$. Also, if $p_{\mathcal{AB}} < 1$, then $p_{\mathcal{AB}} < p_{\mathcal{BB}}$. This is, $p_{\mathcal{AB}} \leq p_{\mathcal{BB}}$ and $p_{\mathcal{AB}} = p_{\mathcal{BB}}$ iff

$$\omega^2 > 1 \quad \text{and} \quad p_{\mathcal{AB}} = p_{\mathcal{BA}} = 1.$$

Thus, the government prefers option $i = 3$ to option $i = 1$. It is weakly preferred if $\omega^2 > 1$, and strictly preferred if $\omega^2 < 1$.

We can now compare the government's payoff under options $i = 2$ and $i = 3$:

$$\begin{aligned}
\Delta_{23} &= (t_{\mathcal{A}3} - t_{\mathcal{A}2})(\lambda_{\mathcal{A}}^2 + p_{\mathcal{AB}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) + (t_{\mathcal{B}3} - t_{\mathcal{B}2})(p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{AB}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) \\
&\propto -\left(1 + p_{\mathcal{AB}}\frac{\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}\right)(\lambda_{\mathcal{A}}^2 + p_{\mathcal{AB}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) + \left(1 + \frac{p_{\mathcal{AB}}}{p_{\mathcal{BB}}^2}\frac{\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right)(p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{AB}}\lambda_{\mathcal{A}}\lambda_{\mathcal{B}}) \\
&= -\lambda_{\mathcal{A}}^2 - p_{\mathcal{AB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + \frac{p_{\mathcal{AB}}^2}{p_{\mathcal{BB}}^2}\lambda_{\mathcal{A}}^2 \\
&= (p_{\mathcal{BB}}^2 - p_{\mathcal{AB}}^2)\left(\lambda_{\mathcal{B}}^2 - \frac{\lambda_{\mathcal{A}}^2}{p_{\mathcal{BB}}^2}\right).
\end{aligned}$$

We have already established that if $\omega^2 < 1$, then $p_{\mathcal{BB}} > p_{\mathcal{AB}}$. Thus, under $\lambda_{\mathcal{A}} < \omega^2 < 1$, option $i = 3$ is better than option $i = 1$ iff

$$\begin{aligned}
0 \leq p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 - \lambda_{\mathcal{A}}^2 &= \min\left\{1, \frac{\omega^2 - p_{\mathcal{AB}}\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right\}\lambda_{\mathcal{B}}^2 - \lambda_{\mathcal{A}}^2 \\
&= \min\left\{1, \frac{\omega^2 - \frac{\omega^2 - \lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right\}\lambda_{\mathcal{B}}^2 - \lambda_{\mathcal{A}}^2 \\
&= \min\left\{\lambda_{\mathcal{B}} - \lambda_{\mathcal{A}}, \omega^2(\lambda_{\mathcal{B}} - \lambda_{\mathcal{A}})\right\} \\
\iff \lambda_{\mathcal{A}} \leq \lambda_{\mathcal{B}}.
\end{aligned}$$

Since $\lambda_{\mathcal{A}} \neq \lambda_{\mathcal{B}}$, option $i = 3$ is better for the government iff $\lambda_{\mathcal{A}} < \lambda_{\mathcal{B}}$, and it is strictly better in this case. Combining this with (D.1), there is an unequal treatment equilibrium against $\mathcal{B}$ under $\lambda_{\mathcal{A}} < \omega^2 < 1$ iff

$$\lambda_{\mathcal{A}} < \omega^2 < \min\left\{1, \frac{\lambda_{\mathcal{A}}}{1 - \psi}\right\} \quad \text{and} \quad \lambda_{\mathcal{A}} < \lambda_{\mathcal{B}},$$

with corresponding equilibrium interrogation rates

$$(\tau_{\mathcal{A}}^*, \tau_{\mathcal{B}}^*) \simeq \left(\psi - (1 - \psi)\frac{\omega^2 - \lambda_{\mathcal{A}}}{\lambda_{\mathcal{A}}}, 1\right)$$

and equilibrium socialization rates

$$(p_{\mathcal{AA}}^*, p_{\mathcal{AB}}^*, p_{\mathcal{BA}}^*, p_{\mathcal{BB}}^*) \simeq \left(1, \frac{\omega^2 - \lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}, 1, \frac{\sqrt{\omega^2(\lambda_{\mathcal{B}} - \lambda_{\mathcal{A}}) + \lambda_{\mathcal{A}}^2}}{\lambda_{\mathcal{B}}}\right).$$

Notice this is a strict equilibrium.

