The Economics of Civilian Victimization: Evidence from World War II Italy

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Abstract

To what extent does variation in the cost of misbehavior - namely soldiers' accountability - impact the frequency and severity of civilian victimization in armed conflicts? To answer this question, we study civilian killings by Axis soldiers during the Italian Campaign in World War II (July 1943 - May 1945). The German command attempted to contain indiscriminate violence against civilians for strategic reasons, but plausibly exogenous variation in the movement of front lines negatively shocked its enforcement capacity, thus reducing soldiers' accountability. In a stacked difference-in-differences estimation, we compare Axis troops' behavior in treated municipalities that fell into the combat zone at frontline activation, with that of troops in comparison municipalities that remained either inside or outside the combat zone. We find that the activation of a new frontline increased indiscriminate violence, such as collective killings, murders unrelated to partisan attacks and against vulnerable population, by 10 folds. The effect is concentrated in municipalities located away from divisions' headquarters (where the German command's enforcement capacity was, at baseline, weaker) and where bombing and partisan presence were less intense (where Axis troops were safer), which provides further evidence in favor of an accountability mechanism. Crucially for policy, soldiers from less experienced units were more likely to change their behavior in response to a drop in accountability.

Keywords: civilian killings, violence, WWII, Italy

JEL Classification: D74, D74, D90, N44

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1 Introduction

Targeted violence against civilians is one of the most horrific consequences of armed conflicts. Although condemned by international conventions and treaties (Stanton, 2016), it has historically been used extensively by armed actors across the globe and is still widespread to this day.[1] Since civilian victimization has long-lasting detrimental effects on economic and political outcomes (Cassar et al., 2013; Alacevich and Zejcirovic, 2020; Tur-Prats and Caicedo, 2020), a large body of research has investigated its determinants, mostly focusing on its economic returns. These works have shown that in war contexts killing civilians could be instrumental in expropriating resources (Esteban et al., 2015), securing supply lines (Costalli et al., 2020), displacing civilians from war zones (Guarnieri and Tur-Prats, 2022), and erasing ethnic minorities in genocides (Heldring, 2021). A few papers have also documented that civilian victimization has a cost for the armies as it may prevent future collaboration with the local population and increase the risk of insurgency (see Kalyvas, 2006 for a discussion). However, despite being crucial in crime, organizational and behavioral economics (Becker, 1968; Dewatripont et al., 1999; Abeler et al., 2019), the role of soldiers' accountability in explaining the use of violence against civilians has received little attention in the literature. Empirical research has been held back by lack of exogenous variation in soldiers' accountability within the same war setting, and systematic data on civilian killings and the identity of the perpetrators.

This paper studies the causal effect of accountability on civilian victimization, using evidence from killing episodes perpetrated by Axis soldiers during the Italian Campaign - a term referring to the Allied operations against Nazi Germany in Italy between July 1943 and May 1945. This setting mimics a standard principal-agent problem, featuring a misalignment in incentives between the principal (army command), and the agents (the soldiers) (Kalyvas, 2006). The principal is generally in favor of *selective* strategic violence, that targets specific civilians and is proportionate to context-specific war objectives. However, he is against *indiscriminate* civilian victimization, that goes beyond the strategic goals of the armies and has a disproportionate, random component that may alienate the local population, fuel insurgency and broadly jeopardize military occupation in the medium and long-term. Conversely, soldiers may gain from an indiscriminate use of violence, as it is cheaper to administer and more effective in increasing their security in the short-term. The principal enforces restraint by punishing soldiers who don't follow his directives. Yet, he has a limited enforcement capacity, due to lack of complete knowledge of the events on the ground, and the cost of punishing his own soldiers.

[1] In Ukraine alone, around 6,000 civilians were killed in 2022, a large share of which was deliberately targeted by Russian soldiers. See, for instance, https://www.ohchr.org/en/news/2022/09/ukraine-civilian-casualty-update-26-september-2022 and https://www.theguardian.com/world/2022/sep/23/russia-has-committed-war-crimes-in-ukraine-say-un-investigators, accessed on September 27, 2022.

This conceptual framework fits well the Italian Campaign. In fact, although the German Command approved the use of selective violence, it generally pushed soldiers to exert a certain restraint towards civilians (Kesselring, 1954; Klinkhammer, 2006; Gentile, 2015).[2] However, his enforcement capacity was affected by war-related events and chaos. Between the Allied landing in Sicily in July 1943 and the surrender of German army in May 1945, the Allied and Axis armies confronted over front lines gradually shifting from the South to the North of the country, following the Allied advance. The "activation" of a new front line, defined as the day when fighting started on a new defensive line, substantially decreased the German Command's enforcement capacity relative to the previous day. In the newly-formed "combat" zone, which extended for about 40 km behind the front line, tracing soldiers responsibilities became more difficult as troops were shuffled around in response to Allied offensives (Ronchetti and Ferrara, 2014; Klinkhammer, 2006). Moreover, the opportunity cost of punishing soldiers increased because all resources were needed to stabilize the new line. As a consequence, soldiers' accountability dropped relative to the previous day (Collotti, 1963b; Kurowski, 2003; Gentile, 2012). Conversely, returns to killing civilians arguably did not change at front activation relative to the previous day, when the defensive line was already established, but the fighting had not yet started (Gentile, 2015).

To identify the causal effect of soldiers' accountability on civilian victimization, we exploit the fact that the exact location of the front lines, as well as the precise timing of their activation, depended on the geography of the terrain and on the outcomes of Germans and Allies fighting at the previous front, which were hard to predict even for the German Command. We estimate a stacked difference-in-differences model that compares Axis troops' behavior in municipalities that fell into the combat zone upon the activation of a new front line but were outside it before (*treated* municipalities), with that of troops in municipalities that either remained outside or were already inside the combat zone (*comparison* municipalities). We show that treated and comparison municipalities were on statistically indistinguishable trends in civilian killings during the five days before front activation and were balanced in terms of civilian killings, bombing and partisan activity between 5 and 20 days previous.

We use newly assembled panel data on the universe of civilian killings perpetrated by Axis soldiers during the Italian Campaign, that we match with the location and movements of the front lines. For roughly 5,300 episodes that involved around 25,000 civilians, we have detailed information on the number of people killed, their gender and age, the killing mode, whether they were civilians or partisans, as well

[2]This general war conduct did not prevent the German Command, led by Field Marshal Kesselring, from explicitly (e.g. Fosse Ardeatine) or implicitly (e.g. Sant'Anna di Stazzema, Marzabotto) endorsing exemplar, large mass-killings, seen as a necessary evil given the tactical situation and the counterinsurgency needs at specific points in the war. These episodes, however, were a tiny share of the total occurred during the Italian Campaign. In fact, "only" 18 out of 5,300 episodes involved more than 100 civilian victims, while 47 percent of them involved a single person.

as the identity of the perpetrators. We also digitize the military maps produced by the German Command that allow us to geolocate the position and to trace the identity of German divisions across the peninsula for the entire duration of the conflict. We complement this information with data on the Allied bombings, the location and activities of partisan bands, and the 1936 Population Census. The richness of our data allows us to distinguish between episodes of indiscriminate and selective violence committed by Axis soldiers, that we proxy with collective killings that involved more than one victim and single killings respectively, following a definition widely adopted in war studies.[3]

We present three key results. First, we find that the activation of a new front line sharply increased indiscriminate violence. The likelihood of observing collective killings increased by 10 folds upon front activation in treated municipalities relative to comparison ones. This translates into an increase from a sample's average probability of about 0.1% to 1% on the day of front activation. This effect is driven by small-scale collective killings, involving between two and ten victims, rather than by large-scale mass-killings with more than 100 people involved, that required some level of knowledge or even endorsement from the German Command. Similarly, the probability of collective killings not related to partisan activity against the German Army and that involved vulnerable population (at least a woman, child or the elderly person) also increased by about the same magnitude, a result that further corroborates the indiscriminate nature of the observed violence jump in the combat zone. Second, and by contrast, selective violence was not affected by front activation. The probability of observing single killings, in fact, did not change at frontline activation. Third, the differential increase in collective killings between treated and comparison municipalities persisted up to three days after the front activation, with the impact fading away from day four. We interpret these results as consistent with the fact that indiscriminate violence increases when the enforcement capacity of the principal drops, and then shrinks when order is restored as the military situation stabilized. Such findings are robust to a variety of modifications of the baseline specification and sample. Even controlling for the concentration of German troops near treated and comparison municipalities, using alternative definitions of the combat zone, or repeating our analysis using a standard panel difference-in-differences specification leads to the same results.

We next investigate the mechanisms underlying our results, starting by ruling out explanations alternative to a drop in accountability being the driving factor. First, we focus on the sorting of German divisions at the front. All German units were cyclically employed in the combat zone. Adding to the baseline

[3]This definition follows closely Kalyvas (2006), who argues that the difference between selective and indiscriminate violence depends on the willingness of perpetrators to ascertain individual responsibilities while pursuing strategic goals through victimization, and apply violence proportionately. However, since the intentions of the perpetrators cannot be observed, the difference between selective and indiscriminate violence maps onto to the distinction between single and collective killings (p.142), a definition that we will adopt in the rest of the paper.

specification frontline-division specific trends leaves our estimates substantially unchanged. This result suggests that the selection of particularly "bad" people at the front is not the driving force behind the results. We then test between an "increased insecurity" and "reduced accountability" mechanism directly, through an exposure design. We do not find evidence of stronger effects in municipalities where soldiers' baseline insecurity was higher, as proxied by exposure to Allied bombing and the presence of partisan bands. By contrast, we find that the impact of front activation is concentrated in municipalities away from division headquarters, where baseline accountability was lower. These findings are consistent with a story of soldiers misbehaving when accountability relaxes (i.e. the cost of misbehavior drops), rather than applying indiscriminate violence more frequently in response to an increase in insecurity (i.e. the returns to misbehavior go up).

Finally, we examine different dimensions of heterogeneity. Looking at the underlying characteristics of German divisions, we find that collective killings were concentrated near units that were relatively poorly trained and inexperienced, suggesting that a limited combat experience triggered more violent reactions when accountability dropped. In terms of pre-war economic characteristics, we document stronger effects in more urbanized and industrialized municipalities, which indicates that indiscriminate violence could erupt more easily in strategic areas where German units were actively engaged in resource expropriation and looting (Klinkhammer, 2016). Troops and location characteristics, however, emerge as necessary but insufficient conditions to explain patterns of indiscriminate violence in our setting, as the effects only emerge when behavioral incentives are shocked by the movement of the front. Conversely, heterogeneity along front characteristics or war macro trends, such as the perceived front security or periods of the war, appears limited. This finding shows how soldiers reacted in a similarly violent fashion to a drop in accountability, irrespective of the broader strategic situation.

Our paper contributes to several strands of the literature. First, it contributes to the literature studying the drivers of violence against civilians in armed conflicts. Previous works have focused on the macro determinants of violence against civilians and on the returns to victimization, by examining the strategic and economic incentives to loot of armed groups across countries and military or paramilitary units (Azam, 2006; Kalyvas, 2006; Blattman and Miguel, 2010; Esteban et al., 2015; Guarnieri and Tur-Prats, 2022). Our paper also related to the studies on the intensity of genocides and mass killings (Browning, 1993; Midlarsky, 2005; Becker et al., 2022), that emphasize the role of economic relationships across ethnic groups (Grosfeld et al., 2020) and state capacity (Heldring, 2021) as powerful predictors of the severity of civilian victimization. At the more micro-level, scholars have shown that patterns of violence across combat groups within the same conflict are correlated with soldiers' response to new information (Iyen-

gar and Monten, 2022), the organizational characteristics of the fighting units (Humphreys and Weinstein, 2006; Weinstein, 2007), the role of political and ethnic cleavages (Balcells, 2010; Horowitz and Ye, 2013), and attempts to limit insurgencies and undercut guerilla fighters civilian basis (Valentino et al., 2004). Our work complements these findings by proposing the soldiers' accountability as a key and often neglected driver of civilian violence in war settings, through a natural experiment that provides variation within the same context. While based in a different setting, our work echoes studies on terrorism and civil wars in developing countries that suggest lack of leadership and discipline as a key predictor of indiscriminate violence (Leiby, 2009; Abrahms and Potter, 2015; Oppenheim and Weintraub, 2017).

Second, our paper relates to studies on behavioral responses to changes in economic incentives. Many scholars have examined the determinants of "good" behavior. In war contexts, public recognition and awards can increase risk-taking and gallantry actions (Ager et al., 2021, Campante et al., 2022), while promoting social capital is of paramount importance for soldiers' loyalty (Costa and Kahn, 2003). Social pressure matters also in non-war settings, by affecting a range of behaviours, from charitable donations (DellaVigna et al., 2012), to campaign contributions (Perez-Truglia and Cruces, 2017), to voting decisions (DellaVigna et al., 2017). Compared to these studies, we focus on soldiers' *misbehavior*, documenting that armed groups may commit more horrific actions as accountability drops. To the best of our knowledge, this is one of the first papers to test such mechanism in a non-experimental setting, as most of the existing evidence relies on a theoretical or lab-experiment approach (Abeler et al., 2019). More broadly, our findings also relate to the long-standing debate in the social sciences that discusses to what extent lack of misbehavior against fellow humans stems from legally binding constraints created by a social contract, rather than from individual preferences, such as ethics (Hobbes, 1651; Rousseau, 1755; Becker, 1968; Olson, 2000).

Third, we contribute to the economic history and historical literature that analyses the effects of German military occupation in Italy. Cannella et al. (2022) show that municipalities in the German military zone of operations exhibited greater support for radical opposition, as well as lower political participation after the war, while Fontana et al. (2022) find that in areas where the German occupation was both longer and harsher the Communist Party gained votes until the late 1980s. In a paper closely related to ours, Costalli et al. (2020) suggest that civilian victimization in WWII Italy was related to vulnerability of German armies during retreat after the break of the Gothic and the Gustav Lines. By contrast, our paper focuses on the role of soldiers' accountability in determining their misbehavior, when Axis troops were actively fighting on front lines rather than retreating. In doing so, our results also shed new light on Nazi violence in Italy. While the historical literature has proven that German Command ordered or at

least were aware of the most famous mass massacres (Collotti, 1963b; Klinkhammer, 2006; Gentile, 2015; Von Lingen, 2009), we argue that the individual responsibility of the soldiers also mattered for small-scale episodes of indiscriminate violence.

The rest of this paper is organized as follows. Section 2 provides historical detail on our setting and sets the stage for the empirical analysis. Section 3 introduces our original dataset. Section 4 describes the main estimating equation and the identification strategy. Sections 5 and 6 present the main results and the analysis of the mechanisms, respectively. Section 7 studies heterogeneity. Section 8 concludes.

2 Historical Background

2.1 World War II in Italy

World War II began in Europe on September 1, 1939, when Nazi Germany invaded Poland. Great Britain and France responded by declaring war on Germany two days later. Despite being an Axis power, Italy remained neutral until June 10, 1940, when it joined the conflict on the German side and declared war on France and Great Britain. During the first two years of war, Italy faced a series of military defeats, especially on the East and the African fronts, that depressed population morale and weakened the Fascist regime. The situation escalated when on July 10, 1943 a combined US and British force landed close to Siracusa in Sicily in the so-called Husky Operation. On July 25, 1943, after six days of intense Allied bombing on Rome, Italian dictator Benito Mussolini was forced to resign and imprisoned. The newly-formed Italian government, led by General Pietro Badoglio, officially declared that the war would continue alongside Germany, whose troops took control of most peninsula and disarmed Italian soldiers. However, Badoglio began secret negotiations with the Allies, that led to the signature of the Armistice of Cassibile on September 3. The Armistice, made public on September 8, opened a new active war front on the Italian soil between the German and Allied armies until May 2, 1945, known as Italian Campaign.

The Armistice also determined the breakout of a Civil War. On one side, the Italian Fascists remained pro-German and created the *Repubblica Sociale Italiana* (Italian Social Republic, RSI) in Saló, with Mussolini installed as leader after he was rescued from imprisonment by German paratroopers. On the opposite side, the anti-Fascist Partisans, under the control of the *Comitato di Liberazione Nazionale* (Committee of National Liberation, CLN), carried out guerrilla attacks against German troops and aided the Allied advance.

