A Political Model of Trust

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Abstract

We analyze a model of political competition, in which the uninformed median voter chooses whether to follow or ignore the advice of the elite that forms endogenously to aggregate information. In equilibrium, information transmission is possible only if voters trust the elite's endorsement of potentially biased candidates. When inequality is high, the elite's informational advantage is minimized by the voters' distrust. When inequality reaches a certain threshold, the trust, and thus the information transmission, breaks down completely. Finally, the elite size and thus the extent of information aggregation depends on the amount of trust they can maintain.

Keywords: trust, inequality, political economy, cheap talk, information club.

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Introduction

The recent wave of populism has been often attributed to the breakdown of trust between elites and voting masses (Algan et al., 2017; Dustmann et al., 2017; Guriev and Papaiannou, 2021). Inglehart and Norris (2016) consider the 2016 Brexit vote as a rejection of the informed elite's advise. In Eichengreen (2018), the breakdown of trust results from a combination of economic insecurity and the inability of political system to address the demand for change. Guiso et al. (2018) show that populist policies that disregard long-term economic harm emerge when voters 'lose faith' in the institutions and elites.[1] What is, structurally, the breakdown of trust? How does trust depend on the level of inequality? Conversely, how does the elite's ability to aggregate information depends on trust?

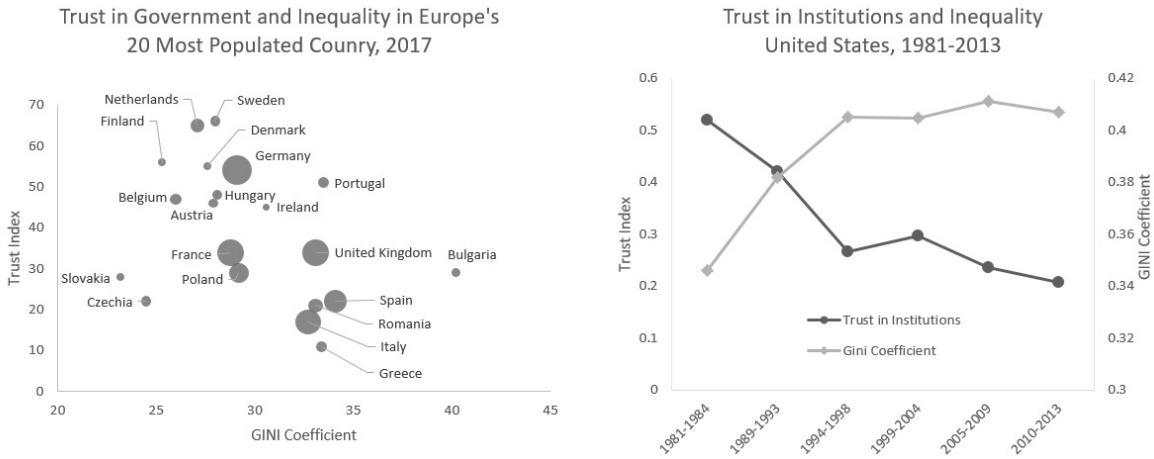
In this paper, we suggest a simple political model that relates information aggregation, inefficiency of progressive redistribution, and trust. The population consists of two groups, the elite minority group, which forms endogenously to share information, and the uninformed majority. The elite endorses one of two politicians running for office: either the pro-elite or an unbiased one. When the uninformed majority makes the choice, it takes into account that the elite is interested not only in the high quality of the candidate, but also in that she is tilted towards elite's interest. Thus, the majority's willingness to follow the advice plays a critical role: if there is no trust, elite's endorsement is ignored, and valuable information is lost.

If inequality is not too high, the majority follows the elite's endorsement. As in Crawford and Sobel (1982), the equilibrium in which information is transmitted is welfare-improving. However, when inequality is relatively high, trust breaks down, and valuable information is not transmitted: the median voter completely ignores the informed elite's advice. In other words, the negative relationship between trust and inequality is driven by the information mechanism: because of the dead-weight losses of taxation, the elite's relative benefit is increasing in the level of inequality, which makes the elite's endorsement less informative when inequality is high.[2]

Our model suggests another channel which relates information aggregation, which we model using Argenziano, Severinov and Squintani (2016) framework, and trust: the endogenous formation of a group that shares information. All agents are *ex ante* identical, yet for those who decided to form "the elite", their individual information is aggregated; thus, the resulting group has an informational advantage over the rest of the population. When the majority is unwilling

[1] In a classic study, Dornbusch and Edwards (1991) emphasized that populist policy "have almost unavoidably resulted in major macroeconomic crises that have ended up hurting the poorer segments of society."

[2] As we describe in detail in Section 2, the inequality in our model captures the cost of converting a unit of resources from elites to commoners.



(a) Cross-country data

(b) United States data

Figure 1: Relationship between Trust and Inequality

to follow the elite's advice, incentives to form a big "information-sharing club" is low; consequently, little information is aggregated, the median voter has little incentives to follow the informed advice, and common welfare suffers.

A non-standard feature of our modeling approach is that our agents are *ex ante* identical. We use the dead-weight losses of progressive redistribution as an exogenous parameter, which is consistent with standard assumptions in political economy (see Acemoglu and Robinson, 2001). Thus, the inequality as measured by agents' wealth is an outcome of the elite formation process. This allows us to unpack the relationship between information aggregation at the elite-formation stage and trust at the voting stage; in either direction, this relationship depends on our parameter for inequality, the cost of progressive redistribution. In particular, the optimal size of the elite decreases in this parameter.

