Violence as a Condition: From Russia to the CAR, the Global Impact of the Wagner Group

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Abstract

Since its inception in 2014, the Russian Federation's Wagner Group has both expanded Russia's foreign policy reach and become a significant contributor to Russia's 2022 invasion of Ukraine. Yet, the relationship between the Private Military Contractor (PMC) and the Russian state was not always so strong. While Russia's reliance on PMCs for foreign policy influence is a historical norm, Wagner's recent exploits have led to their status as the preferred PMC for Russian interstate relationships until mid-2023. Wagner's growing status has increased the Group's influence over the Kremlin. In this paper, we analyze Wagner's fluid relationship with Russia and the implications of that relationship on Wagner's willingness to commit human rights violations. With a lack of Russian interest and willpower to enforce laws against human rights norms and a monopsonic relationship with client states, we argue that Wagner forces are more likely to commit more lethal violence against civilians of client states. We study Wagner Group operations within the Central African Republic and find that the Wagner Group commits substantially more lethal political violence than the state actors who employ them. Our novel empirical analysis provides robust evidence of Wagner's willingness to commit more severe human rights violations than autocratic regimes with poor human rights records.

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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

On June 24, 2023, Yvegeny Prigozhin, marched on Moscow with an alleged force of 25,000 Wagner Group contractors to overthrow[1] the Kremlin elite. The strength of Russia's internal regime would suggest a quick and violent end to this mutiny, but a relatively peaceful resolution emerged, as Belarusian President Aleksandr Lukashenko mediated Wagner's withdrawal to Belarus. What's remarkable amid the chaos is that, despite Wagner Group forces advancing within a few hundred kilometers of Moscow, Russian military forces showed significant restraint.

Despite Wagner's insubordination, President Vladimir Putin, not typically associated with caution, focused on publicly criticizing the insurrection while fortifying the Kremlin's defenses with no offensive. Putin has a well-documented history of paranoia and preventative attacks,[2] yet no attacks came. Why would Putin, and by extension the Russian Military, not confront a threat so close to home? In this paper, we show that over the course of Russia's "Special Military Operation" in Ukraine, its increasing reliance on the Wagner Group to achieve military goals increased the group's power and influence and thus changed the nature of the Russian-Wagner relationship, modifying Wagner's incentive structures for violence against civilians.

Even with an overwhelming numerical and technological advantage and after a brief initial success invading Ukraine, Russian forces were pushed back and forced to engage in a brutal fight that they were not prepared for (Jones 2022). To supplement the main Russian

1. Prigozhin's public statements focused on the military rather than political leadership (Marten 2023).

2. See, for example, the Russian government's alleged poisoining of defectors and political opponents to Putin. Most recently, the highest profile opposition leader in Russia, Alexei Navalny, died in a remote prison colony (Stent 2024).

military forces, Putin turned more and more to Prigozhin's contractors, as their influence and involvement in the war grew. We further argue that as the Wagner Group gained notoriety and achieved major military obstacles for Russia, the state's dependence on the group gave Wagner forces increased leverage in their relationship. As the Russian-Wagner relationship became increasingly monopsonic, it also changed the calculations of Wagner. Using the framework of Penel and Petersohn (2022), we show that with little need to compete with more law-abiding private military contractors (PMCs) on the open market and a low respect for human rights,[3] Wagner contractors have more incentives to commit more lethal violence targeting civilians than the state actors they operate alongside.

To examine the implications of the Wagner Group's relationship with Russia more explicitly, we analyze Wagner's operations within the Central African Republic. Conducting the first empirical analysis of Wagner Group contractors, we explore their lethality of violence compared to traditional state forces. Since the increase in troops at the border of Ukraine, Russia has been repurposing its high-quality contractors,[4] sending them to Ukraine and sending low-quality contractors[5] to the Central African Republic. We exploit this change in the quality of Wagner Group personnel as an instrument to examine their lethality of violence.[6] Our results indicate that violent events involving Wagner contractors lead to nineteen more civilian fatalities compared to state violence.

Our paper proceeds as follows. First, we explain Wagner's origins and relationship to the state from 2014 until the war in Ukraine, drawing largely from Marten (2019b). Next, we explore how Wagner's relationship with the state has changed, and describe what that means for Wagner operations during deployments. Third, we explain our empirical strategy, in the first ever quantitative research on the Wagner Group. Fourth, we discuss our results

3. In this paper, we refer to human rights of civilians specifically through the lens of bodily integrity/autonomy; in other words, the right to be free from violence.

4. These are the elite contractors we associate with Wagner pre-Ukraine.

5. These are the more run-of-the-mill contractors, who often have no military experience but tend to have criminal records.

6. A "lethal" event is a violent event in which one or more civilians died. We further use lethal and severe interchangeably to describe political violence.

and show how the use of Wagner Group forces dramatically increase the lethality of violence against civilians. Finally, we conclude with a discussion on the implications of the Wagner Group for international politics, focusing on Wagner's future prospects after the death of Prigozhin.

2 Legacy Wagner (2014-2022)

As the only peer-reviewed academic research on the subject, Marten 2019b provides a descriptive analysis of what Wagner is and why Russia uses it, which includes an extensive history of the group that we draw from here.

We first distinguish that the moniker "Wagner" is, by many accounts, likely a misnomer categorizing several groups within Russia. Several experts (Mayer 2023; Pham 2023; Marten 2019a) states (UK Parliament Foreign Affairs Committe 2023) refer to Wagner as a "network," operating as a collection of groups interconnected with one another. Their operation as a network does not change how we conceptualize and describe the Wagner Group, in large part because Wagner seems to have acted as a more-or-less unified group under Prigozhin's leadership. While it is unlikely that any one person directly and completely controls the Wagner Group (Rondeaux 2019, 58),[7] Prigozhin had long been seen as the head of the group due to the high likelihood that he was the primary funder, and Wagner often acted to protect Prigozhins private interests (Marten 2019b, 193). With Prigozhin's extensive experience in criminal networks and business dealings, Wagner's successes in aiding Russian interests in Ukraine and Syria, and his long-term friendship with the Russian President, Putin began increasing Wagner's presence, focusing heavily in Africa and the Middle East.

