

Heroes and Villains: The Effects of Heroism on Autocratic Values and Nazi Collaboration in France[†]

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We measure how a network of heroes can legitimize and diffuse extreme political behaviors. We exploit newly declassified intelligence files, novel voting data, and regimental histories to show that home municipalities of French line regiments arbitrarily rotated under Philippe Pétain's generalship through the heroic World War I battlefield of Verdun diverge politically thereafter, particularly following Pétain's own overt espousal of authoritarian views. Further, under Pétain's collaborationist Vichy regime (1940–1944), they raise 7 percent more active Nazi collaborators per capita. These effects extend across all forms of Nazi collaboration and diffuse beyond the veterans themselves. (JEL D72, D74, N34, N44, Z13)

Frenchmen! ... I today assume the leadership of the government of France. Certain of the affection of our admirable army that has fought with a heroism worthy of its long military traditions ..., certain of the support of veterans that I am proud to have commanded, I give to France the gift of my person in order to alleviate her suffering.

—Maréchal Philippe Pétain, June 17, 1940

We speak with tenderness of the hero of Verdun: when giving us your life, your genius and your faith, you save the Fatherland a second time.

—André Dassary, in *Maréchal, nous voilà*, the unofficial anthem of Vichy, France, 1941

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In July 1940 one of the most durable democracies in the world, one that had endured for 70 years, weathering both a pandemic and a world war, committed suicide. The French Parliament voluntarily ended its own sovereignty, and with it the Third Republic, by voting full powers to *Le Maréchal*, Philippe Pétain.¹ Pétain had become popularly known as the *Hero of Verdun*, invoking the iconic 1916 battle of the First World War that had come to epitomize the French willingness to resist and endure (Horne 1962; Ousby 2007). However, Pétain did not lead France into overt or covert resistance against its historic German adversary. Instead in 1940, the French people were asked by the Hero of Verdun, whose credentials as a patriot were hard to question, to forsake the nation's long-standing democratic principles and to actively collaborate with an oppressive foreign regime and its extreme racist policies.²

Following Pétain's call for collaboration, many would do just that, joining collaborationist political organizations, joining paramilitary units that hunted the Resistance and Jews, and engaging in deep economic collaboration. As we describe below, at the moment of France's liberation by the Allies in 1944, 95,967 French individuals would be listed by Free French military intelligence as having actively participated in explicit collaboration with Nazi Germany, while countless more would collaborate more tacitly. The decision to actively collaborate would fracture French society. As we will show, this decision would even divide the staunchly *anti-German* (Forbes 2006, p. 35) association of war veterans, heroes of the First World War, some choosing instead to actively collaborate with the former enemy. And as late as 1944, when it was clear Germany was losing, instead of backtracking some would go even deeper into collaboration, volunteering for the Waffen-SS and, after having sworn personal allegiance to Pétain, do so to Adolf Hitler as well. Some of France's greatest heroes would later be counted among its gravest villains.

What accounts for these patterns? In this paper, we measure the effect of a *hierarchical network of heroes* in influencing political behavior, and in particular, in legitimizing and diffusing behaviors that had been previously considered extreme and were even outlawed in the democratic system. By a hierarchical network of heroes, we mean a set of individuals that have ties to a specific leader by a common experience of direct command, and also share a common *heroic* credential: one of exemplary self-sacrifice for the public good.

To do this, we exploit the arbitrary rotation of 88 percent of French line infantry regiments through the iconic battle of Verdun in 1916. We compare subsequent political behavior among the home municipalities of the 53 percent of France's line regiments that happened to be sent to Verdun when Pétain was assigned to direct command there from to those rotated through Verdun (just) after he was reassigned on May 1, 1916. Our measure of collaboration comes from unique individual data on more than 95,967 active participants in organizations that collaborated with Nazi Germany during the Pétain-led Vichy regime (1940–1944) that we hand coded from a recently declassified 1945 French secret intelligence report.

¹ Unlike other democratic states that had fallen in 1939–1940 to the Nazis, including the Netherlands, Norway and Poland, France's elected representatives in 1940 chose not to set up a legitimate government in exile, nor to continue the war from their extensive empire overseas.

² Even the rallying cry of the 1789 Revolution and motto of Republican France: *liberté, égalité, fraternité* (liberty, equality, fraternity), was banned in 1940 in favor of *travail, famille, patrie* (work, family, fatherland).

Consistent with the arbitrary nature of the regimental rotation system, we show that municipalities that raised regiments that served at Verdun under Pétain's direct command (henceforth "Verdun-under-Pétain municipalities") are very similar along a broad range of pre-World War I characteristics to others. Most importantly, we hand collected novel voting data at the highly granular level of France's (then) 34,947 municipalities to show that this includes similar vote shares for each political party in the last prewar election in 1914.

Yet, despite these initial similarities, we show that Verdun-under-Pétain municipalities would later raise 7–9 percent more collaborators per capita compared to otherwise similar municipalities within the same department. These effects appear across all forms of collaboration in our data, including engaging in deep economic collaboration with the Nazis, joining avowedly collaborationist political parties or paramilitary groups that acted as the "shock troops" of the regime against Jews and the Resistance, or directly enlisting in German combat or auxiliary units.³

Our estimates suggest that Verdun-under-Pétain municipalities raised 10,469 additional active collaborators relative to municipalities rotated through Verdun under another general. This figure is comparable to the 15,404 members of the Resistance-hunting militia, the *Milice*, listed in our data, and almost twice the 5,276 French individuals who joined the notorious German secret police, the *Gestapo*. Further, as we discuss below, it is likely that our results are *underestimates* of the true effect of heroic networks.

We show that our estimates are robust to using alternative functional forms, including Poisson regressions of the number of local collaborators and employing a spatial regression discontinuity design around regiment catchment boundaries. They are also robust to adjustments for spatial correlation.

One natural question is whether the effects may reflect differences in the nature of the combat—or the resulting trauma—that just happened to have coincided with the first two months under Pétain's generalship. However, we show that the overall nature of the Verdun battle was largely unchanged with Pétain's promotion away from direct command at Verdun. We gather data on 1.3 million individual French military fatalities and match these to the moment of their regimental rotation. We show that the lethality of combat was not substantively different, whether measured by daily fatality rates, overall regimental fatalities at Verdun under Pétain's generalship relative to after his reassignment, or when compared to other battles on the western front throughout the war. Other dimensions of combat beyond fatalities, including the intensity of German artillery bombardment and infantry attacks and French counteroffensives, also did not change following Pétain's reassignment.

Instead, we interpret our results as consistent with the effect of a network of individuals, sharing a common heroic credential, in legitimizing and diffusing the values of their common leader. To support this interpretation, we provide evidence that the

³To the best of our knowledge, we exploit the most exhaustive list that exists of active collaborators in occupied Europe. Yet, we find consistent results when analyzing two alternative data sources: data on collaborators with top leadership positions across the Vichy regime compiled by the US Office of Strategic Services in 1944, and on volunteers who sought to join a French paramilitary group—the *Légion des Volontaires Français contre le Bolchevisme* (henceforth "LVF")—that fought alongside the Wehrmacht on the Eastern Front. These data on would-be volunteers include those ultimately deemed physically incapable to serve and those that died at the front. In contrast, our main dataset chiefly consists of those still alive in 1944.

effects on collaboration during the 1940s not only show continuity with increasingly radicalized voting patterns over the interwar period, but that these voting patterns change in Verdun-under-Pétain municipalities at specific times that follow changes in Pétain's own political message and values.

To document this, we combine hand-collected data on French legislative elections in the interwar period with the timing of the most focal pre-World War II turning point in Pétain's public political stance. We use these data to document two results. As we describe, Pétain became well known as a conservative and anti-Communist, and further displayed an increasing propensity to espouse authoritarian values after Verdun. We show that compared to other municipalities that served at Verdun in the same department, vote shares in Verdun-under-Pétain municipalities—though very similar before World War I—diverge thereafter, and do so in manner that reflects Pétain's own evolving views. This includes displaying 11.1 percent lower vote shares for the left as early as 1919, voting more for the right and, later, the extreme right as well.

Further these patterns culminate in the last legislative elections of the Third Republic in 1936. Between the two rounds of the legislative election, Pétain gave a highly publicized front-page interview two days before the second round in an attempt to prevent the electoral victory of the left-wing Popular Front. In the first round, we show Verdun-under-Pétain municipalities display a 7.7 percent higher vote for the right, including 2.6 percent for the extreme-right *blueshirts* of the *Francisme* Party. Further, despite the fact that the two rounds of the elections were just one week apart, we show there is a dramatic 7 percentage point left-to-right swing between parties participating in the second round just after Pétain's speech.

We next exploit our individual level data on collaborators to shed light on the mechanisms through which exposure to Pétain at Verdun might have led to such radical shifts in political values and behavior. We do this in a series of steps. First, we document differences in Pétain's *management style* that provided costly signals of the weight he placed on soldiers' welfare. For example, we show that, compared to other generals, Pétain made himself present for the troops quantifiably more as they rotated through Verdun. Further, despite no change in the intensity of the battle, soldiers were also more likely to share in the credit, receiving more medals for heroism under his command. Such signals of the weight he put on soldiers' welfare, we argue, were likely to induce *trust* among the soldiers he commanded, both in battlefield decisions at Verdun, and later more generally.

We next provide evidence that such exposure to Pétain translated into longer-lasting *loyalty* among these veterans that served under his command, as indicated by their willingness to follow Pétain's lead into collaboration. We exploit the individual age and sex information we possess for a subset of 23,431 individual collaborators to partition collaborators from the same municipality into males age-eligible to have been conscripted into the line infantry in World War I, and thus exposed to the direct command of Pétain or other commanders, and collaborators unlikely to be so. We wed this to biographical data on all of Pétain's peacetime and wartime assignments. We find evidence consistent with World War I military exposure to Pétain inducing loyalty: municipalities with soldiers that served under Pétain, whether at Verdun and before, subsequently raised 6.0 percent and 2.9 percent more collaborators, respectively, that most likely had been line infantry veterans.

We next examine the propensity to collaborate beyond the line infantry. We show that it is only in Verdun-under-Pétain municipalities, where the soldiers both had ties of loyalty to Pétain, *and were themselves considered heroes*, that there is evidence of a significant increase (of 7.1 percent) in collaboration beyond the network, among nonveterans. In other words, while all likely line veterans exposed to Pétain's direct command were more likely to be loyal and follow him into collaboration, it is only among those who were exposed to Pétain *at Verdun* that the effects diffuse beyond the veterans themselves, and influence the political behaviors of the communities around them.

Consistent with this pattern of complementarity, we further show that, unlike Verdun-under-Pétain municipalities, collaboration does not rise among other potential heroic networks. This includes networks forged by rotation at Verdun under Pétain's successor, Robert Nivelle, those forged at other heroic battles like the Marne (which saved Paris), or among regiments that served under other leaders considered heroic, like Ferdinand Foch.

We further examine a series of alternative mechanisms, and provide evidence that none of these provides a complete explanation on its own. For example, rather than the violence "begetting more violence" among the survivors, we do not find that those exposed are more or less likely to join violent collaborationist organizations relative to other groups. We consider other channels as well, including pecuniary incentives and patronage. We provide evidence that each of these channels provides an incomplete explanation on its own but could play a plausible complementary role in light of the network diffusing political values.

Overall, we interpret these results as reflecting the role of a network of individuals with *heroic* credentials that were complementary to a political leader's own credentials in legitimizing and propagating political values. At the individual level, heroic credentials provide a strong, often tragically costly, signal of an individual's type, particularly in demonstrating their relative willingness to forgo private interests in the interests of the nation. In environments of hidden action or information, possessing a heroic credential can engender greater trust in heroes' endorsements of policies as reflecting the public good rather than their personal interests.⁴ This can make heroes not only more desirable as agents in trust-based economic relationships in general, but can be perceived to be a particularly relevant signal when it comes to the delegation of political authority and decision-making. It also enables heroes to be more credible when publicly supporting extreme and even hitherto repugnant policies relative to other public figures, whose type and thus motives are less clear.

Given the complementary nature of the heroic credentials of those that served under Pétain at Verdun in influencing others, we argue that standard arguments from robust comparative statics (e.g., Milgrom and Roberts 1990) can help explain some of the more puzzling aspects of Nazi collaboration that we uncover and document. For example, why was it that the home communities of the heroes of Verdun, symbols of French fortitude and the will of the French Republic to resist, were more likely to join collaborationist organizations, and do so even as late as 1943–1944, when it was clear that Germany was losing the war? Since each individual's heroic

⁴On costly investments and hierarchies inducing trust, see Athey, Calvano, and Jha (2016).

credential becomes more valuable when others in the network are also considered heroes, particularly its most prominent member, Pétain himself, there will be incentives to jointly invest in other dimensions, such as organizations and markers of identity, that also complement the network. Yet, the more individuals invest, the costlier it is to abandon. These reinforcing incentives over time may explain why the home communities of the heroic network forged under his command at Verdun still supported Pétain even when it was clear that the Nazis were losing, and after the war as well.⁵

And indeed, we do find evidence for such persistence and escalation. We document both the extent to which the vote for extreme-right parties in the 1930s in Verdun-under-Pétain municipalities prefigured active individual participation in collaboration in 1940, and the extent to which these differences existed even for paramilitary groups that were founded late in World War II, when the risks of collaboration had become increasingly grave.

We compare the membership of the Vichy successor organizations that had their genesis in the 1930s. These include a set of extreme-right leagues, including *Francisme* and the *Cagoule* (the Hood), that had been banned following a series of political assassinations and terrorist acts in 1936, only to resurface under Vichy. Like the veterans' organizations, these movements were also split by the decision to collaborate. However, we show that each of these reconstituted organizations had significantly higher membership rates in Verdun-under-Pétain municipalities during the Vichy regime (of about 5.5 percent). Further, we find that even as late as 1943–1944, when these were dangerous choices indeed, there continue to be stable effects in Verdun-under-Pétain municipalities on the extent of volunteers joining the *Milice* that hunted the Resistance, and even on the rates of those ultimately swearing loyalty to Hitler as part of the *Waffen-SS*.

To the best of our knowledge, our paper is the first to measure the effects of a particular dimension of leadership—heroism—in legitimizing and propagating policy preferences. Our setting overcomes several major hurdles in the empirical literature on leadership.⁶ We solve selection issues related to the endogenous nature of leadership and of their followers' network by exploiting an arbitrary process that formed a network of heroes, those who “did Verdun,” and connected them to a national leader.⁷ In that regard, our paper complements work by Dippel and Heblich (2021), who compare political outcomes in American towns where exiled German leaders of the 1848 revolutions chose to settle to otherwise similar towns.⁸ By studying how the

⁵ Indeed, Pétain's natural death in prison in 1951 sparked demonstrations in most French cities, orchestrated by veterans of Verdun (Williams 2005, p. 271).

⁶ The ways through which leaders can influence individuals' actions are explored in a growing, though mainly theoretical literature. Leaders can persuade and organize followers (Hermalin 1998; Caillaud and Tirole 2007). They can coordinate group action by defining a reference behavior (Akerlof and Holden 2016), affecting expectations and social norms (Bursztyn, Egorov, and Fiorin 2020; Acemoglu and Jackson 2015), or directly shaping group identity (Akerlof 2016). See also Lenz (2012).

⁷ People choose to follow or reject leaders based on their own preferences, making it difficult to disentangle the causal influence of leaders from the preferences and actions of their followers. Other solutions to this reflection problem include the use of experimental methods that randomly assign leaders temporarily in lab-like settings (see e.g., d'Adda et al. 2017), and the measuring of changes in outcomes when managers or leaders turn over or die (e.g., Bertrand and Schoar 2003; Jones and Olken 2005; Bandiera et al. 2020).

