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ABSTRACT

Fractious splits of rebel groups debilitate the military capacity of these organizations which increases their vulnerability to anti-rebel operations. Despite the risks of disunity and the battlefield advantages of remaining cohesive, our new global sample of rebel groups (1980–2014) reveals that two-fifths of these (but not the remaining) groups have split into distinct, competing factions. Why and when do some rebel groups split, while other groups remain cohesive? Unlike previous research on rebel fragmentation, we argue that the extent of centralization of the rebel groups command-and-control structure together with the group's "age" influences the propensity of rebel group splits. The organizational features of rebel groups with high command-and-control centralization lead to internal blame-game politics when these groups age, which encourages the supreme leader to amass power and curtail the other leaders' decision-making authority. This induces the alienated leaders to split the parent rebel organization to form a new rebel group. In contrast, the organizational structure of moderate and weakly centralized rebel groups promotes mutual interdependence among leaders as well as between these leaders and sub-commanders over time. This reduces the likelihood of splits of these groups. Results from our new rebel-group-year data provide robust statistical support for these predictions.

Les scissions anarchiques des groupes rebelles affaiblissent leur capacité militaire et accroissent leur vulnérabilité aux opérations anti-rebelles. En dépit des risques de la perte d'unité et des avantages de rester soudés sur le champ de bataille, notre nouvel échantillon mondial de groupes rebelles (1980-2014) révèle que deux cinquièmes de ces groupes (mais pas le reste) se sont scindés en factions distinctes qui sont en concurrence. Pourquoi et à quel moment certains groupes rebelles se séparent-ils alors que d'autres restent soudés ? Contrairement aux recherche précédentes sur la fragmentation des rebelles, nous soutenons que la mesure dans laquelle la structure de commandement et de contrôle du groupe rebelle est centralisée ainsi que « l'ancienneté » du groupe influencent sa propension à se séparer. Les caractéristiques organisationnelles des groupes rebelles dont le commandement et le contrôle sont très centralisés conduisent à une politique interne de rejet des fautes lorsque ces groupes vieillissent, ce qui encourage le chef suprême à accroître son pouvoir et à

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réduire l'autorité décisionnelle des autres chefs. Cela incite les chefs ainsi mis de côté à se séparer de l'organisation rebelle dont ils sont issus pour former un nouveau groupe rebelle. À l'inverse, la structure organisationnelle des groupes rebelles peu ou moyennement centralisés favorise l'interdépendance entre les chefs ainsi qu'entre ces chefs et les sous-chefs au fil du temps. Cela réduit la probabilité de scission de ces groupes. Les résultats issus de nos nouvelles données annuelles sur les groupes rebelles par an étayent ces prévisions par de solides statistiques.

Las escisiones fraccionadas de los grupos rebeldes debilitan la capacidad militar de estas organizaciones, lo que aumenta su vulnerabilidad a las operaciones contra los rebeldes. A pesar de los riesgos de desunión y de las ventajas en el campo de batalla de permanecer cohesionados, nuestra nueva muestra global de grupos rebeldes (1980-2014) revela que dos quintas partes de estos grupos (pero no los restantes) se han dividido en distintas facciones contrapuestas. ¿Por qué y cuándo algunos grupos rebeldes se separan, mientras que otros grupos permanecen unidos? A diferencia de investigaciones anteriores sobre la fragmentación de los rebeldes, argumentamos que el grado de centralización de la estructura de mando y control del grupo rebelde junto con la "edad" del grupo influye en la tendencia a las escisiones de grupos rebeldes. Las características organizativas de los grupos rebeldes con una alta centralización de mando y control conducen a una política interna de atribución de culpas cuando estos grupos envejecen, lo que motiva al líder supremo a acumular poder y restringir la autoridad de toma de decisiones de los otros líderes. Esto induce a los líderes alienados a dividir la organización matriz de rebeldes para formar un nuevo grupo rebelde. En contraste, la estructura organizacional de los grupos rebeldes moderados y débilmente centralizados promueve la interdependencia mutua entre los líderes, así como entre dichos líderes y subcomandantes a lo largo del tiempo. Esto reduce la probabilidad de escisiones de estos grupos. Los resultados de nuestros nuevos datos anuales sobre grupos rebeldes proporcionan un sólido respaldo estadístico para estas predicciones.

On 30 April 1988, two top-tier leaders (Muivah and Swu) of the National Socialist Council of Nagaland (NSCN) rebel group – that fought against the Government of India since the 1970s – split from the parent NSCN organization owing to political tension among the group's leaders. This split engendered fratricidal strife between the new group, NSCN-Muivaah, and the "parent" NSCN-Khaplang, which substantially weakened each group's military capacity. Similarly, a split within Ahrar al-Sham (an anti-Assad rebel group) engineered by one of its chief leaders in 2016 "helped Assad and his allies make significant gains" (Perry and Al-Khalidi 2016, 1). While these two splits occurred during years in which there was active fighting between the warring parties, key rebel leaders in the LTTE (Sri Lanka) and the BRA (Papua New Guinea) split their rebel organization to form a new rebel group when

there was no major violence. By contrast, top-level leaders such as Maung Sein Nyunt in the ANLP (Myanmar), Joseph Karumba in FROLINA (Burundi), and Salvador Cayetano Carpio in FPL (El Salvador) successfully maintained their respective group's cohesion over time during and outside civil conflict. These examples are hardly unique.

Indeed, our newly collected rebel-group-year data (1980–2014) from *all* five regions of the globe (presented later) reveal that rebel groups have split into two separate entities in two-fifths of rebel groups in our sample both in the presence and absence of violence. The fact that rebel group splits occur frequently is intriguing as such splits – including those engineered by top rebel leaders – prolong civil war duration, engender fratricidal violence between rebels, and weaken rebel movements (e.g., Cunningham 2013; Cunningham, Bakke, and Seymour 2012; Doctor 2020; Nygård and Weintraub 2015; Rudloff and Findley 2016). It thus motivates us to investigate in this paper why some – but not other – rebel organizations split into distinct entities that lead to the formation of a new rebel group?

Before presenting our theory, we note that the pernicious consequences of rebel group splits has led scholars to examine the determinants of rebel fragmentation, including the collapse of rebel movements into several disjointed groups (e.g., Fjelde and Nilsson 2018; McLauchlin and Pearlman 2012; Mosinger 2018; Seymour, Bakke, and Cunningham 2016; Staniland 2014; Weinstein 2006). To this end, researchers predominantly focus on *how* the following conflict-level factors influence rebel fragmentation: battlefield outcomes (Woldemariam 2018), state repression against the rebel groups' civilian supporters (Fjelde and Nilsson 2018; Schubiger 2015), sexual violence by rebel actors (Nagel and Doctor 2020), or external support from third parties for rebels (Ives 2019; Lidow 2016; McLauchlin and Pearlman 2012; Tamm 2016). Others suggest that rebel fragmentation is influenced by the group's organizational features or ethno-political roots (Asal, Brown, and Dalton 2012; Sinno 2008, 2011), and founding ideology or social base (Fjelde and Nilsson 2018; Staniland 2012; Weinstein 2006). Recent work also posits that the experience of rebel leaders or their response to battlefield outcomes and external pressure from outside patrons prompts lieutenants and subcommanders – who operate "under the rebel leader" (Doctor 2020, 5) – to break away and form a new rebel group (e.g., Ives 2019, 5; Lidow 2016; Nagel and Doctor 2020).

