Auxiliary Force Structure:

Paramilitary Forces and Pro-Government Militias*

Tobias Böhmelt
University of Essex and *ETH Zürich*†

Govinda Clayton
University of Kent‡

January 15, 2016

Abstract

When do countries employ *what types* of *auxiliary* security forces? Paramilitaries and pro-government militias (PGMs) are not part of a state's formal armed forces, and how this auxiliary force structure actually develops remains less well understood. We examine when PGMs emerge, when states invest in paramilitary forces, and when leaders rely on both types of security organizations at the same time. We develop the argument that it requires more time and a stronger bureaucratic apparatus to build paramilitary groups, while governments are also more accountable for their actions than in the case of PGMs. We derive four observable implications from this that relate to (1) state capacity, (2) regime instability (3) civil conflict, and (4) a simultaneous relationship between paramilitaries and PGMs. Using competing risks and simultaneous equation models on time-series cross-section data of a global sample in 1981-2007, the results not only further our understanding of how states structure their "non-traditional," auxiliary security forces, but also have important implications for domestic state-sponsored violence and civil-military relations in general.

Keywords: Auxiliary Forces, Paramilitaries, Pro-Government Militias, Security-Force Structure, Competing Risks Model, Simultaneous Equation Model

*A version of this paper has been presented at research seminars at the University of Kent and the University of Bath. We thank the respective audiences for helpful comments, and we are grateful to Stathis N. Kalyvas, Ulrich Pilster, Andrea Ruggeri, Livia Schubiger, Abbey Steele, Atsushi Tago, and Seiki Tanaka for valuable suggestions on an earlier draft.

†Email: tbohmelt@essex.ac.uk

‡Email: g.clayton@kent.ac.uk

1 Introduction

Why do countries employ *what types* of security forces? State security is generally provided by either *regular* or *formal* forces and branches of the military (e.g., army, navy, air force), *auxiliary* forces like *paramilitaries* and *militias*, and a combination of both. Auxiliaries usually operate outside the conventional security (military) structures that traditionally monopolize a state's "legitimate" force (Mann, 1988; Tilly, 1992; Weber, 2013; Linz, 2000; Geddes, 1999). In fact, paramilitaries and militias often replace or work next to regular security forces in both developed and developing statesor assist in security consolidation in weak or failing states (see, e.g., Tilly, 1992; Kaldor, 2006). It is thus arguably an empirical puzzle that it is not only failed states, which diversify their force structure along these lines (see also Mitchell, Carey and Butler, 2014; Carey, Colaresi and Mitchell, 2015*a*,*b*).

The existent literature shows that auxiliary forces, depending on their type, have affect several diverse outcomes in substantive ways, including regime survival, coups d'état, human rights violations, one-sided violence, civil-war intensity, or insurgent fragmentation (e.g., Carey, Colaresi and Mitchell, 2015*b*; Jentzsch, Kalyvas and Schubiger, 2015; Carey, Colaresi and Mitchell, 2015*a*; Powell, 2012; Roessler, 2011; Pilster and Böhmelt, 2011, 2012). It remains unclear, however, why and how these security organizations evolve and what their relationship is with each other. In fact, we lack a comprehensive understanding of the strategic considerations that give rise to the establishment of auxiliary security units (see Jentzsch, Kalyvas and Schubiger, 2015), also in light of potential trade-offs with the regular forces. As such, states' incentives to mobilize different groups, as well as the relationship between the military, the state, and different forms of auxiliary forces have not been well articulated in previous studies on comparative politics and, more specifically, domestic state-sponsored violence and civil-military relations.

We argue that a state's auxiliary force structure does not evolve at random, but is driven by the resources and bureaucratic capacity of a regime, and a state's needs to address certain threats primarily at the domestic level (see also Staniland, 2015*b*; Eck, 2015). To this end, we disaggregate countries' auxiliary security-force structures, focusing on paramilitary forces and pro-government militias (PGMs). Table 1 highlights common characteristics and differences (see, e.g., Carey, Colaresi and Mitchell, 2015*a*).[1] The French National Gendarmerie is one example for a paramilitary force, as it has a clearly defined and formal role within the security sector, undertaking official tasks including counter-terrorism. However, it operates outside the regular military structure. On the other hand, the Sudanese Janjaweed represent an archetypal PGM. They are only loosely and informally linked to the government, operate with relative freedom, and perform irregular tasks such as intimidation.

First, both paramilitary forces and PGMs pertain to the auxiliary sector of a state's security

[1] Detailed definitions of these types of auxiliary forces are provided in the next section.

Table 1: Auxiliary Security Forces: Paramilitaries and Pro-Government Militias (PGMs)

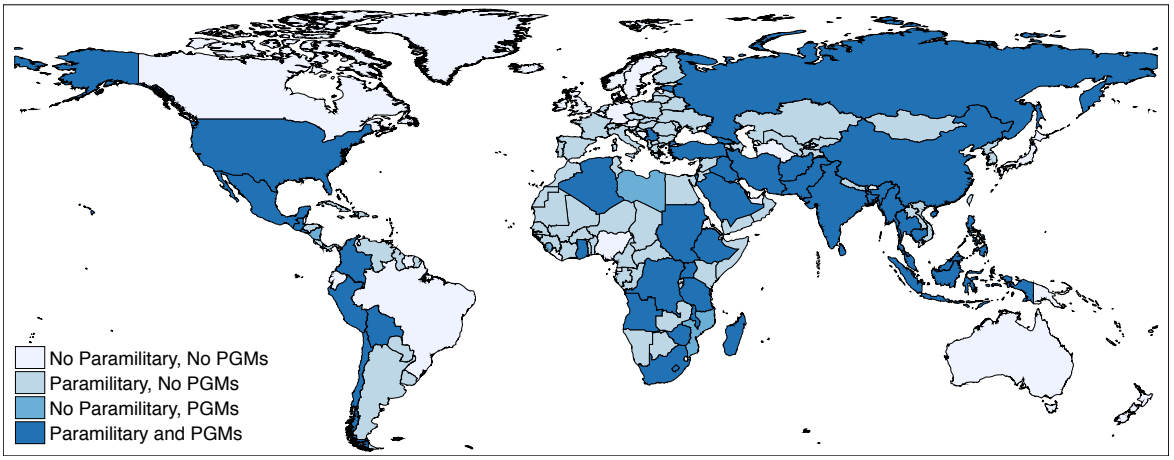
	Paramilitary Forces	Pro-Government Militias
Government Link	Direct	Semi-official, informal
Autonomy from Government	Lower	Higher
Functions	Regular and irregular activities	Rather irregular activities
Example	National Gendarmerie in France	Death Squad in Argentina, 1973-1983

forces, i.e., they are not part of the regular army. Second, paramilitaries tend to be mobilized by the incumbent and have a rather clear association with the regime. Militias, on the other hand, can actively form themselves or are mobilized by the state rather "spontaneously." To this end, PGMs are at best only semi-officially, and commonly very loosely connected to the ruling power. Third, paramilitaries usually perform regular security functions, as they often replace or balance the official armed forces. Militias, in contrast, cannot (independently) assume such regular functions, but pursue a wider range of "irregular" duties. Finally, and derived from these points, the government has a stronger control of paramilitaries due to their closer connection to the government. Conversely, PGMs normally have a greater level of autonomy born out of the rather semi-official and informal status. Figure 1 gives an overview of what states made use of what kinds of auxiliary forces in 1981-2007, and which nations did not build an auxiliary security structure at all.[2] A large share of countries (N=69) relied on regular forces only, i.e., only the classical, official branches of the military existed in 1981-2007 (or no forces at all). Clearly, however, paramilitary units and PGMs are not a rare phenomenon, but frequently found in states' force portfolios. While 89 states invested in at least some paramilitary structure, only five countries (Mozambique, Haiti, Sierra Leone, Nicaragua, and Libya) relied on PGMs exclusively without largely investing in paramilitary forces. Finally, 46 nations established both paramilitary forces and militias between 1981 and 2007.

We argue that both paramilitaries and PGMs are types of a country's auxiliary forces that address varied security needs and are put in place to address different intrastate challenges. As indicated above, paramilitary forces are usually tied more strongly to the state apparatus as they require more resources to be established and maintained than PGMs. This not only fosters the link between the paramilitary and the executive, but also implies that the state is more accountable for paramilitaries' actions and it requires more time to establish these type of units than PGMs. We derive four observable implications from this discussion that relate the establishment of auxiliary forces to (1) state capacity, (2) regime instability, (3) civil conflict, and (4) a simultaneous relationship between paramilitaries and PGMs. That is, we expect that state capacity is a somewhat necessary requirement

[2]The data used for this graph are described in the research design.