2.2 The Italian Campaign

The opening of a new front in Italy created substantial military problems for Nazi Germany, that was already under strong pressure on the Eastern fronts, and increasingly so on the Western front after the Allied landing in Normandy in June 1944. Since Hitler did not believe that defending the peninsula was essential to achieve victory in the war, troops and resources available for the Italian Campaign were very limited (Kesselring, 1954). Therefore, the German Command, and in particular Field-Marshal Albert Kesselring, decided to put in place a so-called "fighting withdrawal" strategy (Ronchetti, 2018). This strategy aimed to slow down the Allied advance as much as possible by fighting along pre-set defense lines, sequentially built based on a strict schedule. German troops were ordered to "contend in the bitterest way every inch of land" (Ronchetti and Ferrara, 2014) on a given defense line and to withdraw only when the next line was ready, destroying everything that could further delay the Allies. Such tactics not only caused a large number of fatalities to the enemies, but also bought time for German troops not at the front to build a powerful defense line along the Apennine Mountains, the Gothic Line.[4]

An important part of the "fighting withdrawal" strategy was choosing the location of the defensive line. Given lack of time and resources, German Commanders decided to build such lines in easily defensible sites, exploiting the natural features of the soil, such as mountains, rivers, and caves (Short and Taylor, 2006). Front lines were not uniformly fortified: for instance, more vulnerable parts, such as coasts and mountain passes, were more secured. These areas were protected with kilometers of antitank ditches, concrete bunkers, tank turrets, and minefields. Elsewhere, defense lines were simpler: walkways and trenches of dry-stacked stone camouflaged in the soil and stone parapets. In protected areas with good visibility, positions for artillery were prepared. Moreover, in the ten kilometers preceding the lines, communication and electricity lines were dismantled (Ronchetti, 2018). These defensive lines would become proper front lines when the fighting broke out, as the Allied vanguards reached them. In the rest of the paper, we will refer to these situations as "front line activation". Generally, by the time of activation, German troops had already almost fully fallen back to a new defensive position, with the withdrawal normally starting between fifteen and five days before activation (Short and Taylor, 2006).

Despite the meticulous organization of the defense lines, German commanders often had to deviate from their original plans on the ground. For instance, it was not uncommon that the withdrawal was anticipated or delayed relative to what initially established based on the outcomes of the confrontation of German and Allied armies. Moreover, as ordered withdrawals were sometimes difficult under pressure,

[4]The Gothic Line was the last major German defense line in Italy and spanned for 300km along the summits of the northern part of the Apennine Mountains from the province of Massa Carrara on the Tyrrhenian Sea to Pesaro-Urbino on the Adriatic side.

commanders were often forced to make a stand in positions different from the previously planned ones (Kesselring, 1954, Kurowski, 2003). Overall, the "fighting withdrawal" strategy was proven successful. The Allies were only able to reach the Gothic Line on August 25, 1944, more than one year after the landing in Sicily. This final defensive line was eventually broken in April 1945, only a few days before the official end of the war in Italy, on May 2, 1945.

2.3 German Military Occupation in Italy

With the signature of the Armistice of Cassibile, despite Nazi Germany officially recognized the authority of the Italian Social Republic, the country was *de facto* put under the military occupation of the Wehrmacht, the German Armed Forces. Specifically, on September 12, 1943 Kesselring declared Italy as "war territory", therefore subject to the Third Reich war laws (Collotti, 1963b, p.95).

The Italian territory was divided into two areas, whose borders were constantly changing as the front line moved: the occupied territory, that included all the areas not directly exposed to the fighting, and the operation zones, that included the areas directly exposed to the war, either on the front or proximate to it and 30km within the coastlines (Gentile, 2015). The extension of the operation zone, defined by the German Command separately for each front line, covered an area of approximately 250km behind the front (Gentile, 2015). It was further divided into a combat zone of around 40km behind the front, where German troops fought against the Allied forces and where offensives, counteroffensives, shelling and bombing were concentrated; and the rearguard, where the reserve divisions, the logistic services for troop supplies and the medical units were located (Gentile, 2015).

In the occupied territory, the military power was assigned to a Plenipotentiary General, who was responsible for administrative duties and for managing the war economy and the civil manpower to ensure "the most unified exploitation of Italy for the war conduct" (Collotti, 1963b, p.120 and 224). The German uniformed police (Ordnungpolizei, OrPo) was in charge of dealing with partisan attacks and manpower strikes, and maintaining the discipline of German troops (Collotti, 1963b, Gentile, 2015). By contrast, in the operation zones, Kesselring had the supreme power on all military units and civilians, with division commanders in charge of warfare, counterinsurgency operations, regular policing and maintaining German troops' discipline (Gentile, 2012, p.100). Specifically, each commander was responsible for supervising an area with a radius of about 30-kilometer around the division headquarter (Collotti, 1963b, p.100; Gentile, 2012, p.76; Klinkhammer, 2016, p.324).

2.4 Violence against Civilians and Enforcement of German Troops Discipline

During the Italian Campaign the German Army committed atrocities against the Italian population to control the territory or to achieve strategic goals. However, the German Command, led by Field-Marshal Albert Kesselring, was generally opposed to the use of indiscriminate violence against unarmed civilians. Kesselring firmly believed that an excessive civilian victimization would not only "create distrust in the German Army and help the enemies' propaganda" (Gentile, 2012, p.156) but also "have destabilizing effects on the internal structure of German troops" (Gentile, 2012, p.150). Kesselring's preferences are common in war contexts. As discussed by Kalyvas (2006), the excessive use of violence may be sub-optimal from a commander's perspective as it may fuel insurgency and jeopardize military operations.

German troops were allowed or even encouraged to be tough with partisan fighters and saboteurs, but were held into account for the use of excessive violence against regular civilians. Specifically, soldiers surprised in flagrant "unjustified violence against the civil population" could be executed without trial (Gentile, 2012, p.155). Even suspected partisans and collaborators of the resistance had to be formally court-martialed and not executed without a legal, albeit quick, trial. German authorities in Italy were relatively light-touched outside the operations zone (Gentile, 2015, pp.67-8).

The Atlas of the Nazi and Fascist Massacres in Italy, our main source of data, indicates that these formal enforcement mechanisms were in place even in areas relatively close to the front-line. Suspected partisans were often court-martialed according to the rules:

> "[...] After the arrest the four men faced trial immediately at the Military tribunal that was already operational in Sulmona; their legal defence was carried out by lawyer Sigismondo Gravina. The trial ended with a death sentence for the four men due to the carrying of forbidden weapons. The sentence was immediately executed via shooting at 8 AM on 20 October 1943 by the fence of Sulmona's cemetery. According to local witnesses, shooting happened after the victims were forced to dig a ditch for their burial. Since the conclusion of the trial, the four men were assisted spiritually by Don Salvatore Ficorilli, priest at the local hospital, who stayed with them until their death."[5] *Source: http://www.straginazifasciste.it*, Sulmona (L'Aquila), October 20, 1943.

[5] Authors' translation from: "[...] Dopo l'arresto i quattro furono immediatamente processati dal Tribunale militare penale tedesco che era già attivo in Sulmona; la loro difesa fu assunta dall'avv. Sigismondo Gravina. Il processo si concluse con la condanna a morte dei quattro per possesso di armi proibite. La sentenza fu immediatamente "ratificata" ed eseguita, tramite fucilazione, alle 8 del mattino del 20 Ottobre 1943 a ridosso del muro di cinta del Cimitero monumentale di Sulmona, dopo che, secondo alcune testimonianze, le vittime furono costrette anche a scavarsi la fossa comune. Fin dal momento della conclusione del processo i condannati furono assistiti spiritualmente da don Salvatore Ficorilli, Cappellano dell'Ospedale civile della SS.ma Annunziata di Sulmona, che resterà loro accanto sino alla morte."

Although systematic data on the enforcement of Kesselring's directives are not available, anecdotal evidence indicates how German soldiers were executed for breaking the rules on engagement with innocent civilians:

> "[...] Until a German patrol intervened and, unable to disperse the mob, started to shoot and even to throw grenades against those poor desperate people. A child, Ivo Coccia, died immediately, while being transported to the hospital; a young woman, severely wounded, died a few hours later after having being transported to the hospital on a chair. Other than leaving an orphaned child, she was also pregnant. [...] Some witnesses reported how, a few days later, the Germans executed at Sulmona's cemetery a soldier that was considered responsible for the mass killing."[6] *Source: http://www.straginazifasciste.it*, Sulmona (L'Aquila), October 11, 1943.

This general formal approach, however, was marred by several exceptions in the field. First, actual punishment for German soldiers was not implemented systematically. This varied depending on the division commander in charge, but historical studies indicate that Kesselring did not put huge efforts and resources into enforcing systematically the formal rules of engagement with the civilian population (Von Lingen, 2009, pp.36-7). The treatment of civilians was not a major concern and probably did not interest him much, beside his awareness of international law, his concern for limiting the spread of insurgency and the "honour" of the Wehrmacht. Second, there is evidence of how Kesselring often struggled to receive reliable information on the severity of the reprisals and to keep control over his troops with respect to civilian violence, which suggests a relatively low, baseline level of enforcement capacity (Von Lingen, 2009, pp.45-50). Third, the German Command's approach changed during the conflict. In particular, in the Summer of 1944, a series of orders was issued by Kesselring that relaxed the formal constraints placed on his troops while carrying out counterinsurgency operations. This change of approach led to some of the best-documented and famous mass killings episodes of Italian civilians, such as Sant'Anna di Stazzema and Marzabotto, which took place with more or less explicit consent and protection of Kesselring. Even in this context of looser rules on civilian engagement, however, commanders tried to limit the excesses, albeit with little success due to lack of information on the operations on the ground (Klinkhammer, 2016, p.338). Interestingly, these orders were quickly withdrawn and the previous code of conduct towards civilians was re-instated in full already in late September 1944, as a consequence of Mussolini's

[6] Authors' translation from: "Fino a quando non intervenne una pattuglia tedesca che, vista vana ogni minaccia, cominciò a sparare e, addirittura, a lanciare alcune bombe a mano contro quella povera gente disperata. Un bambino, Ivo Coccia, morì quasi subito, vanamente trasportato all'ospedale; una giovane donna, ferita gravemente e trasportata in ospedale su di una sedia, morì qualche ora dopo. Da alcune testimonianze si apprese che la donna, oltre a lasciare orfana una bimba, era anche incinta. [...] Vi furono, infine, anche altri feriti. Altre testimonianze vorrebbero che, qualche giorno dopo, i Tedeschi fucilassero al Cimitero di Sulmona un loro commilitone ritenuto improvvido autore di questa strage."

complaints and the realization that these actions were leading to increasing participation and support for the resistance movement (War Crimes Commission, 1949, p.11).[7]

Crucially for our story, whatever the formal orders of the German Command were, the level of accountability experienced by German troops at the front line was lower than in more secure areas. In this context, the activation of a new frontline and the creation of a new combat zone led to a sharp reduction in the accountability of German soldiers relative to other areas under the Axis control. In particular, when German troops had to fall back to a new defensive line, divisions were redeployed, their headquarters moved, and commanders became responsible for supervising and policing a new 30-kilometer-radius area. When the actual fighting along the defense lines started, the already low enforcement capacity of the German Command further dropped for two major reasons. First, tracing and punishing crimes was more difficult. In fact, command lines were stretched, as units were hastily moved to secure and stabilize the front-line (Blumenson, 1993). Second, the opportunity cost of punishments increased. Upon the activation of a new front line, the priority of the German commanders was to organize combat units effectively to stop Allied advances. In this unsettled situation, diverting resources to the punishment of German own soldiers was particularly costly and undesirable (Gentile, 2012, 2015). However, when the all the units were deployed and the front stabilized, military police units and command lines were wholly restored and became fully operational. In other words, there was a delay between deployment of the troops, the activation of the front and the restoration of effective command lines and policing services. Oral testimonies confirm that this situation of chaos lasted a few days after the front activation and created a "no-man's land" within the new combat zones in which soldiers knew to have a limited accountability and were likely to commit severe crimes against the civilian population (Klinkhammer, 2006,Gentile, 2012).

3 Data

We collected and digitized several types of historical and administrative data from primary and secondary sources. We uniquely matched the resulting datasets using municipality and province names. In this section, we describe the data we collected and present key summary statistics.

[7]Despite having reversed these orders after 2 months, Kesselring was found guilty of war crimes, among other allegations also due to the mass-murder episodes from Summer 1944, and sentenced to death (immediately commuted to life-sentence) in 1947 by a British Military court in Venice. The other crimes he was sentenced for were the Fosse Ardeatine massacre which he authorized, and the execution of a British commando that had landed in Liguria, in accordance with Hitler's directives but against international law.

3.1 Axis Civilian Killings

We collected data on the Axis civilian killings from the *Atlante delle Stragi Naziste e Fasciste in Italia* (Atlas of the Nazi and Fascist Massacres in Italy).[8] The database lists and analyses "all the massacres and the individual murders of civilians and resistance fighters killed in Italy both by German soldiers and soldiers of the Italian Social Republic outside of the armed fights" between July 12, 1943 and May 2, 1945. The Atlas focuses only on targeted civilian killings, while it excludes collateral killings, committed unintentionally as a side effect of the fighting. The Atlas was commissioned by the German Foreign Ministry in collaboration with the Italian government through the creation of a "German-Italian Fund for the future" to enhance the history and the memory of the relationships between the two countries during WWII.

The historical inquiry to determine the civilian killings was conducted locally by more than ninety researchers, using three main common sources: the database of violent crimes perpetrated against civilians during the German occupation of Italy, established by the Joint Historical Italian-German Commission and based on the police reports stored in the Archives of the Historical Office of Army General Staff and the Historical Archives of the Carabinieri of Rome; the General Repository of war crime reports collected from 1945 by the Army Prosecutor's office in Rome (illegally dismissed in 1960) located by the Parliamentary Commission of Inquiry while investigating on the reasons for the concealment of some files about Nazi-fascist crimes (14th Parliamentary term); and the rulings and files of the judiciary proceedings debated at the Military courts during the last trial season (from 1994 until now). Importantly for us, the project represents a systematic endeavour to collect the universe of episodes of civilian victimization. We discuss potential selection into sample more in detail in Section 4.3.

For each killing episode, the Atlas reports its location and date, the number of victims, their gender, age and fighting status (whether civilians or partisans), the killing mode, whether the killings were associated to other forms of violence (mainly robberies, tortures and rapes), and whether the perpetrators were Nazi, Fascists or both acting together. When known, also the identity of the victims is reported. Finally, 24 episodes for which the killing date is unknown or for which there are disagreements among the sources are excluded from the database and therefore from our analysis.

Between July 1943 and May 1945, 24,988 Italian civilians were killed in 5,298 different episodes (defined as municipality-day pairs). Out of 7,341 Italian municipalities, 2,200 (30 percent) experienced at least one killing episode during this time period. Killing episodes were concentrated in the central and northern part of the country, where fighting between German and Allied troops was more intense and

[8] We access this database, available at http://www.straginazifasciste.it, in November 2020.

the occupation prolonged (Figure 1, Panel A). By contrast, Sicily and Southern Italy registered only a few episodes.[9] While each episode counted on average 4.7 victims, the vast majority of them concerned either single killings (47 percent) or small collective killings between 2 and 10 victims (45 percent, Figure A.1, Panel A). These episodes involved 11,696 civilians, 46.8 percent of the total number of victims during the Italian Campaign (Figure A.1, Panel B). Only in 18 episodes (0.34 percent) involved more than 100 civilians. The most violent massacre happened in Marzabotto near Bologna on September 29, 1944, when 1,012 civilians were killed. Other bloody episodes included Sant'Anna di Stazzema near Lucca on August 8, 1944 and the "Fosse Ardeatine" massacre in Rome on March 24, 1944, when respectively 391 and 335 civilians were murdered. Such episodes of systematic mass-murder that were beyond doubt either directly mandated or implicitly endorsed by the German chain of command, however, were the exception rather than the norm and they were the product of exceptional counterinsurgency measures that targeted the civilian population (Gentile, 2015).