The earliest evidence of the Wagner Group's existence is in 2014. By all accounts,

7. When Prigozhin was alive, the exact hierarchy at the top of the Wagner Group was unclear, and disputed by multiple credible sources (Marten 2019a; Engelbrecht 2022; Kim 2022; Sukhankin 2019b). Prigozhin's status as a Russian oligarch (Lister, Ilyushina, and Shukla 2018, par. 25), and the fact that Utkin was a former Russian military officer, suggests that Prigozhin was the primary funder and organizer of the group at a macro level, and that Utkin likely organized the group's military parts, such as tactics and strategy. Moreover, a recent Bellingcat report clarifies that it is unclear who is the true leader but that Utkin was likely the field commander (B. I. Team 2020).

in the early years, Wagner was hardly notable, especially compared to the other PMCs operating from Russia. With many PMCs used alonside Russia's military presence in Syria, Putin's government planned on using Wagner as a supplement to its Crimean invasion force (Rondeaux 2019, 51). Preceding Wagner was the Slavonic Corps, a popular Russian PMC. When the Slavonic Corps transitioned to a new leader, Dmitrii Utkin, he rebranded the group after his nom de guerre "Wagner", referring to his affinity for the Third Reich's "aesthetics and ideology" (Marten 2019b, 192). Acting in conjunction with unmarked Russian military assets, Utkin and Wagner fomented discord among the rebel commanders to give more power to Moscow, and later assisted Russian forces in Syria (192–3).

From 2019 to 2022, Russia expanded Wagner's use, ranging from Belarus, the Central African Republic, Libya, Mali, Mozambique, and Sudan (Marten 2020; Harm 2021; Faleg and Kovalčíková 2022; Houreld, Bennett, and Dixon 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 have opened investigations into Wagner's activities, including the United States and the United Kingdom (*The GRU, Yevgeny Prigozhin, and Russia's Wagner Group* 2020; Commons 2022; UK Parliament Foreign Affairs Committe 2023).

3 Contemporary Wagner (2022-present)

While Wagner may have early on operated as a PMC independent from but loyal to Russia, its operations and heavy use in Russian foreign policy has led to a muddled relationship, as they are often referred to as semi-state actors or quasi-paramilitaries (Marten 2019b; Rondeaux 2019). In this section, we argue that the Wagner Group's relationship to the Russian state fundamentally shifted during and after Russia's invasion of Ukraine—Russian forces became heavily dependent upon Wagner's force capabilities and logistics, giving more

power to the group. As it evolved and with it's income now almost exclusively coming from Russia, it's violent tendencies are less restricted than if they had to operate on the open-market. Moreover, Russian use of Wagner in autocratic regimes that do not value human rights means Wagner has even less restrictions on its violence capacity.

After Russia's initial annexation of Crimea in 2014, the Russian-Ukraine relationship was hostile, but stable, with a consistent number of troops stationed on the Ukrainian border (BBC Monitoring Kiev Unit 2018; BBC News 24 2020; Foy and Olearchyk 2021), until the attack on February 24th, 2022. Russia's full invasion was by all accounts going to be a quick and decisive victory. Russian and Western intelligence communities concluded that Ukraine was soon to fall (Abdalla et al. 2022). Russian forces had the numerical superiority and the means to capture Kyiv. Yet, as Russian forces approached within twenty miles of Kyiv, they were routed, turned around, and eventually expelled from the Northern parts of the country entirely (Karmanau et al. 2022; V. J. Team 2023). Since then, Russia has maintained control of roughly one fifth of pre-war Ukraine, with minor gains and losses turning the invasion into a war of attrition.

Recall that pre-invasion Wagner forces were positioned in the Middle East and Africa. With an impending invasion, the buildup of troops on the Belarus and Russian borders of Ukraine also included Wagner (Obaji Jr. 2022b). With a heavy Wagner presence early on in the war, and a stalling war machine, it was not long before the Russian regime began relying more and more on Wagner to achieve military objectives in Ukraine. We contend that with the restrictions on levying domestic political costs combined with an unprepared and logistically outmatched Russian military, the Kremlin turned to the Wagner Group to make up the deficit. Wagner was uniquely positioned among Russian PMCs to be selected for increased usage in Ukraine for four reasons, grouped under past actions, relational benefits, and costs.

First, since its initial use in Ukraine and then Syria in the mid-2010s, Wagner had come to play an outsized role in Russia's foreign policy in the Middle East and Africa.

Wagner's role in Russian foreign policy starts in large part due to Prigozhin's competence in achieving Russian foreign policy goals,[8] which becomes a cycle of Prigozhin contracting Wagner to either help public (Russian state) or private (his businesses and Putin allies) interests, followed by a reward and, over time, more trust. While Wagner was not the only Russian PMC used to advance strategic interests (Grissom et al. 2022), Prigozhin granted Wagner it's second advantage in the competition among PMCs: his relationship with the Supreme Commander-in-Chief of Russia, Vladimir Putin. Putin places a premium on loyalty and trust[9] and has a history of lending state assistance to those loyal to him (Loffe 2023). Prigozhin's long-running friendship with and intense loyalty to Putin since their stints in St. Petersberg in the 1990s likely inclined Putin to select his friend's firm over competitors.

The third and fourth motivations leading to Wagner's elevation in Ukraine derive from the costs associated with Wagner. Due to Wagner's presence in and around Ukraine prior to and during the invasion, the costs of increasing Wagner's use were lower than other PMCs operating outside of Ukraine. Fourth, with potentially large political costs to bringing the realities of war to domestic audiences, Putin faced lower political costs by using Wagner to avoid military casualties. In order to keep domestic actors and especially the public satisfied, Putin aimed to keep the visibility and costs of the war as low as possible (Sonne and Holder 2024).[10]

As Wagner took on greater roles in Ukraine, it experienced heavy casualties using "human-wave attacks" resembling the trench warfare tactics of World War I (Yanchik 2023). At this point in the war, Wagner had resorted to prisoners, violent criminals, and essentially anyone

8. See, for example, Prigozhin negotiations with Sudan on a Russian Naval base (Mardasov 2022).

9. Born in Leningrad after World War II and growing up in the *dvor* (Directly translated as "urban courtyard", dvor's provided a place for young boys to learn the social hierarchy and norms expected of boys and men (Loffe 2023).) Putin's formative years were spent in a masochistic environment where competition, and loyalty, were key to survival (Loffe 2023). This survival through loyalty mechanism likely became key to Putin's experiences while influencing his contemporary behavior. Putin's assassination of Prigozhin two months to the day from the Wagner coup (Grove, Cullison, and Pancevski 2023), is exemplary of his committment to loyalty over everything.

10. Post-invasion, any part of the war that would reflect negatively on Russia was actively suppressed in Russian state media and through legal channels. See, for example, the outlawing of criticisms of the "special military operation" (HRW 2024), as well as the epigraph of this paper.

to fill its ranks (Triebert 2022). More recent evidence has emerged that up to a fifth of Russian forces in Ukraine are Wagner contractors, with 10,000 ex-servicemen leading as many as 40,000 ex-prisoners presumably recruited from Prigozhin (Axe 2022). This constituted a massive portion of the Russian war machine, giving Wagner greater leverage over Russia. With Putin's dependence on Wagner to provide a masssive amount of assistance, along with his personal and political needs to win the war,[11] Prigozhin now had more leverage over their relationship. The need to appeal to a larger market decreased as the share of funding from Russia increased, further removing economic considerations as reasons to use restraint during conflict.

