

# Martyrs, Morale, and Militarism: The Political Impact of Devastation and Slaughter\*

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## Abstract

Opinion is sharply divided about whether the bombing of an enemy’s civilian targets and the killing of their combatants result in an adversary’s population becoming pacifist or pro-military. Identification is difficult because natural experiments are rare, and effects may be heterogeneous. For example, killing enemy combatants may create martyrs, while targeting civilians may lower their pro-war morale. We solve this problem by leveraging a natural experiment in Japan in which military casualties and urban destruction varied exogenously, but differentially, across cities. We then estimate the impact of devastation and slaughter on support for Japan’s Liberal Democratic Party, which aims to revise Japan’s constitution to enable it to rearm. We find contrasting effects of targeting soldiers and civilians—military deaths induce future pro-military voting, while urban destruction induces pacifist voting. Moreover, these effects persist long after most people with direct experience of the war have died.

JEL Codes: D74, N45, H56

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# 1 Introduction

What are the political effects of wartime devastation and slaughter? Social science research has not produced a unified answer to this question. In an exhaustive survey of the literature, [Bauer et al. \(2016, p. 250\)](#) found that “in case after case, people exposed to war violence go on to behave more cooperatively and altruistically.” Similarly, [Blattman \(2009\)](#) and [Tellez \(2019\)](#) find that civilian exposure to wartime violence increases participation in pacifist groups. However, a series of recent papers have found that the reverse can also be true. In a seminal paper, [Acemoglu et al. \(2022\)](#) showed that voters in Italian constituencies with high World War I battle casualty rates disproportionately favored a socialist party that advocated violence.<sup>1</sup> More recently, [Koenig \(2023\)](#) and [De Juan et al. \(2024\)](#) using the same identification strategy for Germany found that WWI battle casualties caused Germans to vote for fascists.

This paper provides a unifying framework for understanding these seemingly contradictory results, arguing that people react differently to combat deaths and civilian devastation. We make use of novel Japanese WWII data to argue that people in electoral constituencies with military casualty rates consistently vote for Japan’s pro-rearmament Liberal Democratic Party (LDP), whereas constituencies whose civilians experienced catastrophic bombing raids vote for pacifist parties. Thus, we provide a simple way of thinking about the effects of war on the politics of survivors: killing soldiers creates “martyrs” and causes pro-military voting, and devastating civilian targets lowers pro-war “morale” and causes pacifist voting. Past research is consistent with this result as studies finding that war causes pacifism focused on civilian victims, whereas the studies finding that war causes people to vote for militaristic parties focused on their reaction to military casualties.

Japan stands out as a particularly good natural experiment for studying the impact of war on voter attitudes. First, measures of Japanese military and urban devastation in World War II (WWII) are staggeringly high. To put them into perspective, Japan had as many military casualties in WWII

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<sup>1</sup>[Acemoglu et al. \(2022, p. 1241\)](#) document the Italian Socialist Party under Serrati adopted a plank stating that “the violent conquest of political power on behalf of the workers will signify the passing of power from the bourgeois class to the proletarian class, thus establishing... the dictatorship of all of the proletariat.”

as Germany and Italy had in World War I *combined*; U.S. area bombing, euphemistically called “morale bombing,” targeted 66 cities and destroyed 2.2 million buildings (Gladwell, 2021; Davis and Weinstein, 2002). Second, Japanese postwar political behavior mirrors many of the patterns found in prior work: Japan’s Liberal Democratic Party (LDP) was explicitly formed to rearm Japan, and its opposition advocated pacifist policies. Third, Japanese military deaths and urban devastation varied across electoral constituencies for largely exogenous reasons, enabling us to separately identify the effects of military casualties on voting, separately from civilian devastation. Fourth, the supermajority required to revise the US-imposed constitution banning rearmament kept the issue salient for seventy-five years as right-wing politicians tried to win enough votes for revision. Finally, the fact that all this death and destruction occurred in one country enables us to avoid the interpretive difficulties that arise from comparing results across different countries and contexts.

Our paper differs from the previous literature by focusing on the impact of wartime experience on pacifist vs. militarist voting behavior rather than on left- vs. right-wing voting, but we see this focus as needed to reconcile past findings.<sup>2</sup> In particular, we reconcile why constituencies with high military casualty rates voted for communists in Italy and fascists in Germany by noting that both parties were surprisingly similar in the *means* they advocated (i.e., the use of military or paramilitary forces) to achieve their desired ends. Interestingly, the ends seemed not to matter much, as their leaders often underwent dramatic shifts in their goals.<sup>3</sup> The militarist-pacifist dichotomy is also useful for understanding studies of wartime civilian victimization. Pacifists in Japan and elsewhere often believe that pacifism is an outgrowth of cooperativism and altruism.<sup>4</sup> Since exposure to war

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<sup>2</sup>(Carmil and Breznitz, 1989) look at the political attitudes of Israelis who experienced the holocaust and those who did not, and find that survivors were similar in terms of their self-reported support for left- vs. right-wing parties.

<sup>3</sup>For example, Mussolini, the father of fascism, was a leader of the left-wing faction of the Italian Socialist Party before being expelled for advocating Italy’s entry into WWI. Hitler’s 25-point platform of his newly founded National Socialist (Nazi) German Workers Party contained many socialist ideas such as demands that “all unearned income, and all income that does not arise from work, be abolished,” “the nationalization of all trusts,” “profit-sharing in large industries,” and “a generous increase in old-age pensions.” (NSDAP, 1920) He later reversed course on most of these planks and purged the leaders of the socialist faction of the Nazi party by having them murdered in 1934. Similarly, right-wing Japanese parties consistently advocated for military buildups even as they flipped between viewing the U.S. as a principal threat and ally.

<sup>4</sup>For example, Prime Minister Shidehara Kijiro, who shepherded Article 9 of Japan’s Constitution through the Diet, was famous for his statements such as “international cooperation is the path Japan must follow” and “Civilization and war are ultimately incompatible. If civilization does not promptly eliminate war, then war will first destroy civilization.” (Editorial Team, 2025)

violence is often measured by killing or maiming family members and home destruction (Bellows and Miguel, 2009; Voors et al., 2012), the bombing of Japan provides a major source of this type of variation that can be used to examine the link between civilian wartime victimization and pacifist behavior.

The exogeneity of military deaths and urban devastation in Japan arose for several reasons. First, (Davis and Weinstein, 2002) argue that much of the success and failure of bombing raids depended on the weather, geography, and learning by doing. Second, Japanese regiments in WWII were formed on the same type of regional basis as Italian and German units in WWI. We therefore follow (Ogasawara and Komura, 2022), (Asai and Kambayashi, 2023), and the previously cited work on Italy and Germany to argue that the prefectural distribution of military casualties was exogenously determined. In the Japanese case, regiments were formed by soldiers' hometowns and then sent throughout the empire. As a result, if a regiment was sent to a location with a high starvation or battle-casualty rate, a large fraction of the hometown's young men died. By contrast, men in regiments sent to places like Hokkaido or Taiwan, with abundant local food sources and little combat, largely returned unscathed.

One of the data innovations in this paper is to exploit recent insights by (Ogasawara and Komura, 2022), (Asai and Kambayashi, 2023), and (Kimura, 2023), to show that this variation can be used to construct estimates of casualty rates at the electoral constituency level (as opposed to the more aggregate prefectural level). We build a regional dataset with approximately 26 times as many observations in a typical year as earlier work based on Japan's 47 prefectures. Indeed, all of our identification uses a full set of prefectural fixed effects, so our identification arises from variation across cities within prefectures. We assume that cities with high female-to-male ratios in cohorts of people who were prime-age conscripts suffered high levels of military casualties and validate this hypothesis by looking at female-to-male ratios in cities whose regiments were decimated. We also document that cities with high female-to-male ratios among prime-age conscripts do not have high ratios in other cohorts, establishing that these ratios were not caused by overall gender ratios.

We implement an approach that eliminates many potential confounding variables. Our preferred

specification is a difference-in-differences regression that explains the change in a city's pro-military voting between a given postwar year and 1928, based on the war's deaths and devastation. A salient political issue in the 1928 election was whether Japan should expand its navy. By controlling for votes for the *Seiyukai* party, a forerunner of the LDP that also supported an expansion of Japan's military, we can control for a constituency's inherent "pro-military" voting behavior. We also rule out potential omitted variable biases due to pork-barrel politics by controlling for earmarked expenditures and agricultural employment rates and find postwar election results are significantly affected, both statistically and economically, by what happened to the city's inhabitants during the war.

We also exploit a second natural experiment to understand the importance of the LDP's ability to deliver on its promises of rearming for its political base. The LDP suffered a major electoral defeat in the wake of the bursting of the Japanese stock and land bubbles, briefly enabling an opposition government to come to power. We view this change as exogenous because the bursting of the bubbles had nothing to do with LDP defense policies. The opposition quickly passed a major electoral reform that dramatically weakened the LDP and forced it into a coalition government with a pacifist party. While this enabled the LDP to push through many of its economic reforms, it undermined the party's ability to obtain enough votes to enact constitutional change. We find that forming this coalition government significantly lowered support in cities that suffered high military casualties, consistent with our claim that the pro-military position of the LDP was the driver of its support in locations with high military casualties. Nevertheless, consistent with (Voth, 2021), (Harada et al., 2024), and (Ochsner and Roesel, 2024),<sup>5</sup> we find the effects of military casualties and urban destruction on pro-LDP voting remain significant even as late as 2021, highlighting the persistence of wartime trauma long after most of the people who directly experienced it have died.

We also conduct a simple counterfactual exercise to assess the magnitude of our point estimates. We examine a counterfactual scenario in which the U.S. decided not to use area bombing to destroy civilian targets but instead just targeted the Japanese military. We find that the magnitude of the

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<sup>5</sup>See citealtalhaus2012war for how people react in the first few weeks of learning about military casualties.

reduction in the impact of the morale effect on pro-pacifist voting would have been sufficiently large to enable the LDP to have obtained more than a two-thirds majority in the Diet's House of Representatives. Since this has been one of the major hurdles in achieving constitutional revision, our estimates suggest that the morale effect is sufficiently large that it could have prevented the LDP from succeeding in rearming Japan and removing American bases.

The paper is organized as follows. Section 2 discusses the literature. Section 3 presents a brief discussion of relevant Japanese politics over the last hundred years for readers unfamiliar with Japan. Section 4 describes our data. Section 5 presents our main empirical results. Section 6 presents a series of robustness test, and Section 7 concludes.

## **2 Related Literature**

In addition to the works already cited, our paper relates to several important strands in the literature. First, our work is also related to work on how military actions affect guerrilla activities. [Kocher et al. \(2011\)](#) and [Dell and Querubin \(2018\)](#) examine the impact of bombing near civilian populations and find that it increases insurgent recruitment and activity. [Lyall \(2009\)](#) studied counterinsurgency operations in Chechnya, concluding that indiscriminate violence increased local support for insurgents rather than deterring rebellion. Similarly, [Jaeger and Paserman \(2008\)](#) analyze Israeli military actions and find that targeted killings frequently led to retaliatory violence, reinforcing militant group cohesion and increasing future attacks. Finally, [Dell \(2015\)](#) explores the unintended consequences of militarized approaches to drug conflicts in Mexico, demonstrating that government crackdowns on trafficking networks often lead to increased cartel violence.