Figure 1: Dominant Form of Auxiliary Security Forces, 1981-2007



for building paramilitaries, but not PGMs; PGMs, unlike paramilitaries, are an attractive security option for politically unstable regimes and states involved in civil violence; and paramilitary forces make it more likely that PGMs exist, but not the other way round.

Using competing risks analysis and simultaneous equation models on time-series cross-section data of a global sample in 1981-2007, the results emphasize that there are crucial differences between the establishment of paramilitary forces and PGMs despite the fact that scholars frequently do not distinguish between them as they are both part of the auxiliary security sector. We report robust evidence for our hypotheses on state capacity and civil violence. That said, we do not find much evidence for our regime-instability hypothesis, while our analyses further suggest that it is only paramilitary forces that are significantly associated with PGMs. The latter do not seem to have an effect on the establishment of the former.

Our findings have crucial implications for scholars and policymakers alike. From a scholastic perspective, we address some of the conceptual confusion surrounding auxiliary armed forces, as we clearly distinguish between paramilitaries and PGMs, and provide the first joint theoretical framework on how they evolve, potentially interact with each other, and relate to the regular forces. Equally important, we contribute to a long tradition of political scientists, sociologists, economists, and historians who point to the state's incentives for monopolizing violence – and the costs that occur when failing to do so. In particular, we illustrate the conditions in which states are willing to concede their monopoly over the direct use of force to auxiliary units.

More generally, this research is important for students of international relations and comparative politics examining civil-military relations, state sovereignty, and the security sector, but also has crucial implications for the work on domestic state-sponsored violence, civil war, military effectiveness, and human rights practices (e.g., Lyall and Wilson III, 2009; Sechser and Saunders, 2010; Powell, 2012). From a policy perspective, our work should inform decision-makers, public institutions, or

think tanks by clarifying how resources might be spent in more effective ways or what security implications – domestically and internationally – states with a specific auxiliary force structure have. Despite the clear need to have an accurate understanding of these issues, and the broad and general implications paramilitary forces and PGMs are likely to have, the policy community still knows very little about how and why PGMs and paramilitaries develop. This is the shortcoming we seek to address.

2 Auxiliary Security Forces

The composition and structure of a country's security force is the result of its ruling regime's strategic considerations to address specific security needs. In general, international-level threats shape the regular armed forces, while especially domestic challenges determine when and how auxiliary units are deployed. In other words, auxillary forces are likely to emerge out of a domestic threat to the incumbent (Carey, Mitchell and Lowe, 2013; Quinlivan, 1999; Belkin and Schofer, 2003; Pilster and Böhmelt, 2011, 2012).[3]. Auxiliary forces are thus frequently put in place due to their supposed effectiveness in addressing domestic threats that regular security units might only be inadequately able to deal with. Although the formal military should, in principle, have the capability to fight an insurgency as it grows in size and strength (Farrel, 2005), the regular forces tend to focus on and are usually trained in conventional warfare only (Mearsheimer, 1983). This makes them ill-equipped to defeat insurgencies (Kalyvas, 2006; Lyall and Wilson III, 2009). For example, mechanized units and regular troops face difficulties in establishing a permanent presence within contested communities and might not necessarily be in the position to address the identification problem any counterinsurgency campaign faces, since they lack the local knowledge of the marginalized population that has given rise to the rebel movement in the first place (Byman, 2007; Celeski, 2009; Kalyvas, 2006; Lyall, 2010; Galula, 2006; Kilcullen, 2010; Trinquier, 2006). Intelligence problems are compounded by troop rotation, which further undermines the development of any local intelligence capability (Janowitz, 1964). This can lead to counterproductive civilian targeting either through the application of conventional counter-force measures, attempts to punish communities within which insurgents are potentially housed, or a breakdown in military discipline (Lyall, 2009; Humphreys and Weinstein, 2006; Leites and Wolf, 1970). Auxiliary Forces can help overcome these and related challenges faced by the regular forces. The way in which this achieved varies with the character of the auxiliary force. We focus on the most common forms of auxiliary force, paramilitaries and pro-government militias.

[3]Although we observe the creation of auxiliary forces rather frequently, several negative implications are associated with this practice (see also Roessler, 2011; De Bruin, 2014) For instance, states would ideally keep the monopoly of power, although particularly PGMs cut deeply into this (Gandhi and Przeworski, 2007; Eck, 2015). Moreover, the creation of paramilitary units reduces military effectiveness in interstate wars (Pilster and Böhmelt, 2011).

2.1 Paramilitaries

We understand paramilitary forces as "forces whose training, organization, equipment, and control suggest they may be used to support or replace regular military forces" (IISS, 1975-2015). This mirrors Janowitz (1988, p.28) who defines paramilitary forces as "militarized police units, domiciled in part in barracks, equipped with light military weapons and military vehicles, and organized under the central government." Paramilitaries are then at least partially militarized and operate as auxiliary forces (1) in place of, (2) as a supplement to, or (3) as a balance against regular military units (Quinlivan, 1999; Belkin and Schofer, 2003; Pilster and Böhmelt, 2011, 2012).

In more detail, despite their status outside the regular military, paramilitaries often match the regular forces in equipment, training, and mission. They offer leaders more diversity and flexibility with regard to the official military, and the control thereof, as incumbents frequently use paramilitaries either for tasks normally assigned to the formal military or to counterbalance it. However, paramilitaries can be mobilized more quickly than the regular military (see Carey, Colaresi and Mitchell, 2015*b*). In 2013, Bashar al-Assad swiftly amassed an estimated force of 60,000 men under the banner of the National Defense Force (Carter Center, 2013) who were trained in urban, irregular warfare and effectively fought as a substitute for the official forces against the Free Syrian Army (Carter Center, 2013). Hence, paramilitaries can support as well as replace regular forces, thereby also acting as a restraint on the latter in state-sponsored violence (see Pilster, Böhmelt and Tago, 2015; Janowitz, 1988).

Paramilitaries thus closely approximate the regular troops, but are primarily mobilized, trained, and equipped to assume domestic security roles in particular (rather than conventional-style warfare). Furthermore, intelligence gathering, non-coercive interrogation, and law enforcement are all pivotal tasks for these units, but hardly introduced to the regular forces. In France, for example, gendarmerie units are geared toward riot control, counterterrorism, and hostage rescue; the regular armed forces largely lack these skills. Turkish paramilitaries, moreover, receive tailored training ranging from border patrols to combating drug smuggling and special commando operations.

Most paramilitary units in our data (IISS, 1975-2015) then pertain to presidential guards or police units that have equipment and responsibilities similar to those of the regular armed forces, although they are not part of or organized by them. That said, a clear link to and, hence, accountability of the state is given for paramilitary organizations. For instance, during the Iraqi Ba'athist period, Saddam Hussein established a security structure parallel to the regular forces for insulating his regime from internal threats (Quinlivan, 1999; Cordesman, 1993). One paramilitary unit, the *Fedayeen Saddam*, comprised 30,000-40,000 of the most loyal recruits and took over responsibilities for border patrol, enforcing curfews, or the personal protection of Saddam Hussein (Otterman, 2003). Fedayeen Saddam

soldiers also brutally suppressed dissenters, and relied on intimidation to strengthen the resolve of army commanders and to prevent desertion in the regular military – and the regime was held accountable for these actions (Lumb, 2003). Other paramilitary examples include the French Gendarmerie, Israeli Border Police, the Italian Carabinieri, the Venezuelan National Guard, or presidential guards in Uganda, Zaire, and Belarus.

2.2 Pro-Government Militias

PGMs are organized armed groups that are aligned informally, or (at best) semi-officially, with the (national or sub-national) government and are not part of the regular armed forces as such (Carey, Mitchell and Lowe, 2013). The "pro-government" position implies that they receive explicit or implicit support from the state, and/or support the ruler in turn.[4] That said, unlike paramilitaries, they are not aligned with any component of the command-and-control system of a country or its executive and, thus, are not identified as members of the police, military, or special forces. They operate with greater autonomy than paramilitaries as they are disconnected from the state's central command and control structure, and are normally less well equipped and trained than paramilitaries or the regular forces.

