Protest, Deterrence and Escalation: The Strategic Calculus of Government Repression

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Abstract

The theoretical literature on government repression has mostly taken a choice theoretic perspective, where either the protest group optimally chooses a protest tactic in response to government behavior (Lichbach 1987) or the government optimally chooses a repression strategy (Moore 2000). This approach is insufficient for capturing the strategic nature of protest and repression. The theoretical shortcomings of this approach are reflected in contradictory empirical findings on the effects of repression on dissent. The paper develops an extensive strategic game between the government and an opposition group that allows to identify the conditions for successful deterrence or protest. Introducing incomplete information and a third party threat additionally produces equilibria with repression and escalating violence. The model produces novel testable hypotheses that shed new light on the effect of repression on dissent, the likelihood of violence and the possibility of a coup. Implications for the domestic democratic peace and "murder in the middle" hypothesis are drawn.

1 Introduction

Throughout the 20th century many governments faced protesters in the streets and had to choose between accommodating their demands or mobilizing the security apparatus to repress. Historical experience shows that repression of popular protest can sometimes work, dissolve the opposition, deter future protest and reaffirm the leadership in their grip on power. On the other hand, repression sometimes leads to violent escalation, a radicalization of the population and spirals of violence that mark the downfall of the current government. Interestingly, this is not only a challenge for non-democratic or semi-democratic leaders. Even in established democracies political opposition is sometimes expressed in the form of mass protest, demanding political change, which can be answered with compromise or repression. The varied experiences of several Western governments with student protests in the 1960s and 1970s, sometimes resulting in government repression and escalation of violence by radicalized students, shows that across regime types governments have to devise strategies to deal with popular protest (della Porta 1995).

What do we know about the conditions under which governments will resort to violence? When is such a strategy rational and likely to succeed? Similarly, when will an opposition choose to seek reform by organizing protests, knowing about the possibility of repression? Is it ever rational for the government and the opposition to play strategies that result in escalating violence? Surprisingly, there are not many satisfying answers available. The literature on political violence has recently focused on explaining violence in civil wars[1]. While this line of inquiry makes valuable contributions to our understanding of the patterns of violence, it predominantly focuses on the role of challengers, while mostly ignoring the state as a crucial actor. Furthermore, moving away from cases of extreme state weakness and civil war, many societies experience ongoing state repression and vio-

[1] good overviews can be found in Kalyvas(2006) and Blattman and Miguel (forthcoming)

lence without meaningful violent opposition. Research that focuses on the role of the state, ruling elites and bureaucracies in government repression which could help to answer some of the above questions, is less developed. In a succinct and insightful survey article, Davenport (2007*a*) describes the state of the literature with regard to what we know about the impact of institutions, economics and the international sphere on levels of government repression, with two core insights. The "Domestic Democratic Peace" finding stems from several studies which have shown a connection between democratic institutions and low levels of state repression (Henderson 1991, Fein 1995, Regan & Henderson 2002, Davenport & Armstrong 2004, Davenport 2007*b*). The "Law of Coercive Responsiveness" states that governments will respond with repression when challenged. Apart from these two findings, there is little consensus about the effect of repression of protest (Hibbs 1973, Muller & Opp 1986, Muller & Weede 1990, Rasler 1996). While important, this existing work is surprisingly empirical and inductive and generally does not move beyond simple correlational analysis. Not only does data availability constrain progress in making causal identification possible, but even more so a dearth of theoretical advances inhibits better empirical models. Most researchers build their empirical investigations around short qualitative arguments for the purported effects of democratic institutions and do not properly specify actor's goals, abilities and the strategic context. Generally, the literature fails to convincingly identify conditions under which governments can deter protest, repression will be used and when escalation takes place. This failure is largely due to the small number of strategic models of repression. Prominent existing theoretical models (Lichbach 1987, Moore 2000, e.g.) take a choice-theoretic approach and do not model the strategic interaction between the government and the opposition.

In an effort to remedy some of these shortcomings and inform future empirical work, I present in this paper a series of simple game theoretic models, that will identify conditions under which rational actors will use protest and repression to reach their goals. The main

findings indicate that governments which are strong enough to successfully repress protest, will be able to deter the opposition from taking the streets, while weak governments will have to compromise with the opposition. This result holds, even when the opposition is uncertain about the strength of the government. These results directly speak to the "murder in the middle" hypothesis (Fein 1995). Rational actors should be able to avoid costly protest and repression and escalation of violence does not happen in equilibrium. Successful repression arises if the opposition has organizational capacities that help for organizing protest, but still has relatively high costs for escalating violence. While these result resonate well with some of the existing literature, they can not explain periods of escalating violence. When the game is extended to include a third party, e.g. the military or a hard-liner faction in the government, with diverging goals, repression and escalating violence can result from the desire of the incumbent government to appear tough vis-a-vis this third party. If governments face a coup threat, popular protest can serve as a screening device to inform the coup party about the strength of the incumbent. Escalating violence in this scenario can emerge if the popular opposition has low cost of mobilization while the cost of a coup by the third party are relatively high. The model also allows for political strife in form of a coup to arise as part of an equilibrium strategy. Overall, the analysis can explain outcomes of deterrence, successful protest and repression, coups and escalating violence as the product of strategic behavior. The properties and comparative statics of the equilibria draw attention to important variables that relate to existing empirical findings, but also go beyond simple regime type classifications. While the model certainly cannot explain all episodes of repression and violence, its analytical value lies in drawing attention to the potential of strategic models in explaining protest and repression.

The paper proceeds as follows, Section 2 outlines the empirical puzzles and theoretical shortcomings associated with government repression. Section 3 presents a simple model of repression, which is refined through Sections 4 and 5. Section 6 discusses modifications and

possible extensions of the model. Section 7 concludes.

2 Empirical Puzzles and Theoretical Models of Repression

The literature on government repression has a strong empirical current. Numerous qualitative and quantitative studies have tried to ascertain the effect of regime type on human rights violations, parse the dynamics of protest cycles, repression and escalation or determine the role of economic and international factors for state violence. Several authors find support for the domestic democratic peace hypothesis (Davenport 2007*b*). They have repeatedly shown that democratic countries do rarely engage in repression (Henderson 1991, Fein 1995, Regan & Henderson 2002, Davenport & Armstrong 2004, Davenport 2007*b*). Though, controversy exists over the specific functional form that links regime types and repression. Davenport and Armstrong (2004) argue for a threshold level effect that dramatically reduces state violence approximately at a POLITY score of 7. Other studies argue for a "murder in the middle" hypotheses (Henderson 1991, Fein 1995, Regan & Henderson 2002), that stresses the importance of semi-democracies for episodes of violence. The argument asserts stable democracies refrain from repression because incumbents feel less threatened and opposition forces have legitimate channels for dissent. In strong autocracies elites have a secure grip on power and generally do not fear popular protest, which in turn induces dissenting voices to remain silent (Fein 1995). In any kind of intermediate regime, with an unstable balance of power, young and untested institutional channels for voice, leaders and the general public are more prone to cycles of protest and violence. This hypothesis nicely dovetails with Laitin and Fearon's as well as Hegre et al's study of civil wars (Fearon & Laitin 2003, Hegre, Ellingsen, Gates & Gleditsch 2001), showing increased incidence of civil wars in "anocracies" or intermediate regimes. The emerging consensus seems to be that a set of functioning democratic institutions is associated with considerably reduced repression by the government, while it is less clear which factors determine human rights violations in the diverse set of semi-democratic

to strongly autocratic regimes. It might be the case that the dynamics of repression outside of democracies defy a straightforward mapping on POLITY scores and we have to identify characteristics which speak more directly to the empirical phenomenon at hand.

Separate from the regime type discussion, several other empirical regularities have been found and re-confirmed in the literature. Davenport (2007*a*) speaks of a "Law of Coercive Responsiveness", positing that governments will react with repression to perceived threats. If the state is challenged, it uses repressive measures to eliminate the threat. Though, a large literature on protest and collective action has found mixed evidence with regard to the effectiveness of government repression in defusing popular protest. Some studies find an inverted-U relationship (Muller & Weede 1990), some find a positive impact (Muller & Opp 1986), some a negative relationship (Hibbs 1973), while some argue for mixed (Rasler 1996) or substitution effects (Moore 1998, Lichbach 1987). Recent experimental evidence supports the hypothesis that government repression increases opposition and protest (Dickson 2007). Government repression can be successful or lead to violent escalation, even ending in regime collapse. Given the possibility of escalation, government repression cannot be seen simply as an action-reaction phenomenon, but rather has to be understood as a strategic interaction between multiple players.

