Violence as a Condition: Structure, Composition, and the Use of Lethal Force

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Abstract

Since 2014, Russia's Wagner Group has gained prominence, expanding its role from driving Russian foreign policy across many African and Middle Eastern countries into an integral part of the 2022 invasion of Ukraine. In this paper, we first draw on the one-sided violence (OSV) literature, to show how organizational incentives explain Wagner's violence against civilians pre-November 2021. Despite the static context of organizational incentives, Wagner's OSV lethality increased dramatically after the initial invasion. While prior research on this topic assumes organizations to be unitary and rational, we use personnel composition as an additional explanatory factor to explain OSV. Situated within research on combat psychology and health sciences, we introduce *pre-combat experience* (PCE) as key to understanding how training contributes to the use of OSV. By clarifying the role of PCE on OSV, we provide novel theoretical logic and empirical evidence explaining how individual-level experience aggregates to unit-level violence.

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Send your children to the front. Either private military contractors and prisoners, or [send] your children - decide for yourself.

-Yevgeny Prigozhin, in Reich (2022, par. 5)

1 Introduction

In the heart of Bangui, the capital of the Central African Republic (CAR), stands a monument depicting two Russian Wagner Group contractors flanking and leading the national army (FACA) as they shield a mother and child. The symbolism is deliberate; Wagner is not merely present in CAR, it has become central to the state's capacity to fight battles and re-establish sovereign control. Yet behind this narrative of foreign-backed stability lies a brutal reality: as Wagner expanded its role in CAR, the quality of its deployed personnel declined over time, and one-sided violence against civilians (OSV) escalated.

In early 2018, facing territorial losses and rebels advancing on Bangui, President Faustin-Archange Touadéra sought help from Russia, a country able to bypass UN Security Council (UNSC) sanctions and known for exporting security services. Wagner contractors, initially described as unarmed trainers, quickly evolved into counterinsurgency forces, with FACA relegated to support. Reports by the United Nations and independent investigators soon documented widespread human rights abuses by Wagner personnel, including arbitrary detentions, torture, and summary executions. Existing explanations for one-sided violence (OSV) would attribute this brutality to strategic incentives, such as efforts to punish suspected rebel collaborators or "drain the sea" of civilian support (Downes 2007). However, these explanations alone cannot account for a key pattern: Wagner's violence increased dramatically over time, even though the strategic environment in CAR remained relatively stable.

In February 2021, for example, Wagner contractors and FACA forces launched a joint assault on the gold-mining town Bambari. Air and ground forces attacked without distinguishing between civilians and combatants, including a direct assault on a mosque (Patta and

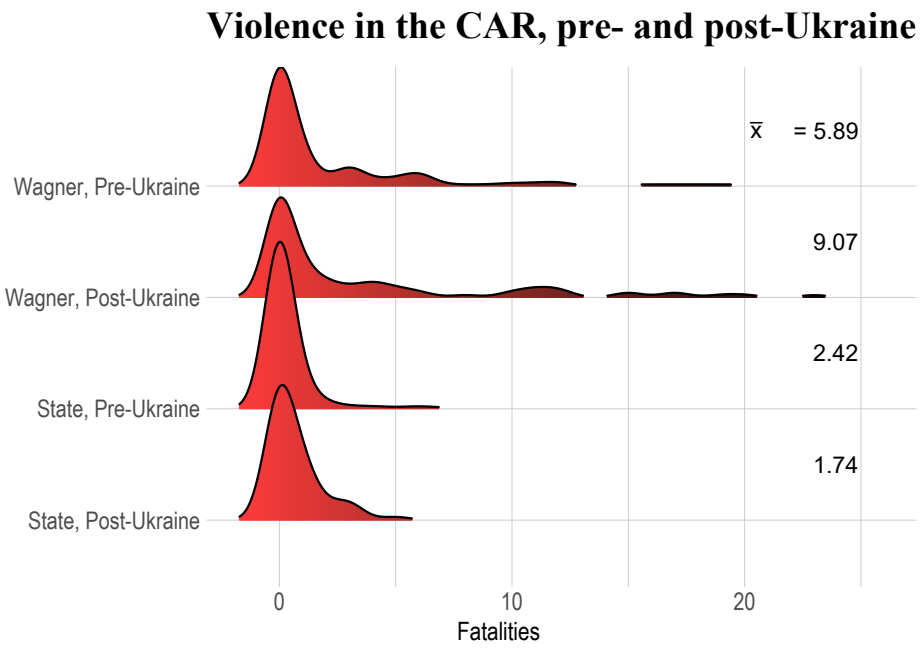

Figure 1: Fatalities during a violent event by actor, pre- and post-Ukraine invasion. "State" refers to the FACA.

Carter 2023). This was not an isolated incident. Five months later, Human Rights Watch reported that Wagner operatives executed twelve unarmed civilian men one by one (HRW 2022). As time passed, Wagner's violence escalated. The Aïgbado massacre in January 2022 stands out as a particularly severe example. Upon arriving in the town with a known rebel presence, Wagner contractors fired indiscriminately into a panicked crowd, killing roughly seventy civilians before being driven out by rebel forces (Nedele 2023, 25). The terror they inflicted on survivors is evident, with one civilian stating, "Everyone in Aïgbado is scared of walking on the streets because anything can happen to you if you come face to face with the Russians" (ibid., 25). Why did Wagner Group contractors become *more* lethal over time?

The answer lies in Ukraine. As Russian President Vladimir Putin prepared for and later invaded Ukraine in February 2022, Wagner's most skilled personnel were reallocated from international deployments, including CAR, to Putin's prized goal: the revival of the Soviet empire, beginning with Ukraine. Russia and Wagner experienced severe casualties via an

unexpected war of attrition, so their personnel strategy shifted. The head of the Wagner Group, Yevgeny Prigozhin, needed to prioritize his boss and close friend Putin's goal of taking Ukraine while retaining Russia's influence abroad. To achieve this goal, Prigozhin re-tooled the Wagner Group and re-organized personnel deployments, often through expanding the recruiting pool via decreased standards. As Wagner's most skilled contractors, typically former Russian special operations forces (SOF), re-deployed away from the Central African Republic to Ukraine, it replaced those deployed away from Ukraine with lower-skilled contractors. The results of this shift can be seen most handily in Figure 1.

In this paper, we introduce *pre-combat experience* (PCE) as key to understanding how training (or a lack thereof) contributes to the use of OSV by PMCs. We categorize the prior literature on why state actors and PMCs use OSV into organizational incentives; these incentives are key explanatory factors for why actors commit OSV, but they fall short in their assumptions of PMCs as unitary and rational actors. We bridge the conceptual divide with an in-depth explanation of how micro-level characteristics account for macro-level outcomes, specifically the use of lethal violence against civilians. To illustrate this empirically, we analyze Wagner Group operations in the Central African Republic, where Russia has deployed contractors with markedly different combat backgrounds over time. With the invasion of Ukraine, Russia redirected its elite, high-experience Wagner personnel to the Ukrainian front, while deploying lower-quality contractors often lacking formal military training and possessing criminal records to the Central African Republic. This shift in personnel composition allows us to exploit variation in PCE to assess its impact on the lethality of violence. Our analysis, the first empirical study of Wagner contractors, finds that violent events involving lower-quality Wagner personnel result in nineteen more civilian fatalities on average compared to those involving state forces, underscoring the critical role of combat experience in shaping PMC behavior.

Our paper proceeds as follows. First, we summarize the existing literature on why actors commit OSV within an organizational framework, highlighting how the assumptions of PMCs

as unitary and rational actors misses the personnel characteristics key to that behavior. Next, we establish our theoretical framework, which uses organizational and compositional factors to explain Wagner's violence pre- and post-Ukraine. Third, we explain our empirical strategy and methods to uncover the causal effects of Wagner Group involvement, offering a new perspective on the infamous group. Fourth, we discuss our results and show how the use of Wagner Group forces dramatically increases the lethality of violence against civilians, with lower-skilled contractors committing even more lethal violence. Finally, we conclude with a discussion on the implications of military training on violence against civilains, while covering Wagner's future prospects after the death of Prigozhin.

2 PMCs and Violence Against Civilians

Within the literature on why actors commit acts of violence against civilians, there are four logics explaining PMC behavior, which we classify as *organizational incentives*. Underpinning each of those logics is the assumption that PMCs are unitary and rational. Violence against civilians is a means to an end; actors use OSV when the benefits (positive incentives) outweigh the costs (negative incentives).