States frequently delegate force to PGMs as they might effectively and selectively target insurgents (Clayton and Thomson, 2014; Lyall, 2010). Civilian defense militias[5] such as the patrols in Peru (1980-2000) and Guatemala (1981-1996) are particularly effective here (Clayton and Thomson, 2014). Recruiting civilians in counterinsurgent roles can also foster support from the population, thereby undermining an insurgency, since this prevents civilians from joining the opposition (Carey, Colaresi and Mitchell, 2015*a*, p.7). Hence, similar to the case of paramilitaries, the ability of PGMs to collect local information and assist with security can help the incumbent to maintain control during times of severe domestic turmoil (Eck, 2015).

That said, once a state mobilizes PGMs, their future actions and loyalties are difficult to control (Carey, Colaresi and Mitchell, 2015*a*; Mitchell, 2009). Militias are often only loosely (if at all) affiliated with the ruler, and merely mobilized on the basis of social networks, financial incentives, ethnic or religious ties (Wood, 2008; Eck, 2015). States' weak of control of PGMs can also lead to an increase in one-sided attacks against civilians (Mitchell, Carey and Butler, 2014; Barter, 2013; Koonings and Kruijt, 2004; Kaldor, 2006; Bates, 2008; Ahram, 2011). Still, PGMs can offer a more efficient method to engage insurgents, as they require minimal levels of training or equipment (Carey, Colaresi and Mitchell, 2015*a*; Wood and Waterman, 1991) and, due to the loose affiliation with the government,

[4]Needless to say, groups' loyalties can change over time and actions can also be driven by a group's own motivation.

[5]These are militias that undertake defensive duties within the community from which they were recruited.

the latter can deny any responsibility for PGM actions.

Indeed, civilian targeting could also be an intended function of PGMs. Indiscriminate violence and large-scale civilian targeting are counterinsurgency strategies that governments only adopt in the absence of viable alternatives. Yet, when faced with a hostile domestic population and a lack of information on who insurgents are, states face the choice of inaction or indiscriminately targeting those in proximity to the rebels. Given the obvious problems associated with inaction, states often turn to the latter. In the modern era of international scrutiny and accountability, there are constraints on the actions that official state agents can perform (Campbell and Brenner, 2002). Attacks on political opponents, unarmed groups, or non-supportive civilians can damage a state's reputation and threaten aid tied to democratic principles (Mitchell, Carey and Butler, 2014; Carey, Colaresi and Mitchell, 2015*a*,*b*). PGMs, as they are not officially linked to the government, offer incumbents the means to off-load "dirty work," and thus can plausibly deny extreme methods that were used by PGMs to target opponents and their supporters (Ahram, 2014; Campbell and Brenner, 2002). For example, in 2000, an Indonesian death squad operating in Aceh killed armed secessionists, civilian sympathizers, and journalists. While the PGMs involved in these activities were largely formed of off-duty security agents, their informal connection with the regime prevented the state assuming any accountability.

Militias are typically employed by rulers who face a sufficiently severe threat to their leadership or the state's territorial integrity and quickly have to build forces without much bureaucratic effort or many resources. To illustrate this, the former Iraqi Primer Minister, Nouri al-Maliki, appealed to civilian militias to fill the security void (De Bruin, 2014; Alexander, 2014) when facing the Islamic State (IS) insurgency. The mobilization of PGMs, in fact, helped to effectively fight IS advances and stabilize the situation. However, the militias eventually used their newly gained power to pursue own interests, inflaming sectarian conflict and widely engaging in human-rights abuses (Amnesty International, 2014). Ranging from death squads in the Ivory Coast to village defense forces in the Philippines and anti-separatist groups in Aceh, PGMs are a common feature in states' auxiliary security forces that offer an incumbent an unconventional way of consolidating power without a monopoly of force or a high degree of accountability (Koonings and Kruijt, 2004; Ahram, 2011; Carey, Colaresi and Mitchell, 2015*a*).

3 Determining the Composition of the Auxiliary Forces

We demonstrated above that differences between paramilitary units and PGMs do exist. This suggests that certain distinguishing factors may impact the incentives and costs for different compositions of a state's auxiliary-security structure. Recall that it should be cheaper and quicker to build up an aux-

iliary force than the regular military, but paramilitary forces require more time and resources than PGMs for establishment; this is because paramilitary forces require a comprehensive bureaucratic apparatus for their creation and since PGMs can swiftly be established without much training or equipment. Moreover, leaders and regimes are much more accountable for the actions of the paramilitary forces, due to an official link with these kinds of auxiliary forces, than in the case of PGMs. Against this background, we derive four testable implications pertaining to the structure of a state's auxiliary force structure that pertain to (1) state capacity, (2) regime instability (3) civil conflict, and (4) a simultaneous relationship between paramilitaries and PGMs.

First, we expect state capacity to shape the incentives and opportunities to develop different types of auxiliary force. Paramilitaries and PGMs require different bureaucratic and financial commitments. Although paramilitaries are not part of the formal armed forces, they are still official security organizations of the state that require significant financial resources to mobilise and maintain. The utility of paramilitaries is dependent upon their effectiveness as a fighting force, and thus paramilitary forces require a far greater level of equipment, training, and remuneration than PGMs. For to deliver specialist protection from coups, terrorism and insurgency, paramilitaries must normally at least match the capabilities of their opposing force, be that insurgents, criminals, or the conventional military. States also require a relatively large bureaucratic apparatus and capacity to sustain paramilitaries. In the words of Hendrix (2010, p.274), "[t]he emphasis on bureaucratic and administrative capacity [...] holds that state capacity is characterized by professionalization of the state bureaucracy." One of the "core services" of a bureaucracy is the ability to collect and manage information (Hendrix, 2010, p.274). Thus a government requires a sufficient amount of bureaucratic quality to maintain formal paramilitary organizations.

This is not the case for PGMs, which require less bureaucratic management and financial support. In fact, to maintain plausible deniability for the actions undertaken by militias, it is essential that the connection between a group and the state remain informal, meaning only a minimal bureaucratic cost. Militias are also cheaper to mobilise and equip, as they rarely receive formal training or heavy armaments. In fact militias can even emerge organically, and sometimes work for free when their interests complement those of the state.

We therefore expect to observe a strong relationship between state capacity, bureaucratic quality and the configuration of the auxiliary force. State capacity is a somewhat necessary requirement for paramilitaries to exist, as similar to the logic of "willingness and opportunity," even if a weak state would like to create paramilitary forces due to some domestic threat, it simply lacks the means to actually do so. Ultimately, the only type of auxiliary force such a regime can rely on are PGMs. This leads to the formulation of our first hypothesis:

Hypothesis 1 (State Capacity Hypothesis): The larger a country's state capacity, the higher the likelihood of the creation of paramilitary forces. Conversely, the lower a country's state capacity, the higher the likelihood of PGM creation.

Second, we argue that the the stability of a regime influences the composition of the auxiliary sector. Regimes characterised by institutional weakness are more likely to face challenges to their authority. In principle, a heightened domestic threat should motivate leaders to strengthen their armed force, enhancing conventional forces or mobilising specialist paramilitaries. However, states beset by institutional weakness tend to lack the capacity required to mobilise and sustain a paramilitary force. Moreover, whilst governments characterized by instability, such as anocracies in the process of democratization, have a particular interest in addressing domestic challenges and turmoil, they are also those that most need to credibly signal to domestic and international constituencies that a commitment to reform is given (see, e.g., Mansfield and Pevehouse, 2006, 2008, p.274). The latter is important as it secures support from domestic and foreign constituencies in the form of financial or other material assistance for fighting the instability. However, with regard to the former (i.e., domestic turmoil as such), although both PGMs and paramilitaries are then, in principle, able to address a domestic challenge, they are not equally able to credibly demonstrate a commitment to reform. For example, governments of unstable regimes frequently have the incentive to suppress the opposition in the context of elections, but prefer not to be associated with such actions as this might harm their support domestically and abroad (see, e.g., Staniland, 2015*a*). Conrad, Hill and Moore (2014) refer in this context to "plausible deniability," i.e., governments' techniques to conceal their suppression of the opposition by, e.g., using agents of violence that do not hold the regime accountable for the actions. In light of our discussion above, paramilitary forces are ill-equipped to ensure plausible deniability. However, PGMs are only loosed affiliated with the government and, despite frequent human rights violations of PGMs, regimes can plausibly deny and responsibility or accountability (see Mitchell, Carey and Butler, 2014; Carey, Colaresi and Mitchell, 2015*a*,*b*). This rationale is mirrored by the findings reported in Bates (2008). As a result, we seek to test the following hypothesis:

Hypothesis 2 (Instability Hypothesis): The more unstable a country, the higher the likelihood of the creation of PGMs. Conversely, the less unstable a country, the higher the likelihood of paramilitary creation.

