Popular Protest and Elite Coordination in a Coup d'état

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Elites face a daunting coordination problem when contemplating a coup. Citizens, who desire political reform, face a similar coordination problem when contemplating protest. Since elites and citizens interact with the same leadership, these coordination problems are invariably linked. We develop a model which exploits this link to isolate an informational mechanism connecting popular protests and coups. Protests aggregate citizen information and provide elites with a public signal which helps them coordinate in a coup. We show that elites "overreact" to protest as a consequence of its publicity, and we provide a microfounded explanation as to why elites use protests to facilitate coordination. Our model also suggests that protests in countries with media freedom better facilitate elite coordination. To test this, we examine how media freedom affects the relationship between protests and coups. The empirical analysis shows the effect of protests on coups is exacerbated in countries where media is free.

Prior to the Camp David Accords, ongoing hostilities between Israel and Egypt led to a variety of countries experiencing mass protests sparked by Arab nationalism. The populace of these countries viewed current government policies as being conciliatory toward Israeli and Western interests. Even though the protesters' primary interest was to secure anti-Western policy reform, the protests often culminated in coups. For example, in Libya following the Six-Day War, protesters in Tripoli and Benghazi pushed King Idris to adopt anti-Western policies. The protests persisted until an unknown captain named Muammar Gaddafi led the Free Officers Movement in a coup d'état. Similar events also tied to the Arab-Israeli conflict occurred in Egypt (1956), Iraq (1968), and Syria (1970).[1]

Other examples of protests preceding coup attempts include Dahomey (1963), Greece (1973), Burma (1988), Thailand (2006), and most recently Egypt (2013).[2] All of these events are suggestive of a general phenomenon—popular protests with the intent to secure political reform tend to be accompanied by coup attempts. In this article we argue that an informational mechanism influences the relationship between coups and popular protests. Specifically, since citizens and elites interact with the same leadership, the leadership's ability to withstand domestic pressure is related to the leadership's ability to withstand a coup. As a result, the actions of protesters provide elites with commonly observed information regarding the incumbent leadership's ability to withhold policy concessions and hence the leadership's ability to withstand a coup.

The conventional wisdom contends that popular protests provide an overt statement of government illegitimacy since they signal dissatisfaction with the current leadership. Regime elites then have an incentive to exploit this lack of legitimacy when they believe citizens will tolerate a change in leadership. We argue that the conventional wisdom is at best incomplete.[3] In particular, conventional accounts do not explain why protests, in and of themselves, are sufficient to solve the inherent coordination problem elites face.

[1]An online appendix and materials necessary to reproduce our statistical results are available at http://dx.doi.org/10.1017/S0022381613001485 and on each author's personal web page.

[2]For a comprehensive literature review, see Zimmermann (1983, Chap. 7)

[3]Protests can also signal changes in citizen preferences or leader incompetence, but these explanations do not address how protests influence the quality of elite coordination.

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Coordination among regime elites is one of the most important factors for unseating leaders. Although this importance has been emphasized (Frantz and Ezrow 2011; Powell 2012; Weeks 2008), scholars have ignored the mechanism by which popular protest facilitates coordination among elites. Even though a popular protest provides elites with information about government characteristics, in the existing literature it is unclear how this information helps elites to coordinate in a coup. Conventional theoretical accounts of protests and coups rely (explicitly or implicitly) on a focal-point effect (Schelling 1960; Tullock 1974). In games of coordination, the focal-point effect is a cultural or environmental factor that focuses attention on a particular equilibrium which aligns behavioral expectations. In this sense, the conventional wisdom suggests that protest movements focus elite attention on overthrowing the government, while the absence of a protest focuses elite attention on supporting the regime.

There are two problems with the logic of conventional accounts. First, the empirical record is replete with examples in which protest movements occurred and there was no coup attempt. This is particularly common in democracies. Conventional accounts do not provide an explanation as to why protest movements are focal in some countries and not in others. And what is more troubling, why are protest movements in a single country focal at some points in time and not others? Second, in many situations, coup attempts fail during periods of popular protest because some elites fail to coordinate on the correct action. Are these elites mistaken regarding whether the protest was in fact focal? If this were the case, what determines the variation across countries in the propensity of elites to make such mistakes? Conventional accounts cannot explain why protests precede coup attempts in some instances but not in others.

In order to understand the relationship between popular protests and coordination in coups, one needs a framework which explicitly models the coordination dynamic between elites. This article presents a model that isolates a specific informational mechanism, namely that popular protests act as a public signal which facilitates the coordination among regime elites who are contemplating a coup. This means that elites use the size of popular protests to update their belief regarding the likelihood of coup success. Whether or not a coup will succeed is generally not certain to elites, and this uncertainty over the outcomes for elites is derived from the uncertainty regarding the actions of other elites—this is commonly referred to as strategic uncertainty. Incorporating strategic uncertainty better accounts for the coordination dynamic between elites and allows us to derive a novel implication which has not been highlighted in the literature on coups.

In our model, elites ''overreact'' to popular protests, hence changes in the size of a protest movement have a larger effect on elite behavior than is warranted purely by the protest's informational content. This occurs because popular protests affect elites through two distinct channels. First, popular protests provide elites with an informative aggregate statistic of the information citizens received, thus causing elites to update their beliefs about the leadership's ability to survive a coup. This first channel provides an explanation as to why protest movements, in and of themselves, facilitate coordination among elites. Second, and more importantly, the sheer publicity of the protest allows an elite to align her action with the actions of other elites. Furthermore, our model captures implications consistent with the conventional wisdom as a limit case.

A novel implication of our model is that media freedom, through its influence on the dispersion of citizen beliefs, affects the precision of elite expectations regarding the actions of other elites. When media is free, citizens are more likely to correctly align their own actions. When citizens correctly align their actions, the aggregate signal the protest provides to elites is more sensitive to leadership characteristics. Our model suggests that when media is restricted, the public signal a protest provides is extremely imprecise, and hence elites do not heavily rely on the protest for information or coordination. This shows how popular protest affects the coordination ability of elites through media freedom and thus how media freedom influences the relationship between popular protest and coups.[4]

We empirically examine the effect of media freedom to indirectly evaluate our mechanism. Empirical tests are used to determine if protests have a larger effect on coup attempts in countries where elites are better able to infer information from the actions of protesters. The results from these tests show that in addition to coups and protests being positively related, this relationship is exacerbated in countries with higher levels of media freedom. Moreover, we show that regime type, repressive capacity, and human rights abuse have no effect on the relationship between protests and coups. These null findings suggest that the freedom to protest is not driving our main empirical results.

[4]Egorov, Guriev, and Sonin (2009) look at how media freedom is used by dictators to monitor bureaucrats, but they do not examine coups.

Our article is organized as follows. The next section reviews related literature. We then present the theoretical model with its implications, followed by an empirical evaluation. The online appendices collect proofs and details regarding the empirical analysis.

