

# How To Keep Citizens Disengaged: Propaganda and Causal Misperceptions\*

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## Abstract

An important instrument of authoritarian rule is propaganda. While sometimes dictators attempt to manipulate citizens' beliefs of facts, some propaganda is more complex, weaving various socioeconomic factors into a narrative. We focus on the *strongman narrative* (*SN*), which asserts that regime strength causes high economic performance. Modeling the *SN* using Bayesian networks, we formally analyze the beliefs and behavior of citizens concerned that protests hurt economic performance via their adverse effect on regime strength. We show that this approach gives history a prominent role by influencing the inferences citizens make regarding the relationship between protests on economic performance—even in the absence of a direct causal link. A higher frequency of past protests suggests a lower correlation, rendering protests more likely in the present. We demonstrate that this “historical complementarity” creates multiple equilibria, explaining why some countries are more prone to frequent anti-government protests than others under similar conditions.

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In recent years, autocrats in Russia, Turkey, and Hungary have sustained their rule through a mix of repression, cooptation, and propaganda (Guriev and Treisman, 2019). A key ingredient of the latter tactic is what we call the *strongman narrative* (*SN*). In its rhetoric, the regime claims that only through the autocrat’s stable rule can prosperity be attained, or, conversely, societal challenges such as protests reduce stability, which in turn lead to economic downturns. Thus, the autocrat attempts to persuade citizens that protests have a negative effect on their own prosperity. One journalist observer describes the attempts of the Chinese Communist Party in the context of the recent Hong Kong protests this way:

The Communist Party has long pushed the Chinese people to look at the world through the lens of economic interests, and skeptical attitudes toward the Hong Kong protests show it has taken firm root. (...) [I]ndividual rights of the kind that people in Hong Kong enjoy—to challenge the government in the press, in the courts and on the streets—would lead to chaos in China, bringing back poverty and hunger (New York Times, 2019).

Similarly, the dominant narrative the Turkish government put forward to understand the 2013 Gezi protests was a ploy to derail the economy. For example, one pro-government newspaper wrote:

[Before the protests,] the government had stabilized macroeconomic factors in the economy, had lowered inflation and interest rates to the single digits, had secured the value of the Turkish lira (Hammond, 2014).

Erdogan related the poor outlook of economic indicators in the protests’ aftermath to the instability they caused (Letsch, 2014). By contrast, experts usually highlighted global macroeconomic trends, and not domestic turmoil, as the primary cause of the downturn (e.g., Ozgenturk, 2013).

In any case, some citizens seem to buy into the *SN*. When explaining his continued support for Vladimir Putin before the 2018 presidential election, one Russian resident argued that “[t]here is stability in this country under him. I don’t want to go back to the

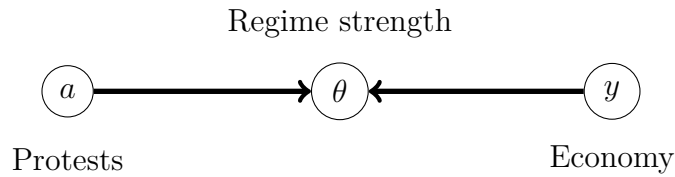
1990s” (New York Times, 2018). Similarly, in 2011, one Egyptian citizen explained why he didn’t join the ongoing protests against dictator Hosni Mubarak: “The only objection I have to this is the chaos. Stability is better for me, and it is better for the whole country” (New York Times, 2011).

Is the *SN* effective at dissuading challenges to the autocrat’s rule, as these examples suggest? Existing theories of propaganda are of limited value to answer this question because most formal theories focus on facts and abstract away from more complex, causal narratives such as the *SN*. In this paper, we use recent innovations from economics incorporating Directed Acyclic Graphs (DAGs) into formal theories to scrutinize the conditions under which the rhetoric exemplified by the *SN* can be effective in strengthening authoritarian rule. We find that if an aggrieved citizen believes in the *SN*, the probability of protest can decrease, but the extent to which it does depends on the context. Our theory emphasizes the role of history and in particular the experience of repression as mediators of the effectiveness of the *SN*. Perhaps surprisingly, we show that past protests as well as past repression *reduce* the effectiveness of the *SN*.

Our formal model focuses on a representative citizen that we assume to be aggrieved, i.e., absent concerns about the economic impact of protesting, the citizen would protest. In contrast to existing theories of authoritarian rule, we assume that the citizen faces fundamental uncertainty about the consequences of her actions. Formally, the citizen does not know how her own action, protesting, maps to regime stability and economic prosperity. In order to scrutinize a hard case for the effectiveness of the *SN*, we assume that the true data generating process features no negative effect of protesting on economic performance. Protests do hurt the regime, but the true relationship between regime strength and economic performance is the inverse of the *SN*: as in canonical theories of authoritarian politics (e.g., Bueno De Mesquita et al., 2005), a strong economy causes regime strength (because would-be elite challengers can be bought off) and not the other way around. Thus, with rational expectations, the citizen, who cares about the economy but not regime strength, protests. Figure 1 displays DAGs for both the true

data generating process (top panel) and the *SN* (bottom panel).<sup>1</sup>

### True DAG



### Propaganda DAG

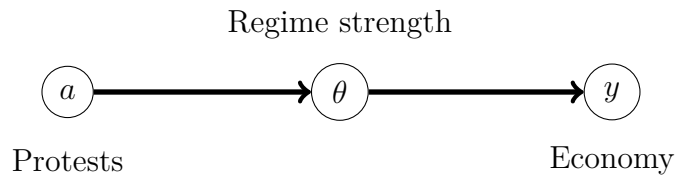


Figure 1: Two Data Generating Processes

If the citizen believes in the *SN*, however, matters are more complicated. Because the *SN* asserts that high regime strength causes good economic performance, the citizen deduces her decision to protest might have an effect on the economy through its effect on regime strength. As in the framework proposed by Spiegler (2016), the citizen uses the *SN* as a causal model to understand data, i.e., she “fits” the *SN* predicting a negative relationship between protesting and economic performance to the polity’s history. An important feature of the framework is that beliefs about the consequences of today’s actions are a function of the long-term frequency of taking the same action—in this sense, history continues to have a legacy today. A “personal equilibrium” is a steady state where the probability with which today’s action is chosen and the action’s historical frequency are consistent with each other.

We first show that there is a *historical complementarity*—past protest indicates that the correlation between protests and economic downturns is not as strong, and hence the citizen is more likely to protest today. This important effect of history is novel to this

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<sup>1</sup>These DAGs are the simplest representation of our core narrative, the *SN*. Our applications have more complex data-generating processes.

framework and contrasts with existing formal theories of authoritarian politics. While the complementarity is different from standard (cross-sectional) strategic complements among similarly situated actors (Little, 2012; Fearon, 2011), it also breeds equilibrium multiplicity. We demonstrate that for a range of anti-regime sentiments, the model features multiple personal equilibria that differ in the amount of protesting. This occurs not because of payoff externalities like in standard accounts, but because the past frequency of protests influences beliefs regarding the adverse effects of protesting today. This explains how countries that look similar in terms of their material circumstances can end up with very different “protest cultures,” and complements existing work on the cross-country variation in protest events (e.g., Bueno De Mesquita, 2010). This result can also shed light on empirical findings in which protests (or an outcome that is a consequence of protests, e.g., democracy) “diffuse” (Weyland, 2009; Gleditsch and Ward, 2006). Diffusion across polities is difficult to explain in terms of payoff externalities. But it is a natural consequence of our model in which demonstration effects influence other actors’ inferences regarding the effects of their actions. In particular, in our model, protests in some polities (say, Tunisia) increase citizens’ incentives to protests in other polities (say, Egypt) because the latter have increased confidence that economic disruptions caused by the protests will be relatively minor.