These existing studies provide rich insights on how factionalism in rebel groups result from conflict characteristics, the organization's "internal" features, and the behavior of subcommanders or lieutenants in these groups. Yet, the general focus on rebel infighting initiated by subcommanders or lieutenants has led researchers to pay relatively less attention toward comprehensively explaining *how* and *when* certain top-tier rebel leaders play a direct role in splitting their organization or retaining intra-group cohesion within *and* outside civil wars. This is surprising as our data reveal that top-tier leaders

often actively seek to split their parent rebel organization under various conditions: during and outside civil conflict (NSCN in India, LTTE in Sri Lanka), outside the context of rebel-government peace negotiations (Hizb-i-Wahdat, Afghanistan), in the absence of external support (URNG, Guatemala), and when ethno-politics is not a salient issue (CPP, Philippines). Such organizational splits in rebel groups frequently lead to violence between the "parent" and the splinter rebel group that substantially weaken rebel movements. Given such *ex post* adverse consequences of rebel splits, the fundamental question of why and when top-tier rebel leaders take the *ex ante* risk of splitting their rebel organization during and outside civil wars are not well understood.

Moreover, we also do not as yet fully understand the conditions that incentivize top-tier rebel leaders to maintain intra-group unity given the prevailing focus on the role of rebel subcommanders (as opposed to leaders) in splitting rebel groups. Investigating when rebel groups remain *cohesive* is also vital as many rebel leaders – such as the leaders of ANLP (Myanmar), FROLINA (Burundi), and FPL (El Salvador) – seek to sustain intra-group unity rather than to resort to infighting. The possibility that the role played by top-tier rebel leaders in splitting or maintaining their organization's unity could account for the observed frequency and variation in rebel group splits in our data further motivates us to investigate why and when some rebel groups, but not others, are more likely to split.

Our theory of rebel group splits departs from the existing focus on the influence of battlefield outcomes or outside sponsors on rebel factionalism in that we explore how the *internal organizational structure* – specifically, the level of command-and-control centralization – of rebel groups together with the "age" of these groups influence the likelihood of organizational splits. The theory's main prediction is that the key features of highly centralized rebel organization increase the propensity of splits engineered by top-tier leaders in these groups when they *age* (i.e., become "older"), but foster intra-group unity when these groups are *young* (i.e., during the group's formative years). The corollary to this prediction posits that the features of moderate and weakly centralized rebel groups reduce the probability of an organizational split.

Specifically, we first suggest that top-tier leaders – including the supreme leader – in highly centralized command-and-control rebel groups have incentives to maintain intra-group cohesion within these groups during their formative years. But once a substantial period of time elapses, a certain faction of these top-tier leaders will become disillusioned with their groups' inability to meet its goals. We argue that the key features of highly centralized command-and-control rebel groups (e.g., concentrated decision-making power, hierarchical military command) make it easier for these disillusioned leaders to *credibly* blame the supreme leader for drawbacks in the group's goals and tactics as time progresses. We posit that the supreme leader will respond to the

threat to his or her power stemming from such "blame-game" politics by exploiting the command-and-control features of highly centralized rebel groups mentioned above to increase his or her authority in the organization at the expense of the other leaders' decision-making power. This induces these excluded leaders to split the parent rebel organization to form a new group.

By contrast, rebel groups that are moderate or weakly (the least) centralized are characterized by more symmetric balance of decision-making power and less hierarchical military chain-of-command. We argue that these features promote mutual interdependence among top-tier leaders as well as leaders and commanders in these groups as time progresses. Hence, although tension regarding their respective group's goals or tactics may emerge over time among members (including leaders) in moderate and weakly centralized rebel organizations, such mutual interdependence helps them to reach agreement over their group's objectives. This enhances "in-group" cooperation over time, reducing the probability of splits in these latter two types of rebel groups. Statistical results from our new global rebel-group-year data provide robust support for these predictions.

This study's focus on the *age* of rebel groups (as one of the independent variables) helps us to theoretically unpack how the behavior of top-tier rebel leaders under different command-and-control structures influences rebel group splits as time progresses. This leads to clear microfoundations about how rebel groups' degree of command-and-control centralization affects political contestation versus in-group cooperation in these organizations over time and influence rebel fragmentation. These microfoundations not only provide greater leverage to account for the observed frequency and variation in rebel group splits during and outside civil war but also highlight a more nuanced relationship between rebel organization and rebel factionalism than suggested by existing studies. We turn to describe the key features of rebel command-and-control structure and then develop our theory in detail. This is followed by a presentation of our empirical analysis, including all our statistical results. The conclusion summarizes the main implications from this study.

Background: Rebel Command-and-Control

Early research on civil conflict often conceptualized rebel groups as unitary actors (e.g., Sambanis 2001). Rebel groups, however, often split "in which a segment of a rebel organization formally and collectively exits that rebel organization and establishes a new, independent rebel organization" (Doctor 2020, 2; Fjelde and Nilsson 2018; Pearlman and Cunningham 2012; Tamm 2016; Woldemariam 2018). Accordingly, researchers have primarily focused on how "within-group" characteristics or conflict-level factors mentioned in the introduction influence rebel fragmentation (e.g., Lidow 2016; Nagel and Doctor 2020; Sinno 2008, 2011; Tamm 2016; Woldemariam 2018). These

studies undoubtedly provide rich insights and we control for them in our empirical analysis below. Yet, they do not provide sufficient empirical leverage to evaluate the empirical record which, as per our examples above, reveal that top-tier rebel leaders split their group in some cases but maintain intra-group cohesion in other cases within and outside conflict.

Our theoretical approach examines (similar to some studies) how internal politics in rebel groups influence rebel factionalism. However, our theory *departs* from this research by exploring how the extent of command-and-control centralization (high, moderate, low) – i.e., the internal organizational structure – of rebel groups *together* with the "age" of these groups influences the likelihood of splits engineered by top-tier leaders. Before presenting our theory, we turn to define the (i) basic actors in rebel groups and (ii) internal structure of these organizations according to their level of command-and-control centralization, which are central to our arguments.

Rebel groups often include three basic yet distinct actors in the organization's chain of military command. The first main actor is leaders at the top who we label as "top-tier" leaders (Doctor 2020; Hoover Green 2018; Staniland 2014; Themnér 2012, 2013). Top-tier leaders are the "most responsible for exercising power in a rebel organization" (Doctor 2020, 4) and "have the ability to . . . organize violent enterprise" (Tamm 2016; Themnér 2013, 304). They encourage loyalty to the group's goals and ideology via political education (Hoover Green 2018; Schubiger 2015; Themnér 2012). The second are mid-level commanders who are "situated between the rank-and-file combatants and the highest military leadership" (Themnér 2012, 222) and are "in charge of subgroups" (Ives 2019, 5) in rebel organizations (Doctor 2020, 5; Lidow 2016). Finally, footsoldiers who bear arms "occupy the lowest position within the group" (Ives 2019, 5; Weinstein 2006; Themnér 2012).

The internal organizational structure of rebel groups vary in terms of how much command-and-control the top-tier leadership exerts over "day-to-day activities of the organization" (Cunningham, Gleditsch, and Salehyan 2013, 523). Following existing studies, we conceptualize the level of command-and-control centralization within rebel groups as high, moderate, and low (Asal , Brown, and Dalton 2012; Lidow 2016; Sinno 2008, 2011). Rebel groups that have a highly centralized command-and-control structure are led by few top-tier leaders, including the supreme leader who occupies the organization's highest position (Asal , Brown, and Dalton 2012; Jo 2015; Sinno 2008). The supreme leader relies on other top-tier leaders to determine the group's "overall strategic formulation and tactical selection" (Nagel and Doctor 2020, 1234; Sinno 2008, 2011). Hence, decision-making power is *concentrated* among the top-tier leaders who collectively formulate the group's political goals and engage in indoctrination of lower rank-and-file members via political education (Hoover Green 2018; Jo 2015; Themnér 2012). Further, highly centralized rebel groups have an "institutionalized and *hierarchical*"

chain of military command (Staniland 2012, 165, italics added) in which the supreme leader in collaboration with other top-tier leaders fully determine the group's military tactics (Sinno 2011; Staniland 2012, 2014). Mid-level commanders in these groups thus have "no say in organizational policies" (Popovic 2017, 926). Finally, top-tier leaders "make appointments" (Sinno 2011, 316) and control the distribution of *selective benefits* (wages, weapons) to mid-level commanders and footsoldiers in highly centralized rebel groups (Themnér 2012; Weinstein 2006).