Second, historians and political scientists disagree about the impact of military actions on enemy morale, defined as the willingness to fight. [Pollack \(2002\)](#) provides further evidence that overwhelming military force can lower morale when it leads to the perception of inevitable defeat, as observed in several Arab military conflicts where high casualties and sustained losses weakened combat effectiveness. [Pape \(1996\)](#) and [Dower \(1999\)](#) argue that bombing had small effects on morale. However, scholars such as [Grayling \(2007\)](#), [Lyall \(2009\)](#), and [Jaeger and Paserman \(2008\)](#)

emphasize the morale-hardening effects of indiscriminate violence.

### **3 Background: One Hundred Years of Militarism in Japanese Politics**

A major advantage of working with Japanese data to understand the impact of slaughter and devastation on voting is that national security issues have been central in Japanese politics for the past one hundred years. Sections 3.1 and 3.2 provide a brief overview of Japanese politics in the pre- and post-war periods to give the reader an understanding of the salience of militarism in Japanese elections. We explain the reasons for and impact of the 1994 electoral reform on the LDP in Section 3.3.

#### **3.1 *Militarism and Voting Before World War II***

The first election after the passage of the 1925 Universal Male Suffrage Act, which granted the vote to adult men, centered on national defense issues. Giichi Tanaka, a former army general, became president of the *Rikken Seiyukai* or “Friends of the Constitution Party” in 1925 and espoused pro-military, imperialist attitudes. Tanaka advocated “popularizing national defense” and finding a way for Japan to “break free from its insular position, become a continental state, and confidently extend its national power” (Duus, ed 1988 [pp.94 and 275]). The *Seiyukai* won the 1928 general election on a platform of strong opposition to arms control.

The significance of this outcome and why Japanese voters cared so much about arms control can best be understood by considering the impact of a completely unexpected event that effectively reversed the election outcome. Shortly after Tanaka became prime minister, a junior Japanese army officer, acting without authorization, orchestrated the assassination of the Manchurian warlord Zuolin Zhang. Tanaka wanted to court-martial the assassins, but army leaders blocked his efforts. His failure to punish the assassins ultimately led to an imperial rebuke, forcing him and his cabinet to resign in 1929. The collapse of the Tanaka government paved the way for the dovish *Rikken Minseito* (“Constitutional People’s Party”) to briefly gain power and sign the London Naval Treaty in 1930, severely limiting Japan’s ability to build destroyers and submarines. Many Japanese at the

time felt that the pacifist acquiescence to U.S. demands undermined Japanese defenses against US submarines and aircraft carriers, which, as we will argue in Section 4.3, accounted for much, if not most, of Japan's military deaths.

### **3.2 *Militarism and the Liberal Democratic Party***

Eight months after Japan's defeat, the U.S. government's governing body in Japan, the Supreme Commander for the Allied Powers (SCAP), organized a general election under universal adult suffrage. Japan's right-wing *Sanseito* reorganized itself mostly into a pro-rearmament, Liberal Party, headed by Hatoyama Ichiro, and an economically conservative-centrist Japan Progressive Party. The Liberals won a plurality, setting Hatoyama up to be the next Prime Minister, but SCAP immediately stepped in to ban him from holding *any* government position because, in their opinion, "Hatoyama upheld the doctrine of territorial expansion by means of war" (SCAP, 1946). While it is fair to say that Hatoyama vehemently opposed US efforts to limit Japan's ability to rearm, he was also opposed to fascism (which he saw as similar to Bolshevism), writing in 1936 that "The revolutions in Russia, Germany, and Italy thus resulted in universal unfreedom, far from the freedom the people sought... I believe it would be dangerous for anyone in Japan to imitate Hitler or Mussolini." (Hatoyama, 1936)

Just as fascism has had little appeal for successful right-wing Japanese politicians, radical left views also failed to get much political traction in Japan. For example, the Japan Communist Party has typically struggled to get more than a few percent of the popular vote in postwar elections. Instead, a major dimension of political cleavage centered on rearmament. As Ward (1956, p. 50) explains:

With the formal end of the Occupation on April 28, 1952, the issue of constitutional revision emerged more clearly upon the political scene. Starting with the general election of October 1, 1952, one finds it conspicuous in all election campaigns. In 1952, it centered particularly on the matter of rearmament, Mr. Hatoyama favoring a relatively extensive rearmament program and a revision of Article 9 of the constitution to permit this, the Socialists opposing rearmament or revision of any sort, and the then Prime Minister (Mr. Yoshida) seeking the middle ground of a "gradual development of self-defense" capacity but opposing for the time being a constitutional amendment

in this field. In the election of April 19, 1953, the twin issues of rearmament and constitutional revision appeared in substantially the same way. During 1954, however, the whole issue of revision began to be discussed in far more open and sweeping terms.

The dizzying number of party splits and mergers between 1946 and 1955 makes it very hard to characterize parties and politicians neatly into militarist and pacifist categories before the formation of the LDP.<sup>6</sup> In 1954, Hatoyama became Prime Minister and formed the LDP the following year by bringing together Diet members who favored rearmament. The party's founding document made clear its pro-rearmament position: "the primary focus of the early occupation policy was on weakening our nation... We will establish self-defense forces commensurate with national strength and circumstances under a collective security system, preparing for the withdrawal of foreign military forces stationed in Japan" ([Liberal Democratic Party, 1955](#)).

The salience of the LDP's pro-military position probably peaked in 1960, when massive protests erupted following (LDP) Prime Minister Kishi Nobusuke's signing of a revised U.S.-Japan Security Treaty. The new treaty enabled the U.S. *and Japan* to maintain military forces in Japan, which could be used to attack third countries and contained an article stating that the U.S. and Japan should "maintain and develop, subject to their constitutional provisions, their capacities to resist armed attack," which many Japanese saw as a violation of Article 9. In the ensuing protests, hundreds of thousands of people took to the streets, forcing President Eisenhower to cancel his trip to Japan. Despite the unrest, the LDP scored its biggest electoral success in this election, winning over 60 percent of the vote and ushering in what the Japanese call the "1955 System:" the one-party dominance of the LDP, which maintained control of the lower house of the Diet until 1993. However, a constitutional amendment remained impossible as it required two-thirds of the vote in both the lower and upper houses, and left-wing parties prevented the LDP from achieving this supermajority. This situation made constitutional amendment a salient difference between the

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<sup>6</sup>For example, after SCAP purged Hatoyama, the Liberal Party elected Yoshida Shigeru as its leader and Prime Minister. Yoshida acquiesced to publicly supporting the constitution, including Article 9, as a means of mollifying SCAP, but he informed the emperor privately, "Once the occupation ends, Japan will likely possess military forces. However, that is something I cannot say today" ([Nishikawa, 2025](#), pp. 4-5). Thus, the Liberal Party was composed of people wanting to rearm but ironically enacted a constitution that banned this very outcome. Comments and actions like Yoshida's make it difficult to assign politicians and parties neatly to pro- and anti-pacifist camps before the formation of the LDP.

LDP and other parties throughout our sample period: a fact that enables us to use the LDP vote share as a measure of voters' pro-military attitudes.

These pro-rearmament views have since been repeated by many of LDP's prime ministers. For example, Prime Minister Kishi summarized the LDP position by saying that if Japan were to regain its status as a "respectable member of the community of nations, it would first have to revise its constitution and rearm. If Japan is alone in renouncing war..., it will not be able to prevent others from invading its land. If, on the other hand, Japan can defend itself, there would be no further need to keep United States garrison forces in Japan" (Samuels, 2001). More recently, Japan's longest-serving Prime Minister, Shinzo Abe, stressed the centrality of constitutional reform in LDP thinking in 2017 by saying, "The Liberals and Democrats who formed the LDP wanted to create our own constitution, and the merger of the two parties was done to achieve the two-thirds majority in both houses that was needed for revision. Revising the constitution was the symbol of our regained independence. It was for this that the Liberal Democratic Party was founded (Council on Foreign Relations, n.d.)." In contrast, the LDP's main rival until 1994, the JSP, stridently opposed constitutional revision and rearmament as this quote from a JSP Diet member in a 1964 speech at a plenary session of the House of Councillors reveals: "Speaking for the Japan Socialist Party, I oppose the bill to amend the Defense Agency Establishment Act and the Self-Defense Forces Act. Our position has been consistent: ever since the Self-Defense Forces were created, indeed from the very beginning of their predecessors,... we have opposed them head-on as measures that violate Japan's Peace Constitution and that amount to rearming Japan."<sup>7</sup>

While the constitutional revision issue is an important difference between the LDP and its opposition, Japanese election outcomes are influenced by many other issues. Voters' views on constitutional revision are not a litmus test for understanding which party they will support. However, these views are clearly correlated with party support. For example, survey evidence indicates that LDP members and their supporters tend to hold more pro-military views. LDP members consistently favor constitutional revision—only 2 percent of LDP politicians support leaving the constitution

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<sup>7</sup><https://kokkai.ndl.go.jp/simple/txt/104715254X00719641217/18>

unchanged (Ogi 2023). This support has been remarkably stable. For example, in Figure 1, we show that between 2003 and 2022, surveys of LDP politicians reveal that they have been, on average, far more in support of statements like “Japan should strengthen its Self-Defense Force,” (SDF) “Japan should amend its constitution,” and “the Prime Minister should visit Yasukuni Shrine” (a shrine to the spirits of the war dead and war criminals). Moreover, as these plots show, these views show no signs of attenuating.

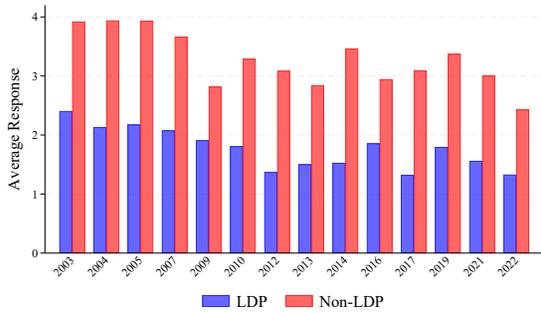
As best we can measure it, supporters of the LDP tend to be more supportive of the LDP’s pro-military stance than supporters of other parties. Figure 2 presents the results of a nationally representative survey of 2,421 people that was conducted in 1965 (Japan Defense Agency 1965), the earliest year in which we could find a representative survey of attitudes towards military spending. The results show differences between LDP supporters and supporters of opposition parties. Among LDP supporters, 21.2% believed the SDF budget was too small, compared to only 11.6% of non-LDP supporters.<sup>8</sup> Similarly, while 38.9% of supporters of opposition parties thought the SDF budget was too large, only 15.6% of LDP supporters shared this view. These results show that LDP supporters were more likely to favor increasing spending on the SDF and oppose decreasing military expenditures.

More recent data from the *Todai-Asahi* surveys reported in figure 1 also reveals that on average LDP supporters tend to have more pro-military views than supporters of opposition parties (although the differences do not appear as stark as those of the politicians). One possible reason for the more balanced survey results is that the survey was conducted by the most left-wing major newspaper in Japan, the *Asahi Shimbun*, and right-wing Japanese may not have felt comfortable truthfully reporting their views on such a controversial issue. Nevertheless, the same survey reveals that voters are also aware of the pro-military stance of the LDP. While 75.4% of surveyed voters surveyed in 2023 thought that the LDP is in favor of the idea of strengthening the SDF, the corresponding numbers for voters supporting the LDP’s main opposition parties, the Constitutional Democratic Party and the Japan Innovation Party, were only 22.75% and 46.79%, respectively. Thus, it appears

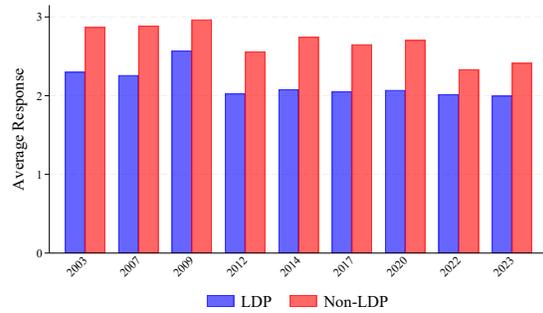
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<sup>8</sup>The question asked was “Do you think the current budget for the Self-Defense Forces is too large, too small, or just right when viewed in terms of citizens’ standard of living? A general impression is fine.”