The classic way to define trust is as "the act of inviting someone to be in control of discretionary powers while relying on their goodwill" (Zoega, 2017). Figure 1 illustrates the negative correlation between the level of political trust and inequality in two ways. Panel (1a) uses data from the 20 most populated countries in Europe in 2017; similar picture may be obtained if one uses trust in media instead of the trust in governments, both of which are imperfect but reasonable proxies for trust in elites. The simple OLS regression detects negative relation between inequality as measured by the GINI coefficient and any of these two measures of political trust ($p = 0.03$ for trust in media and $p = 0.08$ for trust in governments).[3] Panel (1b) presents the

[3]Trust data are taken from the Eurobarometer 88 database. The trust index is the percentage of people who "tend to trust"the national government in each country in 2017. GINI coefficient data and population data are taken from the Eurostat database for 2017. See Dustmann et al. (2017) for more illustrations.

evolution of political trust in institutions in the US from 1981 to 2013.[4] In general, the decrease in trust is accompanied by a steady increase in inequality (Piketty and Saez, 2003).

There is a substantial theoretical literature that focuses on the impact of third-party (e.g., media or special interest group) endorsements following the classic paper by Grossman and Helpman (1999). In our paper, there is no third party: the pivotal voter knows that the elite's endorsement is biased, yet tries to take advantage of the information that is transmitted by the endorsement. Myerson (2008) models trust as an equilibrium phenomenon, but the context is very different: trust is what keeps the autocrat's lieutenants abiding his command.

Chakraborty and Ghosh (2016) consider a model of Downsian competition between two office-seeking parties, in which voters that care about both the policy platform and "character" of candidates make a decision based on a media endorsement.[5] The media has its own policy agenda and, though voters know that the media's endorsement is based solely on information about the candidate's character, candidates in equilibrium pander to the media's policy preferences. (Chakraborty and Yılmaz, 2017 analyze a model of two-sided expertise that can be used to evaluate endorsements and elections with multiple informed parties with different interests; Chakraborty, Ghosh and Roy (2020) offer a model of elite endorsement and policy advocacy in a spatial model.) In our model, the breakdown of trust is a result non-existence of influential endorsements when the interests are too divergent.

In Martinelli (2006), voters decide whether or not to acquire information before making a choice. In Prato and Wolton (2016), successful communication between candidates and voters during the pre-election campaign requires both an effort from the candidates and attention from voters. (See Prato and Wolton, 2018, on populism as political opportunism by incompetent politicians.) In Kartik and van Weelden (2019), uncertainty generates reputationally-motivated policy distortions in office no matter what the policymaker's true preference, so voters might prefer a "known devil to the unknown angel." In our setting, a similar outcome occurs via a different mechanism when the pivotal voter ignores the recommendation of the elite and go with the unbiased politician, in which case valuable information is lost.[6]

[4] Trust data are taken from the World Values Survey, which is conducted every five years and asks respondents the following questions: "I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them?" There are four possible answers: (a) A great deal, (b) Quite a lot, (c) Not very much, and (d) None at all. We plot the average fraction of respondents who answered either (a) or (b) when asked about parliament, the government and political parties.

[5] As defined in Chakraborty and Ghosh (2016), "character" is similar to "valence" (Groseclose, 2001; Aragones and Palfrey, 2002; Banks and Duggan, 2005). Kartik and McAfee (2007) were the first to introduce voters' uncertainty about valence. Bernhardt, Câmara and Squintani (2011) consider a dynamic citizen-candidates model with candidates that have both ideology and valence characteristics.

[6] For other models of cheap talk in elections, see Harrington (1992), Panova (2017), Schnakenberg (2016), and Kartik, Squintani and Tinn (2015).

Finally, our paper is related to the literature on club formation (Tiebout, 1956; Roberts, 2015; Acemoglu, Egorov and Sonin, 2012). As Ray (2011) observes, the literature on endogenous formation of clubs that aggregate information is scarce. In our model, elites form endogenously, with the optimal size satisfying the natural club formation requirements: current members want neither to accept new members nor to expel any of the current ones. The novel feature is that the benefit of having more members is access to more precise information.

The rest of the paper is organized as follows. In Section 2, we introduce our model. In Section 3, we assume that the size of the elite is fixed, while in Section 4 we endogenize it. Section 5 concludes.

2 Setup

Consider a democratic society that consists of a large finite number of citizens, N. The citizens engage in two sequential interactions: First, they form two social groups, Elites and Commons. Second, they participate in a political game in which their interests depend on the group to which they belong. As a part of the political game, information about the competence of politicians can be communicated from Elites to Commons. Whether this information affects the voting decisions of Commons defines the level of *trust* in the society.

Elite formation. We assume that the Elites' group size, k, is determined so as to maximize the utility of its members; in equilibrium, Elite members do not want to change the group size by accepting or removing members. All citizens who are not part of Elites form the group of Commons. We denote the share of Elites in the citizenry by $\lambda = \frac{k}{N}$, and focus on the case that $\lambda < \frac{1}{2}$.

The political game. The citizens have to elect a politician to office. Once elected, the politician decides how to divide available resources between the two groups. Being a majority, Commons can unilaterally decide the identity of the elected politician. However, Elites have an advantage over Commons: as information possessed by Elite members aggregates, they are better informed about the competence of the candidates. Since all citizens within Elites get the same level of resources, and all citizens within the Commons get the same level of resources, there is no collective action problem within groups.