While the most famous episodes of mass murder have been widely analyzed by previous works (see Von Lingen, 2009 for a summary of the literature), we instead focus on small-scale violence. Given the detailed descriptions of killings reported by the Atlas, we are able to distinguish between episodes of selective and indiscriminate violence. As explained by Kalyvas (2006, p.142), selective violence reflects the willingness of the perpetrators to use violence in a manner proportionate to the context-specific war objective. By contrast, indiscriminate violence goes beyond the actual strategic needs of the occupying army, is thus disproportionate, and has a unjustified, "random" component. Empirically, as the intentions of the perpetrators cannot be observed, the difference between selective and indiscriminate violence has been mapped onto the distinction between individual and collective killings, that we will adopt in the rest of the paper.

Several examples from the Atlas are fully consistent with this distinction. Selective individual killings were the norm rather than the exception, which indirectly supports the idea that German soldiers often exerted restraint without automatically resorting to indiscriminate violence, in line with the engagement rules set out by Kesselring, and even in areas exposed to partisan operations:

> "[...] The partisan group "Di Vincenzo" operated in the area. A German patrol engaged in anti-partisan operations, bumped into five young men, who fled under fire. In the village of Fugnette the five men were captured by a second patrol. One of these, Franco Gambacurta, suspected to be a resistance sniper, was separated from the other three and executed

[9] In the island Sardinia there was no fighting after the invasion of Sicily and so no killing episodes.

at Capolaforca. The other men were set free."[10] *Source: http://www.straginazifasciste.it*, L'Aquila, September 25, 1943.

Conversely, small-scale collective killings were indiscriminate and reflected a summarily victimization of multiple people:

"On 18 October 1943, in the village of Caira, near Monte Cairo, a German patrol tried to steal a cow from a local farmer, Felice Nardone, who resisted the violence shooting with a rifle against the soldiers. The soldiers, having escaped, came back with reinforcements. Unable to find Nardone, they stop two other locals Mariani and Nardoni to help them find the aggressor. Unable to find him, they kill Mariani with a pistol shot, while Nardoni was strapped to a truck and dragged for a few kilometers. He died a few days after for the wounds."[11] *Source: http://www.straginazifasciste.it*, Cassino (Frosinone), October, 18 1943.

We report summary statistics from the estimating sample for the main outcomes observed at the municipal-day level in Panel A of Table 1. The Table roughly shows a 0.1% probability of observing a collective civilian killing episode in our estimating sample. Single killings occur with a similar probability.

3.2 Military Data on the Italian Campaign

3.2.1 Location of the Front Lines and Combat Zone

We geo-localized each front line along which the German and the Allied troops fought from the invasion of Sicily in July 9, 1945 to the end of the war on May 2, 1945. To establish their exact locations, we rely on reconstructed maps collected by the secondary literature (Blumenson, 1993; Short and Taylor, 2006). The military historians' reconstruction of these lines is facilitated by their tendency to follow natural features such as rivers and mountain ridges and by the significant survival of remains of the fortifications. We rely on the same body of work to establish with a high degree of precision the exact timing of the activation of each front-line. Activation coincided with the day of the inception of fighting along a new frontline

[10] Authors' translation from: "Nella zona operava la banda partigiana "Di Vincenzo". Una pattuglia di soldati tedeschi, in un'operazione di rastrellamento, si imbatté nei pressi di Filetto in cinque giovani, che, fatti oggetto di colpi d'arma da fuoco, si dettero alla fuga.In località Fugnette i cinque vennero catturati da una seconda pattuglia. Uno di questi, Franco Gambacurta, sospettato di essere un franco tiratore, fu separato dagli altri e passato per le armi a Capolaforca. Gli altri giovani furono liberati".

[11] Authors' translation from: "Il 18 ottobre 1943, nella frazione di Caira, ai piedi di Monte Cairo, una pattuglia tedesca cerca di rubare una mucca al contadino della zone Felice Nardone, che resiste alla violenza sparando con un fucile da caccia contro i soldati. Questi, scampati ai colpi, si allontanano per tornare poi con i rinforzi. Non trovando Nardone, fermano due abitanti del posto, Mariani e Nardoni, per trovare l'aggressore. Dinanzi all'inutilità della ricerca, Mariani viene ucciso con un colpo di pistole mentre Nardoni, legato ad un camion e trascinato per qualche km, muore due giorni dopo in seguito alle ferite riportate."

and followed the retreat of German troops to a new defensive line by a few days. Overall, German and Allied troops confronted over 32 major defense lines during the Italian Campaign. The first defense line in Western Sicily was active between July 11 and 15, 1943, right after the Allied landing. The last defense line, the Po Line, in North-East Italy was active from April 23 to May 2, 1945 when Nazi Germany surrendered (Figure 2). On average, each front line lasted 18 days. The two longest lines were the Gustav Line, that, despite some adjustments, lasted 164 days from November 3, 1943 to May 14, 1944; and the Gothic Line and the related lines over the Appennine Mountains that lasted 212 days, from August 30, 1944 to April 9, 1945.[12]

We use the position of these front lines, as well as the timing of their activation, to define, on the Axis side for each front, the extent of the combat zone, the area where bombing, shelling and Allied offensive would typically take place. As this area was not formally defined and changed depending on the front, we follow the secondary literature (Collotti, 1963b; Ronchetti and Ferrara, 2014; Klinkhammer, 2016) and use a 40 km distance cut-off.[13]

3.2.2 Operation Zones and Location of the German Divisions

We retrieved the extension of the operation zones (the area of military operations under the sole responsibility of the German army) at different moments in time during the Italian Campaign from the maps prepared by the Wehrmacht High Command (OKM), stored at the German National Archives (Bundes Archiv). These were produced with a frequency spanning between 1 and 5 days, and thus reflected the situation on the ground quite precisely. We match a military map showing the tactical situation on the ground, on the closest possible date to front line activation, to each of our 32 digitized front lines. In these maps, the High Command of the Wehrmacht (OKM) delineated the operation zone, which we digitize. While its exact size was front-specific, on average the operation and combat zones extended for roughly 250km behind the front.

We used these same maps to geolocalize the position of the headquarters of German army groups, armies and divisions. Individual regiments and battalions are also reported and digitized when they were located at a significant distance from their division headquarter. These data allows us to trace German troops movements across Italy over all our fronts. These maps indicate that 47 Axis divisions operated during the Italian Campaign for a total of around 450,000 soldiers. 57 percent of divisions were infantry

[12] Smaller adjustments to the fronts will not be captured in our data. However, we are confident to be able to locate all the major front lines that were active at any point of the campaign across the Italian peninsula.

[13] As this cut-off is an approximation, in the empirical part of the paper we vary it to check the robustness of our results to different definitions.

divisions, 34 percent Panzer (tank), and the remaining ones paratroopers.[14] Only two divisions in our sample were Italian. We use data on the location of Axis troops to identify the identity of the unit likely responsible for an episode of civilian victimization through nearest matching association, and to approximate the enforcement capacity of the army on their soldiers based on distance from division headquarters.

3.2.3 Italian Partisan Bands and Attacks

We geolocalized the position of the Italian partisan bands in September 1943 and collected data on the Partisan attacks against German troops during the Italian Campaign from the *Historical Atlas of Italian Resistance* (Baldissara, 2000). The Atlas has gathered documentation stored at more than 60 local institutes for the history of the Resistence between 1943 and 1945 (Istituti Territoriali per la Storia della Resistenza), under the supervision of the Italian Ministry of Culture. Overall, 184 partisan bands were active during the Italian Campaign. Most of them were concentrated in the central part of Italy and in the North-Eastern and Western part of the country, in the last phase of war.

3.2.4 Allied Bombing

We retrieved data on Allied bombing in Italy from the Theater History of Operations Reports (T.H.O.R.; Lt Col Robertson et al., 2013), compiled by the US Air Force Research Institute.[15] The database reports location, date, type of target and tons of explosives for each Allied air strikes during WWII. Between June 11, 1940 and the end of conflict, Italy was targeted by 22,325 air attacks that hit 877 different municipalities, for a total of 402,045 tons of explosives dropped. 21 percent of the attacks and 18 percent of the explosives were concentrated in the Italian Campaign.[16] In this phase of the war, the attacks hit the areas around the fronts more heavily. We use data on Allied bombing to approximate the intensity of Allied attacks across the front lines over the entire duration of the Campaign.

3.3 Census Data

We digitized the 1936 Population Census, that provides data for the 7,341 Italian municipalities on population, total employment, employment by sector (agriculture, industry, and services), inactive population, municipality borders and surface. The resident population amounted to 43,059,372 people. Out of

[14]The difference between an infantry and a Panzer division is that the former consisted of mainly foot travelling infantry, with only heavy weapons being carried on carts and half-tracks; while the latter was equipped with tanks including panzer 4's, stug tank destroyers, Panther tanks, Tiger tanks, and Panzer threes (Short and Taylor, 2006).

[15]We access this database,available at www.afri.au.af.mil/thor, in January 2017.

[16]More specifically, in the first phase of the war Allied bombing was strategic and targeted the most populated and industrialized areas on the country. After the Armistice of Cassibile, it became tactical, with the goal of offering support to the Allied ground operations against the German troops. For more details, see Bianchi and Giorcelli (2022).

18,368,193 employed individuals, 48 percent worked in agriculture, 29 percent in industry and 23 percent in services.

We also use the administrative documentation attached to the census to create a novel shapefile showing municipalities boundaries in 1936. These municipalities constitute our basic unit of analysis, and we aggregate information on killings, bombings, movements of the front lines and census data at this level of analysis.

4 Identification Strategy

The identification strategy of this paper relies on plausibly exogenous movements of the front line, that reduced the enforcement capacity of German Command. As explained in Section 2, the delay between a new front activation and the restoration of policing services decreased German soldiers' accountability for violence against civilians.

Specifically, for each day from June 8, 1943 to May 2, 1945, we construct t artificial panels across all Italian municipalities m, spanning between 5 days (k) before and after t, which we then stack together. We restrict the baseline sample to those artificial panels in which the front line moved, which leaves us with 31 front-experiments, each composed of 5 days k before and after the movement of the front line.[17] We call each artificial panel an experiment. Across all episodes of front line activation, we compare municipalities that fell within the combat zone at time t but were outside it at time $t-1$ (treated municipalities) with municipalities in Axis territory, that either remained outside the combat zone at both times t and $t-1$, or that were inside it both at t and $t-1$ (comparison municipalities). Figure 3 provides a graphical intuition of the estimation we run for each episode of front activation.

Formally, we estimate the following stacked panel difference-in-differences model:

$$\text{outcome}_{m,t,k} = \sum_{k=-5}^{5} \beta_k \text{Day}_{t,k} \cdot \text{Treatment}_{m,t} + \sum_{k=-5}^{5} \alpha_k \text{Day}_{t,k} + \Gamma + \Theta + \epsilon_{m,t,k} \tag{1}$$

$\text{outcome}_{m,t,k}$ is one of the key metrics of violence against civilians. More specifically, we use an indicator for collective civilian killings (episodes that involved two or more civilian victims), for single civilian killings (episodes that involved only one civilian victim), for collective civilian killings unrelated to partisan resistance, and collective killings where vulnerable civilians were also victimized (episodes

[17] We limit the number of days per experiment to 5 days k before and after the front movement as a longer number of days would imply cutting at least a front movement, the last of which occurred 5 days before the end of the war. While we have a total of 32 fronts, front movements are 31. We limit the sample to the 31 experiments where there is variation in the treatment for computational purposes. The results do not change if we include all 700 artificial panels.

that involved at least one woman, child or elderly person). As discussed in Section 3.1, following Kalyvas (2006), we use collective civilian killings as proxy for indiscriminate violence against unarmed population, and single civilian killings as proxy for selective violence, in line with the directives of the High German command (Kesselring, 1954; Collotti, 1963b; Gentile, 2015).

All variables are observed at the municipality (m), experiment (t, the day of activation of the new front line) and day-relative-to-experiment k level. $\text{Day}_{t,k}$ is a set of fixed effects for days k relative to front activation in day t. $\text{Treatment}_{m,t}$ equals one for municipalities that were not in the combat zone at time $t-1$ and fell into the combat zone at time t. We define combat zone as the 40km behind the front, based on the secondary literature (Collotti, 1963a; Ronchetti and Ferrara, 2014; Klinkhammer, 2016), as explained in Section 3.2.[18] Roughly 5% of municipalities in our estimating sample were ever treated based on this definition over the course of the Italian Campaign (Panel B, Table 1). Γ is a full set of fixed effects that allows us to estimate our average treatment effect within municipality (γ_m), front-experiment (γ_t) and day relative to front-activation (γ_k). Θ is a set of fixed effects designed to capture differential time trends. We account for municipality-experiment ($\theta_{m,t}$) and experiment-day-side of the front line ($\theta_{s,t,k}$) trends. Importantly, γ_k and $\theta_{s,t,k}$ allows us to estimate a consistent average treatment effect across different front movements with potentially heterogeneous local treatment effects and within the Axis-controlled side of the front line, respectively.

β_k estimates the causal effect of front activation on civilian killings under the assumption that, conditional on fixed effects, the exact location and time of activation itself is orthogonal to intention to kill civilians.[19] In the rest of this section, we provide empirical evidence in support of our identification assumption.

4.1 Were Treated and Comparison Municipalities on the Same Trend before Front Activation?

We start our analysis by checking if treated and comparison municipalities were on the same trend of violence against civilians during the 5 days prior to front activation. Anticipation effects may have occurred, for instance, if the activation of a new defensive front line was preceded by other events that also affected the likelihood to kill, such as partisan attacks or population displacements. While this is a possibility, the timing of front activation strongly depended on the fighting outcomes against the Allies in the previous

[18] Since the extension of the combat zone varies across frontlines, in Section 5.1 we show that our results are robust to using 30 and 50 km as alternative cut-offs.

[19] More specifically, β_k estimates an average treatment effect across all front activation episodes, obtained by averaging the local treatment effects estimated at each front activation.

front and was hard to predict even for German commanders (Kesselring, 1954; Kurowski, 2003).

To formally test for differential time trends in killing outcomes between treated and comparison municipalities, we first estimate a constant linear time trend model in which we interact the linear panel-day trend with our Treatment variable. The estimated coefficients are small in magnitude and not statistically significant (Table 2). Second, we replace the linear time trend with a full set of indicators for each day before front activation. The estimated coefficients on the indicator terms are never statistically different from zero and we always fail to reject the null hypothesis that the interaction terms are jointly equal to zero (Figure A.2, Panels A-D). These results indicate that treated and comparison municipalities were on the same civilian killing trend in the five days before front activation.

4.2 Was the Position of the Fronts Orthogonal to Intention to Kill?

A second potential threat to our identification may arise if treated municipalities systematically differed from comparison ones before front activation, due to characteristics that simultaneously affected the location of the front and violence against civilians. For instance, the Wehrmacht may have decided to organize defensive lines in area where they intended to kill systematically more or less civilians relative to the control group. Alternatively, they may have chosen the location of defensive lines irrespective of their intention to kill, but based on underlying economic, social and geographical characteristics that may have simultaneously determined both front location and patterns of violence. To alleviate these concerns, we assert three points.

First, it is worth noting that equation 1 includes municipality and municipality-experiment fixed effects that control for unobservable underlying differences between municipalities and for municipality-experiment differential trends. This fact, however, is not sufficient to rule out the possibility that time-varying factors, such as the intensity of partisan activity or changes in the perceived strategic importance of a location, may still influence the front line location.