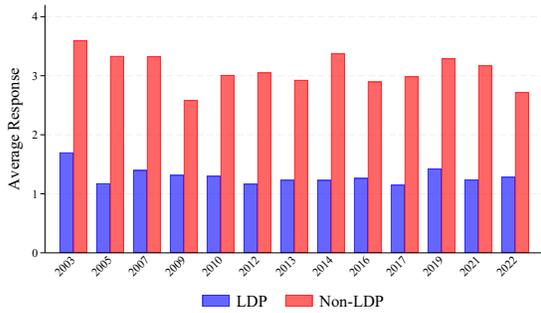
**Figure 1: LDP Politicians' and Supporters' Positions on Key Military and Nationalist Issues**



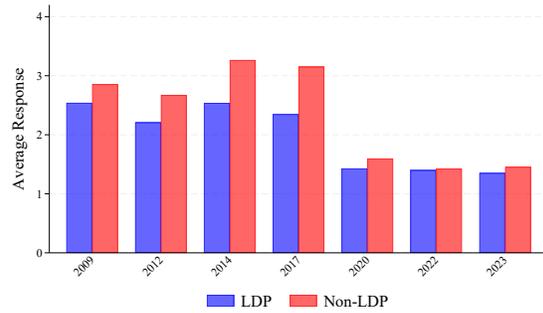
(a) Strengthen Defense - Politicians



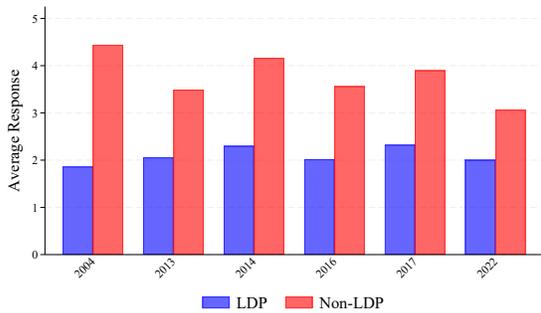
(b) Strengthen Defense - Voters



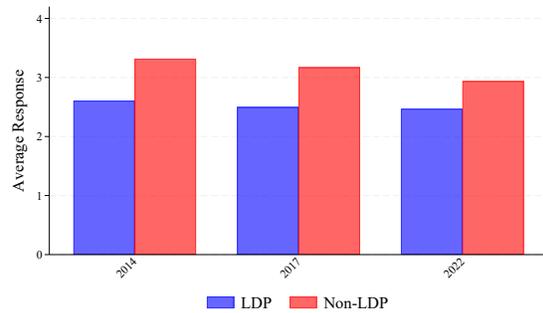
(c) Constitutional Revision - Politicians



(d) Constitutional Revision - Voters



(e) Yasukuni Shrine Visits - Politicians

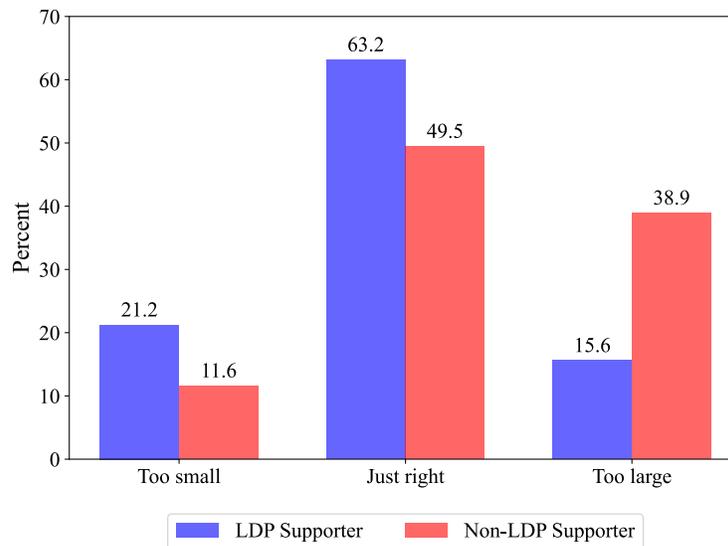


(f) Yasukuni Shrine Visits - Voters

Note: This figure shows how LDP and non-LDP politicians (left figures) and supporters (right figures) differ in their positions on issues related to the military. Responses are coded on a 5-point scale where 1 indicates strong agreement and 5 indicates strong objection to: (a) strengthening Japan's self-defense forces, (b) constitutional revision, and (c) prime ministerial visits to Yasukuni Shrine. Source: University of Tokyo-Asahi Survey ([https://www.masaki.j.u-tokyo.ac.jp/utas/utasindex\\_en.html](https://www.masaki.j.u-tokyo.ac.jp/utas/utasindex_en.html))

that Japanese voters share the views of the parties they vote for and also understand the parties' positions on national defense issues.

**Figure 2:** LDP Supporters' and Opponents' Views of Defense Expenditures (1965)



Notes: Figure reports the results of a nationally representative survey of 2,421 people that was conducted in 1965 (Japan Defense Agency 1965)

### 3.3 *The 1994 Electoral Reform: A Natural Experiment*

One of the major liabilities of being the dominant political party is that Japanese voters withhold support for the LDP following major economic downturns. Figure 3 shows the share of votes for the LDP and the JSP for the first 66 years of the LDP's existence.<sup>9</sup> As the plot makes clear, the LDP's two worst electoral defeats followed massive financial crises: the 1993 election following the bursting of stock and land price bubbles and the 2009 election following the global financial crisis. In both of these cases, voters appear to have punished the ruling party for Japan's poor economic performance: variation that we think is exogenous in the sense that these LDP defeats were not related to LDP policy on rearmament.

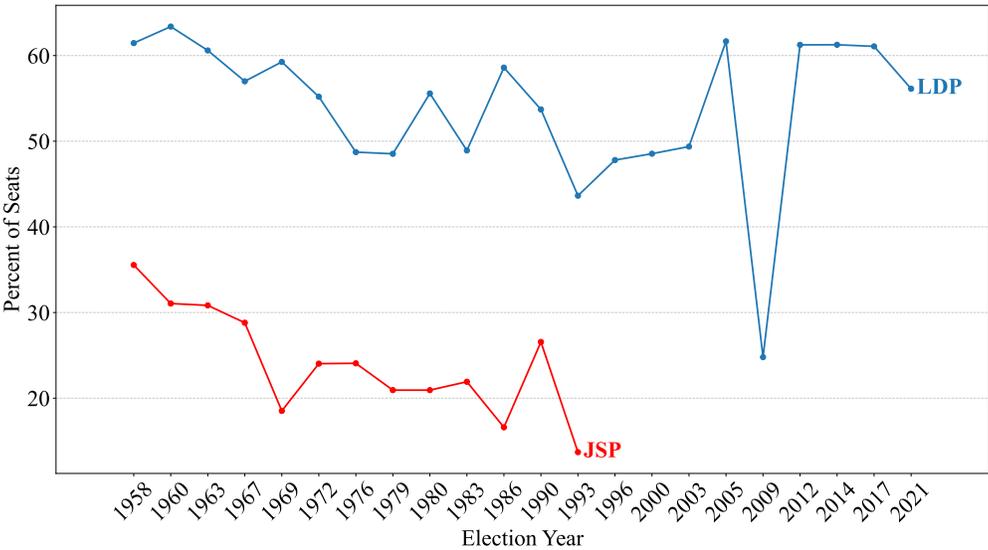
The 1993 defeat constitutes a natural experiment because it enabled opposing parties to form a coalition government with enough votes to pass a major electoral reform in 1994, designed to

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<sup>9</sup>The JSP dissolved itself after the 1993 election.

end LDP dominance. Before 1994, elections were all based on proportional representation in multi-member constituencies. In these elections, if a constituency could send  $n$  politicians to the Diet, then the  $n$  candidates with the highest vote shares would be elected regardless of party. The reform introduced a mix of proportional representation and single-member constituencies (PRCs and SRCs). In the new system, each voter casts two ballots: one for a party and one for a single candidate in their constituency. While the party's vote share, now aggregated across many constituencies, still determined the number of party members elected in the PRC elections, the party chose which people would enter the Diet, thereby eliminating the problem of candidates from the same party running against each other. The SMCs had elections similar to those in the US, with the winner being the candidate who achieved a plurality of the vote. In the post-reform period, we measure LDP support using PRC voting because these elections reflect support for the party and have little to do with individual candidates.

**Figure 3: Seat Share of LDP and JSP (1958-2021)**



Note: This figure shows the seat share of the LDP and the JSP in every election. Data source: (Mizusaki and Mori, 2021)

The reform weakened the LDP because small parties that previously could not have won any seats in a constituency now had the chance to win Diet seats if they could obtain enough votes across many constituencies. This new math undermined the LDP's ability to dominate elections

and forced it into an odd set of coalition governments with pacifist parties like the socialists and the Clean Government Party (CGP) that started after the 1994 election and continued until 2025.<sup>10</sup> Thus, starting with the 1996 election and continuing until the 2025, the LDP ruled in a coalition that required the support of pacifists.

The alliance undermined the LDP rearmament objectives. As [Samuels \(2004, p. 9\)](#) explains,

Although [constitutional] revisionists lead the current ruling coalition, they remain dependent on CGP to control the upper house. As I have suggested, the CGP has moderated the coalition's revisionist ambitions. It seems quite clear that had the LDP not been dependent upon CGP support, its draft constitution would have gone much further. It would not likely have reaffirmed the original intent of Article 9 to quite the extent that it has done.

Prime Minister Abe tried to revise the constitution in 2016, hoping that his LDP-CGP coalition, which had achieved the desired supermajority in the Diet, could revise Article 9. The CGP balked at the idea and foiled his plan, making the LDP's inability to effect actual reform very public. We treat the weakened LDP induced by the post-bubble electoral reform as a natural experiment that enables us to examine how an exogenous change in the LDP's ability to amend the constitution affects the propensity of pro-military and pacifist voters.

## 4 Data

We bring several novel datasets to understand the impact of slaughter and devastation on voting behavior. The first is a dataset covering almost 100 years of Japanese election results to measure voting behavior before and after a city's citizens, soldiers, or structures were killed or destroyed. Second, we build a dataset covering WWII military and civilian deaths that is more disaggregated than any previously used before, which lets us link wartime deaths with electoral outcomes at the city and county level.<sup>11</sup>

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<sup>10</sup>In 1994, the LDP formed a coalition government with its arch-rival, the Japan Socialist Party. The JSP soon reformulated itself into the (pacifist) Social Democratic Party which reaffirmed its commitment to rule with the LDP before the 1996 election. Thereafter, a series of party splits and mergers in left-wing parties ultimately forced the LDP to form a coalition with the CGP.

<sup>11</sup>See Appendix A.1.1 for definitions and details.