Wagner's funding was also crucial to its power. Prior to the invasion, Wagner had several alleged sources of funding.[12] The Wagner Group's payments and property,[13] especially as it was building its networks early on, were supplied both Yevgeney Prigozhin who funded the group personally (Kim 2022), and by the Russian state, who provided material and physical support (Brugen 2022), such as Wagner's recruiting and training center being located within a Russian military intelligence complex (Rácz 2020, Par. 19). More evidence shows other states fund the Wagner Group (Whitlock and Jones 2022), while the group also receives payments for services directly from client states like the Central African Republic and Mali (Edwards 2021; Thompson, Doxsee, and Bermudez Jr. 2022; Mackinnon and Gramer 2022).

Following Prigozhin's failed rebellion, Putin aimed to reinforce his dominance over Wagner, revealing that from May 2022 to May 2023, Russia directly funded Wagner with nearly $1 billion from state reserves.[14] Putin emphasized that the state entirely supported Wagner's operations, marking a pivotal shift in the group's financing post-uprising. This assertion served as a stark reminder of the state's financial backing of Wagner and the shift in funding

11. Or to at least *appear* to win the war.

12. Due to the low-transparency of the Russian MOD and Prigozhin's skills with illicit transactions, it is difficult, if not impossible, to prove any direct connections. Our argument of Russian dependence does not rest solely on the financials, but the financial connections lend themselves to the monopsonic argument.

13. Property in this case is defined as the tools Wagner uses to commit violence, such as weapons or vehicles.

14. Reported by Camut (2023), Russia paid 86 billion rubles, which converts to $940,000,000.

flows, especially given the risks of alienating a highly loyal force critical to Putin's military endeavors. With the increased funding of Wagner by Russia removing the group even more from the international market, Wagner would have less incentives than before to use restraint when interacting with civilians.

3.1 Incentives to Violence

To understand what the implications are of Wagner's status as a "semi-state" (Marten 2019b) actor, we explore one of many externalities that both come from the internal conditions of Russian power dynamics with the group and the external role of Wagner in Russian foreign policy. Applying the framework of Penel and Petersohn (2022), we argue that Wagner group political violence is more severe than the forces of the client states where they operate.

Penel and Petersohn (2022) suggest that the variation in why commerical military actors (CMAs)[15] commit human rights violations stems from the cost of the norm violation. Consequently, they predict CMAs who meet the following criteria, among others, are more likely to violate human rights norms. Penel and Petersohn (2022) argue that states more generally compliant with international norms, such as those who would sign the legal framework on human rights and PMCs known as the Montreaux Document which Russia is not a party to, are less likely to commit human rights violations. They further argue that PMCs with a headquarters in a country with low respect for human rights are more likely to commit violations. Finally, Penel and Petersohn (2022) point out that greater domestic costs of human rights violations should decrease the prevalance of these actions from CMAs. For these reasons, the Wagner Group is more likely have a low respect for human rights.

While these domestic reasons suggest Wagner contractors will be less respectful of human rights, international market considerations should also play a role. Wagner's presence on the international market would imply the need for considerations paid to international human rights norms. While PMCs are typically discussed as having incentives to violence based

15. Penel and Petersohn (2022) use the phrase commercial military actors (CMAs), which groups like Wagner who sell violence capabilities, fall under.

on their corporate structure (Akcinaroglu and Radziszewski 2020; Tkach 2020) or competition (Akcinaroglu and Radziszewski 2013; Petersohn 2017; Tkach 2019), these rest on the assumption of PMCs as "market-driven entities" (Akcinaroglu and Radziszewski 2013, 799). The Wagner Group, in its increasingly monopsonic relationship with the Russian state, relied much less on market funding than funding directly from Russia, removing potential market incentives from the calculations. If, post-Prigozhin's mutiny, Russian patronage of Wagner declines, it may reintroduce market incentives and international human rights considerations. Yet, with the Penel and Petersohn (2022) framework, there will still be incentives to violence as long as Wagner is headquartered in a country with a low respect for human rights that imposes no real costs for human rights violations.

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

4 Research Design

The Wagner Group entered the Central African Republic on the tail of France's removal of security forces in 2017. Filling the void, the new Central African Republic leadership under President Faustin-Archange Touadéra established a relationship with the Wagner Group that has expanded over time. From similar connections between states in the Sahel region, we know that Wagner represents both a security arm of the Russian state and a CMA group motivated by natural resource allocation in the Central African Republic. The relationship offers the Central African Republic government security, training, and offensive capabilities that were otherwise lacking with the country's traditional forces (Serwat et al. 2022). The Wagner Group immediately established a visible presence despite a perceived air of discrete operations. It is now common to see Wagner troops wearing combat fatigues while riding in

unmarked military vehicles (Petesch and Imray 2022).

The conditions of the Central African Republic are not unlike other African countries the Wagner Group has been involved with since its introduction to the continent in 2017. Like many in the Sahel, the Central African Republic is a weak government following many years of internal turmoil between state forces and domestic opposition. The Central African Republic's government has contracted the Wagner Group to quell inner disputes between opposition groups, and provide security for leadership (*Russia and Wagner's growing influence in the Central African Republic* 2023).

A statue in Bangui now provides a window into the strong ties between Russia, the Wagner Group, and the Central African Republic government. The sculpture depicts Wagner Group fighters protecting a woman and child from an attack (*Russia and Wagner's growing influence in the Central African Republic* 2023). The statue represents the perceived wholesome relationship between the Wagner Group, the Russian Federation, and the people of the Central African Republic. To date, Russian aircraft regularly land in airports throughout the Central African Republic, moving military hardware into the country and natural resources, such as gold and diamonds out (Smith, Goldstein, and Minelli 2023).

What is understudied until now are the implications of such a tight relationship between the Central African Republic government and the Wagner Group. There are low amounts of accountability for Wagner troops and high amounts of violence directed toward civilians with no accountability. The lack of culpability leaves civilians, particularly from areas in Central African Republic that have been labeled terrorists, vulnerable to violence. To date, the Wagner Group, and by extension, Russia, have made off with billion of dollars in natural resources while simultaneously subjecting the Central African Republic civilian population to incoherent violence (UK Parliament Foreign Affairs Committe 2023). The relationship between the Wagner Group and violence against the Central African Republic's civilian population requires further analysis, which we provide to establish representative results for similar countries in the Sahel.