The most extensive OSV literature does not purport to explain PMC behavior per se; rather, these authors focus on how OSV advances the aims of an actor within a civil war (typically incumbent-rebel dyads) to maintain control and win. However, Wagner, like many other PMCs, often operates in the midst of civil wars on behalf of at least one party to the conflict. With alignment between the interests of the incumbent and PMC, many of the incentives to OSV are shared between actors. *Control incentives* range from suppressing dissent (Davenport 1995; Hill and Jones 2014), seeking information (Kalyvas 2006), demonstrations of power (Schelling 1966), suppressing threats and insurgencies (Davenport 1995; Lyall 2009), and various strategic benefits which may be gained (Kalyvas 2006).

Other scholarship explaining PMC's violence against civilians is also based in rational-

choice logics, albeit with *market incentives* included. Some point to corporate structure: publicly owned firms may face stronger pressures to avoid humanitarian violations, as shareholders demand accountability (Akcinaroglu and Radziszewski 2020, 104–105) and transparency makes abuses harder to hide (Tkach 2020, 500). Competition in the market for force is another factor. Firms facing greater competition may be pushed to demonstrate effectiveness without resorting to indiscriminate violence, while those with little competition can perform poorly yet still maintain contracts (Akcinaroglu and Radziszewski 2013, 795). Others highlight the reputational risks of harming civilians, particularly when PMCs are hired to assist weak states that depend on continued international support (Petersohn 2017, 1048). Finally, the terms of contracts themselves can influence PMC behavior, either by creating incentives to avoid abuses or by enabling them (Tkach 2019, 295–296).

Most notably, Penel and Petersohn (2022) introduce *Host-state incentives* and *Client-state incentives* to explain OSV from Commercial Military Actors (CMAs), individuals or groups who sell their capacity for violence on the market for force. Theirs is a norms-based argument; as a CMA is more exposed to the costs of committing violence against civilians (and thus violating norms against these actions), they are less likely to use this violence to achieve goals (ibid., 4). The state where the CMA is headquartered influences its propensity to violence depending on the host state's respect for human rights, as well as whether it is interested in upholding or upending the international order. While the Wagner Group may not directly map onto the definition of a CMA, this logic extends to Wagner's operations; notably, the host-state incentives are based around rules, regulations, and the state's interests. The client-state incentives are also based on the choice of the client to utilize that group and all the reasoning that comes with that choice, meaning Wagner falls under that logic as well.

The rational-choice OSV literature offers a variety of explanations for actors' behaviors. However, for a cost-benefit analysis to committing OSV, PMCs are assumed to be unitary as well as stable over time. Organizational incentives for or against OSV are necessarily

limited by the ability and willingness of the individuals who make up the organization to comply/follow that reasoning. In this paper, we argue that the existing literature on OSV incentives provides important but insufficient explanations for behavior, especially when personnel composition varies.

For most contemporary PMCs, personnel pools are highly stable and drawn from elite military backgrounds. This reflects both the supply of former special forces and the reputational incentives of PMCs to market themselves as elite. The positive and negative incentives to OSV are based on these sorts of personnel, but what happens when a PMC weakens its recruiting standards? We answer this question by arguing that when training and combat experience are lower or absent, individual contractors are more likely to engage in OSV. Training not only provides a wider set of tools to achieve goals, but also ingrains scripts for how to respond under stress. While this will not necessarily increase their *willingness* to use non-lethal violence, contractors cannot deploy tools they do not have. Those without training are more prone to view ambiguous or minor threats as existential, and in moments of fear their only available response is force. In contrast, experienced personnel can fall back on rehearsed procedures for restraint and de-escalation. We contribute to the PMC and OSV literature by providing the first theoretical and empirical evidence of how personnel training is linked to violence against civilians.

3 Structure, Composition, and the Use of Lethal Force

3.1 Company

We first distinguish that the moniker "Wagner" is, by many accounts, a misnomer encompassing several interconnected groups within Russia. Several experts (Mayer 2023; Pham 2023; Marten 2019a) and official reports (UK Parliament Foreign Affairs Committee 2023) describe Wagner as a "network" rather than a single entity. However, in most contexts, it operated as a largely unified group. The earliest evidence of Wagner dates to 2014. Ini-

tially intended to supplement Russia's Crimean invasion force (Rondeaux 2019, 51), Wagner emerged from the Slavonic Corps under Dmitrii Utkin, who rebranded the group after his nom de guerre "Wagner," reflecting his affinity for the Third Reich's aesthetics and ideology (Marten 2019b, 192). Acting alongside unmarked Russian troops, Utkin's forces stirred discord among rebel commanders in eastern Ukraine and later supported Russian operations in Syria (ibid., 192–193).

In 2016, a connection was made between Wagner and a rising Russian oligarch: Yevgeny Prigozhin. Nicknamed "Putin's Chef" due to his vending contracts with then-Mayor of St. Petersburg Vladimir Putin, Prigozhin was Wagner's primary funder (ibid., 193). Prigozhin maintained a firm grip on the organization and used it to his advantage. From 2019 to 2022, Prigozhin and Russia expanded Wagner's use, ranging from Belarus, the Central African Republic, Libya, and Sudan (Marten 2020; Houreld et al. 2023), with one report suggesting that Wagner and other Russian state affiliated PMCs may now be operating in every region throughout Africa (Grissom et al. 2022). The Wagner Group has expanded and represented Russian interests so heavily that several national legislative bodies opened investigations into Wagner's activities (*The GRU, Yevgeny Prigozhin, and Russia's Wagner Group* 2020; UK Parliament Foreign Affairs Committee 2023).

Wagner may have initially operated as a PMC independent from but loyal to Russia, yet its deep entanglement in Russian foreign policy led to a muddled relationship. This highlights the two defining characteristics that set Wagner apart from well-known PMCs such as Executive Outcomes and Blackwater: a deep and complex relationship with Russia and foreign policy preferences that closely parallel those of the Kremlin. Often described as a semi-state or quasi-paramilitary actor (Marten 2019b; Rondeaux 2019), Wagner's role and relationship to the Russian Federation shifted dramatically during and after the 2022 invasion of Ukraine. Russian forces increasingly relied on Wagner's manpower, logistics, and operational reach, granting it leverage while increasing the share of Russian patronage provided to the group. This transition distanced Wagner even further from the market for

Mechanisms		**Actors**	
Incentive Type	*Positive/Negative*	*State*	*Wagner*
Suppressing dissent	Positive	X	X
Seeking information	Positive	X	X
Demonstrations of power	Positive	X	X
Suppressing threats to incumbent	Positive	X	X
Strategic benefits	Positive	X	X
Material/political support by civilians	Negative	X	
Civilian support for opposition	Negative	X	X
External legitimacy concerns	Negative	X	
Post-war accountability	Negative	X	
Int'l sanctions for norm violations	Negative	X	

Table 1: OSV Incentives by actor. *Note: "Positive" and "Negative" are not normative judgements, but rather categorizations of whether an incentive increases or decreases OSV propensity.*

force, increasing its capacity for violence while eliminating the moderating influence that market competition might otherwise impose.

While domestic factors already raise concerns about Wagner's disregard for human rights, its detachment from international market pressures compounds the issue. PMCs typically face incentives to restrain violence to preserve future contracts. Existing research typically frames restraint through market rationality, such as competition (Akcinaroglu and Radziszewski 2020; Tkach 2020) or corporate structure (Akcinaroglu and Radziszewski 2013; Petersohn 2017; Tkach 2019). Executive Outcomes, for instance, acted in support of Sierra Leone in 1995 with little South African state interest and later faced accountability for civilian abuses (Nicola 2025). Blackwater similarly supported U.S. operations in Iraq while remaining attentive to market concerns and subject to U.S. legal accountability (Scahill 2007). As Avant and Neu (2019) show, these market constraints weaken when PMSCs are deeply integrated with the state. Wagner represents an extreme case, operating with state financing and direction that remove market incentives and meaningful accountability for

OSV.

Penel and Petersohn (2022) suggest that the variation in whether CMAs commit human rights violations stems from the cost of the norm violation. They predict CMAs who meet the following criteria are more likely to violate human rights norms: first, states more generally compliant with international norms, such as those who would sign the only legal framework on PMCs,[1] are less likely to commit human rights violations. Second, PMCs with a headquarters in a country with low respect for human rights are more likely to violate those rights. Finally, greater domestic costs of human rights violations should decrease the prevalence of these actions from CMAs. These factors suggest that Wagner is especially likely to disregard human rights norms. This leads to our first hypothesis:

H1: The Wagner Group will commit more lethal violence against civilians than its client state counterparts.