## 4.1 *Unit of Observation*

Much of our data comes at the municipality level, which divides Japan’s land area into around 3,000 geographic units that vary to some degree across years. We aggregate these to the 300 largest cities because the urban death and destruction, taken from (Davis and Weinstein, 2002), is reported only for the 300 largest Japanese cities in 1940.<sup>12</sup> The details of our aggregation procedure and how we build consistent city definitions across time are discussed in Appendix A.1.1.

## 4.2 *The LDP Vote Share*

We measure the strength of the “pro-military” vote by computing the LDP vote share in each city using data for every election after the party’s formation in 1955. We obtain data on voting at the party-city level and the number of eligible voters from (Mizusaki and Mori, 2021). In cities belonging to multiple electoral constituencies or having multiple candidates from the same party, party-level vote shares are aggregated to the city level.<sup>13</sup> We provide detailed summary statistics on LDP vote shares in Table 1. One fact that jumps out from this table is the enormous regional disparity in LDP support. Among cities in the top decile of LDP support, nearly 70 percent of voters vote for the LDP. Cities in the bottom decile have less than half this level of LDP support.<sup>14</sup> In the post-reform period, we focus on the LDP’s vote shares in the PRCs because the voting procedures in these constituencies, which account for about 62 percent of lower-house Diet members, are closest to those in the pre-reform period. The primary difference is that the boundaries of the electoral constituencies were altered with the reform.

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<sup>12</sup>This encompasses approximately all cities with a population of over 30,000 in 1925 and all those with significant bomb damage. These municipalities account for 60 percent of the Japanese population. We dropped Okinawa because it was not returned to Japan until 1972 and, therefore, lacked voting data for much of our sample.

<sup>13</sup>We aggregate all *ku* (wards) in the cities that have them (i.e., *seirei shitei toshi*) to ensure alignment with other datasets on casualties and demographics.

<sup>14</sup>We obtain data on pre-WWII elections from (Kawato and Kawato, 1997) and build a dataset of municipality-level election outcomes using a correspondence table between electoral constituencies and cities from <https://lab.ndl.go.jp/dl/book/1445520?page=35> (In Japanese, last accessed on December 13, 2024).

**Table 1: Summary Statistics**

	Mean	SD	p10	p25	p50	p75	p90
LDP Vote Share (1958-1993)	0.514	0.162	0.297	0.409	0.519	0.632	0.723
LDP Vote Share (1996-2021, PRC)	0.341	0.071	0.251	0.294	0.340	0.386	0.430
LDP Vote Share (1958-2021, PRC)	0.443	0.158	0.261	0.327	0.412	0.555	0.676
LDP Vote Share (1996-2021, SMC)	0.479	0.151	0.305	0.396	0.483	0.574	0.665
LDP Vote Share (1958-2021, SMC)	0.500	0.159	0.300	0.404	0.502	0.609	0.705
LDP Vote Share (1996-2021, Weighted)	0.426	0.114	0.291	0.361	0.429	0.498	0.566
LDP Vote Share (1958-2021, Weighted)	0.478	0.151	0.294	0.382	0.472	0.579	0.679
Per-Capita Building Destruction	0.019	0.038	0.000	0.000	0.000	0.011	0.084
Per-Capita Bombing Deaths	0.002	0.013	0.000	0.000	0.000	0.001	0.005
Draft-Cohort Gender Ratio	1.143	0.084	1.040	1.098	1.146	1.199	1.239
Draft-Ineligible-Cohort Gender Ratio	0.957	0.057	0.896	0.925	0.951	0.982	1.016
Seiyukai's Vote Share in 1928	0.521	0.125	0.395	0.461	0.520	0.592	0.660
Per-Capita Earmarked Expenditures	1.511	3.742	0.029	0.042	0.073	0.256	5.952
Contemporaneous Gender Ratio	1.068	0.055	0.997	1.037	1.069	1.104	1.134

Note: This table presents summary statistics for our key variables. LDP Vote Share variables show the fraction of votes received by the Liberal Democratic Party, with PRC indicating proportional representation elections, SMC indicating single-member constituency elections, and “Weighted” indicating the weighted average of PRC and SMC results, where weights are calculated by the ratio of seats from PRC and SMC. Per-Capita Building Destruction measures the number of buildings destroyed during WWII air raids divided by the 1940 city population. Per-Capita Bombing Deaths measures confirmed civilian deaths and missing persons from air raids divided by the 1940 city population. Draft-Cohort Gender Ratio is the ratio of women to men aged 20-44 in 1950 (i.e., the gender ratio of people the military could have conscripted during WWII). The Draft-Ineligible-Cohort Gender Ratio is the ratio of females to males of those aged 10-19 and 45-54 in 1950. *Seiyukai's* Vote Share in 1928 is the fraction of votes received by the pro-military *Seiyukai* party in the 1928 election. Per-Capita Earmarked Expenditures are earmarked expenditures in each city. The contemporaneous gender ratio refers to the gender ratio in a specific year. The statistics are calculated using data from the 300 largest Japanese cities as of 1940. p10, p25, p50, p75, and p90 represent the 10th, 25th, 50th (median), 75th, and 90th percentiles respectively.

### 4.3 *The Causes and Measurement of Military Fatalities*

The Imperial Japanese Army (IJA) formed infantry regiments by recruiting men based on the city or county from which they lived.<sup>15</sup> [Asai and Kambayashi \(2023\)](#) argue that the allocation of regiments to battlefields was exogenously determined in the sense that the survival probability of a regiment was not influenced by the future voting in the regiment’s hometown. The exogeneity arises from several sources. One source is that the IJA often didn’t know which islands would be attacked, so soldiers in regiments sent to major battlefields, e.g., the Philippines, Iwo Jima, and Okinawa,

<sup>15</sup>A full list of the more than 400 IJA regiments, including details on the city in which they were founded and brief histories, can be found [https://en.wikipedia.org/wiki/List\\_of\\_Japanese\\_infantry\\_divisions](https://en.wikipedia.org/wiki/List_of_Japanese_infantry_divisions).

had close to 100 percent death rates, while those in regiments stationed on other *potentially major* battlefields, e.g., Korea, Taiwan, Indonesia, and the Japanese mainland saw little to no fighting. As [Asai and Kambayashi \(2023\)](#) convincingly argue, there is no evidence that the IJA took a regiment's hometown into consideration when deciding which regiment would be sent where. Deployments were based on training, experience, and battle fatigue. Similarly, America's battle plans were not based on the hometowns of the regiments defending each island but rather on the importance of the islands themselves.

A second, and probably more important, source of the exogenous death rates in Japanese regiments was the U.S. policy of "unrestricted submarine warfare" announced on December 7, 1941, and later "Operation Starvation" which jointly resulted in the sinking of 81 percent of Japan's ship tonnage ([Davis and Weinstein, 2008](#)). These operations used U.S. submarine and air attacks to sever the food and military supply lines for Japanese troops on Pacific islands and thereby avoid having to dislodge Japanese soldiers through battles. The policies were extremely successful. U.S. submarines accounted for 55 percent of the Japanese shipping that America sank ([Joint Army-Navy Assessment Committee, 1947](#)). Since American submariners rarely rescued the passengers of torpedoed ships, often entire regiments were eliminated during transport to and from the battlefield. Similarly, although Japan's small submarine fleet had some notable successes against American aircraft carriers—for example, sinking the Yorktown and Wasp and nearly sinking the Saratoga—U.S. carriers operated relatively freely in the Pacific. Overall, American carrier-based aircraft accounted for another 24 percent of Japanese shipping losses.

The destruction of Japan's merchant marine helps explain how American forces could kill close to two million Japanese soldiers, while only losing 100,000 of their own.<sup>16</sup> Indeed, [Yoshida \(2017\)](#) finds that 60 percent of all Japanese military deaths were caused by starvation and disease, typically arising when the U.S. sank ships supplying Japanese troops on islands without adequate local sources of food. We think it is plausible to assume that the varied and large starvation and troop transport death rates created exogenous variation in our regression specifications because it would

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<sup>16</sup>Of the 2.3 million Japanese soldiers who died, approximately 1.9 million died outside of China ([Hirota, 1992](#)).

be hard to explain these rates by people's expectations about postwar voting.

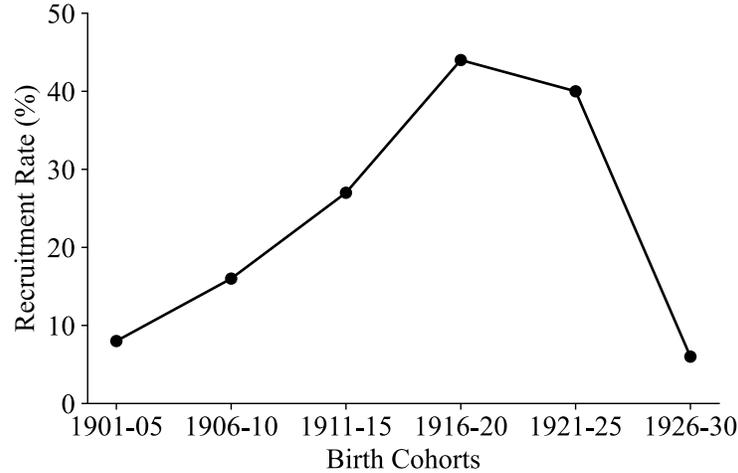
The exogeneity of regional military death rates can be illustrated by a few cases. The 230th Infantry Regiment from Gifu City was on transport ships to Guadalcanal that were sunk, killing most of its soldiers. By contrast, the story of the 50th Independent Mixed Brigade on the Woleai Atoll in the Carolinas is one of a unit that survived its trip to the battlefield. The brigade had originally been composed of soldiers from the small town of Fukuyama in Hiroshima Prefecture who had been drafted into the 141st Regiment; deaths in that regiment and others led to its merger into a mixed brigade of 6,426 soldiers. These troops were mostly stationed on Falalap, a 2.3-acre island. Fortunately for them, an American invasion force never arrived; unfortunately for them, their supply ships stopped coming two months after the implementation of Operation Starvation, resulting in three-quarters of them starving to death (Yoshida, 2017). The hometowns affected by battle deaths also varied based on decisions unrelated to the soldiers themselves. For example, the 145th regiment from Kagoshima was sent to Iwo Jima, and only 162 of its 2,727 soldiers survived. A luckier regiment was the 24th from Fukuoka, which was stationed in Taiwan and, therefore, saw no combat and could eat local food. Similarly, the 307th regiment, which harked from the small town of Hirosaki in remote Aomori prefecture, trained for a historic fight to the death to defend the Japanese mainland that never happened. These stories, and many more like them, demonstrate that any other variable likely to explain postwar voting behavior is unlikely to be correlated with which regiments and, therefore, electoral constituencies suffered high casualty rates.

Because data on soldier death rates at the city level is unavailable, we infer it from census data. Asai and Kambayashi (2023) use prefectural variation in gender ratios for draft-aged cohorts in their paper as a proxy for soldier death rates. However, Kimura (2023) [pp. 17-19] shows that Japanese regiments were often organized based either on finer geographic categories, i.e., either the city (“*shi*”) or the county (“*gun*”) in which they lived.<sup>17</sup> We therefore construct the city-level gender-ratio data for the draft cohort using the 1950 Population Census.

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<sup>17</sup>For example, he writes, “the rise in the number of divisions led to extremely complex recruitment catchments, and even people from the same prefecture often ended up enlisting in different regiments if they lived in different cities or counties.”

**Figure 4:** Recruitment Rate by Birth Cohort



Note: Percentage of men who served in the Imperial Japanese Army from (Watanabe, 2022).