⁸ We are further able to overcome the challenge of the endogenous choice of the communities in which leaders choose to operate by examining the effects on political action in the communities—determined at birth—home to specific regiments.

political values of a central leader who would assume national political leadership diffused through the network of those connected to him, we build upon and contribute to an important literature on the relevance of endorsements by central figures and celebrities in diffusing messages through networks (see, e.g., Jackson and Yariv 2011; Banerjee et al. 2019; and Alatas et al. 2022). By imbuing heroes with a credential of proven willingness to sacrifice for the nation, heroes can also challenge other sources of political legitimacy, including traditional sources such as stemming from religion or descent (Greif and Rubin 2020) or the legitimacy of democratic elections themselves (Levi, Sacks, and Tyler 2009). As we discuss below, heroes can become potent champions of democracy and freedoms but also potentially their greatest challengers. Thus our paper links to a literature on the determinants of declines in democratic values, and political extremism more generally.⁹

Finally, to the best of our knowledge, ours is the first quantitative study of the determinants of collaboration in Nazi-occupied Europe. This question has been relatively ignored by the literature in economics and political science, which mostly focuses on the determinants of insurgency and resistance.¹⁰ This is in part because collaboration, by its nature, tends to be more covert than overt acts of resistance and insurgency, and thus harder to measure. Collaboration in France, in particular, has been the subject of a recent fascinating, yet still mostly qualitative historical literature (e.g., Burrin 1996; Jackson 2001; Paxton 2001; Ott 2017). We exploit a range of unique and hitherto largely untapped sources, including contemporary intelligence reports, to create, to the best of our knowledge, the most exhaustive list of collaborators in occupied Europe to date.¹¹ We contribute to this historiography in a number of substantive ways as well. Many historians agree that veterans of Verdun were widely considered heroes of France, and separately, that Pétain's prestige, forged at Verdun, may have helped to legitimize collaboration. However, we are the first to provide causal and quantitative evidence. We are also the first to show that Pétain's own influence was complemented and diffused by that of the heroes who served under his command at Verdun, and is prefigured in voting behavior even before the Second World War.

We first provide the relevant background on the French Army in World War I (Section I) and present our empirical strategy based upon regimental rotation (Section II). We briefly discuss the role of Pétain and veterans organizations in

⁹ An important body of work shows how Nazis were able to assert their authority within the nascent Weimar Republic namely through propaganda (Adena et al. 2015) and leveraging existing organizations (Satanath, Voigtländer, and Voth 2017). Our results also contribute to the literature on the effect of conflict on political and economic development. Several studies have highlighted the influence of combat experience or victimization on subsequent voting and political behavior. Conflict experience has been associated with heightened collective action (Blattman 2009; Jha and Wilkinson 2012; Campante and Yanagizawa-Drott 2015). Other important works examine the social effects among units of soldiers that served together (e.g., Costa and Kahn 2008). Koenig (2023) finds that places with more veterans in World War I were more likely to vote for Fascist parties in Germany, a result that does not hold in Italy where instead places that suffered higher military fatalities in World War I voted more for the Fascists during the interwar period (Acemoglu et al. 2022). Fontana, Nannicini, and Tabellini (2017) show that internal fighting under prolonged German occupation led to more Communist support in post-World War II Italy. They suggest that victims of the conflict identify with the side that won and against those perceived as responsible for the defeat. In our setting, in contrast, we find that a network of victorious heroes of France in the First World War were *more* likely to support the invaders in the Second through a novel mechanism.

¹⁰ See for example Gagliarducci et al. (2020); Kocher and Monteiro (2016); and Ferwerda and Miller (2014) on Europe; and Dell and Querubin (2017); Trebbi and Weese (2019) on US interventions overseas.

¹¹ Some key aspects of the data are summarized in Lormier (2017).

the run-up to the Vichy regime, and introduce our new dataset on collaborators (Section III). We then present the main results (Section IV), and the mechanisms (Section V), before discussing the broader implications and concluding (Section VI).

I. Verdun: Forging an Exogenous Heroic Network

A. The Battle of Verdun, 1916

On February, 21 1916, the Germans launched Operation *Gericht* (Judgment). The German commander, Erich von Falkenhayn, aimed to either lure the French into contesting a concentrated static position where they could either be “bled to death” by massive artillery bombardment or instead have their morale crushed by the capture of the fortress-city (Ousby 2007, p. 38).¹² Yet, until the eve of the attack, Verdun had been a quiet sector. So much so that the three main protective forts that stood between the Germans and the city of Verdun itself: Douaumont, Vaux, and Souville, had been stripped of many of their guns by the Commander-in-Chief Joseph Joffre, over the pleas of the sector commander, General Herr, for use elsewhere (Greenhalgh 2014) (see also map in online Appendix Figure A1). This, in combination with heavily concealed German preparations, left the French grossly unprepared.

The surprise assault led to grave French losses (see timeline in Figure 1). By February 25, the fall of Fort Douaumont was celebrated by church bells throughout Germany. However members of individual French units, most famously Colonel Émile Driant along with about 300 *chasseur* troops, refused to retreat. By sacrificing their lives to slow the German advance, these soldiers captured the imagination of the French media and public. Verdun began to attain a deeper heroic symbolism for both sides.¹³ But the broader position remained grave, and the French High Command refused the requests of local commanders to withdraw to new lines. Instead, Herr and three other generals were relieved of command within five days of the battle. A “snap decision” (Horne 1962, p. 129), “hastily made” (Ousby 2007, p. 98) by the Commander-in-Chief Joffre placed Pétain in command of the Verdun sector on February 26.

Pétain immediately implemented a number of major innovations that made apparent his concern for the infantry under his command. First, he reorganized the slender supply line, commemorated to this day as the *Voie Sacrée*, bringing to bear artillery to spare the troops. Down that road too, he organized a rotation of troops that he compared to a *norja* (mill wheel).¹⁴ Concerned about the impact of the constant artillery bombardment on morale (Greenhalgh 2014, p. 143), each regiment was to be rotated so that ideally they would spend no longer than eight days at the front before being relieved and sent to a less active area of the sector (Ousby 2007,

¹²In a draft memo written to the kaiser in December 1915, Falkenhayn suggested that either the fortress-cities of Belfort and Verdun would do for this objective. He ultimately settled on Verdun as being somewhat closer to German supply lines (Ousby 2007, p. 38).

¹³Within 5 days of the start of the battle, the influential columnist of the *Echo de Paris*, Maurice Barrès, was already comparing Verdun with the heroic battle of *Thermopylae* where a fabled 300 Spartans sacrificed their lives to slow the Persian army and save Greece (see Ousby 2007, p. 37). Barrès also coined the term *nationalism* as we know it today and *Voie Sacrée* (Sacred Way) for the road to Verdun.

¹⁴More commonly it became known as the *tourniquet* (merry-go-round).

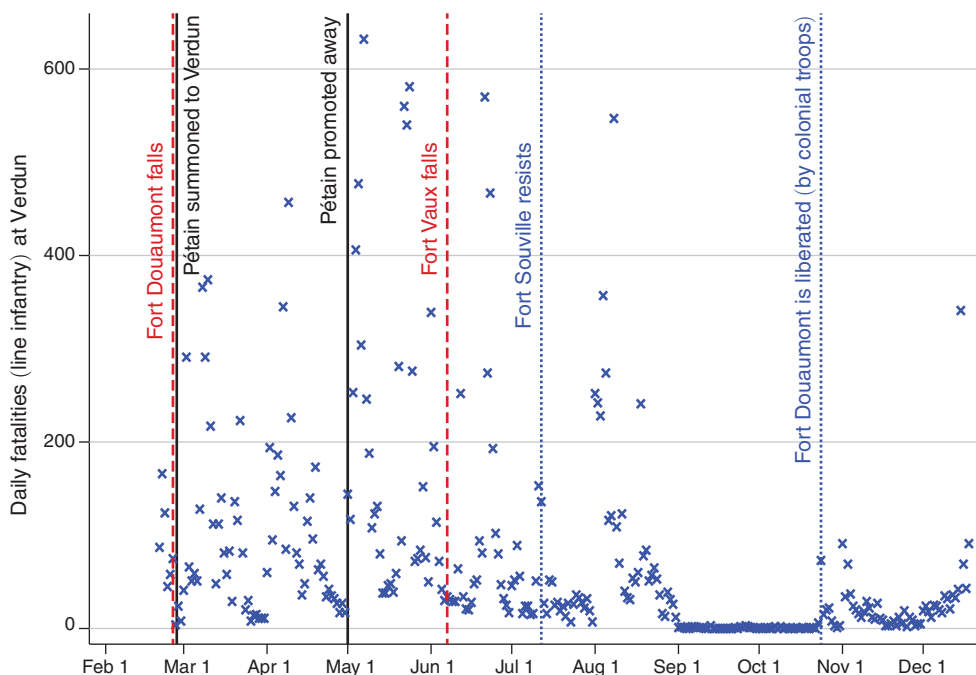


FIGURE 1. DAILY FRENCH FATALITIES OVER THE COURSE OF THE BATTLE OF VERDUN, 1916.

Notes: The figure shows the raw number of daily French deaths in line regiments at Verdun over the duration of the battle. Vertical lines indicate major developments during the battle. Red thick dashed lines indicate major military successes by Germany. Blue dotted lines indicate major military successes by France. Black thick lines indicate the dates of Pétain's start and end of direct command of the battle.

Sources: *Historiques des Régiments, Mémoire des Hommes*

p. 100). By May 1, 53 percent of the entire French line infantry had done a tour through the Verdun sector.

These innovations slowed the German advance. However Pétain, already lionized by the Paris press as the *Héros de Verdun*, rankled both the High Command and politicians with his increased visibility and disdain for their directives.¹⁵ As a result, Joffre promoted Pétain away from direct command at Verdun on May 1.¹⁶

As Figure 1 shows, the battle itself was not significantly changed in its fatal intensity with the appointment of Pétain's successor in command at Verdun, Nivelle. A formal test confirms the absence of a structural break in the time series of daily fatalities after Pétain's removal ($\text{Prob} > \chi^2 = 0.26$).¹⁷ For the soldiers on the front lines, the battle was overwhelmingly shaped by artillery bombardment, punctuated

¹⁵ The Paris press struggled to find a "suitable photograph" of Pétain when he assumed command at Verdun, but none existed. Prior to the battle, "he was simply not a public figure" (Williams 2005, p. 71). But with his increased visibility, Joffre sought his replacement.

¹⁶ The precise timing of his removal was dictated by the opportunity provided by the impending superannuation of General Fernand de Langle de Cary, leaving an opening for Pétain who took over command of the Center Army Group (Greenhalgh 2014, p. 144).

¹⁷ Similarly, the number of regiments engaged in battle in Verdun did not change until the start of the Somme offensive in July 1916 and was insensitive to Pétain's replacement by Nivelle (see online Appendix Figure A2, p -value of the difference: 0.80.)

by bursts of direct infantry engagement: on the French side, close to 85 percent of casualties and 80 percent of fatalities were caused by artillery. The rates of artillery bombardment, and of German attack and French counterattack, are also unchanged before and after Pétain's promotion (see online Appendix Figure A3). The average share of regiments exposed to German bombardment between February and May 1 was 36.33 percent, and 32.00 percent between May 1 and July (p -value of the difference: 0.70). The average exposure to German-led offensives is also unchanged around May 1 (40.86 percent between February and 1 May, 38.18 percent from May to July, p -value of the difference: 0.64). These patterns instead reflect how the German army did not change their overarching battle plans in response to individual French personnel decisions.

And the Germans continued to advance. On June 7, the second of three main forts, Fort Vaux, fell after a five-day German assault. A respite for the defenders at Verdun came with the long-planned Allied attack on the Somme on July 1, that drew away German resources.¹⁸ Shortly thereafter, a German attack on the final fort, Souville, was also repulsed. The German commander, Falkenhayn, was relieved, and his successor, Paul von Hindenburg, switched German strategy towards the defensive over the entire Western Front, including at Verdun. Over the next few months, French attacks gradually clawed back some but not all of the German gains. On October 24, France celebrated the liberation of the now-iconic Fort Douaumont. Finally, on December 17, 1916, the battle was declared over.

By then, the Battle of Verdun had become the longest in history. French casualties reached around 378,777 while Germany lost around 330,000 men. 305,440 soldiers were killed, almost a death a minute (Ousby 2007).¹⁹ The battle also came to be seen as a heroic watershed of World War I.²⁰ Because of the extensive rotation, more French men of that generation would have the Battle of Verdun engraved on their memory than any other. The profound significance of the simple phrase "*J'ai fait Verdun*" (I did Verdun), adopted broadly among its veterans, was understood throughout the country (Ousby 2007).

As we shall show, Verdun not only created a set of heroes; it also created a network within them with ties specific to Pétain himself, even though, ultimately, Pétain was assigned direct command for only ten weeks. Indeed, nearly a half-century later, Henry Giniger, longtime Paris bureau reporter for the *New York Times* (November 15, 1964), noted

The man who organized the defenses, strengthened the strongpoints, mobilized almost every cannon in the French Army and stood beside the single supply road, 'the sacred way,' watching with compassion in his icy blue eyes as men strode up to the front and stumbled back a few days later—this man became the greatest of heroes, 'the champion of

¹⁸The start of the Somme offensive is associated with a significant structural break in daily fatalities ($\text{Prob} > \chi^2 = 0.0015$).

¹⁹These figures can be compared to the 405,399 military deaths the United States suffered during the entire Second World War, and the 22,654 soldiers killed on both sides in its bloodiest battle in history, Antietam.

²⁰As Horne (1962, pp. 1–2) notes: "Before it, Germany still had a reasonable chance of winning the war; in the course of those ten months this chance dwindled away. ... In the aftermath, too, Verdun was to become a sacred national legend, and universally a household word for fortitude, heroism, and suffering ... Long after the actual war was over, the effects of this one battle lingered on in France."

France,’ as Paul Valéry, the poet, was later to hail him. Between Philippe Pétain and the men who fought with him—indeed between Pétain and the whole nation—was forged a bond that the living feel to this day.

B. *Pétain: The Unexpected Hero of Verdun*

Yet, Pétain had not been born to greatness. Of peasant background, he graduated 229 out of 386 from the Saint-Cyr military academy, and advanced only slowly up the ranks.²¹ In 1914, he was a 58-year old colonel on the verge of retirement (Williams 2005, p. 41).

His slow progress may be explained in part by his modest origins, but also by his disdain for publicity, political networking and his military philosophy, which was at times at odds with High Command’s. His lack of willingness to “manage up” may have also played a role. Not a demagogue, he was instead known for his clipped tones and delivery.²² His superior officers found him sarcastic and cautious, while politicians and many peers found him irreverent and cold (Williams 2005, p. 26; Horne 1962, p. 139).

As we discuss and document below, even though he appears to have lacked the skills or the inclination to be a charismatic populist orator in the vein of Hitler and Mussolini, or an effective manipulator of internal party politics like Stalin, Pétain was a soldier’s general, appreciated by the soldiers under his command for the genuine concern he showed for their well-being.

Yet, he was assigned to Verdun principally because he happened to be available at the time. As Ousby (2007, p. 97) writes: “in all likelihood, [Pétain’s] vital qualification was simply that he was available. He and the Second Army he commanded had already been withdrawn from the front in preparation for the Somme offensive; in February they were in a training camp at Noailles, near Beauvais, uncommitted and ready to hand. So, even when it came to finding a suitable commander, Verdun was from Joffre’s point of view a distraction ... from his pet project [the Somme].”²³

C. *The Noria Rotation and Heroic Networks*

Although Pétain was in direct charge of military and logistic decisions *within* the Verdun sector, in common with standard military practice, he could not choose which units were assigned *to* the Verdun sector. As had been the case with Pétain’s predecessor at Verdun, Frédéric-Georges Herr, and would be with his successor, Nivelle, this was exclusively the prerogative of the Commander-in-Chief Joffre, and subject to broader strategic considerations. Specifically, Joffre was committed to uphold agreements he had made with the British and other allies, on February 14, just before the surprise attack at Verdun, to prepare the French for the great Allied

²¹ He spent five years as sous-lieutenant, seven years as lieutenant, and ten as captain (Horne 1962).

²² His nickname while a professor at the *École de Guerre* was *Précis-le-Sec* (Williams 2005, p. 35).