To test our hypothesis that Wagner group contractors are more prone to lethal violence than the client state forces, we zoom in to Central Africa. By examining Wagner's violence within the Central African Republic, we propose a test of our hypothesis. We choose to examine Wagner's operations within the Central African Republic for several reasons. First, as explained in the theory section, Wagner is the first PMC with such power in its relationship vis-a-vis the host state. Within Russia, there are other PMCs that may operate with the discretion of the Kremlin, such as Shield, Patriot, and Redut, each of whom has close ties to the state (Altynbayev 2020; Sukhankin 2019a; Meduza 2022; Ziener and King 2022). Even periphery Russian actors have suggested they intend to join the PMC arms race; Chechnya's leader Ramzan Kadyrov, a close ally of Putin, recently 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, there is a long history of PMCs being 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, with it being an active war zone where Wagner contractors often dress similarly to official Russian military personnel (Mohieddeen 2022) and are thus likely misreported. Indeed, any PMC operating this way is likely to be misunderstood as military troops for the state. Importantly, the Central African Republic case lets us deal with potential data integrity issues. This is because Wagner, an organization based in Russia and with a long history of adoration of white supremacist ideology and imagery, is almost guaranteed to be full of white Russians in military gear.[16]

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

4.1 Outcomes of Interest

To measure whether Wagner's violence leads to more lethal outcomes than if state forces were involved, we zoom in on violence in the Central African Republic using the Armed Conflict Locations and Events Database (ACLED) (Raleigh et al. 2010). More specifically, we measure the *lethality of violence* in two measures of the dependent variable. 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 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 political violence, and especially more severe political violence. As we explained earlier in the theory section, Wagner contractors have less to lose and more to gain when committing violence than state forces. The state is expected to engage in strategic violence against civilians and may still avoid killing when possible, whereas Wagner faces little threat from state prosecution for violence.

Take, for example, two incidents of violence against civilians, one perpetrated by state forces and one perpetrated by Wagner contractors.[17] 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 outcome 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

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

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.

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,[18] as it encompasses the total range of times the "treatment" of Wagner contractors could have been assigned. For a more detailed description of how we coded our variables, see Appendix A.

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, who intentionally have formal legal structures and operate distinctly from state forces, can be difficult to identify by local populations (Kunkel 2023), and even those who report to ACLED. The racial heterogeneity between Wagner contractors and FACA forces, primarily white and black, respectively, combined with the fact that Wagner contractors speak in Russian means that we are highly confident that the

18. Dec. 10, 2022 at the time of writing.

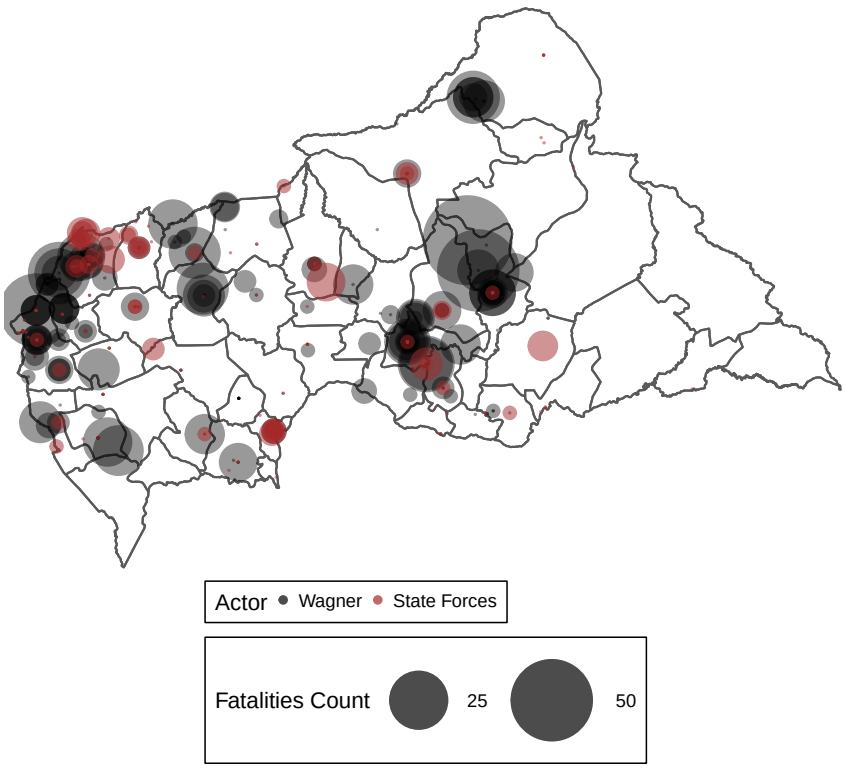

Figure 1: Wagner Group and State Violence in the Central African Republic since 2021.

violence is coded accurately by ACLED. 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 a zero represents only FACA forces during a violent event, and a 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.[19] To see where the violence is located by actor in the Central African Republic, see Figure 1.

19. This is based on the assumption that more deaths means less witnesses.

4.3 Controls

Although our analyzes do use an instrument, we use various controls that may ultimately affect treatment assignment and the outcome of violence severity. We measure the lag sum of fatalities in the past month before a violent event, as that likely affects where Wagner and state forces are deployed. We expect Wagner to be deployed to places the state may expect to be more severe, as the state will face less domestic costs with Wagner contractors committing lethal violence than 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 (Obaji Jr. 2021; 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 political violence to maintain control. Thus, we further control for the Central African Republic's most prominent natural resources, diamonds and gold, coded as *Diamond* and *Gold*, respectively. These data come from the PRIO database, which records the location of diamond and gold mines around the world (Tollefsen, Strand, and Buhaug 2012).

Although we control for as many variables as possible, we also acknowledge that we cannot model every variable that could bias the analysis. For example, there is emerging evidence that the Wagner Group has been granted access to previously untouched rainforests under a subsidiary company where they will likely export lumber (Joyner 2023; Komminoth 2022). Not only would Wagner be more likely to be more severe in their violence here, in order to protect their investment, but we also expect Wagner group contracts to change their violence levels when they are co-located with United Nations peacekeepers (*MINUSCA Fact Sheet*). With more than 17,000 UN personnel present, 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 who study the Wagner Group.

4.4 The War in Ukraine as an Instrument

Although we control for as many variables that may plausibly act as confounders, there is a substantial potential for endogeneity with our causal model. Central African Republic incumbent leaders have a strong incentive to send Wagner contractors where they expect more severe violence. Why is this the case? 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 notwithstanding, 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 Russian benefits of Wagner contractors, such as gold and diamond extraction, Wagner will likely continue to send contractors regardless of casualties. Wagner and Russia benefit highly from the resource extraction from the Central African Republic; elites within the regime such as Prigozhin and Utkin 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, we propose the use of the war in Ukraine as an

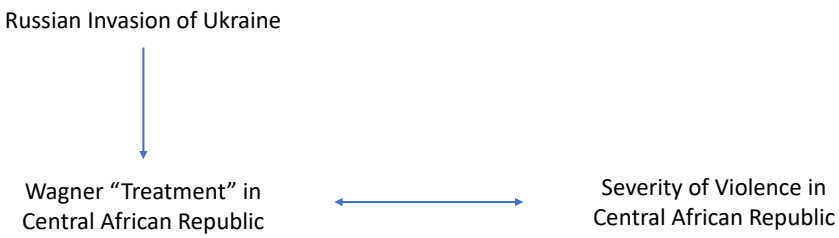

Figure 2: Causal logic of the independent, dependent, and instrumental variables.