The Pattani United Liberation Organization (PULO) in Thailand and the NSCN in India are examples of rebel groups with high command-and-control centralization. Decision-making within PULO's hierarchical "military order" was concentrated among three top-tier leaders: Abdul Kadir Bin Mohammad, Abdul Rohman Bazo, and Haji Daoh Thaman (Gunaratna and Acharya 2012, 35). While Bin Mohammed was the "chairman," he along with Bazo and Thaman "set the vision and goals" (Noiwong 2001, 47), controlled the group's military chain-of-command, and allocated resources to the rank-and-file (Gunaratna and Acharya 2012, 35). The NSCN was headed by Thuingaleng Muivah, S.S. Khaplang, and Isak Swu. Although Khaplang was the supreme leader, he relied on Muivah and Swu for "dictating" the group's agenda, managing military operations, and controlling wages distributed to the rank-and-file (Vashum 2000).

Rebel groups with moderate levels of command-and-control centralization also have top-tier leaders, mid-level commanders, and foot-soldiers. But these groups usually do not have a supreme leader among the set of top-tier leaders. Further, unlike highly centralized organizations, there is greater symmetry in the balance of decision-making power between top-tier leaders and mid-level commanders in these groups (Christia 2012; Sinno 2011). Mid-level commanders in moderately centralized groups "personally lead their subordinates in battle" (Themnér 2013, 314), allocate resources to footsoldiers, develop military tactics, and formulate "local strategy and other decisions" (Bangerter 2012; Sinno 2011, 316). Moderately centralized organizations thus "do not require high levels of coordination" (Sinno 2008, 93) between mid-level commanders and top leaders as the commanders operate their own military units. Ethiopian People's Democratic Movement (EPDM) and Organisasi Papua Merdeka (OPM) in Indonesia are examples of moderately centralized rebel groups. For instance, OPM's top leaders collectively designed the organization's goals; but daily operations were planned via "consultation and agreement between leaders with the field-commanders" (Matsuno 2011, 59) who enjoyed substantial autonomy.

Similar to moderately centralized rebel organizations, rebel groups with the least (i.e., weak) level of command-and-control centralization also have top-tier leaders. But these leaders neither have *de facto* power to determine the group's political goals nor control mid-level commanders and footsoliders

within the organization (McQuinn 2016; Salehyan, Gleditsch, and Cunningham 2011). Hence, top-tier leaders in "centralized organizations are more effective than non-centralized ones" (Sinno 2008, 89) in exerting internal control. Yet, there is symmetry in decision-making power between top-tier leaders and commanders in weakly centralized rebel groups since these commanders manage military units, determine tactics, have financial autonomy, and recruit footsoldiers (McQuinn 2016; Sinno 2011; Themnér 2013, 313). Much like OPM, "subcommanders" in a weakly centralized group like the Movement of Democratic Forces in Casamance (MFDC) in Senegal operated autonomously but collectively managed their units' weapons and food supplies (Olonisakin 2011). MFDC's top-tier leaders neither had decision-making power nor designed the group's goals.

Theoretical Argument

We argue that although the key command-and-control features of highly centralized rebel groups facilitate in-group unity during their formative years (when they are "young"), these features trigger internal discord in these organizations over time. Three reasons explain why the organizational features of highly centralized rebel groups foster cohesion in these groups during their initial years of existence. First, concentrated decision-making power among the few top-tier leaders – including the supreme leader – in centralized rebel groups makes it easier for them to coordinate and develop their group's goals and tactics during the organization's early years (Bangerter 2012; McQuinn 2016). These common goals facilitate both "consolidation of shared political visions" (Staniland 2014, 22) and "secondary cohesion" (Schubiger 2015, 8) among top-tier leaders. This encourages them to maintain intra-group cohesion during the group's formative years and "identify with [their] armed group organization as a whole" (Schubiger 2015, 8).

Second, the hierarchical military chain of command in highly centralized rebel groups strengthens "in-group networks" (Nagel and Doctor (2020, 5) among top-tier leaders (Staniland 2014, 21). This also allows them to coordinate and exchange information, promoting intra-group unity during the highly centralized group's formative years. Third, the top-tier leaders' control over the distribution of selective benefits to the rank-and-file in these groups helps them to "generate the enticements and trust needed to convince" (Themnér 2013, 297) rank-and-file members to be loyal and "internalize group norms" (Nagel and Doctor 2020; Weinstein 2006). It also encourages them to raise revenue to sustain the rank-and-file's income-stream to sustain the latter's loyalty to the organization. This further reinforces intra-group cohesion during the early years.

While highly centralized rebel organizations remain cohesive during their formative years, rebel groups do *not* stay "young" forever. Our rebel-group

year data reveal that about half of all sample rebel groups survived for 10–40 years (e.g., UNITA in Angola, LTTE in Sri Lanka), and about one-fifth of them lasted for 40 years or beyond (e.g., EPL in Colombia; KNU in Myanmar). Less than one-tenth of the rebel groups in the sample die early, which are evenly distributed across the three command-and-control centralization (low, moderate, high) categories (Table A10, Online Appendix). The vast majority of rebel organizations – including highly centralized rebel groups – in our data do "age" in that they survive for at least 15 years or beyond. These long-lasting groups are also almost equally distributed between our three command-and-control centralization categories (Figures A5a-A5c, Table A10, Online Appendix).[1] The fact that a substantial majority of rebel groups (including highly centralized ones) "age" raises the following question: what happens to intra-group cohesion over time in highly centralized command-and-control rebel groups?

To answer this question, note that internal disagreement tends to frequently emerge between top-tier leaders within rebel groups as they age (Bangerter 2012; Sinno 2011, 316). This is because victory against the government remains elusive as time progresses. Debate(s) over "legitimate targets of violence" also emerge over time as "a key source of dissension" between top-level rebel leaders which invites "open conflict" (Gade, Hafez, and Gabbay 2019, 324). Top-tier leaders in highly centralized rebel groups will thus become pessimistic about attaining their organization's goals. This will drive them to question the efficacy of (or lack thereof) their organization's goals and military tactics, sparking acrimonious debate about reconsidering the organization's objectives.

We argue that such internal squabbles that unravel over time drive top-tier leaders in highly centralized rebel groups to hold the supreme leader accountable for drawbacks in their group's goals and tactics. High concentration of decision-making power and hierarchical control over military in centralized groups will, in fact, allow top-tier leaders to deflect blame on the supreme leader for the group's weaknesses in its objectives and tactics. Specifically, concentrated decision-making power and hierarchical military control imply that the supreme leader is the most influential player in determining the centralized rebel group's goals and military tactics. This is *common knowledge* to all members within the organization, meaning that the top leaders know that lower rank-and-file members commonly believe the supreme leader's central role in designing the group's goals. Top-tier leaders will thus exploit the aforementioned common knowledge to credibly engage in "blame-game

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[1]The χ^2 test of equal proportions reported in Table A10 (Online Appendix) reveals that the proportion of highly centralized rebel groups that survive longer are not statistically different from the proportion of moderate and weakly centralized groups that also survived for a long time. This result also holds for rebel groups that die early. Thus, neither the share of long-surviving rebel groups nor groups that die earlier is overrepresented by highly or less (moderate, weak) centralized groups.

politics" by alleging that the supreme leader is fully responsible for the group's over-ambitious goals and ham-handed military tactics. Expressing such "lack of confidence in the leader's capacity to match strategies and tactics to group objectives" (Doctor 2020, 5) helps top-tier leaders to raise doubts about the supreme leader's internal authority over time.