3.2 Contractors

The logic for why actors commit OSV is often considered vis-à-vis an actor's capabilities. Capabilities derive from differing types of technology and the attributes of the available resource pool available to an actor (Wood et al. 2012, 647). The relative strength of combatants directly affects the state's capabilities to manage conflict (ibid., 647). Actors' strategic decision-making is based on the availability of their resources (Lockyer 2010). Therefore, we argue that an aggressor's relative capabilities, especially relating to troops' quality, affect how groups make decisions on the ground. As the relative capabilities, availability, and the means necessary to control civilians deteriorate, OSV increases (Wood et al. 2012, 647). As discussed in the previous subsection, several company-level factors incentivize OSV; here, we focus on the quality of the pool of personnel when observing a PMC's capabilities, high-

1. The Montreaux Document; Russia is *not* a signatory.

lighting the individual-level factors. We bridge the gap between the experience of individual aggressors and their contribution at the unit-level, ultimately showing that subpar combat experience leads to increased OSV by the aggressor.

We argue that pre-conflict experience (PCE) affects an aggressor's ability to manage combat scenarios effectively through learned experiences. Furthermore, we believe that the pre-Ukraine Wagner contractors with traditional military training possess greater combat intelligence and tactical skills than those Wagner members recruited from prisons who received minimal, if any, training (Niemeyer 2023). We argue that the tactical and psychological training that regular soldiers experience will decrease OSV.

PCE is made up of two main elements: psychological conditioning and tactical combat proficiency. Psychological conditioning encompasses battlefield confidence, stress management, and cultural competencies. Tactical proficiency includes skills training, physical education, and preparation for violent confrontation. The accumulated knowledge through these competencies equips soldiers with the skills to manage violent conflict scenarios and make informed decisions while interpreting orders. An aggressor with high PCE is more likely to engage in complex decision-making within high-intensity environments, especially to prioritize situational control and success. In other words, if a desired outcome is more likely to be successful *without* harming civilians, high PCE actors have an increased ability, knowledge, and experience to accomplish those goals more efficiently. Low PCE, on the other hand, leads to more uncertain outcomes for aggressors, increasing their dependence on reactionary decision-making and a desire to target less powerful communities, such as civilians, to compensate for poor strategic control (Wood 2014, 462).

To understand how PCE affects an aggressor's ability to manage combat scenarios, we introduce literature on military training and psychology. The connection between psychological conditioning and military tactical proficiency lies in a soldier's ability to manage combat scenarios, thereby distinguishing the experienced from the inexperienced. This interdisciplinary approach is necessary to illuminate challenges that soldiers must navigate on the

battlefield, which are currently overlooked in OSV and PMC research. Extensive training programs and practical experience are necessary to provide combat effectiveness, particularly those that can replicate battlefield conditions (Reilly 1997; Mantua 2023). Additionally, the prolonged and unpredictable nature of combat scenarios can lead to a heightened sense of stress for soldiers (Matson et al. 2022, 799). Training programs are often used to mitigate these issues, as they improve decision-making practices, replicate tactical challenges, and boost battlefield confidence (Reilly 1997; Nindl et al. 2018; Mantua 2023; Tornero-Aguilera et al. 2024).

Wagner contractors recruited from prisons received little to no training compared to Wagner's personnel prior to the Ukraine invasion, who most often came from Russian SOF (Niemeyer 2023). Therefore, without PCE, necessary traits for combat effectiveness and battlefield management were lacking, leading to poor decision-making in stressful situations and a lack of battlefield confidence (Mantua 2023). Personnel with more experience are better at performing their duties than those without formal military training, and may be less prone to using OSV. In combat, soldiers require repeatable tactical skills training, mental fortitude, and ideally, location-based cultural competence (Svec 2014; Tornero-Aguilera et al. 2024, 4). While we cannot know the PCE of all individuals pulled from Russia's prisons, evidence suggests that the PCE of newly recruited personnel was low to nonexistent. For example, while pre-Ukraine elite Wagner personnel operated Russia's most advanced battle tanks, those same personnel led but did not participate in the human wave attacks by the former prisoners (Ostrovsky 2023). We recognize that the inability to test the effects of prior violent or nonviolent crimes on OSV is not possible at this time and is therefore not considered in this analysis.

Military training is generally designed to create consistent skills and long-term situational awareness, often by subjecting recruits to severe physical and mental challenges (Oppenheim and Weintraub 2017, 1128). Purposeful psychological pressures are designed to create cohesion amongst the ranks and form mental and physical processing skills for a diverse range

of combat scenarios (Clemente-Suárez and Robles-Pérez 2013; Oppenheim and Weintraub 2017). Military leaders need a well-trained pool of capable soldiers. However, this does not imply that trained soldiers are necessarily reticent to commit OSV (Kalyvas 2006; Kydd and Walter 2006; Ziemke 2008); rather, a compliant and prepared force is key to accomplishing strategic and tactical goals. Our theory does not assume that human rights are central to Russian military training. Instead, we argue that the absence of PCE predisposes personnel toward violence. Without psychological conditioning for high-stress scenarios or a varied toolkit for conflict management, violence becomes the default. On the other hand, soldiers who have not undergone training scenarios that strain mental and physical capabilities should be less inclined to fall back on OSV. Without tactical proficiency and psychological conditioning, aggressors will resort to violence against the lesser-equipped population, such as civilians, to alter the strategic environment (Arendt 1970).

Without the skills we can reasonably expect to be developed during formal military training, low/nonexistent PCE funnels individual behavior towards violence as the default for any kind of crowd management or population control; OSV thus becomes a means of domination when other capabilities are absent (Lockyer 2010). Undeveloped, poorly prepared soldiers can lead to more violent tendencies against those who cannot reasonably defend themselves (Byman 2008; Butler and Gates 2009; Wood et al. 2012). Bridging the gap between the role of training, experience, and civilian violence, we highlight the psychological and situational management of PCE.

We argue that less experienced troops are more inclined to commit OSV due to reactive decision-making and poorly developed skill sets that do not prepare them for violent and nonviolent conflict scenarios. Additionally, OSV is an opportunity for troops that might otherwise fail against more powerful opponents to maintain control of a population without engaging in high-cost combat (Wood 2014, 462). The PCE of individuals directly affects the unit-level analysis often applied to the Wagner Group in PMC literature. A propensity to use bullets in non-violent events, poor crowd management, and a preference to remove

oneself from the battlefield under trying circumstances are all small examples of the larger story that is the identity of low PCE troops that we see in the Wagner Group since 2022, both in Ukraine and the CAR.

In all, troops with less PCE are more likely to trend towards OSV. Other research suggests that "declining capabilities inhibit control and policing," and acknowledges that as "internal threats increase, actors' incentive for violence against the population increase" (Wood et al. 2012, 647). Lacking experience that usually develops skills such as tactical proficiency and psychological conditioning that can increase control of a situation, personnel with poor PCE will more likely commit OSV. Additionally, when low PCE troops face adverse circumstances, they will target populations that are viewed as less powerful (Wood 2014, 462). Untrained troops negatively affect the quality of the military's relative capabilities, leading to increased OSV (Wood et al. 2012, 647). We formalize this argument in our second hypothesis:

H2: Contractors without prior combat experience will commit more lethal violence against civilians than those with prior combat experience.

4 Research Design

The Wagner Group entered the Central African Republic on the tail of France's removal of security forces in 2017. The new Central African Republic leadership under President Touadéra established a relationship with the Wagner Group that has expanded over time. Wagner operates simultaneously as an extension of Russian state influence as well as a semi-private military contractor seeking access to CAR's natural resources, providing the government with security, training, and offensive capacity lacked by the FACA (Serwat et al. 2022). These developments mirror patterns observed in other states with which Wagner has engaged since 2017: the CAR is a fragile state marked by prolonged internal conflict between

the incumbent and domestic opposition, turning to Wagner to suppress internal disputes and secure political leadership (*Russia and Wagner's growing influence in the Central African Republic* 2023).

To test our hypotheses, we study Wagner's violence within the CAR. We choose to examine Wagner's operations within the Central African Republic for several reasons. First, Wagner is the first PMC with such power in its relationship vis-à-vis the host state. With the group's success in achieving Russian foreign policy goals, other actors have suggested they intend to join the PMC arms race; Chechnya's leader Ramzan Kadyrov, a close ally of Putin, even discussed his ambitions to imitate the Wagner Group with his own PMC ("Plan to compete" 2023). Second, Wagner operations within the Central African Republic are extensively documented in a way that PMCs are rarely done as accurately as in ACLED's data. For example, PMCs are often mistaken for state troops and vice versa (Srivastava 2022; Kunkel 2023). If we studied Wagner use in the war in Ukraine, it would be substantially more difficult to be confident in the veracity of the data; there, they operate within an active war zone and Wagner contractors often dress similarly to official Russian military personnel (Mohieddeen 2022) and are thus likely misreported. Any PMC operating this way is likely to be misunderstood as military troops for the state. The CAR case resolves potential data integrity issues. Because Wagner is an organization based in Russia with a long history of adoration of white supremacist ideology and imagery, it is almost guaranteed to be full of white Russians in military gear.[2]

4.1 Outcomes of Interest

We measure violence in the Central African Republic using the Armed Conflict Locations and Events Database (ACLED) (Raleigh et al. 2010). We quantify *lethality* in two ways. First, we measure the lethality of violence as a binary indicator. In these models, we explore whether a violent event occurred with (1) or without (O) a death. Using this as our dependent

2. This is validated by examining any image of Wagner contractors. See Mohieddeen 2022. Other sources note that civilians in the CAR refer to Wagner contractors as the "white soldiers" (Obaji Jr 2022a, par. 3).

variable allows us to measure whether a violent event led to a fatality and thus to understand the probability that a violent encounter led to a death. This is important as a measurement because we expect Wagner contractors to have a higher propensity to commit OSV, and especially more severe OSV.