Second, we compare treated and comparison municipalities in the 20 days before front activation in terms of our different indicators of civilian victimization and proxies for war activities. If any of these indicators looked different between treated and comparison municipalities, one may worry that observable and/or unobservable characteristics of the combat zone are driving both the location of the front and the observed patterns of violence. For instance, more violence in treatment relative to control a few days before activation may indicate that some unobserved strategic consideration was driving both the location of the front and the increase in civilian victimization, and thus that systematic selection into treatment

was in place. The balancing tests, reported in Table A.1, show that, on average, treated municipalities did not look different in terms of perpetrated violence against civilians or war-related activity (such as Allied bombing and reported partisan activity) during the twenty days before front activation.[20]

Third, the historical evidence indicates that front lines were built in easily defensible sites, that normally coincided with rivers and mountain chains and were less densely populated (Short and Taylor, 2006). In other words, if anything, treated locations should have been negatively selected in terms of factors that might facilitate the explosion of violence against civilians. We corroborate this anecdotal evidence by comparing ever treated and never treated municipalities in terms of their cross-sectional geographical and pre-war socio-economic characteristics. On average, treated municipalities contained a larger number of watercourses, were more elevated, rugged and relatively close to the coastline, as it was tactically better to fight defensive battles in the narrowest parts of the peninsula (Table A.2, Panel A, columns 1-5). These more remote locations were, logically, sparsely populated, far from provincial capitals, less industrialized, more agricultural and without a particular concentration of partisan bands (Table A.2, Panel B, columns 1 to 5 respectively). All together, these results confirms that German defensive lines were indeed located based on the geographical characteristics of the terrain and thus often in remote locations. If anything, remoteness should have made it harder for the German soldiers to find and kill civilians.

4.3 Were Killing Episodes More Likely to Be Reported Close to the Front Line?

A third potential threat to our identification may arise from differential reporting of killing episodes in treated municipalities relative to comparison ones. Such situation may lead to a problem of selection into sample. For instance, if the records on killing episodes came from the German army, one may worry that better data was collected near the front due to larger personnel availability and strategic needs. However, the Atlas of the Nazi and Fascist Massacres, our main data source, relies either on coeval reports by the Italian police, which had no jurisdiction at the front as Italy was an occupied territory, or on inquires of Italian authorities after the end of the war, as explained in Section 3.1. These features of the data collection would imply more difficulties in recording killing episodes nearby the front and would result, if anything, in an under-reporting of murders in the combat zone, especially in the chaotic days around front activation. It is also worth noting that relatives of the victims had strong economic incentives to report war-related killings. The Italian government in fact, paid war pensions to close relatives of civilians

[20]The only partial exception is vulnerable mass killings (Table A.1, column 4), which shows lower concentration in areas that will be treated 5 and 20 days before activation. This result however does not seem systematic and to be driven by a movement in the comparison municipalities rather than by a drop in treated ones.

died during the war as a result of violent crimes by either allied or enemy armies, in an amount close to the minimum wage.[21] This monetary incentive, not higher for murders happened closer to the front, made killing episodes very likely to be reported and consequently covered in the Atlas.

5 The Effect of Front activation on Civilian Killings

A decrease in soldiers' accountability, due to a reduction in the enforcement capacity of the principal upon a new front activation, determined a sharp increase in indiscriminate violence against civilians, but did not affect selective one. The likelihood of observing a collective killing episode increased by 0.8 percentage points in treated municipalities relative to the comparison ones in the day of front activation (Table 3, column 1). The estimated coefficient implies that the probability of collective killings raised 10 folds, from an average below 0.1% on the day before the front activation to almost 1% on the day of the front activation. Excluding large mass-killings with more than 100 victims, that required some endorsement from the German Command, does not change our estimates, that are largely explained by an increase in relatively small collective killings, between 2 and 10 victims (Table A.3, columns 2 to 4).[22] By contrast, single killing episodes did not differentially change between treated and comparison municipalities upon front activation (Table 3, column 2).

The observed increase in collective killings could, at least in part, reflect a surge in violence associated to new threats faced by the soldiers in the combat zone. For instance, such episodes may have been a perhaps proportionate, albeit illegal, retaliation against civilians in response to partisan attacks, whose intensity could be correlated to the front activation itself. To rule out this possibility, we restrict the outcome variable to collective killing episodes not related to partisan resistance. [23] Collective killings unrelated to partisan activity increased by 0.3 percentage points in treated municipalities relative to the comparison ones at front activation (Table 3, column 3). Notably, the magnitude of this increase relative to the sample mean is similar to that of collective killings. We also restrict collective killings to episodes that involved vulnerable population (at least one woman, child or elderly), that likely had an indiscriminate nature and were unrelated to the actual safety and tactical objectives of German troops. This type of collective killings also differentially increased by 0.25 percentage points upon front activation between treated and

[21] Legge 10 agosto 1950, n. 648, art. 10, available at: $http://www.edizionieuropee.it/law/html/41/zn77_06_050.html$, accessed on 20/10/2022

[22] This pattern is consistent with the fact that large-scale operations required significant planning and resources, and were typically not carried out in proximity of the front line, and surely not in the hectic days around the activation of a new front line (Gentile, 2015).

[23] Specifically, we run a text analysis on the descriptions of each collective killing episode and we exclude those where the word "partigian*" (the way resistance fighters were called in Italy) features in the description. We can expand the text analysis to incorporate more words referring to guerrilla fighters, such as "resistenz" and "patriot*". The results do not change.

comparison municipalities (Table 3, column 4).[24]

To further analyze the effects of the front activation on civilian victimization, we estimate the β coefficient separately for each day, from 5 days before to 5 days after the event in an event-study. The difference in collective civilian killings between treated and comparison municipalities persisted up to three days after the front activation, becoming statistically insignificant in the following days (Figure 4, Panel A). Conversely, the single killing indicator shows a flat pattern across this 10-day period (Figure 4, Panel B). Finally, collective civilian killings unrelated to partisan activity and against vulnerable population show a dynamic similar to collective civilian killings (Figure 4, Panels C and D).

These dynamic effects are consistent with historical evidence that suggests that, when a new front line was activated, there was a delay in the restoration of policing services. This lag created two to three days of "no-man's land" where severe crimes against civilians were committed due soldiers' limited accountability (Klinkhammer, 2006; Gentile, 2012). A similar scenario was common also during the occupation of new territories on other fronts in the context of WWII (Aleksievič, 2018). For instance, while describing the Soviet campaign against Germany, Solzhenitsyn (1977) explains: "When we occupied a new territory, in the first three days we looted and killed. [...] However, after three days, one could be exposed to court-martial punishments for doing this".

5.1 Robustness Checks

Our results are robust to a variety of modifications to the sample definition and the baseline specification.

Sample. We first limit our sample to the operation zone, which only includes municipalities directly exposed to the war and under the exclusive control of the Wehrmacht, obtaining estimates close in magnitude to our baseline ones (Table A.5). Second, we restrict the sample to municipalities located within 200 and 100 km from the front line to offer an even more stringent comparison between treated and comparison units. While the number of observations drops from roughly 2.5 million in the baseline sample to roughly 150,000, our results are substantially unchanged (Tables A.6 and A.7). Third, by restricting the comparison group to municipalities within 40km of the front line, we use as comparison group only municipalities that were within 40km from the front line both at time t and at time $t-1$, effectively leveraging episodes of pivoting of the front lines. If our findings were driven by front proximity and not by its acti-

[24] As discussed in section 2.4, between June 17th 1944 and September 24th 1944, Kesselring gave more freedom to his troops in dealing with civilians. Although, controlling for front-experiment fixed effects γ_t allows us to compare treated and comparison municipalities exposed to the same set of rules, if the estimated effect were solely driven by the events of Summer 1944, which coincided with unprecedented levels of military pressure exerted on the German forces, one may question that our results are driven by lower soldiers' accountability. Thus, in Table A.4 we show that our findings are robust to excluding the the front activation episodes between June 17 1944 and September 24 1944, the window of relaxation of the rules in dealing with unarmed civilians.

vation, we should not observe any difference in civilian killings between treated municipalities and those in the combat zone both before and after the front activation. Reassuringly, the estimated coefficients are very similar to the baseline ones, confirming that the sudden movement of the front line rather than proximity to it changed the behaviour of German soldiers (Table A.8). Fourth, some municipalities may have been exposed to more than one front shift in either the 5 days prior or after $k = 0$, especially if they were located close to particularly unstable defense lines. Our results are robust to excluding from the sample these municipalities that were in fact treated multiple times within the same front-experiment (Table A.9). Finally, we show that, thanks the inclusion of side-front-day specific trends in the main specification, we can exclude the Allied-controlled part of the country for each front-experiment without changing the point estimates (Table A.10).

Measurement. Our dataset contains roughly 1,200 episodes of violence perpetrated by Italian Fascist units, who were not or less affected by changes in accountability at the front. We therefore replicate our main analysis excluding such episodes. These results are larger in magnitude than our baseline ones, which corroborates that our findings are driven by the behavior of German troops upon front activation (Table A.11).

Concentration of German Troops. An alternative interpretation of our results may be that the difference in collective killing is driven by a *higher* concentration of German soldiers in treated municipalities relative to the comparison ones due to front proximity, rather than by the *same* concentration of soldiers responding to a change in behavioral incentives. To rule out this possibility, we compare treated and comparison municipalities in Axis territory that were within 100, 50 and 25 km from German division headquarters and therefore exposed to a similar concentration of German troops. Despite a demanding drop of observations from 2.5 million to roughly 136,000 with the more stringent specification, these estimates are fully consistent with our baseline ones. Based on this finding, we conclude that the estimated effects are not driven by a stronger concentration of German soldiers (Tables A.12, A.13 and A.14).

Definition of Treatment. In equation 1 we define treated municipalities as those within 40km of the front line, the average extension of the combat zone based on the historical evidence. As the combat zone extension varied across different front lines, we test the robustness of our results to using 30 and 50km as alternative cut-offs for the definition of treatment. The estimates are very similar to our baseline ones, suggesting that the results do not depend on the selection of a particular extension of the combat zone (Tables A.15 and A.16).

Alternative Specifications. As our stacked difference-in-differences specification is fixed-effects heavy, we here use the regular municipality-day panel dataset to test if our results are robust to alternative, less

saturated specifications.

First, we re-estimate the effect of front activation on civilian victimization using a simple two-way fixed effect model. These coefficients are larger in magnitude than our baseline ones and indicate a small differential increase also in single civilian killings upon front activation (Table A.17). Since in a standard two-way fixed effects panel specification we cannot systematically account for side-front specific trends, as the front moves up North, some already "treated municipalities" become comparison municipalities, with zero killings as there are no longer Nazi German soldiers there. Therefore, the two-way fixed effects estimates should be interpreted as an upper bound of the impact of front activation on civilian victimization.

Second, to address the fact that our main outcomes are binary indicators, we also estimate a logit specification, whose results, albeit smaller in magnitude, are in line with our baseline ones. More specifically, the logit estimates indicate a 73-percent increase in the probability of indiscriminate killing episodes and a 4.6-percent decrease in the probability of selective killing episodes after front activation (Table A.18, columns 1 and 2). Killing episodes that did not involve partisans increased by 59.8 percent, while episodes that involved vulnerable population doubled upon front activation (Table A.18, columns 3 and 4).

Third, in our data, episodes of civilian victimization were rare. The probability of observing a killing episode is one out of 1,000 people. We therefore estimate a rare event logistic regression, following King and Zeng (2001).[25]. The results are larger than the estimates from the logit model, which indicates that our findings are not driven by rare events (Table A.19, columns 1-4).

Finally, in Table A.20, we re-estimate the main table by applying municipality-area weights to make sure the effects are not driven by mechanical differences in the size of municipalities at the front.

Inference. In the main specification, we account for time-series heteroskedasticity by clustering the standard errors at the municipality level. As we worry that spatial autocorrelation may threaten inference, we provide two alternative specifications. First, in Table A.21, we double cluster at the municipality-province level. Second, in Table A.22, we repeat this exercise at the municipality-nearest division level. In both cases, the double-clustered errors are either the same or even smaller than the municipality-clustered ones, which suggests, if anything, a negative spatial autocorrelation.

[25]More specifically, we use the Stata package `relogit` that estimates the same logit model as the `logit` command, but with an estimator that gives lower mean square error in the presence of rare events data for coefficients. More details can be found at: https://gking.harvard.edu/relogit

6 Mechanisms

Our main results indicate that the activation of a new front line led to more indiscriminate violence against civilians, due to a decreased enforcement capacity of the principal and therefore of soldiers' accountability. In this section, we provide additional evidence to corroborate this mechanism. First, we rule out potential alternative explanations. Second, we implement an exposure design, and test if our effects are stronger in areas more exposed to a reduced enforcement capacity of the German Command.

6.1 Sorting

A first potentially alternative mechanism relates to the sorting of divisions. If upon the activation of a new defense line, the German command systematically dispatched the more aggressive divisions at the front, as they were more capable to fight, this could also have affected violence against civilians. In this scenario, increased civilian victimization would be due to a higher concentration of 'bad people' at the front, rather than 'regular people' turning bad as the behavioral incentives changed.

We test the sorting mechanism by offering two pieces of evidence. First, in Figure A.3, we report results from a multilogit model that estimates the probability for each of the 47 German divisions employed in the Italian Campaign to be located at the front. None of the estimated coefficient is significantly different from zero, which suggests that, due strategic constraints, all units were cyclically deployed in the combat zone, as explained by the historical literature (Kesselring, 1954, Collotti, 1963a).

Second, we estimate equation 1 while controlling for front-specific trends for the nearest and second nearest division to treated and comparison municipalities. This way we estimate the treatment effect within municipalities exposed to the same trend in the nearest and second nearest German divisions. The fact that the estimates remain virtually unchanged suggests that no military unit-specific trend is driving our results (Table 4, columns 2 and 3).

Taken together, these findings indicate that the increased violence is not driven by different soldiers sorting into treatment and then misbehaving, but rather by the same type of soldiers responding to the behavioral incentives elicited by the war context.

6.2 Increased Insecurity

Upon the activation of a new front line, troops may be exposed to increased stress due to war-related insecurity, which can in turn increase the returns from civilian victimization. For instance, in a paper related to ours, Costalli et al. (2020) use evidence from the break of the Gustav and the Gothic lines and

document an increase in atrocities against population due to growing uncertainty during the German retreat. In such a setting, soldiers stand to gain from misbehavior as, by adopting a type of "shock-and-awe" strategy, they can better preserve supply lines. While vulnerability of German soldiers clearly played a role on Italian civilian killings, it is worth noting that we focus on episodes of front activation on pre-set defense lines rather than on the collapses of previously defended positions. Moreover, we compare municipalities that were under the Axis control both before and after front activation, where the German authority was incumbent. Had the German command wanted to implement a systematic "shock-and-awe" campaign in preparation of the fall back, it would have been rational to start in the days prior to the actual activation of the new front. However, we do not find evidence of anticipation effects (Figure A.2, Panels A-D and Table A.1). Yet, given the nature of our setting, we cannot rule out that the actual or perceived soldier insecurity increased upon front activation.

To test the role of soldiers insecurity in driving civilian victimization more formally, we apply an exposure design by focusing on two major sources of variation in stress level: the intensity of Allied offensives, which we proxy with municipality-day data on Allied bombings, and of partisan resistance, which we capture through proximity to Italian Partisan bands' headquarters at armistice. If the activation of new front lines determine higher civilian victimization due an increase in insecurity rather than a decline accountability, we should observe stronger effects in less secure areas.

First, we check whether indiscriminate violence became more likely at front activation in bombed municipalities. To do so, we interact our treatment indicator with indicators for municipalities that experienced or did not experience at least a bombing episode within five days of front activation.[26] We find that the effects are concentrated in locations that were not exposed to air attacks and likely more secure, although the difference between the two estimated coefficients is not statistically significant (Table 4, column 4, p-value 0.440).

We next check if more civilian killings happened in proximity of partisan bands' headquarters, by interacting our treatment indicator with indicators for municipalities within or outside 15 km of partisan headquarters. Usually, partisan bands had a radius of operation of 15 km from their headquarters (Baldissara, 2000) and their presence may have forced Germans to fight against formal and informal opponents, lowering their security and increasing stress. However, the two estimated coefficients are substantially identical, indicating that proximity to partisan bands did not deferentially exacerbate violence against

[26]Instead of including both the interacted and un-interacted terms, in order to simplify interpretation we include in all regressions and report coefficients for treatment subgroups by binary heterogeneity variables. This approach is equivalent to a sample split by means of a more conventional treatment interaction and allows to read the coefficient's magnitude by heterogeneity subgroup more directly, without having to subtract the interaction's coefficient from the main effect. Table 1 Panel B reports summary statistics for all binary variables employed in the sample splits.

civilians. (Table 4, column 5).

These findings indicate that our estimated effects are unlikely driven by differential increases in returns to civilian victimization at front activation, linked to increased insecurity for the German soldiers. If anything, the described results suggest that the incidence of indiscriminate violence was stronger in more secure areas.