D.1.7 Proof of Proposition 3

We begin by comparing the government's ex-ante payoffs under an ETE and under an UTE1. Fix an economy $(\psi, \omega, \lambda_{\mathcal{A}})$ such that an UTE1 exists. Thus,

$$\omega^2 < \lambda_{\mathcal{A}} < \lambda_{\mathcal{B}}\psi^2 \quad \text{or} \quad \lambda_{\mathcal{A}}\psi^2 < \frac{\lambda_{\mathcal{A}}^2}{\lambda_{\mathcal{B}}} < \omega^2 < \lambda_{\mathcal{A}}.$$

Case UTE1-A: $\omega^2 < \psi^2\lambda_{\mathcal{A}}$.

In this case,

$$V^{UTE1} - V^{ETE} = \psi \left(\min\left\{1, \frac{\omega^2}{\psi^2 \lambda_{\mathcal{A}}}\right\} \lambda_{\mathcal{A}}^2 \right) + \omega^2 \lambda_{\mathcal{B}} - \min\left\{1, \frac{\omega^2}{\psi^2}\right\} \psi$$
$$= \frac{1}{\psi}\omega^2 \lambda_{\mathcal{A}} + \omega^2 \lambda_{\mathcal{B}} - \frac{\omega^2}{\psi} < 0.$$

The government is worse off under the UTE1 than under the corresponding ETE.

Case UTE1-B: $\psi^2\lambda_{\mathcal{A}} < \omega^2 < \psi^2$.

Notice that $\lambda_{\mathcal{A}}\psi^2 < \frac{\lambda_{\mathcal{A}}^2}{\lambda_{\mathcal{B}}} < \omega^2 < \lambda_{\mathcal{A}}$ implies $\frac{\lambda_{\mathcal{A}}^2}{\lambda_{\mathcal{B}}} < \psi^2$. This implies in turn that $\lambda_{\mathcal{A}} < \psi\sqrt{\lambda_{\mathcal{B}}} < \psi^2\lambda_{\mathcal{B}}$, and consequently, that $\psi^2\lambda_{\mathcal{A}} > \frac{\lambda_{\mathcal{A}}^2}{\lambda_{\mathcal{B}}}$, which is a contradiction. Thus, we must be in the case $\omega^2 < \lambda_{\mathcal{A}} < \lambda_{\mathcal{B}}\psi^2$, which implies $\psi^2\lambda_{\mathcal{A}} < \omega^2 < \lambda_{\mathcal{A}} < \lambda_{\mathcal{B}}\psi^2$. In this case,

$$V^{UTE1} - V^{ETE} = \psi \left(\min\left\{1, \frac{\omega^2}{\psi^2 \lambda_{\mathcal{A}}}\right\} \lambda_{\mathcal{A}}^2 \right) + \omega^2 \lambda_{\mathcal{B}} - \min\left\{1, \frac{\omega^2}{\psi^2}\right\}$$
$$= \psi\lambda_{\mathcal{A}}^2 + \omega^2\lambda_{\mathcal{B}} - \omega^2\frac{1}{\psi}$$
$$< \psi\lambda_{\mathcal{A}}^2 - \psi^2\lambda_{\mathcal{A}}\left(\frac{1}{\psi} - \lambda_{\mathcal{B}}\right)$$
$$= \psi\lambda_{\mathcal{A}}\left(\lambda_{\mathcal{A}} + \psi\lambda_{\mathcal{B}} - 1\right) < 0.$$

The government is worse off under the UTE1 than under the corresponding ETE.