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 our justification for how it meets the exclusion restriction and only affects the lethality of violence in the Central African Republic directly through Wagner contractors, and then we describe how we coded our instrument.

After the Russian annexation of Crimea in 2014, Russia has consistently maintained approximately 80,000 troops on its border with Ukraine (Shepeleva 2018; Bickerton 2018; *Responding to Russia's New Military Buildup Near Ukraine* 2021). However, in late 2021, Russia's forces began shifting, and the number of troops on the border ballooned to approximately 100,000 troops. Russia continuously increased the number of troops on the border until it had roughly 200,000 personnel near the Ukrainian border by February 24, 2022, when it finally decided to invade the country (CRS 2022). We thus argue that Russia's decision to finally begin increasing troop numbers in November 2021 is when it would have started to pull its 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 initially; afterward, substantial casualties in Ukraine meant that to keep the war going and to keep extracting diamonds and gold from the Central African Republic, Russia started to send low-quality contractors to the Central African Republic. Thus, we theorize that Russia's high-skilled contractors initially

in the Central African Republic would yield *lower* lethality of violence than after Wagner's high-skilled troops are repurposed to Ukraine. 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 will affect only the means, not the goals, of the Wagner Group.

Why would the quality of Wagner Group members change the lethality of their violence? Importantly, we compare Wagner's violence before and after the troop quality changes rather than comparing Wagner here with state forces. Before Ukraine, Wagner's forces were selective in how they recruited. Wagner operators were advertised as former Russian military, special forces, and even intelligence services. At a baseline level, then, we assume that these Wagner contractors were given some formal training in the laws of war, 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 in nonlethal warfare, which they can then use in dangerous situations to get what they want without necessarily killing civilians.

Putin, however, has a much higher interest in retaking Ukraine than he does in projecting power in the Central African Republic. Because of this, we expect Putin and Prigozhin to have repurposed high-skilled Wagner contractors to Ukraine instead of the Central African Republic. Putin's top priority of taking control of Ukraine and rebuilding the USSR has been evident. For example, Putin has described the fall of the Soviet Union as "the greatest geopolitical catastrophe of the century" (*Putin* 2005). Moreover, the 2014 annexation of Crimea combined with the recent invasion of Ukraine shows just how far Putin is willing to go to rebuild the USSR, starting with Ukraine. 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). This, combined with the fact that Ukrainian intelligence identified several mobile phones most recently seen in the Central African Republic, instead pinging near President Zelensky's residence and key infrastructure

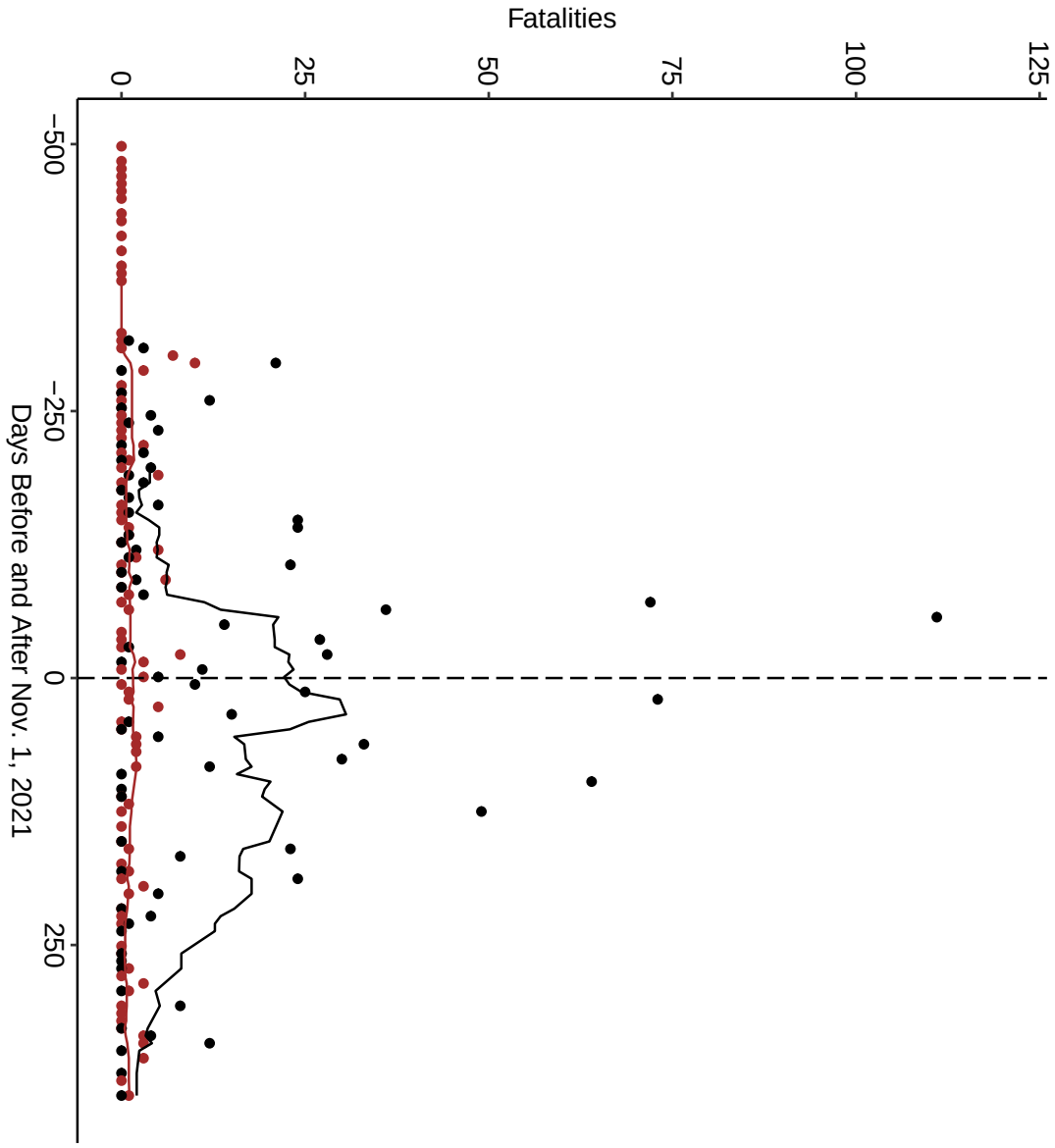

Figure 3: In early Nov. 2021, Russia began massive mobilization to the Ukrainian border, which marks the start date of our instrument.

throughout Kyiv (Owen 2022), increases our certainty that repurposing occurred for the invasion.