Take, for example, two incidents of violence against civilians, one perpetrated by state forces and one perpetrated by Wagner contractors.[3] In each of these examples, both units were retaliating against civilians for suspected ties to rebel groups, yet each ended with dramatically different outcomes. In May 2021, FACA forces alleged that twenty Muslim civilians were collaborating with rebel forces, and subsequently attacked, imprisoned, and tortured them. Although it was undoubtedly a horrible experience for all involved, each civilian was eventually released and none died in the custody of FACA forces. In contrast, less than half a year after the prior incident, Wagner contractors accused Fulani herders and their families of assisting rebel forces. In retaliation, Wagner contractors attacked civilians and families, killing approximately forty civilians and permanently displacing others. In one violent event, to prevent future support of rebels, the state engaged in coercive violence that, while horrendous, did not directly cause civilian deaths. In another violent event, also to prevent future support of rebels, Wagner forces engaged in coercive violence that directly killed forty civilians and likely injured more.

We also distinguish our dependent variable as a count outcome, where the outcome of interest is measured as the number of fatalities when an event occurred. By measuring the lethality of violence in this way, we can examine the difference in the total lethality of violence when Wagner contractors are involved, as opposed to only knowing the likelihood that it leads to death. For a more thorough discussion of how we coded the violence, please refer to the online Appendix A.

3. Each of these examples is taken directly from the ACLED data used in our analyses.

4.2 Treatment

For the treatment in our analyses, we code based on ACLED's determination of whether Wagner forces were or were not present within the Central African Republic during a violent event. As Wagner forces were first recorded in ACLED's database within the Central African Republic in April 2018, the data used in our analysis range from that date until the present,[4] as it encompasses the total range of times the "treatment" of Wagner contractors could have been assigned.

As discussed previously, Wagner's use in the Central African Republic presents an excellent way to study the group. As PMCs like Wagner intentionally operate in the shadows, establishing where they are and distinguishing them from state forces can be especially problematic. Even regular PMCs with formal legal structures and who operate distinctly from state forces can be difficult to identify by local populations (Kunkel 2023). The racial heterogeneity between Wagner contractors and FACA forces, primarily white and black, respectively, combined with the fact that Wagner contractors speak in Russian suggests high confidence in the veracity of ACLED's data. If we measured the treatment of Wagner in Ukraine, for example, it would likely bias our results, as the confidence in the accuracy of the coding data is substantially lower due to Wagner's operation in conjunction with official Russian military forces (Atlamazoglou 2022).

We code the treatment as a binary indicator where zero represents only FACA forces during a violent event, and one is where Wagner forces are present. We also expect, due to the nature of our theory predicting that Wagner forces are more lethal than state forces, our estimates of Wagner violence to be underestimated. Since Wagner is less sensitive and more prone to mass casualty events against civilians, there are likely more occurrences when the group has committed violence with no witnesses or reporters than state forces.[5] To see where the violence is located by actor in the Central African Republic over time, see Figure 2.

4. Dec. 10, 2022 at the time of writing.
5. This is based on the assumption that more deaths means less witnesses.

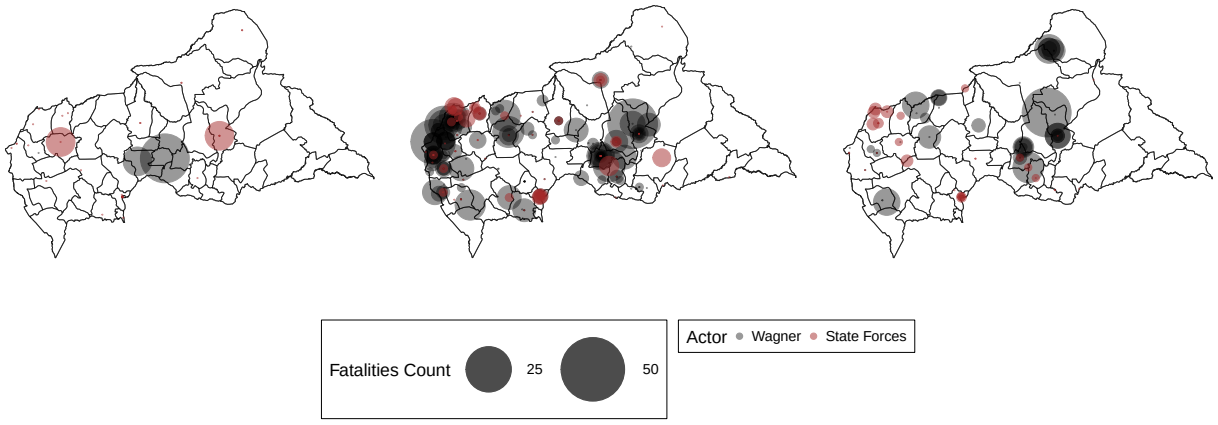

Figure 2: Wagner Group and State Violence in the Central African Republic from 2020 to 2022, organized sequentially from left to right.

4.3 Controls

While an instrumental variable helps address endogeneity concerns, the assumptions required for identification cannot be directly tested. Several alternative explanations may also independently influence both Wagner's presence during violent events and the severity of violence. These factors primarily shape whether and where Wagner is deployed and the strategic environments in which it operates. To account for these competing determinants and reduce omitted-variable bias, we include several control variables in our models.

First, we measure the lag sum of fatalities in the past month before a violent event. We expect Wagner to be deployed to places in which the state anticipates increased violence severity, as the state will face fewer domestic costs if Wagner contractors commit lethal violence compared to state forces. Therefore, to deal with that potential temporal reverse causation, we control for *Violence Lag*.

We also control for natural resources within the Central African Republic. Wagner's deployments often have much to do with natural resources such as diamonds and gold that can be extracted and used to gain capital (Olivier 2022a; Joyner 2023). Similarly, because there is a direct financial incentive for Wagner to maintain a monopoly on a resource mine, they are also more likely to commit severe violence to maintain control. Accordingly, natu-

ral resources represent a competing explanation for both Wagner deployment and violence severity that must be accounted for to isolate Wagner's effects. Thus, we further control for the Central African Republic's most prominent natural resources, diamonds and gold. These data come from the PRIO database, which records the location of diamond and gold mines around the world (Tollefsen et al. 2012).

These three control variables represent our best attempt to address omitted-variable bias within the models, but we acknowledge other variables as potentially correlated with the treatment and the outcome. For example, recent evidence suggests that the Wagner Group has been granted access to previously untouched rainforests under a subsidiary company to export lumber (Joyner 2023; Komminoth 2022). We also expect Wagner group contracts to change their violence levels when they are co-located with United Nations peacekeepers. With more than 17,000 UN personnel present (*MINUSCA Fact Sheet*), it is possible that Wagner contractors are more severe when not in the presence of peacekeepers. However, with no up-to-date UN data past the end of 2021 (Cil et al. 2020), and no up-to-date forrestry data from the Central African Republic, we recognize this as a limitation to our study and leave this to future researchers.

4.4 The War in Ukraine as an Instrument

Central African Republic leaders have a strong incentive to send Wagner contractors where they expect more severe violence, substantially increasing the potential of endogeneity. First, Central African Republic leaders face substantially lower domestic audience costs for casualties inflicted upon and by Wagner contractors. Although civilians and elites may associate contractors with the state, they are still distinct entities. We thus posit that the state would expect to face lower domestic costs for using Wagner than it otherwise would for the same outcomes, but with state forces. Second, prior to the war in Ukraine, Wagner's reputation was one of expertise. Wagner contractors were often recruited from Russian ex-special forces or ex-intelligence operatives (Chraibi 2020). Russia's current fiasco in Ukraine notwithstand-

ing, the Russian armed forces are well-trained, especially when comparing the special forces of the Russian state to regular troops within FACA. Since it is likely that Wagner advertised its expertise when marketed to the Central African Republic leadership, we expect that same leadership to send contractors where there is a higher expectation of violence severity.