The supreme leader will view such "doubts" raised by the other top-tier leaders as a threat to depose him or her from the organization's highest position. This will induce the supreme leader to increase his or her internal authority over time, while curtailing the power of other leaders. We argue, in fact, that the key features of highly centralized rebel organizations (concentrated decision-making power, hierarchical control over the military and distribution of benefits) *facilitate* the supreme leader's ability to tighten his or her grip over power as time progresses. To see why, note that concentrated decision-making power at the top within highly centralized rebel groups implies a "built-in" internal organizational structure where few individuals (including the supreme leader) fully manage daily operations, the budget, and tactics. This built-in organizational structure makes it feasible for the supreme leader in highly centralized rebel groups to monopolize agenda control and amass more power at the expense of other top-tier leaders over time (Bangerter 2012; Sinno 2011).

Next, the hierarchical military command within centralized rebel groups provides an opportunity for the supreme leader to preempt power grabbing by other competing top-tier members as the group gets older by establishing absolute power over the organization's chain of military command and military tactics (Bangerter 2012; Sinno 2011, 315). Furthermore, control over the distribution of selective benefits provides leverage for the supreme leader to become the *principal gatekeeper* behind the provision of benefits to mid-level commanders and footsoldiers (Bangerter 2012; de Zeeuw 2008). Accordingly, the supreme leader can use material inducements to incentivize rank-and-file members to pledge their loyalty to him or her, which maximizes the supreme leader's power (Sinno 2011, 315).

Examples support the preceding claims. For instance, by the mid-1980s, members within the highly centralized PULO became "increasingly disillusioned with the poor progress in achieving PULO's aspirations" (Noiwong 2001, 39). This led two top-tier leaders (Bazo and Thamam) in PULO to question the supreme leader Bin Mohammed's leadership and hold him responsible for drawbacks in the group's goals and tactics (Noiwong 2001). Perceiving Bazo and Thaman's actions as a threat to his power, Mohammed thus resorted to "dictatorial control" in PULO by (i) unilaterally determining PULO's military operations "without consulting Bazo and Thaman" (Noiwong 2001, 41) and (ii) allocating perks to members who pledged their loyalty to him. Likewise, by the late 1980s, rank-and-file members within the highly centralized NSCN became increasingly dissatisfied as the group had

failed to accomplish its main objectives. Top-level NSCN leaders such as Muivah and Swu thus started questioning Khaplang's (NSCN's supreme leader) credentials and raised doubts about his ability to inspire group members to sustain their struggle. Khaplang responded to these internal threats by resorting to an autocratic style of leadership, excluding Muivah and Swu from decision-making and employing his "control over resources to befriend loyal support among commanders and footsoliders" (Aosenba 2001, 105–106) as time progressed.

It is challenging to statistically evaluate our claim that the supreme leader in highly centralized rebel groups amasses more personal power over time since there is no (to our knowledge) publicly available data that directly operationalizes the extent to which top rebel leaders increase their authority within rebel organization. Nevertheless, we employ Cunningham and Sawyer (2019) *Rebel Leader Ascension Dataset* to broadly assess this claim. As described in the Online Appendix, we employ their data to code a binary *rebel autocracy* dependent variable. This variable is coded as 1 for rebel-group-years in which the organization's leader was *not* chosen through some form of internal election but rather assumed the chief executive's role by virtue of being the group's founder or through inheritance; it is 0 for rebel-group-years in which a rebel leader came into power through some form of internal elections (see Online Appendix for details).

We then estimate via probit models the interactive effect of the following two independent variables on *rebel autocracy* in our rebel-group-year data: the ordinal *command centralization* measure that ranges from low to high command-and-control centralization and the continuous *rebel age* variable that operationalizes the "age" of each rebel group in our sample. The *command centralization × rebel age* interaction term and its constitutive components evaluate whether highly centralized rebel groups are more likely to become internally autocratic when they age. Results from the probit models reveal that the statistical association between the interaction term – *command centralization × rebel age* – and *rebel autocracy* is positive and significant at the 5% level (Table A1, Figure A1, Online Appendix). While this does not directly test our theoretical claim posited above, it does broadly suggest that leaders at the apex of centralized rebel organizations tend to increase their authority over time.

The supreme leader's tactic of amassing more internal power over time by monopolizing control within centralized rebel organizations serves to exclude other top-tier leaders from decision-making and severely limit their internal military authority (e.g., de Zeeuw 2008; Jo 2015). Further, the chief leader's strategy of cultivating loyal followers via cronyism weakens the support base of other top-level leaders in the centralized rebel organization when the group ages. The top-tier leaders will resent the supreme leader's blatant attempts to diminish their internal authority within the organization, leading to factional

fights between the excluded leaders and the supreme leader when highly centralized rebel groups age (de Zeeuw 2008; Sinno 2011, 315).

When such factionalism takes root, "trust in the leader decreases … [and] this decrease in vertical trust can disconnect a leader" (Ives 2019, 7) from other top-tier members in the highly centralized rebel group over time. Moreover, even if the supreme leader makes promises to allay the excluded leaders' fears, the other top-tier leaders will question the credibility of such promises. This is because they recognize *ex ante* that the supreme leader does not have incentives to implement changes *ex post* as doing so may erode the supreme leader's authority. They also recognize that the supreme leader has incentives to keep exploiting the command-and-control structure (e.g., concentrated decision-making power) to sustain his grip over power within the centralized organization. They will thus rationally expect the supreme leader to renege from the promises he or she makes and continue amassing more power in the organization (Bangerter 2012; Lidow 2016).

The lack of credible promises leads to the unraveling of "primary cohesion" that entails the breakdown of "horizontal bonds" and trust between the supreme leader and other top-tier leaders in centralized rebel groups (Doctor 2020; Lidow 2016). It also reduces the disillusioned leaders' expected "cost of splintering from the group" (Ives 2019, 7). This will induce them to take concrete steps to split away from the parent group and create a new group. To this end, these dissident leaders will coalesce against the supreme leader by proposing alternative goals and military tactics, cultivating their own loyal supporters, and engaging in *outbidding* to demonstrate that they "best represent the interests of the rebel constituency and achieve its objectives" (Hafez 2017, 4; Sinno 2008, 2011). These actions bolster the dissident leaders' legitimacy to form a new splinter group, increasing the possibility of receiving support from outside patrons (Byman et al. 2001; Tamm 2016). As Byman et al. (2001, xviii) note, outside patrons have incentives to sponsor these dissident leaders since it not only allows them to "seek some measure of control in exchange for their support" rendered to these leaders but also enhances their influence among civilian constituents who back the renegade leaders' group (Byman et al. 2001; Lidow 2016). Furthermore, supporting the splinter group permits patrons to diversify their support among different rebel groups, which helps them hedge their risk when pursuing their security interest via sponsorship of armed organizations. Importantly, the dissident leaders will favor financial support from outside sponsors as this will help them to successfully form a splinter group.

Examples corroborate these theoretical claims. Recall that Bin Mohammed established dictatorial control within PULO by the late-1980s in response to Bazo and Thaman's blame-game politics. Bazo and Thaman viewed Bin Mohammed's autocratic tactics as "dogmatic and intolerant … power-hungry and corrupt" (Janchitfah 2005, 64), and feared that his autocratic

behavior would jeopardize PULO's future. This motivated them to advocate a separate agenda for PULO by 1990 (Janchitfah 2005). Once they rallied and garnered sizable political support from rank-and-file members for their agenda, they split from PULO in 1992 (Janchitfah 2005; Noiwong 2001). Likewise, in the NSCN, Muivah and Swu resented Khaplang's attempt to consolidate his authority at their expense and they felt that their authority was being "ignored by Khaplang" (Aosenba 2001, 106). Thus, they openly denounced Khaplang's autocratic behavior and campaigned for a more inclusive organization (Vashum 2000), which gained substantial support from lower rank-and-file members. In 1988, Muivah and Swu successfully split away from the main NSCN to create the NSCN-Isak-Muivah group, while Khaplang retained control over the parent NSCN-Khaplang group (Aosenba 2001; Vashum 2000). These examples and the theory presented above lead to:

Hypothesis 1: Rebel groups that have a highly centralized command-and-control structure retain their cohesion when they are young, but are more likely to experience a split engineered by some top-tier leaders when these groups become older.