Related Literature

Coups are the most common form of leadership change in authoritarian regimes and are also a common cause of democratic failure (Sutter 2000; Svolik 2009). Finer (1962) suggests that protests signal illegitimacy of the status quo and that military elites believe citizens will tolerate a change in leadership. In a seminal article, Belkin and Schofer (2003) conceptualize the risk of a coup using political instability as a major component to determine structural factors that influence coup attempts. Thyne (2010) and Powell (2012) show that regime instability is positively related to coup success.

Aside from popular protests, Londregan and Poole (1990), Alesina et al. (1996), and Galetovic and Sanhueza (2000) report that low rates of economic growth increase the likelihood of coups and that previous coups are an important predictor of coup attempts. Our theory suggests a link between popular demands for economic reform and coup attempts. We argue that this link can account for the empirical relationship between low rates of economic growth and coups.

Independent of popular protests and economic factors, Acemoglu and Robinson (2006) and Wig and Rød (2012) examine how the threat of revolution influences coups. A variety of recent studies suggest that coups may be less likely to occur in countries with high levels of military spending because the polity buys off military opportunists (Besley and Robinson 2010; Collier and Hoeffler 2007; Leon 2011).

Other studies have investigated how coups influence the political moral-hazard problem between elites and a leadership trying to consolidate power. Svolik (2009) argues that the threat of a coup deters the leadership from secretly trying to consolidate power, while Svolik (2013) argues that coups act as a deterrent preventing a regime from reneging on payments promised to the military for suppressing a protest. Acemoglu, Ticchi, and Vindigni (2010) argue that granting power to elites insulates the leadership; however, granting such power also makes the military more effective at carrying out coups. Using a similar model of elite coordination as ours, Boix and Svolik (2013) examine how authoritarian power sharing can alleviate commitment and monitoring problems.

Scholars have identified a variety of factors that influence the level of difficulty in elite coordination. These factors include the size of the military (Powell 2012), building up counter forces within the military (Belkin and Schofer 2003), rotation of military officers (Pollack 2002), military specialization (Quinlivan 1999), and membership in a unifying institution (Frantz and Ezrow 2011; Weeks 2008). Previous studies offer rich insights into what factors affect the ability of elites to coordinate, but they do not focus on the collective-action issue and its implications.

Our model of elite coordination is a global game of regime change. A strength of the global-game approach is its ability to provide insights into coordination dynamics. Global games have recently been used to understand coordination in elections (Myatt 2007), party leadership (Dewan and Myatt 2007), international conflict (Chassang and Padró i Miquel 2010), and revolutions (Edmond 2013; Shadmehr and Bernhardt 2011; Tyson and Smith 2012). In our framework, the actions of citizens provide an endogenously generated public signal to elites. Accounts of endogenously generated public signals include the role of prices (Angeletos and Werning 2006), policy choice (Angeletos, Hellwig, and Pavan 2006), terrorist acts (Bueno de Mesquita 2010), and how failed revolutions publicly signal a minimum bound on the strength of the regime (Angeletos, Hellwig, and Pavan 2007).[5]

Theory

No leader ever rules alone. In this article, we distinguish between regime insiders who have a dominant strategy to support the leader and the broader class of regime elites who do not. Regime insiders are individuals who share the fate of the leader, such as relatives or individuals who have committed atrocities. In contrast, elites are politically important individuals whose fate is not necessarily tied to that of the leader. We refer to the leader and the set of regime insiders as the incumbent leadership.

Our model is a two-level game: a popular protest followed by elite coordination. We argue that since elites and citizens interact with the same leadership, citizen and elite behavior are linked by elements specific to the leadership which we model as the leadership type. In particular, the beliefs of citizens

[5]See Little (2012), Dragu and Polborn (2013), and Hollyer, Rosendorff and Vreeland (2013) for similar applications.

and elites regarding the leadership type link their equilibrium behavior. We start by detailing the incentives and information possessed by individuals in our model. We then analyze how popular protests, which immediately precede the opportunity to launch a coup, influence the decisions of elites.

Fundamentals and Incentives

The incumbent leadership has a type, $\theta \in \mathbb{R}$, which is a measure of the leadership's ability to withstand a coup. Formally, the leadership type θ sets the threshold that the proportion of elites must exceed in order for a coup to succeed. This implies that when the leadership type is below 0, the leadership fails for reasons unrelated to coups, and when the leadership type is above 1, the leadership survives any coup, regardless of how many elites participate. It is straightforward to see that if θ were commonly known and were outside the interval [0, 1], then elites would have strictly dominant strategies.

The leadership type θ can be interpreted as the effectiveness of the leadership's coup-proofing strategies. Specifically, θ captures the overall effectiveness of policies such as the exploitation of special loyalties, the structuring of a parallel military, the establishment of multiple security services, the fostering of "expertness" in the military, and the financing of such measures (Quinlivan 1999). Additionally, the leadership type also reflects characteristics of regime insiders such as cohesiveness, competence, or strength. Individuals do not know the leadership type, and we assume it is drawn from an improper uniform prior distribution, meaning every real number is equally likely (DeGroot 1970).

Suppose the threshold proportion of citizens who must participate in a protest in order to secure political reform is also a function of the leadership type θ. For example, in Saudi Arabia, the *mutawwiin* are an independent security force loyal to the leadership whose express purpose is to suppress demands for secular reform. The *mutawwiin* primarily suppress demands for reform by using methods that impose costs on citizens, such as culture-based persecution, making it harder to organize. Additionally, the *mutawwiin* balance against other forces in the government, thus preventing a coup (Quinlivan 1999).[6] We argue that domestic policy in one arena, such as coup proofing, has spillover effects into other related political domains, in particular the ability of the leadership to withstand popular pressure for political reform.

Similar in spirit to the protest model of Lohmann (1993), we employ a threshold model of protest. Assume the reform threshold is determined through the function $\Phi(\rho\theta)$, where $\rho > 0$ measures the sensitivity of the reform threshold to the leadership type. Let $\Phi(\cdot)$ be the distribution function of a standard normal random variable with density ϕ. This means that given a value of the leadership type θ, $\Phi(\rho\theta)$ is the proportion of citizens who must protest in order to secure political reform. The threshold $\Phi(\rho\theta)$ captures how coup-proofing strategies influence the ability of the leadership to withstand pressure for political reform. The parameter ρ measures the extent to which the reform threshold responds to the leadership type, capturing factors that influence the connection between coup-proofing strategies and the leadership's ability to withstand pressure for reform.

We interpret ρ as a country's level of political centralization. In a highly centralized country, the ability of a leadership to withstand popular pressure for reform is more sensitive to idiosyncratic differences in the effectiveness of coup-proofing strategies because the leadership has more control over the implementation of policy. In contrast, in a decentralized country, the leadership has control over fewer policy domains, hence the relationship between coup-proofing effectiveness and resilience to reform is weaker.