Finally, due to the benefits of Wagner deployments for Russian leadership, such as gold and diamond extraction, Wagner will likely continue sending contractors regardless of casualties. Wagner and Russia benefit highly from the resource extraction from the Central African Republic; Wagner elites within the regime can increase their wealth and Russia can use the resources to fund its foreign policy goals. Thus, the state faces even lower costs in sending Wagner to violent locations rather than state forces, as the supply of Wagner forces is unlikely to decline.

To deal with the endogeneity present, as well as test *H2*, we propose the use of the war in Ukraine as an instrument. For the remainder of this section, we justify using the war as an exogenous shock to the supply and quality of Wagner contractors, explain how it meets the exclusion restriction, and finish with an explanation of how the instrument was coded.

After Putin's annexation of Crimea in 2014, Russia consistently maintained approximately 80,000 troops on its border with Ukraine (Shepeleva 2018). However, in late 2021 the number of troops on the border ballooned and continuously increased until roughly 200,000 personnel amassed near the Ukrainian border by February 24, 2022, when the invasion began (CRS 2022). Russia's decision to increase troop numbers in November 2021 is likely when it would have started to pull the high-skilled Wagner contractors out of countries like the Central African Republic and Mali and instead repurpose them to the Russian-Ukrainian border in preparation for the invasion.

We have several reasons, both theoretically and empirically motivated, that the high-skilled Wagner contractors were repurposed to Ukraine. Substantial casualties in Ukraine meant that to keep the war going while achieving Russian foreign policy goals in CAR, Wagner sent low-quality contractors to the Central African Republic. Contractors with

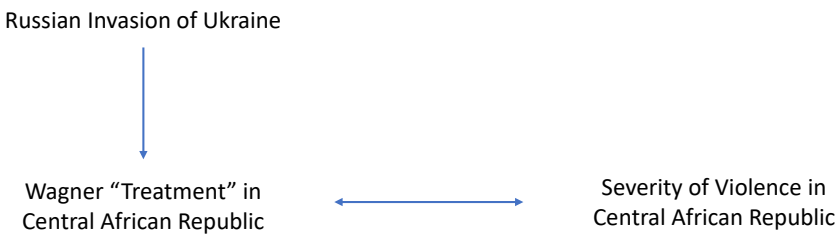

Figure 3: Causal logic of the independent, dependent, and instrumental variables.

low/nonexistent PCE should yield higher violence lethality than the high-quality personnel. After this initial repurposing, Russia's interests in the Central African Republic are fulfilled by less-skilled contractors who are prone to more lethal violence. As previously explained in the theoretical framework, the shift in quality and supply should affect the means but not the goals of the Wagner Group.

Before Ukraine, Wagner's forces were selective in how they recruited. Wagner operators were advertised as former Russian military, special forces, and intelligence. At a baseline level, then, we assume that these Wagner contractors were given some formal military training, including various means of crowd/riot control, weapons control, and other forms of violence mitigation tactics. While this training may be more particularly violent than typical police forces of a state, they are nonetheless trained and experienced in nonlethal warfare, which they can then use in dangerous situations to get what they want without necessarily killing civilians.

Because Putin has a much higher interest in retaking Ukraine than he does in projecting power in the Central African Republic, we expect Prigozhin to have repurposed high-skilled Wagner contractors to Ukraine instead of the Central African Republic. Putin has never hidden his top priority of rebuilding the USSR; he once described the fall of the Soviet Union as "the greatest geopolitical catastrophe of the century" (*Putin* 2005). Moreover, the 2014 annexation of Crimea and the 2022 invasion of Ukraine shows just how far Putin is willing to go. More telling is the fact that "unprecedented numbers" of Wagner Group contractors departed the Central African Republic in January 2022, right before the initial invasion

(Obaji Jr. 2022b). Relatedly, prior to the invasion, Ukrainian intelligence identified several mobile phones most recently seen in the Central African Republic pinging near Volodymyr Zelenskyy's residence and key infrastructure throughout Kyiv (Owen 2022; Ma 2022; Rana 2022).

Unfortunately for Putin and his allies, Russia has suffered devastating losses after the initial invasion. Russian casualties have been so high, in fact, that the state temporarily reinstated a national draft to mobilize 300,000 new recruits for the front lines (MacFarquhar 2022). The Wagner group also suffered massive casualties early on and throughout the conflict (Triebert and Khavin 2023; Hopkins and Heitmann 2023), with British intelligence and other sources suggesting Wagner personnel making up as much as one fifth of the total Russian casualty count (*UK intelligence* 2022; Rai 2022; Victor Kovalenko [@MrKovalenko] 2022). Wagner's forces in Ukraine have deteriorated at such a high level that the group was recently reported to have sent former rebels from the Central African Republic to fight in Ukraine (Olivier 2022b; Shoaib 2022).

To keep the war going, Prigozhin has massively expanded Wagner's recruiting base well outside of previous standards. For example, while Wagner was well established with high recruitment standards (Çelik and Şafak 2017; Sauer 2022; Smith 2022), new evidence has revealed a dramatic drop in the quality of contractors recruited to Wagner. The clearest second-hand knowledge to date of this change in recruiting comes from a journalist's account on Wagner's supposed website of operation, known as wagner2022.org. No longer online,[6] wagner2022 established that anyone over the age of 25 that is not a citizen of a NATO/EU state can join. As the war has dragged on, Wagner has lowered recruiting standards.

Our clearest evidence comes from the head of Wagner, as Prigozhin's strategy of recruitment shifted to one of recruiting canon fodder from the Russian penal system. A recent report highlights this trend clearly: the Russian prison population has experienced a sharp decline since the invasion, with a substantial portion of that decrease attributed to the use

6. The archived page can be found using https://archive.org.

of prisoners to maintain the war effort (Grigoriy 2025). Another piece of evidence demonstrating the depth of military training for Wagner personnel deployed to Ukraine: Wagner contractors operate Russia's most advanced T-90 tanks in Ukraine (Axe 2022), an act that would require thorough military training and experience. This further shows that Wagner's most experienced fighters have been shifted to Ukraine and away from their prewar deployments. The Ukranian military agrees; they often viewed Wagner forces as among the most skilled and effective fighters from Russia (Schwirtz 2023).

Finally, reports from a journalist on the ground in the CAR highlights that despite the war, Wagner contractors are still deployed in large numbers (Joyner 2023). With heavy casualties in Ukraine and a relatively low supply of skilled contractors, it is likely that to maintain a presence in the Central African Republic, Wagner sent lower skilled contractors and withdrew the high-skilled contractors for Ukraine.

As outlined in the theoretical framework of this piece, we expect Wagner Group contractors to commit more lethal and overall higher amounts of OSV due to the lack of punishment and benefits gained from it. In this case, however, our theory and instrument suggest that Wagner's violence in the Central African Republic should be *higher* after Russia began to repurpose troops to Ukraine, and especially after substantial casualties from Russian forces.

If the war in Ukraine is in fact changing the quality of Wagner contractors deployed to the Central African Republic, then the lethality of violence by Wagner should be higher after the Russian buildup in November 2021. To descriptively examine our instrument, we point back to Figure 1 from the Introduction. This plot shows that there is a substantial increase in the lethality of violent events before and after Ukraine from Wagner contractors and that this violence was not spurred by state forces, as FACA violence has a minor decrease in mean violence lethality over the same time span. Similarly, the evidence presented in the introduction exemplifies Wagner's dramatic increase in violence severity. The "crowd control" methods used in Aïgbado track directly with the expected level of PCE present; with few options to non-lethally suppress a large crowd of civilians where the contractors

are outnumbered, lethal violence becomes the default response.

Necessary for an instrumental variable, the war in Ukraine is fully exogenous to violence in the Central African Republic; there are also no other pathways for the lethality of violence to change based on the war in Ukraine. While it is impossible to prove completely that the instrument meets the exclusion restriction, we investigate potential violations empirically and find that it holds. One potential violation is the economic trade from Russia to the Central African Republic. For example, if Russian trade changed drastically to the Central African Republic, it could change the incentives to violence severity after the war began. Although Russia faced a series of sanctions from the international community after the invasion (DiPippo 2022; Times 2022; "What is Russia's Wagner Group of mercenaries in Ukraine?" 2022), very little of its economic relationship with the Central African Republic changed. In 2021, Russia had very little economic trade with the Central African Republic. According to the UN COMTRADE database on international trade, for example, Russia exported less than six million dollars worth of goods to the state, indicating a relatively low economic relationship (*UN Comtrade Database* 2022). If this relationship did change after the war, it is unlikely to have made a dramatic difference, especially due to the weak nature of the relationship before the war. Moreover, while there have been massive sanctions by the West after the invasion, most of Russia's economic output has remained stable but shifted to other markets, such as Russia's switch to non-Western markets. For example, although approximately two-fifths of Russia's oil exports before the invasion went to China, India, and Turkey, that percentage is now up to two-thirds (Lee 2022). Thus, we argue that any potential economic changes from Russia after the invasion likely had little to no change on the economic imports within the Central African Republic.