One critical element in this approach is identifying which cohorts of men belong to the “draft cohort,” i.e., the men most likely to serve in the IJA. In principle, Japanese men between 17 and 40 could be drafted (Watanabe, 2022). At the same time, boys as young as 14 could “volunteer,” a category that sometimes included people pressured to enlist, especially as the war drew to a close. Figure 4 taken from (Watanabe, 2022), shows the fraction of each birth cohort that served in the IJA at any time. We see a substantial uptick in service rates for the 1906 to 1910 birth cohort, reflecting people who would have been 35-39 years old in 1945. We also see that 45 percent of Japanese males born between 1916 and 1920 (i.e., 21-25 years old in 1945) also served in the military. Finally, we have some sense of the youngest soldiers from this picture. 4.6 percent of males born between 1926 and 1930 served, which suggests a lower bound of military service of around 15 years old in 1945.

Given that 2.3 million Japanese soldiers died during WWII and that the 1940 cohort of males aged 10-35 was 16.2 million, the war caused the gender ratio of this cohort to shift significantly (Statistics Bureau of Japan 1940). Moreover, the enormous variation in which regiments were decimated meant that these deaths were extremely unevenly distributed across Japan. Since there was no 1945 census, we use the ratio of women to men in the cohort of individuals aged 20 to 44 in 1950, who would have been aged 15 to 39 during the war, as a proxy for soldier casualty rates

([Statistics Bureau of Japan 1950](#)). Figure 5 shows a color-coded gender ratio across different age groups at the city and county level for three age cohorts. The left and right maps show the female-to-male ratios in cohorts whose members were just younger or older than the soldier generation, i.e., Japanese aged 10-19 and 45-54 in 1950. These cohorts tend to have female-to-male gender ratios below 0.95, reflecting the natural phenomenon that 94.3 female babies are born for every 100 male babies ([Hesketh and Xing 2006](#)). In contrast, the gender ratios for the draft cohort typically are above 1.1, reflecting the heavy loss of young men during the war. The tremendous variation in this ratio across cities and counties is more important for our purposes. 5.34 percent of all cities and counties have more than 125 women for every 100 men, while at the lower tail, 1.81 percent of cities and counties have fewer than 90 women for every man. In addition, there appears to be virtually no geographic pattern in which cities and counties suffered high casualty rates and which did not.<sup>18</sup>

Although we do not have detailed death rates by regiment, the gender ratios shown in Figure 5 seem broadly consistent with the fates of several regiments we discussed earlier. The 145th Regiment was decimated in Iwo Jima. Not surprisingly, we see that Kagoshima, the hometown of many of these draftees, had one of the highest female-to-male ratios in 1950. At the other extreme, Fukuoka, home to the soldiers of the 24th regiment who spent the war in Taiwan, had a much lower gender ratio. These patterns give us confidence that our gender-ratio measure captures military deaths.

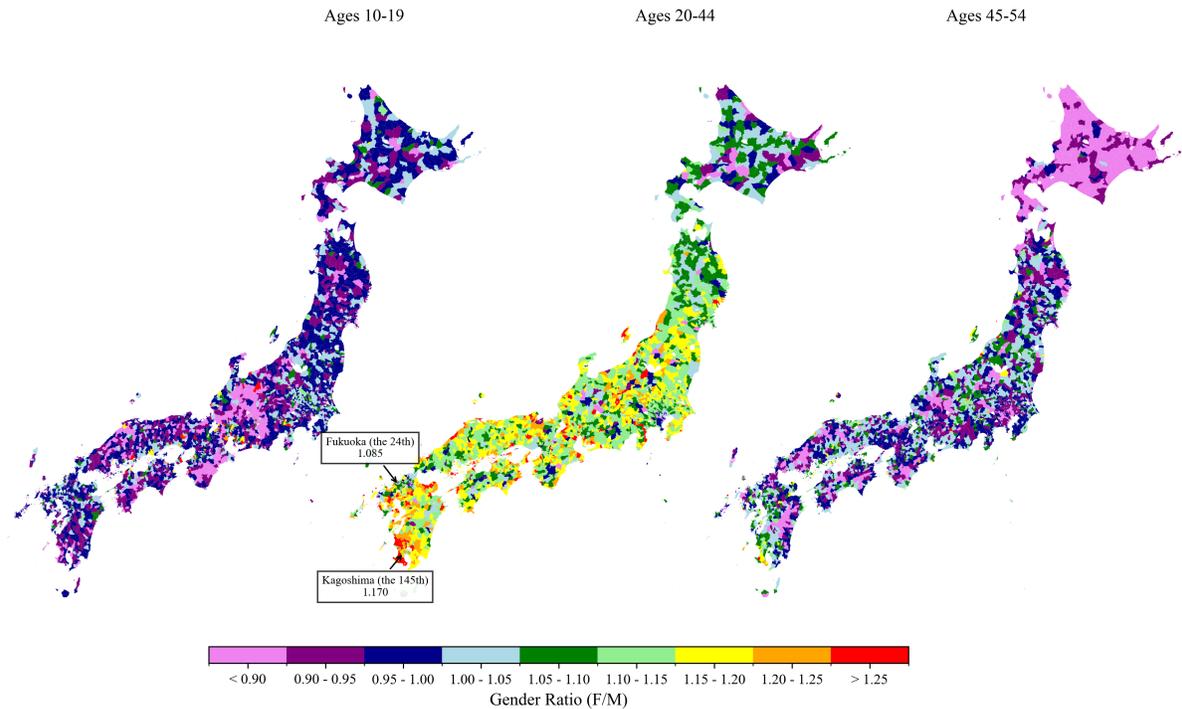
#### ***4.4 Air Raid Casualties and Destroyed Buildings (Urban Devastation)***

We obtained our data on air raid deaths and building destruction from ([Davis and Weinstein, 2002](#)), who used Japanese sources to quantify the number of people who died and the fraction of buildings destroyed as a result of U.S. “area bombing” of Japanese cities. We define “Per-Capita Bombing Deaths” as the sum of the number of confirmed civilian deaths following a bombing raid and the

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<sup>18</sup>We see lower female-to-male ratios for all ages in northern Japan and Hokkaido. ([Kumagaya, 1960](#)) argues that this pattern arose because a combination of cold climate and harsh agricultural working conditions resulted in higher female death rates. We therefore include the gender ratio in non-draft cohorts in 1950 and in 1930 to control for regional variation in female mortality.

**Figure 5: Gender Ratios by Age**



Note: Female-to-male gender ratios by age cohort in 1950 from (([Statistics Bureau of Japan, 1950](#))) for 1,218 cities (*shi*) and counties (*gun*).

number of people who went missing on the day of the raid and were never found, divided by the 1940 population of the city. We add the missing to the dead because firestorms often result in bodies being burned beyond recognition or being vaporized. Additionally, we also observe the “Per-Capita Building Destruction,” as a measure of the impact of destruction on the city’s population.

As ([Davis and Weinstein, 2002](#)) argue, the U.S. area bombing campaigns generated clear, large, and highly variable impacts on Japanese cities that can be considered exogenous for our purposes because urban destruction was not determined by expectations about future electoral outcomes. One reason for the exogeneity is that weather played an important role in urban devastation and death rates. For example, on March 9, 1945, 279 B-29s dropped 1.6 kilotons of incendiaries on Tokyo, killing approximately 100,000 people: the highest number of one-day wartime deaths in the history of the world. However, four days later, 274 B-29s dropped 1.7 kilotons on Japan’s second-largest city, Osaka, but only killed around 8,000 people and destroyed half as many buildings. The principal

reason for the difference in the level of destruction between the two raids was that there had been little rain before the Tokyo raid and strong winds on the day of the raid. The weather also mattered for atomic bomb victims. The skies over Japan's seventh-largest city, Kitakyushu, were cloudy on August 9, 1945, so the second atomic bomb was dropped on Nagasaki, Japan's twelfth-largest city, instead. However, weather again played a role in the relative destruction of Hiroshima and Nagasaki. Clear skies over Hiroshima enabled the bombers to drop the bomb in the center of the city, but cloud cover over Nagasaki meant that the bomber missed its target by two miles (Takeda and Yamagishi 2024). As a result, the Nagasaki bomb killed only about a quarter as many people as the Hiroshima one, despite being 40 percent more destructive.

Other idiosyncrasies, like geography, also played a role. Sapporo, Japan's 14th largest city, wasn't bombed because it was out of range of U.S. bombers. Similarly, Japan's ninth-largest city, Fukuoka, was not bombed heavily because it was located at the extreme Western range of Saipan-based B-29s. Kyoto, Japan's fifth-largest city, was spared for a different idiosyncratic reason: its cultural value. The exogenous nature of destruction extended to mid-sized cities as well. For example, Niigata, Japan's 28<sup>th</sup>-largest city, was preserved as a possible target for the third atomic bomb, but the war ended before the U.S. could drop it. Since this type of variation cannot be explained by the U.S. Army's expectations about postwar voting behavior, we assume it is exogenous.

Variation in civilian deaths per capita is correlated with building destruction per capita, but the correlation is only 0.42, indicating that there is independent variation in civilian deaths and destruction. Part of the reason is that civilian casualties were typically higher if the residents did not expect a devastating raid, as happened in the first raid on Tokyo and in Hiroshima and Nagasaki. In addition, high wind speeds on bombing days accelerated the speed at which the fires engulfed the city and typically increased casualty rates. Similarly, high groundwater levels made it difficult to build underground air raid shelters in cities like Kofu.<sup>19</sup>

Table 1 shows substantial skewness in the distributions of building destruction and air-raid

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<sup>19</sup>It was difficult to build underground air raid shelters in cities like Kofu with high groundwater levels. See [https://www.soumu.go.jp/main\\_sosiki/daijinkanbou/sensai/situation/state/kanto\\_24.html](https://www.soumu.go.jp/main_sosiki/daijinkanbou/sensai/situation/state/kanto_24.html). The use of building destruction as a measure of war destruction is consistent with prior studies (e.g., Davis and Weinstein 2002; Bosker et al. 2007; Takeda and Yamagishi 2024). See Section 6.3 for an analysis using the death and missing per capita.

deaths. The average number of buildings destroyed per person was only 2 per hundred, but the 30 cities in the top decile of destruction lost more than 8.5 buildings per hundred residents. Civilian deaths were even more skewed, with most cities experiencing few casualties as a share of their total population, and eleven cities having more than one percent of their population killed in air raids. At the upper tail, the atomic bombs dropped on Hiroshima and Nagasaki killed twenty and eight percent of the citizens, respectively.

## 5 Main Results

We adopt some semantic conventions to facilitate discussing the issues. First, right-wing Japanese refer to Japanese war criminals as “martyrs” (e.g., *showa junnansha*), so we adopt the term “martyr effect” to describe the importance of military deaths on pro-LDP voting.<sup>20</sup> Second, as we noted in the introduction, notes that “morale bombing” was a euphemism used by the Allies for the area bombing of cities in order to lower civilian morale and make them crave peace (Gladwell, 2021). We, therefore, adopt the term “morale effect” to describe the effectiveness of urban destruction on the share of voting for the LDP.

We present the results in a few steps. Section 5.1 provides a graphical analysis of the data. Section 5 introduces our regression specification, and presents our main regression results. Section 5.3 illustrates the effect size of war damage using a counterfactual prediction for the 1960 election, where the LDP was closest to the supermajority to change Article 9. Section 6 provides a few additional results for robustness.