Without discussing the empirical problems[2], it is instructive to analyze the theoretical framework informing these empirical studies. The arguments for the domestic democratic peace most often reduce to a short paragraph emphasizing the legal alternatives in democracies available to dissenters and the constitutional constraints binding the elite. While costs and efficiency most certainly play a dampening role for repression, even some democracies face the choice between accommodation and repression (della Porta 1995). Even more so,

[2]The studies on domestic democratic peace show a strong correlation between regime type and government repression, but fall short of finding a causal effect. Democratic institutions might reduce the incentives and opportunities for elites to use physical force against citizens, but it could also be the case that factors which bring about democratic institutions at the same time reduce incentives for repression.

when looking at patterns of repression in countries without consolidated democracy, there exists huge variation. Some countries never experience huge protest movements or violent repression, while other societies regularly enter spirals of violence.

Apart from empirical research, there are only a handful of theoretical models in the literature that try to explain protest and government repression. Lichbach's *Deterrence or Escalation?* (1987) and Moore's *The Repression of Dissent: A Substitution Model of Government Coercion* (2000) which model respectively the protesters and the government's decision-making problem[3] are two famous examples. Both articles use the same modeling technique, employing the classic setup from basic microeconomic producer theory, in which a firm optimizes the production of a good by choosing a cost-minimizing combination of input factors. Lichbach models the optimal allocation of a opposition group's resources between violent and non-violent protest for achieving a pre-defined policy output, given the costs of each activity. Moore formalizes the government's decision to mix accommodation and repression to achieve a certain policy level at minimal costs.

These models do provide interesting results with regard to the expected behavior of an opponent. Actors will substitute activities with higher costs to still attain their desired goals, which can increase overall levels of conflict, if the input costs of the more efficient activity have risen. These results give some indication as to how protest levels can be reduced or why certain forms of repression lead to more violent behavior. At the same time it is less clear how the findings relate to the existing empirical evidence if we think of governments and protest groups as rational actors. A government presumably knows about the substitution relationship between peaceful and violent protest (or at least has strong incentives to learn quickly) and will, irrespective of regime type, always implement policies that lead to optimal outcomes. All observed incidents of peaceful compromise, deterrence or escalation to

[3]There are other models on repression in the literature, most of which focus on a dictator's decision to engage in widespread terror (Gregory, Schroeder & Sonin 2006, Herrero 2006, Lskavyan 2007), but less so on the interaction between the government and the opposition

violence are then actually a product of the optimal choices of the government. Furthermore, each model only analyzes the optimal choice of one actor and never considers the strategic interaction with an opponent. If outcomes depend on the strategic interaction of governments and protest groups and are not just simply attained by the right choice of input factors in a deterministic production function by one side, we have no clear expectation with regard the variables that determine deterrence, compromise or violence. While these choice-theoretic approaches make important points and raise several interesting questions[4], they might not provide the best modeling framework for analyzing the sequenced interaction of governments and protest groups with interdependent outcomes.

A good example of a strategic approach is Crescenzi's (1999) article on violence in regime transitions. In the context of a signaling game, Crescenzi outlines the interaction of a government and the opposition struggling over the decision to liberalize political rights. The government's decision to liberalize serves as a signal to the opposition group if it is dealing with the hardliner or softliner faction. The opposition can then decide whether to cooperate with the regime, negotiate a pacted transition or radicalize. An analysis of this interaction reveals that regimes under certain conditions back down in the face of a strong opposition, sometimes are able to deter the opposition and sometimes use liberalization to draw out opposition groups and then resort to repression if they are hardliners. These are encouraging results in the sense that the framework of a signaling game allows to derive equilibria that correspond to important empirical scenarios. At the same time the structure of Crescenzi' game limits the outcome space because not all decisions are explicitly modeled. Specifically, the game starts with the government having to make a decision over liberalization, without the opposition having to priorly expose its reform wishes through peaceful protest. This se-

[4]It would be extremely interesting to explore further the conditions under which violence and nonviolent activities function as substitutes or complements. Similarly, a choice-theoretic perspective on the organizational decisions of government agencies and oppositions groups, alike to Weinstein's study on rebel groups (2007), could make an incredibly interesting contribution

quence of moves allows for the interesting result of liberalization by both government types, followed by repression through hardliners, but only because the government is assumed to be in a situation of facing demands for reform[5]. Secondly, the government' decision to use violence is tied to its type, i.e. there is no room for bluffing or brinkmanship on the side of softliners.

The goals of the next section will be to outline a simple general formal model that improves at least in some aspects on existing theoretical models and provides new insights with regard the empirical puzzles outlined above. In particular, on a theoretical level, the model will analyze the fully strategic interaction between a government and an opposition group over a general policy conflict, where the sequence and type of moves will allow for an outcome space that closely maps a wide range of empirical scenarios of interest. The game will allow for outcomes of complete deterrence, successful peaceful protest, successful repression and escalating violence and hence provide a very general framework to analyze protest and repression in many contexts[6]. The second goal of the analysis is to establish strategic microfoundations for the domestic democratic peace or murder in the middle hypothesis. Ideally, the analysis of equilibria and comparative statics of the game will not only give better theoretical justification for existing findings, but also outline new relationships and factors relevant for protest and violence that will guide future empirical investigations beyond simple regime type measures.

[5]Presumably, an opposition that has to first protest for demands might decide to abstain from the streets in the first place, fully aware of the entrapment strategy of the hardline government

[6]While I abandon the continuous substitution of violence and non-violence embraced by Lichbach and Moore's choice models, allowing for discrete actions enables a clearer exposition of the strategic trade-offs for government and the opposition

3 A Simple Strategic Model of Repression and Dissent

In order to get a better understanding of when and how repression and dissent can result in escalating violence or when deterrence works, it is useful to start with an idealized model[7]. Assume there are two relevant groups in a society for this conflict: the government and the opposition. The opposition is here understood to be a real organization, may it be a party or a union with a core group of activists but with a wider network of supporters. The opposition is in disagreement over policy with the government, which also cares about staying in office for the associated rents. The disagreement could be about extending political rights, the outcome of an election, land reform or any other issue. The interaction will be modeled as a simple extensive game with complete information. Appendix A lays out the details and associated proofs. In the following I will present the basic structure and the main results.

In the first period, the opposition can choose to organize a protest or remain silent. If they do not protest, the status quo remains unchallenged and the game ends. This allows for situations in which the government can deter any kind of dissent. The government will receive benefits $B_g > 0$ from being in office, the opposition receives a payoff of 0 for the status quo. If the opposition decides to protest, it incurs costs $c_p > 0$ for overcoming the collective action problem and the government in turn has the choice to accommodate the protesters or repress. Accommodation in this context means actually offering and implementing a credible policy compromise, which will be labeled $p > 0$. Examples could be regional autonomy, land reform or direct redistributive spending in favor of the protesters. The government receives for this move utility $-p$ and the opposition gets p. An important assumption is that p can not easily reversed in the future. Alternatively, the government can decide to repress at the cost $c_r > 0$, which reduces the opposition's final payoff by $r > 0$, representing the disutility of being repressed. After this the opposition can move a second time. No matter what

[7]Ginkel and Smith (1999) formulate an alternative model that speaks to similar questions

the choice of the government was, the opposition can decide to escalate the conflict or to stand down and acquiesce. Escalation mobilizes the wider support network of the opposition and leads to direct confrontation with the government. In both cases the game ends after the opposition's move. Hence, there are four possible scenarios after a decision to protest: (Repress, Escalate), (Repress, Acquiesce), (Accommodate, Escalate), (Accommodate, Acquiesce).

The first case is the classical escalation scenario. People protest against a policy, the government reacts with repression and the citizens support the opposition and overcome their collective action problem. Several quantitative studies (Muller & Opp 1986, Rasler 1996) and even some experiments (Dickson 2007) have shown the possibility of this scenario. The outcome is open conflict, which the government will win with probability π and the opposition with $1 - \pi$, with $\pi \in [0, 1]$. The government also incurs the cost of open conflict w, while opposition expends resources c_{esc} to mobilize the population and overcome the collective action problem for fighting an open conflict. If the opposition wins, it gains the benefits it associated with overthrowing the government $B_o > p$. The second scenario ends with the opposition backing down and the status quo remains. If the government accommodates the opposition, again two cases are possible. If the opposition tries to escalate the conflict despite of the government's willingness to cooperate, they incur the costs for escalation c_{esc}, but have a zero chance of winning ($\pi = 1$). This is certainly a simplifying assumption, but not too far removed from reality. If after popular protest the ruling elite implements a credible policy compromise, it is unlikely that the opposition will be able to surmount the collective action problem for the general population, since it is already achieving its goal[8]. The government still faces the cost w of open conflict and punishing the opposition and the prior policy compromise p. On the other hand, if the opposition acquiesces, the policy gets

[8]The probability π could easily remain on the interval between zero and 1. All equilibrium results will still hold under the additional assumption that π is large enough to make the opposition choose acquiesce after accommodation.

implemented. Figure 1 depicts the game in detail and shows the final payoff structure.