To code our instrument, we treat the invasion as a continuous "dose" of exposure. First, we calculated the days to the start date of when Russia began repurposing troops to the Ukrainian border.[7] For any event before the November shift in troops, the instrument is

7. The exact date used is November 1st, 2021.

thus coded as 0 since that event did not receive a "dose" of the war. Because the initial days of the war are more relevant for the direct effect of the instrument on the treatment, we log-transform the instrument for all non-zero values.

5 Analysis

We report the estimates from our first analyses testing *H1* in Table 2. Using a negative binomial logit regression of the treatment on violence severity, models one and two each show that Wagner's violence is more lethal than state violence where Wagner Group contractors were not present. Model one shows that the odds of a fatality during a violent event when Wagner is involved are more than twice as high as when they are not involved. Even more damning is that Wagner's violence results in as many as seven more fatalities than if the group was not involved in a violent event.

	Death (B)	Fatalities (C)
	(1)	(2)
Treatment	2.265***	7.108***
	(0.167)	(0.220)
Fatalities Lag	1.002***	1.000***
	(0.002)	(0.003)
Gold	1.598***	1.247***
	(0.249)	(0.395)
Diamonds	0.685***	1.297***
	(0.182)	(0.283)
Constant	0.187	0.428**
	(0.182)	(0.202)
N	532	532
Log Likelihood	−383.852	−846.449
AIC	777.704	1,702.898

*p < .1; **p < .05; ***p < .01

Table 2: Negative Binomial models with SEs clustered at the 1st-level administrative unit. Coefficients reported as odds ratios. (B) = Binary Outcome, (C) = Count Outcome.

Of course, there is a real possibility of endogeneity and selection effects in these models,

which, if present, could bias the outcomes higher. Thus, in Table 3, we approximate a two-stage least-squares (2SLS) using the instrument of the war in Ukraine. In these models, fatalities become even more salient when Wagner is involved.

In Table 3, models one and three treat the instrument as a binary of before and after Russia began shifting its troops to the border of Ukraine. Models two and four show the same outcomes but with the instrument coded using the dose approach described earlier. The results of our models are robust to multiple specifications; when using the instrument, it is clear that not only did the naive models *underestimate* the effect of Wagner on the lethality of violence, decreased PCE is directly associated with an increase in the probability and amount of fatalities.

In these models, the statistical significance did not change; however, the substantive significance increased dramatically, specifically for the count outcomes. We point to models three and four to show the dramatic increase in the amount of fatalities associated with decreased PCE, providing strong evidence supporting *H2*. Each model used in our analysis shows the same statistically significant picture: Wagner's use within the Central African Republic directly leads to more civilian fatalities. Compared to FACA's violence, which Wagner is there to assist with, Wagner's violence is substantially more likely to lead to a civilian death. In the 2SLS models, violent events with low-PCE contractors lead to *nineteen* more civilian fatalities than a FACA event.

Compared to the OLS models in Table 2, the instrumented analyses in Table 3 show a different outcome in respect to the control variables. Instead, the 2SLS models show that the presence of gold mines has a statistically significant increase in the probability of a death during a violent event, but not in the overall count of fatalities. The estimates for diamond mines, on the other hand, are all statistically insignificant.

To further contextualize the magnitude of our estimates, Table 4 reports baseline fatality levels for violent events in the Central African Republic. Across both battles and one-sided violence, close to half of all violent events involve no civilian fatalities at all. Mean fatalities

	Death (B)		Fatalities (C)	
	(1)	(2)	(3)	(4)
Treatment	1.751***	2.198***	14.326**	19.068**
	(0.487)	(0.804)	(5.915)	(9.666)
Fatalities Lag	0.001*	0.001*	0.006	0.007*
	(0.001)	(0.001)	(0.005)	(0.004)
Gold	0.304**	0.300**	1.188	1.144
	(0.146)	(0.147)	(1.081)	(1.083)
Diamonds	−0.079*	−0.069	1.475	1.550
	(0.047)	(0.050)	(0.915)	(0.958)
Constant	−0.603**	−0.833**	−5.830**	−8.265*
	(0.244)	(0.405)	(2.795)	(4.677)
N	532	532	532	532
R^2	0.052	0.041	0.031	0.027
Adjusted R^2	0.045	0.033	0.024	0.019
Residual Std. Error (df = 527)	0.460	0.462	5.153	5.164
F Statistic (df = 4; 527)	7.198***	5.580***	4.236***	3.607***

*p < .1; **p < .05; ***p < .01

Table 3: 2SLS regressions with SEs clustered at the 1st-level administrative unit. (B) = Binary Outcome, (C) = Count Outcome.

per event range from approximately two to five, with medians of zero or one. Importantly, these baseline patterns are not driven by older, lower-intensity events; if anything, violent events since 2018 are less lethal on average than those observed over the full period. Against this baseline, an estimated increase of nineteen civilian fatalities per violent event represents a substantively acute departure from typical patterns of violence.

Table 4: Event-Level Fatalities by Event Type and Period, CAR. *Note: Battle fatalities are included for context, but are not otherwise present in any statistical models.*

Event type	# of events	Mean	Median	Zero-fatality events
OSV (1997–2022)	2,723	2.88	1	0.47
OSV (2018–2022)	1,088	1.99	0	0.54
Battles (1997–2022)	1,863	4.43	1	0.47
Battles (2018–2022)	730	3.22	0	0.51

Finally, we include several statistical tests and robustness checks in Appendices C, D, and E. We find that, while our instrumental variable models have weak F-tests, the results are robust to potential concerns of a weak instrument and confirm the validity of our findings with a regression discontinuity design.

6 Conclusion

The Wagner Group initially operated as a PMC at the discretion of but distinct from the Kremlin. Over time, the group's success led to ever closer ties with the Kremlin. When the 2022 invasion of Ukraine faltered and the Russians became stuck in a war they weren't prepared for, Wagner provided an easy and relatively low cost solution to dwindline troop numbers. Yet, this increasing reliance on Wagner increased Prigozhin's leverage over Russia, culminating in a 2023 march on Moscow, an event that would eventually lead to his demise.

The influence of Wagner and Russia's increasing funding of the group removed it even further from the market for force, as Wagner contractors did not have to compete for busi-

ness. Starting from the framework derived by (Penel and Petersohn 2022), we first explain Wagner's use of violence against civilians at an organizational level. Wagner being headquartered in and working for states with low respect for human rights the group is more willing to commit lethal violence than the states that employ them.

Next, to explain OSV at an individual level, we introduce pre-conflict experience (PCE) to the PMC and OSV literatures. We introduce PCE to explain why Wagner contractors increased OSV in the CAR following the invasion of Ukraine. In training, soldiers develop battlefield competencies focusing on tactical proficiency and psychological conditioning (Reilly 1997; Nindl et al. 2018; Mantua 2023; Tornero-Aguilera et al. 2024), increasing their PCE. Without PCE, however, personnel are more likely to compensate for strategic influence (Wood 2014, 462), and thus use violence against civilians at an increased rate. When Wagner pulled prisoners and placed them in high-stress conflict scenarios, the newly equipped contractors lacked PCE. Low PCE increased violence lethality against CAR's population, as the new contractors struggled to manage conflict scenarios that could be averted with higher PCE. Using ACLED's data in the Central African Republic, we examine Wagner Group operations in one of Russia's most heavily involved relationships. When accounting for potential endogeneity concerns, we show that Wagner contractors are associated with nineteen more civilian fatalities during a violent event than FACA. We find little accountability toward the Wagner Group from the CAR, Russia, or the market for force that could typically push state or nonstate actors away from violence against civilians.

While the Wagner Group remains a unique entity, Turkish PMCs like SADAT may be considered peer organizations. SADAT generally answers to President Recep Tayyip Erdoğan, receives military hardware and intelligence from the Turkish armed forces, and acts in lockstep with Turkish foreign policy initiatives (Jaklin 2024; Fonseca, Tomas 2023). Like Wagner, SADAT can forgo accountability with the Turkish state government. That said, the extent of SADAT's foreign policy reach is regional, and SADAT says it only pursues operations with Muslim groups, relying on religious support that can challenge the desires of

the Turkish state (Jaklin 2024; Fonseca, Tomas 2023). Additionally, SADAT's behavior does not appear as market-driven as the Wagner Group's, instead opting for cultural motivations to determine involvement (Powers 2021).