Politicians. The two politicians who run for office differ across two dimensions: their preferences over how to distribute resources and their ability to create resources for the economy. We assume that one of the politicians, U, is unbiased and ascribes equal importance to the marginal per capita consumption she allocates to each of the two groups. The other politician, B, is biased towards the Elites. Her level of bias is determined by parameter $\alpha \in \mathbb{R}^+$ that is known to both Elites and Commons. The value of α proxies the strength of ties the biased politician shares with Elites relative to Commons, where larger values capture higher leniency towards Elites.

We denote by $a^j \in \{0, \alpha\}$ the level of bias of politician $j \in \{U, B\}$ and by $x^E \geq 0$ and $x^C \geq 0$ the per capita consumption of Elites and Commons, respectively. Thus, the objective function of politician $j \in \{B, U\}$ is given by:

$$v\left(x^C, x^E\right) = \left(x^C + a^j\right)^{1-\lambda} \left(x^E\right)^{\lambda}. \tag{1}$$

The functional form of (1) reflects a compromise between politician's egalitarian and utilitarian motives. The objective function of the unbiased politician is sometimes referred to as the Nash collective utility function (see, e.g., Moulin, 2004, and Kaneko and Nakamura, 1979, for a discussion of some desirable properties of this function). The objective function of the biased politician is different in that the importance of a marginal unit of Commons' per capita consumption is discounted, and this discount is stronger as α increases.

A politician's competence to create resources depends on a state of the world θ that is uniformly distributed over $[0, 1]$ and is unknown at the outset. We denote the competence of politician $j \in \{B, U\}$ by θ^j and assume that

$$\theta^B = 1 + \theta,$$
$$\theta^U = 2 - \theta.$$

Thus, the *ex ante* expected qualities of the two politicians are identical: $\mathbb{E}[\theta^B] = \mathbb{E}[\theta^U] = \frac{3}{2}$. Furthermore, the biased politician is more competent than the unbiased one if and only if $\theta > \frac{1}{2}$, which happens with a probability one-half.

The politician in office distributes the available resources θ^j among the two groups such that

$$\lambda x^E + (1 - \lambda)\, x^C \cdot \psi = \theta^j, \tag{2}$$

where the parameter $\psi \geq 1$ captures the cost of redistribution, that is the cost of converting a unit of Elites' consumption x^E into a unit of Commons' consumption x^C. [7] To simplify our analysis, we assume further that $\alpha \cdot \psi < \frac{1}{2}$.[8]

Information structure. At the outset, before the state of the world is realized, the group of Elites is formed in a way that maximizes the expected payoff of its members (as described above). Then, the state θ is drawn from a uniform distribution over $[0, 1]$. The state is not observed by the citizens.

After the state is realized, each member of Elites conducts a (conditionally) independent experiment that results in a success or a failure, with probability of success equal to the true θ. Thus, a successful experiment serves as a signal that θ is high, implying that the biased candidate is the more competent one.

Elite members share the outcomes of their experiments. Thus, all the members of Elites observe the outcomes of all the experiments. (We adopt this part of our information structure from Argenziano, Severinov and Squintani, 2016.) This assumption captures the general intuition that assessing the quality of politicians is a complicated task that requires time investment, expertise, and interaction with those who possess some private information; in our model, these interactions take the form of sharing information among club members.

In our basic setup we assume that commoners cannot conduct experiments. This assumption simplifies the analysis. However, in Section 4 we show that this assumption is not crucial in the following sense: even if commoners could conduct own experiments, but not share their outcomes, they would choose not to do so when the size of Elites is determined endogenously.[9] Indeed, our analysis shows that when the size of Elites is optimal, the information conveyed from Elites to Commons suffices to make each commoner disregard the outcome of her own experiment, which defeats the purpose of conducting own experiment to begin with.[10] Thus, we view our restriction on information collection of Commons as a rather mild assumption.

[7] Acemoglu and Robinson (2001, 2006) simply assume that redistributive taxation results in welfare losses; that is, they make an assumption equivalent to ours. The microfoundation for this effect is the classic "no distortion at the top" result in contract theory (see, for example, Bolton and Dewatripont, 2005).

[8] This assumption guarantees, for example, that the threshold defined in Lemma 1 is interior.

[9] More precisely, each commoner would be indifferent between conducting or not an experiment, since in any case the gathered information would not affect his actions. For any positive cost of experimentation, commoners would strictly prefer not to acquire information.

[10] This result hinges, of course, on the assumption that commoners cannot share their information, at least not as effectively as Elites do. This could be, for example, because commoners are more geographically dispersed, their interests are not perfectly aligned, the group is more heterogeneous or the social connections between the group members are weaker.

Endorsements and voting. While Commons constitute the majority of the population and can effectively decide who is elected, Elites are better informed. It is therefore in the interest of both groups that information held by Elites is shared with Commons to ensure that the more competent politician is elected.

We assume that Elites cannot credibly share their information with Commons (in other words, they cannot reveal the number of successful experiments) and that they cannot commit *ex ante* to a strategy of information disclosure. Thus, information transmission between the two groups takes the form of cheap talk. Having observed the number of successful experiments, Elites can send costless and unverifiable messages to Commons, who update their beliefs about θ and elect their desired politician.

We denote by M the set of possible messages that Elites can send, and assume without loss of generality that $M = \{m_B, m_U\}$.[11] We interpret the message m_B as an *endorsement for the biased politician* and the message m_U as an *endorsement for the unbiased politician.* The strategy of Elites in the endorsement stage is denoted $\sigma_E : L \to M$, where $\sigma_E(l)$ is the endorsement when Elites observe $l \in L \equiv \{0, \ldots, \lambda N\}$ successful experiments.