FIGURE 1 ABOUT HERE

The structure and sequence of the game are general enough to cover many outcomes of interest and mirrors the strategic dilemma most protest groups face. An opposition group has to weigh the risks of protest against inaction, while the government has to choose between accommodation or repression, anticipating the risk of escalation. Before the game can be solved, further assumptions about the parameters have to be made. It will be assumed that $c_{esc} > c_p$, i.e. it is less costly to convince people to peacefully protest, than to organize violent collective action. Furthermore it is assumed that $B_g > p$ and $B_o > p$, both the government and the opposition value being in office more than making a policy compromise. Also, to make protest possible in the first place, $p > c_p$, i.e. the value of the policy comprmise outweighs the costs of protest. Finally, it is assumed that repression of protest is less costly than repressing escalating violence $c_r < w$. The sub-game perfect equilibria of the game depend crucially on the size of the parameters. Specifically, when solving by backward induction (see Appendix A), one can show that there exist only two qualitatively distinct outcomes under reasonable assumptions: either the government is strong and deters any kind of protest with the threat of repression, or the protesters successfully force the government to make a policy compromise.

First, it is useful to observe that it is always rational for the opposition to acquiesce after the government accommodated. Escalation is only possible after repression. Furthermore, escalation will only be selected as a strategy if the expected payoff of overthrowing the government $(1 - \pi)B_o$ is greater than the cost of escalation c_{esc}. The likelihood π of the government winning an open conflict is crucial, if $\pi > (1 - c_{esc}/B_o)$, then the government is strong enough to deter escalation. In order to achieve the deterrence outcome, the cost of

repression c_r also has to be lower than the cost p of a policy compromise:

Proposition 1: The government can successfully deter protest and escalation if $\pi > (1 - c_{esc}/B_o)$ *and* $c_r < p$*, resulting in the following subgame-perfect strategy profile (*$C : \neg$*protest, repress, acquiese/acquiesce). Complete proof in Appendix A.*

These conditions will likely hold in strongly autocratic societies, where the government has a tight grip on the repressive bureaucratic apparatus and it can efficiently squash protest and engage effectively in open violent conflict. In these situations, popular protest is likely to be deterred, especially since the potential payoff of a policy compromise p has to be high enough to justify the popular protest - which helps any regime with low cost c_r of repression.

The other possible scenario can emerge if the opposition is likely to escalate after repression and the government prefers to accommodate protest:

Proposition 2: The opposition will successfully protest for policy change, without suffering repression, if $\pi < 1 - c_{esc}/B_o$ *and if* $-w - c_r + \pi B_g < B_g - p$*, which results in a subgame-perfect equilibrium with the following strategy profile (protest, accommodate, escalate/acquiesce). Complete Proof in Appendix A.*[9]

The second outcome will likely materialize in societies where the opposition is relatively strong. The population will react harshly towards repression and the government does not have a strong police force / military or not perfect control. Democracies are certainly examples where these conditions hold and opposition forces do not need to fear repression and violent escalation is unlikely. Indeed, the results relate nicely to the domestic democratic

[9]Two other equilibria are technically possible, but only under very unrealistic parameter assumptions. A detailed discussion can be found also in Appendix A.

peace finding and the murder in the middle hypothesis. In democracies protest will be accommodated, not necessarily for legal reasons, but because the regime does not have the resolve to punish the opposition. In strong autocracies resolve is present and known to the opposition, which makes protest an unlikely strategy. This simple model provides a strategic justification for the non-violence outcomes outlined in the murder in the middle and domestic democratic peace hypothesis. Even more so, the underlying reason does relate to regime type, but not necessarily so. Deterrence and successful protest are determined by the probability of winning an open conflict, the cost of repression and the cost of escalation which goes beyond regime types and measures like POLITY. An autocracy with a weakening or decentralizing security apparatus (increasing c_r and lower π), facing an opposition operating with a social network and support structure conducive to collective action (low c_{esc}), will have to increasingly compromise on policy to avoid escalation. Similarly, a democracy with a well-organized security force operating against a marginalized minority (low c_r) that has difficulties mobilizing, will be able to avoid any protest. At the same time, the model fails to explain actual instances of repression and violence. On the equilibrium path one does not observe actual repression or escalation. To rectify this shortcoming, the model will be modified (using more realistic assumptions) in two steps. First, incomplete information will be introduced and then a third actor.

4 Protest and Repression under Incomplete Information

It seems reasonable that the interaction between the government and the opposition takes place in an environment without perfect information. Most likely, the government will have

a relatively solid understanding of its own capabilities, while the opposition has to form a belief about the government's resolve. To engage this situation, it is useful to consider the above game and transform it into a standard signaling game. Building on the results from the game in Figure 1, the government can be of two types: strong or weak. Strong governments are assumed to have cost of repression that lie below the cost of a policy compromise $c_p < p$. Also, strong governments are assumed to win open conflict with the opposition after escalation. Weak governments on the other hand prefer compromise to repression $c_p > p$ and would lose office of the opposition decides to escalate.

The game starts with nature N drawing the type of government, which is strong (S) with probability ρ and weak (W) with probability $1 - \rho$. The government knows its type, but the opposition has to form a set of beliefs about the type of the government. After the type has been determined, the opposition has to decide wether to protest (P) or refrain ($\neg P$) based on its prior beliefs about the government's type. If the opposition decides to protest, each government type can decide whether to repress or accommodate the opposition. This action sends a signal to the opposition which can then form updated beliefs, denoted by q. The game ends with the oppositions decision to escalate or acquiesce. The payoffs of the game are slightly adjusted to reflect the different government types. Specifically if the opposition escalates against a weak government, it wins and receives a payoff of $-c_p - r - c_{esc} + B_o$ which reflects the benefits of taking office. Figure 2 depicts the modified game with adjusted payoffs.

To find all weak sequential equilibria of the game, all separating and pooling strategies have to be considered. Appendix B presents all the necessary proofs to show that there exist only two stable equilibria:

FIGURE 2 ABOUT HERE

Proposition 3: The first stable weak sequential equilibrium of the extensive repression game with incomplete information is a separating equilibrium, with the strategy profile $(O : P, Acquiesce, Acquiesce)$, $(S : Repress, W : Accommodate)$ *and prior beliefs* $\rho < \frac{p-c_p}{r+p}$ *and posterior belief* $q = 1$ *after observing repress and* $q = 0$ *after observing accommodate.*

This equilibrium clearly separates the two types and realizes the strong government's favorite outcome. If the opposition has a sufficiently low prior belief of facing a strong government, it will risk protest. The government will then reveal its type and strong government will repress, while weak governments will accommodate. Irrespective of the governments action the public will acquiesce. The weak type would certainly like to avoid accommodation and also deter escalation, but pooling on repression can not be a stable equilibrium, because the weak government faces comparatively high costs of repression c_r and prefers accommodating the opposition. If governments can be characterized by these two types, they will even under incomplete information separate and the opposition can clearly infer the resolve of the government by its actions. The second possible equilibrium is closely related in such as the strategy profile is the same, except for the prior belief of the opposition.

Proposition 4: The second stable weak sequential equilibrium of the extensive repression game with incomplete information is a separating equilibrium, with the strategy profile $(O : \neg P, Acquiesce, Acquiesce)$, $(S : Repress, W : Accommodate)$ *and prior beliefs* $\rho > \frac{p-c_p}{r+p}$ *and posterior belief* $q = 1$ *after observing repress and* $q = 0$ *after observing accommodate.*

Here, the opposition has a sufficiently high belief of facing a strong government and prefers to not protest in the first place. The two equilibria explain three observable outcomes: successful deterrence, successful protest and successful repression. This rectifies the absence of violence in the game of complete information. Successful deterrence emerges if

organizing protest is costly (e.g. information cannot flow freely, activists are restricted in their movements and actions, social networks are dispersed or severed) and the punishment through repression is severe[10]. Low levels of protest are especially likely in systems with weakly organized opposition groups and a publicly known policy of harsh repression. This result also indicates that governments have an incentive to cultivate a reputation of being non accommodating to deter protest in the long run. On the other hand if protest is nearly costless and punishment mild (or a regime softens its approach to punishment), protest can be successful. If the structural conditions point to a weak government, protest will take place and lead to a policy compromise. The most interesting case is the scenario of protest followed by successful repression. This arises if the opposition believes a priori it is facing a weak government, which is especially likely if peaceful protest is costless and punishment is low, but they are actually facing a strong government. This is plausible to arise in two cases. One, if an external shock changes the beliefs of the opposition irrespective of the actual capabilities of the government. Two, for regimes that are the weakest of the strong types facing an opposition with intermediate capabilities. I.e. governments have to be strong according to Proposition 1 (they are determined and capable to win open conflict), but weak in punishing peaceful protest only mildly. A regime that chose to liberalize (reduce r), but has still very much control over the security forces and intends to hold on to power, will be forced to use repression against protesters. The opposition has to be capable of protest (low c_p) but is not prepared to fight a civil war (high c_{esc})[11]. This is likely in hybrid or transitional regimes, where beliefs about the governments resolve are fluid and the actual capabilities of the government are waning and waxing respectively.