We now detail citizen incentives. Assume there is a unit mass of citizens who can choose to protest or abstain. When the status quo prevails, meaning the leadership type θ is sufficiently high so that the leadership resists protest, citizens receive a benefit normalized to 0. When the policy reform is granted, meaning the leadership type is sufficiently low that protest succeeds, citizens receive a benefit normalized to 1. Since the leadership's coup-proofing strategies directly affect the proportion of citizens who must protest in order to secure reform, citizen payoffs critically depend on θ.

What motivates people to protest? Scholars have observed that in the context of mass political action, the protest participation dilemma is overcome by the provision of special benefits, such as selective incentives (DeNardo 1985; Moore 1995). In our model, we consider a special type of selective incentives, which are excludable net benefits received by citizens who participate in a successful protest, or net costs paid by citizens who fail to contribute to policy reform. These types of benefits or costs are usually administered by organizations such as labor unions, interest groups, religious groups, opposition parties, and so on, to

[6] In this example, θ can be interpreted as the strength or discipline of the *mutawwiin*.

induce participation in protest (Goldstone 1994; Lichbach 1995).

To model these special benefits, in addition to the common benefit of policy reform, there is a value of special benefits worth $\mu \in (0, 1)$. Protest participation is costly; however, due to special benefits participation is not necessarily prohibitively costly for every citizen—only citizens who lack confidence in protest success. A common protest cost of c is drawn according to a uniform distribution on the interval $(0, \mu)$. Furthermore, the protest cost c is known to citizens but not to elites.

Besides the citizens, there is some group of dissatisfied elites who may wish to replace the incumbent leadership. Elites can stage a coup that if successful yields an expected benefit 1 to every coup participant. Suppose there is a unit mass of elites who can choose to support the leadership or to revolt and participate in a coup. We use a unit mass to capture the fact that it is often the proportion of elite support which determines coup success, rather than the number of participants.[7]

An elite pays a revolt participation cost of $k \in (0, 1)$ regardless of whether the coup attempt is successful. An elite who supports the leadership receives a benefit normalized to 0 when the leadership survives and pays a cost $\tau \in [0, 1]$ when the leadership fails. Notice elites only want to support a coup when they are sufficiently confident that it will remove the leadership. This means that elites prefer to pick the side they believe is most likely to win. To summarize, citizen and elite payoffs are given by:

Citizens	Status-Quo	Reform	Elites	Status-Quo	Coup Success
Protest	$-c$	$1 + \mu - c$	Revolt	$-k$	$1 - k$
Abstain	0	1	Support	0	$-\tau$

To isolate the informational mechanism of interest, we make the simplifying assumption that citizens care only about policy and elites care only about leadership change. The position of citizens toward coups is empirically unclear, since Alesina et al. (1996) show that coups have an adverse effect on economic growth, but Powell and Thyne (2012) show that coups promote the likelihood of democratization. From a theoretical perspective, citizen welfare should only be a consequence of policies, which rarely change after coups (Sutter 2000). Note that in our model, coup success and policy reform are positively correlated, but coups do not cause policy change.

Media and Information

Aside from the incentives, individuals have heterogeneous beliefs induced by private information regarding the value of the leadership type θ. First-order beliefs, meaning beliefs about the leadership type, follow directly from Bayes' rule. Specifically, citizen j receives a private signal $x_j = \theta + \eta_j$, where η_j is normally distributed with mean 0 and precision α, and is independent of θ and η_l for all $l \neq j$.[8] A citizen's posterior expectation of θ is normally distributed with mean x and precision α. Consequently, a citizen's posterior expectation of $\Phi(\rho\theta)$ is $\int \Phi(\rho\theta)\sqrt{\alpha}\phi(\sqrt{\alpha}(\theta - x))d\theta$, which determines his private belief about the likely success of protest in securing policy reform.

In our model, $1/\alpha$ measures the dispersion of citizen beliefs about the leadership type. When α is large, meaning citizen information is very precise, citizen beliefs are tightly clustered around the leadership type. When α is small, meaning there is wide variation in the signals citizens receive, citizen beliefs are widely dispersed around the leadership type.[9] We argue that the precision of citizen beliefs α is determined by the degree in which information flows freely within a society. Furthermore, we argue that the key determinant of information flow in society is media freedom, such as speech, newspapers, internet access, social media, and so on. We interpret α as a measure of the degree of media freedom in a country. In countries with high levels of media freedom, citizens are more likely to be "on the same page" regarding the effectiveness of government characteristics.

To illustrate our interpretation of α consider two countries, *A* and *B*. Suppose country *A* and country *B* are identical countries who only differ in their levels of media freedom. In country *A*, there are relatively few media restrictions so information flows freely among the citizens. Conversely, in country *B*, there are significant restrictions on media. The only difference between countries *A* and *B* is that in country *A* information flows more freely between citizens and between citizens and the press. In country *A*, citizens are more likely to have candid discussions, politically motivated meetings, access to social media, and a

[7]The unit mass assumption is not necessary (Hellwig 2002, Section 5.3).

[8]The precision of a random variable is the reciprocal of the variance.

[9]This dispersion formally corresponds to second-order stochastic dominance.

dialogue with a free press than are citizens in country *B*. This suggests that citizens in country *A* are more likely to agree on the effectiveness of coup-proofing strategies than are citizens in country *B*. Consequently, citizen posterior expectations in country *A* are more tightly clustered around the leadership type θ than in country *B*.

Elites also receive private information regarding the leadership type. Elite member i receives private signal $z_i = \theta + \varepsilon_i$, where ε_i is normally distributed with mean 0 and precision β, and is independent of θ, η_j for all j, and ε_l for all $l \neq i$. We argue that variation in media freedom does not affect the precision of elite beliefs about the leadership type because elites have better information about the state. The very reason there is media censorship is because elites want to cut off the flow of information, as elites often observe censored information without the need of the press.

The idiosyncratic private signals of elites represent the extent to which elites disagree on the exact level of the effectiveness of coup-proofing strategies, both in how the leadership deters coups and withstands popular pressure. An elite's private signal determines her belief about what other signals elites received, the variance of which, $1/\beta$, captures the variation in beliefs among elites regarding leadership characteristics. Our model of elite coordination is a standard global game of regime change (Morris and Shin 2004). Although similar, our model of protest is not a global game since there does not exist a belief for which a citizen has a dominant strategy to protest nor a belief for which a citizen has a dominant strategy not to protest.

For the analysis, we focus on cutoff strategies. A cutoff strategy for an elite who receives a private signal z is of the form: revolt if $z \leq \bar{z}$, and support otherwise. A cutoff strategy for a citizen who receives private signal x is: protest if and only if $x \leq \bar{x}$.

The information structure "clusters" beliefs around the true value of the leadership type. Private information influences an individual's belief about the leadership type, as well as her belief about the private information held by others. For instance, an elite with posterior expectation of the leadership type z believes that the posterior expectations of other elites are normally distributed with mean z. An elite, whose posterior expectation of the leadership type is significantly greater than $\bar{z}$, believes that the majority of other elite posterior expectations of θ are also significantly greater than $\bar{z}$—thus they are fairly confident in the actions of others. In contrast, an elite with a posterior expectation of θ which is very close to the cutoff $\bar{z}$, believes that nearly half of her fellow elites are on the other side of the cutoff and are taking the opposite action. Individuals whose posterior expectations are close to the cutoff value face a larger degree of strategic uncertainty and are less confident they will successfully coordinate with others.