²³ Pétain happened to be in command of the Second Army, which had been relieved by the British army in the Champagne sector six weeks earlier. See also Horne (1962, p. 141). The timing of the order was unanticipated by Pétain himself, who was away from his Noailles headquarters in a Gare du Nord hotel with his mistress at the time of his summons (Williams 2005, p. 67).

offensive planned for the Somme that summer (Greenhalgh 2014, p. 129).²⁴ In general, Joffre also sought to maintain the greatest flexibility in his deployments in order to be able to respond to other potential enemy action.²⁵

Consistent with the need for flexibility, the metropolitan line infantry regiments of the French army were not specialized units but were designed to be interchangeable in training, equipment and strength.²⁶ This made regiments easily redeployable into brigades and higher formations in response to enemy action and the needs of the moment, and greatly simplified logistics, the incorporation of replacement troops and resupply, each of which were key military imperatives.²⁷

Emblematic of this approach, French line regiments were simply assigned numbers, and did not have specific regional names.²⁸ However, to ease rapid mobilization, 144 of the 173 regiments of the French army in August 1914 were recruited from specific subregions, each with their own recruitment bureau and military depot (Figure A4 in online Appendix shows the catchment areas for each bureau).²⁹ We digitized the ninth edition of the *Dictionnaire des Communes* (Lassalle 1915) which enables us to assign each of the 34,947 municipalities to their original bureau of recruitment within France's 1914 borders.³⁰

On August 2, 1914, France ordered the general mobilization of every man between 20 and 48 years of age:³¹ 92.76 percent of 1914 France's municipalities

²⁴ See also Joffre's own account of his deployment decisions to the Verdun sector, including when assigning regiments from the Second Army, Third Army and Twenty-Third Corps etc., but withholding those from the Ninth Corps, in Joffre, Joseph (1932) *Mémoires du Maréchal Joffre, 1910–1917*, Paris: Librairie Plon, pp. 199–216. As the battle of Verdun raged, on March 27, 1916, General Joffre wrote to the British commander Douglas Haig: "The violent offensive which the German armies have undertaken in the region of Verdun must not have the effect of diverting us from the execution of the action plan which we have decided upon based upon mutual agreement. It is a question, for you as for us, of devoting to our Somme offensive all the forces that it will be possible to apply to it: the success that we expect rests largely on the understanding of the attacking front of our armies. Our intention must be to beat the enemy by seeking to break his front from Hébuterne to Lassigny" See also Pétain (1929, p. 77).

²⁵ Writing of the French Army in 1916, Greenhalgh (2014, p. 126; emphasis added) explains "At his disposal then, Joffre had ninety-three infantry divisions ... These forces were to be distributed to give the greatest flexibility: the front line to be held strongly enough to prevent its rupture, with a permanent command and permanent artillery resources, but allowing for rest and training; the second line, 20–30 kilometres behind the front but deployed close to a railway line, would constitute the army group reserves, shared out behind each army in the sector; then the third line of general reserves, resting, to be available quickly because also stationed close to a railway line." Joffre also did not cede discretion. For example, a letter to Pétain on March 5, 1916 states: "The headquarters of army corps, after their replacement by those who will be sent to you, will also be under my disposal" (Etat-major des armées 1926, p. 334; emphasis added). See also Williams (2005, p. 70).

²⁶ In 1914, the standard war establishment of all nonfortress (i.e., 3 battalion) metropolitan line infantry regiments was 66 officers, 3,245 men, 18 pack horses, 129 draft horses, 3 1-horse vehicles, 58 2-horse vehicles, and 1 4-horse vehicle. Men were all issued with the same 1893 Lebel rifle and the same set of equipment. For more details see Imperial General Staff (1914, p. 226–29).

²⁷ See Jha and Wilkinson (2012) on how similar imperatives shaped the British Indian army and other forces as well.

²⁸ This impersonality also applied to Pétain's approach to command. Paul Jankowski (2014, p. 75) describes how at Verdun under Pétain, "local commanders found their sectors designated by impersonal letters of the alphabet, the equivalence of which suggested a sameness of task and purpose...."

²⁹ The remaining "Fortress" regiments, numbered from 145 to 173, were recruited from specific border areas and were complemented with excess troops from Paris and other population centers in order to allow an increased peacetime concentration at the frontiers (see Imperial General Staff 1914). Other army corps, such as the artillery, were organized at the broader region level. Similarly, colonial units did have separate identities and were treated differently than the metropolitan army. We therefore exclude both of these from the analysis. We also exclude non-line specialist units such as the *chasseurs*, and engineer corps.

³⁰ To replace wartime losses, there was more mixing of recruits from outside the original subregions as the war continued (Bracken 2018). This mixing should attenuate the effects on the original municipalities, making our measures likely underestimates.

³¹ Over the course of the war, 8.4 million men were mobilized. On the comprehensive extent of the universal conscription of men age-eligible for the line infantry, and the few exemptions, see Boehnke and Gay (2020).

sent troops that served in one of the 153 line regiments that were rotated through the Battle of Verdun, and 56.86 percent of all French municipalities did so in one of the 92 regiments rotated through under Pétain's direct command. The remaining 19 line regiments were those kept in reserve for the major Allied offensive at the Somme in July 1916, or those already assigned to the fronts in the Dardanelles, Greece, or Serbia.³² We consider a regiment to form part of the exogenous heroic network linked to Pétain if it happened to rotate through Verdun under his direct command (between February 26 and May 1), as opposed to those that were rotated between May and December, under other generals.³³ Both in its conception and, as we show, in its implementation, the rotation to Verdun was based upon the needs of the moment and unrelated to the home characteristics of the regiments involved.

Figure 2 shows the rotation of home municipalities of the regiments assigned to Verdun for each of the ten months of the battle. Online Appendix Figure A5 summarizes these monthly figures, showing which municipalities ultimately raised regiments that served under Pétain at Verdun, which served there under his successor Nivelle, and which were deployed elsewhere. As the figures reveal, consistent with the arbitrary nature of the rotation system, almost every area of France sent troops to Verdun, with regiments recruited from different subregions arriving at the same time without any systematic distinction as to who was assigned when.

II. Empirical Strategy

In what follows, we estimate the following model at the municipality level:

$$Y_{i(b,e),1919-1945} = \alpha + \beta \text{VerdunPetain}_{i(b,e),1916} + \gamma \text{Verdun}_{i(b,e),1916} \\ + \mathbf{X}_{i(b,e),<1916} \phi' + \eta_{Di} + \epsilon_{i(b,e)},$$

where our unit of analysis i is a municipality within France's 1914 borders (i.e., excluding most municipalities in Alsace-Moselle) raising troops for military recruitment bureau b . Municipalities are the smallest unit in the census, with an average population of 1,146 inhabitants in 1936. We project all geographies to their 2015 municipal borders. This leaves us with 34,947 municipalities of which 34,942 are populated in 1936.³⁴

The variable $Y_{i(b,e),1919-1945}$ denotes a series of outcomes, including our main dependent variable of interest: the intensity of collaboration, measured as the logarithm of the share of collaborators listed in 1944/1945 as being from municipality i , normalized by the population.³⁵ As we show below, our results are

³² One further line regiment—the one hundred forty-fifth—had been captured in 1914 and served four years of the war in German POW camps. Thus, it too was not part of the rotation.

³³ No regiment was withdrawn between the start of the battle and the arrival of Pétain, so that all regiments that were already there in those five days are also treated.

³⁴ The remaining five consists of three municipalities that were destroyed and permanently depopulated as a result of the Battle of Verdun itself, and two municipalities that were created after 1936.

³⁵ Given no census was taken during the war and to avoid our estimates being contaminated by potentially endogenous population movements during and immediately after the war, we report the log ratio of the number of collaborators to the prewar population of the municipality, measured in the last prewar census of 1936. More precisely, to deal with the zeros, we use the log of $\frac{\text{number of collaborators} + 1}{\text{prewar population} + 1}$.

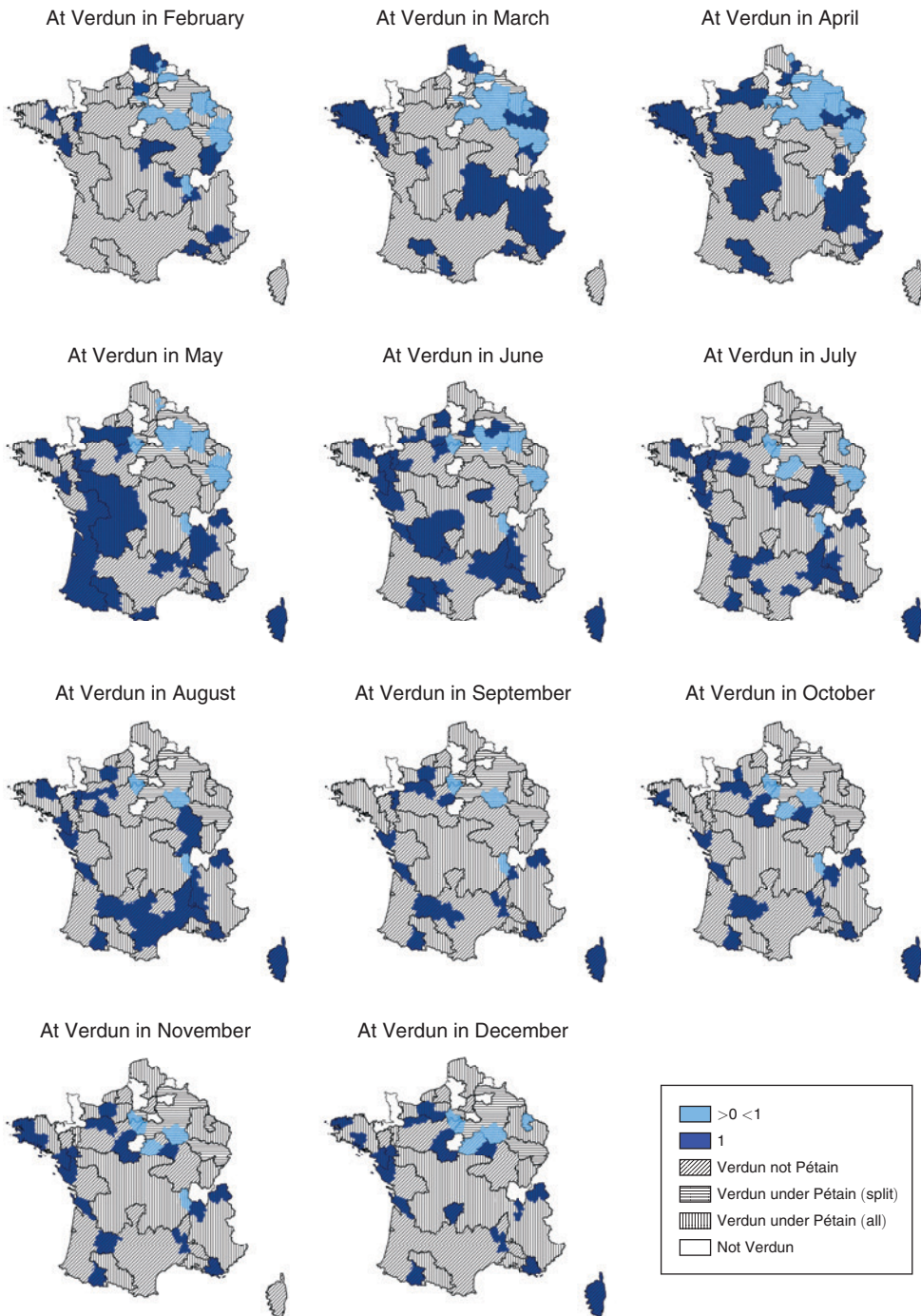


FIGURE 2. ROTATION OF REGIMENTS THROUGH VERDUN, BY MONTH, FEBRUARY–DECEMBER 1916

Notes: From the top left (February) to the bottom right (December), different regiments were dispatched to the Battle of Verdun. Pétain commanded between February and May 1. The figure displays where all (dark blue), some (light blue), or none of the regiments from each municipality were rotated through Verdun each month.

robust to using alternative sources of data on collaboration and alternative functional forms. This includes estimating Poisson regressions using the count of local collaborators as the dependent variable. To explore mechanisms, we also use as dependent variables the (log) vote shares for different parties in four interwar elections (1919, 1924, 1932, 1936) in Section VA.

In the majority of cases, a recruitment bureau fielded a single regiment (126 bureaus recruiting from 27,929 municipalities). The measure of combat exposure to Pétain, $VerdunPétain_{i(b,e),1916}$ is then an indicator variable taking value one if the regiment was rotated under Pétain at the Battle of Verdun. For the remaining bureaus, such as those that fielded a line infantry regiment as well as a fortress regiment, we average over regiment-level exposure for a given bureau. Therefore $VerdunPétain_{i(b,e),1916}$ captures the share of regiment(s) raised in bureau b recruiting troops in municipality i that served under Pétain at the Battle of Verdun.³⁶ We control for assignment to Verdun overall, $Verdun_{i(b,e),1916}$, as the very few (7.24 percent) of municipalities that raised regiments that were *not* rotated at Verdun may have idiosyncratically had a different experience during and after the war. Alternatively, we estimate our coefficient of interest, β , excluding the municipalities whose regiments were not rotated at Verdun in 1916. We control for η_{Di} , a set of 87 department-level fixed effects, as well as for $\mathbf{X}_{i(b,e),<1916}$, a vector including municipality-level pre-treatment variables. Importantly, these include municipal vote shares for the left or the right in the last prewar legislative elections in 1914 (the excluded category being the vote share for centrist or miscellaneous parties). We also control for the logarithm of the population measured in the last pre-WWI census, in 1911.

Our preferred specification only includes department fixed effects and pre-WWI controls but in some robustness specifications we also control for a municipality's military fatality rate in World War I, rotation at other battles and under other generals, and variables that capture France's early experience in World War II. We cluster standard errors at the level at which the treatment is determined for a given municipality: the military recruitment bureau b (158 bureaus). In specifications with vote shares as the dependent variable, we use two-way clustering, and cluster the standard errors at the military bureau (b) and at the electoral district (e) level. We also implement standard checks to assess the plausibility of unobservable differences in the residual variation explaining the effect or the importance of spatial autocorrelation of the error terms.

Online Appendix Figure A5 illustrates our identifying variation. We exploit within-department variation in rotation of regiments through Verdun at different times, which led certain regiments to happen to serve under Pétain's direct command. Our identification is based on the fact that the processes through which regiments were rotated through Verdun in 1916, and through which Pétain himself was assigned and redeployed, were due to coincidence, military exigency, broad

³⁶We reconstruct the battle history of each regiment from each of the 173 *Historique du Régiment* books, which describe the day-to-day operations of each regiment. For each regiment, we manually code whether, and when, it was rotated at Verdun in 1916. We then define an indicator variable (*Verdun*) equal to one if the regiment fought at Verdun in 1916; and an indicator variable equal to one (*VerdunPétain*) if the regiment fought at Verdun under Pétain's command, i.e., between 26 February and the 1 May 1916.

TABLE 1—SUMMARY STATISTICS AND BALANCE ON PRE-WWI, INTERWAR, AND WWII CHARACTERISTICS

Controls	Observations (municipalities)	Mean (SD)	None		Dept FE	
			Coeff (SE)	<i>p</i> -value	Coeff (SE)	<i>p</i> -value
<i>Pre-treatment characteristics</i>						
Left vote share, 1914	33,725	10.746 (16.226)	−0.125 (1.812)	0.945	−1.525 (1.833)	0.407
Center/other vote share, 1914	33,725	51.210 (31.940)	−3.413 (4.497)	0.449	−1.035 (4.117)	0.802
Right vote share, 1914	33,725	43.010 (32.633)	3.820 (4.871)	0.434	2.996 (3.636)	0.411
Turnout, 1914	33,725	79.525 (9.913)	1.257 (1.161)	0.281	0.186 (0.874)	0.831
Log population, 1911	34,922	6.237 (0.985)	0.032 (0.085)	0.702	−0.012 (0.053)	0.824
<i>Interwar and WWII charact.</i>						
Log population, 1936	34,942	6.072 (1.064)	0.030 (0.090)	0.736	−0.053 (0.060)	0.379
Log distance demarcation line	34,942	4.659 (1.149)	0.153 (0.211)	0.469	0.004 (0.081)	0.963
Vichy France, 1940–1944	34,942	0.375 (0.484)	−0.015 (0.090)	0.870	0.009 (0.016)	0.573

Notes: This table compares municipalities whose home regiments were sent to Verdun under Pétain to others on their prewar characteristics. We show the coefficients (and *p*-values) of an ordinary least squares (OLS) regression of each characteristic on a municipality's share of regiments sent to Verdun under Pétain, conditional on rotation to Verdun, both without and with 87 department fixed effects. The number of observations is slightly lower for the 1914 legislative election results than for the census characteristics because information on a few municipalities was missing in the National Archives. Standard errors are clustered at the military recruitment bureau level.

strategic considerations and German action that were independent of the home characteristics of specific regiments themselves.³⁷

Consistent with this, Table 1 shows that municipalities that raised regiments rotated at Verdun under direct command of Pétain are statistically similar to others, both across France and within the same department, along a wide range of the most relevant characteristics. Most importantly, Verdun-under-Pétain municipalities have similar vote shares to others for left-wing, centrist or right-wing parties.³⁸ Table 2 disaggregates the 1914 electoral results party by party. There are no significant differences in vote shares for any of the parties in Verdun-under-Pétain municipalities. Notably, this includes not only parties on the right but also the Socialist Party (SFIO) of prominent anti-militarist Jean Jaurès, whose assassination crippled the final efforts to stave off war.