Introducing incomplete information leads to an improved understanding of the strategic foundation of deterrence, successful protest and repression, which provides a microfoundation

[10]Under these conditions the threshold on ρ is very low and hence easily overcome.

[11]E.g. an urban protest movement that can easily bring protesters on the streets, but is not prepared to sustain open conflict for long

for the murder in the middle hypothesis that goes beyond simple regime type classifications. Using this strategic framework shows it is not necessarily the legitimacy of the democratic process or the automatic use of force in autocracies, but rather the interplay of beliefs and capabilities in different dimensions (repression / fighting open conflict and protest / escalation) of both the government and the opposition that matters for the type of outcome.

5 The Role of Third Party Threat

The question remains, what are the conditions that would induce a rational government and a rational opposition to actually engage in repression and *escalating* violence? While certainly there are many reasons outside the strategic behavior of rational actors that produce actual atrocities, it will be nonetheless fruitful to outline the conditions under which such an outcome can be the result of strategic behavior, especially in the context of a model that allows actors to find compromise or back down. As has been shown, simple disagreement over policy and uncertainty about the government's strength are not sufficient. The problem lies in the government's knowledge when it can be successful with repression.

One possible extension of the model would be to consider the threat of a third party. This third actor can be thought of as the military or a hard-liner faction within the government. It is not uncommon for governments to not only face the threat of popular protest but also threats from within the ruling coalition. Many regimes that recently transitioned to democracy still face the threat of a coup from an unsatisfied military or old conservative elites, while at the same time the incumbent government has to struggle to satisfy the demands of the general population. This third party might be generally dissatisfied with the current government, but only wants to take action if it is certain to actually take over the government. This third party though is uncertain about the actual strength of the government, its control over the security apparatus and backing of key economic groups. In such a situation, popular protest started strategically or as the product of random economic shocks (e.g. food and fuel riots), can be used as a screening device to assess the incumbent government's grip on power. The third party does not need to be conceptualized as a competing shadow government, but could be any actor that can take a costly action for the sitting government, for example a region seeking more autonomy or a neighboring nation willing to claim

territory can fulfill the same functional role[12]. This idea is very similar to a model about the repression by the Chinese government in Tiananmen square (Shiu & Sutter 1996). Shiu and Sutter argue that the use of violence by the central government against the students has to be understood in the context of center-periphery rivalry, i.e. the central government had to take a stand against the students to also communicate strength to the regions in the periphery. The model I will present exhibits a similar logic in one of the equilibria, but unlike the model by Shiu and Sutter, explicitly formalizes the interaction between the opposition, the government and a third party[13] and derives a full set of all possible equilibria in a more general setting.

I will keep the structure of the extensive game with incomplete information, but add a third player T who can take an action C or $\neg C$ at the end of the game. If the third party decides not to act, the outcomes are as in the game in Figure 2 and T receives $-B_c$ for having to endure the status quo[14]. If T decides to act (e.g. mount a coup) it incurs cost c_c. This action will have no effect if the government is of the strong type (e.g. the incumbent does have a loyal police force) and T receives $-B_c - c_c$. If T acts and the government is weak, the action is successful (e.g. the military takes over the government or the region becomes successfully autonomous) and T receives $B_c - c_c$. This action outcomes also overrules a possibly successful escalation by the opposition against a weak government[15]. This equally

[12]Thyne (2006) outlines a related argument where he evaluates the effect of a signal by a third outside party on the likelihood of conflict between two domestic factions. He argues that outside involvement through cheap signals increases the likelihood of bargaining failure and shows the empirical relevance of this argument using data on sanctions and alliances. The model here only considers costly signaling by a domestic actor to two opponents and does not discuss the role of cheap talk. While Thyne might be right that cheap talk has adverse effects through informational channels, but he does not address the changing nature of the strategic game through third party intervention. Fully modeling the signal and possible intervention of an outside power might still have a net effect on violence.

[13]Shiu and Sutter consider student protest and the negotiation with the periphery separately, although the students are probably aware of the parallel conflict with the periphery

[14]It is assumed the third party does not care about the struggle between the government and the protesters. Alternatives to this assumption are discussed in the next section.

[15] It seems reasonable that a dissatisfied military will have little reservations against ending any protest movement

implies that the weak government will only receive $-B_c$ instead of B_g in all the possible outcomes. In general I denote the posterior beliefs of the third party by θ. The game with all the payoffs is depicted in Figure 3.

FIGURE 3 ABOUT HERE

Given these conditions, the separating equilibrium of the original game breaks down. If both types separate, they reveal their type to the third party, which will succeed with a coup when facing a weak government and refrain from a coup when facing a strong government. This induces the weak government to pool on repression. Furthermore, no other separating equilibrium exists. The only stable equilibria that emerge are five related pooling equilibria. The first equilibrium is described in Proposition 4.

Proposition 4: In the extensive game with incomplete information and third party threat a stable pooling equilibrium arises when the opposition protests, both government types accommodate, the public acquiesces and the third party mounts a coup. The corresponding strategy profile is $(O : P, Acquiesce, Acquiesce)$, $(S : Accommodate, W : Accommodate)$, $(T : C)$. *This result holds under the condition that the opposition has prior belief* $\rho > \frac{c_p}{p}$, *the third party has posterior belief* $1 - \frac{c_c}{2B_c} > \theta$, $B_g - c_r - w < B_g - p$ *and* $-c_r - w < -B_c - p$. *Off the equilibrium path T has belief* $1 - \frac{c_c}{2B_c} < \theta$ *which implies no coup and O beliefs* $q > 1 - \frac{c_{esc}}{B_o}$ *which implies escalation. Complete proof in Appendix C*

In this equilibrium both government types are willing to accommodate the protesters, because repression is interpreted as a sign of weakness and would lead to an escalation of violence. The third party believes after observing accommodation it faces a reasonably weak government and attempts a coup. The outcome of the game implies initial protest, com-

promise and a coup attempt by the third party which is only successful against the weak government. Crucial for this equilibrium to be stable is the condition of relatively low costs of protest and high potential policy value for the opposition, while the third party has low costs of a coup and high potential payoffs for overthrowing the government. This is an interesting new result that adds the possibility of civil conflict between parts of the government as a potential outcome. While it does not necessarily explain escalating violence with the protesters (it depends what the implications of the coup are), but it does explain political strife in the context of protest. The 2006 coup by the military against the Shinawatra government in Thailand after an extended period of popular protest, resembles the equilibrium in Proposition 4.

A related equilibrium without conflict emerges when the opposition has the opposite prior belief of facing a relatively weak government. Then it will abstain from protest in the first place and the game ends without any protest.

Proposition 5: In the extensive game with incomplete information and third party threat a stable pooling equilibrium arises when the opposition does not protest, both government types accommodate, the public acquiesces and the third party mounts a coup. The corresponding strategy profile is $(O : \neg P, Acquiesce, Acquiesce)$, $(S : Accommodate, W : Accommodate)$, $(T : C)$. *This result holds under the condition that the opposition has prior belief* $\rho < \frac{c_p}{p}$, *the third party has posterior belief* $1 - \frac{c_c}{2B_c} > \theta$, $B_g - c_r - w < B_g - p$ *and* $-c_r - w < -B_c - p$. *Off the equilibrium path T has belief* $1 - \frac{c_c}{2B_c} < \theta$ *which implies no coup and O beliefs* $q > 1 - \frac{c_{esc}}{B_o}$ *which implies escalation. Complete proof in Appendix C*

The next set of pooling equilibria emerges when both government types pool on repression.

Proposition 6: In the extensive game with incomplete information and third party threat a stable pooling equilibrium arises when the opposition does not protests, both government types repress, the public acquiesces and the third party does not attempt a coup. The corresponding strategy profile is $(O : \neg P, Acquiesce, Acquiesce)$, $(S : Repress, W : Repress)$, $(T : \neg C)$. *This result holds under the condition that the opposition has posterior belief* $1 - \frac{c_{esc}}{B_o} < q$ *and the third party has posterior belief* $\theta > 1 - \frac{c_c}{2B_c}$. *Complete proof in Appendix C*

If both the opposition and the third party interpret repression as a signal of strength, both types can deter protest. A similar result holds when the opposition interprets repression as a sign of weakness but has a strong prior of facing a strong government.