To gain intuition into the citizen’s decision-making, we link her calculus to existing empirical practices. There is a large literature that examines the effect of political stability on economic performance (Collins and Margo, 2007; Jong-A-Pin, 2009; Przeworski et al., 2000). But at least since the “credibility revolution,” social scientists know that inferences about the effect of protesting on economic performance can be biased (Samii, 2016). We show that believing in the  $SN$  introduces a particular problem: post-treatment bias. While methodological work has long understood the perilous implications of this kind of bias, even relatively recent work published in top political science journals can suffer from post-treatment bias (Montgomery, Nyhan and Torres, 2018). In our model, the citizen is induced to condition on a collider variable—a variable that is causally influenced by both the treatment and the outcome variable—which biases her estimated causal effect

of protesting on economic performance.

We pursue two further applications of our framework. First, we extend our baseline model to incorporate repression. The use of coercive force is a key element of authoritarian rule (e.g., Svobik, 2012; Tyson, 2018). Perhaps surprisingly, the empirical literature has shown that repression can have long-lasting effects that sometimes inspire collective action later on (Nunn, 2009; Rozenas, Schutte and Zhukov, 2017). We show that in our model, the experience of repression can make protests more likely to occur. The reason is an informational effect: repression causes the regime to be strong, regardless of societal protests (as in Acemoglu and Robinson, 2000) and economic performance. Thus, repression makes protests uninformative about economic performance, weakening the effectiveness of the *SN* and increasing the range of parameters in which protesting is the unique (personal) equilibrium. We also discuss the case in which repression is endogenously chosen by the regime and to what extent the regime itself is susceptible to the *SN* (the full analysis is the Supplementary Information (SI)).<sup>2</sup> We show whether or not believing the *SN* matters behaviorally depends on the regime’s interests: only if the regime that also derives utility from economic performance—either because of legacy concerns or because of corruption—believing in one’s own propaganda *does* matter for behavior.

Second, we distinguish between different kinds of economic performance, introducing observed economic shocks—foreign aid flows, commodity booms, or an influx in FDI—as a confounding variable between protests and future economic performance. A positive economic shock can reduce grievances and increase future performance (Chassang and Padró i Miquel, 2009; Nielsen et al., 2011)—but this role further complicates the citizen’s inferences. As a result, we show that the probability of protest is not necessarily higher

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<sup>2</sup>The qualitative literature documents several examples of autocratic leaders that seem to believe their own propaganda. For example, Deng Xiaoping, a party leader of CCP at the time of the Tiananmen protests, reportedly expressed concern that “the country could fall into chaos and that his plans for economic change could be destroyed” (New York Times, 2001).

when there is a negative economic shock, e.g., in the form of low foreign aid flows.

Our theory contributes to research on the stability of autocratic rule. Scholars have scrutinized the role of elections (Little, 2012; Luo and Rozenas, 2018), repression (Rozenas and Stukal, 2019; Tyson, 2018), censorship (Shadmehr and Bernhardt, 2015), and propaganda (Gehlbach and Sonin, 2014; Edmond, 2013; Chen and Xu, 2017; Little, 2017). Our key contribution is to analyze the effectiveness of the *SN*—a causal story that is significantly more complex than simply persuading the citizen that a fact is true or false.<sup>3</sup> By highlighting the role of historical experiences, we also bridge empirical scholarship highlighting historical causes and the persistence of the past (for a review, see Nunn, 2009) and formal theory, which typically abstracts away from historical events (but see Acemoglu and Jackson, 2015).

Besides contributing to the literature on propaganda and to the literature on competitive authoritarian regimes as outlined above, we also contribute to the literature on the relationship between political beliefs and economic outcomes: While scholars have investigated the role of the *elites*' beliefs on regime outcomes (Abramson and Montero, 2020; Albertus and Gay, 2017), formal work on the role of citizens' beliefs with respect to the consequences of protests are more limited. In particular, existing work on the relationship between economic performance and protests typically studies a specific mechanism that implies limited uncertainty (i.e., up to a variable). For example, from the literature on economic voting, one can derive the implication that lower economic performance is associated with an increase in protest behavior. On a very basic level, this is because citizens “punish” officeholders for bad performance (Ferejohn, 1986; Fearon, 2011). In related models of electoral selection, the relationship is endogenized by assuming that economic performance contains information about the type of the officeholder. Specifically, if more

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<sup>3</sup>To be precise, these theories generally feature a single variable described as the unknown state of the world. One can of course define the variable so that a realization stands for knowing a more complex set of facts or relationships. But then the state of the world is a sufficient statistic for these additional states of the world. See Callander (2008) for a related critique.

competent types are better at achieving high economic performance, citizens protest after bad economic events because they correctly update that the current officeholder is more likely to be “bad,” and protest to replace as a result (see Ashworth, 2012). Perhaps closest to our argument in this line of research is the idea that the anticipation of instability caused by protests may reduce investments, which in turn damages the economy and provides further incentives to protest. In this case, expectations and decisions from the private sector moderate the link between protests and economic performance (Shadmehr, 2019).<sup>4</sup>

Finally, we also complement the literature on belief formation. While classic rational choice work takes beliefs as given, recent work explores the causes of inaccurate beliefs (e.g., Minozzi, 2013; Brunnermeier and Parker, 2005; Bénabou and Tirole, 2006). Our work is broadly related to theories emphasizing that citizens’ beliefs may be “misspecified” (Bohren, 2016; Levy, Razin and Young, 2022), i.e., their beliefs do not include the true data generating process due to e.g., overconfidence or correlation neglect (Levy and Razin, 2015; Ortoleva and Snowberg, 2015). More specifically, our work builds on the framework proposed by Spiegel (2016).<sup>5</sup> This framework’s distinct focus is on causal relationships in a multivariate context. Little (2019) and Izzo, Martin and Callander (2021) also study belief formation in a multivariate environment but focus on varying preferences

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<sup>4</sup>For completeness, the civil war literature emphasizes several other mechanisms: an opportunity costs argument in which bad economic shocks lower the opportunity costs of fighting/protesting, which directly leads to an increase in the willingness to protest (Chassang and Padró i Miquel, 2009) and a state capacity argument in which increases in economic performance should also result in an increase in state capacity, which might deter protests (Fearon and Laitin, 2003). Finally, the literature on natural resource curse offers an argument for why we should expect a *positive* relationship between economic performance and protest: if economic performance increases the value of controlling the state, then an increase in performance should cause more protesting (Dube and Vargas, 2013).

<sup>5</sup>Recent applications include Spiegel (2020) and Eliaz and Spiegel (2020).



(Little, 2019) and ideological competition (Izzo, Martin and Callander, 2021) rather than the challenges of causal inference. Different from Izzo, Martin and Callander (2021) and Schwartzstein and Sunderam (2021), in our model citizens implicitly estimate parameters from the data that they observe in their day-to-day lives, rather than being presented with a full model that already contains parameters (see Rozenas and Stukal (2019) for a substantive discussion of this point in authoritarian regimes).

## Baseline Model

Our baseline model focuses on a single citizen,  $C$ , who for simplicity is assumed to be aggrieved in the sense that in the absence of concerns about the potential impact of protesting on economic performance, the citizen’s attitudes are sufficiently anti-regime that protesting is optimal. Formally, the citizen’s action is to protest,  $a = 1$ , or not to protest,  $a = 0$ . Protesting might adversely affect regime strength, which is denoted by  $\theta \in \{0, 1\}$ , and economic performance,  $y \in \{0, 1\}$ . The regime is strong if  $\theta = 1$  and economic performance is high if  $y = 1$ .

The citizen cares about the economic indicator and her action; her payoff is:

$$u_C = y + Ka,$$

where  $K \geq 0$  is a parameter that governs the citizen’s inclination to oppose the government, where higher values correspond to a greater willingness to oppose. The parameter  $K$  is an umbrella term encapsulating all expressive and instrumental factors that influence the citizen’s incentives to protest. It includes, for example, the material costs of protesting as well as ideological orientations towards different governments. Since we are not interested in these factors per se, we abstract away from modeling them individually and simply refer to  $K$  as the citizen’s net level of grievance: all benefits minus all costs of protesting. We could alternatively model the citizen’s payoff from protesting in more “instrumental” way: obtaining payoff  $K$  when the regime is weak instead of getting an expressive payoff  $K$  from the act of protesting per se. All our results remain qualitatively

unchanged when we use that specification instead.