Similarly, using the last prewar census in 1911, we observe that Verdun-under-Pétain municipalities had similar populations to other towns in the same department or more widely across France. Further, in the online Appendix Tables A1 to A5, we compare a series of historical, sociodemographic, and geoclimatic characteristics at

³⁷ See also Jha and Wilkinson (2012).

³⁸ We provide details on elections and political parties in 1914 in online Appendix B5.1.

TABLE 2—EXPOSURE TO PÉTAIN AND 1914 LEGISLATIVE VOTE

	Left	Center left		Center right	Right	
	SFIO (1)	RAD-SOC (2)	RAD-INC (3)	PRDS (4)	Progressistes (5)	ALP (6)
Verdun under Pétain	0.019 (0.083)	0.059 (0.044)	−0.077 (0.072)	−0.004 (0.054)	−0.048 (0.073)	0.026 (0.046)
Verdun	✓	✓	✓	✓	✓	✓
1911 population	✓	✓	✓	✓	✓	✓
Pre-WWI vote shares	NA	NA	NA	NA	NA	NA
R ²	0.72	0.90	0.88	0.91	0.90	0.91
Observations	33,725	33,725	33,725	33,725	33,725	33,725
Mean dependent variable	1.26	2.19	0.87	1.46	0.63	0.99
SD dependent variable	1.58	2.04	1.87	2.09	1.78	1.90
Number of clusters	158	158	158	158	158	158

Notes: This table shows that in the 1914 elections, municipalities that raised regiments that served at Verdun under Pétain did not vote differently than other municipalities. The table provides OLS estimates of equation (3) including only log population in the 1911 census in X_i . The dependent variables are the log vote share for each political party in the 1914 legislative elections, as indicated. Political parties are ordered in the table from most left-wing (“SFIO”) to most right-wing (“ALP”). Political parties are described in detail in online Appendix B5.1. An observation is a municipality. The row “1911 pop” stands for the logarithm of the 1911 population. Robust standard errors two-way clustered at the military recruitment bureau level and at the 1914 canton (electoral district) level are in parentheses.

the municipality, grid-cell, historical district, town, or canton level. Overall, 3 out of 63 characteristics we examine (and none at the most disaggregated level—the municipality) are significantly different at the 10 percent level in our treated sample, no higher than what we would expect by pure chance.

As a final note, Table 1 also shows that the Germans do not appear to have perceived Verdun-under-Pétain municipalities to be particularly more or less desirable to place under their direct control. These municipalities had similar populations in 1936. They were neither more proximate to the demarcation line that separated German-occupied and Vichy France nor more likely to be assigned to either of these zones.³⁹ These similarities are true both comparing municipalities across France and locally within the same department.

The lack of preexisting differences is consistent with the historical record that suggests that the French Army engaged in interchangeable deployment of regiments that happened to expose soldiers from a specific set of otherwise similar Verdun-under-Pétain municipalities. To supplement this evidence, we can also test alternative possibilities. For example, it could be the case that the regiments from Verdun-under-Pétain municipalities were either specially selected to be cannon fodder in the early months at Verdun or ended up being so. They might therefore have experienced greater fatalities in the First World War, and that may explain subsequent differences in willingness to collaborate in the Second World War. Another possibility is that Verdun-under-Pétain municipalities were the opposite: that despite having similar vote shares and other demographics, they were selected from favored

³⁹On the strategic choices of positioning the demarcation line, see Kocher and Monteiro (2016).

TABLE 3—REGRESSION: COMBAT FATALITIES BY BATTLE

	Deaths by regiment (log)		Municipality WWI fatality rate (log + 1)	
	(1)	(2)	(3)	(4)
Marne	0.088 (0.042)		−0.026 (0.021)	−0.067 (0.017)
Verdun under Pétain	−0.053 (0.050)	0.060 (0.072)	0.019 (0.022)	−0.012 (0.025)
Verdun	0.153 (0.077)	0.393 (0.112)	0.017 (0.041)	0.080 (0.033)
Somme	0.210 (0.047)	0.422 (0.069)	0.005 (0.020)	0.014 (0.016)
Chemin des Dames	0.122 (0.043)		−0.008 (0.019)	−0.020 (0.022)
Southeastern Front	−0.297 (0.075)	−0.553 (0.108)	−0.071 (0.035)	−0.100 (0.026)
Fixed effects	NA	NA	NA	Dept
Unit of observations	Regiment	Regiment	Municipality	Municipality
Time period	Whole war	1916	Whole war	Whole war
R ²	0.28	0.39	0.01	0.11
Observations	173	173	34,942	34,942
Mean dependent variable	8.08	6.21	1.55	1.55
SD dependent variable	0.30	0.49	0.36	0.36
Number of clusters	.	.	158	158

Notes: An observation is a regiment in columns 1 and 2; a municipality in columns 3 to 4, with robust standard errors clustered at military recruitment bureau level in parentheses. Column 1 shows the results of an OLS regression of the (log of) cumulative battle deaths by regiment over the whole war on whether the regiment participated in each indicated battle. Column 2 shows the results of a similar exercise but considers only regimental deaths and battles in 1916. Columns 3 and 4 show the results of OLS regressions of the (log of) each municipality's WWI fatality rates on the regimental shares assigned to each indicated battle. In column 4, the specifications additionally control for department fixed effects (87 departments). The municipality WWI fatality rate is the number of soldiers born in a municipality who died in combat divided by the municipality population in 1911. We match 99.72 percent of 1,266,060 fatalities to 34,782 municipalities of birth.

municipalities by the French High Command, perhaps from more pacifist or politically influential areas, and thus their soldiers were shielded from wartime fatalities.

To examine this, we code whether each line regiment participated in specific battles from their regimental histories, and combine this with data on 1,270,942 individual fatalities with birth information in metropolitan France from the *Mémoire des Hommes* online database, of which we are able to match 99.9 percent to their birth municipality (see also Gay 2019; Gay and Grosjean 2022).

As we have already seen, daily fatalities do not change before and after Pétain's promotion at Verdun. As Table 3 shows, this exemplifies a broader pattern that is consistent with quasi-random assignment of French line regiments to battles. France suffered a tragedy in World War I, with the average municipality losing more than four percent of its population to military fatalities. First note that it was, of course, hard to know *ex ante* which battles would be successes or failures for France, and the major battles of World War I—or even solely of those of 1916—do exhibit variation in the fatality rates for the *regiments* that were exposed (columns 1 and 2). This is particularly true of the ultimately failed attempts to break through the German lines at the Somme in 1916 and the Chemin des Dames in 1917. Nonetheless, the

regiments exposed to Verdun under Pétain were not exceptional in terms of their overall fatality rates.

Further, columns 3 and 4 examine how regimental assignment to different battles impact the overall military fatality rates by the end of the war. As the table shows, despite the differential impact to regiments from specific battles, accounting for the assignment of a municipality's line infantry regiments to a range of key WWI battles explains little of the ultimate aggregate variation in military death rates by the war's end.⁴⁰ Further, and in common with a range of other major battle assignments, fatality rates in municipalities assigned to Verdun-under-Pétain specifically do not end up different. Thus, by the end of the war, the regiments that fought at Verdun under Pétain had experienced similar losses than other regiments, and municipalities home to those regiments suffered similar World War I losses to other municipalities.

These patterns run contrary to both the cannon fodder and positive selection hypotheses, and instead are consistent with one implication of quasi-random deployment: that over time there will tend to be regression to the mean in terms of fatality rates.

III. Collaboration during World War II: Background and Data

Before presenting the main outcome variables, we briefly describe Pétain's role in the interwar period and during the German occupation and describe the new dataset on collaborators we built for this study.

A. Heroes and the Death of the Third Republic

The Constitution of the Third Republic had been designed specifically to prevent a Napoleon-style "heroic" takeover: a weak executive faced a strong assembly, with shifting coalitions (Reynolds 2014). The Republic had, nevertheless, proved robust enough to deliver a unity government—the *Union Sacrée*—that won World War I despite France's appalling losses. However, this coalition unraveled shortly thereafter. France's political polarization became further accentuated during the Great Depression, making it hard to sustain majorities. France went through 26 separate cabinets between 1930 and 1940 alone (Steiner 2005).

The interwar period also saw the creation and increasingly active engagement of large ex-combatant organizations in politics. Of 6.4 million French war veterans in 1920, about 3 million would join a veterans' association between the wars. Among these was the *Croix de Feu* (Cross of Fire), a society initially limited only to decorated veterans, many of whom had served at Verdun.⁴¹ More secretive networks included the *Corvignolles*, an organization founded by Pétain's own former aides-de-camp to root out Communists in the army, which kept its secret files in Pétain's personal safe (Bankwitz 1967, p. 272). The Corvignolles network would later coordinate with and overlap considerably in its membership with the shadowy

⁴⁰ See the R^2 of 0.01–0.11 (columns 3 and 4). In fact, we fail to reject a test that home regimental assignment to these different battles has *zero* joint effect on municipality-level fatality rates at the 89 percent level across battles within the Western Front, and 33 percent if we include the Southeastern Front.

⁴¹ It is important to note that unlike the *Croix de Feu*, not all the veterans organizations were right-wing however: there was also the center-left *Union fédérale* (Millington 2012).

Cagoule (the Hood) (Bankwitz 1967, p. 272), so named because its secretive tactics of terrorism and intimidation reminded even right-wing French writers of the Ku Klux Klan.⁴²

In February 1934, the situation reached the point of crisis. As a new left-leaning cabinet was about to be inaugurated, organized columns of right-wing *Ligues* marched on the Chamber of Deputies. Present were veterans' groups, including the *Croix de Feu*, as well as Marcel Bucard, war hero and head of the explicitly Fascist *Francisme* Party.⁴³ A bloody riot ensued, and a day later, the left government fell.⁴⁴

The subsequent election of a leftist Popular Front in 1936, led by the Socialist (and Jewish) Premier Léon Blum, was again accompanied with violence, including political assassinations conducted by the *Cagoule*. The *Ligues* were banned and forced underground. As we discuss below, these groups would resurface during the Vichy regime.

Regardless of the social ties he may have possessed to such antidemocratic groups, Pétain remained a "genuine national hero" (Paxton 2001, p. 34).⁴⁵ As the Victor of Verdun, Pétain was highly focal among the other heroes of that battle in particular. Along with numerous local reunions, he gave prominent speeches at Verdun, and served as president of the organization that gathered subscriptions from veterans groups and others across the country to fund the immense ossuary at Douaumont between 1919 and 1927.⁴⁶ With French politics polarized into weakness in the face of a rising Germany, editorials began to appear in newspapers across the political spectrum, proposing Pétain as the strongman France needed.⁴⁷

Politically, Pétain was well known to be an anti-Communist, and developed increasingly authoritarian tendencies after Verdun.⁴⁸ On the occasions that he did

⁴² *La Cagoule* or "the Hood" was the name given to the underground terrorist organization, the *Comité Social d'Action Révolutionnaire* (CSAR) by right-wing writers Charles Maurras and Maurice Pujo of the *Action Française* precisely because even to these right-wing writers, the secretive terror tactics of this organization reminded Maurras of the American Ku Klux Klan (Gordon 1975, p. 261). The CSAR was responsible for a number of political assassinations, including the anti-Fascist refugees, the Rosselli brothers in 1937. As the historian Bertram Gordon writes: "With a number of military men in its ranks, the CSAR was by 1937 in contact with Commander George Loustaunau-Lacau [Pétain's former aide-de-camp], the organizer of the anti-Communist Corvignolles intelligence network within the French army. The Corvignolles had been established to root out Communist subversion with the French army, but their leaders plotted with the men of Deloncle [the CSAR] to overthrow the Popular Front government then in power" (Gordon 1975, p. 261).

⁴³ In his journal, Bucard spoke of the left as the "gravediggers of the Republic" and discussed his intent in January 1934: "we will set up the guillotines in the four corners of Paris and we will cut off heads. And we will be careful not to show them to the people, because they are not worth it" (Deniel 1979, p. 81).

⁴⁴ Fifteen people were killed and 236 wounded. The Radical Socialist Party withdrew its support of the cabinet and the Premier Édouard Daladier resigned. This was seen by some as the start of a civil war in France that would last until 1944 (Jackson 2001).

⁴⁵ "Wherever he went, he was fêted. The weekly magazines were full of his exploits, of the speeches he made to veterans' associations, of the prize-givings, of the parades ... and even of the dedications of streets which carried his name—at least one in every town that considered itself of any importance" (Williams 2005, p. 116).

⁴⁶ As Greenhalgh (2014, p. 147) writes: "If Verdun was not France's 'moral boulevard' that it became later, nevertheless it persisted in popular memory as the acme of horror and futility, and its memorial—the ossuary of Douaumont—is the principal *lieu de mémoire* of the war. Pétain ensured that Verdun would maintain its and his reputation, by presiding over many of the post-war commemorations there." Pétain is still honored prominently at the Ossuary at Douaumont and on the walls of the Verdun Memorial.

⁴⁷ When, in 1934, the right-wing newspaper *Le Petit Journal* organized a survey on who should lead France as its dictator, Pétain received the highest support. *La Victoire* proclaimed (their capitalization) "*C'EST PÉTAÏN QU'IL NOUS FAUT!*" (It is Pétain whom we need!), a cry taken up by *Le Jour*, and the far right *L'Action Française*. Perhaps more surprising was a 1935 endorsement by the left-wing *Vu* (Williams 2005, p. 135).

⁴⁸ See also Williams (2005, p. 142). As Ousby (2007, p. 97) notes, prior to Verdun, "in 1916 [Pétain] still bore all the identifying traits of a good Republican general." However, as early as January 1917, Pétain's best man, Marshal Émile Fayolle (1964, p. 197), noted that "Pétain believes he is a great man; he says seriously that the Republic is

voice his views, it was to express contempt for politicians and parliamentary institutions, and in support of the army's potential role to intervene in domestic politics.⁴⁹ However, for several years after retiring from the top position of the army in 1931, he mostly refrained from public position taking within France (Paxton 2001, p. 34).⁵⁰

This changed in 1936. The two rounds of the 1936 election, held on April 26 and May 3, saw Pétain explicitly seek to influence people's voting behavior. In the first round, with 85 percent turnout, the Popular Front coalition of left and center left parties received more than 50 percent of the vote. Pétain "immediately broke cover" (Williams 2005, p. 137). Pétain gave a well-publicized interview to *Le Journal* on May 1, 1936, two days before the second round election, declaring France "under threat" of Socialism and denouncing the Socialist platform (see online Appendix Figure A6). He claimed that France was experiencing a moral crisis, cited Fascist Italy and Nazi Germany as examples to follow, and endorsed the veterans of the increasingly right-wing *Croix de Feu*, noting how they "occupy themselves with the moral and spiritual improvement of youth." He claimed "We are like sailors without a steersman, without a rudder" (Williams 2005). He ended the interview calling for the nation to rally (*rassemblement national*).