6.3 Decreased Accountability

We interpret the increase in indiscriminate violence upon front activation as the result of the reduced policing capacity of the German Command and the consequent drop in soldiers' accountability. In this respect, our results are in line with other contributions in war studies that structure the relationship between commanders and soldiers as a principal-agent problem (Salehyan et al., 2014; Butler et al., 2007), where strong leadership may improve soldiers' attitudes (Abrahms and Potter, 2015). In our setting, the German Command acts as the principal that has as an overall preference against the indiscriminate use of violence (at least the small-scale one, as discussed in section 2.4) in order to facilitate cooperation with the local population and exploitation of resources in the medium and long-term. However, information asymmetries existed between the principal and the agents (soldiers at the front), which reduced enforcement capacity. Moreover, the principal's willingness to prosecute agents at particular junctures, such as front movements, may also drop, if the opportunity cost of enforcement increases. As a consequence, in these situation, the cost of misbehavior of agents substantially decreases.

As we cannot measure accountability directly, to support our interpretation of the results, we apply an exposure design that allows us to compare areas subject to higher accountability with those where the enforcement capacity of the principal was lower. Specifically, policing duties in the operation zone fell under the responsibility of divisions' commanders who acted, in coordination with Kesselring's German Command, in the interest of the principal. Commanders were therefore in charge of avoiding "unjustified violence against the civilian population", that could "create distrust in the German Army and help the enemies propaganda" (Kesselring, 1954, Collotti, 1963a). A reasonable use of violence against civilian was also mandated by a series of international agreements, including the Geneva convention that, at least formally, constrained the behavior of the German Army (Stanton, 2016). Enforcement capacity decreased with distance from division headquarters, whose position we observe across all episodes of front activation. Thus, if decreased accountability was the driving mechanism behind our results, we expect civilian victimization to be concentrated away from command centers.[27] To test this hypothesis, as each

[27] The flip side of this argument would suggest how indiscriminate violence should be concentrated close to division headquarters,

division was responsible for securing 30km-wide stripes around its headquarter (Collotti, 1963b, Gentile, 2012, Klinkhammer, 2016), we interact our treatment indicator with indicators for presence/absence of a division headquarters within 30 km of a municipality's centroid. Consistently with an accountability mechanism, we observe that the increased civilian victimization is almost uniquely driven by municipalities away from divisions headquarters, where enforcement capacity and thus soldiers' accountability were lower (Table 4, column 6, even if with a p-value of 0.120 we fail to reject the null hypothesis of coefficient equality).

We provide two additional pieces of evidence that are consistent with an accountability mechanism. First, the fact that we observe a differential increase in collective killings involving vulnerable individuals supports itself a drop in accountability hypothesis (Table 3, column 4). Children, women and elderly men were unlikely perceived by German soldiers as active threats. Second, as shown in Figure 4, our estimated effects decrease and ultimately disappear within three days after front activation. The historical evidence indicates that policing and command lines were restored with a lag relative to front activation of such length (Kurowski, 2003, Gentile, 2012). By contrast, Allied offenses, that generally created more insecurity for the Germans, tended to become increasingly violent after front activation and peaked close to front collapse. Thus, if insecurity was the main mechanism behind the effect, we should expect stable or increasing dynamic effects.

7 Heterogeneity Analysis

While upon front activation, German soldiers' behavior toward Italian civilians became significantly more violent, not all soldiers misbehaved when their accountability dropped. In fact, the probability of observing civilian killings, despite a ten-fold increase, remained rare, moving from one in one-thousands before the front activation to one in one-hundred in treated municipality when front activates. These features of the data beg the question of what underlying characteristics facilitated the adoption of particularly violent practices by German soldiers. In this section, we explore three different dimensions of heterogeneity. First, we examine how division characteristics influenced soldiers' behavior at front activation. Second, we consider the pre-war economic characteristics of the municipalities and their influence on soldiers' responses to changes in accountability. Finally, we analyze heterogeneity along macro war trends, to understand whether major events related to the general progression of the war had an influence on the

where the enforcement capacity of the principal was stronger, if he approved the use of strategic indiscriminate violence at front activation.

behavior of soldiers at the micro-level.

7.1 Division Characteristics

Divisions' identity and characteristics are often quoted as major drivers of civilian victimization in the context of WWII Italy (Gentile, 2015).[28] The first dimension that the historical literature mentions as a major determinant of violence is soldier affiliation with the Schutzstaffel (SS, Gentile, 2015). The SS were originally paramilitary units under the direct control of the Nazi party. Towards the end of WWII their number increased, and they began to represent a large share of active combat units. Although formally under the command of the Wehrmacht, these troops were characterized by ideological fanaticism and indoctrination and operated with more independently compared to other army units. These distinctive elements are often quoted as a major driver of civilian victimization in many war contexts (Ahmadov and Hughes, 2017). A few SS units were active in Italy throughout the campaign, most notably the I SS Division Adolph Hitler and the 16th SS Panzergrenedier Division. The latter was famously responsible for some of the most brutal collective killings on record, such as the massacre of Sant'Anna di Stazzema. We test whether the effect of fronts activation on civilian killings was stronger in municipalities whose nearest division belonged to the SS.[29] Perhaps surprisingly, the results suggest that SS divisions did not behave differentially worse in treated municipalities relative to the comparison ones, while all the effect is concentrated near to non-SS units (Table 5, column 1, with a p-value of 0.000). It is worth noting that this finding does not imply that the SS units killed fewer civilians than other units. However, their killing inclination did not differentially change upon front activation.[30]

A second driver of violence against civilians that emerges in the literature relates to the level of training of units (Oppenheim and Weintraub, 2017). Well-trained soldiers should be better able to cope with war-related stress factors and to operate professionally, even in the absence of a stable command line, in a decentralized manner. We test this hypothesis by examining whether civilian victimization was stronger in municipalities whose closest units were not assembled and trained in Germany. In fact, German-drafted units received more complete training until relatively late in the war. They were also more complete in terms of personnel and generally ethnically and linguistically homogeneous. By contrast, divisions

[28] We collect information on the characteristics and history of German divisions through various compendia, but mainly at https://www.lexikon-der-wehrmacht.de/, last accessed on 31/5/2022. As discussed in Section 6, we do not find evidence of systematic sorting into treatment. The fact that the identity of the division nearest a given municipality was not an outcome of the shifting of the front allows us to study treatment heterogeneity by division characteristics. We keep nearest and second-nearest division trends throughout our division heterogeneity analysis so to formally account for selective sorting.

[29] To do so, we operate a sample split, similarly to the methodology employed in Section 6, and we interact the treatment indicator (and all other covariates) with a dummy that takes the value of one if the nearest division was an SS one.

[30] Owing to the small number of SS units employed throughout the Italian Campaign, in this specification we cannot include nearest division trends.

drafted outside of Germany were typically patched-up units made of heterogeneous sub-units from disbanded combat groups who had often suffered significant damage. They normally received little or no training as a combat unit, were ill-equipped, and often lacked a full chain of command (Nafziger, 2000). While collective killings are almost twice as large near patched-up units, we cannot reject the hypothesis of equality between the two estimated coefficients (Table 5, column 2, with a p-value of 0.730).

An influential view on the determinants of German soldiers' misbehavior in the context of WWII argues that units deployed to the East against Soviet Union, where racial edges were felt more strongly and the German commands justified systematic violence against civilians more easily, committed more atrocities (Gentile, 2015). When deployed elsewhere, these units would have been more likely to victimize civilians because of experiences from their previous deployment. However, contrary to this hypothesis, we find that our results are largely driven by municipalities whose closest units had not been deployed on the Eastern Front (Table 5, column 3, with a p-value on testing for coefficient equality of 0.04).

Finally, we check whether the combat experience of the units played a major role in determining how soldiers responded to front activation. The literature, in fact, does highlight combat experience as a major driver of soldiers behavior. More experienced soldiers should, *ceteris paribus*, be better able to cope with lack of a functioning command chain and with increased fighting stress (Mitchell, 2004; Oppenheim and Weintraub, 2017). We measure unit combat experience by checking whether they were created before or after 1942, the sample's mean of divisions' creation date. The effects are fully concentrated near divisions with less combat experience, while close to more experienced units the estimated coefficient is small, insignificant and even negative in sign (Table 5, column 4, with a p-value on testing for coefficient equality of 0.01). This suggests how a limited level of combat experience triggered a violent reaction on the German side when the enforcement capacity of the principal decreased due to a front movement.

Based on the results presented in this section, we conclude that the German divisions more likely to use indiscriminate violence when there was a reduction in accountability for their actions, were those less indoctrinated, relatively poorly trained, not deployed on the Eastern front and more inexperienced.

7.2 Economic Characteristics

Soldiers' may have responded to a drop in accountability upon front activation differently, based on local monetary incentives related to municipalities' economic characteristics (Grosfeld et al., 2020). In fact, during the Italian Campaign, the Wermacht exploited the economic resources of the Italian peninsula in a systematic manner to support the German war effort. These strategic needs entailed coercing labor and

keeping industrial productive capacities at a maximum and, at times, also relocating industrial machinery and workers to the North when the front line moved too close to specific municipalities to continue production (Klinkhammer, 2016).

We proceed along this line of inquiry and explore heterogeneity along pre-war municipality economic characteristics. First, we test if atrocities against civilians upon front activation were more likely to happen in the more developed areas. We find that our results are largely driven by municipalities within 30 km of a provincial capital, where most of the industrial apparatus was generally located, and municipalities whose employment in the industrial sector was above the sample mean (Table 6, columns 1 and 2, with p-values for testing coefficient equality of 0.04 and 0.05, respectively).

Next, we focus on heterogeneity along municipality size. The effects of front activation on civilian victimization are larger in more populated municipalities, above the median of total resident population in 1936 (Table 6, column 3, with p-value for testing coefficient equality of 0.02), but not in highly densely populated areas, above the median of population density in 1936 (Table 6, column 4, with p-value of 0.340). This result suggests that, while the supply of potential victims increases collective killings,having a more concentrated population did not enhance the severity of civilian victimization.

All together, the heterogeneity analysis along pre-war economic characteristics shows stronger effects in more populated and industrialized areas, which is consistent with a systematic attempt on the part of the German troops to exert a firmer control of strategic locations and speaks to those contributions that link violence to looting (Blattman and Miguel, 2010).

7.3 Macro War Characteristics

Finally, we analyze heterogeneity of civilian victimization along front characteristics and macro war-trends. The characteristics of a specific front may have significantly influenced soldiers' behavior, for instance if they changed the perceived security of the troops deployed there. Moreover, previous works have highlighted how the behavior of the German army varied depending on the period of the war and the tactical characteristics of different front lines. For instance, there is evidence that the general deterioration of the morale of German troops, as the desperate situation of the Third Reich was becoming apparent towards the end of the war, led to more defections and a general increase in the incidence of violations of the military law (Klinkhammer, 2016). In the Italian setting, Costalli et al. (2020) point out how decreasing security for German troops towards the end of the Italian Campaign led to more frequent civilian victimization.

We first explore heterogeneity along front characteristics. We start this analysis by testing if civilian victimization was driven by the activation of short front, which lasted less than the median of the 32 front duration of 18 days. Along these fronts, German soldiers may have felt more insecure than in more easily defensible positions, and thus exercise less restraint when dealing with civilians. However, there is no statistically significant difference in collective killings between long and short fronts (Table 7, column 1, with a p-value of 0.630). If anything, the effects were stronger along longer fronts, arguably those that had been better fortified and defended by the Germans. As the average duration of a front line was the outcome of several factors, not necessarily related with the actual security on the ground at front activation, as a second step, we look at fronts above and below the median of the standard deviation of terrain ruggedness, calculated across all treated municipalities separately for each front line. The rationale behind this measure is that a high average standard deviation in terrain ruggedness would capture those front lines that benefited from pronounced mountain ridges towering over relatively flat plains, a setting that would facilitate the defenders. Also in this case, the two coefficients are statistically indistinguishable from each other, and, if anything, more killings happened close to less rugged fronts (Table 7, column 2, with a p-value of 0.590).

Second, we check whether different macro-conditions linked to the phase of the war had a mitigating or enhancing effect on civilian victimization. We test whether episodes of front activation before the landing of the Allies in Normandy on June 6 1944 show different patterns compared to later front lines. This episode, known as D-Day, had a strong negative impact on German hopes to obtain a victory in the war and might have consequently triggered a change in the behavior of the average German soldier. While the estimated effects appear larger after the D-Day, both coefficients are positive and statistically indistinguishable (Table 7, column 3, with a p-value of 0.220). Finally, we compare front movements in the first and second half of the Italian Campaign, with the idea that soldier frustration towards the end of the war may have further weakened the enforcement capacity of the German division commanders (Kesselring, 1954). Despite finding larger effects in the second half of the war, the impact of front activation on collective killings in positive and significant even if the first half of the war, and the two coefficients are statistically indistinguishable (Table 7, column 3, with a p-value of 0.350).

Combined together, these tests suggest that front characteristics and macro-war trends little affected civilian victimization, and is fully consistent with the hypothesis that micro-level variation in economic incentives, and accountability in particular, is the main driver behind the differential increase in indiscriminate violence at the front activation.

8 Conclusions

This paper studies the causal effect of a drop in soldiers' accountability on civilian victimization, using evidence from the Italian Campaign. To perform this analysis, we collected the universe of Nazi civilian killings between June 1943 and May 1945, that we linked with position of front lines and German divisions. We exploit plausibly exogenous variation in the movement of front lines that negatively shocked the enforcement capacity of the German command and compare municipalities that fell into the combat zone on the day of activation of each front line with comparison municipalities that either remained far from the front line or stayed in the combat zone.

We find that the front activation increased the use of indiscriminate violence, usually against the German Command directives and that included episodes not related to partisan attacks, and against vulnerable population, by 10 fold. By contrast, selective violence, accepted and used by German commanders to achieve strategic goals, did not differentially change upon front activation. These effects were concentrated in municipalities located away from divisions' headquarters, where soldiers' accountability further decreased. Conversely, soldiers' did not use more indiscriminate violence in response to increased insecurity, proxied by Allied bombing and partisan attacks. Finally, we document that less trained and more inexperienced units were more likely to respond to a decrease in their accountability.

Since civilian victimization has high social costs and could have a profound negative effect on economic development (Collier et al., 2003), our findings may have policy implications for both international organizations and army commands that wants to prevent episodes of indiscriminate violence in the future. We argue that, in addition to the importance of returns to victimization, also its costs is a key determinant of misbehavior and that specific unit characteristics, such inexperience, may exacerbate violent reactions. In other words, while large-scale civilian victimization requires some knowledge or endorsement by army commanders, small-scale collective killings may depend on behavioral incentives that individual soldiers face in different fighting situations.