For the citizen, the challenge is that she faces fundamental uncertainty about the relationship between these three variables. As outlined above, autocratic and semi-autocratic regimes often put forward the strongman narrative in which protesting leads to a weakened regime and in turn to decreased economic performance. Our model allows for a broad range of interpretations of economic performance. On one end of this range, it could refer to the broad macroeconomic performance of the polity, such as GDP growth or inflation. In this case we can think of regime strength as stability, where lower stability caused by widespread protests is associated with capital flight and lower foreign investment. Consistent with this narrative, autocratic leaders often justify economic downturns by referring to recent periods of upheaval. On the other hand, we could interpret economic performance as the ability of everyday citizens to go about their lives. Protests can and do disrupt workers' commutes as roads are blocked, stores are looted and burned, shoppers stay home in fear of the violence, and so on. If sufficiently widespread and prolonged, these can cause significant economic damage. In this case, we can think of the *SN* as overstating the potential adverse economic impact of the disruptions caused by protesting. In any case, we refer to the concepts regime stability and economic performance to capture both of these more specific narratives, as well as any narrative that contains elements of both.

By contrast, theories of authoritarian rule often emphasize the benefits of economic performance to the regime which enables buying off would-be challengers (e.g., Bueno De Mesquita et al., 2005). Thus, there are two potential data generating process, as illustrated in Figure 1 in the introduction.

Consistent with the theories emphasizing the ease with which incumbents can buy off potential challengers, and to build a hard case for the *SN*, we assume that the true data generating process is in the upper panel in Figure 1: protests and economic performance jointly affect regime strength, but economic performance is exogenous, and high with probability  $\gamma$ . The DAG in Figure 1 is entirely non-parametric and consistent with a positive, negative, or non-monotonic effect. For simplicity, we assume that no protesting

and strong economic performance are jointly necessary and sufficient for regime strength:

$$\theta = (1 - a)y.$$

In other words, the regime is strong if and only if both the economy is good and the citizen supports it.

The  $SN$  is given in the lower panel in Figure 1. The regime’s propaganda message is that it claims that the causal relationship between its strength and the economy goes the other way: that regime strength causes good economic performance instead of the other way around.

How does the citizen’s behavior depend on whether she believes the regime’s narrative or not? To answer this question, we briefly review the approach laid out in Spiegler (2016). Let  $x = (x_i)_{i=1,\dots,n}$  be the collection of variables under consideration and  $p(x)$  its joint distribution. The citizen’s subjective beliefs, denoted by  $p_R(x)$  are given by:

$$p_R(x) = \prod_{i=1}^n p(x_i | x_{R(i)}), \quad (1)$$

where  $R(i)$  is the set of direct parents of the node  $i$  and  $x_{R(i)}$  is the projection of  $x$  on  $R(i)$  (Spiegler, 2016, 1244). From the joint distribution  $p_R(x)$  all relevant beliefs can be deduced using the usual probability operations. Table 1 shows the variables as well as their marginal distributions in our environment. Table 1 embodies our notion of *history* which supplies the marginal distributions of all relevant variables. Note, however, that the variation displayed here could also come from a cross-section of cases (e.g., districts or states). In this case, the Index variable in the first column does not refer to time but to different locations.

The ideas embedded in expression (1) are familiar to social scientists. DAGs are often used to represent causal theories in an intuitive way (e.g., Morgan and Winship, 2015). They have also been used to make sense of learning as a realistic psychological model (Gopnik et al., 2004). The actor’s causal theory tells her *which variables to condition on* when forming expectations about quantities of interests. This operation is critical to

Table 1: The Historical Database containing three Variables

Index	Protest $a$	Economic Performance $y$	Regime Strength $\theta$
1.	1	1	0
2.	0	1	1
3.	1	0	0
$\vdots$	$\vdots$	$\vdots$	$\vdots$
Marg. Prob.	$\beta$	$\gamma$	$(1 - \beta)\gamma$

empirical inquiry. For example, regression is essentially an operation to approximate the conditional expectation function (Angrist and Pischke, 2008).<sup>6</sup>

Once beliefs are formed, the citizen will compute her expected utility for each action and will, as usual, choose the action that promises the highest level of expected utility. The issue is that expected utility may vary with the long run frequency of choosing a specific action, i.e., with the number of occurrences of action  $a$  in the polity's history. This necessitates the following equilibrium approach:

**Definition 1.** (*Personal equilibrium (Spiegler, 2016)*). Fix an arbitrary DAG  $R$  and let  $y$  be a payoff-relevant variable. A distribution  $p \in \Delta(x)$  with full support on the choice set  $A$  is an  $\epsilon$ -perturbed personal equilibrium if

$$a \in \arg \max_{a'} \sum_y p_R(y|a) u(a', y)$$

whenever  $p(a) > \epsilon$ . A distribution  $p^*$  is a personal equilibrium if there exists a sequence  $p^k \rightarrow p^*$  of perturbations of  $p^*$ , as well as a sequence  $\epsilon^k \rightarrow 0$ , such that  $p^k$  is an  $\epsilon^k$ -perturbed personal equilibrium for every  $k$ .

Since our endogenous choice is binary, our solution concept implies that we are looking for a number, denoted by  $\beta^* \in [0, 1]$  that represents the probability with which the citizen protests. This probability needs to maximize the citizen's utility and must be derived

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<sup>6</sup>It is also instructive to compare expression (1) with the standard chain rule:

$$p(x) \equiv p(x_1)p(x_2|x_1)p(x_3|x_1, x_2) \dots p(x_n|x_1, x_2, \dots, x_{n-1}).$$

See Spiegler (2016) for a more detailed discussion.

from the modified chain rule in expression (1).<sup>7</sup> Intuitively, our solution concept consists of two parts: belief formation via factorization as well as the consistency of long-run frequency and expected utility maximization.

Finally, note that when the citizen makes her choice, regime strength  $\theta$  and economic performance  $y$  are unobserved. As a consequence, the citizen's choice to protest cannot depend on the realization of  $y$ —which contrasts with economic theories of protests and conflicts (e.g., Chassang and Padró i Miquel, 2009). We relax this assumption in one of our model variations below.

## Discussion

Before continuing with the analysis, it is worth discussing several important features of our approach. First, for clarity, we refer to our variables as protesting ( $a$ ), regime strength ( $\theta$ ), and economic performance ( $y$ ). But it is worth emphasizing that other interpretations are possible, too. For example, the citizen's action  $a$  can be any form of dissent, such as letter-writing or even emigration.  $y$  may also be thought of as another outcome that the citizen cares about:  $y = 1$  could mean that there is less crime or public health is better. The important condition is that this outcome must also affect regime strength  $\theta$ . For simplicity, we focus on the economic performance interpretation.

Second, we discuss how our approach relates to standard approaches. In most formal theories of politics, actors can properly anticipate the consequences of their actions because they have knowledge about the data-generating process. For example, in models of political selection, protesting is a gamble that can pay off when the new officeholder's type is better than the current officeholder's type (Ashworth, 2012). Thus, while citizens face some *risk* (i.e., they may have to form beliefs about specific states of the world), they

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<sup>7</sup>To understand the equilibrium concept, an analogue to dynamic games of incomplete information and Perfect Bayesian Equilibrium might help. There, beliefs must be derived from Bayes' rule and must be consistent with the sender's strategy. Here, beliefs are derived from the modified chain rule and consistent with the citizen's strategy.

do know the probability distribution over the consequences of their actions. By contrast, in our account, citizens face more fundamental uncertainty about the consequences of their actions.<sup>8</sup>

Third, we emphasize that our model focuses on the behavioral implications of believing in a specific propaganda message, the *SN*. In other words, we take as given that some citizens may believe in propaganda (as suggested by empirical work, see e.g., Yanagizawa-Drott (2014)) and scrutinize the behavior that results from holding these beliefs. This approach is complementary to formal work on communication that aims to understand the conditions under which a sender’s messages can shape behavior. For example, in cheap talk or Bayesian Persuasion models, the receiver typically employs Bayes’ rule in order to evaluate the credibility of a message and only change their beliefs if messages meaningfully depend on the underlying state of the world (e.g., Gehlbach and Sonin, 2014). In other persuasion via models approaches, receivers are assumed to be frequentists and believe a message if the likelihood ratio is sufficiently high (e.g., Izzo, Martin and Callander, 2021; Schwartzstein and Sunderam, 2021). In any case, these models typically feature a simple decision stage in which the receiver takes an action that is beneficial to the propagandist when the posterior belief regarding the relevant state of the world is sufficiently high (e.g., Gehlbach and Sonin, 2014). For completeness, in the SI, we relax the assumption that the citizen is perfectly convinced of the validity of the *SN*. When the citizen believes the *SN* is only true with a certain probability, her inferences become comparatively weaker but all qualitative insights continue to hold.