We turn to analyze moderate and weakly (least) centralized rebel groups. Specifically, balance of decision-making power within these less centralized organizations implies that top-tier leaders and mid-level commanders of these groups enjoy autonomy in planning operations and tactics (de Zeeuw 2008; Sinno 2011, 315). Such autonomy provides greater voice to – and the accommodation of – the tactics or goals that leaders and commanders in moderate and weakly centralized rebel groups propose during their respective group's formative years. This prevents factional infighting within these organizations in their early years. Moreover, top-tier leaders in less centralized rebel groups are less vulnerable to targeted attacks by the state (Shapiro 2013; Staniland 2014). This allows these leaders to focus their energy on raising resources during the organization's early years which, according to Haer, Banholzer, and Ertl (2011, 49), are used for "selection, training and socialization … compensation and benefits" for rank-and-file members. This garners the rank-and-file's loyalty that promotes intra-group unity at the incipient stage. Yet, differences over goals or tactics may emerge among top-tier leaders and (or) between leaders and commanders in less centralized groups when these groups do not achieve their objectives over time. Accordingly, rebel members could question their respective group's agenda and military tactics, which may *potentially* weaken internal cooperation. We argue, however, that two key features of the moderate and weakly centralized rebel group command-and-control structure delineated above prevent a breakdown of in-group cooperation and reinforce cohesion within these groups over time.

First, a key feature of *less* centralized rebel groups is that there is greater symmetry in the balance of decision-making power (i) among top-tier leaders and (ii) between leaders and mid-level commanders. This implies that all the

top-tier leaders are mutually responsible for designing their respective group's goals and tactics, which is *common knowledge* among other rebel members. Hence, no single top-level leader can be credibly blamed by others for drawbacks in the organization's objectives or tactics. This prevents (unlike centralized rebel groups) "blame-game politics" and fractious divides within less centralized rebel organizations. Symmetric balance of decision-making power also facilitates mutual interdependence among the top-tier leaders as they need each other's support to manage their organization on a day-to-day basis (Bangerter 2012; McQuinn 2016). Further, it promotes a symbiotic relationship between the top leaders and mid-level commanders since leaders rely on mid-level commanders – who manage footsoldiers in their units – to retain the support of footsoldiers, while these commanders depend on the said leaders for guidance regarding the group's overall goals (McQuinn 2016; Sinno 2011).

Mutually interdependent and beneficial relationships reinforce greater communication, "close proximity [between] commanders" and leaders (McQuinn 2016, 5), and creates "positive incentives for discipline at every level of the organization" (Lidow 2016, 38) within moderate and weakly centralized rebel groups over time (Bangerter 2012; Staniland 2014). This lengthens the *shadow of the future*, facilitating not just in-group cooperation but also "primary cohesion" where the top leaders and commanders develop mutual trust within the organization over time (Kenny 2010; Schubiger 2015, 8; Staniland 2014, 21). This raises the costs of "exit" from less centralized groups to start a new rebel group. Thus, moderate and weakly centralized rebel groups are less likely to split over time.

Second, "authority and control" (McQuinn 2016, 6) over military units in moderate and weakly centralized rebel groups "reside solely within a group's sub-commanders." Consequently, the military abilities of a broader set of leaders or mid-level commanders (or both) who command their unit will determine the odds of success when fighting the government – a genuine possibility that the group's top-tier leader(s) will recognize over time. This will incentivize the leaders to distribute resources more uniformly among colleagues and mid-level commanders to increase their likelihood of defeating the government. It also deters them from exerting full control over military command since it increases the "risk of noncompliance of its more autonomous rank and file" (Sinno 2011, 318), which can jeopardize their group's battlefield performance. Hence, top-tier leaders will neither seek to increase their individual authority within less centralized rebel organizations nor curtail the power of other members as time progresses (Bangerter 2012; Sinno 2011). Instead, they have incentives to be consistently receptive to each other and the mid-level commanders' military tactics.

Consistent receptivity promotes institutional buy-in where members across all levels within moderate and weakly centralized rebel groups will come to

"identify the organization's goals as their own over time" (Kenny 2010, 536; Schubiger 2015). Such "organizational socialization" (Kenny 2010, 536) increases the credibility of the leaders' promises about successfully attaining the group's goals (Lidow 2016; McQuinn 2016). Credible promises reinforce intra-group cohesion, reducing the prospects of leader-driven splits in these organizations when they age. For example,[2] "greater balance of political power" (Matsuno 2011, 97) within the moderately centralized OPM ensured that top-tier leaders and commanders were interdependent for feedback on strategy, military tactics, and other activities crucial for managing daily operations. This interdependence promoted mutual respect and trust among top leaders as well as between leaders and commanders in OPM, encouraging in-group socialization within the group (Matsuno 2011). This prevented internal factional fights, which served to preserve OPM's cohesion for almost five decades. Similarly, as suggested by Olonisakin (2011), top leaders, lieutenants, and sub-commanders within the weakly centralized MDFC "frequently voiced their opinion" about daily operations and tactics. They also exchanged ideas about the group's goals and consistently collaborated with each other over time. This reinforced intra-group unity in the MDFC, which remained cohesive for three decades (Olonisakin 2011). The preceding arguments lead to:

Corollary 1: Rebel groups that exhibit either of the following levels of command-and-control centralization – moderate level and the lowest-level – are less likely to experience a leader-driven split when these groups age.

Empirical Analysis

Sample, Variables, Statistical Methodology

To directly test hypothesis 1 (and corollary 1), we use a rebel-group-year sample that includes both civil conflict and non-conflict years.[3] This is because the posited arguments and conditions leading to our hypothesis make no assumptions about how active fighting affects the probability of rebel group splits. We identified the rebel groups in our sample using the definition of "opposition organizations" from the *UCDP/PRIO Armed Conflict Dataset* (also employed in the *Non-State Actor Data* [NSA]) by Cunningham Gleditsch, and Salehyan (2013), and our sample includes almost 80% of all rebel groups across *all* region of the globe in the NSA database for the 1980–2014 period. Information for the rest of the groups was unavailable.[4]

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[2]See Online Appendix for more details.
[3]As per UCDP/PRIO's definition, "conflict years" are years in which there were at least 25 battle-related deaths; conversely, "non-conflict years" are years in which there were *less* than 25 battle-related deaths. See Online Appendix for more information.
[4]The list of rebel groups and the number of conflict-group-years and non-conflict-group-years for each rebel group is presented in Table A14, Online Appendix.

Our binary dependent variable *split* is coded as 1 for years in which top-tier leader(s) within an existing rebel group split away from the parent group to establish a new rebel organization; and is coded as 0 otherwise. To be recognized as a 'split' in our dataset, the new group should have an official name and an identified leader(s). However, we do not require that the splinter rebel group cause at least 25 battle-related deaths. Furthermore, we determined whether the split was top-tier driven by examining the split process and identifying the splinter group leader's rank in the previous rebel organization. For instance, Dr. A-rong Muleng, who split way from the organization and created the PULO 88 (or Abu Jihad PULO) in 1992 (Global Security n.d.), was one of the core leaders in the parent PULO. Thus, our *split* dependent variable is distinct from previous work that focuses on (i) the number of factions in a rebel movement (e.g., Cunningham 2013), (ii) splits carried out by mid-level commanders in only major rebel groups that receive external support (e.g., Ives 2019), (iii) individual-level defections from rebel groups, and (iv) splinter groups that result in more than twenty five battle-related deaths. By doing so, we limit our analysis to top-tier leader driven splits that may severely affect both the fighting capacity of the parent organization and the dynamics of civil conflicts. As such, we do not make inferences about when individual defections or fragmentations *within* the rebel group under one unified group are more likely. This is because we argue that top-tier driven splits, smaller defections, and fragmentations within a rebel organization follow different processes and should be examined separately. Our dataset includes a total of 144 *split* episodes.