It is important to note that in our model of protest, there is an incentive to free-ride, although citizens do not have a dominant strategy to abstain. The incentive to free ride in our model derives from the fact that individuals may enjoy the advantages of successful protest by other citizens, without incurring the cost of protesting themselves. In fact, whenever a policy reform is secured without full participation by the citizenry, there is a set of citizens who benefit from the protest without having helped it to succeed.[10]

A citizen's incentive to free ride is influenced by his confidence in the effectiveness of protest. The value of special benefits μ, to a citizen contemplating protest, depends on his privately held belief (influenced by his private signal x) that the policy reform will be secured. This value is weighed against a citizen's incentive to obtain the benefit of reform without protesting. Which effect dominates, the desire to free ride or the expected value of special benefits, depends on a citizen's private confidence in protest success.

The Informational Link Between Protest and Coups

Popular protests take time to secure political reform, and reform is a slow process compared to coups, which generally transpire within hours. Often it takes months until the full consequences of a policy reform are realized, suggesting that the policy reform should be decided after the coup. For simplicity, we assume that the policy reform and the outcome of the coup are decided simultaneously since this assumption does not affect the formal results. One could also allow the policy reform to be decided before elites choose to launch a coup; however, in this case it seems responsible to model the decision of the leadership as to the timing of granting the policy reform. This introduces nontrivial technical concerns that are orthogonal to our substantive interest at hand.

A protest of size $r \in [0, 1]$, which in equilibrium depends on the leadership type θ and the citizen

[10]This is not the classic free-rider problem but is an interpretation for use in models with coordination; see Almendares and Landa (2007).

protest cost c, is commonly observed by all elites. This means elites use r as an aggregate statistic of the information which motivated the efforts of citizens to protest. Although elites are indifferent toward the granting of reforms, they do use citizen behavior to judge the likelihood that a coup will succeed if launched. After observing r, elites must translate the protest size into a meaningful estimate of θ, their key concern when judging the likelihood of coup success.

To summarize, the game proceeds according to the following: (1) The leadership type θ and the citizen protest cost c are drawn. Citizens observe c, but elites do not. Neither citizens nor elites observe θ. Elites and citizens receive private signals of θ. (2) *Protest Stage*: Citizens, based on private information, can stage a protest. (3) *Coup Stage*: Elites, after observing the size of the protest and their own private information, can attempt a coup. (4) Outcomes are realized and payoffs are received.

Our model, although not a signaling game, does share certain features with signaling games, for instance pooling equilibria. There are two equilibria in our model where citizen behavior does not depend on their private information: one where all citizens protest and one where no citizen protests. When citizens pool on the same action, the protest movement cannot be informative to elites. When citizen strategies do not depend on their private information, a protest movement does not aggregate information, and elite strategies depend only on their private signals. This implies that elite behavior at the equilibrium in which all citizens protest, and the equilibrium where all citizens abstain, is identical, meaning elite equilibrium cutoffs are the same.

Since previous research has focused on the connection between protests and coups and how protests affect the behavior of elites, in the remainder of this article, we focus on the equilibrium in which citizens respond to their information. Furthermore, the pooling equilibria imply that elite behavior is not responsive to protest movements, which contradicts a robust empirical finding. Our goal is to understand the connection between protests and coups when there is information aggregation by the protest movement.

Protests, Media, and Information Aggregation

To derive an informative equilibrium for the model, we first show that the information generated from the protest provides a normally distributed signal to elites contemplating a coup. Note that since the protest cost of citizens is unknown by elites, the size of the protest provides a noisy signal regarding the leadership type. This means when elites see a large protest, they are uncertain as to whether the leadership's coup-proofing strategies are ineffective or whether the citizen protest cost is low.

Our first result details the link which connects the two levels in our game. This lemma shows a novel connection between popular protest and the elite coordination problem.

Lemma 1. *Given citizen cutoff strategy $\bar{x}(c)$, a protest of size r implies a public signal, $Q = -\frac{1}{\sqrt{\alpha}}\Phi^{-1}(r)$, which is normally distributed with mean 0 and precision $\gamma(\rho, \alpha) = \frac{\rho\sqrt{\alpha}}{\rho+\sqrt{\alpha}}$.*

Citizens, who are concerned about policy reform, act based on their private information. A protest aggregates the private information imparted to citizens about the leadership's coup-proofing strategies and provides elites with a noisy signal of the leadership type. Lemma 1 details the link between the protest stage and the coup stage through a normally distributed public signal. Since Q is a statistic of aggregated citizen information, protests are still informative to elites even when individual citizens are poorly informed.

The conditions for monotone Bayesian Nash equilibrium require that there is a citizen with private signal $x^\star$ who is indifferent between protesting and not, and an elite with private signal $z^\star(r)$, which depends on the size of the protest, who is indifferent between supporting the leadership and not. These indifference conditions induce the critical thresholds individuals use to compute expectations, one for policy reform $\tilde{\theta}$, where policy reform is successful if and only if $\theta < \tilde{\theta}$, and one for coup success $\theta^\star(r)$, where a coup succeeds if and only if $\theta < \theta^\star(r)$. Equilibrium requires that all elites interpret the public information generated by the protest correctly. This is natural because elites are unsure of the protest cost of citizens, and as established in Lemma 1, they will interpret the public information as a normally distributed public signal.

We now establish the conditions under which the monotone informative equilibrium, where all players respond monotonically to their information, is unique.

Proposition 1. *If elites are sufficiently well informed relative to citizens, then there is a unique monotone informative equilibrium.*

It is important to note that the uniqueness of the informative equilibrium follows by assuming that citizens are poorly informed about the effectiveness of the leadership's coup-proofing strategies relative to elites. For the remainder of the article, we maintain

this assumption, i.e., $\beta > \frac{\rho^2\alpha}{2\pi(\rho+\sqrt{\alpha})^2}$. Substantively, we find this to be a mild restriction on the model as it is likely always the case that regime elites hold far better information about regime characteristics than citizens.

Lemma 1 states how elites interpret popular protests, and it shows the distribution of the information that protests convey. Our first substantive result examines how changes in media freedom, measured by α, affect the precision of the information elites infer from the protest movement. This substantive result motivates our empirical strategy below.

Proposition 2. *The precision of the information conveyed by a protest is strictly increasing and strictly concave in the level of media freedom. Moreover, the precision of the protest signal is strictly increasing and strictly concave in the level of centralization.*

Recall that when media is restricted, citizens are poorly informed. When citizens are poorly informed, then the precision of the public signal provided by the protest is low. Proposition 2 states that when media outlets are free, protests more effectively aggregate the information of citizens. It is important to note that this effect is *not* a result of the press reporting the occurrence of protests to elites. Instead, it is a result of the fact that citizen actions are more sensitive to the leadership type when media outlets are free. Proposition 2 implies that a protest movement comprised of well-informed citizens carries more information about the effectiveness of coup-proofing strategies, even when those citizens are interested in policy reform instead of coup outcomes.