As we will demonstrate, this alternative approach gives history a richer role. In standard accounts, the past does not really matter, either because the game is one-shot or the focus on Markovian strategies does not allow players to condition on past events.

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<sup>8</sup>Another common propaganda message is that citizens should refrain from protesting because the likely replacement of the dictator is claimed to be an “extremist” who is bad for citizens’ welfare. In this case, there might be uncertainty or risk about the type of the replacement. In our model, however, there is more fundamental uncertainty due to not knowing the true data generating process and in particular the role of regime stability.

In our account, long-run frequencies alter the citizen's perception of the consequences of her actions, and thus influence the optimal action. The result is a steady state where the past continues to influence the present.

## Analysis

### Rational Expectations Benchmark

We start with the analysis of the model supposing that the representative citizen is fully aware of the true data generating process, namely that economic performance is exogenous, and that it alongside her decision whether to protest determines regime strength. In DAG jargon, economic performance and protesting are *unconditionally independent*, and regime strength is a *collider*. Applying the factorization formula yields the following joint distribution of all three variables:

$$p(a, y, \theta) = p(a)p(y)p(\theta|a, y).$$

This equality follows from the fact that under the true data generating process  $a$  and  $y$  are independent and thus we have  $p(a)p(y|a) = p(y)p(a|y) = p(a)p(y)$ . Notice, however, that even though protesting and economic performance are independent, they are not independent *conditional on regime strength*. This is because while learning about  $a$  or  $y$  without knowledge of  $\theta$  does not inform beliefs about the other, this is no longer true when the citizen also has information on  $\theta$ . For example, if the citizen with the correct DAG observes that the regime is weak when she does not protest, she can infer that the economic performance must be low. In effect, learning about their common effect makes these two variables conditionally dependent.

Armed with the correct DAG, the citizen knows that the correlation she observes does not stem from a causal link that connects protesting and economic performance, but from both colliding on regime strength. Because the citizen cares about protesting  $a$  and economic performance  $y$ , but not about regime strength  $\theta$ , she can ignore the latter.

Thus, her expected payoff is  $p(y|a) + Ka = p(y) + Ka$ . This means that protesting only matters for the citizen via the expressive payoff it provides: it has no effect on the economy, and although it may effect regime strength, this is of no concern to the citizen. The expected utility of protesting is thus  $\gamma + K$  while the expected utility of not protesting is just  $\gamma$ . Because we assume the citizen to be aggrieved,  $K \geq 0$ , in the essentially unique equilibrium of the game the citizen opposes the regime.

## Beliefs and Behavior Under the Strongman Narrative

In contrast to the case of rational expectations, the joint distribution  $p_R$  over the variables  $a$ ,  $\theta$ , and  $y$ , as factored by the propaganda DAG is:

$$p_R(a, \theta, y) = p(a)p(\theta|a)p(y|\theta).$$

The citizen cares about the marginal distribution of  $y$ , which is given by:

$$p_R(y) = \sum_{a, \theta} p(a)p(\theta|a)p(y|\theta).$$

According to  $p_R$ , the marginal distribution of  $y$  conditional on  $a$  is:

$$p_R(y|a) = \frac{p_R(a, y)}{p(a)} = \frac{\sum_{\theta} p(a)p(\theta|a)p(y|\theta)}{p(a)} = \sum_{\theta} p(\theta|a)p(y|\theta).$$

Two conditional beliefs determine the expectation of economic performance  $y$  conditional on the action  $a$ : the conditional expectation of regime strength given action  $a$  and the conditional expectation of economic performance given regime strength  $\theta$ . In other words, the *SN* tells the citizen how to make sense of the polity's history when looking for the probability that economic performance will be high—look for the expectation of economic performance conditional on regime strength,  $p(y|\theta)$ ; while averaging over instances of regime strength depending on the chosen action,  $p(\theta|a)$ .

To make progress on these quantities, denote the endogenous, long-term frequency of



citizens opposing the regime with  $\beta$ :  $p(a = 1) = \beta$  as in Table 1. Then:

$$\begin{aligned} p(\theta = 1|a = 1) &= 0, \\ p(\theta = 1|a = 0) &= \gamma, \\ p(y = 1|\theta = 1) &= 1, \\ p(y = 1|\theta = 0) &= \frac{p(y = 1, \theta = 0)}{p(y = 1, \theta = 0) + p(y = 0, \theta = 0)} = \frac{\gamma\beta}{\gamma\beta + 1 - \gamma}. \end{aligned}$$

Using these expressions, we have that the expectation of economic performance given no protesting is:

$$\begin{aligned} p_R(y = 1|a = 0) &= p(y = 1|\theta = 1)p(\theta = 1|a = 0) + p(y = 1|\theta = 0)p(\theta = 0|a = 0) \\ &= \gamma + \frac{\beta\gamma}{\beta\gamma + 1 - \gamma}(1 - \gamma). \end{aligned}$$

Moreover, the citizen's expectation of economic performance given protesting is,

$$\begin{aligned} p_R(y = 1|a = 1) &= p(y = 1|\theta = 1)p(\theta = 1|a = 1) + p(y = 1|\theta = 0)p(\theta = 0|a = 1) \\ &= \frac{\beta\gamma}{\beta\gamma + 1 - \gamma}. \end{aligned}$$

Thus, the citizen believes that the economy is more likely to be good when she does not protest, although in reality her choice has no influence on economic performance. More generally, it is useful to examine the key quantity  $p(y = 1|\theta = 0) = \frac{\beta\gamma}{\beta\gamma + 1 - \gamma}$ . Note that this expression is equal to  $\gamma$  if  $\beta = 1$ , i.e., if the citizen protests all the time, she expects to receive high economic performance with the (unconditional) probability  $\gamma$ . In contrast, it equals 0 if  $\beta = 0$ . That is, if the citizen has never protested in the past and the historical prevalence of protesting is zero, she does not expect to receive high economic performance when the regime is weak—there is nothing in the data that suggests otherwise, and the causal model says regime strength causes economic performance. Finally, note that  $p(y = 1|\theta = 0) = \frac{\beta\gamma}{\beta\gamma + 1 - \gamma}$  is increasing in  $\beta$ , for two reasons: first, the expression  $\beta\gamma$  in the numerator indicates that as the citizen protests more, more instances of both high economic performance and protests are observed. Second, as the expression  $\beta\gamma + 1 - \gamma$

in the denominator shows, more protesting means that the regime is weaker more often, giving more opportunity to see high performance while the regime is weak. Figure 2 illustrates this relationship for two different values of  $p(y = 1) = \gamma$ .