We coded our *split* dependent variable and the main independent variables (described below) from a variety of sources including, but not limited to, the Lexis-Nexis Database, academic papers, books, peace monitoring websites, UCDP Conflict Encyclopedia, Stanford University's Mapping Militant Organization Project, University of Maryland's Study of Terrorism Analysis and Responses to Terrorism (START), *Minorities at Risk* database, and Global Security among others. See Table A1 (Online Appendix) for more region and country-specific sources.

Hypothesis 1 focuses on the interactive effect of two independent variables on the likelihood of rebel group *split*: the extent of centralization of the rebel group's command-and-control structure and the "age" of the rebel group. We operationalize the first component of the interaction term – labeled *command centralization* – as a 1–3 ordinal variable. To code this variable, we looked for qualitative descriptions of the organizational structure of rebel groups or their organizational charts. We collected information on this variable from the same sources as the *split* dependent variable as well as the NSA dataset (Cunningham , Bakke, and Seymour 2012) as reference. However, this variable differs conceptually from the NSA data-set's *strengthcent* variable since our *command centralization* variable strictly codes rebel groups' organizational structure irrespective of internal divisions or factions, while the presence of

internal divisions and factions is a criterion for coding the *strengthcent* variable in at least some instances for the NSA dataset.

Rebel groups characterized by a concentration of decision-making power among top-tier leaders and hierarchical chain of military command are coded as having a high degree of *command centralization* (category "3"). For example, MQM's (Pakistan) "hierarchy was purposely kept highly centralized and openness in policy decisions was strongly discouraged ... " (Das 2001, 131); thus, MQM is coded as highly centralized. Next, *command centralization* is coded as 2 for moderately centralized groups where there is not only greater symmetry in the balance of decision-making power between top-tier leaders and mid-level commanders but also autonomy for mid-level commanders to command their own military units. For example, the APAQ in Yemen – coded as a moderately centralized group – is described as a "highly departmentalized organization" where "the military branch commands all violent operations" (Ligonet al. 2017, 3132). Lastly, *command centralization* is coded as 1 for weakly centralized rebel groups where top-tier leaders do not determine nor exert control over rank-and-file members and where military "authority and control reside" (McQuinn 2016, 6) in the hands of the subgroup commanders. For example, the Abu Sayyaf Group (ASG) in the Philippines is described as having "a cellular-type structure led by several commanders in their respective geographical turfs" (Banlaoi 2014, 166) and is thus coded as a weakly centralized group.

The second component of the interaction term is a continuous variable labeled *rebel age* that captures the age of a rebel group at year t_i. The starting year (t_0) of the *rebel age* variable is the year a rebel group was established as a formal organization[5] and is coded as 1. In this manner, $t_1 = 2$, $t_2 = 3$ and so forth. The start and end dates of rebel groups were collected from the same sources as the *split* and *command centralization* variables presented above. The mean *rebel age* is 18.2 years and the standard deviation is 14.3 years. The distribution of this variable is presented in Figure A4 (Online Appendix). We then introduce the *command centralization* $\times$ *rebel age* variable in the specification and control for the individual components of this interaction term in our models. We anticipate from our hypothesis that this interaction term will have a positive influence on *split*.

We also include numerous control variables. First, some scholars suggest that factions within rebel groups may split the organization to "spoil" peace processes (e.g., Stedman 1997). Thus, we include the dummy variable *negotiation* that codes all observed dialog between rebels and governments such as formally announced meetings, conferences, and peace talks leading to ceasefires or peace agreements.[6] The dummy *ceasefire* variable is included as rebel factionalism increases when rebel leaders declare a ceasefire (Cunningham 2016). *Rebel strength* is also

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[5]Or the year of the first attack if data on the founding year is unavailable or vague. See Online Appendix for more information.
[6]The *negotiation* variable was coded using the same sources as the *split, rebel age,* and *command centralization* variables as well as Thomas (2014) dataset among others.

Table 1. Results for Rebel Group *splits*.

	Probit Models			
	(1)	(2)	(3)	(4)
Split Lag		0.368	0.373	0.446
		(0.161)**	(0.160)**	(0.157)***
Command Centralization×Age	0.015	0.016	0.017	0.016
	(0.005)***	(0.005)***	(0.005)***	(0.005)***
Command Centralization	−0.240	−0.325	−0.356	−0.307
	(0.103)**	(0.097)***	(0.102)***	(0.117)***
Rebel Age	−0.042	−0.041	−0.041	−0.034
	(0.013)***	(0.012)***	(0.012)***	(0.013)***
Negotiation		0.255	0.277	0.265
		(0.102)**	(0.104)***	(0.111)**
Ceasefire		0.378	0.409	0.253
		(0.255)	(0.252)	(0.256)
Rebel Strength		0.323	0.353	0.292
		(0.067)***	(0.071)***	(0.085)***
Territory			−0.148	−0.193
			(0.113)	(0.119)
Mobilization			−0.033	0.004
			(0.095)	(0.104)
Independence				−0.235
				(0.119)**
Battle Deaths (log)				−0.024
				(0.020)
Battle Deaths (log)^2				−0.004
				(0.002)*
Intercept	−1.421	−1.560	−1.430	−0.986
	(0.241)***	(0.277)***	(0.288)***	(0.366)***
ρ	0.122	0.048	0.041	0.023
	(0.042)	(0.034)	(0.034)	(0.039)
Cubic Polynomial	Yes	Yes	Yes	Yes
N	3,725	3,382	3,251	2,479
Log-Likelihood	−593.101	−538.342	−525.595	−435.875

Notes: ∗p < 0.1; ∗∗p < 0.05; ∗∗∗p < 0.01. All probit specifications are estimated with rebel-group random effects, rebel-group level clustered-robust standard errors.

incorporated as stronger rebel groups are less vulnerable to fractious divides (Mahoney 2020). We also account for territorial control (*territory*) and mobilization capacity (*mobilization*) as extant research suggests that these factors may encourage splits (Kalyvas 2006; Weinstein 2006). We add the binary *independence* variable for separatist rebel groups as "ethnic or national identity is a clear focal point for collective behavior" (Pearlman and Cunningham 2012, 8). Moreover, we include *battle deaths (log)* and a squared term of the variable – *battle deaths (log)*^{2} – to control for the proposed quadratic relationship between battlefield loss and rebel fragmentation (Woldemariam 2018). Lastly, we add the lag of the dependent variable (*lag split*) as a previous split may encourage another split. Further description and sources of control variables are provided in Table A2 (Online Appendix).