Case UTE1-C: $\psi < \omega$. In this case we cannot have $\omega^2 < \lambda_{\mathcal{A}} < \lambda_{\mathcal{B}}\psi^2$. Instead, it must be that $\psi^2\lambda_{\mathcal{A}} < \frac{\lambda_{\mathcal{A}}^2}{\lambda_{\mathcal{B}}} < \omega^2 < \lambda_{\mathcal{A}}$, together with $\psi^2 < \omega^2$.

$$V^{UTE1} - V^{ETE} = \psi \left(\min\left\{1, \frac{\omega^2}{\psi^2 \lambda_{\mathcal{A}}}\right\} \lambda_{\mathcal{A}}^2 \right) + \omega^2 \lambda_{\mathcal{B}} - \min\left\{1, \frac{\omega^2}{\psi^2}\right\} \psi$$
$$= \lambda_{\mathcal{B}}(\omega^2 - \psi(1 + \lambda_{\mathcal{A}})).$$

Note that the government's payoff is higher under the UTE1 iff $\omega^2 > \psi(1+\lambda_{\mathcal{A}})$. Note also that $\psi(1+\lambda_{\mathcal{A}}) > \psi^2$, so $\omega > \psi$ whenever $\omega^2 > \psi(1+\lambda_{\mathcal{A}})$ holds. Thus, in this case ETE entails $p_{gh} = 1$ for all $g, h \in \{\mathcal{A}, \mathcal{B}\}$.

Now we compare the government's ex-ante payoffs under an ETE and under an UTE2. Fix an economy $(\psi, \omega, \lambda_{\mathcal{A}})$ such that an UTE2 exists. Thus,

$$\lambda_{\mathcal{A}} < \omega^2 < \min\left\{1, \frac{\lambda_{\mathcal{A}}}{1-\psi}\right\} \quad \textit{and} \quad \lambda_{\mathcal{A}} < \lambda_{\mathcal{B}}.$$

Case UTE2-A: $\omega < \psi$.

In this case,

$$V^{UTE2} - V^{ETE} = \left(\omega^2 - (1-\psi)\omega^4\right) - \min\left\{1, \frac{\omega^2}{\psi^2}\right\}\psi$$
$$= \omega^2 - (1-\psi)\omega^4 - \frac{\omega^2}{\psi} < 0.$$

The government is worse off under the UTE2 than under the corresponding ETE.

Case UTE2-B: $\omega > \psi$.

In this case,

$$V^{UTE2}-V^{ETE}=\left(\omega^2-(1-\psi)\omega^4\right)-\min\left\{1,\frac{\omega^2}{\psi^2}\right\}\psi$$
$$=\omega^2-(1-\psi)\omega^4-\psi$$
$$=\left(1-\omega^2\right)\left(\omega^2(1-\psi)-\psi\right).$$

Note that the government's payoff is higher under the UTE2 iff $\omega^2>\frac{\psi}{1-\psi}$. Note also that $\psi^2<\frac{\psi}{1-\psi}$, so when $\omega>\psi$ whenever $\omega^2>\frac{\psi}{1-\psi}$ holds. Thus, in this case ETE entails $p_{gh}=1$ for all $g,h\in\{\mathcal{A},\mathcal{B}\}$.

D.1.8 Proof of Lemma 4

We consider the same cases as those from the proof of Proposition 3 above.

Case UTE1-A: $\omega^2<\psi^2\lambda_{\mathcal{A}}$.

Consider first the payoffs for citizens from group $\mathcal{A}$. In this case,

$$u^{A,UTE1}-u^{A,ETE}=\left(\sqrt{\min\left\{1,\frac{\omega^2}{\psi^2\lambda_{\mathcal{A}}}\right\}\lambda_A}-\frac{1}{2\omega}\min\left\{1,\frac{\omega^2}{\psi^2\lambda_{\mathcal{A}}}\right\}\lambda_{\mathcal{A}}\psi\right)-\left(\min\left\{1,\frac{\omega}{\psi}\right\}-\frac{1}{2\omega}\min\left\{1,\frac{\omega^2}{\psi^2}\right\}\psi\right)$$
$$=\left(\sqrt{\frac{\omega^2}{\psi^2}}-\frac{1}{2\omega}\frac{\omega^2}{\psi}\right)-\left(\frac{\sqrt{\omega^2}}{\psi}-\frac{1}{2\omega}\frac{\omega^2}{\psi}\right)=0.$$

Group $\mathcal{A}$ citizens are indifferent between UTE1 and ETE.