Each commoner hears the endorsement, updates his posterior belief regarding the state of the world θ and the politicians' competence, and votes for a politician. A strategy for a commoner, denoted $\sigma_C : M \to \Delta\{B, U\}$, is a mapping between messages and distributions over votes (that is, for each message $m \in M$, the outcome $\sigma_C(m)$ is a lottery over the politician for which Commons vote). Since Commons constitute the majority, the politician for whom they vote is elected into office.

Our solution concept is the Perfect Bayesian Equilibrium, and we assume that each citizen votes as if her vote is decisive, which is a weakly undominated strategy, at the voting stage.

Timing. For the analysis that follows, it is useful to divide the timeline into two stages – the *formation stage* and the *political subgame* – as follows:

Formation stage:

1. The Elites' group of size k (which corresponds to the share $\lambda = k/N$) is formed; the size is optimal for members of Elites.

Political subgame:

[11] Formally, for any equilibrium in the game, there exists another equilibrium in which Elites send at most two messages with positive probabilities such that the distribution over outcomes in both equilibria is the same for almost all states $\theta \in \Theta$.

2. Nature determines the state of the world $\theta \in \Theta$
3. Members of Elites conduct experiments and share results of these experiments with each other.
4. Elites endorse a politician: either $B = (\theta^B, \alpha)$ or $U = (\theta^U, 0)$.
5. Commons choose the candidate basing on Elites' endorsement.
6. The elected politician steps into office and distributes resources.

3 The Determinants of Trust

We divide our analysis into two parts. We start by characterizing the equilibrium in the political subgame for an exogenous size of Elites' share $\lambda = k/N$. Then, in Section 4, we determine the optimal choice of λ, taking into account how this choice affects behavior and payoffs in the political subgame.

We solve the political subgame backwards. First, we derive the actions of the elected politician. Then, we find a pair of endorsement and voting strategies (σ_E,σ_C) for Elites and Commons, respectively, that constitute an equilibrium in the subgame. We show that when Elites are informed, they use a cutoff strategy for endorsement, and we describe the conditions under which Commons are willing to accept the endorsement.

Politician's Actions. The actions of the politician in office depend on her type $\left(\theta^j, a^j\right)$ and maximize (1) subject to (2). Specifically, a politician with type (θ^j, a^j) chooses (x^E, x^C) such that

$$x^E\left(\theta^j, a^j\right) = \theta^j + (1-\lambda)\cdot a^j\psi, \tag{3}$$

$$x^C\left(\theta^j, a^j\right) = \frac{\theta^j}{\psi} - \lambda \cdot a^j. \tag{4}$$

Thus, when redistribution is costless ($\psi = 1$), the unbiased politician distributes resources equally among all members of the society, while the biased politician allocates a higher share to Elites. When redistribution is costly ($\psi > 1$), then even the unbiased politician allocates a higher share of resources to Elites.

When the unbiased politician assumes office, the size of Elites λ does not affect allocations. In contrast, if the biased politician is elected, a larger size of Elites decreases the per capita consumption of both Elites and Commons.

Commons Trust and Elites Endorsement. Given a pair of strategies (σ_E, σ_C), denote by $\sigma_C(m_i)[B]$ the probability that a commoner votes for the biased politician when Elites send message $m_i \in \{m_B, m_U\}$. Since messages are cheap talk, there is no loss of generality in assuming that message m_B leads to a higher probability for electing B than message m_U does; that is, $\sigma_C(m_B)[B] \geq \sigma_C(m_U)[B]$.[12] An equilibrium in the political sub-game (σ_C, σ_E) is said to be *responsive* if Elites' endorsements m_B and m_U induce different distributions over commoners' actions. Otherwise, we call the equilibrium *unresponsive*.

Denote the number of successful experiments among k Elites members by l. Given θ, the number of successes l is distributed according to the binomial distribution:

$$f(l|k,\theta) = \frac{k!}{l!\,(k-l)!}\theta^l (1-\theta)^{k-l}, \quad \text{for } 0 \leq l \leq k.$$

The posterior distribution of θ given l successes in k trials is a Beta distribution with parameters $l+1$ and $k-l+1$. Its density is given by:

$$\phi(\theta|l,k) = \frac{(k+1)!}{l!\,(k-l)!}\theta^l (1-\theta)^{k-l}, \text{ if } 0 \leq \theta \leq 1. \tag{5}$$

The posterior expectation of θ is

$$\mathbb{E}[\theta|l,k] = \frac{l+1}{k+2}. \tag{6}$$

Using posteriors of θ conditional on the results of experiments, we can characterize the strategy of Elites in a responsive equilibrium if such an equilibrium exists. Later, we discuss the necessary and sufficient conditions for its existence.

Lemma 1 *Suppose that (σ_C, σ_E) is a responsive equilibrium. Then, Elites' strategy σ_E attains the following threshold structure:*

$$\sigma_E(l) = \begin{cases} m_B & \text{if } l \geq \hat{l}, \\ m_U & \text{if } l < \hat{l}, \end{cases}$$

where $\hat{l} \equiv \frac{k}{2} - \left(\frac{k}{2}+1\right)\alpha\psi(1-\lambda)$.