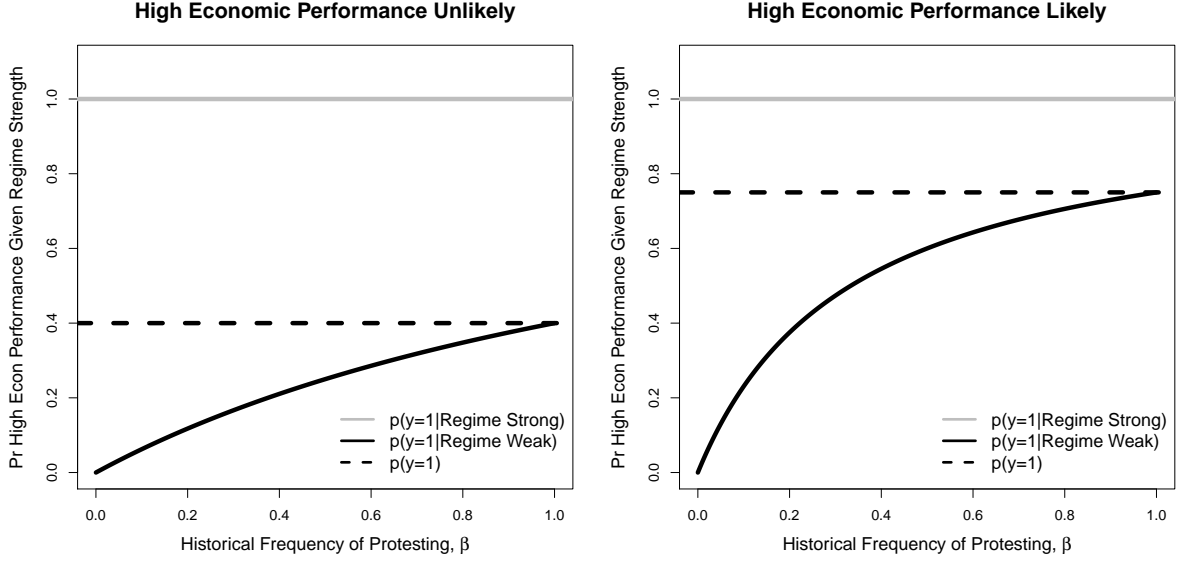


Figure 2:  $p(y = 1|\theta = 1)$  and  $p(y = 1|\theta = 0)$  as a function of  $\beta$ . Left panel:  $p(y = 1) = \gamma = 0.4$ . Right panel:  $p(y = 1) = \gamma = 0.75$ .

Recall that the expected utility of the citizen is equal to the probability the economy is good plus the value of opposing the government to the citizen if she chooses to do so. Thus, the expected utility of protesting is:

$$\frac{\beta\gamma}{\beta\gamma + 1 - \gamma} + K.$$

By contrast, the expected utility of not protesting is:

$$\gamma + \frac{\beta\gamma}{\beta\gamma + 1 - \gamma}(1 - \gamma).$$

It follows that a citizen who believes in the inverted DAG as the true causal mechanism prefers to oppose the government if and only if:

$$K \geq \frac{\gamma(1 - \gamma)}{\beta\gamma + 1 - \gamma}. \quad (2)$$

The left-hand side represents the intrinsic benefit from protesting while the right-hand side represents the difference in the perceived probability of obtaining the high economic performance outcome ( $y = 1$ ). The first observation is that when the citizen believes that regime strength causes economic performance rather than the other way around, her grievance threshold for her to oppose the government is higher. This happens because she interprets the negative correlation between regime strength and good economic performance as an effect of the former on the latter. When the regime is weak, the economy is sometimes good and sometimes bad; but when the regime is strong, the economy is always good. The citizen infers from this spurious correlation that a strong regime makes a good economy more likely. Because she correctly estimates the effect of her opposition on regime strength, she incorrectly deduces that her opposition to the regime would have a negative, indirect effect on the economy.

The second important observation from expression (2) is that the citizen's opposition threshold is decreasing in the long-run frequency of protesting. This is because the negative correlation between regime strength and the economic indicator is stronger when there are fewer instances of past opposition. In the limit when no opposition ever occurs, the state of the economy and the strength of the regime are perfectly correlated, and the citizen believes that her opposition would ensure poor economic performance. At the other extreme when there is always opposition to the regime, regime strength and economic performance are uncorrelated in the data, because the former is always weak regardless of economic performance.

Re-arranging from (2), we have that protesting is preferred whenever:

$$\beta \geq (1 - \gamma) \frac{\gamma - K}{K\gamma}.$$

Thus, past occurrence of protests (a high level of  $\beta$ ) increases the attractiveness of choosing to protest today.

**Lemma 1** (Historical complementarity). *The citizen's net expected utility of protesting is increasing in the long-run frequency of protests,  $\beta$ .*

In contrast to standard accounts of complementarity in protests (e.g., Fearon, 2011; Little, 2012), our model embeds *historical complementarity* which works through an informational channel. When a polity’s history features many protests, a citizen today infers that the negative effect of protesting on economic performance cannot be that large *even when believing the regime’s propaganda*. Thus, the country’s history teaches the citizen that the negative consequences of protesting are limited, rendering protests more attractive.

The historical complementarity also has major implications for personal equilibria. Specifically, we can show the following:

**Proposition 1.** *For a range of anti-regime attitudes, the model features multiple personal equilibria. In particular:*

$$\begin{aligned} \beta^* &= 0 && \text{if } K < \gamma(1 - \gamma), \\ \beta^* &\in \left\{ 0, \frac{(1 - \gamma)(\gamma - K)}{K\gamma}, 1 \right\} && \text{if } K \in ((1 - \gamma)\gamma, \gamma), \\ \beta^* &= 1 && \text{if } K > \gamma. \end{aligned}$$

Figure 3 illustrates the baseline analysis.

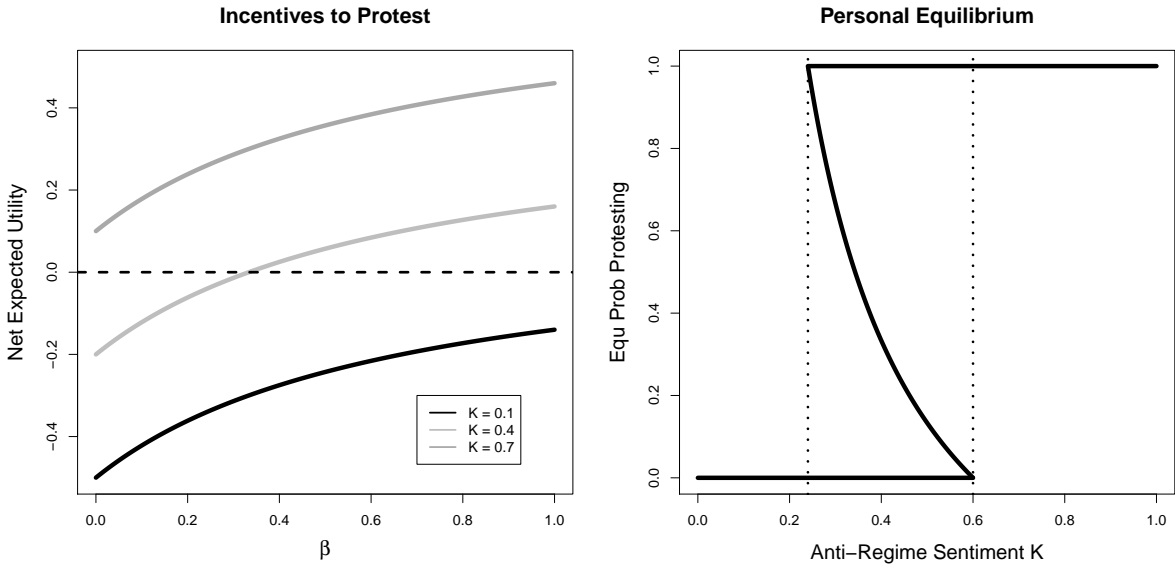


Figure 3: The Citizen’s net expected utility (left panel) and the personal equilibria of the model (right panel). Parameter values:  $p(y = 1) = \gamma = 0.6$ .

Intuitively, for low levels of anti-regime sentiment, the unique equilibrium is no protesting—even if all past citizens had protested, anti-regime sentiment is not sufficiently high to overcome the perceived adverse effect of protesting on the economy, which induces a “never protest” equilibrium. Formally, this is because the inequality in expression (2) cannot hold for any  $\beta$  when  $K < \gamma(1-\gamma)$ . Similarly, for high levels of anti-regime sentiment, the citizen always protests, because expression (2) must hold for any long-run frequency of protest  $\beta$  whenever  $K > \gamma$ . The interesting case is in the intermediate region in which there are three personal equilibria: besides the never-protest and always-protest equilibria, there is an equilibrium in which the citizen sometimes protests and sometimes does not protest. When  $K \in ((1-\gamma)\gamma, \gamma)$ , expression (2) holds if  $\beta = 1$  and fails if  $\beta = 0$ . Furthermore, for any  $K$  in this range there exists a  $\beta$  such that expression (2) holds with equality. The occurrence of past protests can thus be self-fulfilling because a higher frequency of past protests convinces the citizen that the negative effect of protesting on economic performance is relatively small, rendering protesting today optimal.