Now consider the payoffs for citizens from group $\mathcal{B}$. In this case,

$$u^{B,UTE1}-u^{B,ETE}=\left(\omega-\frac{1}{2\omega}\omega^2\right)-\left(\min\left\{1,\frac{\omega}{\psi}\right\}-\frac{1}{2\omega}\min\left\{1,\frac{\omega^2}{\psi^2}\right\}\psi\right)$$
$$=\left(\omega-\frac{1}{2\omega}\omega\right)-\left(\frac{\sqrt{\omega^2}}{\psi}-\frac{1}{2\omega}\frac{\omega^2}{\psi}\right)<0.$$

Group $\mathcal{B}$ citizens are worse off under UTE1 than under the corresponding ETE.

Case UTE1-B: $\psi^2\lambda_{\mathcal{A}}<\omega^2<\psi^2$. Consider first the payoffs for citizens from group $\mathcal{A}$. In this case,

$$u^{A,UTE1}-u^{A,ETE}=\left(\sqrt{\min\left\{1,\frac{\omega^2}{\psi^2\lambda_{\mathcal{A}}}\right\}\lambda_A}-\frac{1}{2\omega}\min\left\{1,\frac{\omega^2}{\psi^2\lambda_{A}}\right\}\lambda_{\mathcal{A}}\psi\right)-\left(\min\left\{1,\frac{\sqrt{\omega^2}}{\psi}\right\}-\frac{1}{2\omega}\min\left\{1,\frac{\omega^2}{\psi^2}\right\}\psi\right)$$
$$=-\left(\sqrt{\lambda_A}-\frac{\sqrt{\omega^2}}{\psi}\right)^2\frac{1}{2}\frac{\psi}{\sqrt{\omega^2}}<0.$$

Group $\mathcal{A}$ citizens are worse off under UTE1 than under the corresponding ETE.

Now consider the payoffs for citizens from group $\mathcal{B}$. In this case,

$$u^{B,UTE1}-u^{B,ETE}=\left(\sqrt{\omega^2}-\frac{1}{2\omega}\omega^2\right)-\left(\min\left\{1,\frac{\sqrt{\omega^2}}{\psi}\right\}-\frac{1}{2\omega}\min\left\{1,\frac{\omega^2}{\psi^2}\right\}\psi\right)$$
$$=\left(\sqrt{\omega^2}-\frac{1}{2\omega}\omega^2\right)-\frac{1}{\psi}\left(\sqrt{\omega^2}-\frac{1}{2\omega}\omega^2\right)<0.$$

Group $\mathcal{B}$ citizens are worse off under UTE1 than under the corresponding ETE.

Case UTE1-C: $\psi < \omega$. Consider first the payoffs for citizens from group $\mathcal{A}$. In this case,

$$\begin{aligned}
u^{A,UTE1} - u^{A,ETE} &= \left(\sqrt{\min\left\{1, \frac{\omega^2}{\psi^2\lambda_A}\right\}\lambda_A} - \frac{1}{2\omega}\min\left\{1, \frac{\omega^2}{\psi^2\lambda_A}\right\}\lambda_A\psi\right) - \left(\min\left\{1, \frac{\sqrt{\omega^2}}{\psi}\right\} - \frac{1}{2\omega}\min\left\{1, \frac{\omega^2}{\psi^2}\right\}\psi\right)\\
&= \left(1-\sqrt{\lambda_A}\right)\left(\frac{1}{2\sqrt{\omega^2}}\psi\left(1+\sqrt{\lambda_A}\right)-1\right)\\
&< \left(1-\sqrt{\lambda_A}\right)\left(\frac{1}{2}\left(1+\sqrt{\lambda_A}\right)-1\right) < 0.
\end{aligned}$$

Group $\mathcal{A}$ citizens are worse off under UTE1 than under the corresponding ETE.