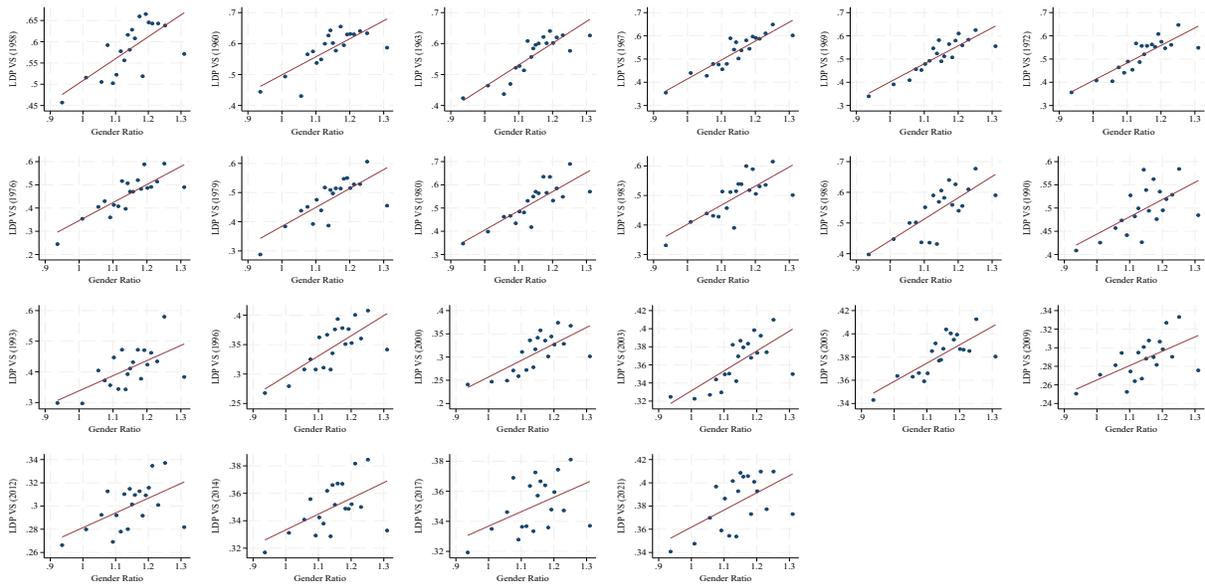
### 5.1 Data Preview

**The Martyr Effect:** Many of our main results are visible in bin-scatter plots of the data. Figure 6 plots the relationship between the LDP vote share in each year and the draft-cohort female-to-male ratio in 1950, our proxy for military casualties. There is a clear upward-sloping relationship between

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<sup>20</sup>The more common term for enshrined Japanese war dead is “*eirei*” or “hero spirits,” which also connotes the idea that they died for a noble cause.

**Figure 6: LDP Share and Gender Ratio (Draft Cohort as of 1950)**



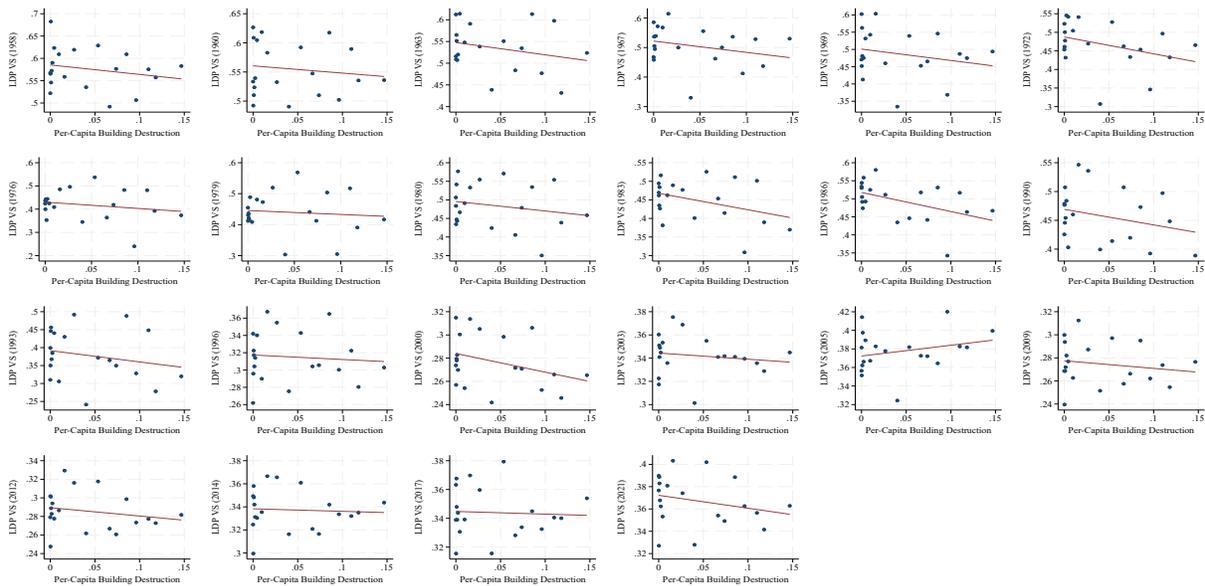
Note: This figure presents a bin-scatter plot of the LDP vote share (vertical axis) against the female-to-male ratio of people in the draft cohort (horizontal axis) for each election year. We use the LDP vote share in the proportional-representation constituencies after the 1994 electoral reform to be consistent with the earlier results. Each dot represents a bin scatter of cities, and we plot the fitted line.

military deaths and pro-military voting. Although security issues were particularly salient in 1960, we see an upward-sloping pattern in all years. Figure 6 is, therefore, suggestive of the *martyr effect*: cities with high shares of military deaths voted more strongly for the party that sought to legalize Japan's rearming. However, starting in 1996, the first election in which the LDP formed an alliance with pacifists, the range of the dependent variable shrank, implying that the LDP began to have more difficulty attracting voters in high military casualty constituencies. Nonetheless, the martyr effect is visible even 75 years after the end of WWII.

**The Morale Effect:** In contrast to the results focusing on military casualties, we see the opposite relationship between the LDP vote share in 1960 and per capita building destruction, which captures the devastation of civilian targets. Figure 7 presents bin-scatter plots of the LDP vote share against the building destruction per capita for every general election between 1958 and 2021. Once again, the 1960 election is not an outlier, indicating that voters in cities that suffered more building destruction consistently supported more *pacifist* parties. We also see the same attenuation of the

morale effect, starting with the 1996 election. In other words, after the LDP formed a coalition with the pacifists, it became less appealing to constituencies that had suffered high military casualties and more appealing to constituencies that had suffered greater building destruction. Finally, our results indicate that the experience of wartime urban destruction is also correlated with increased support even in 2021.

**Figure 7: LDP Share and Per-Capita Building Destruction Excluding Zero Destruction**



Note: This figure presents a bin-scatter plot of the LDP vote share (vertical axis) against per-capita building destruction (horizontal axis) for each election year. We use the LDP vote share in the proportional-representation constituencies after the 1994 electoral reform to be consistent with the earlier results. Each dot represents a bin scatter of cities, and we plot the fitted line.

These results suggest that the reason why studies of wartime trauma on people differ in terms of whether wartime violence leads to pacifist or militarist outcomes can be explained by the different effects of targeting civilians and soldiers. Studies finding war victims become more cooperative, altruistic, and pacifist are based on examining civilian victims of war; studies of battle casualties resulting in militaristic parties winning focus on how people react to having their compatriots end up as military casualties. The Japanese results suggest that these differences are not dependent on country or context; we observe the same opposing effects in the same country following a single war.

## 5.2 Regression Results

While suggestive, these plots are not necessarily compelling because they may omit variables correlated with urban destruction and military casualties. For example, northern rural prefectures like Hokkaido benefit from farm subsidies that may be associated with a lack of bombing. Similarly, soldiers in pro-military households might have been more willing to sacrifice themselves for the country.<sup>21</sup> It is therefore plausible that in regions where *Seiyukai* support was particularly strong, young men were imbued with “military ideology” and tended to fight to the death and vote for pro-military parties like the *Seiyukai*.

A different issue with focusing on individual elections is that voters in particular elections are influenced by idiosyncratic factors such as scandals, economic performance, and candidate personalities. This was particularly relevant before the 1994 electoral reform because voters in those elections often had to vote for two or more candidates from the same party. In these cases, LDP candidates typically could not distinguish themselves from their opponents based on policy and needed to find other means (e.g., promising earmarked funds or agricultural subsidies) to win over voters. This idiosyncratic variation may make it difficult to see average patterns in the data, which motivates us to pool our data across different elections.

In order to reduce idiosyncratic noise and omitted variable biases and to understand the economic and statistical significance of our findings, we estimate the following equation:

$$\text{Vote}_{it} = \alpha_t + \beta_{Mt}\text{Military}_i + \beta_{Dt}\text{Destruction}_i + \mathbf{Z}_i\gamma + \epsilon_{it} \quad (1)$$

where  $\text{Vote}_{it}$  is the LDP Vote share in city  $i$  in year  $t$ ;  $\text{Military}_i$  is the female-to-male gender ratio in the draft-cohort in 1950 in city  $i$ ;  $\text{Destruction}_i$  is the per capita building destruction in city  $i$ ;  $\alpha_t$  is the year fixed effects;  $\mathbf{Z}_i$  is a vector of controls for city  $i$ ;  $\epsilon_{it}$  is the error term; and Greek letters denote parameters to be estimated. Our coefficients of interest are  $\beta_{Mt}$  and  $\beta_{Dt}$ , which tell us how

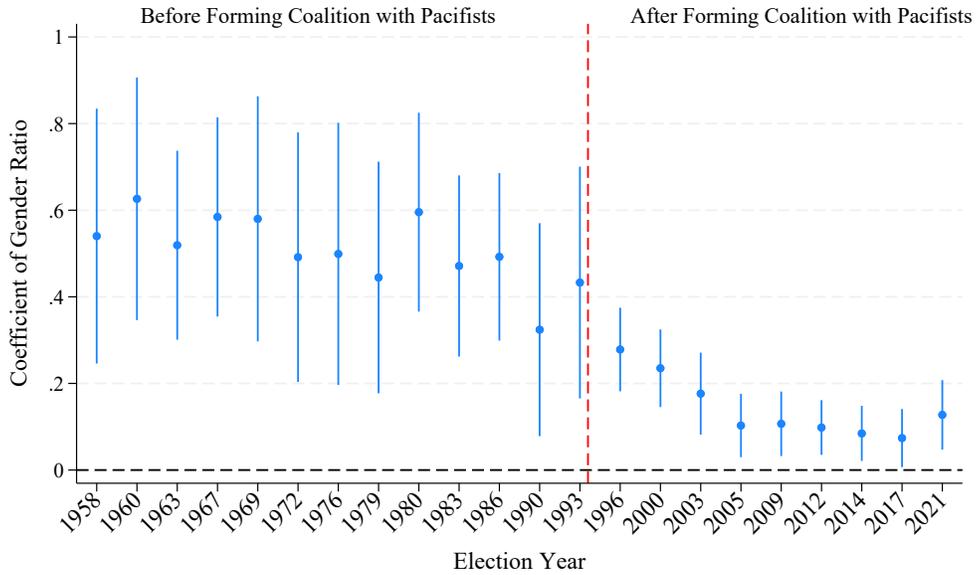
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<sup>21</sup>For example, Giichi Tanaka, a pro-military, *Seiyukai* Prime Minister before the war, stated, “I believe that national education must instill military ideology. It is necessary for the military and local communities to maintain constant contact, in order to instill military ideology in local youth, and to adopt methods that align military education with national education as much as possible.” (Kouketsu 2009, p76).

military deaths and urban destruction affect voting behavior in each election year  $t$ . In our main specifications, we impose  $\beta_{Mt} = \beta_M$  and  $\beta_{Dt} = \beta_D$  to capture the average effects of military deaths and urban destruction on voting.