Proposition 7: In the extensive game with incomplete information and third party threat a stable pooling equilibrium arises when the opposition does not protests, both government types repress, the public escalates and the third party does not attempt a coup. The corresponding strategy profile is $(O : \neg P, Escalate, Escalate)$, $(S : Repress, W : Repress)$, $(T : \neg C)$. *This result holds under the condition that the opposition has prior belief* $\rho > 1 - \frac{c_p + r + c_{esc}}{B_o}$, *posterior belief* $1 - \frac{c_{esc}}{B_o} > q$ *and the third party has posterior belief* $\theta > 1 - \frac{c_c}{2B_c}$. *It also has to be true that* $B_g - p < B_g - c_r - w$ *and* $-B_c - p < -c_r - w$. *Complete proof in Appendix C*

In cases of Proposition 5, 6 and 7 the observable outcome is successful deterrence, in which both types of governments can avoid any kind of conflict. While the interpretation of case 6 and 7 is very similar to the deterrence equilibria in the two earlier models (high c_{esc} makes deterrence more likely), case 5 reveals another alternative explanation of successful deterrence. If a third party is added, the government can use the coup threat as an excuse to induce the opposition group to keep from the streets. The last possible equilibrium is a case with repression and escalation of violence.

Proposition 8: In the extensive game with incomplete information and third party threat a stable pooling equilibrium arises when the opposition does protests, both government types repress, the public escalates and the third party does not attempt a coup. The corresponding strategy profile is $(O : P, Escalate, Escalate)$, $(S : Repress, W : Repress)$, $(T : \neg C)$. *This result holds under the condition that the opposition has prior belief* $\rho < 1 - \frac{c_p+r+c_{esc}}{B_o}$, *(non-binding) posterior belief* $1-\frac{c_{esc}}{B_o} > q$ *and the third party has posterior belief* $\theta > 1-\frac{c_c}{2B_c}$. *It also has to be true that* $B_g-p < B_g-c_r-w$ *and* $-B_c-p < -c_r-w$. *Complete proof in Appendix C*

This equilibrium starts with a prior belief by the opposition about the government's strength below the threshold $1 - \frac{c_p+r+c_{esc}}{B_o}$. Depending on the parameter values, this threshold can imply high or low values of ρ, as long as ρ is just below the threshold though, the expected utility for protesting outweighs staying off the streets. Both government types will react with repression, the strong because it knows it will succeed and the weak, because not repressing might trigger a coup by the third party. After observing repression, the opposition updates its beliefs about the strength of the government, but since both types pooled on repression, no additional knowledge is gained[16]. With no additional knowledge, one rational strategy for the opposition to opt for escalation, because the chances of facing a weak government have not changed. Gambling on conflict still offers better expected utility than backing down after repression. The third party observed the government's non-informative signal and the opposition's behavior. Hence, it is fully aware of the risk assessment by the opposition group and the associated beliefs. The posterior belief the third party forms has to be in agreement with these facts, i.e. it holds the same posterior belief as the opposition. Though, as long as the threshold for action by the third party $(1 - \frac{c_c}{2B_c})$ is not breached, it will still refrain from a coup, which makes the strategy profile sequentially rational. It is not

[16]The threshold for posterior beliefs by the opposition is strictly non-binding

the case that the opposition and the third party have divergent beliefs about the strength of the government, it is the case that they have different thresholds for action. The opposition might think it worthwhile to gamble by choosing conflict, but the third party, sharing the same risk assessment, might still choose to stay out of the conflict. Specifically, as long as the shared posterior belief $h^* = q = \theta$ of both the opposition and the third party lies between the two thresholds $1 - \frac{c_c}{2B_c} < h^* < 1 - \frac{c_p + r + c_{esc}}{B_o}$, the equilibrium is stable. This outcome is especially likely if the cost of a coup attempt are high relative to the potential payoffs[17], while the cost of protest and escalation are low for the opposition. This is a situation where the opposition is well organized for various protest activities and ready to use violence, while the government is not able to simply deter protest by its own strength or the coup threat by the third party, which induces the opposition to risk conflict. At the same time, the threat by the third party is still strong enough to make a weak government opt for repression.

The observable outcomes for this equilibrium are either a successful people's revolution, violently overthrowing the government or a failed uprising ending in bloodshed with the government still in power. The addition of a third party can explain new forms of deterrence, political strife in forms of coups, successful popular revolutions and escalating violence. Interestingly, in the model with three actors, successful protest and successful repression are not part of observable outcomes.

An important remaining question is under which conditions it is reasonable to assume a split elite and when a government should assumed to be unified. The model does not allow any coordination or bargaining between the government and the third party, which is clearly a weakness, but simplifies the analysis greatly. Another justification for this approach is if

[17]The cost of a coup are here strictly independent of the likelihood of winning the conflict with the government, which is determined by the type. These costs could be thought of as the reputational stakes or extra financial incentives that need to be offered to officers and soldiers to carry out the coup, irrespective of whether the chances of winning are high. Even if the success of a coup is modeled as a positive function of the costs, there would still be a range of parameter values for which the two thresholds create a non-empty set for consistent posterior beliefs.

the government and the third party can negotiate their policy differences, either they will come to a resolution and the government can be modeled as unified (Model 1 and 2) or the bargaining space is empty and the interaction reduces to the strategic conflict modeled in this section. Unified autocracies emerge as the product of a stable bargain and institutional environment that facilitates coordination within the ruling elite[18]. If this stability is compromised by policy differences within the elite, active conflict like in the model of this section can emerge. Furthermore, the distinction between a split or unified government matters most from the perspective of the opposition. As long as the opposition knows about or believes in a split elite, the model with three players highlights useful strategic considerations.

The equilibria of the extensive game with incomplete information and third party threat shed even more light on the murder in the middle hypothesis. While the two prior games were most useful in explaining successful deterrence, repression and protest, this model improves our understanding of escalating violence and coups. The conditions outlined in Proposition 4 and 8 are likely to be met in hybrid and transitional regimes, but also suggest giving special attention to the organizational capacities of the opposition and the strength of an opposing third party. Across all equilibria, reduced cost of protest c_p and higher potential payoffs of challenging the government (p and B_o) decrease the likelihood of successful deterrence. Hence, deterrence is most likely in situation where the opposition is disorganized and the stakes are low. Similarly, if the cost of escalation c_{esc} and the effect of repression r are low, escalating violence becomes more likely[19]. An increase in the cost of policy compromise p and a fall in the cost of repression c_r also contribute to the possibility of escalating violence.

[18]Loyalty and cohesion in a dictator's ruling apparatus can be created through various mechanisms, ethnic linkages and ruling families (Beckett & Hess 2008), institutional rules (Debs 2007, Egorov & Sonin 2006, Przeworski & Gandhi 2007, Myerson 2008) or allocation of rents (de Mesquita, Smith, Siverson & Morrow 2003).

[19]While lower cost of a coup c_c and higher payoffs B_c make it more likely the third party will attempt a coup, it does not necessarily make the coup equilibrium more likely, because the off equilibrium beliefs become also harder to justify

6 Extensions

The model in Section 5 makes several important assumptions that will be modified in the following. Specifically, I will discuss the role of the third party when its preferences are aligned with the government or the protest group and analyze the consequences of non-strategic protest.

So far the third party has been assumed to have neutral preferences with regard to the conflict between the government and the opposition. Obviously, this need not be the case and in some empirical scenarios might be a misleading assumption. For example, if the opposition is campaigning for agrarian reform that is expected to harm both the government and the third party, the strategic interaction might have different consequences. Such a scenario is easily accommodated within the framework of the model in Section 5. We can simply add a preference over the policy compromise to the final payoff for the third party, i.e. whenever the game ends at a node with the policy compromise, the third party also receives an additional payoff of $-p$. It is still the case that there exists a rivalry between the government and the third party, who nonetheless prefers to be in power itselve. This allows for an interesting dynamic because the third party wants to mount a coup against a weak government *and* stop the implementation of any policy compromise. When the game is solved with the new payoffs, surprisingly the same set of equilibria emerges[20]. The only difference is in the threshold values for the beliefs of the third party. Here the parameter p has an influence compared to the original game. An increase in p (and hence the dislike of the policy by the third party), makes it easier to attain the coup equilibria. While the cost of a coup have remained the same, the disutility associated with outcomes after no coup attempt has increased. At the same time the parameter space for the equilibria in Proposition 6, 7 and 8 shrinks through the dislike of the policy compromise. This implies less escalating

[20]Proofs for this and other results in this section can be obtained by request and are omitted here due to space constraints. They follow in structure closely the proofs in the appendix.

violence or popular revolutions, but more political strife in the form of coups.

If the preference is reversed by switching signs on p, the third party actually approves of the policy compromise, while still giving first preference to attaining office itself. An increase in p makes coups now less likely[21], but also increases the potential for violence. The third party is now more willing to let the opposition overthrow the government without intervening, since it derives some positive utility from the new policy.