Proof. Suppose that (σ_C, σ_E) is a responsive equilibrium. Elites endorse the biased politician

[12] For any equilibrium in which $\sigma_C(m_B)[B] < \sigma_C(m_U)[B]$, one can simply "re-label" the messages to obtain an equilibrium that satisfies $\sigma_C(m_B)[B] \geq \sigma_C(m_U)[B]$ in which, for each state $\theta \in \Theta$, the distribution over outcomes is identical to that of the original equilibrium.

if

$$\begin{aligned}&\sigma_c\left(m_B\right)[B]\cdot x_E\left(\mathbb{E}\left[\theta^B|l\right],\alpha\right)+\left(1-\sigma_c\left(m_B\right)[B]\right)\cdot x_E\left(\mathbb{E}\left[\theta^U|l\right],0\right)\\ \geq&\sigma_c\left(m_U\right)[B]\cdot x_E\left(\mathbb{E}\left[\theta^B|l\right],\alpha\right)+\left(1-\sigma_c\left(m_U\right)[B]\right)\cdot x_E\left(\mathbb{E}\left[\theta^U|l\right],0\right).\end{aligned}$$

Plugging in the expressions for $x_E\left(\theta^B,\alpha\right)$ and $x_E\left(\theta^U,0\right)$ from (3) and substituting $\theta^B=1+\theta$ and $\theta^U=2-\theta$ we obtain

$$\left(\sigma_c\left(m_B\right)[B]-\sigma_c\left(m_U\right)[B]\right)\cdot\left(2\mathbb{E}\left(\theta|l,k\right)-1+\left(1-\lambda\right)\cdot\alpha\psi\right)\geq 0$$

In a responsive equilibrium, $\sigma_c\left(m_B\right)[B]>\sigma_c\left(m_U\right)[B]$, and, thus, the above inequality is satisfied for all $\mathbb{E}\left(\theta|l,k\right)\geq\frac{1}{2}-\frac{(1-\lambda)\cdot\alpha\psi}{2}$, which is satisfied whenever

$$l>\hat{l}=\frac{k}{2}-\left(\frac{k}{2}+1\right)\alpha\psi\left(1-\lambda\right).$$

■

A responsive equilibrium need not necessarily exist.[13] In the remainder of this section we look for necessary and sufficient conditions for its existence and study its properties.

First, note that the threshold $\hat{l}$ decreases with a greater redistribution cost ψ or a larger politician bias α. That is, Elites need a smaller number of successes to endorse m_B. Intuitively, this is because *ceteris paribus*, the benefit for Elites of electing the biased politician is increasing in these quantities. On the other hand, an increase in λ leads to a higher $\hat{l}$: a greater share of Elites decreases the per capita consumption of each member, thus weakening Elites' incentive to endorse the biased politician.

In a responsive equilibrium, Elites' endorsements convey information regarding the competence of politicians. The expected value of θ, conditional on endorsements, is as follows.

$$\begin{aligned}\mathbb{E}\left(\theta|m_B\right)&=\sum_{l=\hat{l}}^{k}\Pr\left(l|\hat{l}\leq l\leq k\right)\cdot\mathbb{E}\left(\theta|l,k\right)=\frac{3-\alpha\psi\left(1-\lambda\right)}{4}-\frac{1}{2\left(k+2\right)}\\ \mathbb{E}\left(\theta|m_U\right)&=\sum_{l=0}^{\hat{l}-1}\Pr\left(l|0\leq l\leq\hat{l}-1\right)\cdot\mathbb{E}\left(\theta|l,k\right)=\frac{1-\alpha\psi\left(1-\lambda\right)}{4}.\end{aligned}$$

When the cost of redistribution ψ goes up, m_B gives a *weaker* indication of the competence

[13] As it is standard in signaling games, an unresponsive equilibrium always exists. For example, Elites always endorsing the biased politician, and commoners always voting for the unbiased one is one such equilibrium.

of B while m_U gives a *stronger* indication of the competence of U. We show later that as N grows, the optimal number of Elite members, k^*, increases, whereas $\lambda^* = k^*/N$ converges to zero. Thus, as N goes to infinity, $\mathbb{E}(\theta|m_b)$ converges to $\frac{3-\alpha\psi}{4}$ and the qualities of the biased and unbiased politicians, upon being endorsed by Elites, converge to $\frac{7-\alpha\psi}{4}$ and $\frac{7+\alpha\psi}{4}$, respectively.

The probability of each endorsement in equilibrium is as follows:

$$\Pr(m_B) = \sum_{l=\hat{l}}^{k} \Pr(l|k) = \frac{(\alpha\psi(1-\lambda)+1)(k+2)}{2(k+1)},$$
$$\Pr(m_U) = \sum_{l=0}^{\hat{l}-1} \Pr(l|k) = \frac{k-(k+2)\alpha\psi(1-\lambda)}{2(k+1)}.$$

As ψ increases, the probability of the less informative endorsement, m_B, being sent in equilibrium increases whereas the probability of the more informative endorsement, m_U, being sent decreases. The overall effect of ψ on the ex-ante competence of the endorsed politician is negative:

$$\begin{aligned}\mathbb{E}\left[\theta^j|j \text{ endorsed}\right] &= \Pr(m_B)\cdot\mathbb{E}\left[\theta^B|m_B\right] + \Pr(m_U)\cdot\mathbb{E}\left[\theta^U|m_U\right] \\ &= \frac{7-\alpha^2\psi^2(1-\lambda)^2}{4} - \frac{(\alpha\psi(1-\lambda)+1)^2}{4(k+1)} \end{aligned} \tag{7}$$

Commoners follow the endorsement for the biased politician (m_B) if and only if

$$\mathbb{E}[x^C(\theta^B,\alpha)|m_B,k] \geq \mathbb{E}[x^C(\theta^U,0)|m_B,k]$$

which determines the highest value of ψ for which the commoners are willing to follow the endorsement of the biased politician:

$$\psi \leq \overline{\psi}(\lambda,\alpha) = \frac{\lambda N}{\alpha(\lambda+1)(\lambda N+2)} \tag{8}$$

If Elites endorse the unbiased politician, m_U, Commons always accept this endorsement and elect the unbiased politician. This is because $\mathbb{E}\left[\theta^U|m^U\right] \geq \mathbb{E}\left[\theta^B|m^U\right]$, and, therefore, upon hearing m_U Commons deduce that the quality of the unbiased politician is higher. Since, in addition, the unbiased politician distributes resources more equally, Commons always accept an endorsement for the unbiased politician.