We employ several controls ( $\mathbf{Z}_i$ ) to reduce the likelihood of omitted-variable bias. We include the *Seiyukai* vote share in the 1928 election as a control variable, which captures the city’s pre-existing pro-military voting behavior. By conditioning on pre-war pro-military voting behavior in a city, our identification strategy is essentially a difference-in-difference specification. We also include prefecture fixed effects and the longitude and latitude of each city to flexibly account for any prefecture-specific policies and other spatial autocorrelation in voting behavior (c.f., [Conley and Kelly 2025](#)). Our baseline specification, therefore, identifies the impact of devastation and military deaths on a city’s postwar pro-military vote share, after controlling for the city’s past pro-military vote share, the prefecture in which the city is located, and the city’s longitude and latitude.

**Figure 8:** Persistence of the Impact of 1950 Draft-Cohort Gender Ratio on the LDP Vote Share



Note: The vertical axis shows the coefficient and 95-percentile confidence interval of  $\beta_{Mt}$ , the coefficient on draft-cohort gender ratio when estimating equation (1) clustered at the prefecture level. The red vertical line marks the 1994 electoral reform. The dependent variable is the LDP Vote Share, i.e., the fraction of votes received by the Liberal Democratic Party in PRC elections. We also control for the per-capita building destruction, the *Seiyukai* Vote Share, prefecture fixed effects, longitude, and latitude. See Table 1 for variable definitions.

We estimate equation (1) to assess the statistical significance of the martyr and morale effects

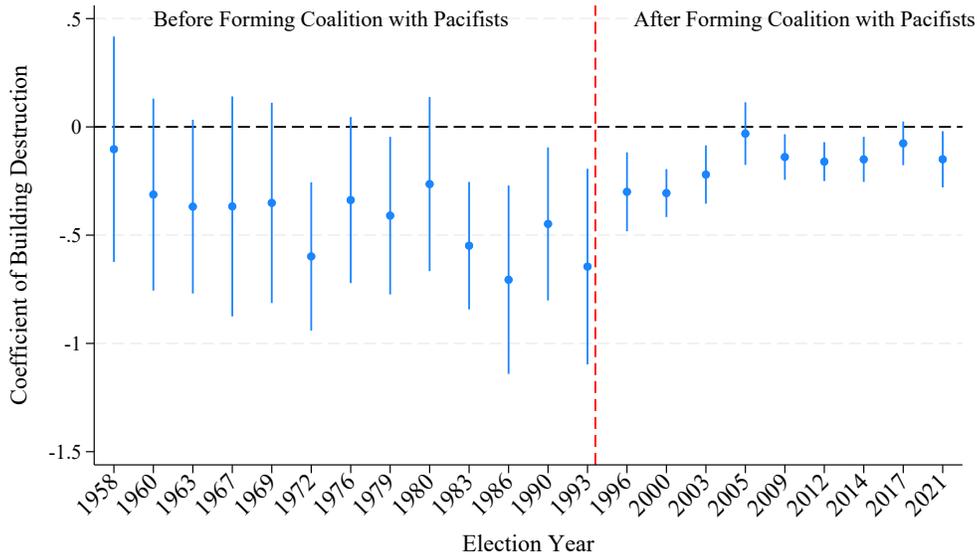
and to understand their persistence over time. Figures 8 and 9 plot  $\beta_{Mt}$  and  $\beta_{Dt}$  and their 95-percent confidence intervals for each post-WWII election in Japan. The data reveal a significant martyr effect in every postwar Japanese election. Although the magnitude of the coefficient falls by a factor of three after the electoral reform, Japanese voters in cities that suffered high (exogenous) battle deaths continue to vote more for the LDP even today. For all elections in the pre-reform period, 1958-1993, there is no indication of an attenuation of the martyr effect, suggesting it persisted largely unchanged for almost 50 years after the end of the Second World War.

The formation of a coalition between the LDP and pacifist parties is associated with a sudden drop in the magnitude of the martyr effect. The absence of a secular decline in the coefficient magnitude within the first electoral regime (1958-1993) makes it hard to explain the decline by the slow passing of the WWII generation. Instead, we observe a precipitous attenuation in coefficient magnitudes after the LDP started forming coalition governments with pacifist parties (1996-2021). These coalition governments likely reduced the LDP's appeal among voters in constituencies with high military casualty rates who favored Japan's rearmament.

The coefficient on urban destruction, the "morale effect," is precisely estimated in 13 out of 22 postwar elections, but it is negative in all of them. As with the martyr effect, there is no tendency for the magnitude or significance of this effect to diminish over time. If anything, the opposite seems to be true. While we estimate the effect to be significant in only two elections before 1983, it remains significant in virtually every election thereafter. The largest magnitudes of this effect occur in the elections just prior to the formation of the LDP-pacifist coalition, providing no support for the idea that the effect attenuated in the first 50 years after WWII. The formation of LDP-pacifist coalitions coincides with a drop in the magnitude of the morale effect, perhaps because the LDP was seen as less likely to accomplish constitutional revision.

We next estimate average martyr and morale effects across elections within each postwar electoral system. Table 2 presents the regression results for the pooled version of equation (1) in which we set  $\beta_{Mt} = \beta_M$  and  $\beta_{Dt} = \beta_D$ . Columns 1 and 2 pool all elections in the pre-reform period. The coefficients are significantly different from zero in all periods, indicating that the martyr and morale

**Figure 9:** Persistence of the Impact of Per-Capita Building Destruction on the LDP Vote Share



Note: The vertical axis shows the coefficient and 95-percentile confidence interval of  $\beta_{Dt}$ , the coefficient on per capita building destruction when estimating equation (1) clustered at the prefecture level. The red vertical line marks the 1994 electoral reform. The dependent variable is the LDP Vote Share, i.e., the fraction of votes received by the Liberal Democratic Party in PRC elections. We also control for the per-capita building destruction, the *Seiyukai* Vote Share, prefecture fixed effects, longitude, and latitude. See Table 1 for variable definitions.

**Table 2:** Pooled Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
	1958-1993	1958-1993	1996-2021	1996-2021	1958-2021	1958-2021
Draft-Cohort Gender Ratio	0.525*** (0.096)	0.508*** (0.094)	0.152*** (0.033)	0.143*** (0.034)	0.373*** (0.068)	0.358*** (0.067)
Per-Capita Building Destruction	-0.419*** (0.138)	-0.420*** (0.137)	-0.176*** (0.050)	-0.170*** (0.051)	-0.320*** (0.098)	-0.318*** (0.097)
Seiyukai Vote Share in 1928		0.037 (0.079)		0.051 (0.034)		0.043 (0.057)
N	3,900	3,900	2,700	2,700	6,600	6,600
Year FE	✓	✓	✓	✓	✓	✓
Prefecture FE	✓	✓	✓	✓	✓	✓
Latitude and Longitude		✓		✓		✓
R <sup>2</sup>	.36	.36	.6	.6	.53	.53

Note: The table shows the estimated coefficients and clustered standard errors (in parentheses) from estimating equation (1). We pool the data across all elections within the time period given in the second row. The dependent variable is the LDP Vote Share, i.e., the fraction of votes received by the Liberal Democratic Party. The LDP's vote share after 1993 is calculated using the PRC election results. See Table 1 for variable definitions. We cluster standard errors at the prefecture level. Asterisks indicate significance: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

effects have been present on average. The results for the post-electoral reform period, reported in columns 3 and 4, are qualitatively similar, but the magnitudes of the martyr and morale effects are about 30 to 40 percent as large. Thus, these pooled results paint a similar picture to the individual election results we saw earlier, but they enable us to estimate the martyr and morale effects more precisely. Columns 5 and 6 present results from pooling across all time periods, which, not surprisingly, produce results between those of the pre- and post-reform periods. The coefficient on *Seiyukai* vote share is not significant in any specification, indicating that past pro-military voting does not explain postwar pro-military voting. The significant determinants of postwar voting are military casualties and urban destruction.

The magnitudes of the martyr and morale effects are substantial. Our estimates imply that the LDP vote share in a city in the ninetieth percentile of military deaths was, on average, 10.1 percentage points higher than a city in the tenth percentile in the pre-electoral reform period, making it a potent force for understanding LDP support in cities with high military death rates. In contrast, the LDP vote share in cities in the top ninetieth percentile of urban destruction was 3.4 percentage points lower in the pre-reform period. These results imply that urban destruction effectively instilled pacifist, anti-LDP sentiments in the Japanese electorate. The next subsection illustrates the magnitude of these effects by conducting a simple counterfactual analysis.

### ***5.3 The Impact of Bombing on Article 9 Revision***

We can use these results to conduct a simple counterfactual exercise to understand whether the effect of urban bombing on Japanese voter behavior is sufficiently large to explain why Japan has not revised its constitution and rearmed despite decades of LDP rule. We assume that the parameters we estimated in Table 2 column 2 are structural in the sense that they would not be different had the course of WWII been different. While this is a strong assumption, we impose it to give us an understanding of the magnitudes of the effects we identify. This assumption enables us to recompute electoral outcomes under an alternative bombing strategy.

We consider a case in which the U.S. had limited itself to targeting soldiers by implementing

unrestricted submarine warfare, engaging in all battles that happened in the Pacific, implementing Operation Starvation, etc., but refraining from bombing civilian targets. While it is hard to know if Japan would have surrendered without the bombing, American unrestricted submarine warfare coupled with “Operation Starvation” produced mass starvation among Japan’s soldiers and civilians, which probably would have caused the Japanese to surrender before November 1945 even if the U.S. had not dropped the atomic bombs ([United States Strategic Bombing Survey, 1946](#)) [p. 26]. It is not unreasonable to conjecture that Japan probably would not have been able to continue fighting through the ensuing winter without imported food or oil, even without the firebombing.

We focus on the outcome of the 1960 election because of the salience of the constitutional issue in that election, and we construct a counterfactual LDP vote share in each constituency under the assumption that the building destruction in that constituency was zero. We then transfer the increase in the LDP vote share to each LDP candidate in the constituency in proportion to the candidate’s share of LDP votes. Thus, if the LDP ran two candidates in a constituency and one candidate won 60 percent of the LDP votes, we assume that 60 percent of the increase in LDP votes in a no-bombing counterfactual would go to that candidate. Similarly, we subtract the same number of votes from the opposition candidates in proportion to the ability of those candidates to obtain votes. We then recompute the total vote tallies for every candidate in each constituency and note the winner of the election.

The results from this exercise indicate that had America not bombed Japanese cities, the lower house could have endorsed Japanese rearmament. In the 1960 election, the LDP won 296 out of 467 seats in the lower house of the Diet. This gave the LDP only 63.4 percent of the votes, just shy of the two-thirds they needed to amend the constitution. However, we estimate that if the U.S. had not bombed Japanese cities, the LDP would have won an additional 17 seats for a total of 313 seats, taking their vote share to 67.0 percent, which is just enough to satisfy the supermajority. However, this understates LDP support in the Lower House because Kiyose Ichiro, a right-wing politician, had temporarily declared himself an independent when he became the Speaker of the House of Representatives and almost surely would have voted with the LDP on constitutional

revision. Similarly, Sosuke Uno, who initially ran as an independent but joined the LDP five days after winning in 1960, would also have voted for constitutional reform. If we add these politicians to the LDP total, the pro-revision fraction of Diet members would have been 315 or 67.5 percent.