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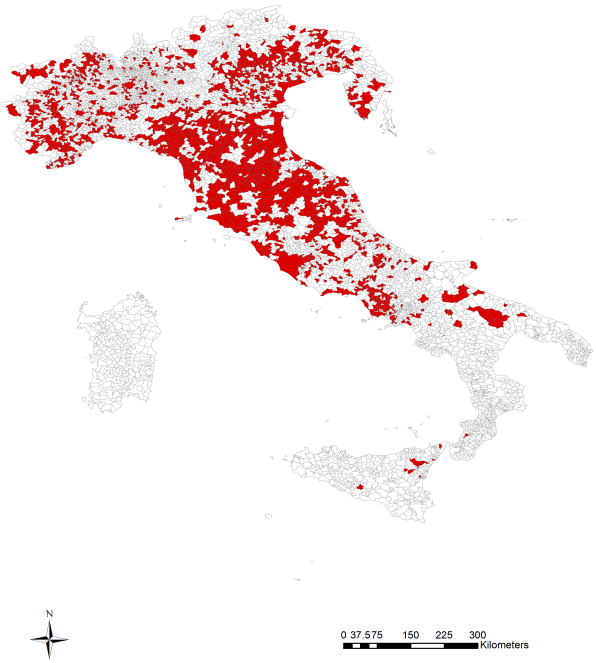
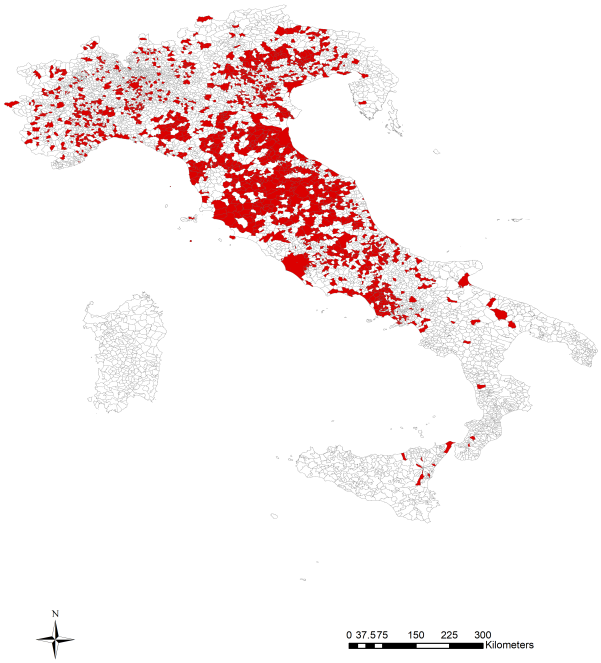
Figures and Tables

Figure 1: CIVILIAN KILLINGS DURING THE ITALIAN CAMPAIGN

(a) Collective killing, YES/NO



(b) Single killing, YES/NO



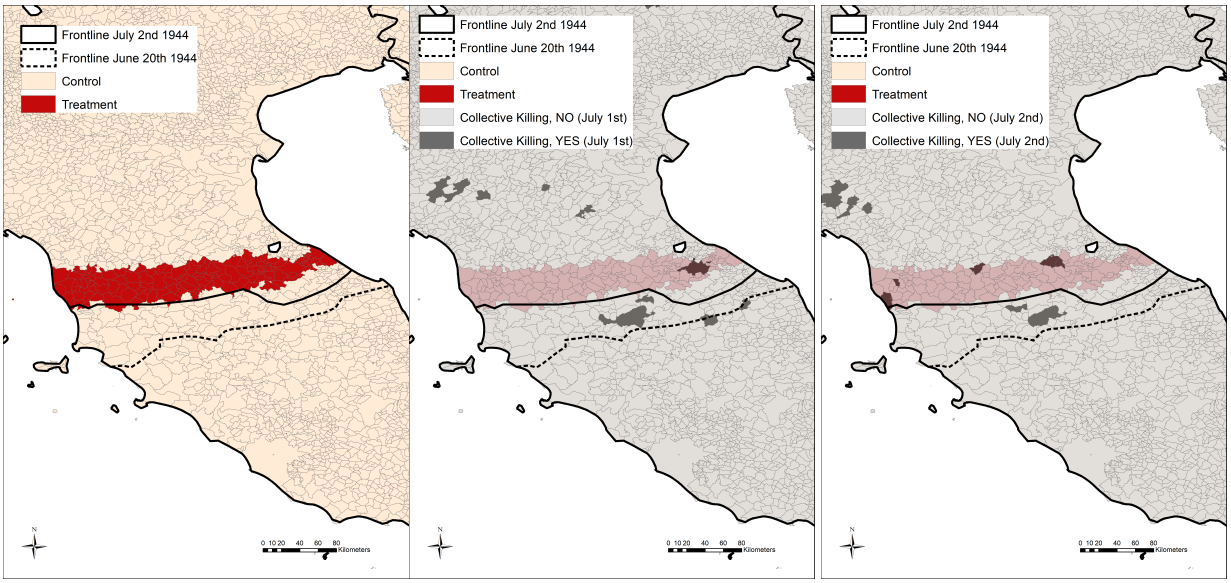
Notes. Panel (a) shows all Italian municipalities that experienced at least one episode of collective civilian victimization (two or more people were killed) between June 8, 1943 and May 2, 1945. Panel (b) shows all Italian municipalities that experienced at least one episode of single civilian victimization (one person was killed) between June 8, 1943 and May 2, 1945. Municipalities are drawn using the 1936 borders. *Source*: http://www.straginazifasciste.it/

Figure 2: FRONT LINES 9 JULY 1943 TO 2 MAY 1945

Notes. The figure shows the 32 front lines along which Axis and Allied armies confronted during the Italian Campaign, between the Allied landing in Sicily on 9 July 1943 and Germany surrender on 2 May 1945.
Source: Blumenson (1993)

Figure 3: FRONT ACTIVATION AND COLLECTIVE KILLINGS: AN EXAMPLE

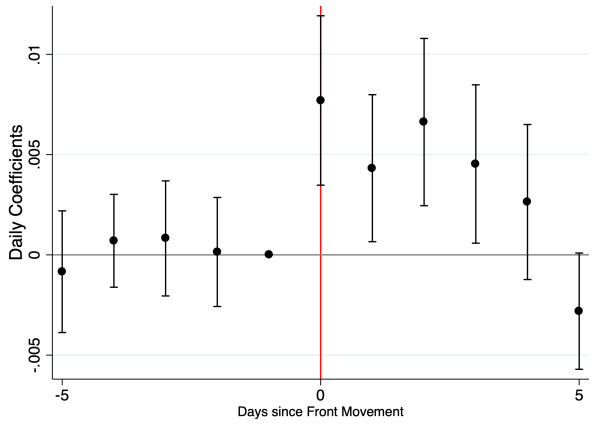
(a) New front line, July 2nd 1944 (b) collective killings in k=-1 (c) collective killings in k=0



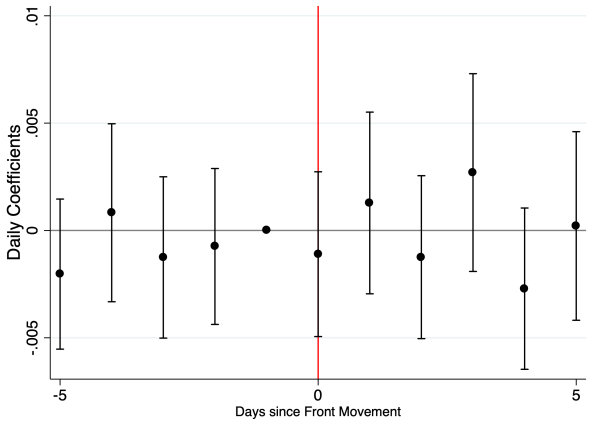
Notes. Panel (a) shows treated municipalies that were more than 40 km away from the June 20th 1944 front line and within 40 km of the 2nd of July 1944 one after the combat zone moves North. Panel (b) shows episodes of collective killings that happened the day before the activation of the new fronline. Panel (c) shows episodes of collective killings that happened on the day of front activation. The units of observation are Italian municipalities with 1936 boundaries.
Source: Blumenson (1993) and http://www.straginazifasciste.it/

Figure 4: THE EFFECTS OF FRONT ACTIVATION ON CIVILIAN VICTIMIZATION

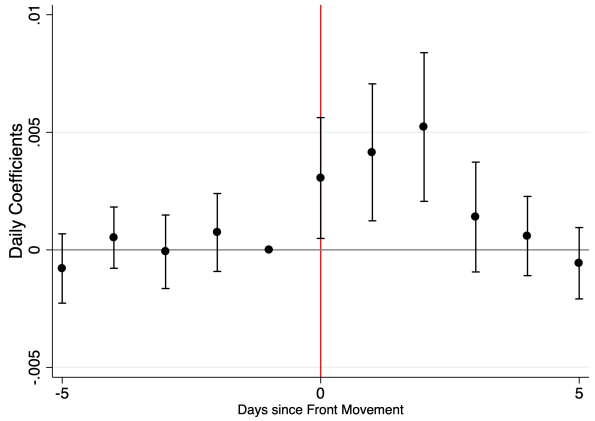
(a) Collective Civilian Killings



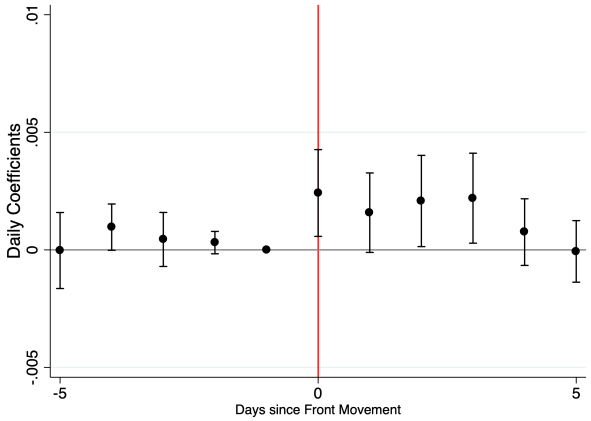
(b) Single Civilian Killings



(c) Collective Civilian Killings Excluding Partisans



(d) Vulnerable Killings



Notes. Daily coefficients and 95% standard errors estimated from equation 1 from 5 days before to 5 days after front activation. Day $k = -1$ is the excluded category. The dependent variables are indicators for collective civilian killings (two or more people were killed, Panel A), single civilian killing (only one person was killed, Panel B), collective civilian killings not related to partisan attacks (Panel C), and vulnerable killings (involving at least a woman, a child or an elderly person, Panel D). Standard errors are clustered at the municipality level.
Source: http://www.straginazifasciste.it/

Table 1: SUMMARY STATISTICS

Panel A: Day-municipal level outcomes

	count	mean	sd	min	max
Collective killing yes/no	2488400	0.0007	0.0255	0	1
Single killing yes/no	2488400	0.0006	0.0238	0	1
Collective No Partisan killing yes/no	2488400	0.0003	0.0175	0	1
Collective vulnerable killing yes/no	2488400	0.0002	0.0134	0	1
Observations	2488400				

Panel B: Front-municipal level outcomes

	count	mean	sd	min	max
Treated yes/no	226016	0.04	0.21	0	1
Axis side yes/no	226016	0.73	0.44	0	1
Operation zone yes/no	226016	0.24	0.43	0	1
Bombed experiment yes/no	226016	0.01	0.08	0	1
<15km partisan band yes/no	226016	0.54	0.50	0	1
<30km division headquarter yes/no	226016	0.09	0.29	0	1
Near division SS yes/no	226016	0.05	0.22	0	1
Near division East deployment yes/no	226016	0.41	0.49	0	1
Near division >p50 creation date yes/no	226016	0.49	0.50	0	1
<30km provincial capital yes/no	226016	0.81	0.40	0	1
>p50 industrial employment share	226016	0.51	0.50	0	1
>p50 population yes/no	226016	0.50	0.50	0	1
>p50 population density yes/no	226016	0.52	0.50	0	1
Front >p50 yes/no	226016	0.47	0.50	0	1
frontline >p50 ruggedness SD	226016	0.50	0.50	0	1
After D-Day yes/no	226016	0.31	0.46	0	1
Last 16 fronts yes/no	226016	0.50	0.50	0	1
Observations	226016				

Notes. Summary statistics for all variables employed in the tables of the main paper. The sample is the same employed for the main regressions. It subsets to artificial panel containing a front movement, and excludes Sardinia, where no front movements and civilian killings took place.

Table 2: WERE TREATED AND COMPARISON MUNICIPALITIES ON THE SAME TREND?

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	Collective no Partisan killing (YES/NO)	Collective Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treated * Trend	0.000230	0.000275	0.0000958	-0.000209
	(0.000279)	(0.000429)	(0.000156)	(0.000199)
Mean of Y				
Observations	1096989	1096989	1096989	1096989
Day FE	314	314	314	314
Comune FE	227351	227351	227351	227351
Clusters 1	7341	7341	7341	7341
Clusters 2				
Clusters 3				
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. OLS regressions predicting outcomes in the five days before front activation. Outcomes are allowed to vary according a linear time (day) trends that differs for treated municipalities, that were within 40km of the combat zone at time t but were outside it at time $t-1$. Day $k=-1$ is the excluded category. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table 3: DOES A DROP IN ACCOUNTABILITY AFFECT SOLDIERS' (MIS)BEHAVIOR?

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	Collective no Partisan killing (YES/NO)	Collective Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.000143	-0.000747	0.000850	0.000309
	(0.00139)	(0.00185)	(0.000865)	(0.000243)
Treat t 0	0.00770***	-0.00111	0.00357***	0.00242**
	(0.00215)	(0.00196)	(0.00138)	(0.000942)
Mean of Y	0.0007	0.0006	0.0003	0.0002
Observations	2488122	2488122	2488122	2488122
Clusters	7341	7341	7341	7341
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table 4: WHAT DRIVES THE INCREASE IN INDISCRIMINATE VIOLENCE?

Dependent variable:	Collective killing, yes/no					
	Baseline	Sorting		Insecurity		Accountability
	(1)	(2)	(3)	(4)	(5)	(6)
Treat t 0	0.00770***	0.00721***	0.00706***			
	(0.00215)	(0.00261)	(0.00261)			
Treat t 0 x no bombing				0.00779***		
				(0.00255)		
Treat t 0 x bombing				-0.0148		
				(0.0289)		
Treat t 0 x <= 15 km partisans					0.00685	
					(0.00459)	
Treat t 0 x > 15 km partisans					0.00684**	
					(0.00329)	
Treat t 0 x <= 30 km division						-0.000920
						(0.00424)
Treat t 0 x > 30 km division						0.00765**
						(0.00363)
Mean of Y	0.0007	0.0007	0.0007	0.0006	0.0007	0.0007
Observations	2488400	2488279	2488158	2486024	2487234	2487806
Clusters	7341	7341	7341	7341	7341	7341
P-value equality test				0.44	1.00	0.12
Municipality FE	YES	YES	YES	YES	YES	YES
Day FE	YES	YES	YES	YES	YES	YES
Front FE	YES	YES	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES	YES	YES
Division 1 x Front x day FE	NO	YES	YES	YES	YES	YES
Division 2 x Front x day FE	NO	NO	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variable is an indicator for collective civilian killings (two or more people were killed). Bombing and no bombing are indicators for municipalities that experienced/did not experience at least a bombing episode within five days of front activation. <=15 and >15 km partisans are indicators for municipalities within/beyond 15 km of a partisan headquarter at the signature of the Armistice (September 1943). <=30 and > 30km division indicators for municipalities within/beyond 30 km of an Axis division headquarter. Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/; Lt Col Robertson et al. (2013); Baldissara (2000); and military German maps collected from Bundes Archiv.

Table 5: HETEROGENEITY: DO MILITARY UNITS' CHARACTERISTICS MATTER?

Dependent variable:	Collective killing, yes/no			
	Indoctrination	Drafting	Fighting	Experience
	(1)	(2)	(3)	(4)
Treat t 0 x SS yes/no	-3.60e-18			
	(3.46e-17)			
Treat t 0 x no SS yes/no	0.00737***			
	(0.00213)			
Treat t 0 x Germany yes/no		0.00462		
		(0.00718)		
Treat t 0 x not Germany yes/no		0.00727***		
		(0.00274)		
Treat t 0 x East yes/no			0.000576	
			(0.00182)	
Treat t 0 x West yes/no			0.00983**	
			(0.00405)	
Treat t 0 x new yes/no				0.0105***
				(0.00389)
Treat t 0 x old yes/no				-0.000895
				(0.00190)
Mean of Y	0.0007	0.0007	0.0007	0.0007
Observations	2488323	2487993	2487647	2487658
Clusters	7341	7341	7341	7341
P-value equality test	0.00	0.73	0.04	0.01
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES
Division 1 x Front x day FE	NO	YES	YES	YES
Division 2 x Front x day FE	NO	YES	YES	YES

Notes. Estimates from equation 1 in all columns, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variable is an indicator for collective civilian killings (two or more people were killed). SS and no SS are indicators for municipalities whose closest German division was/was not a SS unit. Germany and not Germany are indicators for municipalities whose closest German division was/was not trained in Germany. East and West are indicators for municipalities whose closest German division was/was not previously deployed on the East Front. Old and new are indicators for municipalities whose closest German division was created before/after 1942, the sample's mean of creation date of divisions deployed during the Italian Campaign. Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table 6: HETEROGENEITY: DO LOCAL ECONOMIC CHARACTERISTICS MATTER?