The parameter ρ is a measure of the extent to which the coup threshold and the reform threshold are related through the leadership type. In a centralized country, the leadership's ability to withstand popular pressure for reform is highly sensitive to its coup-proofing strategies because of the leadership's direct control over policy. When the leadership has control over policy implementation, protests are more informative to elites.

Proposition 2 shows that the quality of information aggregated by a popular protest increases with media freedom. We now examine how the effectiveness of media freedom is restricted by the level of centralization.

Proposition 3. *As media freedom gets arbitrarily large, the precision of the protest signal is bounded by a country's level of centralization.*

Proposition 3 shows that although the protest signal's precision is increasing in media freedom, it is bounded above by ρ. Even as the level of media freedom becomes arbitrarily high and all citizens are in agreement regarding the leadership type, the precision of the protest signal is restricted by the level of centralization.

In centralized countries, where ρ is large, a leadership's ability to withstand popular pressure is more sensitive to idiosyncratic differences in the effectiveness of coup-proofing strategies, and thus θ and $\Phi(\rho\theta)$ are highly correlated. Because of this, protest movements can convey precise information even at relatively low levels of media freedom. In contrast, in decentralized countries, such as modern democracies, the informativeness of protest movements is constrained by a low value of ρ, even at very high levels of media freedom. Consequently, the effect that media freedom has on aggregated information available to elites during periods of protest is sensitive to different levels of centralization. When a decentralized country has a freer media, a protest provides a less reliable signal to elites than in a country which is highly centralized but has the same level of media freedom.

Popular Protest and Elite Coordination

We now present a comparative static analysis which examines the link between protests and coups. Since the size of the protest is endogenous to the model, these comparative static results are performed at the interim stage, meaning after the protest stage but prior to the coup stage. This is sensible since by assumption the empirical analyst does not receive private information but must rely entirely on information which is publicly available, thus implying that all participants in the protest and all potential coup participants are also privy to this information. The interim approach is required since no element of the theoretical model is observable by an empirical analyst until the point at which public information is generated.

We begin by analyzing the effect of popular protests on the critical state $\theta^\star(r)$, which determines the weakest leadership which survives a coup attempt. This leads to a direct empirical implication of our model, which is consistent with empirical analyses that examine the determinants of coups and their success (Powell 2012).

Proposition 4. *The critical state that determines leadership failure is strictly increasing in the size of the protest r. Furthermore, the probability a coup succeeds, conditional on protest size r, is strictly increasing in the size of the protest r.*

The critical state at which the coup succeeds is endogenously influenced by the size of the protest.

Publicly observed protests affect the beliefs of an elite, thus altering the private signal she must receive in order to remain indifferent between her actions. Large protests, which hint at ineffective coup proofing, require private signals that convey resilience to coups in order for an elite to be indifferent between participating in a coup and not. In particular, an elite who sees a protest movement suggesting the leadership's coup-proofing strategies are ineffective knows that more elites will participate in a coup, so her private belief about the effectiveness of coup-proofing strategies must be particularly strong in order for her to abstain from the coup.

Proposition 4 shows that the set of leaderships which fail from a coup is increasing in the size of the protest movement. This is not a result of protests weakening the regime per se, but rather it is a consequence of large protests occurring in weak regimes. It may be the case that some protest movements structurally weaken regimes, but in our model, large protests are a symptom of leadership weakness and not a direct cause.

From the perspective of an outside observer, such as an empirical analyst who is not privy to any private information, the probability of a coup's success can be conditioned only on the observed size of the protest r. Proposition 4 implies that there is a positive relationship between the size of the protest and the likelihood that a coup will be successful. This result provides a theoretical foundation for the finding that protests are positively associated with the likelihood of coup success, which has been empirically verified but not explained (Powell 2012).

Conventional accounts posit that protest movements provide a focal point on which elites coordinate their actions. Our next result shows how this coarse form of coordination is captured in our model.

Proposition 5. *As the protest approaches full participation, all susceptible leaderships are overthrown by coups, and as the protest approaches zero participation, leaderships which can survive coups, survive.*[11]

Proposition 5 shows that in regimes where the size of a protest is arbitrarily small (meaning as $r \to 0$), coups never succeed, and a leadership is only replaced when it fails for reasons unrelated to coups, i.e., when the leadership type is at or below zero. Likewise, in regimes where the size of the protest is arbitrarily close to 1, all leaderships who are susceptible to coups are replaced in this manner, i.e., the leadership type is less than one. This means that extreme protests, either full participation or full nonparticipation, cause elites to coordinate in a coup or coordinate in supporting the leadership respectively.

Recall that conventional accounts of the coordinating effect of protests on coups rely on the focal character of protest movements, arguing that when there is a protest, elites coordinate on participating in a coup, and when there is no protest, elites coordinate on supporting the leadership. Proposition 5 shows that our model captures this same intuition without relying on a focal-point argument. In addition to capturing the focal-point intuition, our model provides a microfounded account of why protest movements, in and of themselves, have a coordinating effect and not other public events. Public events which are uncorrelated with θ cannot act as coordinating devices in our model.

Protests provide a public signal that alters the posterior beliefs of elites in the same way. An increase in the size of a protest shifts all elite posteriors down by the exact same amount since it provides the exact same information to all elites. We examine how public protests, in addition to their informational effect on elite posteriors, have a coordinating effect on elite actions. This is a common feature in global-game applications.

The informational content of protest size r is given by the change in the private signal which keeps an elite's expectation of the leadership type unchanged, denoted as z_r. This measures the amount by which the private information about θ must adjust in order to compensate for a change in the protest size so that an elite with private signal z is *informationally indifferent*, i.e., her expectation about the leadership type is unchanged. However, an elite who is informationally indifferent is not necessarily action indifferent.

Denote by z_r^* the change in the private signal an elite must receive in order to compensate for a change in the size of a protest r so as to remain indifferent between participating in a coup and supporting the leadership—this is the strategic coordinating effect of the popular protest on elite behavior. By providing a microfounded account where the coordination dynamic between elites is explicitly modeled, we now present an important implication for the study of protests and coups.

Following Morris and Shin (2003), we look at the ratio of the strategic coordinating effect of a change in protest size to the nonstrategic informational effect of a change in protest size. Morris and Shin (2003, 82) refer to this as the publicity multiplier because it measures the relative effect of strategic considerations as a

[11]Note that the protest is informative in the limit.

consequence of the publicity of a signal. The publicity multiplier is the ratio of the change in the private signal which keeps an elite indifferent between participating in a coup and not, z_r^*, and the change in the private signal which keeps an elite's posterior unchanged, z_r, formally: $\xi = \frac{z_r^*}{z_r}$.