Now consider the payoffs for citizens from group $\mathcal{B}$. In this case,

$$\begin{aligned}
u^{B,UTE1} - u^{B,ETE} &= \left(\sqrt{\omega^2} - \frac{1}{2\omega}\omega^2\right) - \left(\min\left\{1, \frac{\sqrt{\omega^2}}{\psi}\right\} - \frac{1}{2\omega}\min\left\{1, \frac{\omega^2}{\psi^2}\right\}\psi\right)\\
&= \frac{\omega}{2} + \frac{\psi}{2\omega} - 1 < \frac{1}{2} + \frac{1}{2} - 1 = 0.
\end{aligned}$$

Group $\mathcal{B}$ citizens are worse off under UTE1 than under the corresponding ETE.

Case UTE2-A: $\omega < \psi$. Consider first the payoffs for citizens from group $\mathcal{A}$. In this case,

$$\begin{aligned}
u^{A,UTE2} - u^{A,ETE} &= \left(\sqrt{\omega^2} - \frac{1}{2\omega}\psi\omega^2\right) - \left(\min\left\{1, \frac{\sqrt{\omega^2}}{\psi}\right\} - \frac{1}{2\omega}\min\left\{1, \frac{\omega^2}{\psi^2}\right\}\psi\right)\\
&= \omega\left(1 - \frac{1}{2}\left(\psi + \frac{1}{\psi}\right)\right)\\
&< \omega\left(1 - \frac{1}{2}2\right) = 0.
\end{aligned}$$

Group $\mathcal{A}$ citizens are worse off under UTE2 than under the corresponding ETE.

Now consider the payoffs for citizens from group $\mathcal{B}$. It suffices to note that $u^{B,UTE2} < u^{A,UTE2}$, and $u^{B,ETE} = u^{A,ETE}$. Thus, group $\mathcal{B}$ citizens are worse off under UTE2 than under the corresponding ETE.

Case UTE2-B: $\omega > \psi$. Consider first the payoffs for citizens from group $\mathcal{A}$. In this case,

$$\begin{aligned}
u^{A,UTE2} - u^{A,ETE} &= \left(\sqrt{\omega^2} - \frac{1}{2\omega}\psi\omega^2\right) - \left(\min\left\{1, \frac{\sqrt{\omega^2}}{\psi}\right\} - \frac{1}{2\omega}\min\left\{1, \frac{\omega^2}{\psi^2}\right\}\psi\right)\\
&= (1-\omega)\left(\frac{\psi}{2}\left(\frac{1+\omega}{\omega}\right)-1\right)\\
&< (1-\omega)\left(\frac{\omega}{2}\left(\frac{1+\omega}{\omega}\right)-1\right) = (1-\omega)\left(\frac{1+\omega}{2}-1\right) < 0.
\end{aligned}$$

Group $\mathcal{A}$ citizens are worse off under UTE2 than under the corresponding ETE.

Now consider the payoffs for citizens from group $\mathcal{B}$. It suffices to note that $u^{B,UTE2} < u^{A,UTE2}$, and $u^{B,ETE} = u^{A,ETE}$. Thus, group $\mathcal{B}$ citizens are worse off under UTE2 than under the corresponding ETE.

D.1.9 Proof of Theorem 2

As in the model under fully symmetric strategies, the government's optimal choice conditional on avoiding all contagion is $(\tau_{\mathcal{A}}, \tau_{\mathcal{B}}) = (\psi, \psi)$. This also constitutes a (non-strict) ETE under group-$\mathcal{G}$ symmetric strategies since $\nu > \psi$. If instead one of the interrogation rates triggers contagion within group g, it will be optimal for the government to choose $t_g = 1$. Because $\lambda_{\mathcal{B}} > \nu$, the government cannot choose to trigger contagion on group $\mathcal{B}$ as this would lead to a riot. The only candidate UTE must entail unequal treatment on group $\mathcal{A}$ –the minority–.

Consider $t_{\mathcal{A}} = 1$ and $t_{\mathcal{B}} = \min\left\{\frac{\nu-\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}, \psi - (1-\psi)\frac{p_{\mathcal{AB}}p_{\mathcal{BA}}}{p_{\mathcal{BB}}^2}\frac{\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right\} < 1$. Since unequal treatment against group $\mathcal{B}$ is not optimal, it is sufficient to verify that unequal treatment against group $\mathcal{A}$ is preferred by the government to equal treatment when citizens socialize differentially according to that expectation:

$$(t_{\mathcal{B}} - \psi)(p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{BA}}p_{\mathcal{AB}}\lambda_{\mathcal{B}}\lambda_{\mathcal{A}}) + (t_{\mathcal{A}} - \psi)(p_{\mathcal{AA}}^2\lambda_{\mathcal{A}}^2 + p_{\mathcal{BA}}p_{\mathcal{AB}}\lambda_{\mathcal{B}}\lambda_{\mathcal{A}}) > 0$$

Case UTE1-A: $\omega < \sqrt{\lambda_{\mathcal{B}}}$.