Unfortunately for Putin and his allies, Russia has suffered devastating losses after the initial invasion of Ukraine. Russian casualties have been so high, in fact, that the state recently reinstated a national draft to mobilize 300,000 new recruits for the front lines (MacFarquhar 2022). As Wagner contractors in the early stages of the war were given ambitious tasks, such as infiltrating Ukraine and assassinating the Ukrainian president Volodymyr Zelensky (Ma 2022; Rana 2022), the group also suffered massive casualties during the conflict (Triebert and Khavin 2023; Hopkins and Heitmann 2023). Although official estimates vary, British intelligence and other sources have confirmed heavy casualties among Wagner's forces (*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 contractors before Ukraine were well established to have 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. We discovered our first piece of evidence by digging into Wagner's recruiting efforts after the initial invasion. The strongest 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,[20] wagner2022 established a method of recruiting for Wagner, which allowed anyone over the age of 25 that is not a citizen of a NATO/EU state to participate. This admission from Wagner is clear that, as the war has dragged on, Wagner has lowered its standards for recruits.

Our smoking-gun evidence, however, comes from the head of Wagner. As stated in

20. The archived page can be found here: https://archive.org

Section 3, Prigozhin's strategy of recruitment shifted to one of recruiting canon fodder from the Russian penal system. We argue that, with a limited number of troops to call and a desire to win greater for Putin in Ukraine, they repurposed their highly skilled contractors away from states like the Central African Republic.

The high-skilled Wagner contractors may have received training on how to avoid lethal violence and training on the various aspects of warfighting. Especially highlighting this point is Wagner's operation in Ukraine of Russia's most advanced T-90 tanks (Axe 2022), an act that would require large amounts of military experience and that could not be learned in a short amount of time. This further shows that Wagner's most experienced fighters have been shifted to Ukraine and away from their prewar deployments. Further highlighting the skill of Wagner's pre-prisoner forces is the Ukrainian military's acknowledgment that Wagner forces are among the most skilled and effective fighters from Russia (Schwirtz 2023).

The final piece of empirical evidence comes from on-the-ground conditions within the Central African Republic. Anecdotal evidence from a journalist on the ground 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 even more 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 discussed earlier, Wagner recruiting standards have shifted dramatically since the beginning of the war in Ukraine and high Russian casualties. These new recruits have had little training and are now being recruited from prisons. Indeed, with the drop in prior military experience as a requirement, Wagner is now recruiting people who have zero professional military experience.

As outlined in the theoretical framework of this piece, we expect Wagner Group contractors to commit more lethal and overall higher amounts of political violence due to the lack of punishment and benefits gained from it. In this case, however, our instrument suggests that Wagner's violence in the Central African Republic should be *higher* after Russia began to

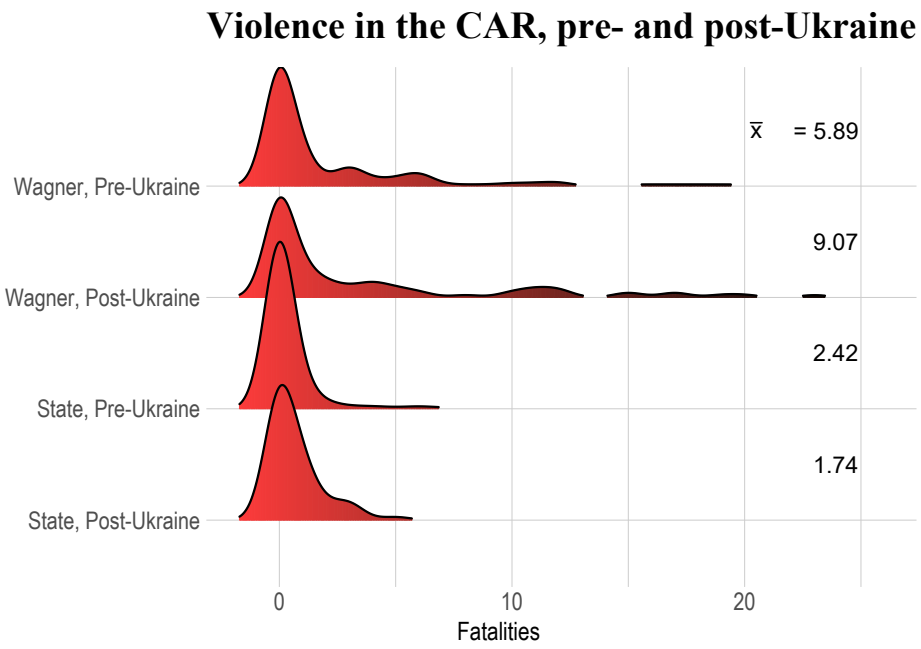

Figure 4: A joyplot of the violence by actor pre- and post-Ukraine invasion.

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 contractors should be higher after the Russian buildup in November 2021. To test our instrument empirically, we provide evidence from Figures 3 and 4. Figure 3 shows the lethality of violence over time, with a rolling two-week average line that follows the state vs. Wagner's violence. Figure 4, on the other hand, compares the distribution of the lethality of violent events for Wagner and state forces before and after November 2021. This plot further verifies 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 increase in mean violence lethality over the same time span.

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 using a dose approach. First, we calculated the days to the start date of when Russia began repurposing troops to the Ukrainian border.[21] For any event before the November shift in troops, the instrument is thus coded as 0 since it did not receive a "dose" of the war. Thus, an event that occurs five days after the shift is coded as 5, and so on. Because the initial days of the war are more relevant for the direct effect of the instrument on the treatment, we log the instrument for any events excluding 0.

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

Beyond the numerous empirical tests we use to verify the War in Ukraine as a valid instrument, we also present the results of statistical robustness checks within the appendix B; to sum our conclusions there, we verify the War as a valid instrument that directly effects the treatment assignment of Wagner contractors.

5 Analysis

All versions of our models validate the hypothesis proposed. Starting with Table 1 and models one and two, there is a clear connection between Wagner's violence and state violence. Using a negative binomial logit regression of the treatment of Wagner on the outcome of 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 evidence is that Wagner's violence results in a much higher likelihood of fatalities than if the group was not involved in a violent event. There is a weak connection, both statistically and substantially, between the lag of fatalities and the outcome of violence. Similarly, the other control variables have no statistical significance in either model.

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 2, 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 the analyses, 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; moreover, when using the instrument in the first stage, it is clear that the naive models *underestimated* the effect of

Table 1

	Death (B)	Fatalities (C)
	(1)	(2)
Treatment	2.265***	7.108***
	(0.136)	(0.226)
Fatalities Lag	1.002	1.000
	(0.002)	(0.003)
Gold	1.598	1.247
	(0.319)	(0.553)
Diamonds	0.685*	1.297
	(0.215)	(0.286)
Constant	0.187***	0.428***
	(0.145)	(0.243)
N	532	532
Log Likelihood	−383.852	−846.449
AIC	777.704	1,702.898

*p < .1; **p < .05; ***p < .01
Negative Binomial Logit Models transformed into odds ratios.