Proposition 6. *The strategic coordinating effect of popular protests is larger in magnitude than the informational content of popular protests. This means that popular protests have a larger effect on elite coup behavior than that derived from their informational content, i.e.,* $\xi > 1$. *Moreover, when public information has its largest effect on elite behavior, the publicity multiplier is increasing in media freedom.*

Popular protests inform elites about other elites' beliefs on the effectiveness of the leadership's coup-proofing strategies. Thus, the publicity of protest provides an individual elite with information about the beliefs of all elites, and she knows that all elites have the same information about her. In this way, an elite is better able to predict the actions of her compatriots, and they are better able to predict her actions. Elites near the cutoff $z^\star$ are those who are most sensitive to popular protest.

To illustrate this result, consider a country that experiences a protest. Suppose this country experiences a protest of size $r > r'$. An elite, who observed r and received private signal z, has a lower posterior (in the sense of first-order stochastic dominance) about the effectiveness of the leadership's coup-proofing strategies than that same elite if she observed r' and received the same private signal z. The elite who witnessed r knows that her compatriots also witnessed r, and hence she knows that her compatriots also have lower posteriors about the leadership's coup-proofing strategies than if they were to have witnessed a protest of size r'. The sheer publicity of r provides our elite with a further incentive to participate in the coup aside from the protest's informational effect because she now expects more of her compatriots to participate in a coup (since more elite posterior expectations of the leadership type will fall below the cutoff for coup participation $z^\star$). Additionally, since all elites are aware of this added incentive for our original elite, this provides them with a further incentive to participate in the coup, and this provides our original elite with a further, albeit diminished, incentive to participate in the coup, and so on.

Proposition 6 implies that elites "overreact" to popular protests, hence changes in the size of protests have a larger effect on the equilibrium behavior of elites than is warranted purely by the informational content they provide. This means that although protest size provides information, the fact that this information is public implies that elites use protest size in two ways. First, elites use protests as a sufficient statistic for the information possessed by citizens about θ, updating their posterior expectations appropriately. Second, an elite uses the publicity of the protest to better ascertain her compatriot's beliefs about the effectiveness of the leadership's coup-proofing strategies, thus better aligning her action with the actions of other elites.

Even though elites "overreact" to popular protests, this reaction is justified. The elite with posterior $z^\star$ faces the largest degree of uncertainty regarding the actions of her compatriots. Consequently, the elite with posterior $z^\star$ values successful coordination the most and is therefore the most sensitive to information regarding the actions of elites. Furthermore, when popular protests have a large effect on elite behavior (which occurs for protests that hint at a leadership type near $\theta^\star$), media freedom has its largest effect. This suggests that for leaderships on the verge of failure, elites are highly sensitive to popular protest—and this sensitivity intensifies with freedom of media.

Summary

Our model uses the connection between the threshold at which a leader can resist a coup, and the threshold at which a leader can resist a protest movement, to derive a mechanism by which elites use protests to coordinate their actions in a coup. We detail the endogenous relationship between popular protests and coups, which accounts for the use of protests as a coordinating device for elites. In addition, we show a monotonic relationship between protests and the probability of coup success, which has only been demonstrated empirically.

In studying how protests aggregate citizen information, we find that media freedom influences the occurrence of coups in countries experiencing popular demands for reform. First, we show that the precision of the information provided by the protest is increasing in a country's level of media freedom. This occurs because media freedom causes less dispersion in citizen expectations of government characteristics. As a consequence, the information provided by a protest in countries with a free media is more informative, thus further reducing dispersion in elite expectations of government characteristics.

Second, we show that elites strategically react to protests over and above the information provided

about government characteristics. The coordination incentive implies that the information a protest provides about the actions of other elites is far more valuable to an elite than the information a protest provides about government characteristics.

Putting the intuition of our two main results together, the level of media freedom determines the accuracy of elite expectations about the actions of other elites during periods of protest. As such, the actions of citizens in a country with a freer media provide elites with a better estimate of the actions of other elites. This reduction in strategic uncertainty means that elites are less likely to misjudge the actions of other elites, and hence they correctly coordinate with their compatriots to overthrow the leadership whenever they can succeed and correctly coordinate to support the leadership whenever they cannot. Protests in countries with a freer media better facilitate coordination among elites, so in countries with freer media, there should be a stronger relationship between protest movements and coup attempts. We now empirically evaluate this implication.

Empirical Analysis

Our model relies on the private beliefs of elites and citizens. Of course it is impossible to measure, or at least extremely difficult to elicit, an individual's privately held beliefs regarding characteristics about the government. These difficulties make a direct test impossible; however, we can evaluate an implication of our model which provides an indirect test of our informational mechanism. Recall that Proposition 2 details how increases in media freedom increase the precision of the information conveyed to elites through the popular protest. This implies that the relationship between protests and coups should be stronger in countries with freer media.

Data and Method

To measure media freedom, we collect data from the CIRI Human Rights Data Set (Cingranelli and Richards 2010) and the Freedom House Press Freedom Data Set. The CIRI Data Set provides a 3-point measure of the extent to which freedoms of speech are affected by government censorship. From these data, we create a variable called *Speech Limits* and scale the variable so that higher values represent higher limits on speech and lower values represent more freedom of speech. Additionally, using data from Freedom House, we create a variable called *Press Limits*, which is a 3-point measure of government ownership of media outlets. To make our measure of press limits consistent with our measure of speech limits, the variable *Press Limits* is coded so that lower values imply lower limits on media outlets. Since Freedom House changed their coding methodology in 1989, we collect data on press freedom for the period 1989–2010.

Since the leadership type is unobservable in our theoretical model, both by citizens and elites, it cannot be the case that it is observable to the empirical analyst. To evaluate the relationship between popular protests and coups, we use a seemingly unrelated (SUR) bivariate probit model, which simultaneously estimates an equation determining coups and an equation determining political reform. The simultaneous estimation procedure provides an estimate of the correlation between the error terms in the coup equation and the political reform equation. Failing to account for the correlation of the error terms in the two equations would lead to biased estimates. The SUR bivariate probit model helps us account for the effect that the unobservable leadership type has on the likelihood of political reform and on the occurrence of coups.

Our theoretical model implies that there should be a positive relationship between the size of protests and the likelihood of a coup attempt. Since we lack data on the size of protests, we proxy for protest size by collecting data on the number of antigovernment demonstrations, riots, and general strikes in each country. The independent variable of interest, called *Protests*, aggregates the number of these events that occurred in a country each year. Our theoretical model suggests that media freedom will mediate the effect that popular protests have on coups. To capture this mediating effect, we create interaction terms between our variables *Protests* and *Speech Limits*, as well as our variables *Protests* and *Press Limits*. Data on demonstrations, riots, and strikes come from the Banks Cross-National-Time-Series data archive (Banks 2011).[12]

The primary dependent variable of interest is whether or not a country experiences a coup attempt in any given year. To construct this variable (titled *Coup Attempt*), we collect data from the Center for Systemic Peace Coups Database which provides

[12]Herkenrath and Knoll (2011) present cases where these data have bias. It is unclear how this bias, if systematic, would affect our empirical results.

information on successful coup attempts, unsuccessful coup attempts, and any coup attempts that were thwarted before being launched (Marshall and Marshall 2011). After collecting these data, we follow convention within the literature by coding any country year where at least one coup attempt was made, either successful or unsuccessful, as a 1. Conversely, we code any observation as a 0 if no coup attempt was made that year. In our model some proportion of elites always participate in a coup; however, in the empirical analysis, we interpret arbitrarily small participation in our model as the absence of a coup attempt.