An important implication of the analysis so far is that countries with relatively similar conditions (in terms of anti-regime sentiment  $K$ ) can be very different in terms of their experience of collective action—they form distinct “protest cultures.” Besides differences in citizens’ utility functions and the multiplicity of equilibria due to coordination problems with other citizens today, this effect contributes to our understanding of why similarly situated countries differ in terms of their protest experiences.

## Computing Causal Effects and Making Decisions

It is useful to relate the citizen’s perception and behavior to alternative approaches. When facing fundamental uncertainty about the consequences of one’s actions, a sensible approach is to first compute the effect of one’s action using historical data and then decide on an action today, taking the magnitude of the effect into account. For example, a scientifically-minded citizen could employ the historical database in Table 1 to compute a *unconditional* difference-in-means estimate of the effect of protesting on economic

performance:

$$\mathbb{E}_{p(y|a=1)}[y] - \mathbb{E}_{p(y|a=0)}[y] = \Pr(y = 1|a = 1) - \Pr(y = 1|a = 0), \quad (3)$$

where the equality follows from our assumption that  $y$  is a binary variable and we use the notation  $\mathbb{E}_p[y]$  to denote the average of the random variable  $y$  using the belief  $p$ .

In our model, however, computing the effect of protesting on economic performance and deciding on an action are intertwined. To see this, note that when the citizen believes in the  $SN$ , her decision rule whether or not to protest can alternatively be written as:

$$\mathbb{E}_{p(\theta|a=1)} [\mathbb{E}_{p(y|\theta)}[y]] - \mathbb{E}_{p(\theta|a=0)} [\mathbb{E}_{p(y|\theta)}[y]] \geq -K. \quad (4)$$

This expression clarifies that the citizen is considering an effect by forming an expectation about economic performance in the “treatment group” ( $a = 1$ ) and in the “control group” ( $a = 0$ ) while conditioning on regime strength ( $\theta$ ).

It is worth contrasting the estimator in expression (4) to the one in expression (3). The citizen, guided by the  $SN$ , departs in two ways from it:

1. The citizen takes into account that  $a$  affects  $\theta$ , i.e., there is a treatment effect of protesting on the mediator variable regime strength.
2. The citizen calculates the distribution of  $y$  conditional on  $\theta$ , i.e., conditions her expectation of economic performance on the post-treatment variable regime strength.

Because of these differences, the citizen’s estimator yields an incorrect conclusion while the simple difference-in-means estimator would produce a correct estimate.<sup>9</sup>

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<sup>9</sup>A bivariate regression would also yield a correct estimate, because the coefficient on the citizen’s action is  $\frac{\text{Cov}(a,y)}{\text{Var}(a)} = 0$ . Computing stratum-specific causal effects for each  $\theta$  and then averaging over them suffers from a similar problem—the conditioning on a post-treatment variable. However, the citizen’s estimator also suffers from an additional endogeneity problem because the citizen realizes that her action affects regime strength.

# Applications

## Repression

So far, we have analyzed to what extent the  $SN$  can decrease protest behavior for aggrieved citizens. A major determinant of the effectiveness of the  $SN$  is a country's history, i.e., the occurrence of past protests. We now extend the model to incorporate another important aspect of a country's history: the experience of repression. In the main text, we focus on the effect of repression on the citizen's decision-making. In the SI, we endogenize the occurrence of repression and investigate the regime's calculus.

Formally, let  $r \in \{0, 1\}$  be the occurrence of repression choice, where  $r = 1$  denotes the event in which repression was used. For now, let  $\tau \in (0, 1)$  be the exogenous probability of repression, i.e.,  $p(r = 1) = \tau$ . We generalize the data generating process for regime strength to the following expression:

$$\theta = r + (1 - r)(1 - a)y.$$

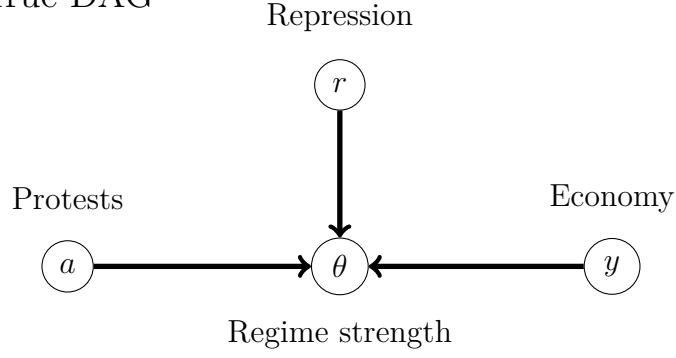
If repression occurs, the regime is automatically assumed to be strong, independent of protests or economic performance (as in e.g., Acemoglu and Robinson, 2000). If no repression occurs, the regime is again strong if and only if the citizen does not protest ( $a = 0$ ) and economic performance is high ( $y = 1$ ).

It is important to note what role repression is playing in our model: we deliberately abstract away from an important channel by which repression affects protests. Specifically, contrary to existing work (e.g., Dragu, 2017), repression does not directly affect the citizen's incentives (i.e., the citizen's costs or benefits of protesting). Rather, we examine the role that repression plays in the citizen's belief formation.

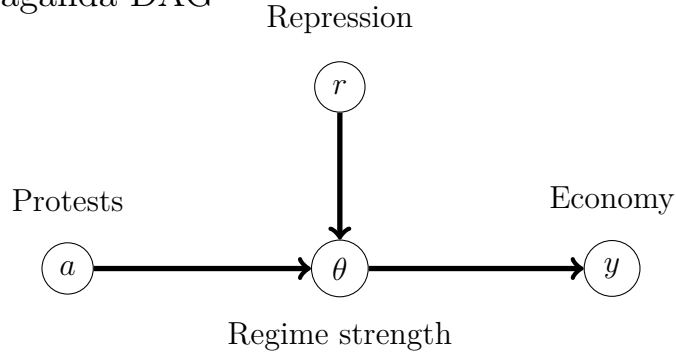
As before, consider the case in which the citizen has rational expectations first. With the true DAG, the joint distribution over all four variables can be factored as:

$$p(r, a, y, \theta) = p(a)p(r)p(y)p(\theta|a, r, y).$$

True DAG



Propaganda DAG



Realizing that economic performance is exogenous, the citizen's behavior when not believing in the *SN* is identical to the benchmark analysis: given  $K \geq 0$ , the citizen protests.

Now consider the case in which the citizen believes in the *SN*. With this DAG, the joint distribution over all four variables can be factored as:

$$p(r, a, y, \theta) = p(a)p(r)p(\theta|a, r)p(y|\theta). \quad (5)$$

The marginal distribution of  $y$  can be obtained by summing over realizations of the other variables:

$$p_R(y) = \sum_{r, a, \theta} p(a)p(r)p(\theta|a, r)p(y|\theta). \quad (6)$$



For expected utility calculations, we need to condition on  $a$ :

$$\begin{aligned}
p_R(y|a) &= \frac{p_R(y, a)}{p(a)} \quad (\text{def. cond. prob.}) \\
&= \frac{\sum_{r, \theta} p(a)p(r)p(\theta|a, r)p(y|\theta)}{p(a)} \quad (\text{def. joint prob.}) \\
&= \frac{p(a) \sum_{r, \theta} p(r)p(\theta|a, r)p(y|\theta)}{p(a)} \quad (\text{factoring out } p(a)) \\
&= \sum_{r, \theta} p(r)p(\theta|a, r)p(y|\theta) \quad (\text{cancellation}) \\
&= \sum_{r, \theta} p(r, \theta|a)p(y|\theta) \quad (\text{chain rule}).
\end{aligned}$$

Similar to the baseline case, two conditional probabilities will determine the citizen's beliefs. First, as before, the citizen needs to consider the conditional expectation of economic performance given regime strength,  $p(y|\theta)$ . Second, the citizen also needs to consider the joint distribution of regime strength and repression, conditional on her action  $a$ . As we will show, the form of this second expression has important implications for protest behavior.