According to his biographer, Charles Williams (2005, p. 137), with this interview, "Pétain had crossed the threshold into party politics. Far from being a soldier who would serve whatever government was legitimately elected, he had almost overnight openly associated himself with the political right."

Indeed, as we document below, Verdun-under-Pétain municipalities began to diverge in their vote choices in the interwar elections in a manner that mimic Pétain's own evolving views, with opposition to the left and support for the right and, later, the extreme right. Further we will show that these municipalities respond particularly strongly to Pétain's public intervention in between the two rounds of the 1936 election.

After the 1936 elections, Pétain continued to adopt an explicit right-wing tone, including in his speech at Verdun commemorating the twentieth anniversary of the battle.⁵¹ Dispatched to Spain as ambassador to Franco's dictatorial regime in 1939, Pétain would return in the summer of 1940, to invoke the "support of the veterans [he had] commanded" as he assumed dictatorial power in France himself.

It is worth noting that "Marshal Pétain did not seize power in the summer of 1940. It descended upon him like a mantle" (Paxton 2001, p. 185). On May 18, 1940, after Germany invaded France, Pétain was invited to join the government in hopes that this

afraid of him." He was not alone. In April 1918, Williams (2005, p. 81) wrote: "the politicians in Paris objected [to his assuming command] that Pétain was now so widely known for his dislike of politicians in general, and of President Poincaré in particular, that he would be a threat to the Constitution."

⁴⁹ For example, on September 9, 1925, the *New York Times* reported Pétain's toast to Primo Miguel de Riveira, the dictator of Spain, with whom he served in the Rif War: "... who through his intelligence and patriotism was able to re-establish discipline and order in Spain. Perhaps circumstances may make it necessary to do in France as was done in Spain."

⁵⁰ After the events of February 6, 1934, Pétain agreed to become Minister of War in the right-wing government that followed, a position he held until the new government fell once more.

⁵¹ Pétain's draft speech at Verdun in 1936 called for dramatic political reforms along the lines of family, army and country (Williams 2005). These themes would later become the rallying motto of Pétain's authoritarian regime and its conservative *Revolution Nationale*. The government vetoed his request for a live radio broadcast of the Verdun speech, and sought to censor parts of his speech, but his words were widely reported.

would stiffen French resistance. However, with the military situation deteriorating rapidly, France's parliament debated whether to move France's seat of government overseas to its empire, to remain in France, or even to join a Franco-British political union. Pétain advocated for the government to remain. Favoring continued resistance, Prime Minister Paul Reynaud resigned, and Pétain took his place. On June 22, France signed an armistice giving Germany control over the North and West, but leaving two-fifths of France's prewar territory unoccupied to be governed from Vichy. On July 10, 1940, the two legislative chambers ratified the armistice and granted the Cabinet the authority to draw a new constitution (Lacroix, Méon, and Oosterlinck 2019). Soon Pétain assumed plenipotentiary powers as head of state. Thus ended the Third Republic, which, to this day, remains the longest-enduring Republican regime in France.

Initially, Pétain's heroic status was such that most of France did appear to be behind him in the summer and autumn of 1940.⁵² Upon gaining power, Pétain's regime quickly began dismantling liberal institutions and adopted an authoritarian course. However, it was not until October 1940 that Pétain's collaboration with the Germans took an explicit turn, when a photograph of him shaking hands with Hitler at a meeting at Montoire was widely publicized and distributed. He promised the French "a new peace of collaboration" and "golden prospects."⁵³ The regime's actions rapidly took on an extreme right wing and racist agenda, including the deportation of Jews, that outstripped both German expectations and their requests.⁵⁴ These patterns were accentuated after the full occupation of France by Germany in November 1942 following the Allied landings in North Africa. In early 1943, a *Milice* (militia) was formed to hunt down and kill the French Resistance. In the online Appendix B2, we illustrate our mechanism with the example of two Verdun veterans, Bucard and Joseph Darnand. Both Darnand and Bucard received medals for heroism from Pétain himself in World War I, and both were later inducted into the French Legion of Honor. Both followed a trajectory of escalating authoritarian leanings that led them to participate in anti-government protests led by veterans and Nationalist organizations, and to found or participate in extreme-right organizations during the interwar period, respectively the terrorist *Cagoule* and the Fascist *Francisme* movement (and party), that were banned in 1936.

Strongly anti-German, both men would rejoin the French army in World War II, winning further recognition for heroism fighting German forces in 1939–1940. With the advent of Vichy, when some other members of extreme-right groups joined the Resistance, they would instead follow Pétain into Nazi collaboration.

Bucard would cofound the LVF, a group of military volunteers to directly assist the Germans on the Eastern Front. He would be executed in 1946. Darnand would consider joining the Resistance, but instead found first the veterans organization the *Service d'Ordre Légionnaire* that provided shock troops to Vichy's regime and

⁵² Censors' estimates based on the sentiment expressed in about 300,000 letters each week—which may or may not have reflected preference falsification—suggest that between 20 and 30 percent of the general population were still supportive of state collaboration after the Allied landing in North Africa in 1942. Support for Pétain himself, however, was believed to be higher and even more enduring (Burrin 1996; Paxton 2001).

⁵³ Extract of Pétain's speech on October 10, 1940.

⁵⁴ Pressures on the French to apply the Final Solution to Jews did not start until 1942 according to Paxton (2001, p. 143). In any case, Hitler did not care about the National Revolution, which was clearly "the expression of indigenous French urges for change, reform, and revenge ... made urgent and possible by defeat" (Paxton 2001, p. 143).

then, at Pétain's personal request, the infamous *Milice* that hunted Jews and the Resistance. Once a hero of France, he would instead later swear loyalty to Hitler, joining the Waffen-SS. In a letter to De Gaulle two days before his execution, he defended the *Miliciens* as "authentic Frenchmen [whose] only mistake is to have been faithful to a great soldier [Pétain]" (Cointet 2017, pp. 257–58).

B. Collaboration and the Paillole Dataset

Our measure of collaboration comes from a remarkable 2,106-page list collected in 1944–1945 under the supervision of Colonel Paul Paillole, the head of French army intelligence at the end of the war (Lormier 2017).⁵⁵ Colonel Paillole was well qualified to generate this list as he had not only served in the Free French forces, running intelligence networks in France from 1942 onward, but also in the *Deuxième Bureau*—the counterintelligence services—of the Armistice Army of the Vichy government between 1940 and 1942. Following the German occupation of the South of France in 1942, Paillole joined the Free French in Africa, while continuing to run his networks in France, infiltrating collaborator organizations and supporting resistance networks. For example, a successful raid in 1943 abducted six collaborators and captured a file containing a roster of members of the *Parti Populaire Français* (PPF), which is also part of our dataset.⁵⁶

The file records the name of each suspected collaborator, their address, the nature of collaboration, and, in some cases, additional information on place and date of birth (or age) and economic occupation. The list captures the full spectrum of collaboration, from economic collaboration to membership in collaborationist political parties or paramilitary groups, as well as German auxiliary or combat units.

We digitized the entire file, linking the same individuals if they appear separately as members of different organizations, and georeferencing the municipality of birth or residence of each entry. Our final dataset includes 86,949 georeferenced collaborators, including 85,389 individuals within France's 1914 borders.⁵⁷

IV. Effects on Collaboration

In this section, we show that municipalities whose regiments were exposed to direct command of Pétain at Verdun during World War I raised 7–9 percent more collaborators per capita in World War II. We discuss the robustness of this empirical

⁵⁵ The list disappeared after the war, but resurfaced at Maurice Papon's trial in 1997, where it was slated to be introduced as evidence that Papon was a collaborator. Papon, a high-level bureaucrat and government minister in post-WWII France, was eventually convicted of crimes against humanity. The list then disappeared again, perhaps because a number of those accusing Papon of collaboration were themselves on the list. Before his death in 2002, Paillole shared a copy of the then-classified report with Anne-Marie Pommiers, curator of the Centre National Jean Moulin. Finally, the list was declassified in 2015.

⁵⁶ Similarly, on March 1, 1944, the head of the department of the *Rassemblement National Populaire* (RNP) (People's National Rally) was abducted in broad daylight, along with all of his documents, which were eventually given to Paillole. See online Appendix B1.

⁵⁷ We confirm using the military records for a sample (from Oise and Gard departments) that for individuals where only an address is listed, this corresponds to their birthplace. 13,235 individuals on the list have separate information on birthplace and address. This suggests that 15.22 percent of the collaborators in our list are internal migrants, a figure that matches estimates of internal migration available from the 1936 census (16.41 percent).

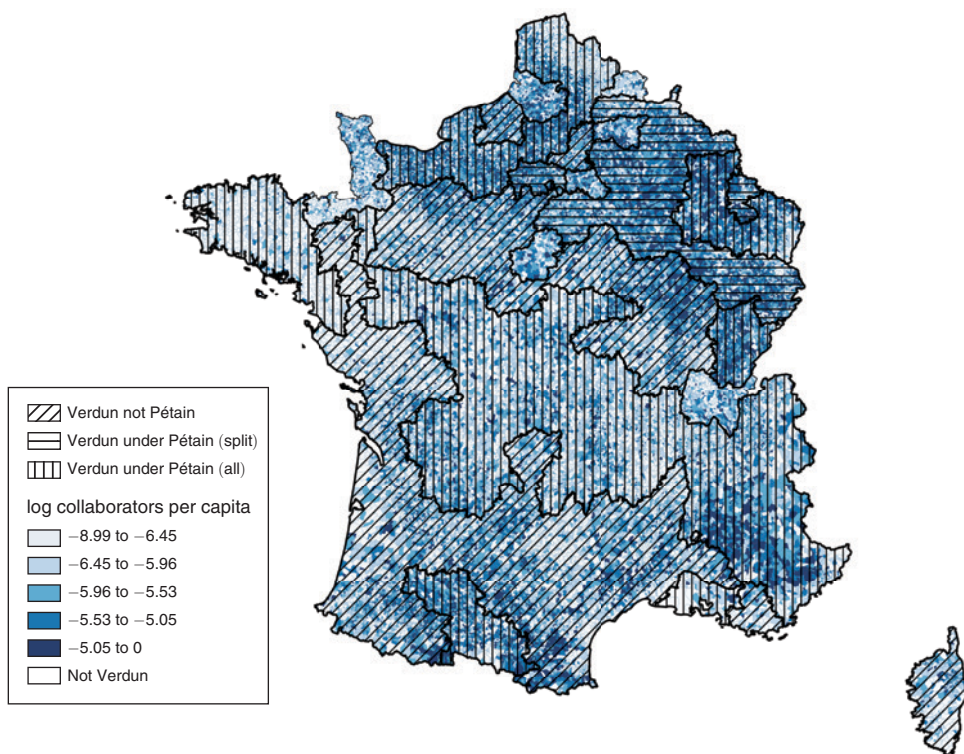


FIGURE 3. COLLABORATORS IN FRANCE, 1940–1945 (QUINTILES)

Notes: The map shows quintiles of the distribution of the log of collaborators per capita across municipalities in 1944 to 1945, overlaid with municipal regimental combat experience in World War I. This map shows information for 85,389 collaborators in the 34,947 municipalities within France's 1914 borders.

finding to alternative specifications in Section IVB as well as its robustness to using alternative sources of data on collaboration in Section IVC.

A. Main Result

Figure 3 maps the quintiles of the distribution of collaborators per capita across municipalities in 1945, overlaid with regimental combat experience in World War I. Notice that there is significant regional variation in the shares of collaborators. However, there are disproportionately higher shares of collaborators in Verdun-under-Pétain municipalities, even compared to others close by. The raw statistics back these geographic patterns. There were 9.91 active collaborators per 10,000 people in municipalities home to a regiment that served under Pétain's command, against 7.81 in municipalities whose home regiment served at Verdun, but not under Pétain, a 26.89 percent difference (p -value of difference in means < 0.01).

Table 4 shows that these raw differences are robust. Column 1 reports the uncontrolled results within 87 departments, showing that the share of collaborators is 7.3 percent higher in municipalities whose regiments had fought at Verdun under

TABLE 4—COLLABORATION IN WORLD WAR II

	Log collaborators per capita (OLS)				Number of collaborators (Poisson)			
	1914 France (1)	1914 France (2)	Verdun only (3)	Verdun only (4)	1914 France (5)	1914 France (6)	Verdun only (7)	Verdun only (8)
Verdun under Pétain	0.073 (0.041)	0.067 (0.018)	0.139 (0.042)	0.091 (0.024)	0.174 (0.106)	0.190 (0.109)	0.225 (0.100)	0.221 (0.096)
Verdun	0.035 (0.082)	0.029 (0.042)			0.162 (0.134)	0.189 (0.127)		
Log share left, 1914		0.034 (0.007)		0.033 (0.007)		−0.102 (0.045)		−0.117 (0.049)
Log share right, 1914		0.011 (0.005)		0.010 (0.005)		0.027 (0.024)		0.030 (0.024)
Log population, 1911		−0.591 (0.013)		−0.590 (0.013)		0.579 (0.211)		0.576 (0.221)
Moran p -value	0.30	0.22	0.47	0.99	NA	NA	NA	NA
R^2	0.23	0.60	0.24	0.61				
Observations	34,942	34,942	32,412	32,412	34,942	34,942	32,412	32,412
Mean dependent variable	−5.75	−5.75	−5.74	−5.74	2.44	2.44	2.42	2.42
SD dependent variable	0.83	0.83	0.84	0.84	32.87	32.87	33.08	33.08
Number of clusters	158	158	145	145	158	158	145	145

Notes: Columns 1 and 2 provide OLS estimates of equation (3). The dependent variable is the log collaborators in 1944–1945 per capita (1936). Columns 3 and 4 provide OLS estimates of equation (3) estimated only in the sample of municipalities that sent a regiment to Verdun (and therefore dropping *Verdun* as a control). Columns 5 to 8 replicate these estimates using a Poisson specification with the number of collaborators in the municipalities as the dependent variable and controlling for the log population in the municipality in 1936. All regressions control for the 87 department fixed effects. The excluded category for the results of the 1914 elections is the share of votes for candidates running for centrist or “miscellaneous” parties in 1914. For observations with missing historical information (see Table 1 for summary statistics), we impute zeros and we control for an indicator equal to one when the variable is missing. Robust standard errors clustered at military recruitment bureau level in parentheses.

direct command of Pétain. In contrast, having fought at Verdun under another general has no statistically significant effect on collaboration.

Column 2 adds controls for the vote shares for different political positions in the 1914 legislative elections, held at the eve of World War I, as well as for pre-WWI population. The Verdun-under-Pétain effect becomes more precisely estimated. The positive and significant coefficients associated with vote shares both for the right as well as for the left suggest that collaboration was more intense in municipalities within the same department that were also historically more polarized.

Columns 3 and 4 replicate the estimates from columns 1 and 2 excluding the 2,530 municipalities that were *not* rotated at Verdun (therefore dropping the control for the Verdun rotation). The coefficient associated with exposure to Pétain at Verdun becomes larger and more precisely estimated. Columns 5 to 8 show that these results are robust to Poisson estimation, using the count of collaborators in the municipality as the dependent variable and controlling for the 1936 municipal population.

The magnitude of our estimates suggests that exposure to Pétain at Verdun increased active collaboration rates by 6.7 percent, comparing otherwise similar municipalities within the same department, and by 9.1 percent, comparing otherwise similar municipalities within the same department that were also rotated at Verdun. Interpreting the Poisson estimates, exposure to Pétain at Verdun led to

10,469 additional active collaborators⁵⁸ in municipalities rotated at Verdun under Pétain compared to other municipalities from the same department rotated at Verdun under another general. This is more than the total number of individuals in our data who joined the Gestapo, the SS, the SA (Sturmabteilung), the German Intelligence Service (9,146 altogether), or the LVF (8,773 individuals).