It is possible that, with the death of Wagner's two most important figures, Prigozhin and Utkin, the group no longer poses the same threat it did before Prigozhin's fateful march. Yet, there are two reasons why Wagner, and other PMCs with substantial power, may be here to stay. As Lechner and Eledinov (2024) explain, the main operations of Wagner in the Sahel may be starting to be subsumed by the Africa Corps, although Russia is simultaneously attempting to keep Wagner's influence and intelligence in tact (Peltier 2023). As a paramilitary rather than PMC, the Africa Corps does not have a private presence and is more of an "expeditionary force" for Russian interests. Second, while the Wagner experiment may be coming to an end, others have noticed the foreign policy successes achieved with the group. From Chechnya's Kadyrov to Turkey's Erdoğan and others, several actors may be aiming to replicate Wagner ("Plan to compete" 2023; Jaklin 2024), indicating that PMCs with substantial power and state connections may increase in scope and size in the near future. The United States' Africa Command contends that the Wagner Group "operates in at least 16 African countries" (Owen 2022), suggesting that despite the group's heavy casualties in Ukraine, it is not going anywhere.

Our results have far-reaching implications for how policymakers, military personnel, and academics understand OSV. When PMCs are granted the legitimacy to perform violent acts while subverting market costs for state interests, there is little to no accountability between the parties involved. Future research should address the state/nonstate status of the group, and how that changes how the group operates. This research provides a theoretical framework for understanding emerging security groups in the 21st century. The Wagner Group remains a foreign policy concern for the United States, Europe, and any actors interested in human rights. As we show, the Wagner Group increases violence against civilians, and less experienced contractors exacerbate this even more. This study establishes

a foundation for future research and reframes how scholars and policymakers should evaluate the violence and accountability of emerging security actors.

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Appendix

A Coding the Violence

In this section, we discuss how we code the independent variables of ACLED's data and how we subsetted the data and define "potential" treatments. The treatment variable is coded as a 1 if Wagner Group forces committed the violence, and a 0 if Wagner Group forces were not present during the violent event. In other words, there are observations where the Wagner Group and state forces commit joint violence against civilians. We believe our theory holds up under conditions where Wagner operates with the client state they work for; as stated in the theoretical framework, the client state places little to no restrictions on Wagner, and has little incentive to prosecute for crimes against civilians, so we further argue that the increased violence with Wagner contractors present will hold at the same rate regardless of whether the actor commits the violence with a state actor or not. Our assumption is further solidified by existing empirical evidence showing how FACA and other state forces are often deferent to Wagner Group forces, meaning that Wagner Group forces are unlikely to expect any sort of punishment for political violence and thus unlikely to change their behavior in the presence of state actors (Cohen and Lima 2022).

The universe of cases includes all violent events in the Central African Republic in which Wagner forces either directly participated or could have plausibly participated through their collaboration with FACA. Accordingly, we retain only those events perpetrated by Wagner or by state actors with whom Wagner is known to operate; we exclude all rebel-perpetrated violence against civilians and any events where Wagner could not have been present.

B Model Notation

Instrumental Variable (2SLS) Regression

First Stage Equation

$$\widehat{W_i} = \alpha_0 + \alpha_1 Z_i + \epsilon_i \tag{1}$$

Second Stage Equation

$$Y_i = \gamma_0 + \gamma_1 \widehat{W_i} + X_i\beta + v_i \tag{2}$$

Where:

- α_0 and γ_0 are the grand mean intercepts for the first and second stage equations, respectively.
- Z_i is the instrumental variable, measured as the logged number of days since Russia began repurposing troops to the Ukrainian border (coded 0 for events occurring before November 1, 2021).
- $\widehat{W_i}$ is the fitted value from the first stage for Wagner personnel.
- Y_i is the lethality of violence for event i, measured either as a binary outcome (whether at least one fatality occurred) or as a count outcome (number of fatalities).
- X_i is the vector of control variables: six-month lag sum of fatalities and indicators for diamond and gold mines within the PRIO grid of event i.
- ϵ_i is the first stage error term.
- v_i is the second stage error term uncorrelated with $\widehat{W_i}$ and X_i.

Negative Binomial Regression

$$\log(Y_i) = \beta_0 + \beta_1 W_i + X_i\beta \tag{3}$$

Where:

- β_0 is the grand mean intercept.
- Y_i is the lethality of violence for event i, measured either as a binary outcome (whether at least one fatality occurred) or as a count outcome (number of fatalities).
- W_i is the treatment indicator equal to 1 when Wagner forces are present during event i, and 0 when only FACA forces are present.
- X_i is the vector of control variables: six-month lag sum of fatalities and indicators for diamond and gold mines within the PRIO grid of event i.

C Instrumental Variable Validity

To address concerns that that the instrumental variable is potentially statistically weak, we run several robustness checks to verify the use of the War in Ukraine as an instrument. First, based on the recommendations of Lal et al. (2024), we report the various F-statistics for the 2SLS models in Table A1. The tests provide mixed evidence on the strength of our instrument. To be clear, these tests are tests of the strength of the relationship between the instrument and the treatment; we have substantial theoretical and empirical evidence in the shift of Wagner contractors, but the results of the tests suggest the methods we use to measure the instrument may not be as strong as otherwise believed.

These methodological concerns are not to be taken lightly. Accordingly, in Appendix D, we report the use of our instrument as a regression discontinuity design. Our models are robust to that specification, and the models also fulfil all necessary assumptions and tests of the Nov. 1, 2021 cutoff date.

Instrument	F_{Eff}	tF	AR (Binary)	AR (Count)
Dose	2.064	0.431	8.432	1.965
Binary	3.341	0.535	9.271	1.874

Table A1: Reported F-statistics recommended by Lal et al. (2024). *Note: AR is reported separately for each outcome because the AR statistic is calculated from the reduced form of the outcome on the instrument and thus varies between binary and count models.*

D Regression Discontinuity Robustness Check

To further verify the results of our models, we transform our analysis into a regression discontinuity research design (RDD), leveraging the time-series data to do so. First, we show and interpret the results of our RDD regression, and then we test the assumptions of an RDD. The RDD uses the same time cutoff used by the instrument.[8]

Table A2

	Pr(Fatality)	Total Fatalities
	(1)	(2)
Treatment	0.222**	3.681***
	(0.088)	(1.109)
Score	−0.002	−0.0003
	(0.002)	(0.024)
Treatment * Score	0.004	0.002
	(0.003)	(0.028)
Constant	0.366***	0.764
	(0.072)	(0.916)
N	532	532
R^2	0.060	0.062
Adjusted R^2	0.040	0.046
Residual Std. Error	0.041 (df = 141)	0.508 (df = 171)
F Statistic	2.986** (df = 3; 141)	3.768** (df = 3; 171)

*p < .1; **p < .05; ***p < .01
Regression Discontinuity Design output.

Table A2 shows the results of our regresssion. Both models further verify the results of our main analysis. Model 1, using a binary measure of the outcome, shows that the presence of Wagner Group forces increase the likelihood that a violent encounter turns lethal by roughly 22%, statistically significant. Model 2 shows similar results, as it measure the outcome through a count of fatalities during a violent event. With statistically significant results, Model 2 further shows that Wagner forces increase the count of fatalities when compared to state forces, with an increase in nearly four deaths per violent event. While the results of

8. Nov. 1, 2021.

our RDD analysis are not as strong as the instrumental variable analyses, the RDD shows similar results to the main analysis of the paper and further verifies our hypotheses.

Below, we present the outcome of those plots. Figure A1 shows the results of the density test, an important assumption for RDDs. Because Figure A1 does not have a large gap in the lines before or after the cutoff at time zero, the RDD passes the basic density test assumption.

Figures A2 and A3 provide additional evidence supporting the validity of our RDD estimates. Figure A2 displays the kernel weights assigned to observations based on their proximity to the cutoff on the running variable. These weights are specific to the RDD estimation and do not correspond to the dosage approach used in the IV analysis. Rather than capturing treatment intensity, they illustrate how observations nearer to the cutoff exert greater influence on the local treatment effect. Figure A3 presents the graphical representation of the RDD treatment effect corresponding to the models in Table A2, showing the fitted values immediately above and below the cutoff. Finally, using the McCrary sorting test, we find no evidence of manipulation around the cutoff; results reported in Table A3.

Log diff. (theta)	Std. Error	z-stat	p-value
−0.295	0.589	-0.500	0.617

Table A3: McCrary Sorting Test.