Wagner on the lethality of violence.

In these models, the statistical significance did not change; however, the substantive significance increased dramatically. We point specifically to models three and four to show the dramatic increase in the count of fatalities during a violent event when Wagner is present. 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 Wagner contractors present compared to FACA violence lead to *nineteen* more civilian deaths.

Compared to the OLS models in Table 1, the instrumented analyses in Table 2 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 presence of a diamond mine, however, has the reverese effect; diamond mines have a statistically significant effect

Table 2: 2SLS models.

	Death (B)		Fatalities (C)	
	(1)	(2)	(3)	(4)
Treatment	1.751***	2.198***	14.326***	19.068***
	(0.401)	(0.616)	(4.491)	(6.877)
Fatalities Lag	0.001**	0.001**	0.006	0.007
	(0.001)	(0.001)	(0.007)	(0.007)
Gold	0.304**	0.300**	1.188	1.144
	(0.125)	(0.126)	(1.399)	(1.402)
Diamonds	−0.079	−0.069	1.475**	1.550**
	(0.063)	(0.063)	(0.701)	(0.701)
Constant	−0.603***	−0.833***	−5.830**	−8.265**
	(0.206)	(0.315)	(2.310)	(3.518)
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

on the count of fatalities, but not on the likelihood of a lethal event.

Finally, to verify the statistical power and robustness of our instrument, please refer to Appendices B and C. We find that our models are robust to potential concerns of a weak instrument and confirm the validity of our findings with a regression discontinuity design.

6 Conclusion

Wagner initially operated as a PMC at the discretion of the Kremlin; Putin's close friend and ally heading the group along with the its success since 2014 pushed the Kremlin to work more with the group. Then, when the invasion of Ukraine faltered and the Russians became stuck in a war they weren't prepared for, Wagner provided the easy solution with relatively low costs. Yet, this increasing reliance on Wagner increased Prigozhin's leverage over the state, to the point where he felt comfortable marching on Moscow, although this

would ultimately 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 business. We apply the framework of Penel and Petersohn (2022) to the Wagner Group to explain the group's propensity for human rights violations. Wagner's headquarters being located in a state with a low-respect for human rights, along with their use by the Central African Republic's government, a state also not known for valuing human rights, means Wagner Group contractors are more willing to commit lethal violence than the states that employ them.

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 likely to kill nineteen more civilians during a violent event than Central African Republic forces. We find little accountability toward the Wagner Group from the CAR, Russia, or the market for force that would typically push state or nonstate actors away from violence against civilians. Recent evidence from 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 political violence. 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.

It is possible that, with the death of long-term financier Yvgeney Prigozhin and other top Wagner commanders such as Dmitry Utkin, Wagner no longer poses the same threat it did before Prigozhin made his most costly decision. 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. However, it is unclear how effective the Africa Corps can be long-term without Prigozhin's negotiations and back-door dealings. If the Africa Corps stalls and new relationships with African states cannot be created, Putin may turn again to a PMC with more connections to achieve Russian interests, albeit with more caution than with Wagner. 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 and potentially the UAE, several actors may be aiming to replicate Wagner ("Plan to compete" 2023; Jaklin 2024; Roston 2018; Werleman 2020), indicating that PMCs with substantial power and state connections may increase in the near future.

New, more powerful PMCs can also contribute to academic work on paramilitaries. Stronger governments employ auxiliary forces such as paramilitaries to carry out state functions. Paramilitaries have official government links using regular and irregular military activities, but have a low level of autonomy from the government (Böhmelt and Clayton 2018, 199). However, paramilitaries primarily meet the needs of the incumbent government and focus on domestic security and are often a preferred choice for stable regimes weighing the reliance between paramilitaries and PGMs. That said, the focus on domestic stability within the client state is not a necessary criterion for Wagner-like PMCs. Client states can employ these groups to meet their domestic security needs, but they differ from paramilitaries due to their high level of autonomy granted by the host and client states.

This research provides a grounded theoretical framework for understanding emerging security groups in the 21st century. The Wagner Group remain a foreign policy concern for the United States, Europe, and any actors interested in protecting the human rights of the most vulnerable populations. As our research shows, the Wagner Group increases violence

against civilians, especially in the Central African Republic. We hope to lay the foundation for further research and provide the catalyst for new perspectives going forward.

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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).

In defining the observations we use from ACLED, we use all data where Wagner forces could have been observed. In other words, we do not use rebel violence against civilians in our observations as a control outcome, as Wagner exclusively works with the state and thus the event could not have been "treated" by Wagner's presence.

B 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, we note that the F Statistic of the first stage of our 2SLS models for the continuous instrument is not above the commonly accepted threshold of 10 (Stock, Wright, and Yogo 2002), and we further report the results in Table 3.

While we have substantial theoretical and empirical evidence in the section of our article discussing the instrument, we test an alternative specification of the instrument. In Appendix C, we report the use of our Nov. 1 2021 cutoff as a regression discontinuity design. Our models are robust to that specification as well, and as shown in that section, the models also fulfil all necessary assumptions and tests of the cutoff date.

Table 3

	Treatment	
	Model 1	**Model 2**
Binary Instrument	0.112**	
	(0.048)	
Continuous Instrument		0.016
		(0.010)
Constant	0.469***	0.480***
	(0.025)	(0.025)
N	532	532
R-squared	0.010	0.004
Adj. R-squared	0.008	0.003
Residual Std. Error (df = 530)	0.498	0.500
F Statistic (df = 1; 530)	5.427**	2.361

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

C 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.[22]

Table 4

	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 4 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