B. Robustness

We provide additional robustness checks in the online Appendix A. We check that our results are not driven by functional form assumptions. In addition to our results being robust to a Poisson specification (columns 5 to 8 of Table 4), columns 1 and 2 of online Appendix Table A6 shows that the results are robust to using the inverse hyperbolic sine of local collaborators as an alternative dependent variable, controlling for 1936 population. We show in columns 3 and 4 of online Appendix Table A6 that our results are robust to controlling flexibly for geography by including a second order polynomial of geographic coordinates of each municipality. To check that our results are not driven by municipalities close to Pétain's municipality of birth, we add a control for distance to his municipality of birth (Cauchy-à-la-Tour) in columns 5 and 6. Column 7 and 8 show that the results are robust to excluding movers from our sample of collaborators, which addresses potential concerns about selection of internal migrants to different municipalities. We show in online Appendix Table A7 that our results are robust, and generally stronger in magnitude, to alternative ways of defining our treatment variable as either a categorical or indicator variable.

As discussed above, Verdun under Pétain's municipalities are very similar to others on a wide range of characteristics, including pre-WWI detailed vote outcomes, demographic, historic, and geographic characteristics. A comparison between our uncontrolled specification in column 1 of Table 4 and column 2 in which we add controls for pre-WWI vote shares and population reveals that the coefficient is stable in magnitude and more precisely estimated with the addition of these controls, the inclusion of which raises the R^2 by 0.37. A bounds exercise (Oster 2019) suggests that the influence of unobserved variables would need to be 10 to 20 times the influence of pre-treatment political preferences and population in order to explain away the treatment effect.⁵⁹

To assess the relevance of spatial correlation, we also calculate Moran statistics (a spatial version of the Durbin-Watson statistic) based on a distance matrix. The related p -values, displayed at the bottom of columns 1 to 4 of Table 4, are between 0.22 and 0.99. We further show in online Appendix Table A8 that our results are robust to correcting standard errors for arbitrary spatial correlations of the error term within spatial clusters defined for different cutoffs, from 25 kilometers (km),

⁵⁸The incidence ratio associated with the estimate in column 8 of Table 4 is $e^{0.221} = 1.247$ with respect to a mean number of 2.42 collaborators in a municipality. This implies that Verdun-under-Pétain municipalities have 0.598 ($1.247 \times 2.42 - 2.42 = 0.598$) additional collaborators, on average, compared to Verdun-not-Pétain municipalities. The average number of Verdun-under-Pétain municipalities is 17,506 (weighted sum including partial assignments), implying overall 10,469 ($17,506 \times 0.598$) additional collaborators.

⁵⁹*Delta* ratio: 9.68 based on a maximum R^2 of 1; *delta* ratio: 20.82 based on a maximum R^2 of 1.3 times the estimated R^2 .

50 km, and increments of 50 km from 100 to 250 km (Colella et al. 2019). Overall, these statistics provide confidence that correlation in spatial noise does not drive our results.

Next we implement a regression discontinuity design across military boundaries. We select the optimal bandwidth suggested by Calonico, Cattaneo, and Titiunik (2014). The resulting estimation sample drops to 41.52 percent of the original estimation sample. We instrument our treatment by the distance to the boundary and include the controls included in column 2 of Table 4 together with (or without, for robustness) a quadratic polynomial in latitude and longitude of the municipality centroid to capture unobservables that may vary around the regiment catchment borders. The first-stage F -statistic is between 50.74 and 54.41 (online Appendix Table A9). The second stage results are robust and larger in magnitude compared with our main results: in this local comparison, there are 10.2 to 10.8 percent more collaborators in municipalities that raised regiments that were rotated at Verdun under Pétain (columns 3 and 4). By contrast, we observe no significant discontinuity in vote shares for the left or the right prior to World War I, military fatality rate in World War I, or local population in 1911 (columns 5–12). The fact that we observe a significant jump in the share of collaborators across the regiment catchment border, but not in other covariates, further rules out spatial correlation as a driver of our results (since there is no reason to expect a discontinuous jump in the presence of spatial autocorrelation) and reinforces the validity of our main results in this hyper-local sample.

Further, the online Appendix reports the results of a permutation inference exercise where we randomly reassign the treatment (1,000 times each) at two different levels: at the regiment level, keeping the allocation of each municipality to “its” regiment(s) as the actual allocation; and at the municipality level. These permutation inference tests account for potential issues related to imbalance across clusters and spatial correlation. Results of both exercise displayed in online Appendix Figures A8 and A9 show that our effect size is well outside the range of estimated effects from these placebo treatments. The fact that we obtain similar results when we reassign treatment at regiment or municipal level additionally suggests that our effects are not driven by a specific allocation of municipalities to specific regiments.

C. Alternative Data Sources

Our data on collaboration was collected by a network of different agents under the supervision of Paillolle, who himself had no direct ties to Pétain.⁶⁰ To address the possibility that some areas may be overrepresented and others underrepresented on the list, online Appendix Figure A7 shows that the results are not sensitive to

⁶⁰Paillolle, born in 1905, was too young to have served in the First World War and had no visible ties during the interwar period to either veteran organizations or to Pétain himself. It is extremely unlikely that the construction of the list was systematically associated with the treatment of interest in our paper. For this to be the case, it would require that Paillolle, as well as those who helped him assemble the list locally, have not only exact knowledge of the order of rotation of line infantry regiments at Verdun but also of the assignment of each municipality to its infantry regiment, for each of the 34,947 municipalities. Further, as discuss below, we find similar patterns using *administrative data* on right and extreme right voting in the interwar period. These include votes for the *Francisme* Party in 1936, which reassuringly is very highly correlated ($\rho = 0.89$) with Paillolle’s roster when that organization resurfaces under Vichy in 1940–1944.

particular regions being dropped out of the estimation sample. Results are similarly insensitive to individual departments being dropped out of the sample one by one, with the main coefficient of interest having a mean of 0.067, standard deviation of 0.0027, min of 0.056 (p -value 0.004) when excluding Orne and a max of 0.076 (p -value 0.000) when excluding Vienne.

Our data represents the largest and most comprehensive dataset available on collaboration. Nevertheless, we verify the validity of our results using two additional sources. First, we use data collected just after the D-Day landings by US intelligence, the Office of Strategic Services (1944), on high level political collaboration.⁶¹ This dataset lists 1,327 people, who were top personnel of the Vichy government (cabinet members and top ministry personnel), and members of the diplomatic service, press, radio and executive committees of political parties. Second, we use newly and independently collected data on 10,636 volunteers seeking to join the LVF to fight alongside the German Wehrmacht.⁶²

The local shares of collaborators in our data and in these other data are strongly correlated.⁶³ Columns 1 and 2 of online Appendix Table A10 replicate columns 2 and 4 of Table 4 using local collaborators from these two additional data sources together as the dependent variables. In columns 3 and 4, we consider collaborators from all three sources combined (removing roughly 13 percent of individuals in the LVF list who already appear in our data). Despite the fact that these alternative sources are less comprehensive and reflect two very different types of collaboration—high end administrative Vichy leadership or volunteer foot soldiers—our results remain robust and comparable in magnitude. Section V further confirms that our results are stable across different kinds of collaboration in our main dataset.

V. Mechanisms

So far, we have established a robust link between communities whose soldiers were rotated through service under Pétain at Verdun and subsequent willingness to actively collaborate with the Nazis 23 years later. We now investigate why. We provide direct evidence on the realignment and radicalization of political values in the interwar period, particularly in response to Pétain's public intervention in between the two rounds of the 1936 election. We then leverage our individual-level collaboration data to investigate the mechanisms of adoption and diffusion of these values within the network of veterans and their local communities. Last, we assess other plausible alternatives.

⁶¹This dataset was declassified in 1949.

⁶²This dataset was collected from various archival sources, including the National Archives, the *Service Historique de la Défense de Caen*, and the financial institution that was responsible for the payment of LVF members (*Comptoir National d'Escompte*). Complementing our list, it also contains data on those who volunteered but were deemed unfit to serve, and those who were killed before the end of the war. We thank Philippe Douroux for sharing these data with us.

⁶³The raw correlation between the (log) share of collaborators in our data and the (log) share of the US Office of Strategic Services and LVF data combined is 0.80.

A. Effects on Voting Behavior in Interwar France

If, as we argue, participation in collaborationist organizations reflects the influence of the hierarchical network of heroes on legitimizing and diffusing values, then these effects should also be visible in voting behavior that mimic Pétain's own views. Further, these voting patterns should be sensitive to Pétain's explicit position taking, particularly his public intervention between the two rounds of the 1936 elections.⁶⁴ To investigate whether this is the case, we gather novel municipal-level data from paper-format archives on the electoral results in four interwar legislative elections: 1919, 1924, 1932, and 1936. For each election, we classify each party along an extreme left-extreme right axis, following a process described in the online Appendix B5.

Although, as we have seen, vote shares for each party were very similar in Verdun under Pétain before World War I (Tables 2 and 3), Verdun-under-Pétain municipalities swing to the right during the interwar period (online Appendix Table A11). Overall, they were 18.2 percent (SE: 0.074) more likely to vote for the right and 1.3 percent (SE: 0.007) more likely to vote for the extreme right, when the extreme right presented candidates in the 1919 and 1936 elections. Compared to other municipalities in the same department that were also sent to Verdun (even columns), the magnitudes are larger and the coefficients more precisely estimated. With turnout unaffected (last column), these effects suggest a shift in support towards the right of the political spectrum.

In online Appendix Table A12, we further analyze how exposure to Pétain at Verdun affects the vote share in the interwar elections, party by party. In the 1919 and 1924 legislative elections, Verdun-under-Pétain municipalities were 11.1 percent (SE: 0.063) and 9.5 percent (SE: 0.048) significantly less likely to vote for the left and the extreme left and 12.5 percent (SE: 0.056) to 7.9 percent (SE: 0.043) significantly more likely to vote for the *Entente Républicaine Démocratique* (ERD), a conservative right-wing party. The ERD was part of the *Fédération Républicaine* (FR-URD), which moved closer to the Fascist Leagues over the interwar period.

In the 1932 elections, these patterns are confirmed, with a large 14.9 percent (SE: 0.070) and 18.6 percent (SE: 0.048) increase in the vote share for two right-wing parties: the *Alliance Démocratique* (AD-RG) and the *Union Républicaine Démocratique*.⁶⁵ In 1932, the URD was close to the extreme-right Fascist league of the *Jeunesses Patriotes*, founded by the WWI hero, champagne baron, and future collaborator, Pierre Taittinger.

Following the 1932 elections, a defeat for the right, France polarized further, with extremist groups such as Bucard's *Francisme* emerging even further to the right of

⁶⁴The first interwar election of 1919 saw a victory of the right-wing Bloc National headed by Georges Clemenceau. The elections of 1924, 1932, and 1936 all saw the victory of a left-wing coalition, the first and second *Cartel des Gauches* in 1924 and 1932, and the *Front Populaire* in 1936, which for the first time also included the Communist Party (see online Appendix B5 for a detailed description of interwar politics and online Appendix Tables B2 to B5 for summary statistics). Far-right leagues rejected participation in the formal parliamentary process until the 1936 elections (when they gathered only 0.05 percent of the total vote).

⁶⁵The URD was also part of the *Fédération Républicaine* (FR-URD). Note also that the number of observations is lower for the 1932 elections than for the other two elections. It is because, for 1932, the national archives have lost the electoral results for all departments starting with the letter A and B (i.e., Ain, Aisne, Allier, Alpes Maritimes, Ardèche, Ardennes, Ariège, Aube, Aude, Aveyron, and Basses Alpes.).

TABLE 5—CHANGES IN VOTE BETWEEN ROUNDS OF THE 1936 ELECTION, FOLLOWING PÉTAİN'S PUBLIC POSITION TAKING

	SFIO (1)	RAD-SOC (2)	AD (3)	PRN (4)	Turnout (5)
Verdun under Pétain	-7.063 (2.701)	-0.310 (2.803)	7.524 (3.302)	2.720 (2.441)	0.516 (0.448)
1911 population	✓	✓	✓	✓	✓
Pre-WWI vote shares	✓	✓	✓	✓	✓
R^2	0.32	0.38	0.28	0.28	0.22
Observations	10,472	10,712	14,164	6,954	23,791
Mean dependent variable	15.81	12.26	6.65	7.43	0.42
SD dependent variable	16.90	19.98	13.85	12.38	4.94
Number of clusters	128	118	138	99	153

Notes: The unit of observation is a municipality. The table displays the OLS estimation results of online Appendix equation (A.A3) (see online Appendix A3) for each major party j present in both rounds of the election in municipality i . The estimation sample is restricted to municipalities where party j ran in both rounds. All specifications control for department fixed effects (87 departments) and the usual set of pre-WWI controls at the municipality level (as in column 2 of Table 4). Robust standard errors clustered at the military recruitment bureau and electoral district (arrondissement) level are reported in parentheses.

the FR-URD. As the table shows, Verdun-under-Pétain municipalities are associated with a significant 2.6 percent (SE: 0.008) increase in the vote share for the Francist candidates in 1936. Further we also observe a 7.7 percent (SE: 0.034) increase in the votes for more mainstream conservative right-wing candidates: the “agrarians” (AGR), at the expense of other parties representing the left and the center.⁶⁶

Yet, despite this, as discussed above, the first round of the 1936 legislative election gave a major lead to the left. In Table 5, we analyze how vote shares changed in between the two rounds of the 1936 elections, following Pétain's public interview on May 1, 1936, attacking the left. We estimate a specification similar to equation (3), where the dependent variables are the simple differences over the two rounds (held only a week apart) in the vote shares for the parties that ran in both rounds of the election. Table 5 shows a clear left to right shift in Verdun-under-Pétain municipalities in between the two rounds. The vote share for the Socialist Party decreased by 7.1 percentage points (SE: 2.7) while the vote share for the right-wing conservative party, the Alliance Démocratique increased by roughly the same proportion (7.52 percentage points, SE: 3.30). The Alliance Démocratique was headed at the time by Pierre-Étienne Flandin, who would later serve Pétain at Vichy as his vice-president and foreign minister.⁶⁷

These results are consistent with role played by exposure to Pétain at Verdun on changing political preferences in the interwar period. Electoral choices in Verdun-under-Pétain municipalities were significantly more likely to mimic Pétain's own views and, particularly in the case of the 1936 election, respond to his direct attempts at influence, and did so well before Pétain took actual power. Further, by raising the vote shares for extreme parties, Verdun-under-Pétain municipalities accentuated the political polarization in France in the interwar period.

⁶⁶The Agrarian Party had emerged further to the right of the FR-URD, which by 1936 had split.

⁶⁷Online Appendix A3 includes more detail on the estimation strategy and a set of robustness analyses, restricting the estimation sample to municipalities that were rotated at Verdun and controlling for vote shares in the first round.

B. *Trust, Loyalty, and Complementary Heroism in the Diffusion of Values*

Though our voting data are measured at the highly disaggregated municipality level, it does not allow us to study precisely the mechanisms of diffusion of political values *within* municipalities. In this section, we leverage our individual collaborators data, along with the historical record, to shed light on the mechanisms underlying how political values and behaviors were adopted and diffused within their local communities and illustrate the role played by the network of veterans.

We proceed in several steps. First, we document differences in Pétain's management style that might explain *why* soldiers rotated under Pétain's command might *trust* him more generally. We show how relative to other generals, and particularly his successor at Verdun, Nivelle, Pétain's management style at Verdun provided visible and costly signals of the weight he placed on the well-being of the soldiers under his command. We then present evidence that those veterans likely to have been exposed to Pétain's direct command, both at Verdun and elsewhere, show increased *loyalty*: there are higher numbers of collaborators among those gender and age-eligible to have been line infantry veterans serving under his direct command in the home municipalities of these units. We further provide evidence that such loyalty is *complemented by the heroic network in diffusing political influence*: it is only in municipalities where their soldiers were exposed to Pétain *at Verdun*, and thus seen themselves as heroes, that the effects diffuse beyond the veterans themselves, and influence the political behaviors of the communities around them. Finally, we assess one implication of such complementarity: that it can lead to persistence and even escalation.