Third, civil violence in which one or more than one rebel group fights against the government

to gain concessions on territory, power, or influence is arguably the most severe form of domestic unrest. As indicated above, both paramilitary organizations and PGMs are more suitable than the regular military to address such unrest as they are better equipped, trained and more likely to solve the identification problem (Kalyvas, 2006; Galula, 2006; Kilcullen, 2010; Trinquier, 2006). However, particularly in times of larger-scale domestic unrest, financial resources are scare and spending very much limited, which implies that governments have to carefully select what type of auxiliary force they might want to invest in. When subscribing to this mechanism, it is more likely that regimes establish PGMs instead of paramilitary organizations to address civil conflict: although they are less well trained and equipped, PGMs may be an equally promising tool to respond to a civil conflict and the corresponding identification problem (Clayton and Thomson, 2014). In addition, due to the limited degree of accountability, governments can make use of PGMs and their frequently brutal techniques for oppression, which may be necessary to defeat an insurgency, but can plausibly deny any involvement (e.g., Conrad, Hill and Moore, 2014). Hence, we claim that both types of auxiliary forces are in principle able to respond to an insurgency in effective ways than the regular military, but PGMs are likely to be cheaper and potentially more effective than paramilitary forces.

Hypothesis 3 (Civil Violence Hypothesis): Civil violence in a country facilitates the establishment of PGMs, but is unlikely to have an effect on paramilitary organizations.

Finally, paramilitaries and PGMs are strategic responses to internal threats; and there are both costs and benefits associated with either PGMs or paramilitaries that represent different levels of escalation. As we set out above, paramilitaries are more costly to develop and maintain, but carry less risk on account of the greater control that the state has over them. However, the greater the threat to the state, the more likely that it will be willing to use all available means to gain information on insurgents and match their domestic capabilities. This means that the state, when unable to defeat an opponent with paramilitary forces alone, is likely to also mobilise PGMs. However, as PGMs represent the highest level of escalation, we are unlikely to observe a state subsequently mobilise a paramilitary force having already formed a PGM. The observable implication of this argument is that paramilitary forces lead to increases in PGMs – and not the other way round.

Hypothesis 4 (Simultaneity Hypothesis): Paramilitary organizations facilitate the creation of PGMs but not vice versa.

4 Research Design

4.1 Data Set, Dependent Variables, and Methodology

Using the country-year as the unit of analysis, we constructed a time-series cross-section data set containing all countries between 1981 and 2007. The availability of data for our dependent and explanatory variables determines this period under study. We rely on quantitative data and methods for testing our theoretical expectations and, to this end, study three different, but interrelated dependent variables and employ two different estimators to provide a comprehensive analysis of the hypotheses.

First, we created a nominal variable that captures the different structural types of auxiliary forces employed by a country: (0) no auxiliary forces, i.e., only the "traditional branches" of the military exist (if at all), (1) paramilitary forces exist next to the regular military, (2) PGMs exist next to the regular military, and (3) paramilitaries and PGMs exist next to the regular military. The data for this variable are based on two sources. While Pilster and Böhmelt (2011, 2012) provide the information on whether there was at least one paramilitary organization in a given country-year, Carey, Mitchell and Lowe (2013) compiled new data on militant groups loosely affiliated with the government.[6] Using the two different data sets, we constructed the item *Auxiliary Force Structure*. Out of the 4,060 observations in our data (before accounting for missing values on some of our explanatory items), 836 country-years comprise only regular military forces (20.59 percent), 1,868 country-years have at least one paramilitary organization besides their regular forces (46.01 percent), 159 country-years do not have a paramilitary organization, but a PGM next to the regular military (3.92 percent), and 1,197 country-years are based on both paramilitaries and PGMs (29.48 percent). Modeling this dependent variable requires a competing risks framework, i.e., different, nominal outcomes "compete" for being "selected." Multinomial regression models provide a straightforward estimation strategy against this background if the underlying duration data are discrete, which is given in our setup. In order to control for temporal dependencies by modeling the baseline hazard, we modify the approach in Beck, Katz and Tucker (1998) by incorporating three different variables for autocorrelation: (1) the time elapsed since at least one paramilitary organization existed in a country, (2) the time elapsed since at least one PGM existed in a country, and (3) the time elapsed since a country had both paramilitary

[6] According to this Pro-Government Militias Database (PGMD), a militia is given when (a) it is identified as pro-government or sponsored by the government, (b) is identified as not being part of the regular security forces, (c) is armed, and (d) has some level of organization. Note that while this treatment is in line with our definition of PGMs introduced above, it differs from how we conceptualize paramilitaries, particularly due to the tie between the group and the government, which is not fully acknowledged in a formal way in terms of PGMs. That is, Carey, Mitchell and Lowe (2013, p.251) distinguish between informal and semi-official PGMs. While the former are usually clandestine and, thus, not recognized at all by the executive (although being supported by it), the latter have a somewhat semi-official status in that they are more closely affiliated with the incumbent than informal militias, but less strongly than paramilitaries. Moreover, Carey, Mitchell and Lowe (2013) specifically exclude pro-government militias that take on official state functions. As emphasized by Carey, Mitchell and Lowe (2013, p.251), "the term 'paramilitary' refers to regular forces, or police units with some military status, which are not included in the PGM dataset." Hence, the coding rules for PGMs and paramilitaries are, in fact, different.

and PGM forces.[7] Second, the previous estimation strategy addresses *H1-H3*. For testing our last hypothesis on a simultaneous relationship, we rely on the two-stage probit least squares estimation by Keshk (2003) and Maddala (1983, pp.244f). This method is designed for simultaneous equation models in which one of the endogenous variables is continuous and the other is dichotomous.[8] The two-stage estimation process generates instruments for each of the endogenous dependent variables (i.e., paramilitary forces and PGMs) and then substitutes them in their respective structural equations. That is, in the first stage of the estimation process, the endogenous variables are regressed on all exogenous variables to obtain the predicted values (of either paramilitary or PGMs). In the second stage, the predicted values become the instruments to replace the original endogenous variables for the estimation (Keshk, 2003; Maddala, 1983). The continuous variable is estimated with OLS and the dichotomous variable with a probit regression model, while the standard errors of the coefficients are adjusted to control for correlation in the errors across equations. This two-stage estimator provides an unbiased and efficient estimator of each parameter.

In principle, this approach controls for the endogeneity between paramilitary forces and PGMs and *creates* instrumental variables (Mitchell and Thies, 2012, p.230). That is, finding instruments that are correlated with the endogenous variable, but uncorrelated with the error term, is difficult in our setup. Both PGMs and paramilitaries belong to the auxiliary sector of the security forces and, although there are differences in the equations' modeling[9] of the variance in either outcome variable, the underlying determinants are similar.[10] Keshk (2003) and Maddala (1983, pp.244f) offer with their estimation strategy an approach to create instruments, however. This estimator "separates the endogenous variable into a part that is correlated with the error term and a part that is not. The latter is then used as the instrument to estimate the model" (Mitchell and Thies, 2012, p.230). We produce instruments for PGMs (the binary item) and paramilitary forces (the continuous variable) in our attempt to model the simultaneity issue as postulated by *H4*.

For the continuous variable in this setup, we use the time-series cross-section data by Pilster and Böhmelt (2011, 2012) that, in the latest version, comprise information on 198 states' ground-combat

[7]Note that our results presented below are qualitatively identical to alternative models that include year dummies instead of the three temporal variables discussed here (see also Beck, Katz and Tucker, 1998).

[8]Note that our operationalization of the paramilitary component thus changes from a discrete-choice to a continuous scale, while the treatment of PGMs basically remains the same as above. The reason for this change in the research design is that the continuous version of the paramilitary variable has more information than the discrete variable, although such an item is required for the competing risks framework we use for testing *H1-H3*. Conversely, the PGMD has the broadest spatio-temporal coverage for the dichotomous PGM variable; hence, we use this item instead of a count variable, although this is also provided by the PGMD.