Since the *split* dependent variable is binary, we test hypothesis 1 and corollary 1 using a probit model estimated with rebel group-level cluster-robust standard errors and rebel group-level random effects. We also include a cubic time term to correct for temporal dependence (Carter and Signorino
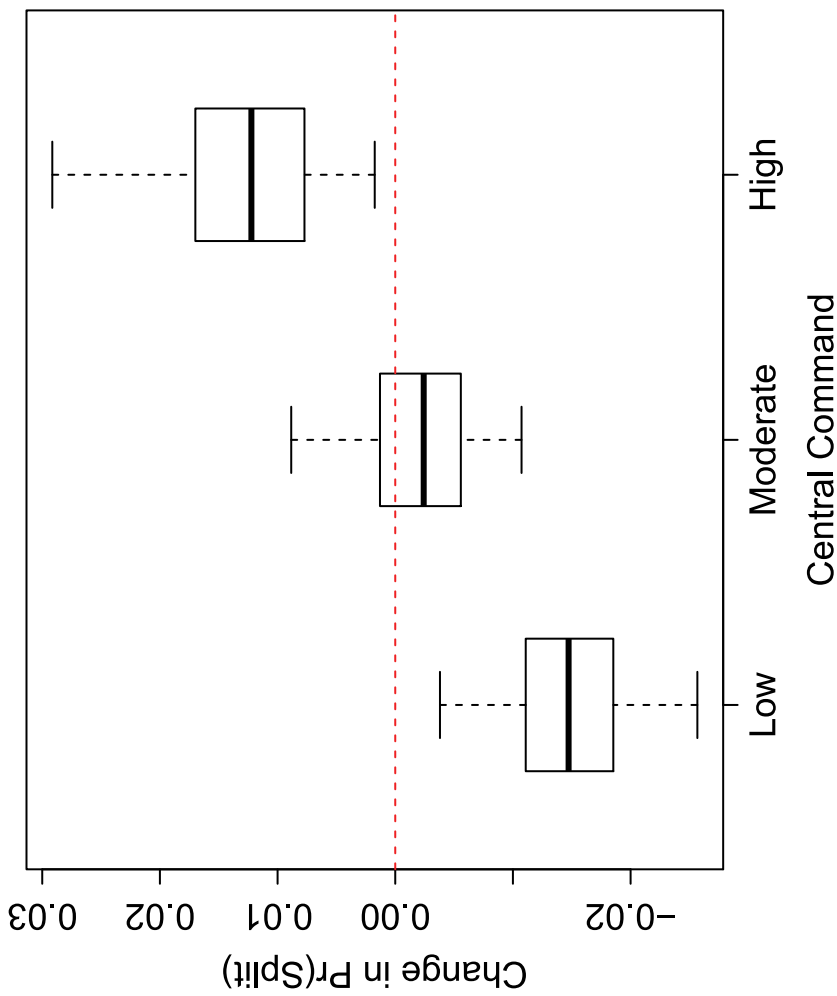
Figure 1. Marginal Effect of Rebel Age by Command Centralization.

Figure 2. Marginal Effect of Command Centralization by Rebel Age.

2010). Furthermore, we assess the robustness of our main results by conducting a battery of specification and econometric robustness tests.

Results and Robustness Tests

The baseline probit specification in model 1 in Table 1 only includes *command centralization × rebel age* and the individual components of this interaction term. In Models 2–4, we include the lag of the dependent variable (*split lag*) and also incrementally add the control variables described above. The statistical association between *command centralization × rebel age* and the *split* dependent variable is positive and highly significant at the 1% level in Models 1–4, which corroborates hypothesis 1. Individual constitutive components of the interaction term – *command centralization* and *rebel age* – are negative and significant in the specifications. This suggests, as per our theoretical claims, that highly centralized rebel groups are more likely to experience a split when these groups are "old" and that moderate and weakly centralized groups are less susceptible to splits as they age. These results hold when we (i) use a binary *command centralization* variable or (ii) estimate the models only for conflict years (see Tables A4–A5, Online Appendix).

Using the estimates from models 3–4 and parametric bootstraps, we conduct three exercises to derive and analyze the substantive effect of our results.[7] First, we compute the marginal effect of *rebel age* on the predicted probability of *split* for each level of the ordinal *command centralization* measure – high, moderate, and low – when *rebel age* increases from the median (15 years) to one standard deviation above the median (29.3 years). The far-right box-plot in Figure 1 reveals that a one standard deviation increase in *rebel age* from its median increases the probability of *split* by 52% in highly centralized rebel groups. This effect is statistically significant, providing strong support for hypothesis 1. By contrast, a one standard deviation increase in *rebel age* from its median decreases the probability of *split* by 6.5% (albeit insignificant)

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[7]For the bootstraps, *n*=5,000. All control variables held to median or mode. We have opted for the bootstrap method as it allows us to estimate a distribution of the change in predicted probabilities instead of simple statistics.
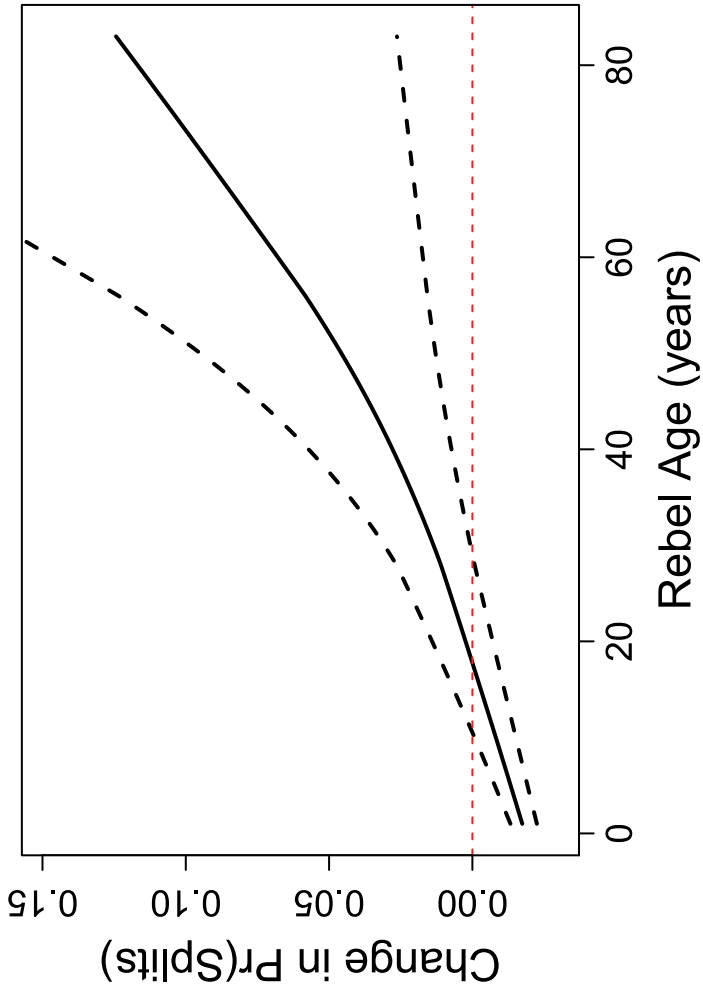
Figure 3. Marginal Effect of Command Centralization by Rebel Age.

Table 2. Robustness Test Results for Rebel Group *splits*.

	(5)	(6)	(7)	(8)
Split Lag	0.419		0.413	0.455
	(0.208)**		(0.158)***	(0.181)**
Command Centralization × Age	0.022	0.015	0.016	0.014
	(0.006)***	(0.004)***	(0.005)***	(0.004)***
Command Centralization	−0.356	−0.314	−0.332	−0.267
	(0.129)***	(0.115)***	(0.124)***	(0.103)**
Rebel Age	−0.045	−0.034	−0.037	−0.031
	(0.018)**	(0.012)***	(0.013)***	(0.012)***
Negotiation	0.203	0.255	0.267	0.293
	(0.141)	(0.109)**	(0.114)**	(0.111)***
Ceasefire	0.357	0.307	0.277	0.139
	(0.313)	(0.258)	(0.267)	(0.28)
Rebel Strength	0.382	0.260	0.256	0.264
	(0.102)***	(0.092)***	(0.094)***	(0.082)***
Territory	−0.307	−0.191	−0.222	−0.222
	(0.147)**	(0.114)*	(0.124)	(0.118)*
Mobilize	−0.104	−0.011	−0.014	0.011
	(0.125)	(0.103)	(0.118)	(0.104)
Independence	−0.27	−0.183	−0.212	−0.273
	(0.140)**	(0.117)	(0.127)*	(0.113)**
Battle Deaths (log)	0.000	−0.020	−0.038	−0.033
	(0.023)	(0.019)	(0.024)	(0.022)
Battle Deaths (log)^2	−0.002	−0.004	−0.005	−0.005
	(0.003)	(0.002)*	(0.003)**	(0.003)*
External Support	−0.148			
	(0.148)			
Previous Split		0.284		
		(0.123)**		
Number of Groups		−0.009	−0.016	
		(0.011)	(0.013)	
Political Wing		0.022	0.024	
		(0.103)	(0.110)	
Rebel Sexual Violence (Lag)			0.162	
			(0.101)	
Rebel One-sided Violence (log)			0.004	
			(0.009)	
Gov. One-sided Violence (log)			0.003	
			(0.006)	
Intercept	−1.115	−1.158	−0.637	−0.984
	(0.479)**	(0.337)***	(0.444)	(0.383)**
ρ	0.030	0.000	0.030	0.000
	(0.051)	(0.037)	(0.042)	(0.049)
Cubic Polynomial	Yes	Yes	Yes	Yes
N	1,695	2,533	2,341	2,442
Log-Likelihood	−288.964	−435.928	−417.054	−409.558

∗p < 0.1; ∗∗p < 0.05; ∗∗∗p < 0.01. All probit specifications are estimated with rebel-group random effects, rebel-group level clustered-robust standard errors.

in moderately centralized rebel groups and 44% in weakly centralized groups. These results indicate that moderate and weakly centralized rebel groups are less likely to split when these groups age, supporting our corollary.