In this case, citizens socialization best responses imply

$$(p_{\mathcal{AA}}, p_{\mathcal{AB}}, p_{\mathcal{BA}}, p_{\mathcal{BB}}) \simeq \left(\min\left\{1, \frac{\omega}{\sqrt{\lambda_{\mathcal{A}}}}\right\}, 1, 0, \min\left\{1, \frac{\omega}{t_{\mathcal{B}}\sqrt{\lambda_{\mathcal{B}}}}\right\}\right)$$

with

$$t_{\mathcal{B}} \simeq \min\left\{\frac{\nu - \lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}, \psi\right\} = \psi.$$

Evaluating the inequality above, it is clear that the government prefers unequal treatment against the minority $(1, \psi)$ over equal treatment (ψ, ψ).

Case UTE1-B: $\sqrt{\lambda_{\mathcal{B}}} < \omega < 1$.

In this case, citizens socialization best responses imply

$$(p_{\mathcal{AA}}, p_{\mathcal{AB}}, p_{\mathcal{BA}}, p_{\mathcal{BB}}) \simeq \left(\min\left\{1, \sqrt{\frac{\omega^2 - p_{\mathcal{BA}}\lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}}\right\}, 1, \frac{\omega^2 - \lambda_{\mathcal{B}}}{\lambda_{\mathcal{A}}}, 1\right)$$

with

$$t_{\mathcal{B}} = \min\left\{\frac{\nu - \lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}, \psi - (1-\psi)p_{\mathcal{BA}}\frac{\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}\right\} = \psi - (1-\psi)p_{\mathcal{BA}}\frac{\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}.$$

Then,

$$\begin{aligned}
&(t_{\mathcal{B}} - \psi)(p_{\mathcal{BB}}^2\lambda_{\mathcal{B}}^2 + p_{\mathcal{BA}}p_{\mathcal{AB}}\lambda_{\mathcal{B}}\lambda_{\mathcal{A}}) + (t_{\mathcal{A}} - \psi)(p_{\mathcal{AA}}^2\lambda_{\mathcal{A}}^2 + p_{\mathcal{BA}}p_{\mathcal{AB}}\lambda_{\mathcal{B}}\lambda_{\mathcal{A}}) \\
&= -(1-\psi)p_{\mathcal{BA}}\frac{\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}(\lambda_{\mathcal{B}}^2 + p_{\mathcal{BA}}\lambda_{\mathcal{B}}\lambda_{\mathcal{A}}) + (1-\psi)(p_{\mathcal{AA}}^2\lambda_{\mathcal{A}}^2 + p_{\mathcal{BA}}\lambda_{\mathcal{B}}\lambda_{\mathcal{A}}) \\
&\simeq -p_{\mathcal{BA}}\frac{\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}}(\lambda_{\mathcal{B}}^2 + p_{\mathcal{BA}}\lambda_{\mathcal{B}}\lambda_{\mathcal{A}}) + (p_{\mathcal{AA}}^2\lambda_{\mathcal{A}}^2 + p_{\mathcal{BA}}\lambda_{\mathcal{B}}\lambda_{\mathcal{A}}) \\
&= -p_{\mathcal{BA}}^2\lambda_{\mathcal{A}}^2 + p_{\mathcal{AA}}^2\lambda_{\mathcal{A}}^2 \\
&\propto p_{\mathcal{AA}}^2 - p_{\mathcal{BA}}^2 > 0.
\end{aligned}$$

The government prefers unequal treatment against the minority $(1, \psi - (1-\psi)p_{\mathcal{BA}}\frac{\lambda_{\mathcal{A}}}{\lambda_{\mathcal{B}}})$ over equal treatment (ψ, ψ).