[9]This is necessary for the identification of the model.

[10]However, the explanatory variables in the first equation should be completely exogenous, i.e., unrelated to the dependent variable in the second equation. It is difficult to meet this assumption, but to address related concerns, we conducted a series of robustness checks and re-estimations of the regressions while excluding some of the variables in the first equation. This does not affect our core results.

compatible military troops between 1970 and 2015. This item incorporates "information on both the number of rivaling military organizations and their respective strengths to capture the degree to which a state divides its military manpower into rivaling organizations" (Pilster and Böhmelt, 2012, p.360). A value of 1 of the variable stands for no auxiliary forces next to the formal military, i.e., there is only the regular army, but no paramilitary organizations; higher values of that measure suggest the presence of paramilitary organizations (Pilster and Böhmelt, 2012, p.361). Our final item is log-transformed. As indicated, for the binary variable in the two-stage probit least squares model, we use the PGMD's dichotomous variable (Carey, Mitchell and Lowe, 2013; Carey, Colaresi and Mitchell, 2015*a*) due to the larger unit and time coverage. Hence, the dependent variable in the PGM equation receives the value of 1 if a government had a link to any PGM in a given year and 0 otherwise.[11]

Finally, we include a temporally lagged dependent variable to capture any existent time dependencies in the equation on the continuous dependent variable. And we incorporate a PGM-years variable (i.e., a variable counting the years elapsed since a PGM existed in a country, if any) and different sets of cubic splines to control for likely temporal autocorrelation in the binary dependent variable equation (Beck, Katz and Tucker, 1998).

4.2 Explanatory Variables

For incorporating the determinants of our hypotheses and in light of recent quantitative research on paramilitary organizations (e.g., Powell, 2012; Böhmelt and Pilster, 2015; Böhmelt, Ruggeri and Pilster, 2015) and PGMs (e.g., Carey, Colaresi and Mitchell, 2015*a*), we consider the following explanatory variables in our models. Note that these items are consistently used across the competing risks analysis and the simultaneous equation model. First, we include data on a country's GDP per capita, using data from the World Bank Development Indicators. Following, e.g., Fearon and Laitin (2003) or Hendrix (2010) , we employ GDP per capita (logged) as a proxy for state capacity and, hence, address the first hypothesis with this variable.

Second, an item capturing (in-) stability is taken from the Polity IV Project (Marshall and Jaggers, 2013): this variable *Durability* counts the number of years since a country entered the Polity IV data set in 1800 or had a three-point change ("most recent regime change") in the 21-point polity2 score in either direction of the scale over a period of three years or less (Marshall and Jaggers, 2013, p.17). This coding rule also applies to the end of a transition period, i.e., "the lack of stable political institutions" (Marshall and Jaggers, 2013, p.17). As soon as such a change occurs, this item is reset

[11] We re-estimated all models for either informal or semi-official PGMs separately. The results for these estimations do not differ substantially from the ones discussed below.

to 0 and the count starts again. According to *H2*, we expect a negative effect for this variable on PGMs, but not paramilitary forces.

Internal threats such as insurgencies frequently induce a stronger involvement of the military in domestic affairs (Staniland, 2014; Pilster and Böhmelt, 2012, p.363). Given different phases of escalation and different requirements (e.g., resources, bureaucracy, etc.) to establish auxiliary forces, we expect that PGMs are more likely to be be associated with civil violence. Carey, Colaresi and Mitchell (2015*a*, pp.857-859) suggest using several dichotomous variables based on Banks (2001), which address the onset of at least one (1) strike, (2) riot, (3) demonstration, and (4) guerrilla attack, respectively, in a given country-year. In addition, Carey, Colaresi and Mitchell (2015*a*, pp.857-859) include variables for civil violence and civil war. The former is defined as any domestic-level conflict with more than 25 annual battle-related deaths; the latter only receives a value of 1 if the 1,000 battle-deaths threshold is crossed (0 otherwise). Both variables are based on the UCDP/PRIO Armed Conflict Data (Gleditsch et al., 2002). Particularly the latter two variables pertain to our test of *H3*, and we expect a positive and significant sign of both items for PGMs, but not for paramilitary forces.

Coming to our control variables, we follow Carey, Colaresi and Mitchell (2015*a*, pp.857-859) by including three binary items on regime type, i.e., *Strong Democracy*, *Strong Autocracy*, and *Weak Democracy*: "[s]trong autocracies are coded as countries that score -7 or lower [...], [w]eak democracies are coded as countries that score between 1 and 6 on that scale. Strong democracies are coded as countries with the score 7 or above." We use *Weak Autocracy* (ranging between -6 and 0), consequently, as the baseline.

All our models also incorporate *Distance to Democracy (ln)*. This variable controls for the monitoring costs for the international community and measures the distance (in kilometers) between each country and the nearest democratic country. The value of 0 is assigned if the state under study or a neighbor is a democracy, and the item is eventually log-transformed. In essence, this item captures the rationale that it is more difficult to detect PGMs in the first place if they are too distant from democracies (Carey, Colaresi and Mitchell, 2015*a*, pp.857-859).

Another aspect of what Carey, Colaresi and Mitchell (2015*a*) call "accountability determinants" pertains to a country's foreign-aid dependence from either democracies or authoritarian regimes. In detail, Carey, Colaresi and Mitchell (2015*a*, pp.857-859) compiled data on the purchasing-price parity adjusted value of foreign aid sent from what is defined as a *Strong Democracy* above. The final variable *Aid Dependence Democracies (ln)* is the logged value of the total sum of aid received from democracies as a proportion of the recipient's GDP. Conversely, with a specification that mirrors this treatment but for authoritarian regimes, we control for the foreign aid received from non-democratic

states as a proportion of the recipient's GDP.

Finally, we also control for population, the presence (and centrality) of the regular armed forces, and ethnicity. That is, Fearon and Laitin (2003) suggest considering a country's total population as a source of political instability (Pilster and Böhmelt, 2012, p.363). The data stem from the World Bank Development Indicators and we calculate the natural log for population to account for the skewed distribution. We also incorporate the variable *Military Centrality* measuring the size of the regular land forces in relation to the population. In the words of Pilster and Böhmelt (2012, p.363), "[r]elatively large [conventional] armies are politically more central, which deters internal threats in the form of insurgencies." The last variable relates to ethnic sources of domestic conflict. We include the ethnic exclusion variable from Wimmer, Cederman and Min (2009). This item measures the share of the population that is effectively excluded from executive power in ethnically relevant countries. We use a logged version as the final variable, after adding the value of 0.5 to the data from Wimmer, Cederman and Min (2009).

Table 2 summarizes the descriptive statistics of the discussed variables.

Table 2: Descriptive Statistics

	Obs.	Mean	Std.Dv.	Min	Max
Auxiliary Force Structure	4,060	1.423	1.116	0.000	3.000
Durability	4,239	23.155	29.039	0.000	198.000
GDP per capita (ln)	4,417	8.382	1.258	4.889	11.541
Population (ln)	4,417	8.931	1.687	4.993	14.077
Military Centrality	4,084	0.005	0.008	0.000	0.092
Strike	4,062	0.089	0.285	0.000	1.000
Riot	4,062	0.134	0.341	0.000	1.000
Demonstration	4,062	0.226	0.418	0.000	1.000
Guerrilla	4,062	0.118	0.391	0.000	1.000
Civil Violence	4,042	0.188	0.391	0.000	1.000
Civil War	4,393	0.059	0.235	0.000	1.000
Excluded Population (ln)	3,764	-4.326	3.426	-9.210	-0.162
Aid Dependence Democracies (ln)	3,906	-0.529	4.369	-8.517	7.495
Aid Dependence Autocracies (ln)	3,906	-7.029	3.294	-8.517	3.382
Strong Democracy	4,405	0.349	0.477	0.000	1.000
Strong Autocracy	4,401	0.235	0.424	0.000	1.000
Weak Democracy	4,401	0.138	0.345	0.000	1.000
Distance to Democracy (ln)	4,397	6.173	1.290	4.605	8.534

Note: Variables for temporal correction not shown.