The last modification relates to the strategic horizon of the opposition. In the model, the protest group always has the option to bow out and not initiate any conflict. This is important because it allows deterrence to be possible, but obviously, not all protest is initiated strategically. Sometimes protests are started without considering the consequences and take place randomly (e.g. recent fuel and food riots). The model in the prior section can easily consider such a scenario by just focusing on the subgame after the decision to protest has already been made exogenously. In this case all three equilibria with no protest obviously are infeasible, but the other two equilibria remain stable. Additionally, a new equilibrium arises in which both government types repress, the opposition acquiesces and the third party refrains from a coup. This outcome was priorly avoided by the opposition's decision to not engage in protest. If protests are triggered randomly, governments can successfully deter escalation and coups by repression. This creates an interesting problem for governments, because if protests are triggered exogenously, repression can be successful in ending protest. Though, as the analysis in Section 5 shows, if protest is initiated strategically, repression can lead to escalation. A government experiencing protest has to carefully judge whether an opposition group has strategically started protest or whether the population was incited by exogenous factors to select a successful repression strategy.

[21] Given the costs of a coup, settling for the implementation of a policy compromise is now less costly to the third party.

7 Conclusion

Repression and protest are interrelated strategic decisions of rational actors. Existing empirical studies have uncovered certain regularities with regard to government repression, but also identified several puzzles. We still do not have a clear understanding when governments can successfully deter protest, when repression of protest can be effective and under which conditions escalating violence breaks out. The difficulty of empirically engaging these questions stems in part from a lack of well specified theory. Repression and dissent have to be understood as a strategic game between relevant actors, in which outcomes observed in reality emerge as equilibrium strategies. When modeling such an interaction, rational sorting is a result. Governments with the capabilities and resolve to repress the opposition should be able to successfully deter protest, while weak governments have to find a political compromise. This result directly speaks to the "murder in the middle" hypothesis (Fein 1995). In stable autocracies the ruler has enough power at his disposal to deter any public protest, while in democracies physical repression is not a viable option. Protest and repression should only emerge if the opposition has low prior belief of facing a strong government. "Murder" happens in the "middle" because in semi-democracies and transitioning regimes there is higher uncertainty about the rules of the game, behavioral norms and the capabilities of actors.

At the same time, escalating violence is not part of any equilibrium strategy in a simple interaction between a government and an opposition. Such an outcome can be obtained if the threat of a third party is considered. If a third actor can take a costly action, repression and violence can emerge if the government wants to appear strong with regard to this third actor. For example, in situations with an uncontrolled military faction or a hard-liner group in the government, protest needs to be repressed to keep the appearance of a strong hold on power. An important ingredient for this outcome are low cost of protest for the opposition

relative to high costs of a coup for the third party. Furthermore, in such a setup another possible outcome is protest that triggers a coup attempt by the third party.

The analysis of the two and three player models of protest and repression not only provides a theoretical framework and microfoundation for the empirical murder in the middle and democratic peace hypotheses, but also identifies new variables of importance for the empirical analysis of repression. In particular, violence and political strife are more likely to arise in environments with a partially mobilized opposition and an adversarial third party with declining resources. In a three-way interaction governments will not rationally sort, because a third party can use any informative signal to update its beliefs about the government's strength and attempt a coup.

Further empirical work should focus on quantitatively testing some of the implications of the model. Such a test would need fairly disaggregated data on the timing of events, capabilities of actors and outcomes. The argument presented here also highlights the importance to understand the data generating process as the result of strategic behavior. This invariably calls for a different set of empirical modeling tools (Signorino 1999).

On a theoretical level, several possibilities for extensions seem fruitful. So far the game has only a one-shot character, while protest and repression generally takes place in a repeated context. The role of prior beliefs for successful deterrence suggests the importance of reputation building for governments. In a repeated game several of the results might change in a meaningful way. Secondly, while the impact of a split elite has been considered, another obvious step would be to model principal-agent problems. It would be useful to incorporate notions of loyalty and bureaucratic self-interest to model the implementation of repressive policies. In many instances repression crucially depends on the willingness of the repressive bureaucracy (e.g. police, military, secret police) to actually follow through on the orders of the government. It is conceivable that, depending on the circumstances, bureaucrats or military leaders have their own goals and could repress too little or too much.

Lastly, this paper has not attempted to convincingly model collective action, but rather decided to draw on certain empirical results when necessary. Like many other models, coordination and and free-riding dilemma are ignored, by assuming the existence of an organization that can overcome these problems. Arguably, some of the most crucial driving forces for the effectiveness or failure of repression lies in the dynamics of collective action, the network structure of the opposition and the dynamics of protest waves. While hard to implement, recent examples have propagated the use of global games (Morris & Shin 1998, Edmond 2007) or stability sets (Medina 2007) to better model collective action and coordination. An emerging literature on social networks (Gould 1993, Siegel 2009) highlights the importance of networks structure, behavioral norms and the position of activists for successful collective action. Repressive behavior of governments in the context of a network is most certainly changed compared to standard strategic games. Governments will adjust the repressiveness of policies according to the observability and likelihood of information transmission in the network, while concentrating on marginalizing activists located at highly connected nodes of the network. It remains unclear though whether these intuitions hold up in the setting of a formal strategic game.

A Extensive Game of Repression and Escalation with Perfect Information

The game is completely defined by Figure 1. All subgame-perfect equilibria can be found by backward induction. Looking at the subgame after the decision to protest and accommodation by the government, it is clear that the opposition will always acquiesce ($p - c_p > -c_p - c_{esc}$). If the government decided to repress, escalation occurs when the expected benefits of being in office outweigh the cost of escalation:

$$(1 - \pi)B_o > c_{esc} \tag{1}$$

For this equation to hold, π has to be smaller than $1 - \frac{c_{esc}}{B_o}$. If the government is weak enough that π falls below this threshold value, the government will accommodate, if:

$$-w - c_r + \pi B_g < B_g - p \tag{2}$$

This equation holds for a truly weak government with low probability π of winning open conflict and high cost of repression c_r. Given this result, the opposition knows the government will back down and make a policy compromise when challenged through protest, which is strictly better than not protesting at all ($p - c_p > 0$). Hence, the first subgame-perfect equilibrium (protest, accommodate, escalate/acquiesce) occurs if (2) and (3) hold. If the government has a high probability π of winning an open conflict and (2) does not hold, it becomes rational for the public to acquiesce after repression. Knowing this, the government will repress, as long as $c_r < p$, i.e. the cost of repression are smaller than the cost of a policy compromise. Expecting the government to repress, the opposition will always choose to not protest ($-c_p - r < 0$). Hence, the second subgame-perfect equilibrium is (no protest, repress,

acquiesce/acquiesce). Technically, there are two more equilibria possible, specifically when π is high (low), but the government has high (low) cost of repression c_r, which can lead to successful protest or repression that results in escalation. Both of these outcomes seem unrealistic, since governments that have a high probability of winning open conflict (π) will also most likely have low cost of repression.

B Extensive Game of Repression and Escalation with Incomplete Information

The game without third part threat is complete defined by Figure 2. Weak sequential equilibria of this game are either pooling or separating equilibria.

Separating I Strong/repress, Weak/accommodate. Given this strategy profile, the opposition will, after observing the signal repress, assign a posterior belief $q = 1$ of facing a strong government and choose to acquiesce ($-c_p - r > -c_p - r - c_{esc}$). If the opposition observes the signal accommodate, it infers $q = 0$ and plays acquiesce ($p - c_p > -c_p - c_{esc}$). Is this strategy sequentially rational for both types of governments? The strong government could obtain $B_g - p$ off the equilibrium path. Since $B_g - p < B_g - c_r$ is always true for the strong government, it is rational to stick with the strategy. The weak type could obtain $B_g - c_r$ off the equilibrium path, but this is always less than is equilibrium payoff $B_g - p$. Hence, this strategy profile and belief system is consistent and sequentially rational. Now, at the first decision node, the opposition has to weigh the expected payoffs of protesting and not protesting. Given the strategy profile of the government, the expected payoff for protest is: $E(P) = \rho(-c_p - r) + (1-\rho)(\rho - c_p)$. The payoff for not protesting is zero. The opposition will protest if $E(P) > E(\neg P)$ which implies $\rho < \frac{p - c_p}{r_p}$. If this condition holds, the strategy

profile on Proposition 3 is a stable sequential equilibrium. If the equality is reversed, the equilibrium in Proposition 4 is attained.