As in the benchmark model, the citizen protests whenever the intrinsic desire to rebel is larger than the difference in the probability of obtaining the desired outcome  $y = 1$ , i.e.,  $K \geq p_R(y = 1|a = 0) - p_R(y = 1|a = 1)$ . Plugging in the relevant quantities from the factorization formula yields the following net expected utility of protesting:

$$K + \gamma(1 - \tau) \left( \frac{\beta\gamma}{\beta\gamma + 1 - \gamma} - \frac{\gamma(1 - \beta + \tau\beta)}{(1 - \tau)\gamma(1 - \beta) + \tau} \right) \equiv \Delta. \quad (7)$$

Note that this expression simplifies to the same expression as in the baseline case if  $\tau = 0$ :

$$\Delta(\tau = 0) = \gamma \left[ \frac{\gamma\beta}{1 - \gamma + \beta\gamma} - \frac{\gamma(1 - \beta)}{(1 - \beta)\gamma} \right] + K = -\frac{\gamma(1 - \gamma)}{1 - \gamma + \gamma\beta} + K.$$

Examining of expression (7) yields an analogous result to Lemma 1:

**Lemma 2** (Historical complementarity under repression). *The net expected utility of protesting ( $\Delta$ ) is increasing in  $\beta$ .*

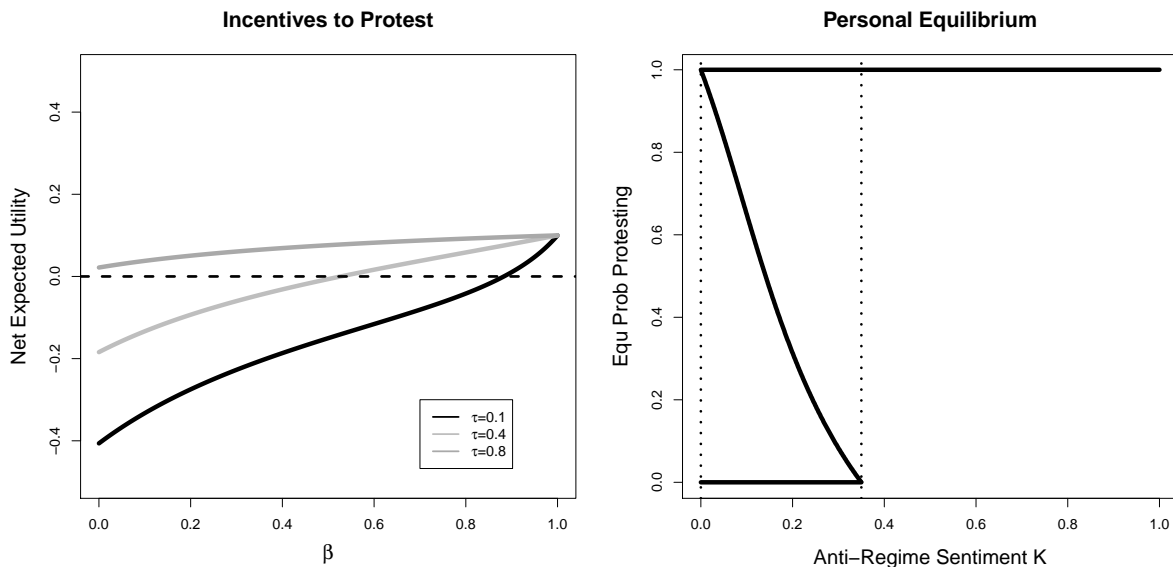


Figure 4: The citizen’s net expected utility (left panel) and personal equilibria of the model (right panel). Parameter values:  $p(y = 1) = \gamma = 0.6$  and  $p(r = 1) = \tau = 0.3$ .

We can use this result to derive the conditions under which there is a unique personal equilibrium:

**Proposition 2.** Define  $\underline{K} \equiv 0$  and  $\overline{K} \equiv (1 - \tau) \frac{\gamma^2}{\tau + (1 - \tau)\gamma}$ . If  $K < \underline{K}$ , there is a unique personal equilibrium in which  $\beta^* = 0$ . If  $K > \overline{K}$ , there is a unique personal equilibrium in which  $\beta^* = 1$ . For  $K \in (\underline{K}, \overline{K})$ , both equilibria exist. In addition, there is a mixed strategy equilibrium in which protesting occurs with probability  $\beta^*$ , implicitly defined by  $\Delta(\beta^*) = 0$ .

Figure 4 illustrates the result. The intuition is similar to the baseline case without repression: for very low (high) levels of anti-regime sentiment, the unique personal equilibrium is to never (always) protest. For intermediate levels of anti-regime sentiment, there is an additional personal equilibrium in which the citizen mixes between protesting and not protesting.

We next examine how the experience of past repression shapes protest behavior:

**Proposition 3.** An increase in the experience of historical repression,  $\tau$ , causes:

- no change in the parameter values for which never-protest is the unique equilibrium;
- an increase in the parameter values for which always-protest is the unique equilibrium;

- *an increase in the net expected utility of protesting; and*
- *a decrease in the interior equilibrium probability of protesting.*

Our results are consistent with the literature on the long-term effects of repression (or more generally political violence) on political action. Empirical scholarship has shown repression can have long-lasting effects and sometimes increase the potential for collective action, even in (semi-)authoritarian contexts. The literature has also provided a variety of mechanisms to explain these results: from the effects on social networks to effects on preferences and identities and their inter-generational transmission (Blattman and Miguel, 2010; Rozenas, Schutte and Zhukov, 2017; Lupu and Peisakhin, 2017). Our results provide another explanation for the findings in the empirical literature. When the citizen believes in the *SN*, past repression reduces the correlation between protests and economic performance: if there is more repression, the regime is always strong, and so protests and economic performance are uncorrelated—which helps incentivize protests today.

## **Economic Shocks and Protesting**

In our baseline model, economic performance does not affect the incentives to protest. This is because, at the time when the citizen makes her decision to protest, economic performance is unobserved. This assumption is an important part of the *SN*: it claims that *future* economic performance will be lower when the citizen protests today. In other words, the propagandist wants the citizen to believe that economic performance tomorrow is endogenous to protesting today.

However, there are also reasons to believe that economic performance today should affect citizens’ incentives to protests. For example, a prominent argument states that economic shocks affect citizens’ opportunity costs of protesting (e.g., Chassang and Padró i Miquel, 2009). We now extend our model to take this idea into account.