5 Empirical Results

The core findings pertaining to *H1-H3* are reported in Table 3. Since the coefficients of multinominal logit models have to be interpreted with regard to a baseline (i.e., one category or value of the nominal dependent variable), we report the model from Table 3 again in Table 5 with a different

reference category. That is, although the underlying specifications are the same across Tables 3 and 5, Table 3 has *Auxiliary Force Structure*=0 as the baseline category (No auxiliary forces), while Table 5 has *Auxiliary Force Structure*=1 as the reference point (paramilitary forces present, PGM not present). In addition, Table 4 reports the χ^2 test statistics and probabilities that the effects of the explanatory variables on the log odds of *Auxiliary Force Structure*=1 and *Auxiliary Force Structure*=2 are identical. And since coefficients in non-linear models such as the multinomial logit cannot be interpreted as slopes or elasticities, Figure 2 summarizes the changes in the probability to see one of the four outcomes of *Auxiliary Force Structure* while raising a specific variable from the 5th to the 95th percentile value and holding all other variables constant at their medians.

First, the results In Tables 3-5 and Figure 2 highlight that there is strong support for *H1* – the **State Capacity Hypothesis**. Paramilitary forces require a certain amount of bureaucratic and financial resources as well as time to be established and this can usually only be given in states with a sufficient amount of state capacity. In contrast, PGMs do not require a strong state or bureaucratic apparatus. It is thus more likely to have paramilitary forces (as compared to no auxiliary units) according to the positive and significant coefficient in the second column of Table 3, and it is less likely to have PGMs (as compared to paramilitary forces) according to the negative and significant coefficient in the third column of Table 5. These findings are further supported by the first difference estimates in Figure 2. When raising *GDP per capita (ln)* from the 5th to the 95th percentile value, the probability of having at least one paramilitary organization increases by 24 percentage points. Conversely, the same change in *GDP per capita (ln)* leads to a decrease in the probability of having at least one PGM by about three percentage points. Interestingly, due to the opposing effects of *GDP per capita (ln)* on paramilitaries and PGMs, we observe an insignificant estimate of the income variable in the last column of either Table 3 or Table 5: when combining paramilitaries and PGMs, a positive effect cancels out a negative influence, leading to the overall insignificance of *GDP per capita (ln)* here. Ultimately, we conclude that we find support for the **State Capacity Hypothesis**.

Tables 3-5 and Figure 2, however, do not find much support for our hypothesis regarding the influence of regime instability on the establishment of PGMs and paramilitary forces. It was our expectation that particularly unstable forms of government create PGMs as they can be established more quickly, with fewer resources, and less accountability than paramilitaries. The coefficients of *Durability* are statistically insignificant in the model underlying Tables 3 and 5. Moreover, according to Table 4 the impact of *Durability* does not differ across the paramilitary and PGM alternatives, while Figure 2 clearly shows that the effect of this variable is indistinguishable from 0. Hence, there hardly is much evidence for the **Instability Hypothesis**.

Third, although the results on regime instability are inconclusive, our expectation as expressed

Table 3: The Determinants of Auxiliary Force Structure – Multinomial Logit Model

Outcome:	(1) Paramilitary	(2) PGMs	(3) Both
Durability	-0.006	-0.005	-0.005
	(0.006)	(0.008)	(0.006)
GDP per capita (ln)	0.376	-0.381	0.277
	(0.183)**	(0.212)*	(0.240)
Population (ln)	0.433	0.268	0.788
	(0.184)**	(0.187)	(0.199)***
Military Centrality	33.100	33.983	31.545
	(24.772)	(26.369)	(25.291)
Strike	0.960	0.674	0.187
	(0.329)***	(0.503)	(0.405)
Riot	0.195	0.088	0.097
	(0.258)	(0.335)	(0.308)
Demonstration	-0.306	0.256	0.186
	(0.225)	(0.315)	(0.249)
Guerrilla	-0.519	-0.896	-0.084
	(0.398)	(0.641)	(0.404)
Civil Violence	-0.255	1.260	1.483
	(0.352)	(0.511)**	(0.462)***
Civil War	0.755	1.332	1.130
	(0.834)	(1.335)	(0.189)
Excluded Population (ln)	0.001	-0.172	0.002
	(0.037)	(0.061)***	(0.047)
Aid Dependence Democracies (ln)	0.122	-0.080	0.092
	(0.054)**	(0.061)	(0.053)*
Aid Dependence Autocracies (ln)	-0.008	-0.171	-0.067
	(0.028)	(0.059)***	(0.034)**
Strong Democracy	0.012	-0.058	0.410
	(0.647)	(0.789)	(0.767)
Strong Autocracy	0.160	-1.418	0.088
	(0.335)	(0.589)**	(0.447))
Weak Democracy	0.166	0.458	0.762
	(0.472)	(0.602)	(0.595)
Distance to Democracy (ln)	0.065	0.412	0.238
	(0.223)	(0.326)	(0.274)
Obs.			3,332
Pseudo Log Likelihood			-1,333.413
Prob $> \chi^2$			0.000

$*p < 0.10, **p < 0.05, ***p < 0.01$

Standard errors clustered on country in parentheses.

Constants and temporal controls included, but omitted from presentation.

Baseline category is *Auxiliary Force Structure*=0.

Table 4: Significant Differences across Main Alternatives ((1) and (2)) of *Auxiliary Force Structure*

Coeff. for (1) – Coeff. for (2)=0	χ^2	Prob > χ^2
Durability	0.01	0.9436
GDP per capita (ln)	10.16	0.0014
Population (ln)	0.97	0.3251
Military Centrality	0.01	0.9298
Strike	0.30	0.5808
Riot	0.11	0.7444
Demonstration	2.89	0.0890
Guerrilla	0.36	0.5503
Civil Violence	6.99	0.0082
Civil War	0.31	0.5750
Excluded Population (ln)	8.30	0.0040
Aid Dependence Democracies (ln)	8.55	0.0035
Aid Dependence Autocracies (ln)	9.38	0.0022
Strong Democracy	0.01	0.9308
Strong Autocracy	7.62	0.0058
Weak Democracy	0.31	0.5755
Distance to Democracy (ln)	1.33	0.2480

Note: Variables for temporal correction not shown.

in *H3*, the **Civil Violence Hypothesis**, on the effect of civil violence seems valid. PGMs are much more likely to be created in the context of a civil conflict; note, however, that this positive effect is not given for more intense disputes, i.e., civil wars with 1,000 or more casualties. Adding or dropping any of the covariates does not affect the substance of this finding (Tables 3), which basically mirrors what Carey, Colaresi and Mitchell (2015*a*) when focusing on PGMs only. Tables 4 and 5 go beyond this by demonstrating that there is a significant difference between paramilitaries and PGMs. That is, the probability that the effect of *Civil Violence* on the log odds of paramilitary forces and PGMs is identical is at less than 1 percent. Table 5, due to the direct comparison with the baseline category of paramilitaries, further points into this direction. In more substantive terms, when increasing *Civil Violence* from the 5th to the 95th percentile value, the probability of having at least one paramilitary unit decreases by about 15 percentage points; the probability of having at least one PGM, however, increases by ca. 2 percentage points and this difference is statistically significant (Figure 2). Moreover, the combined effect of PGMs and paramilitaries (last column of Tables 3 and 5) is, in fact, positive: raising *Civil Violence* from the 5th to the 95th percentile value, the probability that a country has both paramilitary units and PGMs increases by more than 28 percentage points. In light of the argument on a simultinaity for *H4*, this finding may already lend some support to our claims. However, a more systematic analysis is in need that we provide with the simultaneous equation model.