Dependent variable:	Collective killing yes/no			
	(1)	(2)	(3)	(4)
Treat t 0 x <= 30 km capital	0.00999***			
	(0.00314)			
Treat t 0 x > 30 km capital	-0.00350			
	(0.00559)			
Treat t 0 x industrial		0.0155***		
		(0.00564)		
Treat t 0 x rural		0.00343		
		(0.00275)		
Treat t 0 x large municipality			0.0104***	
			(0.00402)	
Treat t 0 x small municipality			0.000826	
			(0.000562)	
Treat t 0 x high density				0.00487
				(0.00321)
Treat t 0 x low density				0.00989**
				(0.00413)
Mean of Y	0.0007	0.0007	0.0006	0.0006
Observations	2487619	2487355	2487619	2487267
Clusters	7341	7341	7341	7341
P-value equality test	0.04	0.05	0.02	0.34
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES
Division 1 x Front x day FE	YES	YES	YES	YES
Division 2 x Front x day FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variable is an indicator for collective civilian killings (two or more people were killed). <=30km and >30km capital are indicators for municipalities within/beyond 30km of the provincial capital. Industrial and rural are indicators for municipalities whose employment in the industrial sector was above/below the sample mean. Large and small municipalities are indicators for municipalities above/below median of total resident population in 1936. High and low density are indicators for municipalities above/below the median of population density in 1936. Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/; and 1936 Population Census.

Table 7: HETEROGENEITY: DO MACRO WAR TRENDS MATTER?

Dependent variable:	Collective killing (YES/NO)			
	Front characteristics		War trends	
	(1)	(2)	(3)	(4)
Treat t 0 x long front	0.00874*			
	(0.00509)			
Treat t 0 x short front	0.00594**			
	(0.00273)			
Treat t 0 x rugged		0.00583**		
		(0.00268)		
Treat t 0 x not Rugged		0.00901*		
		(0.00523)		
Treat t 0 x pre D-Day			0.00408**	
			(0.00207)	
Treat t 0 x post D-Day			0.0114**	
			(0.00565)	
Treat t 0 x early war				0.00468**
				(0.00237)
Treat t 0 x late war				0.00961**
				(0.00476)
Mean of Y	0.0007	0.0007	0.0007	0.0007
Observations	2487880	2487880	2487880	2487880
Clusters	7341	7341	7341	7341
P-value equality test	0.63	0.59	0.22	0.35
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES
Division 1 x Front x day FE	YES	YES	YES	YES
Division 2 x Front x day FE	YES	YES	YES	YES

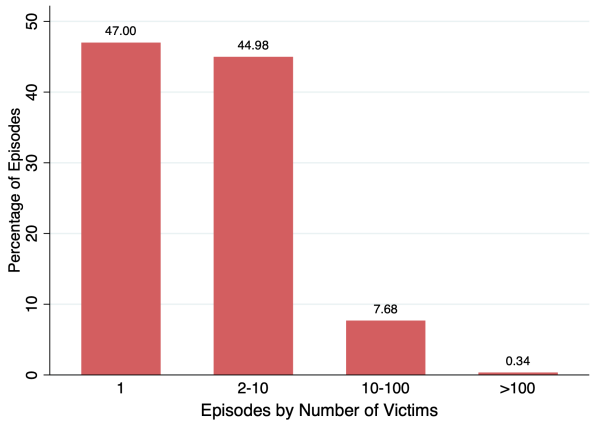
Notes. Estimates from equation 1 in all columns, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variable is an indicator for collective civilian killings (two or more people were killed). Long and short front are indicators for fronts whose duration was above/below the median duration of the 32 front of 18 days. Rugged and not rugged are indicators for municipalities above/below the median of the standard deviation of terrain ruggedness, calculated across all treated municipalities separately for each front line. Pre and Post D-Day are indicators for front activations before/after the Allied landing in Normandy on June 6 1944. Early and late war are indicators for front activations in the first half and second half of the Italian Campaign. Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/; Blumenson (1993); and 1936 Population Census.

Online Appendix — Not for Publication

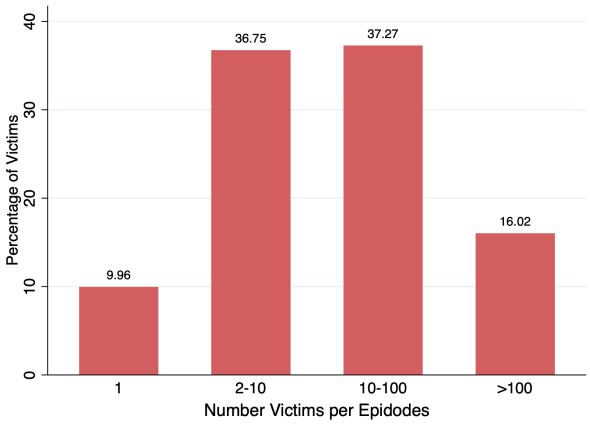
A Additional Results

Figure A.1: DISTRIBUTION OF CIVILIAN KILLINGS DURING THE ITALIAN CAMPAIGN

(a) Episodes by Number of Victims

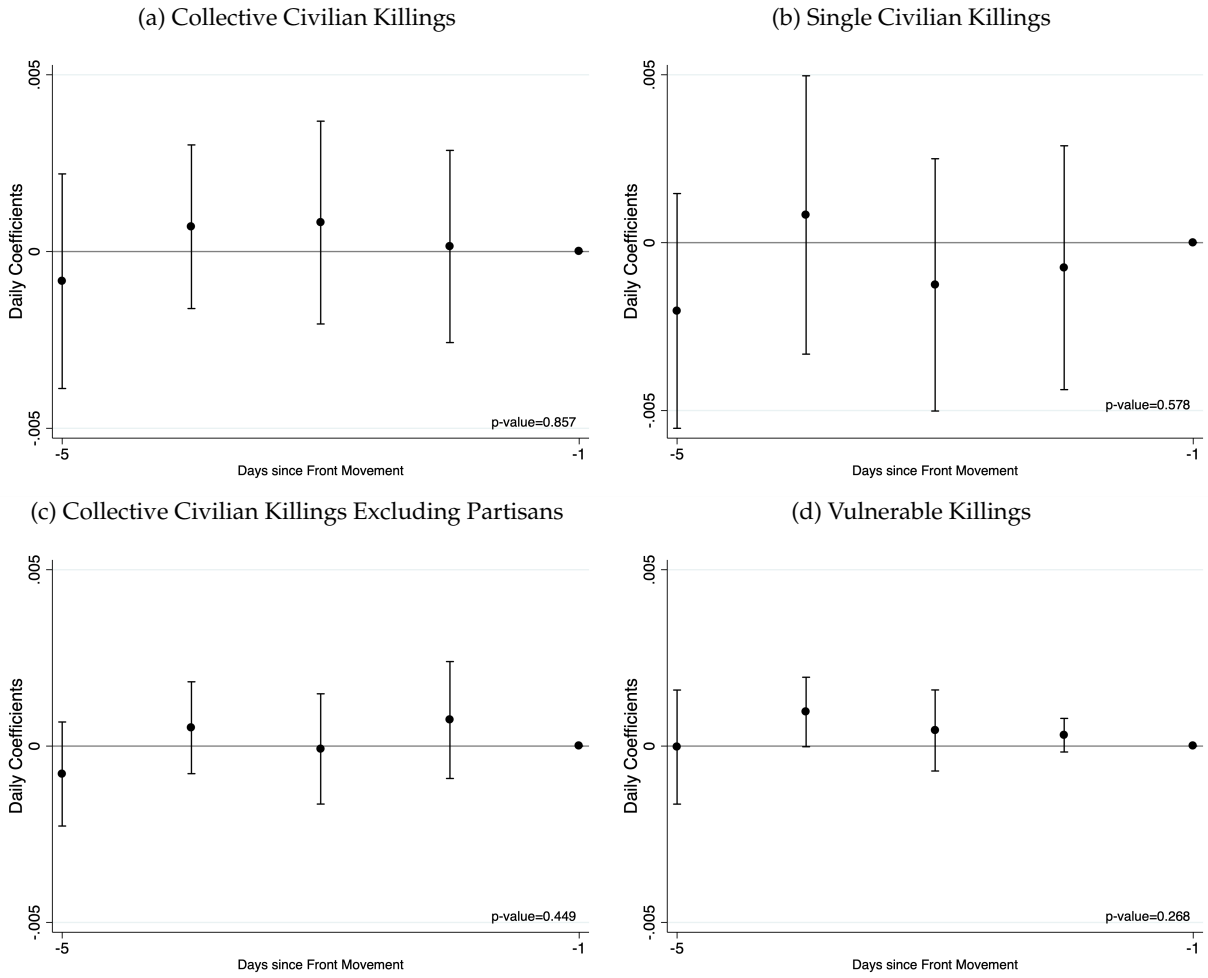


(b) Number Victims per Killing Episodes



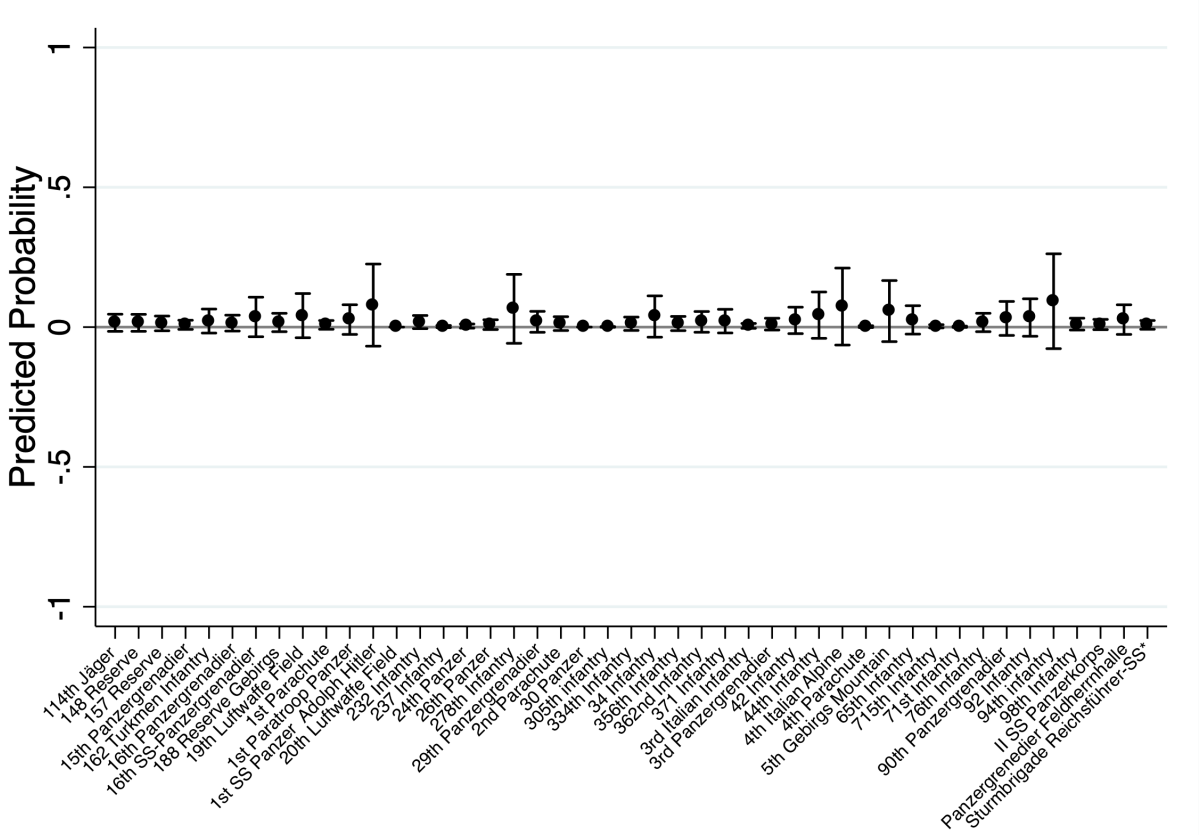
Notes. Panel (a) shows the percentage of episodes out a total of 5,298 with a single victim, between 2 and 10, 10 and 100 and more than 100 victims between June 8, 1943 and May 2, 1945. Panel (b) shows the percentage of civilian victims killed between June 8, 1943 and May 2, 1945 out a total of 24,988 in episodes with a single victim, between 2 and 10, 10 and 100 and more than 100 victims. *Source*: http://www.straginazifasciste.it/

Figure A.2: TEST FOR PRE-TRENDS



Notes. Daily coefficients and 95% standard errors estimated from equation 1 in the 5 days before the front activation. Day $k = -1$ is the excluded category. The dependent variables are indicators for collective civilian killings (two or more people were killed, Panel A), single civilian killing (only one person was killed, Panel B), collective civilian killings not related to partisan attacks (Panel C), and vulnerable killings (involving at least a woman, a child or an elderly person, Panel D). *p*-value in each panel reports the *p*-value of testing that all the coefficients are jointly zero. Standard errors are clustered at the municipality level.
Source: http://www.straginazifasciste.it/

Figure A.3: PROBABILITY OF GERMAN DIVISIONS TO BE ON THE FRONT LINE



Notes. Predicted probability for the 47 Divisions operating during the Italian Campaign to fight on the front line based on division fixed effects. The excluded division is 1st Paratroop Panzer Division Hermann Göring.

Table A.1: BALANCING TESTS BETWEEN TREATED AND COMPARISON MUNICIPALITIES

	Violence indicators				Fighting indicators	
Dependent variable:	Collective killing (YES/NO) (1)	Single killing (YES/NO) (2)	Collective no Partisan killing (YES/NO) (3)	Collective Vulnerable killing (YES/NO) (4)	Bombing (YES/NO) (5)	Resistance Activity (YES/NO) (6)
Panel A: Lag 5						
Treated yes/no	0.000355	0.00157	-0.000340	-0.000141	0.00165	0.00152
	(0.00136)	(0.00121)	(0.000755)	(0.000816)	(0.00123)	(0.00139)
Mean of Y	0.0007	0.0006	0.0002	0.0001	0.0011	0.0008
Observations	3165927	3165927	3165927	3165927	3165927	3165927
Clusters	6939	6939	6939	6939	6939	6939
Panel B: Lag 10						
Treated yes/no	0.000504	0.000856	-0.0000622	-0.000386***	-0.00236	0.00169
	(0.000844)	(0.00108)	(0.000414)	(0.000108)	(0.00161)	(0.00111)
Mean of Y	0.0006	0.0006	0.0002	0.0001	0.0010	0.0007
Observations	3165927	3165927	3165927	3165927	3165927	3165927
Clusters	6939	6939	6939	6939	6939	6939
Panel C: Lag 15						
Treated yes/no	0.00160	-0.000381	0.000962	-0.000120	0.00114	0.000411
	(0.00102)	(0.000637)	(0.000723)	(0.000113)	(0.00143)	(0.000843)
Mean of Y	0.0006	0.0005	0.0002	0.0001	0.0009	0.0007
Observations	3165927	3165927	3165927	3165927	3165927	3165927
Clusters	6939	6939	6939	6939	6939	6939
Panel D: Lag 20						
Treated yes/no	-0.000114	-0.000493	-0.0000581	-0.000250***	0.0000980	-0.0000483
	(0.000599)	(0.000454)	(0.000432)	(0.0000427)	(0.000961)	(0.000584)
Mean of Y	0.0006	0.0005	0.0002	0.0001	0.0009	0.0007
Observations	3165927	3165927	3165927	3165927	3165927	3165927
Clusters	6939	6939	6939	6939	6939	6939
Municipality FE	YES	YES	YES	YES	YES	YES
Day FE	YES	YES	YES	YES	YES	YES

Notes. OLS regressions predicting violence and fighting outcomes five days (Panel A), 10 days (Panel B), 15 days (Panel C), and 20 days (Panel D) before front activation. Each regression is estimated on a panel dataset covering Italian municipalities North of the front line (in Axis-controlled territory) in each day from June 8, 1943 to May 2, 1945. Treated is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4), for municipalities bombed by the Allies (column 5), and for municipalities where partisan activity was detected (column 6). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/; Lt Col Robertson et al. (2013); and Baldissara (2000).