Formally, we separate out economic performance into two components: an exogenous economic shock—which can take the form of foreign aid, foreign direct investment, or a commodity boom—denoted by  $f \in \{0, 1\}$ , and domestic production, which for consis-

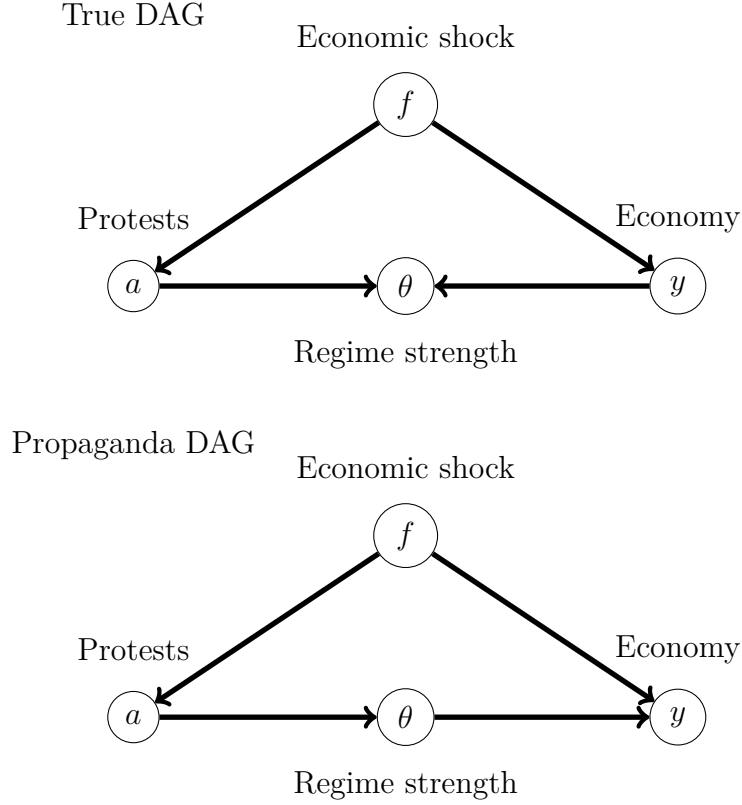


Figure 5: The true and the propaganda DAG in which an exogenous economic shock  $f$  is a confounder for the relationship between protesting and economic performance.

tency with the baseline case we continue to denote by  $y \in \{0, 1\}$ .<sup>10</sup> We interpret  $f = 1$  as a positive shock (e.g., a commodity boom or an influx of foreign aid) and  $f = 0$  as the lack thereof. We assume that this shock  $f$  is a *confounder* for the relationship between  $a$  and  $y$ , i.e., there are links from  $f$  to both  $a$  and  $y$ . This is the case for both the true DGP and the *SN*, and the only difference between those continues to be that the link between regime strength  $\theta$  and economic performance  $y$  is inverted. See Figure 5 for a visualization. This implies that the citizen can observe  $f$  when deciding to protest.

For tractability, we let  $p(y = 1) = \gamma_0 + \gamma_1 f$  and the citizen's utility function:

$$u_C = y + f + a(K - \phi f).$$

Intuitively, the citizen cares about total economic performance,  $y + f$ , and her grievances—

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<sup>10</sup>The important assumption is that the exogenous shock may influence both incentives to protest and domestic production, but is not affected by either.

which are reduced by a factor  $\phi$  if there is a good economic shock,  $f = 1$ . Put differently, an economic shock increases the opportunity costs of protesting.

Consider first the citizen's decision to protest under rational expectations. The factorization formula is

$$p(a, f, \theta, y) = p(f)p(a|f)p(\theta|a, y)p(y|f).$$

The expected utility of protesting is:  $\gamma_0 + \gamma_1 f + f + K - \phi f$  while the expected utility of not protesting is  $\gamma_0 + \gamma_1 f + f$ . Thus, the net expected utility of protesting is greater when there is no shock,  $f = 0$ . If  $K - \phi f \geq 0$ , the citizen protests regardless of  $f$ . If  $K < \phi$ , the citizen protests when  $f = 0$  but does not protest when  $f = 1$ .

Now consider what happens under the *SN*. The factorization formula implies:

$$p_R(a, f, \theta, y) = p(f)p(a|f)p(\theta|a)p(y|\theta, f).$$

The citizen observes  $f$  and chooses  $a$ . Hence:

$$p_R(\theta, y|a, f) = p(\theta|a)p(y|\theta, f).$$

And finally:

$$p_R(y = 1|a, f) = \sum_{\theta} p(\theta|a)p(y = 1|\theta, f).$$

The term  $p(\theta|a)$  is analogous to the baseline case—except that it depends on  $f$ . In particular,  $p(\theta = 1|a = 1) = 0$  while  $p(\theta = 1|a = 0) = p(y = 1) = \gamma_0 + \gamma_1 f$ .

Furthermore, the term  $p(y = 1|\theta, f)$  also depends on  $f$ . However, note that  $p(y = 1|\theta = 1, f) = 1$  as before—when the regime is strong, the citizen expects high economic performance for any  $f$ . Moreover:

$$\begin{aligned} p(y = 1|\theta = 0, f = 0) &= \frac{\beta\gamma_0}{1 - \gamma_0(1 - \beta)}, \\ p(y = 1|\theta = 0, f = 1) &= \frac{\beta(\gamma_0 + \gamma_1)}{1 - (\gamma_0 + \gamma_1)(1 - \beta)}. \end{aligned}$$

Thus, for a given  $f$ , the expected utility of  $a = 1$  is:

$$p(y = 1|\theta = 0, f) + K - \phi f.$$

Moreover, the expected utility of  $a = 0$  is:

$$(1 - \gamma_0 - \gamma_1 f)p(y = 1|\theta = 0, f) + (\gamma_0 + \gamma_1 f)p(y = 1|\theta = 1, f).$$

So the net expected utility of protesting is:

$$K - \phi f - (\gamma_0 + \gamma_1 f) \frac{1 - \gamma_0 - \gamma_1 f}{1 - (\gamma_0 + \gamma_1 f)(1 - \beta)}.$$

From this, it is straightforward to derive  $\beta_f^*$  as in the baseline case. Define  $\tilde{\gamma}_f \equiv \gamma_0 + \gamma_1 f$  and  $\tilde{K}_f \equiv K - \phi f$ . Then:

**Proposition 4.** *When the economic shock acts as a confounder, the personal equilibria are:*

$$\begin{aligned} \beta_f^* &= 0 && \text{if } \tilde{K}_f < \tilde{\gamma}_f(1 - \tilde{\gamma}_f), \\ \beta_f^* &\in \left\{ 0, \frac{(1 - \tilde{\gamma}_f)(\tilde{\gamma}_f - \tilde{K}_f)}{\tilde{K}_f \tilde{\gamma}_f}, 1 \right\} && \text{if } \tilde{K}_f \in ((1 - \tilde{\gamma}_f)\tilde{\gamma}_f, \tilde{\gamma}_f), \\ \beta_f^* &= 1 && \text{if } \tilde{K}_f > \tilde{\gamma}_f. \end{aligned}$$

for  $f \in \{0, 1\}$ .

From this, we can observe that positive economic shocks have a complex, ambiguous effect on the equilibrium probability of protest. On the one hand, they reduce the parameter range for which there is a unique always protest equilibrium because the inequality  $\tilde{K}_f > \tilde{\gamma}_f$  is more difficult to satisfy if  $f = 1$ . On the other hand, the interior probability of protesting is ambiguous in  $f$  and the inequality  $\tilde{K}_f < \tilde{\gamma}_f(1 - \tilde{\gamma}_f)$  is not necessarily easier to satisfy if  $f = 1$ . More specifically, we can show the following:

**Proposition 5.** *An increase in opportunity costs  $\phi$  (confounding  $\gamma_1$ ) causes:*

- an increase in (ambiguously affects) the parameter values for which no-protest is the unique equilibrium;
- a decrease in (a decrease in) change in the parameter values for which always-protest is the unique equilibrium;
- a decrease (ambiguously affects) the net expected utility of protesting; and
- an increase (ambiguously affects) in the interior probability of protesting.

## Conclusion

In their propaganda campaigns, autocrats and would-be autocrats around the world emphasize the benefits of strong states via a *Strongman Narrative*. What are the behavioral implications of believing these propaganda messages compared to having rational expectations? Analyzing a formal model of belief formation and protest behavior, we emphasize that the effectiveness of this *SN* depends on history and in particular the experience of repression.

Our approach relates to a recent empirical literature that scrutinizes to what extent critical events or institutions have long-term effects. Consistent with this literature, we show that the past can influence the present in sometimes surprising ways. For example, the experience of violence or repression can aid collective action. Different from this literature, however, we do not argue that repression changes preferences or identities, but rather changes the inferences that actors draw from the past.

While we have focused on a commonly employed propaganda message, the *SN*, future work should expand the analysis to scrutinize the behavioral implications of different propaganda claims. For example, a commonly employed strategy is to blame bad outcome on minorities or foreign powers. Such propaganda claims typically co-exist with propaganda claims regarding the importance of strong states or regimes (i.e., the *SN*). Analyzing the interaction between these propaganda claims can be an important avenue for future work.

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