Coming then to our fourth hypothesis, we use a different estimation strategy that directly addresses the persistent endogeneity between paramilitary forces and PGMs in a simultaneous equation setup and, hence, two stages are reported for each model (Table 6). While the first equation is based on

Table 5: The Determinants of Auxiliary Force Structure – Multinomial Logit Model

Outcome:	(0) No Aux. Forces	(2) PGMs	(3) Both
Durability	0.006	0.005	0.000
	(0.006)	(0.007)	(0.005)
GDP per capita (ln)	-0.376	-0.757	-0.098
	(0.183)**	(0.237)***	(0.197)
Population (ln)	-0.433	-0.165	0.355
	(0.184)**	(0.168)	(0.092)***
Military Centrality	-33.100	0.883	-1.555
	(24.772)	(10.020)	(8.917)
Strike	-0.960	-0.286	-0.773
	(0.329)***	(0.519)	(0.415)*
Riot	-0.195	-0.107	-0.098
	(0.258)	(0.329)	(0.265)
Demonstration	0.306	0.562	0.492
	(0.225)	(0.330)*	(0.271)*
Guerrilla	0.519	-0.311	0.435
	(0.398)	(0.631)	(0.427)
Civil Violence	0.255	1.515	1.739
	(0.352)	(0.573)***	(0.474)***
Civil War	-0.755	0.577	0.375
	(0.834)	(1.029)	(0.752)
Excluded Population (ln)	-0.001	-0.173	0.001
	(0.037)	(0.060)***	(0.042)
Aid Dependence Democracies (ln)	-0.122	-0.201	-0.029
	(0.054)**	(0.069)***	(0.53)
Aid Dependence Autocracies (ln)	0.008	-0.163	-0.059
	(0.028)	(0.053)***	(0.030)*
Strong Democracy	-0.012	-0.070	0.398
	(0.647)	(0.803)	(0.662)
Strong Autocracy	-0.160	-1.578	-0.072
	(0.335)	(0.572)	(0.404)
Weak Democracy	-0.166	0.292	0.596
	(0.472)	(0.522)	(0.497)
Distance to Democracy (ln)	-0.065	0.348	0.173
	(0.223)	(0.301)	(0.224)
Obs.			3,332
Pseudo Log Likelihood			-1,333.413
Prob $> \chi^2$			0.000

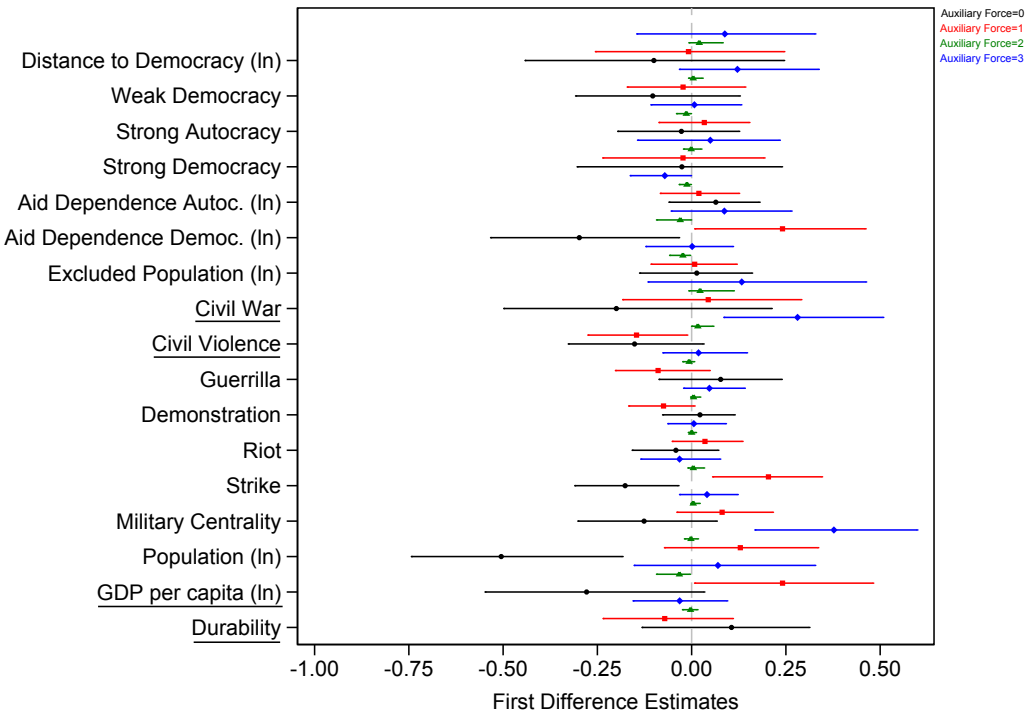
$*p < 0.10, **p < 0.05, ***p < 0.01$

Standard errors clustered on country in parentheses.

Constants and temporal controls included, but omitted from presentation.

Baseline category is *Auxiliary Force Structure*=1.

Figure 2: First Difference Estimates, (Model 1: Table 3 and Table 5)



Note: Simulated estimates are based on 1,000 draws from a multivariate normal distribution; horizontal lines pertain to 95 percent confidence intervals; vertical dashed line signifies first difference effect of 0; effects calculated while all other variables held constant at their median.

OLS and has the continuous *Paramilitary (ln)* as the dependent variable, the second stage is based on probit models and relies on the binary item *PGMs* as the outcome variable. Against this background, the coefficients in the paramilitary equation can be directly interpreted, i.e., the exponentiated value of the coefficients pertain to the percentage change in the effective number of paramilitary troops as one explanatory variable is changed by one unit, all else equal. The coefficients in the probit-based equation do not allow for a direct reading, however; we can interpret only the signs and significance levels directly. We thus calculated more substantive effects for the core variables of interest that are depicted in Figure 3, which shows predicted probabilities for $PGMs = 1$, i.e., the likelihood of seeing the establishment of at least one PGM for all values of *Paramilitary (ln)*.

The core variables of interest for H4 are *Instrumented PGMs* and *Instrumented Paramilitary*. As expected, the former is not statistically significant at conventional levels and its coefficient actually approximates 0. In substantive terms, establishing any informal or semi-official PGMs in a country increases the effective number of paramilitary organizations by about 0.01 percent. The substance and significance of *Instrumented Paramilitary* differs, however. *Instrumented Paramilitary* has a highly significant and, as expected, positive impact on the likelihood of PGM establishment. The predicted probabilities in Figure 3 illustrate this influence. We see that the probability of a PGM increases

Table 6: The Relationship between Paramilitary Forces and PGMs

	Paramilitary Equation	PGMs Equation
Instrumented PGMs	-0.001	
	(0.002)	
Instrumented Paramilitary		0.608
		(0.137)***
Durability	-0.000	0.002
	(0.000)	(0.002)
GDP per capita (ln)	-0.001	-0.035
	(0.004)	(0.058)
Population (ln)	0.004	0.174
	(0.003)*	(0.040)***
Military Centrality	-0.370	5.047
	(0.365)	(4.660)
Strike	-0.002	-0.335
	(0.010)	(0.133)**
Riot	0.015	-0.220
	(0.009)*	(0.123)*
Demonstration	-0.005	0.415
	(0.008)	(0.111)***
Guerrilla	0.018	0.011
	(0.011)*	(0.149)
Civil Violence	-0.006	0.712
	(0.010)	(0.130)***
Civil War	-0.001	0.314
	(0.014)	(0.252)
Excluded Population (ln)	0.002	0.004
	(0.001)**	(0.013)
Aid Dependence Democracies (ln)	0.000	0.042
	(0.001)	(0.016)***
Aid Dependence Autocracies (ln)	0.001	-0.062
	(0.001)	(0.013)***
Strong Democracy	0.004	0.184
	(0.015)	(0.220)
Strong Autocracy	0.009	-0.229
	(0.009)	(0.130)*
Weak Democracy	0.005	0.140
	(0.009)	(0.129)
Distance to Democracy (ln)	0.003	0.078
	(0.005)	(0.076)
Obs.	3,308	3,308
Prob > F	0.000	
Prob > χ^2		0.000

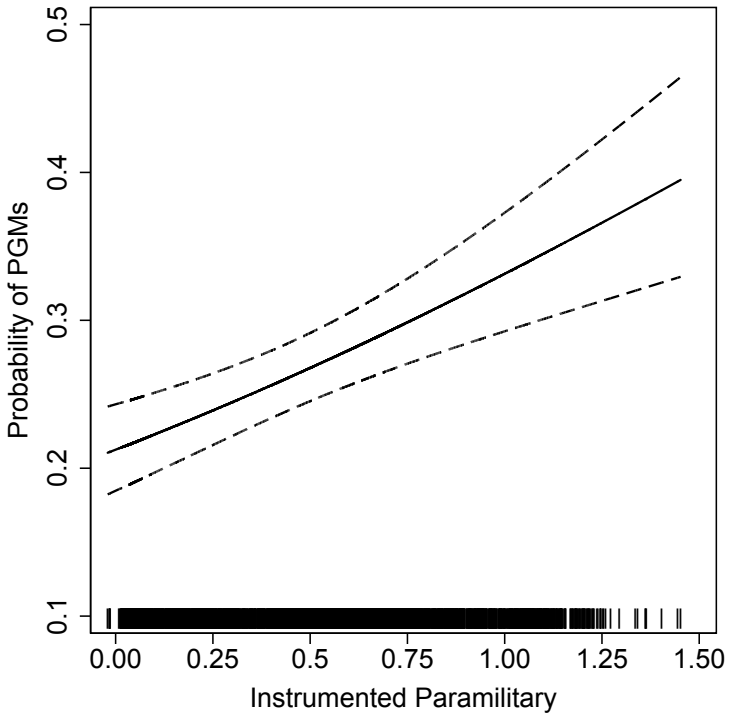
$*p < 0.10, **p < 0.05, ***p < 0.01$

Standard errors in parentheses.