When the redistribution cost ψ exceeds the threshold $\bar{\psi}(\lambda,\alpha)$, a responsive equilibrium does not exist: in any equilibrium, Commons *have no political trust* in Elites and disregard their advice.

In contrast, when the redistribution cost is lower than $\bar{\psi}(\lambda, \alpha)$, a responsive equilibrium exists. In this equilibrium, Commons follow Elites' endorsement despite the fact that sometimes Elites recommend a biased politician of lower quality than the unbiased one. Since the endorsed politician is elected, equation (7) yields that the expected competence of the elected politician is decreasing in ψ. Thus, greater redistribution cost erodes the quality of information that is transmitted in equilibrium, leading to the election of politicians who create less resources. The following proposition summarizes the above discussion.

Proposition 1 *For any size of Elites λ and any bias of the Elites' candidate α, there exists a redistribution cost threshold $\bar{\psi}(\lambda, \alpha)$ such that if $\psi > \bar{\psi}(\lambda, \alpha)$, then Commons disregard Elites' endorsements and always elect the unbiased politician. If $\psi \leq \bar{\psi}(\lambda, \alpha)$, there exists a responsive equilibrium: Elites recommend the biased politician if and only if they observe more than $\hat{l}$ successful experiments. Commons always accept Elites' endorsements.*

Proposition 1 demonstrates the crucial role that the redistribution cost (and therefore the level of inequality) plays in determining the extent of equilibrium information transmission. When the redistribution cost is low, Commons tolerate the informational distortions that accompany Elites' endorsements and accept the recommendations. When the redistribution cost is high, trust breaks down and Commons disregard endorsements despite their informational content. The positive correlation between redistribution cost and inequality, together with the negative correlation between the equilibrium level of trust and the redistribution cost, are consistent with the evidence described in the Introduction.

Proposition 1 also allows us to analyze how the politician's bias α and the size of the Elites club λ affect the level of trust that transpires in the political game. For the parameter α, the effect is straightforward: when the biased politician is more 'Elites-oriented' – that is, when α is larger the threshold $\bar{\psi}(\lambda, \alpha)$ decreases, making Commons less receptive to endorsements. Intuitively, this is because a greater α decreases Commons' per capita consumption when they accept an endorsement to elect the biased politician.

The impact of the Elites share λ is more subtle. A larger λ implies lower per capita consumption for both Commons and Elites when the biased politician is elected. While the former erodes trust, the latter enhances it. Holding the population size N fixed, a larger λ also increases the number of experiments conducted by Elites, hence making their endorsement more informative and Commons more willing to accept it.

Proposition 2 *The trust threshold $\bar{\psi}(\lambda, \alpha)$ defined in (8) is decreasing in α. It is increasing in the elite's share, λ, when $\lambda < \sqrt{2/N}$, and decreasing otherwise.*

We conclude this section by briefly discussing how Elites could affect their payoff in the political subgame *if*, prior to observing the state, they could choose the bias level of "their" politician, α. First, for Elites, an equilibrium with trust is always better than an equilibrium without trust. Now, conditional on the equilibrium being responsive, Elites' expected payoff is increasing in α. Therefore, Elites have an incentive to increase the bias level so long as it does not break trust.

Put differently, if Elites have access to a pool of candidates with different levels of α, they choose to promote the political career of the candidate with the highest bias among those whose level of bias satisfies

$$\alpha \leq \bar{\alpha} \equiv \frac{\lambda N}{\psi(\lambda+1)(\lambda N+2)}$$

where $\bar{\alpha}$ is the level of bias which makes equation (8) bind in equality. Thus, when Elites can choose the bias level of their candidate they always preempt the breakdown of trust. Notice that as N tends to infinity, $\bar{\alpha}$ converges to $\frac{1}{\psi(1+\lambda)}$. Of course, this is only possible when the chosen candidate's bias is public knowledge. (In Kartik and van Weelden, 2019, politicians strategically use cheap talk to signal their bias; in Acemoglu, Egorov and Sonin, 2013, they have to adopt populist policies to signal their unbiasedness.)

4 The Optimal Size of Elites

How does trust affect the process of elite formation and information aggregation? In this section, we analyze the optimal size of Elites. In a responsive equilibrium, the Elites' expected utility is given by

$$\begin{aligned} u_T^E(\lambda) \equiv \mathbb{E}\left[x^E \mid \psi < \bar{\psi}\right] &= \Pr(m_B) \cdot x^E\left(\mathbb{E}\left[\theta^B | m_B\right], \alpha\right) + \Pr(m_U) \cdot x^E\left(\mathbb{E}\left[\theta^U | m_U\right], 0\right) \\ &= \frac{3}{2} + \frac{\alpha^2\psi^2(1-\lambda)^2 + 2\alpha\psi(1-\lambda)}{4} + \frac{\alpha^2\psi^2(1-\lambda)^2 + \lambda N}{4(\lambda N+1)}. \end{aligned} \tag{9}$$

Suppose, for the time being, that λ can take any value in $\left[0, \frac{1}{2}\right]$. Our next lemma characterizes $\hat{\lambda}$ that maximizes $u_T^E(\lambda)$.