Before discussing the results, it is important for us to note that we are not interested in the empirical results for the political reform equation, and we do not discuss them at length in this article. We model political reform in a SUR bivariate probit model to account for the fact that the probability of a coup attempt is likely to be partially dependent upon the probability of political reform (see the online appendix).

Results and Marginal Effects

The results from the coup-attempt equation in Table 1 are consistent with the expectation that variations in media freedom affect the relationship between coups and popular protests. In models 1 through 6, the *Protests* variable is positive and statistically significant, while the interaction between *Protests* and *Speech Limits* is negative and statistically significant. The positive coefficient for the *Protests* variable suggests that increased protests increase the probability of a coup attempt, and the negative coefficient for the interaction term suggests that the effect of protests on the risk of a coup is decreasing as a country's level of media freedom declines. The results for the interaction term in models 1 through 6 are robust to a variety of model specifications and the inclusion of region-specific fixed effects. Models 7 through 12 provide a robustness check by using Freedom House's press-freedom measure. The results in models 7 through 12 are the same as the results in models 1 through 6.

Before moving on, in Table 2, we present the substantive results from the analysis of coup attempts. The first column of Table 2 suggests that in a country with the lowest levels of media freedom, a country's probability of experiencing a coup (and no reform) is unaffected when the *Protests* variable changes from 0 to 8. In the second column, the results suggest that in a country with partial levels of media freedom, a country's probability of experiencing a coup in any year increases by 2.3 probability points when the *Protests* variable changes from 0 to 8. Finally, in the third column of Table 2, in a country with high levels of media freedom a country's probability of experiencing a coup in any year increases by 8.3 probability points when the *Protests* variable changes from 0 to 8. Taken together, each of these results provide strong support for the claim that the effects of protest size are conditional on media freedom. This set of results is consistent with our theoretical model's informational mechanism.

Notice in Table 2 that the change in the effect of protests on coups is almost four times bigger when one moves from a partially free press to a fully free press. Our results suggest that the difference in the marginal effects for each level of speech freedom are significantly different from each other at the 90% level. This means that the effect of protest on coups in countries with high levels of media freedom is significantly different than the effect in countries with less media freedom. These results are in the online appendix.

Further Tests

In our analysis, we use measures of press freedom and freedom of speech to capture the level at which information flows freely in a society. A problem with this approach is that media freedom is highly correlated with other civil liberties. Due to this correlation, it is possible that our analysis is not isolating the effect of media freedom per se, but instead could be confounded by the effect that wider civil liberties have on the relationship between protests and coups. To check this possibility, we run a variety of tests to determine if other factors also mediate the relationship between protests and coups.

We analyze the effect of three different measures which are highly correlated with media freedom and could possibly mediate the relationship between protests and coups. First, we measure regime type by using a country's Polity IV score. Second, we proxy for a regime's level of repressive capacity by measuring the amount of torture used by a regime in a given year. Third, we proxy for human rights abuse by measuring the respect for civil liberties held by a regime in a given year. Our measure of torture comes from the CIRI Human Rights Data Set, and our measure of human rights abuse comes from the Political Terror Scale Data Set (Gibney, Cornett, and Wood 2008). We choose regime type, repressive capacity, and human rights abuse as our variables of interest in the civil-liberties

TABLE 1 Popular Protests, Media Freedom, and Coup Risk

	Dependent Variable - Coup Attempt											
	Speech Limits						Press Limits					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Protests	0.100***	0.097***	0.095***	0.091**	0.094***	0.096***	0.120***	0.126***	0.118***	0.117***	0.120***	0.122***
	(0.032)	(0.035)	(0.036)	(0.035)	(0.036)	(0.036)	(0.028)	(0.029)	(0.028)	(0.028)	(0.029)	(0.029)
Speech	0.163**	0.136*	0.170**	0.098	0.080	0.088						
Limits	(0.075)	(0.080)	(0.086)	(0.109)	(0.105)	(0.103)						
[Protests]*	-0.059**	-0.057*	-0.058*	-0.054*	-0.055*	-0.057*						
[Speech	(0.029)	(0.032)	(0.032)	(0.032)	(0.032)	(0.033)						
Limits]												
Press Limits							0.021	0.002	0.024	-0.107	-0.127	-0.144
							(0.101)	(0.103)	(0.111)	(0.140)	(0.137)	(0.140)
[Protests]*							-0.037**	-0.037*	-0.035*	-0.033*	-0.033*	-0.035*
[Press							(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.020)
Limits]												
GDP Growth	-0.019***	-0.016***	-0.015**	-0.015**	-0.013**	-0.013**	-0.019***	-0.015**	-0.015**	-0.014**	-0.012*	-0.011*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.006)	(0.006)
log(Population)	0.043	-0.014	-0.003	-0.003	-0.003	-0.014	-0.006	-0.040	-0.037	-0.040	-0.033	-0.040
	(0.046)	(0.055)	(0.056)	(0.057)	(0.058)	(0.059)	(0.054)	(0.058)	(0.060)	(0.062)	(0.064)	(0.068)
log(GDP Per	-0.205***	-0.200***	-0.181***	-0.160***	-0.153***	-0.134**	-0.259***	-0.242***	-0.235***	-0.219***	-0.206***	-0.180**
Capita)	(0.044)	(0.044)	(0.049)	(0.051)	(0.052)	(0.054)	(0.059)	(0.061)	(0.077)	(0.080)	(0.078)	(0.080)
Military	-34.279***	-33.305***	-29.019***	-27.975***	-35.223***	-32.482***	-46.656**	-48.871**	-38.536**	-38.846**	-50.506***	-49.398**
Capabilities	(12.249)	(11.576)	(10.616)	(10.740)	(11.832)	(11.637)	(19.353)	(20.367)	(16.932)	(18.160)	(19.222)	(20.531)
Civil War		0.533***	0.552***	0.560***	0.585***	0.566***		0.460***	0.481***	0.470***	0.502***	0.492***
		(0.137)	(0.136)	(0.136)	(0.134)	(0.136)		(0.141)	(0.140)	(0.141)	(0.137)	(0.143)
Central/South			0.155	0.166	0.170	0.174			0.239	0.298*	0.297*	0.325*
America			(0.154)	(0.157)	(0.159)	(0.161)			(0.157)	(0.162)	(0.166)	(0.171)
Africa			0.108	0.066	0.071	0.107			0.127	0.098	0.110	0.139
			(0.136)	(0.137)	(0.141)	(0.138)			(0.153)	(0.155)	(0.163)	(0.163)
Middle East			-0.193	-0.282*	-0.307*	-0.299*			-0.347	-0.470*	-0.461	-0.477*
			(0.165)	(0.170)	(0.165)	(0.162)			(0.283)	(0.282)	(0.283)	(0.281)