Constants and temporal controls included, but omitted from presentation.

from about 21 percent to 39 percent when *Instrumented Paramilitary* is raised from its minimum to its maximum. In essence, and holding all other variables constant, this is identical to changing the structure of Canada's paramilitary forces (minimum of 0 in our sample) to the level of paramilitary activity in some years of Russia or India. Clearly, the domestic threat level of these latter states substantially differs from the internal security needs of Canada and, hence, paramilitary forces could make it then also more likely that PGMs are established.

Figure 3: The Probability of PGM Establishment (Second Stage)



Note: Dashed lines pertain to 95 percent confidence intervals; rug plot at horizontal axes shows distribution of instrumented *Paramilitary (ln)*; effects calculated while all other variables held constant at their mean.

The findings offer strong evidence in support of our theoretical expectation behind the **Simultaneity Hypothesis**. Ultimately, both kinds of forces are suitable for counterinsurgency campaigns, but each address special security needs of the government, and are likely to be put in place according to very strategic considerations of the incumbent. Militias, due to their different accountability implications for the regime and the fewer costs necessary to establish them, may only be employed once all other options, including paramilitaries, have been exhausted. As described above, the greater agency granted to most PGMs increases the likelihood of counterproductive actions. Moreover, the forms of human rights violations often associated with PGMs should be a governmental strategy of last resort when deciding to sponsor domestic violence (see, e.g., Pilster, Böhmelt and Tago, 2015). Paramilitaries, on the other hand, are a more modest extension of the regular forces and they require

more material resources and time for their creation than PGMs. Ultimately, we observe a sequence of state responses depending on the level of domestic instability and escalation: if paramilitary forces fail in restoring stability, rulers will be much more inclined to set up PGMs as some threshold of escalation and governmental response has already been crossed.

With regard to our control covariates, most of these variables mirror the results in earlier research. We briefly discuss only the consistently significant findings here, focusing on Table 3 and Figure 2 due to space limitations and simplicity. First, we find support for the argument that international accountability in fact increases the likelihood to establish PGMs (Carey, Colaresi and Mitchell, 2015*a*). The negative impact of *Aid Dependence Autocracies (ln)* in columns 3 and 4 of Table 3 underlines this. Somewhat in consistence with that, we find a positive and significant impact of *Aid Dependence Democracies (ln)* on the creation of paramilitaries or both paramilitaries and PGMs. While the coefficient associated with *Distance to Democracy (ln)* does then not support this line of reasoning, it is in line with what Carey, Colaresi and Mitchell (2015*a*, p.9) called the "international monitoring costs argument."

Second, while our results for the degree of regime stability (discussed above) were inconclusive, our findings on the forms of government as such lead to similar outcomes. That is, almost none of the items *Strong Democracy*, *Strong Autocracy*, or *Weak Democracy* exert a statistically significant impact on either the establishment of paramilitaries or PGMs. The only exception is *Strong Autocracy*, which is negatively associated with PGM creation. In more detail, when raising *Strong Autocracy* from the 5th to the 95th percentile value, the likelihood of having a PGM decreases by 1.4 percentage points. Similar to other findings, it is then not the case that PGMs are only a security type of autocratic regimes, but exist across all different types of government and, actually, are less likely to exist in strongly authoritarian regimes.

Third, strikes are seemingly more associated with paramilitaries than PGMs. However, Table 4 clarifies this with the direct comparison: eventually, there seems to be no statistically significant difference of the impact of strikes on either paramilitary forces or PGMs. As an exception in the context of these low-level domestic unrest variables, shown in Table 5, demonstrations make it more likely that PGMs evolve, but they have no effect on the establishment of paramilitary forces. As expected, moreover, larger populations are generally more likely to be associated with more auxiliary forces. The positive effect of *Population (ln)* in columns 2 and 4 of Table 3 emphasize this, and it is also the case that the results in Table 4 do not suggest any statistically significant difference across auxiliary forces in terms of this variable's impact. Furthermore, while the effect of *Excluded Population (ln)* differs across PGMs and paramilitaries, we find that there is a negative impact on the establishment of PGMs, somewhat surprisingly. That said, this effect is rather small in substance

as the likelihood of having a PGM decreases by only 2 percentage points when increasing *Excluded Population (ln)* from the 5th 50 the 95th percentile value.

Lastly, although we have not reported the coefficients of the controls for temporal correction in the tables, there is considerable evidence for serial correlation. In terms of all different specifications of the auxiliary forces, the results suggest that the likelihood of either paramilitary forces, PGMs, or both is highest immediately after such a specific auxiliary force composition has been established, but then declines over time. This also mirrors the findings in, e.g., Carey, Colaresi and Mitchell (2015*b*, p.9).

6 Conclusion

The structure of the auxiliary security forces varies considerably in composition and operational parameters. We disaggregated this sector along paramilitary and pro-government militia forces, and examined (1) whether specific factors have diverse impacts on these unit types and (2) how one type of units influences the other. We based our argument on the empirical observation that auxiliary security forces are usually employed for domestic-level, insurgency-type threats to the survival of the government, and that paramilitary forces require more time and resources for creation as well as make the incumbent regime more accountable for their actions than PGMs. When subscribing to this, we derived a series of implications pertaining to state capacity, instability, civil violence, and simultaneity between paramilitaries and PGMs. For adequately addressing our hypotheses, we relied on competing risks analysis and the two-stage probit least squares (simultaneous equation) estimator by Keshk (2003) and Maddala (1983, pp.244f) and tested our theoretical expectations quantitatively. Our findings and several additional robustness checks suggest that paramilitary forces do indeed require state capacity, but PGMs do not; regime instability as such is rather unrelated to either type of auxiliary force; however, civil violence facilitates the establishment of PGMs, but has the opposite effect on paramilitary forces; and, finally, PGMs are unlikely to affect the establishment of paramilitary troops, but paramilitaries do indeed give rise to pro-government militias.

While we thus obtain support for the **State Capacity Hypothesis**, the **Civil Violence Hypothesis**,and the **Simultaneity Hypothesis** which we interpret as the empirical outcome of an escalation process of governmental replies to domestic threats. While paramilitary forces are likely to be used against the initial threats posed by domestic opposition groups, they might be insufficient to effectively deal with them. Hence, PGMs – although being more costly in particular due to a higher autonomy from the incumbent – are called in to address what paramilitaries could not have solved in the first place. On the other hand, PGMs then simply cannot influence the establishment of paramilitary forces, as we already reached the "peak" of governmental escalation responses (see

also, Pilster, Böhmelt and Tago, 2015).

This result emphasizes that there is an underlying diverse set of activities PGMs and paramilitaries are used for. While our research thus constitutes the first study that has uncovered the mechanisms of this phenomenon, we believe that there are also important implications for the understanding of how states structure their auxiliary security forces, domestic state-sponsored violence, and civil-military relations in general. Eventually, we believe that we have contributed to the growing literature on the impact of a country's security force structure on civil-military relations, and contentious politics and political violence (e.g., Lyall and Wilson III, 2009; Sechser and Saunders, 2010; Powell, 2012). That said, several avenues for further research do exist. We outline two of them.

On one hand, the need to disaggregate conflict types has been re-stated by our work. We also believe that our research strongly suggests that disaggregation of paramilitary forces and PGMs, respectively, is necessary in future studies. Not all types of paramilitary forces are created equal, and they differ in their skills and capabilities to address insurgency warfare. Similarly, not all PGMs are the same and there are crucial differences across units. A more disaggregated perspective, which must be informed by additional data-collection efforts, will substantially further our understanding of states' auxiliary security structures. On the other hand, our work highlights that different escalation stages exist across paramilitary and PGM employment. We do need, however, more qualitative work that not only examines our claims presented in this article in more depth, but also sheds more light on the governmental decision-making process leading to the rise of paramilitary troops and pro-government militias.

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