Pooling I Accommodate. If both types pool on accommodate, the opposition will always acquiesce ($p - c_p > -c_p - c_{esc}$). The weak type will never have an incentive to go off the equilibrium path, because the best possible payoff $B_g - c_r$ is still lower than is equilibrium utility $B_g - p$. The strong type on the other hand might deviate. It all depends on the belief the opposition forms after perceiving a signal that is off the equilibrium path. In order to make the strong government not deviate, the public has to form a belief that induces it to play escalate after observing repress, because the payoff after escalation $-w - c_r + B_g$ is lower than $B_g - p$. Since there are no constraints on the public beliefs off the equilibrium, we can determine the appropriate value for q by analyzing the expected payoffs for each action. The expected payoff for escalate is only higher if $q = 0$, i.e. the opposition beliefs it faces a weak government with certainty after repression. This violates Cho and Kreps' Intuitive Criterion (Cho & Kreps 1987). The opposition knows the weak type will never switch, hence forming the extreme belief of facing a weak type with certainty after repression can be ruled out. Hence, this pooling equilibrium breaks down because the strong type has an incentive to deviate.

Pooling II Repress. If both types pool on repress, the opposition has to compare the expected payoffs of its two actions. If $-c_{esc} + B_o - qB_o > -c_p - r$ the opposition will escalate. In this scenario, the weak type is always better off to switch to accommodate no matter what and the equilibrium breaks down. If $-c_{esc} + B_o - qB_o < -c_p - r$ the opposition will acquiesce. Again, the weak type has an incentive to deviate, because there is no belief one could construct to make the opposition play escalate off the equilibrium path - rather the public will always acquiesce after accommodation. Hence, this is never a stable weak sequential equilibrium. This covers all possible equilibria of the game.

C Extensive Game with Incomplete Information and a Third Party Threat

The extensive game with incomplete information and a third party threat is completely defined by Figure 3. Equilibria of the game are either pooling or separating equilibria.

Separating I Strong/repress, Weak/accommodate. In this separating equilibrium the opposition forms a posterior belief $\theta = 1$ after observing repress and rationally decides to acquiesce ($-c_p - r >= c_p - r - c_{esc}$). Similarly, the third party forms the posterior belief $q = 1$ and decides to not attempt a coup ($-B_c > -B_c - c_c$). If the public observes accommodate, it assigns $\theta = 0$, but still acquiesces ($p - c_p > -c_p - c_{esc}$). The third party then forms the belief $q = 0$ and decides to successfully mount a coup ($B_c - c_c > -B_c$). This strategy profile is not sequentially rational because the weak type has an incentive to deviate off the equilibrium path and obtain $B_g - c_r$ which is strictly better than $-B_c - p$. Hence, the equilibrium breaks down.

Separating II Strong/accommodate Weak/repress. Here, the public will form the believe $\theta = 1$ after observing accommodate and decide to acquiesce. The third party will play will attempt no coup after accommodate ($q = 1$). because $-B_c - c_c < -B_c$. On the other hand, after repress, the public beliefs $\theta = 0$ and will acquiesce (knowing that the third party plays "coup"). Actually, it is obvious that this equilibrium will never hold, because the best payoff for the weak type in equilibrium is always lower than his payoff for deviating to accommodate (which results in $B_g - p$). Hence, this equilibrium breaks down.

Pooling I Accommodate. If both types play accommodate, the public's best response is to play acquiesce no matter what. Note that neither O nor T learn anything from observing G's action, i.e. they can form any posterior belief. The third party has to decide whether to stage a coup or to refrain. Comparing the expected utility for both actions leads to the result that the third party will not attempt a coup if $1 - \frac{c_c}{2B_c} < \theta$. With this belief system, the weak type will never deviate off equilibrium. The strong type has an incentive to deviate and play repress if the public acquiesces (it does not matter to him what the third party decides off equilibrium) since $B_g - c_r > B_g - p$. To keep the strong type playing accommodate, the public must belief $\theta = 0$ after repress and play escalate. While it is possible to put this restriction on the public's belief off the equilibrium path, it again violates the Intuitive Criterion (Cho & Kreps 1987), because the opposition knows the weak type will never play repress. Hence, the strong type will play repress and the equilibrium breaks down. In the case the third party beliefs $1 - \frac{c_c}{2B_c} > \theta$ and decides to attempt a coup, both types have a potential incentive to deviate. The weak type can be forced to stick to the equilibrium strategy if the third party attempts a coup off the equilibrium path ($-c_r - w - B_c < -B_c - p$), which happens if $\theta < 1 - \frac{c_c}{2B_c}$. Though, under these conditions, the public will never escalate off the equilibrium path ($-c_p - r - c_{esc} < -c_p - r$), which allows the strong type to deviate to repression and obtain a better payoff ($B_g - c_r > B_g - p$). If $-c_r - w < -B_c - p$ the weak type will not deviate even, if the third party does not attempt a coup ($\theta > 1 - \frac{c_c}{2B_c}$). In this scenario, the public will escalate after observing repression if it believes off the equilibrium path $q < 1 - \frac{c_{esc}}{B_o}$. This induces the strong type to play his proposed strategy as long as $B_g - c_r - w < B_g - p$. Under these conditions, the strategy profile for the government types is sequentially rational. Now, at the first decision node, the opposition will not protest if $E(P) = \rho(p - c_p) + (1 - \rho)(-c_p) < 0$, which implies $\rho < \frac{c_p}{p}$. As long as $1 - \frac{c_c}{2B_c} > \frac{c_p}{p}$ all players can form consistent beliefs. This establishes the first equilibrium from Proposition 4. The related equilibrium of Proposition 5 arises if the threshold for the opposition's prior

belief is not met $\rho > \frac{c_p}{p}$.

Pooling II Repress. After observing repress and O's action, T has to form a belief which type it is facing by comparing the expected utilities for each action (no new information was obtained). It will attempt a coup if $\theta < 1 - \frac{c_c}{2B_c}$. If this is true, the opposition will always acquiesce ($E(Escalate) = -c_p - r - c_{esc} < E(acquiesce) = -c_p - r$). Given these actions, is the strategy profile sequentially rational? The strong government receives its most preferred payoff and has no incentive to deviate. The weak type on the other hand could only do better by switching. The opposition will always acquiesce, which implies the weak type would receive $-B_c - p$ or $B_g - p$ which are both better than his equilibrium payoff. Hence the equilibrium breaks down. Now, we have to consider the case in which the third party does not attempt a coup ($\theta > 1 - \frac{c_c}{2B_c}$). In this case the opposition will acquiesce if $q > 1 - \frac{c_{esc}}{B_o}$. Given these beliefs and actions, the strong type has no incentive to deviate (he already receives his most preferred outcome) and the weak type equally cannot deviate, because his potential payoff is only $-B_c - p$ which is strictly less than $B_g - c_r$ (by the Intuitive Criterion the third party will know it faces a weak government after observing accommodate off the equilibrium path). At the first decision node, the opposition will always decide to not protest ($-c_p - r < 0$), which establishes the equilibrium in Proposition 6.

Lastly, we have to consider the case in which the third party does not attempt a coup ($\theta > 1 - \frac{c_c}{2B_c}$) and the opposition escalates ($q < 1 - \frac{c_{esc}}{B_o}$). Given these beliefs and actions, the strong type receives an equilibrium payoff of $B_g - c_r - w$, but could obtain $B_g - p$ by switching. If we assume that $B_g - c_r - w > B_g - p$ the strong type will adhere to his equilibrium strategy (this assumption implies a very strong government). The weak type receives $-c_r - w$ in equilibrium. By switching it could obtain $-B_c - p$ or $B_g - p$. To make sure the weak type has no incentive to deviate, the third party needs to mount a coup off the equilibrium path. This will be the case, because by the Intuitive Criterion it will assign $\theta = 0$

to the probability of facing a strong type. We also need to assume that $-B_c - p < -c_r - w$, i.e. the weak type needs to dislike a successful coup more than escalating violence. The opposition's beliefs at the beginning of the game then determine two distinct equilibria. If $\rho < 1 - \frac{c_p + r + c_{esc}}{B_o}$ the opposition will not protest and the equilibrium in Proposition 7 results.

If the prior belief is $\rho < 1 - \frac{c_r + r + c_{esc}}{B_o}$ and $1 - \frac{c_p + r + c_{esc}}{B_o} > 1 - \frac{c_c}{2B_c}$, all actors can form consistent prior beliefs and the escalating violence equilibrium follows (Proposition 8). This covers all possible weak sequential equilibria of the game.