22. Nov. 1, 2021.

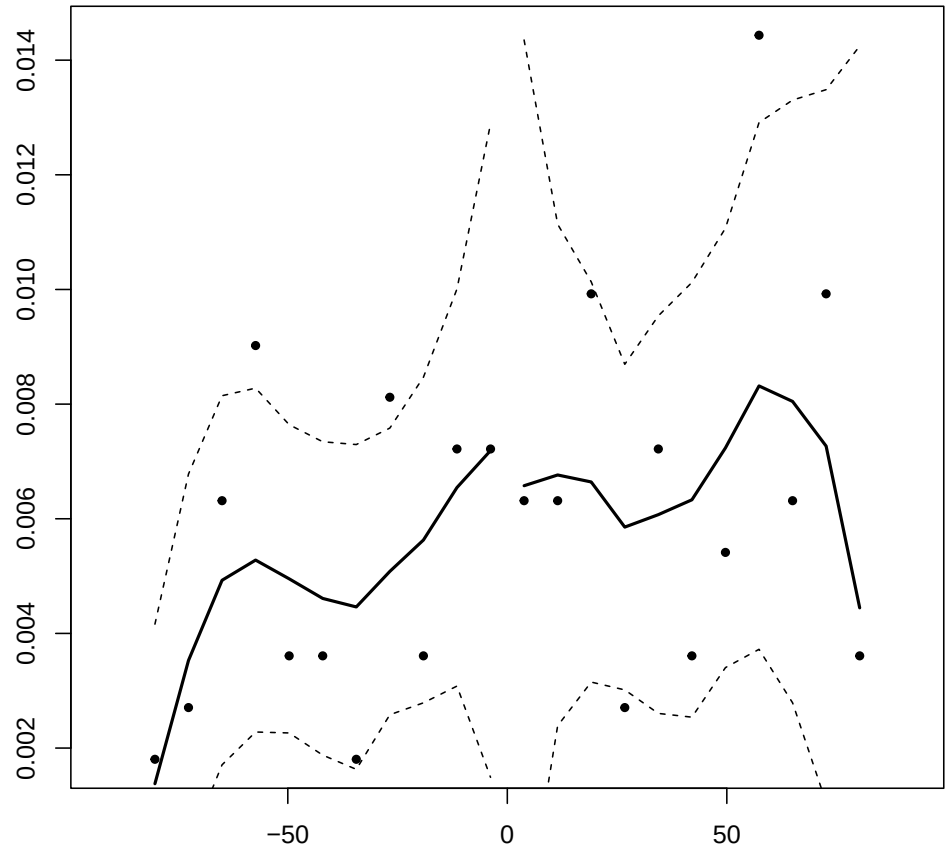

Figure 5: Density test of the "no unobserved sorting" RDD assumption.

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 5 shows the results of the density test, an important assumption for RDDs. Because Figure 5 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 6 and 7 show other important results of our analyses. Figure 6 is two plots of the weights in relation to where they fall on the running score (hence giving higher weights in the regression to those closer to the cutoff). Figure 7 is two more plots that show the effect of treatment based on the cutoff.

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

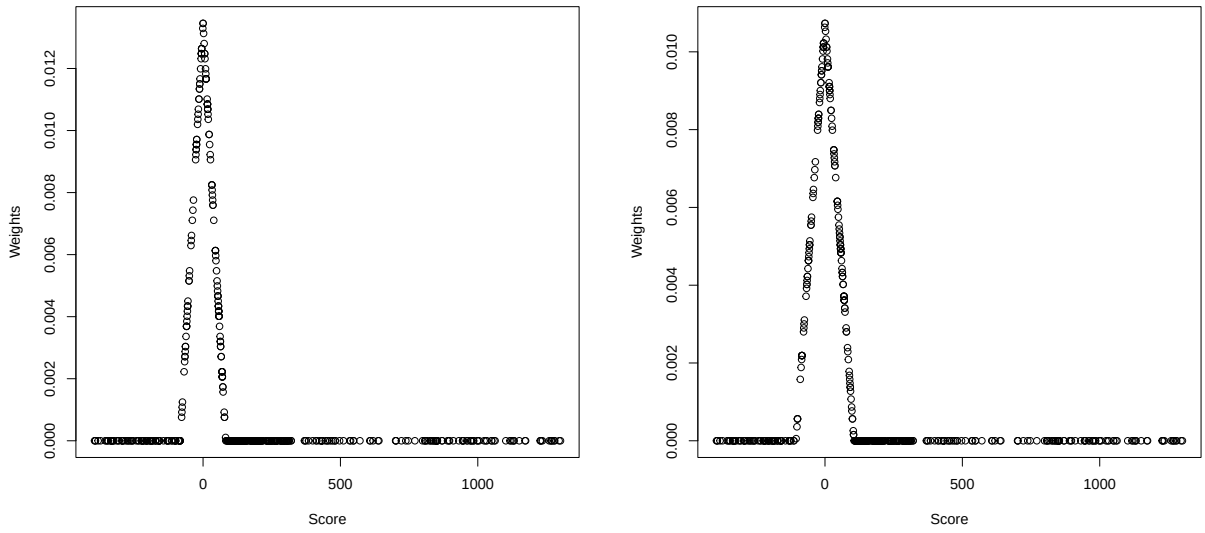

Figure 6: Distribution of weights per outcome.

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

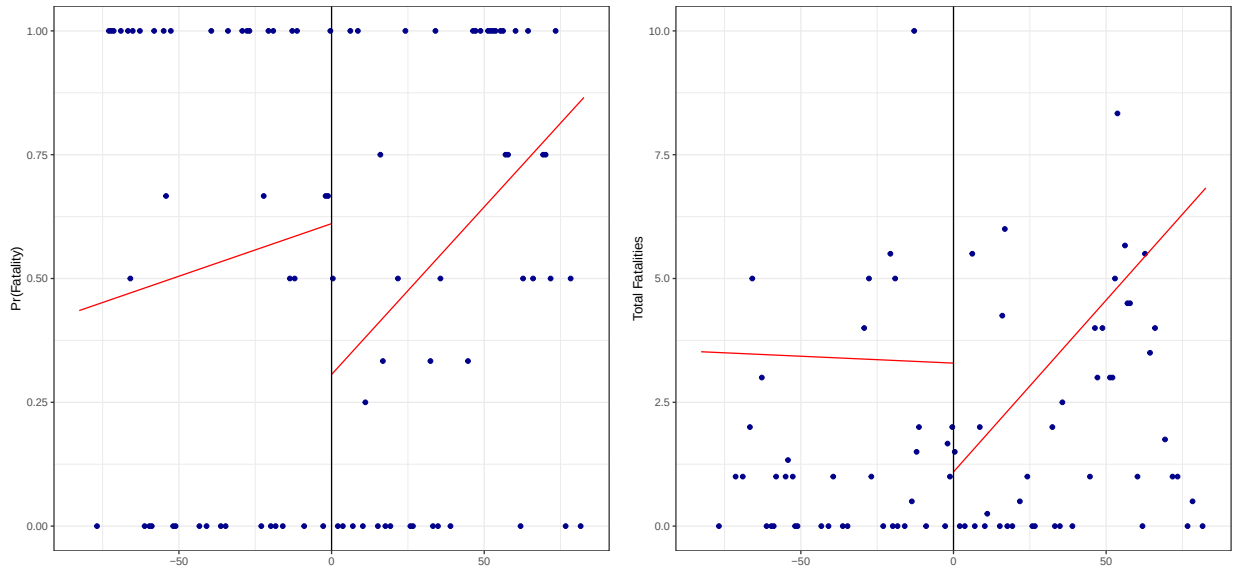

Figure 7: Regression discontinuity plot of each outcome.