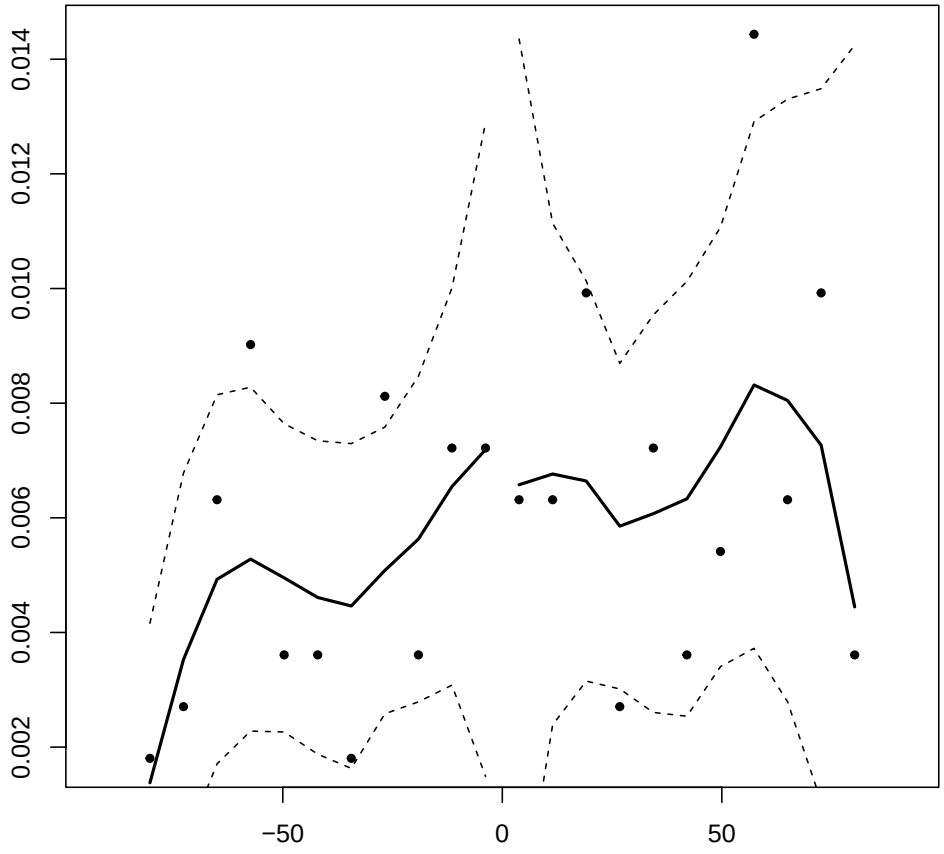
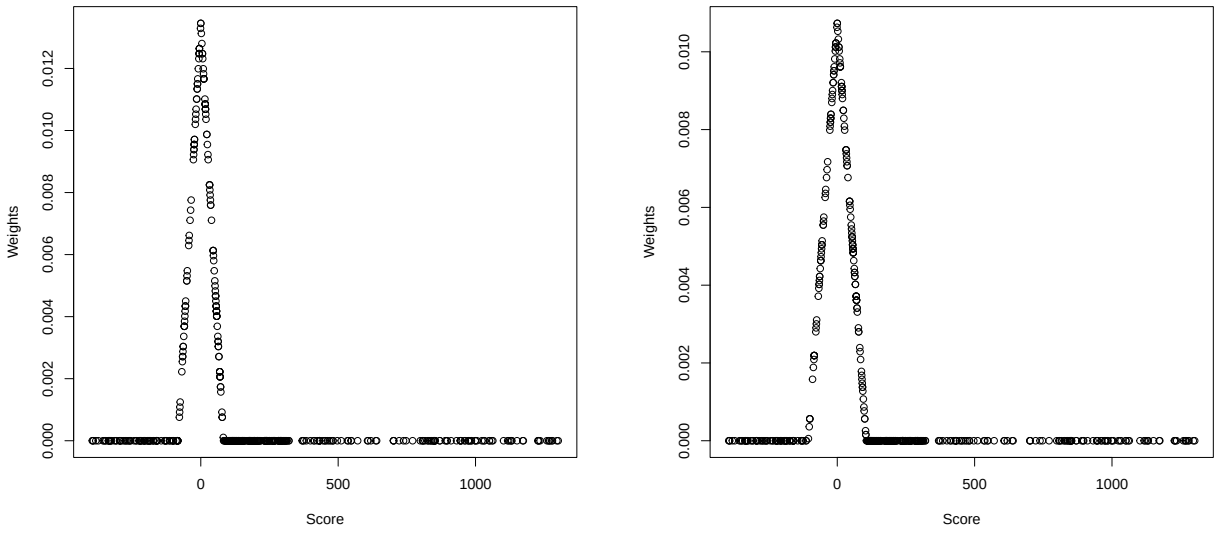
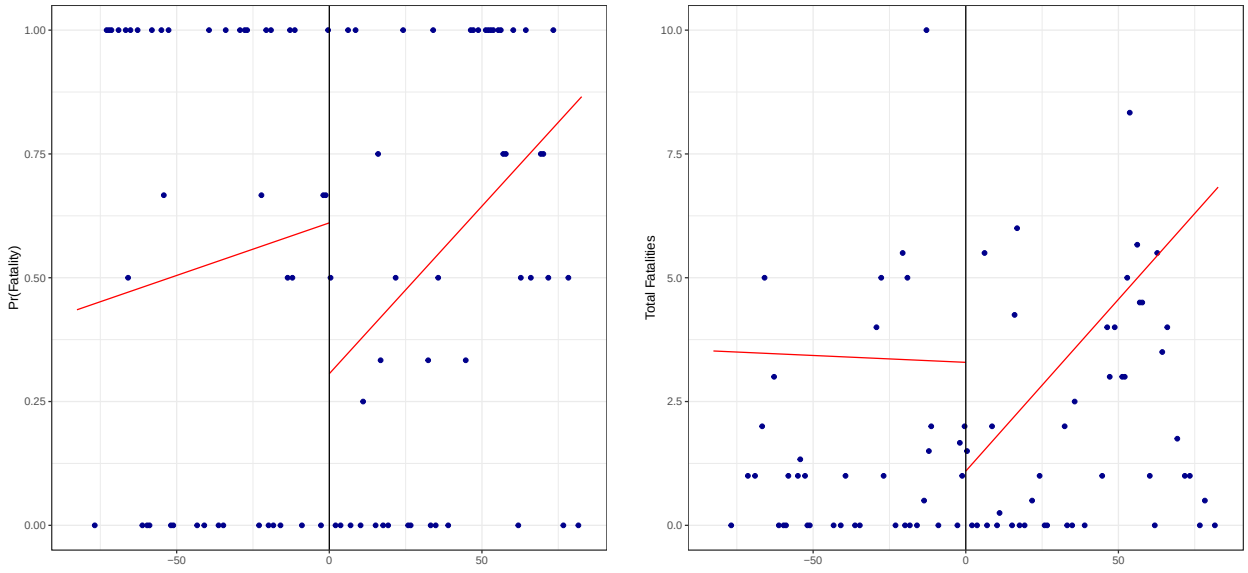


Figure A1: Density test of the "no unobserved sorting" RDD assumption.



(a) Pr(Fatality) (b) Total Fatalities

Figure A2: Distribution of weights per outcome.



(a) Pr(Fatality) (b) Total Fatalities

Figure A3: Regression discontinuity plot of each outcome.

E Region Fixed Effects

Here, we report all of our main model findings but with region fixed effects included.

	Death (B)	Fatalities (C)
	(1)	(2)
Treatment	1.947***	5.185***
	(0.173)	(0.221)
Constant	0.153	0.243
	(0.448)	(0.617)
Fixed Effects	✓	✓
N	532	532
Log Likelihood	−379.227	−815.859
AIC	792.454	1,665.718

*p < .1; **p < .05; ***p < .01

Table A4: Negative Binomial models with SEs clustered at the 1st-level administrative unit. Coefficients reported as odds ratios. (B) = Binary Outcome, (C) = Count Outcome.

	Death (B)		Death (B)	
	(1)	(2)	(3)	(4)
Treatment	2.503***	3.230**	20.322**	27.630*
	(0.839)	(1.407)	(8.935)	(15.611)
Constant	−1.309**	−1.757**	−11.814**	−16.310*
	(0.522)	(0.866)	(5.397)	(9.471)
Fixed Effects	✓	✓	✓	✓
N	532	532	532	532
R^2	0.095	0.087	0.067	0.063
Adjusted R^2	0.067	0.059	0.038	0.034
Residual Std. Error (df = 515)	0.454	0.456	5.115	5.125
F Statistic (df = 16; 515)	3.395***	3.075***	2.306***	2.178***

*p < .1; **p < .05; ***p < .01

Table A5: 2SLS regressions with SEs clustered at the 1st-level administrative unit. (B) = Binary Outcome, (C) = Count Outcome.