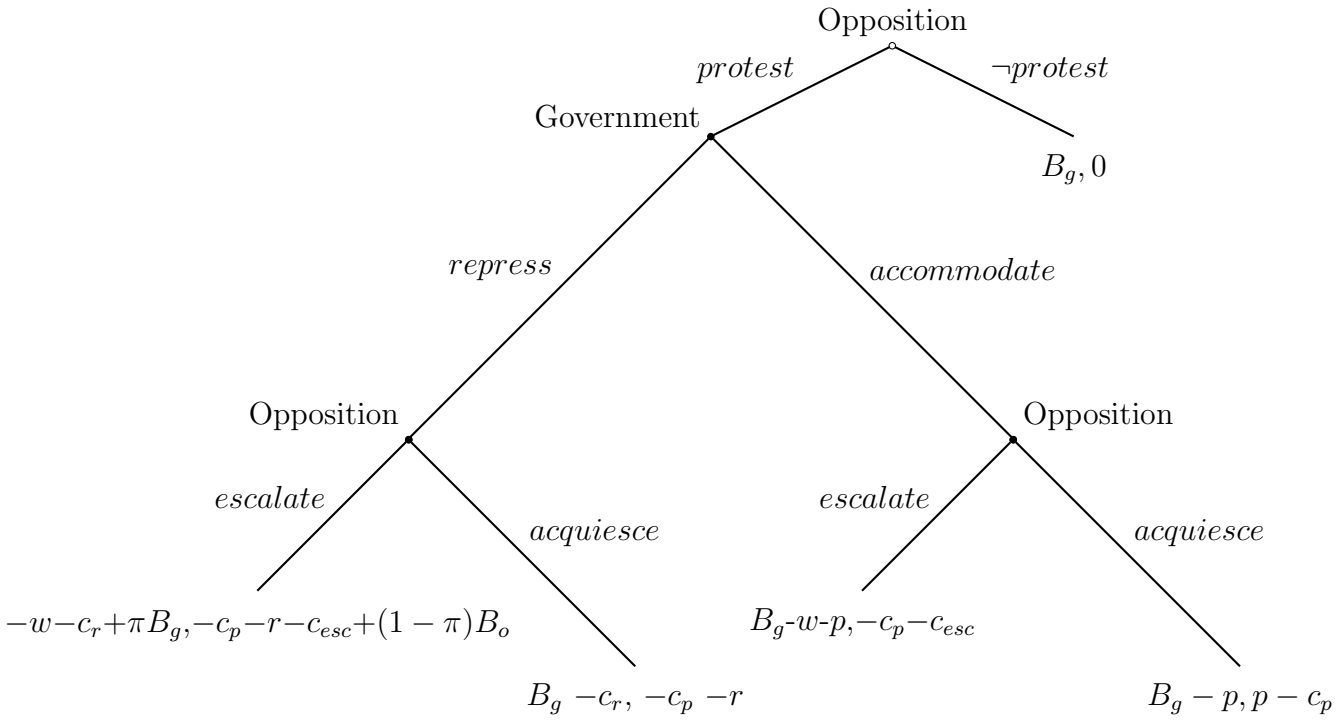

Figure 1: Extensive Game of Repression and Escalation with Perfect Information

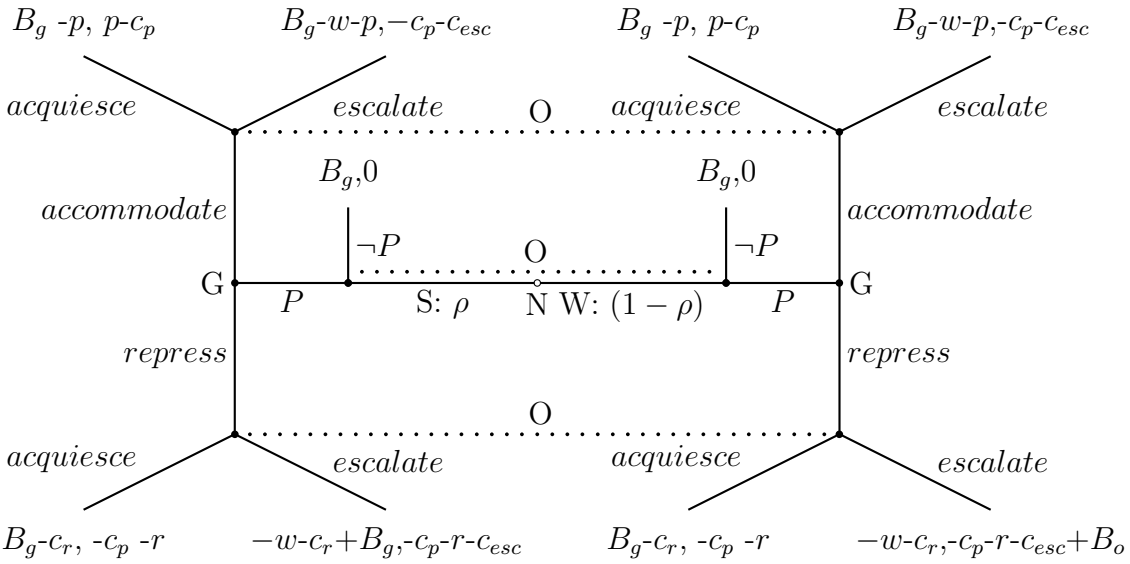

Figure 2: Extensive Game of Repression and Dissent with Incomplete Information

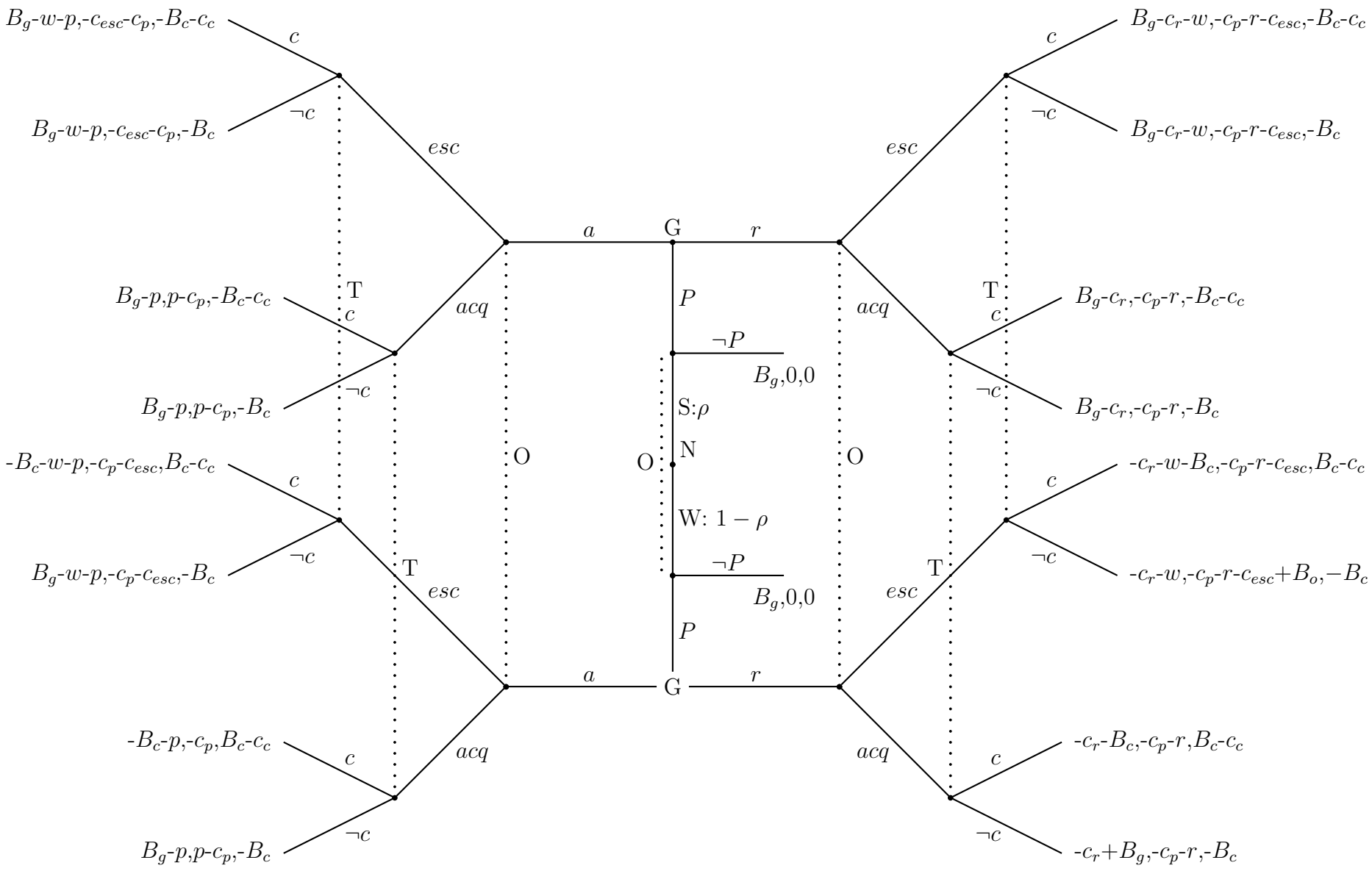

Figure 3: Extensive Game of Repression and Dissent with Incomplete Information and Third Party Threat

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