Why Trust Pétain? Pétain's Management Style and Weight on Soldiers' Welfare.—Many historical accounts agree that Pétain's management style was different in overt and costly ways that demonstrated that he put more weight on the welfare of the men under his command. For example, Ousby (2007, p. 100) writes

Pétain's distinctive style toward the men at Verdun was announced in the very decision to make his headquarters at Souilly. It lay closer to the battle than many generals of his day would have thought necessary, or comfortable, and it lay directly on the Voie Sacrée. By standing on the steps of the *mairie*, which he made it his custom to do whenever his work permitted, he could see and be seen by the men who marched into battle and the men who straggled back. In the same spirit, he made a point of visiting the hospitals from which fellow commanders, such as Joffre and Haig, recoiled in dismay. ... He conveyed a paternal concern, left behind the suggestion that here was a general who, while every inch the *chef*, really cared.⁶⁸

To verify this increased willingness to be present with the troops, we use each regiment's own official histories and operation journals to code the number and context of specific references to Pétain and to, his successor at Verdun, Nivelle, throughout

⁶⁸ His sleeping quarters too were right beside that heavily trafficked road. Similarly, Horne (1962, p. 139) writes that "he was the paternal figure, the leader who was devoted to his men, who suffered what they suffered." See also the quote by Henry Giniger above.

the war.⁶⁹ As online Appendix Table A13 shows, the records of all regiments rotated at Verdun mention Pétain more often, but those that were rotated under his direct command in those first months do so even more (column 1). Regiments rotated at Verdun under Pétain mention him 29.2 percent more often than regiments rotated at Verdun at another point of the battle (columns 1 and 2). Further, no other major battle, be it other heroic battles, such as the Marne in 1914 or post-Verdun disasters like the Chemin des Dames in 1917 (where Pétain was given broad command in order to address a wave of mutinies), demonstrates as extensive a connection to Pétain (column 3).⁷⁰

Further, despite the fact that as we document above, the overall intensity of the battle did not change at Verdun under his command, soldiers serving under Pétain were more likely to *share in the credit*: they receive more overt recognition for heroism that was observable to contemporaries. To show this, we collected data from a 1917 newspaper source (*L'Illustration*), on 16,489 individual medal citations received thus far during *La Grande Guerre*. Among those, 8,545 soldiers received a citation for service in the infantry. On average, a municipality that is home to a line infantry regiment was awarded 36 citations (SD: 11, min: 6, max: 69). However, those with line regiments serving under Pétain at Verdun benefited from a 14.8 percent increase in individual citations for valor relative to others serving at Verdun after Pétain's promotion and 23.8 percent relative to those assigned elsewhere (online Appendix Table A13, columns 7 and 8).⁷¹ Throughout the interwar period, and later particularly during Vichy, such medals were worn proudly by the veterans on the numerous commemorative events of World War I and in political demonstrations as well, making their heroic status salient to others.⁷² In the interwar period too, Pétain was "more generously eloquent" in honoring the *poilus* (foot soldiers) of Verdun as its true heroes (Ousby 2007, p. 106).

Loyalty.—If, as we have seen, Pétain's management style demonstrated through costly signals the weight he put on soldiers' welfare, we should expect soldiers to be more willing to trust him about broader decisions, both on the battlefield and more generally. Could this also result in *loyalty*, by which we mean willingness to follow Pétain into collaboration years later?⁷³ We gathered information on whether

⁶⁹These documents, published after the war, were generally written by the commanding officers of the regiment themselves and were based on each regiments' operational documents (see supplementary references in the online Appendix).

⁷⁰As an auxiliary check, it is worth noting that Nivelle is also significantly more closely connected to the regiments that served under him (columns 4 to 6), and further this effect is limited to the regiments under his direct command at Verdun and not those under Pétain's direct command there (column 5). This confirms that the specific general in direct command of the battle mattered more for the regiments.

⁷¹We use the log number of citations, but the results are unchanged if we use the number of citations instead, with coefficients of 7.94 (SE: 2.39) and 5.57 (SE: 2.55).

⁷²For example, on the first anniversary of the creation of the Legion of French Combatants on August 1941, three torches lit by Pétain himself were carried by individuals throughout Vichy France. One of the torches arrived in the city of Carcassonne on August 30. It was carried through *Verdun street* to the town's war memorial. Their hand raised, in uniform, their medals pinned to their chest, the legion members swore their allegiance to Pétain in front of a large crowd of 10,000 people that had gathered to celebrate. They promised to serve France in peacetime as they had in war. Camille Saint-Saëns's "Heroic March" preceded a mass in the cathedral. The whole crowd chanted the formula coined by Pétain: "Be faithful to your land, your prince, and your God".

⁷³This mechanism is distinct from, but in principle, complementary to, other work on how charismatic leaders may shape norms and identity by simple contact, either through public rallies or personal communications with selected audiences (e.g., Masera, Grosjean, and Yousaf 2023; Becker et al. 2020). In our specific case, as discussed above, Pétain was not known for his oratory.

a municipality's home regiments were exposed to Pétain at any of his field and staff postings both in peacetime and during the war (Etat-Major de l'Armée 1922; Williams 2005). Given that he largely had high-level administrative positions after Verdun, we should expect the effect of exposure to be stronger among the troops under his direct command before or during the Verdun battle.⁷⁴

Before the war, Pétain was an infantry colonel who had held staff or field command positions in 8 different regiments (or 3 percent of the line infantry). At the start of the war, he commanded the thirty-third infantry regiment in the field, but quickly rose through the ranks to command the Second Army from 22 June 1915 (through which 31 infantry divisions—or 36 percent of the line infantry—were to be rotated) until Verdun. We group these together and construct a variable that captures exposure to Pétain's command before Verdun ("Pétain before Verdun": mean: 0.38, SD: 0.46). We next examine the effect of exposure to Pétain before or during Verdun on the later propensity of the line infantry soldiers he commanded to show loyalty and follow him into active collaboration in 1940. We exploit France's universal conscription of all men of line infantry age (21 to 23 years old) in World War I along with information on age and gender that is available for 23,431 individuals in our sample. We focus on the 2,677 male collaborators who were thus likely line infantry veterans in World War I. Table 6, column 1, shows that there were 6 percent more likely veterans who were collaborators in Verdun-under-Pétain municipalities (SE: 0.016). Note that there is also a smaller 2–3 percent increase among municipalities whose troops Pétain commanded *before* Verdun as well (columns 2 and 3). These results are consistent with Pétain's management style inducing loyalty among those who served under his direct command, both before but particularly during the Battle of Verdun.

Diffusion beyond the Network.—We now examine whether those who served at Verdun under Pétain's direct command are relatively more effective in influencing those around them. To do this, we count all collaborators in a municipality who most likely *did not* serve under Pétain's direct command in the line infantry (i.e., men who were either too young or too old, as well as women). As Table 6 (column 4) reveals, Verdun-under-Pétain municipalities have 7.1 percent more non-line infantry collaborators (SE: 0.017). In contrast, municipalities whose troops served under Pétain *before* Verdun add close to zero collaborators among non-line veterans (a 0.6 percent increase, SE: 0.019, column 5). This pattern is accentuated once we control for the fact that some of units exposed to Pétain earlier on subsequently rotated through Verdun under Pétain as well: in contrast to the 7.2 percent (SE: 0.018) increase in non-line veteran collaborators among municipalities exposed to Pétain's network forged at Verdun, the effect exposed to Pétain's pre-Verdun network is, if anything, slightly negative (−0.3 percent, SE: 0.017, column 6).⁷⁵ To summarize: while exposure to Pétain's direct command raises the rate of collaboration among line infantry veterans before and (somewhat more so) during Verdun, it is only in

⁷⁴ As mentioned above, during the battle, on May 1, 1916, he was promoted to command the Center Army Group and its 176 infantry divisions—or 84 percent of the infantry—and later became commander-in-chief of all French armies in the West.

⁷⁵ These effects are also robust when we include in the nonveteran category all those for whom we do not have information on age or gender, in columns 7 to 9.

TABLE 6—EXPOSURE TO PÉTAIN AND COLLABORATION AMONG LINE INFANTRY VETERANS AND AMONG NONVETERANS

	Collaborators who are:					
	Line vets (1)	Line vets (2)	Line vets (3)	Nonveterans (4)	Nonveterans (5)	Nonveterans (6)
Verdun under Pétain	0.060 (0.016)		0.057 (0.016)	0.071 (0.017)		0.072 (0.018)
Pétain before Verdun		0.029 (0.016)	0.022 (0.014)		0.006 (0.019)	−0.003 (0.017)
Verdun	✓	✓	✓	✓	✓	✓
1911 population	✓	✓	✓	✓	✓	✓
Pre-WWI vote shares	✓	✓	✓	✓	✓	✓
R ²	0.93	0.93	0.93	0.82	0.82	0.82
Observations	34,942	34,942	34,942	34,942	34,942	34,942
Mean dependent variable	−6.04	−6.04	−6.04	−5.94	−5.94	−5.94
SD dependent variable	1.00	1.00	1.00	0.91	0.91	0.91
Number of clusters	158	158	158	158	158	158

Notes: This table provides the results of an OLS estimation of equation (3). We distinguish among collaborators who are veterans from the line infantry in World War I, those who are not veterans from World War I, and collaborators overall. The dependent variable in columns 1 to 3 is the log collaborators in 1944–1945 per capita (1936) who are male and of age to serve in the line infantry in World War I (born between 1890 and 1898). The dependent variable in columns 4 to 6 is the log collaborators in 1944–1945 per capita (1936) who are male but either too young (born after 1898) or too old (born in or before 1866) to serve in World War I (born before 1866) as well as female collaborators. Information on age and gender is only available for 27 percent of the georeferenced sample of collaborators (23,451 individuals). In columns 6 to 9, we consider all collaborators. All regressions control for the 87 department fixed effects, the Verdun rotation, and the usual set of pre-WWI controls (natural logarithm of the 1911 municipal population, log vote shares for the left or for the right in 1914), as in column 2 of Table 4. Robust standard errors clustered at military recruitment bureau in parentheses.

Verdun-under-Pétain municipalities that the rates of collaboration rise significantly among nonveterans. Taken together, these results are consistent with the complementary role of the network of individuals, themselves with credentials for heroism, in augmenting and diffusing the influence of their former commander.

Rival Heroic Networks.—Though widely recognized as heroes of France, Pétain and the Verdun veterans were not alone in that distinction. Do the network of all heroic leaders or those with heroic credentials lead to greater collaboration or was the tendency to follow Pétain into collaboration specific to those exposed to the complementary loyalty and influence of those who served with him at Verdun?

To assess this, we construct analogous exposure measures for other key heroic leaders and battles in World War I. The main rival to Pétain in terms of personal heroic leadership status coming out of the war was the other Maréchal awarded his baton in 1918, Ferdinand Foch. In the interwar period, Foch's political sympathies echoed Pétain.⁷⁶ However, he died in 1929 with his reputation as a soldier of the Republic intact. And as the estimates in online Appendix Table A14 suggest, exposure to Foch's personal command is not significantly associated with collaboration (column 1 and 4).

⁷⁶Foch was the honorary president of the *Redressement Français*, a group formed by industrialist Ernest Mercier in 1925 aimed at "scientific management" of the state to fight Marxism, with army involvement, even if this risked suspending democracy. Pétain also had ties to this organization (Williams 2005, p. 125).

Similarly, regimental exposure to other heroic battles of World War I, such as the Battle of the Marne that saved Paris and stopped the German advance in French territory in September 1914 (columns 2 and 4) or the 1916 Battle of the Somme (columns 3 and 4) are also not significantly associated with more collaboration later on. Finally, municipalities whose regiments spent other two or three months spells at Verdun after Pétain's removal from direct command, even if at specific heroic moments like the stopping of the German advance or the recapture of the iconic Fort Douaumont, do not have higher rates of collaboration (online Appendix Figure A10).

Yet, while these rival networks of heroes may not predict collaboration themselves, they could provide an alternative source of influence that might check or counter the diffusion of authoritarian values through the Verdun-under-Pétain network. Similarly, if our complementary network interpretation is correct, those municipalities where a majority or all of the line infantry served with Pétain at Verdun should potentially experience a more intense treatment and collaborate more.⁷⁷ Online Appendix Table A7 confirms that the effect on collaboration increases (somewhat) in magnitude (to 8–10 percent) in municipalities with majorities of regiments assigned to Verdun-under-Pétain and when we exclude municipalities that had *any* partial or half exposure to non-Verdun-under-Pétain regimental rotations (columns 3–6).

Another form of rival network can emerge through mixing due to migration from and to Verdun-under-Pétain municipalities. In online Appendix A2, we exploit data on individual collaborators who moved from their place of birth by 1944. We show that, even controlling for whether their place of residence in 1944 was or was not exposed to Verdun-under-Pétain, those that were *born* in a Verdun-under-Pétain municipality still collaborate at significantly higher rates. This is consistent with our interpretation of active collaboration as reflective of values, which are internalized and influence behavior even when people move to new destinations.

Persistence, Embeddedness, and Escalating Commitment.—If, as we have documented, the heroic credentials of those that served under Pétain at Verdun are indeed complementary in influencing others, standard arguments from robust comparative statics imply that this can lead to persistence in effects and even escalation over time (e.g., Milgrom and Roberts 1990; Milgrom, Qian, and Roberts 1991). Since each individual's heroic credential becomes more valuable when others in the network are also considered heroes, there will be incentives to jointly invest in other dimensions, such as organizations and markers of identity, that also complement the network, and increased network linkages within the network itself. Yet, the more individuals invest resources, including time, in such dimensions, the costlier it is to abandon the network.⁷⁸ We have already mentioned two concrete examples of such escalation in our context: Darnand and Bucard. Both were French war heroes, awarded medals for bravery by Pétain himself, who joined right and then extreme-right organizations in the interwar period. Virulently anti-German, they nonetheless followed

⁷⁷ We thank Matt Jackson for this suggestion.

⁷⁸ See also Jha (2018) for a parallel formalization and other historical examples where reinforcing complementary investments can induce institutional persistence even after the central complementary relationship ceases to exist.

Pétain into collaboration. And as late as 1944, when Germany was clearly losing the war, both would instead drift deeper, joining or abetting German units such as the Waffen-SS. Both would eventually be executed for treason (see also online Appendix B2 and B3).

To what extent are these examples unique, and to what extent do others exposed to Pétain at Verdun show similar patterns of persistence and even escalation over time? We have already shown in Section VA that exposure to Pétain at Verdun led to support for the right and later, extreme right parties in the interwar period, including Bucard's *Francisme*, consistent with such escalation.

We can also exploit the fact that our data provide individual-level data in specific organizations that were started at different times during the Vichy regime to shed further light on these questions (see also online Appendix Figure A11). Table 7 shows the Verdun-under-Pétain effect on each specific group, including the dates of their original founding and, in some cases, reconstitution under Vichy.

We begin with analyzing the collaborationist political parties in our data. In order of size, these include the extreme right *Rassemblement National Populaire* (RNP), founded in 1941 by former Socialists, and the anti-Communist PPF, ironically founded in 1936 by former Communists. Usefully, we also have specific data on membership on two extreme-right organizations, already mentioned, that had been banned in 1936 only to resurface under Vichy: Bucard's *Francisme* Party and the *Mouvement Social Revolutionnaire* (MSR). The MSR was called by its leader Eugène Deloncle, the "visible projection of the secret organization [the *Cagoule*] that I had established in 1936–1937" (Gordon 1975, p. 264).⁷⁹ Like other extreme-right organizations and veterans groups, these movements were split by the decision to collaborate.

Yet, as Table 7, columns 1–4 suggest, all the parties that had their genesis in the interwar period, including the PPF, the reconstituted *Cagoule* (MSR) and the Francist movements reveal significantly higher membership (of 6.2 percent, 5.2 percent, and 5.5 percent more respectively) in Verdun-under-Pétain municipalities after their reemergence under Vichy.⁸⁰ Further, more generally, there is a strong correlation between the 1936 vote share and 1940–1944 organization members per capita ($\rho = 0.89$) for the one extreme-right movement, *Francisme*, which we observe in both in the interwar period and during Vichy, and for which we have both administrative voting data and individual collaboration membership.