Lemma 2 *For a sufficiently large N, the expected payoff of Elites $u_T^E(\lambda)$ given by (9) is single-peaked in λ and has a unique maximum $\lambda^* = \lambda^*(N) \in \left(0, \frac{1}{2}\right)$. Furthermore, $\lambda^*(N)$ is asymptot-*

ically bounded below by $\underline{\gamma}N^{-\frac{1}{2}}$ *and above by* $\overline{\gamma}N^{-\frac{1}{2}}$ *for some positive constants* $\underline{\gamma} < \overline{\gamma}$.

Proof. By direct calculation, the derivative of $u_T^E(\lambda)$ is cubic in λ. For a sufficiently large N, $u_T^{E\prime}(\lambda)$ is positive at 0, negative at $\frac{1}{2}$, negative when λ tends to $-\infty$, and positive when λ tends to ∞. Taken together, this guarantees single-peakedness and a unique root for $u_T^E(\lambda)$ in $\left(0, \frac{1}{2}\right)$. Evaluating $u_T^{E\prime}(\lambda)$ at $\lambda N^{-\frac{1}{2}}$, we get an expression whose sign is determined by the term $1 - \alpha\psi\left(1 + 2\lambda^2\right)$. Thus, for a small $\varepsilon > 0$ and a sufficiently large N, $\left(\sqrt{\frac{1}{2\alpha\psi} - \frac{1}{2}} - \varepsilon\right) N^{-\frac{1}{2}} < \lambda^*(N) < \left(\sqrt{\frac{1}{2\alpha\psi} - \frac{1}{2}} + \varepsilon\right) N^{-\frac{1}{2}}$. ■

Since all agents are symmetric *ex ante*, Lemma 2 guarantees, generically, the existence of an equilibrium size $\lambda^* \in \left\{0, \frac{1}{N}, \frac{2}{N}, \ldots, \frac{1}{2}\right\}$ of Elites. Since $u_T^E(\lambda)$ is single-peaked over a domain when λ is continuous, it has at most two maxima when λ is discrete; in a generic case, it has a unique maximum. Now, suppose that λ^* is this maximum, and the club of $k^* = N\lambda^*$ members has been formed. Clearly, this club satisfies our equilibrium criteria regardless of the decision-making rule within the club. Every member would prefer neither to accept any more members nor to expel anyone.

Of course, Lemma 2 does not guarantee uniqueness of a stable club. One reason for non-uniqueness is familiar for students of club formation: the instability of a subcoalition makes a large coalition stable (e.g., Acemoglu, Egorov and Sonin, 2012). In our case, suppose that decisions about club membership are accomplished by majority voting, $k^* < \frac{N}{4}$, and suppose that a club of size $2k^*$ is formed. First, observe that this club will not admit any more members as the utility function of each member is single-peaked. Therefore, increasing membership brings down the utility for each member. Second, there will be at least k^* members who would not agree to the removal of a single Elites member. Indeed, if at least one member from the $2k^*$-sized Elites is removed, there is a coalition of k^* members who have the majority to remove the remaining $k^* - 1$ members. Thus, there is a blocking coalition of k^* members that make the $2k^*$-sized Elites stable.[14]

An Elites group that consists of k^* members is a natural outcome of the elite-formation process: this is the club that forms if formation starts, naturally, from the club consisting of one member. The following Proposition 3 states the existence result formally.

Proposition 3 *For a sufficiently large* N*, Elites is a stable club of size* k^* *at the elite formation stage. Moreover, this club size satisfies the condition for the existence of a trust equilibrium given*

[14] This argument is admittedly heuristic, as we have not specified any game that leads to Elites formation. Still, given the equilibrium of the continuation game, the payoffs that citizens have *ex ante* satisfy the conditions for a non-cooperative club formation game in Acemoglu, Egorov, and Sonin (2012). Thus, our argument can be made formal at the cost of introducing additional game-theoretic machinery.

by Equation (8).

Proof. The first part of the proposition follows from Lemma 2. To prove that a responsive equilibrium exists when the Elites's share is λ^*, rewrite condition (8) as follows:

$$\frac{-N\alpha\lambda^2\psi + N\lambda - 2\alpha\lambda\psi - N\alpha\lambda\psi - 2\alpha\psi}{\alpha(\lambda+1)(N\lambda+2)} \geq 0.$$

The numerator is a quadratic function with two real roots, $\underline{\lambda}$ and $\overline{\lambda}$. A responsive equilibrium exists whenever $\lambda^* \in \left[\underline{\lambda}, \overline{\lambda}\right]$. This follows from the asymptotic boundedness of λ^* established in Lemma 2. ■

Proposition (3) implies that as N tends to infinity, the number of members in Elites grows asymptotically as $\sqrt{N}$. Thus, as the size of the population grows, the optimal number of members in the Elites club grows unboundedly (k increases), but their proportion in the population goes to zero (i.e. $\lambda \to 0$).

Once we have established that an optimal equilibrium size of Elites exists, a natural question is: what is the effect of the redistribution cost on the optimal size? Proposition 4 provides comparative statics results. Once again, the result follows from the analysis of the derivative of $u_T^E(\lambda)$, which is cubic in λ and single-peaked on $\left[0, \frac{1}{2}\right]$.