Table A.2: CROSS-SECTIONAL COMPARISON BETWEEN EVER AND NEVER TREATED MUNICIPALITIES

	(1)	(2)	(3)	(4)	(5)
Panel A: Geographical Factors					
	Waterways	Elevation	Rainfall	Ruggedness	Coast KM
Treated yes/no	0.389***	52.37***	-4.086***	1071.1***	-38.90***
	(0.0475)	(10.91)	(0.645)	(161.9)	(1.144)
Mean of Y	1.2203	458.2947	78.4683	6857.1418	67.7711
Observations	7063	7061	7062	7062	7063
Clusters					
Panel B: Socio-economic Factors					
	Density	Prov capital KM	Industry %	Agriculture %	Partisans bands
Treated yes/no	-12.50*	1.688***	-0.0474***	0.00801***	0.00907
	(6.772)	(0.345)	(0.00186)	(0.00270)	(0.00572)
Mean of Y	187.5189	19.1849	0.1007	0.2928	0.0514
Observations	7061	7063	7053	7061	7063
Clusters					

Notes. Treated is an indicator that equals one for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$ at least once during the Italian Campaign and zero for municipalities that were never within 40km of the combat zone at time t but were outside it at time $t-1$. Panel A uses geographical characteristics as outcome variables, such as the number of waterways in a municipality (column 1), the average municipality elevation in meters (column 2), the average municipality rainfall in centimeters measured in terms of average precipitations in the month of September between 1950 and 2000 (column 3), the average municipality ruggedness measured in per-thousant points (column 4), and municipality distance from the coast in kilometers (column 5). Panel B uses 1936 municipality socio-economic characteristics as outcome variables, such as population density (column 1), distance in kilometers to the nearest point of the boundary of a provincial capital (column 2), the share of the active population employed in the industrial sector (column 3), the share of the active population employed in the agricultural sector (column 4), and the number of partisan bands reported as active in the territory of a municipality at Armistice in September 1943 (column 5). All distance measures are calculated from municipalities' centroids. Robust standard errors are reported in parentheses. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/; and 1936 Population Census.

Table A.3: ROBUSTNESS CHECK: EXCLUDING LARGE EPISODES OF COLLECTIVE KILLINGS

Dependent variable:	Collective killing (YES/NO)	>1 & < 100 killing (YES/NO)	>1 & < 50 killing (YES/NO)	>1 & < 10 killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.000143	0.000143	0.0000361	0.0000501
	(0.00139)	(0.00139)	(0.00138)	(0.00138)
Treat t 0	0.00770***	0.00770***	0.00759***	0.00620***
	(0.00215)	(0.00215)	(0.00216)	(0.00203)
Mean of Y	0.0007	0.0006	0.0006	0.0005
Observations	2488122	2488122	2488122	2488122
Clusters	7341	7341	7341	7341
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings where two or more people were killed (column 1), for collective civilian killings where between 2 and 100 people were killed (column 2), for collective civilian killings where between 2 and 50 people were killed (column 3), and for collective civilian killings where between 2 and 10 people were killed (column 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1. *Source*: http://www.straginazifasciste.it/

Table A.4: ROBUSTNESS CHECK: EXCLUDING SUMMER 1944

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.00115	-0.00209	0.00113	0.000368
	(0.000941)	(0.00180)	(0.000803)	(0.000299)
Treat t 0	0.00500***	-0.00140	0.00399***	0.000939
	(0.00168)	(0.00197)	(0.00148)	(0.000591)
Mean of Y	0.0005	0.0004	0.0003	0.0002
Observations	2031138	2031138	2031138	2031138
Clusters	7341	7341	7341	7341
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, excluding front movements happened between June 17 1944 and September 24 1944, when Kesselring gave more freedom to his troops in dealing with civilians, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.5: ROBUSTNESS CHECK: ONLY MUNICIPALITIES IN OPERATION ZONE

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	-0.000235	-0.000608	0.000795	-0.0000444
	(0.00165)	(0.00215)	(0.00100)	(0.0000941)
Treat t 0	0.00775***	-0.00174	0.00244*	0.00238**
	(0.00250)	(0.00230)	(0.00140)	(0.00113)
Mean of Y	0.0018	0.0017	0.0008	0.0005
Observations	605814	605814	605814	605814
Clusters	5904	5904	5904	5904
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, restricting the sample to municipalities in the operation zone, directly exposed to war and under the exclusive military control of the Wehrmacht, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.6: ROBUSTNESS CHECK: ONLY MUNICIPALITIES WITHIN 200 KM OF FRONT LINE ON AXIS SIDE

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	-0.0000132	-0.0000812	0.000630	-0.0000372
	(0.00150)	(0.00204)	(0.000930)	(0.000157)
Treat t 0	0.00828***	-0.00189	0.00313**	0.00230**
	(0.00237)	(0.00214)	(0.00143)	(0.00101)
Mean of Y	0.0020	0.0018	0.0008	0.0004
Observations	365136	365136	365136	365136
Clusters	6100	6100	6100	6100
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns restricting the sample to municipalities within 200km of the front line, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.7: ROBUSTNESS CHECK: ONLY MUNICIPALITIES WITHIN 100 KM OF FRONT LINE ON AXIS SIDE

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	-0.000831	0.000599	0.000458	-0.000158
	(0.00163)	(0.00221)	(0.000992)	(0.000198)
Treat t 0	0.00669***	-0.00151	0.00300**	0.00201**
	(0.00237)	(0.00230)	(0.00145)	(0.000933)
Mean of Y	0.0033	0.0031	0.0014	0.0007
Observations	153656	153656	153656	153656
Clusters	4085	4085	4085	4085
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, restricting the sample to municipalities within 100km of the front line, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.8: ROBUSTNESS CHECK: ONLY MUNICIPALITIES WITHIN 40 KM OF FRONT LINE ON AXIS SIDE

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.00149	0.000424	0.00129	2.15e-17
	(0.00303)	(0.00370)	(0.00192)	(0.000637)
Treat t 0	0.00769**	-0.00600*	0.00347	0.000685
	(0.00351)	(0.00357)	(0.00220)	(0.00135)
Mean of Y	0.0037	0.0038	0.0018	0.0010
Observations	64848	64848	64848	64848
Clusters	2518	2518	2518	2518
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, restricting the sample to municipalities within 40km of the front line, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.9: ROBUSTNESS CHECKS: EXCLUDING MUNICIPALITIES WITH MULTIPLE TREATMENTS

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.000155	-0.000735	0.000740	0.000308
	(0.00139)	(0.00185)	(0.000846)	(0.000243)
Treat t 0	0.00771***	-0.00106	0.00308**	0.00241**
	(0.00216)	(0.00195)	(0.00131)	(0.000943)
Mean of Y	0.0007	0.0006	0.0003	0.0002
Observations	2402300	2402300	2402300	2402300
Clusters	7341	7341	7341	7341
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, excluding municipalities that were treated multiple times within a front-experiment due the front lines shifting multiple times within a short time-frame. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.10: ROBUSTNESS CHECK: ONLY MUNICIPALITIES ON AXIS-SIDE

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.000143	-0.000746	0.000739	0.000308
	(0.00139)	(0.00185)	(0.000845)	(0.000243)
Treat t 0	0.00770***	-0.00111	0.00306**	0.00242**
	(0.00215)	(0.00196)	(0.00131)	(0.000942)
Mean of Y	0.0006	0.0006	0.0002	0.0001
Observations	1826673	1826673	1826673	1826673
Clusters	7217	7217	7217	7217
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, restricting the sample to municipalities in the Axis-controlled territory, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.11: ROBUSTNESS CHECK: EXCLUDING FASCIST EPISODES

Dependent variable:	Nazi Collective killing (YES/NO)	Nazi Single killing (YES/NO)	Nazi No Partisan killing (YES/NO)	Nazi Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.000514	-0.00256	0.000466	0.000301
	(0.00119)	(0.00167)	(0.000763)	(0.000243)
Treat t 0	0.00858***	-0.00124	0.00365***	0.00243***
	(0.00207)	(0.00195)	(0.00138)	(0.000942)
Mean of Y	0.0006	0.0005	0.0003	0.0002
Observations	2488122	2488122	2488122	2488122
Clusters	7341	7341	7341	7341
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, excluding killings perpetrated by Italian Fascist units, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), collective civilian killings involving more than one and less than 100 victims (column 2), collective civilian killings involving more than one and less than 50 victims (column 3), and collective civilian killings involving more than one and less than 10 victims (column 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1. *Source*: http://www.straginazifasciste.it/

Table A.12: ROBUSTNESS CHECK: ONLY MUNICIPALITIES WITHIN 100 KM OF GERMAN DIVISION

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.00120	0.000000410	0.00127	0.000331
	(0.00136)	(0.00179)	(0.000939)	(0.000311)
Treat t 0	0.00683***	-0.000391	0.00363**	0.00205**
	(0.00220)	(0.00190)	(0.00149)	(0.00104)
Mean of Y	0.0007	0.0007	0.0003	0.0002
Observations	923747	923747	923747	923747
Clusters	7034	7034	7034	7034
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, restricting the sample to municipalities within 100km of a German division, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.13: ROBUSTNESS CHECK: ONLY MUNICIPALITIES WITHIN 50 KM OF GERMAN DIVISION

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.00110	-0.0000188	0.00179	-0.0000504
	(0.00165)	(0.00194)	(0.00114)	(0.000139)
Treat t 0	0.00756***	-0.000314	0.00432**	0.00212*
	(0.00265)	(0.00210)	(0.00186)	(0.00124)
Mean of Y	0.0010	0.0010	0.0005	0.0003
Observations	385606	385606	385606	385606
Clusters	5567	5567	5567	5567
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, restricting the sample to municipalities within 50km of a German division, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1. *Source*: http://www.straginazifasciste.it/

Table A.14: ROBUSTNESS CHECK: ONLY MUNICIPALITIES WITHIN 25 KM OF GERMAN DIVISION

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.0000497	-0.00149	0.00190	-1.75e-17
	(0.00227)	(0.00286)	(0.00179)	(0.000237)
Treat t 0	0.00754**	-0.000817	0.00508**	0.00117
	(0.00355)	(0.00344)	(0.00250)	(0.00100)
Mean of Y	0.0015	0.0014	0.0008	0.0004
Observations	136118	136118	136118	136118
Clusters	3311	3311	3311	3311
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, restricting the sample to municipalities within 25km of a German division, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.15: ROBUSTNESS CHECK: 30 KM CUT-OFF FOR DEFINITION OF TREATMENT

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.000998	-0.00291	0.000885	0.000285
	(0.00152)	(0.00183)	(0.000998)	(0.000222)
Treat t 0	0.00616***	-0.00209	0.00324**	0.00181**
	(0.00217)	(0.00213)	(0.00147)	(0.000887)
Mean of Y	0.0007	0.0006	0.0003	0.0002
Observations	2488400	2488400	2488400	2488400
Clusters	7341	7341	7341	7341
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 30km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.16: ROBUSTNESS CHECK: 50 KM CUT-OFF FOR DEFINITION OF TREATMENT

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.00136	0.000454	0.00139	0.000348
	(0.00157)	(0.00169)	(0.000911)	(0.000274)
Treat t 0	0.00684***	-0.00114	0.00227**	0.00222***
	(0.00203)	(0.00171)	(0.00110)	(0.000849)
Mean of Y	0.0007	0.0006	0.0003	0.0002
Observations	2488400	2488400	2488400	2488400
Clusters	7341	7341	7341	7341
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 50km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.17: ROBUSTNESS CHECK: TWOWAY FIXED EFFECTS SPECIFICATION

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treated yes/no	0.00950***	0.00335***	0.00397***	0.00311***
	(0.00178)	(0.00115)	(0.00116)	(0.00100)
Mean of Y	0.0006	0.0005	0.0002	0.0001
Observations	4887761	4887761	4887761	4887761
Clusters	7341	7341	7341	7341
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES

Notes. Twoway fixed effects OLS estimation on a panel dataset covering all 7,341 Italian municipalities from June 8, 1943 to May 2, 1945. Treated is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.18: ROBUSTNESS CHECK: LOGIT SPECIFICATION

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treated yes/no	1.727***	0.954***	1.598***	2.081***
	(0.179)	(0.270)	(0.306)	(0.308)
Mean of Y	0.0006	0.0005	0.0002	0.0001
Observations	4959781	4959781	4959781	4959781
Clusters	7341	7341	7341	7341
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES

Notes. Logit estimation on a panel dataset covering all 7,341 Italian municipalities from June 8, 1943 to May 2, 1945. Treated is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.19: ROBUSTNESS CHECK: RE-LOGIT SPECIFICATION (ADJUSTING FOR RARE EVENTS)

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treated yes/no	1.793***	1.068***	1.707***	2.167***
	(0.176)	(0.268)	(0.303)	(0.305)
Mean of Y	0.0006	0.0005	0.0002	0.0001
Observations	4959781	4959781	4959781	4959781
Clusters				
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES

Notes. Re-logit estimation on a panel dataset covering all 7,341 Italian municipalities from June 8, 1943 to May 2, 1945. These estimates use the Stata package `relogit`, downloaded from https://gking.harvard.edu/relogit, that estimates the same logit model as the `logit` command, but with an estimator that gives lower mean square error in the presence of rare events data for coefficients. Treated is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1. *Source*: http://www.straginazifasciste.it/

Table A.20: ROBUSTNESS CHECK: WEIGHTING FOR MUNICIPALITY AREA

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.00717	0.00414	0.0127	0.0000852
	(0.0142)	(0.00701)	(0.0135)	(0.000305)
Treat t 0	0.0212**	-0.00670	0.00848	0.00783*
	(0.00909)	(0.00528)	(0.00604)	(0.00459)
Mean of Y	0.0015	0.0014	0.0007	0.0004
Observations	2488400	2488400	2488400	2488400
Clusters	7341	7341	7341	7341
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, weighted by municipality size. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are clustered at the municipality level. *** p < 0.01, ** p < 0.5, * p < 0.1. *Source*: http://www.straginazifasciste.it/; and 1936 Population Census.

Table A.21: ROBUSTNESS CHECK: CLUSTERING AT MUNICIPALITY-PROVINCE LEVEL

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.0000483	-0.000754	0.000778	0.000298*
	(0.00149)	(0.00185)	(0.000841)	(0.000160)
Treated yes/no	0.00770***	-0.00111	0.00357***	0.00242**
	(0.00232)	(0.00197)	(0.00131)	(0.00112)
Mean of Y	0.0007	0.0006	0.0003	0.0002
Observations	2436735	2436735	2436735	2436735
Clusters 1	7063	7063	7063	7063
Clusters 2	92	92	92	92
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are double clustered at the municipality-province level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/

Table A.22: ROBUSTNESS CHECK: CLUSTERING AT MUNICIPALITY-NEAREST DIVISION LEVEL

Dependent variable:	Collective killing (YES/NO)	Single killing (YES/NO)	No Partisan killing (YES/NO)	Vulnerable killing (YES/NO)
	(1)	(2)	(3)	(4)
Treat t-2	0.000143	-0.000747	0.000850	0.000309
	(0.00116)	(0.00152)	(0.000868)	(0.000199)
Treated yes/no	0.00770***	-0.00111	0.00357***	0.00242**
	(0.00218)	(0.00215)	(0.00113)	(0.00110)
Mean of Y	0.0007	0.0006	0.0003	0.0002
Observations	2488122	2488122	2488122	2488122
Clusters 1	7341	7341	7341	7341
Clusters 2	45	45	45	45
Municipality FE	YES	YES	YES	YES
Day FE	YES	YES	YES	YES
Front FE	YES	YES	YES	YES
Front x Municipality FE	YES	YES	YES	YES
Front x Day FE	YES	YES	YES	YES
Front x Day x side FE	YES	YES	YES	YES

Notes. Estimates from equation 1 in all columns, with coefficients reported for two days before and the day of front activation. Treatment is an indicator for municipalities that were within 40km of the combat zone at time t but were outside it at time $t-1$. The dependent variables are indicators for collective civilian killings (two or more people were killed, column 1), single civilian killing (only one person was killed, column 2), collective civilian killings not related to partisan attacks (column 3), and vulnerable killings (involving at least a woman, a child or an elderly person, columns 4). Standard errors are double clustered at the municipality-nearest division level. *** p < 0.01, ** p < 0.5, * p < 0.1.
Source: http://www.straginazifasciste.it/