Second, we illustrate the bootstrapped predicted probability of *split* for each of the three levels of *command centralization* – high (Figure 2a), moderate (Figure 2b), and low (Figure 2c) – across the entire range of *rebel age* in the sample.[8] Figure 2a shows that highly centralized rebel groups are 57% more likely to experience a split when these groups reach their 30th year, about one

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[8]For the bootstraps, *n*=1,000. All control variables held to median or mode.

standard deviation above the median *rebel age*. But the moderate and weakly centralized rebel groups are, respectively, 24% and 47% *less* likely to experience a split at the 30th year compared to their first year. These effects corroborate hypothesis 1 and corollary 1.

Finally, we compute the marginal effect of *command centralization* on the change in the predicted probability of *split* across the sample range of *rebel age*. Figure 3 reveals that when *command centralization* increases from 2 (moderately centralized) to 3 (highly centralized), the change in the predicted probability of *split* becomes positive and highly significant when *rebel age* is 28 years, slightly less than one standard deviation above the median. This provides an additional strong statistical and substantive support for hypothesis 1. On the contrary, the marginal effect of *command centralization* on the probability of *split* is negative and statistically significant until when *rebel age* is about 10 years old. This comports with our expectation that highly centralized rebel groups are less likely to experience splits when they are young. The marginal effects remain the same when *command centralization* is increased from 1 (least centralized) to 3 (highly centralized) in Figure A1, Online Appendix.

For the control variables, we obtain mixed results (see Table 1). For instance, the consistently positive and highly significant (1% level) *rebel strength* coefficients contradict our expectation that stronger rebel groups are less likely to split. *Negotiation* is positive and highly significant, lending support to the "spoiler problem" claim. *Independence* is negative and significant, suggesting that secessionist rebel groups are less likely to split. *Battle deaths (log)*[2] is negative and significant, indicating that rebel groups are more likely to split when there are no huge gains or losses during conflicts. *Ceasefire, territory, mobilization*, and *battle deaths (log)* are each insignificant, while *lag split* is positive and highly significant.

We check the robustness of these results in various ways. First, we include the binary *external support* variable (model 5, Table 2) to account for third-party external support (Ives 2019; Lidow 2016). Next, we omit *split lag* and incorporate *previous split* that codes all previous splits, rebel *political wing* (Asal , Brown, and Dalton 2012), and the total *number of groups* in a country (model 6). In model 7, we incorporate variables related to sexual and one-sided violence committed by rebels and governments following Nagel and Doctor (2020). Finally, we include *polity* and *GDP growth* (model 21, Table A6, Online Appendix). *Command centralization × rebel age* remains positive and highly significant in models 5–7, 21. While *previous split* is positive and statistically significant, other controls – *external support, number of groups, political wing, rebel sexual violence (lag)*, rebel and government *one-sided violence (log), polity*, and *GDP growth* are insignificant.

Next, we estimate specifications that omit rebel groups (Al-Mahdi Army and PKK, model 8) or countries (Myanmar and India) that experienced the most number of splits. Next, we exclude observations that have undue leverage

suggested by the leverage statistics h and deviance residuals. Additionally, we omit rebel groups that are particularly young or old. Our key results remain robust in these models summarized in Tables A6–A8 (Online Appendix). We also check whether *command centralization* and *rebel age* are statistically associated and find no evidence of such a relationship (Table A10, Online Appendix). In regards to endogeneity problems between our dependent and independent variables, F-statistics from Hurlin and Venet (2008) Granger causality test for panel data, Wu-Hausman F-test and the Durbin-Wu-Hausam chi-squared tests all indicate that there is no endogeneity problem between *split* and *command centralization* and *rebel age*.[9]

Finally, as discussed in Section VI of the Online Appendix (to save space), our theory has potential implications for the statistical association between the *command centralization* variable and the time taken for rebel groups to split (i.e., "fail"). Since our theory posits that highly centralized rebel groups have a higher probability of experiencing a split compared to moderate and weakly centralized groups when they age, we can deduce that highly centralized rebel organizations will have a higher hazard (shorter duration) of split than moderate and weakly centralized rebel groups. We assess this implication about the relationship between *commend centralization* and the *duration* until a *split* using Cox PH and Weibull survival models. Results from these models show that, in sharp contrast to less (moderate and weakly) centralized rebel organizations, highly centralized rebel groups indeed have a higher and statistically significant (5% level) hazard of experiencing a *split* (Tables A11–A12, Figure A6, Online Appendix).

Conclusion

We suggest that as supreme leaders in highly centralized rebel groups amass more power over time to preempt power-grabbing by other top-tier leaders, alienated top-tier leaders will split away from the parent group and form a new rebel organization. By contrast, greater balance of decision-making power among members in moderate and weakly centralized rebel groups promotes trust over time, reducing the possibility of splits when they age. Statistical results from our new rebel group-year sample provide robust support for these predictions.

This paper provides numerous theoretical and empirical contributions. First, extant research primarily focuses on how certain conflict-level factors or "within-group" features influence rebel fragmentation (e.g., Christia 2012; Doctor 2020; Ives 2019; Nagel and Doctor 2020; Staniland 2012; Tamm 2016; Weinstein 2006; Woldemariam 2018). While some of these works highlight the role of

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[9]This method is useful for our sample with relatively small t, and allows us to test for and rule out the potential for reverse causality between the dependent and independent variables.

commanders and lieutenants in the engineering rebel group splits (Ives 2019; Lidow 2016; Nagel and Doctor 2020), our study departs from these studies by exploring how the level of command-and-control centralization within rebel groups together with the age of these groups shape the behavior of top-tier members in ways that promote fractious competition or cooperation. Our findings add to the existing debates on whether high command-and-control centralization enhances or hinders the capacity of these groups to deter the government (Asal , Brown, and Dalton 2012; McQuinn 2016; Sinno 2008, 2011; Staniland 2014). We do so by suggesting that, in contrast to previous claims (Asal , Brown, and Dalton 2012), highly centralized rebel groups are vulnerable to fractious politics that may adversely affect their ability to fight the incumbent regime over time. Conversely, less rigidity in the chain of military command in moderate and weakly centralized rebel organizations helps them to compete against the state by reinforcing intra-group unity.

Further, unlike current work on rebel factionalism, we conceptualize the age of rebel groups as a key *independent variable* in our theory. This provides some microfoundations to understand how different command-and-control structures change the incentives and behavior of top-tier rebel leaders over time to influence the odds of rebel group splits within and outside civil wars. Empirically, we present a rebel-group-year dataset that provides new data on splits carried out by top-tier leaders and a more fine-grained measure of the command-and-control centralization in rebel organizations. This dataset is comprehensive since it is not confined to civil-conflict years, specific ethnic groups, region, or certain contexts (e.g., rebel-government negotiations; rebels that control territory or receive external support) explored in previous research (e.g., Christia 2012; Lidow 2016; Tamm 2016).

Future research should analyze how the age of a rebel group affects different rebel group characteristics such as rebel group size or mobilization capacity on various civil-conflict dynamics. It is also worth exploring how rebel group splits orchestrated by top-tier leaders provide these renegade leaders more room to directly bargain with the government or escalate violence against the state.

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