The paramilitary groups in our data also had their genesis in 1930s, and specifically from the war veterans groups from the interwar period. These had been consolidated in August, 1940 into the *Légion française des combattants* (Legion of War Veterans). Its president was Pétain himself (see online Appendix B1). Consistent with our interpretation, though Pétainist, the *Légion* was not, prior to the revelation of Pétain's own open collaboration at Montoire that October, supportive of the Germans. Instead it "exhibited adoration of the Marshal and with its anti-German sentiments dreamed of revenge" (Forbes 2006, p. 35). As mentioned above, after Pétain's decision to openly collaborate with Germany, however, and despite their own anti-German views, a group of veterans led by war hero Darnand formed their

⁷⁹ Both Bucard and Darnand had been members of the *Cagoule*.

⁸⁰ These effects are also comparable with the effects on the newer and larger collaborationist party, the RNP (7.5 percent).

TABLE 7—EFFECTS BY COLLABORATIONIST ORGANIZATION

	Political collaboration				Paramilitary collaboration		
	RNP	PPF	MSR	Francism	SOL	Milice	LVF
	Feb 1941 (1)	Jun 1936 (2)	1940(1936) (3)	1941(1933) (4)	Aug 1941 (5)	Jan 1943 (6)	Aug 1941 (7)
<i>Panel A</i>							
Verdun under Pétain	0.075 (0.015)	0.062 (0.016)	0.052 (0.017)	0.055 (0.017)	0.052 (0.018)	0.043 (0.017)	0.057 (0.016)
Verdun	✓	✓	✓	✓	✓	✓	✓
1911 population	✓	✓	✓	✓	✓	✓	✓
Pre-WWI vote shares	✓	✓	✓	✓	✓	✓	✓
R^2	0.86	0.88	0.93	0.94	0.94	0.86	0.89
Observations	34,942	34,942	34,942	34,942	34,942	34,942	34,942
Mean dependent variable	−5.98	−6.01	−6.05	−6.05	−6.06	−5.98	−6.01
SD dependent variable	0.96	0.96	1.02	1.02	1.04	0.95	0.96
Number of clusters	158	158	158	158	158	158	158
	Nazi collaboration			Economic collaboration	Other		
	Germ Int	Gestapo	SS	Economic	AM		
	Jul 1940 (1)	Jul 1940 (2)	Jul 1943 (3)	Jul 1940 (4)	Nov 1940 (5)		
<i>Panel B</i>							
Verdun under Pétain	0.058 (0.017)	0.052 (0.017)	0.053 (0.017)	0.056 (0.017)	0.049 (0.017)		
Verdun	✓	✓	✓	✓	✓		
1911 population	✓	✓	✓	✓	✓		
Pre-WWI vote shares	✓	✓	✓	✓	✓		
R^2	0.94	0.92	0.95	0.95	0.95		
Observations	34,942	34,942	34,942	34,942	34,942		
Mean dependent variable	−6.05	−6.04	−6.06	−6.06	−6.07		
SD dependent variable	1.02	1.00	1.04	1.03	1.05		
Number of clusters	158	158	158	158	158		

Notes: All regressions are at the municipality level with department fixed effects and control for the Verdun rotation and the usual set of pre-WWI controls at the municipality level (log population in 1911, log vote shares for the Left in 1914 and log vote shares for the Right in 1914), as in column 2 of Table 4. The dependent variables are the log of the number of collaborators listed in each category, per capita, at the municipality level (34,942 municipalities). Robust standard errors clustered at military recruitment bureau level in parentheses (158 clusters). We also indicate the total membership of each organization in the bottom of the table.

The dates of creation of each organization are indicated below the acronym of the organization. In the case where a collaborationist organization superseded an organization that previously existed, we indicate the creation date of the original organization in parentheses. For the Nazi organizations, we indicate July 1940 as the start of the German occupation. All the political parties, paramilitary organizations, and groups indicated as “others” were pro-Pétain, but differed slightly in their political leanings and political and paramilitary actions. RNP: People’s National Rally (created in February 1941 by former members of the Socialist Party SFIO of the neosocialist tendency, led by Marcel Déat, heavily influenced by Fascism); PPF: French Popular Party (created in 1936 by former Communist Jacques Doriot, an anti-Communist and Nationalist Party). The PPF and RNP were the two major collaborationist political parties by membership size. Secondary parties, inherited from the 1930s Fascist Leagues are MSR: Revolutionary Social Movement (Fascist party created in 1940 by former members of the extreme-right, Fascist, and anti-Communist terrorist group created in 1936 nicknamed *La Cagoule*); and *Francisme* (Fascist party created in 1933, outlawed in 1936, and reconstituted in May 1941). SOL: Legionary Order Service is a paramilitary subgroup of the umbrella veterans organization, the LFC, founded after Pétain’s open collaboration, to provide shock troops for the Vichy regime. Its members swore personal allegiance to Pétain and to “fight against democracy, the Jewish plague, and Gaullist dissidence.” It was created in August 1941 by Joseph Darmand. The SOL was supplanted by the Milice as the primary paramilitary group after 1943. LVF: Legion of French Volunteers against Bolshevism: paramilitary group of volunteers to fight alongside the Wehrmacht on the Eastern Front cocreated by Marcel Bucard in July 1941. SS: The military wing of the Nazi Schutzstaffel—the Waffen-SS. French volunteers could join the Sturm-Brigade of the Waffen-SS, swearing personnel allegiance to Hitler, beginning in July 1943 and later join the *Charlemagne* Division in 1944. Germ Int: German Intelligence Service. AM: “Amis du Maréchal”: Friends of the Marshal (Pétain).

own private suborganization, the *Service d'Ordre Légionnaire* (SOL) in 1941 within the *Légion* to provide “shock troops” for Pétain (Forbes 2006). Collaborationist volunteers could also join the LVF, beginning in 1941, cofounded by Bucard “with the consent” of Pétain, for service with the German army on the Eastern Front.⁸¹

As the war continued, and it became clearer that the Germans were losing, some could choose to commit further to the collaborationist cause, by joining the *Milice*, formed in January 1943 to hunt Jews and the emergent Resistance.⁸² Like Darnand, they could later swear direct allegiance to Hitler by joining the Volunteer Sturm-Brigade of the Waffen-SS, beginning in July 1943. This unit was raised to help replace Germany’s crushing losses on the Eastern Front (Forbes 2006). As the table reveals, Verdun-under-Pétain municipalities showed increase collaboration by 4–6 percent for all these different forms of paramilitary groups. This is despite the fact that opportunities to join the *Milice* and Waffen-SS, in particular, became available only later in the war, making them an increasingly dangerous choice for those that volunteered. Thus, the concrete examples of Bucard and Darnand appear reflective of a broader pattern in Verdun-under-Pétain municipalities where, despite the increasing dangers, individuals seem to show consistent commitment to the network and its values.

If furthermore, the effects reflect a broad diffusion of values, then we should expect the effects to span *all* types of collaboration. Indeed, as the table shows, beyond the political parties and paramilitaries, other types of groups show similar effect sizes as well.⁸³ These patterns also resonate with our companion paper (Cagé, Grosjean, and Jha 2020), where we exploit data on more than 425,966 recognized participants from metropolitan France in the French Resistance. The municipalities exposed to Pétain at Verdun raise 8.45 percent *fewer* members of the civilian resistance (French Forces of the Interior) that also largely emerged in 1943–1944 (SE: 0.04).⁸⁴

To summarize: we find consistent effects across very different types of collaboration, including in organizations and political parties with their genesis in the interwar period well before Pétain took power. Further these effects persist in groups formed late into the war. Overall, these results appear consistent with a broad diffusion of values and reinforcing incentives for their persistence induced by the complementarity of the network.

⁸¹ See Davey (1971). For the LVF, we also use an alternative data source exclusive to this organization, and which records data on 10,636 individuals. We show how our results are robust to relying on this alternative data source in Section IVC.

⁸² The Allies’ successful invasion of North Africa, including the French colonies, in November 1942, and subsequent invasion of Italy was hard to conceal. Further, the envelopment and eventual surrender of the German sixth Army in Stalingrad between November 1942 and February 1943 was announced by Joseph Goebbels even on Nazi radio. The sixth Army was the same one that had marched down the Champs-Élysées in the German victory parade in 1940.

⁸³ Beyond the SS, Verdun-under-Pétain municipalities also show consistent increases in other forms of direct Nazi collaboration as well, including working for the *Gestapo*, the *Service de Renseignement Allemand* (German Intelligence Service) or engaging in deep economic collaboration. 1,550 people were considered economic collaborators, clearly a subset selecting those with deep economic relationships.

⁸⁴ It is important to note that membership in the resistance is a distinct measure and not simply the inverse of active collaboration. Not only did the overwhelming majority of French citizens choose to do neither, but nontrivial shares of collaborators would later join the resistance, even while resistance members were turned into double agents for the Nazis.

C. Alternative Mechanisms: Violence or Pecuniary Incentives?

We now briefly examine other potential channels. Perhaps, instead of, or in conjunction with, the influence of the heroic network, it was the violence and the losses faced by these municipalities in World War I that shaped a reluctance to resist in World War II and subsequent propensities to actively collaborate with Germany instead?⁸⁵ As we have already documented above, military fatalities and exposure to violent combat at Verdun do not significantly change before and after Pétain's command at Verdun, and was not more or less lethal compared to WWI battles more generally. However, violence might yet play a complementary role in shaping values. To assess this channel, in online Appendix Table A15 we add controls for (the log of) a municipality's World War I military fatality rate (column 1), (the log of) its fatalities in 1916 battles only (column 3), as well as the interactions of these variables with exposure to Verdun-under-Pétain (columns 2 and 4). Contrary to the reluctance and collaboration story above, however, we find that the WWI fatality rate itself is *negatively correlated* with the propensity to actively collaborate with the Nazis. Further, including it as a control, or in interaction, does not change the effect of Verdun-under-Pétain exposure on active collaboration.

Could the effects on collaboration be driven by other dimensions of combat experience at Verdun, for example being present in December, when victory was declared, or during another set of consecutive months during which regiments could have forged a similar *esprit de corps* as the months of Pétain's leadership? We show in online Appendix Figure A10 that no other two or three consecutive months of fighting, apart from those during which regiments were exposed to Pétain's leadership, including in December, are significantly positively associated with collaboration. Further, we show that our results are unchanged when excluding fortress regiments (column 5 of online Appendix Table A15)—fortress regiments had different recruiting protocols and were more likely to face the frontier. We have also shown that presence at other heroic battles, such as the First Battle of the Marne that stopped the Germans near Paris in September 1914, is not associated with collaboration.

Perhaps, rather than losses and combat experience in the First World War, collaboration was driven by the German invasion and occupation in the Second World War. We have already established that Verdun-under-Pétain municipalities did not experience differential exposure along these characteristics. Additionally, column 6 of online Appendix Table A15 includes controls for key factors related to the occupation in World War II. The share of collaborators in our data is 6.2 percent lower in Vichy France compared to German-occupied France, potentially reflecting the greater opportunity for working with the Germans in the latter. The effect of exposure to Pétain, however, remains stable with the addition of war-related controls.

As we have seen, the first two months at Verdun that coincided with Pétain's generalship were not exceptional compared to Verdun at other times in terms of fatalities or other observable combat characteristics. But perhaps they were different in other, unobservable characteristics that affected individuals' propensities for risk

⁸⁵ A growing postconflict literature points to the importance of exposure to violence, death and memories in changing subsequent outcomes. See e.g., Blattman (2009); Jha and Wilkinson (2012); Bauer et al. (2016); and more recently Ochsner and Roessel (2019); Tur-Prats and Valencia (2020); Acemoglu et al. (2022).

or psychological costs of violence. This mechanism would predict that the effect should be concentrated on more violent paramilitary organizations and also contribute positively to membership to the resistance—another form of violent political action. Yet, as we highlighted above, we observe an increase in the propensity to collaborate across the whole spectrum of collaboration—and not only to participate in violent paramilitary organizations—as well as a *negative* relationship with the propensity to join the civilian resistance.

Alternatively, one may also argue that our results might relate to employment opportunities or pecuniary incentives. Perhaps being connected with Pétain meant a greater possibility for economic and financial opportunities when he assumed power, irrespective of a change in one's democratic values (as in Fisman 2001)? While this is likely to have strengthened the incentives during the Vichy regime, it would be hard to reconcile with the political shifts we document in vote shares cast by secret ballot years before Pétain was in power. Further this would suggest that Verdun-under-Pétain municipalities should be more likely to engage in *economic* collaboration rather than other collaborationist activities that include highly personally dangerous decisions to volunteer for service on the Eastern Front late in the war. Yet, as Table 7 suggests, this was not the case: we do not observe that the likelihood to engage in economic collaboration is higher than other forms of collaboration in Verdun-under-Pétain municipalities.

Taken together, our results thus suggest that psychological mechanisms or pecuniary incentives, while potentially playing complementary roles to changes in values for explaining particular patterns in the data, are, by themselves, incomplete explanations of the broader set of results we find.

VI. Discussion

On October 27, 1951, a mass being held in Notre Dame Cathedral in Paris sparked a violent riot. About five thousand mass-goers, including many clearly identified as heroes of Verdun, had gathered in memory of Pétain, who had died that July. According to the Associated Press: “Old heroes of Verdun carried their flags, carefully rolled, into the church to honor the man who once commanded them. Outside, thousands of resistance fighters and deportees of World War II screamed ‘Pétain, Murderer!’”⁸⁶

Why did some of France's greatest heroes end up remembered among its gravest villains? In this paper, we present evidence for two complementary channels. First, we argue, our results reflect the legitimizing effect of heroism. Having undergone great sacrifice for the nation, heroes gain a credential that is a strong signal of their pro-social, or in this case, pro-“national” type. This allows them to adopt positions that might otherwise be controversial, without others imputing self-interested motives or lack of alignment with national goals. In this way, Pétain was able to draw upon his credential as a hero of the First World War to later legitimize collaboration with one of the most repugnant occupying forces in world history, and to legitimize actions taken by the Vichy regime itself that ran strongly counter to the

⁸⁶ See “French Veterans of 2 Wars Clash at Petain Mass,” *Daily Boston Globe*, October 28, 1951.

values of what remains France's most long-lived democratic system of government. Second, we provide evidence that these legitimizing effects of heroism operated through the network of those sharing the same heroic credential. We show exposure to Pétain raises collaboration among *all* the veterans he commanded, but only those who were themselves heroic veterans of Verdun were able to convince others. Thus the effect on legitimizing collaboration comes both from direct ties to Petain and from the heroic credentials shared with the "Hero of Verdun."

The presence of complementarities in the network further provides incentives to engage in a range of decisions, including joining political and social organizations, and propagating a common message that themselves strengthen the value of this shared heroic credential. This can induce momentum—as individuals become more embedded in the network, they can find it increasingly costly to renounce it—and persistence over time.

Thus, our paper suggests both that heroes matter in legitimizing political views, and that heroes matter even more when they emerge within a hierarchical network of those with a shared credential. Our interpretation also points to the greater set of options available to heroes in particular to shape politics.⁸⁷ These options do not have to be authoritarian: heroic networks can be potent supporters of novel democratic principles as well.⁸⁸ Yet, our paper reinforces the point that depolarization efforts that seek to treat individuals, whether it be with unbiased information, incentives or other methods to persuade, are likely to be less successful than they might otherwise be when these individuals are embedded in networks. Though heroic networks helped legitimize extreme and deeply repugnant activities in France in World War II, leveraging such networks may provide a potent means to support profound and beneficial social and political change as well.

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⁸⁷For example, Yitzhak Rabin, a commando in Israel's war of independence who rose to be the army chief during Israel's victory in the Six Day War, was also able to pursue the Oslo Peace Accords, as head of the center-left Israeli Labour Party.

⁸⁸The Society of the Cincinnati of Revolutionary War veterans, among whom George Washington, Alexander Hamilton, and the Marquis de Lafayette were prominent members, provides a prominent example. For comparisons with the role played by US Civil War hero, Joshua Chamberlain, in Maine in 1880 and the events at the US Capitol on January 6, 2021, see also our companion piece in *VoxEU*, January 17, 2021. Further, heroic credentials, while often emerging out of the crisis of war, may also emerge through costly sacrifice in nonviolent movements as well (Bhavnani and Jha 2012).

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