Proposition 4 *The optimal size of the Elites club k^* is decreasing in the bias α of the pro-elite candidate and in the cost of progressive redistribution ψ.*

The comparative statics results of Proposition 4 is intuitive. The critical element is the breakdown of trust: with higher bias, the range of parameters for which Commons follow the Elites' endorsement narrows. Increasing α decreases the value of information as well. Similarly, a higher cost of progressive redistribution ψ results in a lower level of trust, which in turn decreases the value of information that a potential member of Elites contributes. As a result, the optimal size of Elites and the quality of information that Elites aggregate are lower.

Optimal Elites Size and Commoners Experimentation. In the analysis above, we assumed that commoners cannot conduct experiments. We will now show that when the size of Elites is determined optimally, commoners *do not want* to conduct experiments even if they can. This is because whenever the result of a commoner's experiment disagrees with Elites endorsement, it is the commoner's best interest to disregard her own signal. This result hinges, of course, on the assumption that commoners cannot share the results of their experiments with each other.

Proposition 5 *When Elites' share is optimal, λ^*, commoners have no incentive to conduct experiments.*

Proof. Suppose first that a commoner conducts one experiment that fails. By Equation (5), the density function of his posterior belief about θ is given by $\hat{f}(\theta|\text{one failure observed}) = 2(1-\theta)$. From this commoner perspective, the probability to observe l successes when k more experiments are conducted is given by:

$$\begin{aligned}\Pr(l \mid k,\text{one failure observed}) &= \int_0^1 2(1-\theta)\frac{k!}{l!(k-l)!}\theta^l(1-\theta)^{k-l}\,d\theta \\ &= \frac{2(k+1-l)}{(k+1)(k+2)}.\end{aligned}$$

By Lemma 1, Elites endorse the biased politician if they observe at least $\hat{l}$ successes. From the commoner's perspective, the probability that exactly l successes are observed by Elites, conditional on the fact that they observe at least $\hat{l}$ successful experiments, and that he observed one failed experiment, is then given by

$$\frac{\Pr(l \mid k,\text{one failure observed})}{\sum_{j=\hat{l}}^{k}\Pr(j \mid k,\text{one failure observed})} = \frac{\frac{2(k+1-l)}{(k+1)(k+2)}}{\sum_{j=\hat{l}}^{k}\frac{2(k+1-j)}{(k+1)(k+2)}} = \frac{2k+2-2l}{\left(k-\hat{l}+1\right)\left(k-\hat{l}+2\right)}.$$

Denote the conditional expectation of θ as a function of k by $H_F(k)$. We then have that:

$$H_F(k) = \sum_{l=\hat{l}}^{k}\frac{2k+2-2l}{\left(k-\hat{l}+1\right)\left(k-\hat{l}+2\right)}\cdot\mathbb{E}[\theta|l,k+1] = \frac{k+2\hat{l}+3}{3(k+3)}. \tag{10}$$

The commoner votes for the biased politician whenever $2H_F(k)-1-\alpha\lambda\psi \geq 0$. Using (10), and the expression for $\hat{l}$, as defined in Lemma 1, and the fact that $k = N\lambda$ we rewrite the above inequality as follows:

$$\frac{1}{3(N\lambda+3)}\left(-N\alpha\lambda^2\psi + \left(-5\alpha\psi + \left(\frac{1}{2}-\alpha\psi\right)2N\right)\lambda - (4\alpha\psi+3)\right) \geq 0.$$

Lemma 2 implies that for sufficiently large N, the sign of the left-hand side of the above inequality is determined by the sign of $\left(\frac{1}{2}-\alpha\psi\right)$. As $\frac{1}{2} > \alpha\psi$, the commoner votes for the biased politician even though his experiment failed. A similar argument establishes the result in the case of a commoner conducting a successful experiment while Elites endorse the unbiased politician. ■

Proposition 5 establishes that when Elites' club size is λ^*, then even if a commoner were to

conduct an experiment on her own, she would choose to disregard its outcome and follow Elites' endorsement. Intuitively, the fact that Elites share the outcomes of their experiments makes the informativeness of their endorsement sufficiently strong so as to dominate the informativeness of the experiment of any single commoner. Finally, notice that club size λ^* is optimal for Elites even if commoners can experiment. This is because, for sufficiently large N, Elites are always worse off when commoners acquire information and decide the outcome of the elections rather than follow the Elites' recommendation.[15] Thus, when N is sufficiently large, a club of size λ^* (which is optimal when commoners cannot, or do not want to, acquire information) is better for Elites compared to any smaller club size that potentially induces commoners to conduct experiments.

5 Conclusion

Recently, there has been a noticeable decline in trust, both as measured by opinion polls and by surges of support for anti-elite, populist politicians and parties. We provide a political model in which the endogenously formed elite has an information advantage over the rest of society, and the median voter chooses the president using the elite's endorsement. When inequality is relatively low, implying a low redistribution cost, the interests of the elite and median voter in electing a competent leader are aligned, the formed elite is relatively large, and valuable information is aggregated and successfully transmitted in equilibrium. In contrast, when inequality is relatively high so that the implied redistribution cost is high, there is a complete breakdown of trust, which results in no information transmission and efficiency losses.

[15] To see this, notice that by Equation (9), when N is sufficiently large and the club size is λ^*, the expected utility of an Elite member converges to $7/4+(\alpha\psi)/2+(\alpha^2\psi^2)/4$. When commoners vote based on their own signal, the quality of the elected politician is bounded above by $7/4$, the probability of electing the biased politician is bounded above by $1/2$, and the expected utility of an Elite member is therefore bounded above by $7/4+(\alpha\psi)/2$, according to Equation (3).

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