TABLE 1 (Continued)

	Dependent Variable - Coup Attempt											
	Speech Limits						Press Limits					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Polity Score				-0.018*	-0.018**	-0.021**				-0.028**	-0.029**	-0.035**
				(0.009)	(0.009)	(0.010)				(0.014)	(0.013)	(0.014)
International					0.483**	0.453**					0.487*	0.444
Conflict					(0.204)	(0.203)					(0.286)	(0.287)
New Regime						0.179						0.230
						(0.113)						(0.146)
Coup Time	-0.080***	-0.066**	-0.066**	-0.066**	-0.066**	-0.061**	-0.082***	-0.070**	-0.067**	-0.073**	-0.072**	-0.066**
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.030)	(0.029)	(0.029)	(0.029)	(0.029)	(0.030)
Coup Time^2	0.003*	0.002	0.002	0.002	0.002	0.002	0.003*	0.002	0.002	0.002	0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Coup Time^3	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.642	0.087	-0.321	-0.371	-0.424	-0.556	0.607	0.898	0.656	0.825	0.643	0.385
	(0.815)	(0.881)	(0.994)	(1.006)	(1.053)	(1.080)	(1.083)	(1.171)	(1.334)	(1.385)	(1.407)	(1.454)
/athrho	0.163**	0.161**	0.161**	0.127*	0.126	0.118	0.091	0.105	0.102	0.058	0.066	0.057
N	3,045	3,045	3,045	3,045	3,045	3,045	2,249	2,249	2,249	2,249	2,249	2,249

Country clustered standard errors in parentheses. *p-value < 0.1 **p-value < 0.05 ***p-value < 0.01.

TABLE 2 Marginal Effects - Popular Protests, Media Freedom, and Coup Risk

	Not Free	Partially Free	Free
Pr(Coup=1, Reform=0 | Protests=8)	0.026 (0.004, 0.075)	0.050 (0.022, 0.093)	0.105 (0.029, 0.240)
Pr(Coup=1, Reform=0 | Protests=0)	0.033 (0.013, 0.069)	0.027 (0.011, 0.053)	0.022 (0.007, 0.050)
Difference	-0.007 (-0.038, 0.032)	0.023 (0.007, 0.047)	0.083 (0.012, 0.220)

Note: 95% confidence intervals in parentheses. Results produced from estimates in model 6.

tests because they are the civil liberties most likely to also mediate the relationship between protests and coups. For each test, we create interaction terms between *Protests* and each specific civil liberty.

Besides civil liberties, it is possible that elites in different types of regimes face different loyalty incentives. Selectorate theory (Bueno de Mesquita, et al. 2003) argues that an elite's loyalty is decreasing in the size of the winning coalition, while Geddes (1999) argues that elites have a strong incentive to stay loyal to an incumbent in a personalist regime. It is possible that media freedom is correlated with regime type, and this could confound our main results. To guard against this possibility, we also conduct a set of tests examining the mediating effect that coalition size and personalism have on the relationship between protests and coups.

The results in the online appendix suggest that other civil liberties do not mediate the effect of popular protests on coups. In particular, in models 1 through 3 we look at regime type since civil liberties are particularly prevalent in democracies. In models 1 through 3, *Protests* is positive and statistically significant, but the coefficient on the interaction between *Protests* and a country's polity score is not significant.

In models 4 through 6, we examine the mediating effect that repressive capacity may have on the relationship between protests and coups. This is sensible since high levels of repressive capacity may suppress turnout in a popular protest. In models 4 through 6, *Protests* remains positive and statistically significant, while the interaction between *Protests* and *Torture* is statistically indistinguishable from zero.

In models 7 through 9, we consider what should be the most likely candidate to confound our main results. The Political Terror Scale's measure of human rights abuse proxies for all civil liberties which could correlate with popular protest. In models 7 through 9, the variable measuring popular protest is again positive and statistically significant. The interaction between *Protests* and the measure of human rights abuse has no significant effect on the relationship between protests and coups.

In models 10 through 15, we show that winning-coalition size and personalism are not responsible for our main empirical results. Particularly, the interaction between protests and winning-coalition size, and the interaction between protests and personalism, are indistinguishable from zero. Taken together, all of these null findings suggest that other factors, especially civil liberties, are not responsible for the effect of media freedom on the relationship between popular protests and coups.

Conclusion

We develop a model to isolate the informational connection between a popular protest and the coordination problem faced by elites in a coup d'état. We argue that a popular protest provides a public signal which helps elites, who are contemplating a coup, to coordinate their actions. In the presence of strategic uncertainty, the information which a popular protest conveys affects not only an elite's belief regarding the information which motivated citizens to protest but also her belief about the actions of other elites. This means that popular protests affect the behavior of elites through two distinct channels. First, protests provide elites with information which helps them better ascertain the ability of the leadership to withstand a coup. Second, the publicity of the protest causes elites to sharpen their beliefs about what other elites will do, thus reducing the strategic uncertainty associated with participating in a coup. A result of our model for the study of coups is that elites tend to ''overreact'' to the public information provided by protests.

The central result of our model shows how media freedom affects the relationship between popular protest and coups. By examining the signal provided by a protest, we show that the precision of the protest signal is increasing in a country's level of media freedom. This occurs because media freedom causes less dispersion in citizen expectations about government characteristics. A protest undertaken by a well-informed citizenry sharpens

elites' expectations about the actions of other elites, thus facilitating elite coordination.

The results of our empirical analysis are consistent with our model's testable implications. Our findings show that popular protests have a significantly larger effect on coups in countries with high levels of media freedom. This suggests that the relationship between popular protests and coups is stronger in countries where citizens are better informed, which is consistent with our model. Furthermore, to better isolate the mediating effect of media freedom on coups, we examine the effect of other civil liberties on the relationship between protests and coups. We find that regime type, repressive capacity, and human rights abuse have no effect on the relationship between protests and coups. These null findings are particularly important since they suggest that the freedom to protest is not driving our main empirical results.

We argue that popular protests, through their sheer publicity, provide commonly observed information that aid elite coordination. Elites use popular protests because citizen actions are motivated by their beliefs regarding government characteristics, which are also important to elites. By explicitly considering the coordination dynamic among elites, we find and test a novel implication which is not highlighted in conventional accounts. Our contribution shows that turnout in protests is more influential for strategic elite coordination than for information and that this becomes even more pronounced when information flows more freely among citizens. More broadly, our model suggests that coups have not been a prevalent feature of the Arab Spring precisely because of heavy restrictions on media throughout the Middle East.

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