We explore the sensitivity of our counterfactual results to the coefficient estimated in Table 2 by using a clustered bootstrap procedure. We cluster observations at the prefecture level, resample these clusters with replacement, and re-estimate the martyrs and morale effects (Column 2 of Table 2) in each bootstrap sample. Using the resulting coefficients, we simulate the counterfactual seats that the LDP would have won and repeat this process 1000 times. This approach accounts for prefecture-level dependencies and provides a distribution of possible outcomes. Our simulations show that in 80.2 percent of cases, the LDP would have secured more than two-thirds of the seats, enabling constitutional amendments.

The firebombing of Japan's biggest cities drives much of this counterfactual outcome. For example, we estimate that six seats that would have switched without the firebombing were in Osaka, Japan's second largest city, which lost one building for every fourteen residents. Our point estimates indicated that election outcomes would have differed in many hard-hit cities like Tokyo, Nagoya, Kobe, and Hiroshima. Similarly, we estimate that Kagoshima, home to the 145th regiment that died on Iwo Jima, voted socialist in 1960 because of the devastating firebombing raids that destroyed one building for every nine people in their hometown.

**Table 3: Robustness**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	1958-1993	1958-1993	1958-1993	1958-1993	1996-2021	1996-2021	1996-2021	1996-2021	1958-2021	1958-2021	1958-2021	1958-2021
Draft-Cohort Gender Ratio	0.534 <sup>***</sup> (0.096)	0.455 <sup>***</sup> (0.107)	0.501 <sup>***</sup> (0.091)	0.459 <sup>***</sup> (0.087)	0.161 <sup>***</sup> (0.032)	0.143 <sup>***</sup> (0.034)	0.142 <sup>***</sup> (0.034)	0.140 <sup>***</sup> (0.034)	0.382 <sup>***</sup> (0.067)	0.290 <sup>***</sup> (0.072)	0.354 <sup>***</sup> (0.064)	0.322 <sup>***</sup> (0.061)
Per-Capita Building Destruction	-0.412 <sup>***</sup> (0.141)	-0.427 <sup>***</sup> (0.136)	-0.417 <sup>***</sup> (0.138)	-0.307 <sup>**</sup> (0.131)	-0.165 <sup>***</sup> (0.053)	-0.170 <sup>***</sup> (0.050)	-0.168 <sup>***</sup> (0.052)	-0.166 <sup>***</sup> (0.050)	-0.311 <sup>***</sup> (0.100)	-0.341 <sup>***</sup> (0.095)	-0.316 <sup>***</sup> (0.098)	-0.235 <sup>***</sup> (0.092)
Seiyukai Vote Share in 1928	0.042 (0.078)	0.035 (0.080)	0.036 (0.079)	0.025 (0.076)	0.054 (0.032)	0.051 (0.034)	0.050 (0.034)	0.048 (0.034)	0.047 (0.056)	0.041 (0.059)	0.042 (0.057)	0.032 (0.055)
Gender Ratio (1930)	0.083 (0.104)			0.058 (0.046)			0.072 (0.072)					
Contemporaneous Gender Ratio		0.184 (0.143)				-0.001 (0.078)				0.294 <sup>***</sup> (0.099)		
Per-Capita Earmarked Expenditures			-0.002 (0.001)				-0.031 (0.045)				-0.003 (0.002)	
High Agricultural Employment Share				0.051 <sup>***</sup> (0.010)				0.043 <sup>**</sup> (0.019)				0.061 <sup>***</sup> (0.010)
N	3,900	3,900	3,900	3,900	2,700	2,700	2,700	2,700	6,600	6,600	6,600	6,600
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Prefecture FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Latitude and Longitude	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
R <sup>2</sup>	.36	.36	.36	.37	.6	.6	.6	.61	.53	.53	.53	.54

Note: The table shows the estimated coefficients and clustered standard errors (in parentheses) from estimating equation (1). We pool the data across all elections within the time period given in the second row. The dependent variable is the LDP vote share, i.e., the fraction of votes received by the Liberal Democratic Party. The LDP vote share since 1996 are calculated using the PRC election results. See Table 1 for variable definitions. We cluster standard errors at the prefecture level. Asterisks indicate significance: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## 6 Robustness

### 6.1 *Do Other Cohorts Vote Like the Draft Cohort?*

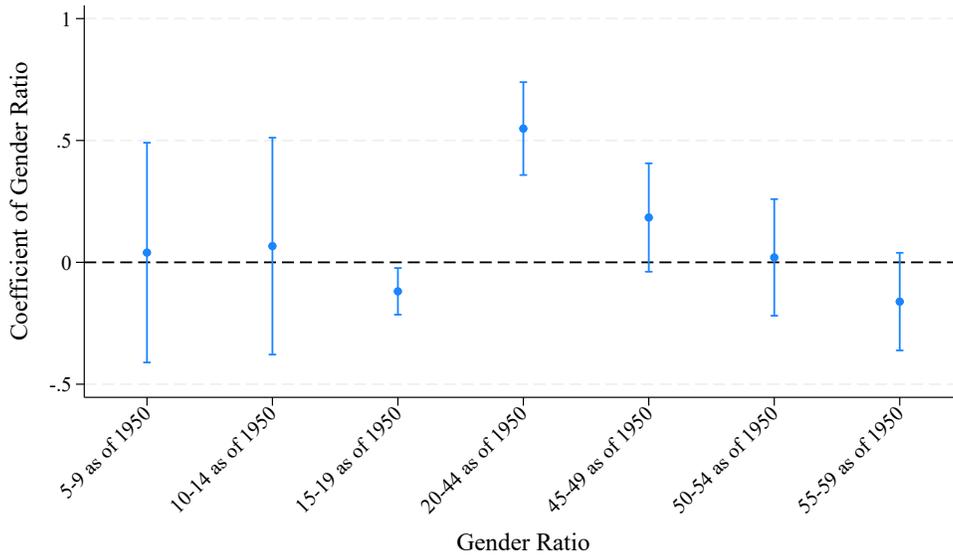
One possible alternative explanation is that the pro-military voting behavior of women in the draft cohort is correlated with gender ratios in other cohorts, thereby biasing our results. We address omitted-variable bias by rerunning our specification in several ways. First, in Table 3 columns 1, 5, and 9, We control for the city's gender ratio in 1930 to address the possibility that pre-existing gender imbalances are associated with electoral outcomes. We find no evidence for this hypothesis. Second, we control for the contemporaneous gender ratio at the time of the election in columns 2, 6, and 10 to assess whether our results are driven by that ratio. We find that including the contemporaneous gender ratio has little impact on the magnitudes of the martyr and morale effects.

An alternative omitted-variable bias might arise from the possibility that older and younger generations of women differ in their pacifist feelings, so what we think is variation due to membership in the draft cohort actually reflects the voting behavior of women over the age of 20 in 1950. We test this by adding six alternative measures as controls: the gender ratios of people aged 5-9, 10-14, 15-19, 45-49, 50-54, and 55-59 in 1950. Thus, if older women tend to be more pro-military, we would expect the coefficient on the female-to-male ratio of people aged 45-49 to be as anti-LDP as that in the draft cohort. We report the results in Figure 10, which plots the coefficients from each of these specifications. The results indicate that gender ratios have no predictive power for voting in any cohorts except the draft cohort. In other words, our result is only driven by the voting behavior of cities that experienced more military deaths.

### 6.2 *Controlling for Subsidies and Industrial Policy*

Another potential set of omitted variables that might matter concerns government subsidies and transfers that could affect voting patterns. We investigate this by exploring the potential impact of two additional controls. First, [Catalinac et al. 2020](#) argues that earmarked funds are a principal mechanism for securing votes in municipalities by delivering benefits to the locale. For example,

**Figure 10: Regression Coefficients of Gender Ratio of Different Cohorts**



Note: The vertical axis shows the coefficients and 95-percentile confidence interval of various gender ratios included along with the draft-cohort gender ratio when estimating equation (1) clustered at the prefecture level. The dependent variable is the LDP Vote Share, i.e., the fraction of votes received by the Liberal Democratic Party in PRC elections. We also control for the per-capita building destruction, the *Seiyukai* Vote Share, prefecture fixed effects, longitude, and latitude. See Table 1 for variable definitions.

the LDP might garner the support of veterans' families by channeling earmarked expenditures to these locations.<sup>22</sup> If the LDP disproportionately supports veterans' families by providing them with more earmarked expenditures, we might observe an association between military casualties and LDP support not because of any martyr effect, but because the LDP offers these families more support. As a robustness check, we therefore include the per capita earmarked expenditures (*kokko shishutsukin*) to the city as a control variable to control for the possibility that these expenditures are correlated with military casualty rates. Columns 3, 7, and 10 in Table 3 reveal that controlling for per-capita earmarked expenditures has little explanatory power and does not qualitatively affect our results.<sup>23</sup>

A second possible omitted variable concerns policies intended to help farmers, such as agri-

<sup>22</sup>Examples of earmarked expenditures include infrastructure projects (e.g., road construction, schools, hospitals, etc.), special subsidies for agriculture, forestry, and fisheries, and elderly care facilities.

<sup>23</sup>The fact that we cannot identify any impact of earmarked expenditures on LDP voting behavior may reflect the fact that our prefecture fixed effects absorb much of the regional variation in earmarked expenditures.

cultural subsidies and trade protection. The LDP is well known for viewing farmers as a core constituency. If cities whose populations work disproportionately as farmers also tended to have high military casualty rates or suffered more from morale bombing, it could bias our results. However, there may still be substantial variation across cities within prefectures in terms of how their citizens benefit from farm support packages. We investigate this possibility in columns 4, 8, and 12 of Table 3 in which we include a dummy variable, “High Agricultural Employment Share,” for cities in which twenty percent or more of employees work in agriculture. We find support for the LDP vote share tends to be about four to six percentage points higher in these cities (depending on the period analyzed), consistent with the hypothesis that Japanese farmers strongly support the LDP. However, controlling the agricultural employment share in a city hardly affects the magnitudes of our coefficients of interest, leaving our main results intact.

### **6.3 *The Impact of Civilian Deaths***

Thus far, we have been arguing that military deaths generate a martyr effect that promotes pro-military voting, while urban destruction raises support for pacifism. The difference in the two results may reflect the possibility that knowing someone who was killed in war might produce a different effect on the survivors than simply having one’s city reduced to rubble. In particular, killing people in a city might also create a martyr effect, while destroying the structures only affects morale.

It is difficult to precisely measure the impact of killing civilians on pro-military voting in part because there were not many cases in which large fractions of a city’s population were killed by bombing. Only two cities suffered civilian death rates in excess of two percent: Hiroshima, where 21 percent of the residents were killed, and Nagasaki, where 9 percent were killed. Even in Tokyo, which had the highest number of civilian casualties, the fraction of the city’s population that was killed was only 1.4 percent. As we can see in Table 1, about 90 percent of the cities in our sample had bombing death rates of less than 0.5 percent, meaning that, unlike military death rates, we do not have a lot of variation in this variable to exploit. Moreover, as numerous studies have

**Table 4:** Robustness to including Deaths and Missing Persons as a Civilian Casualty Measure

	(1)	(2)	(3)	(4)	(5)	(6)
	1958-1993	1958-1993	1996-2021	1996-2021	1958-2021	1958-2021
Draft-Cohort Gender Ratio	0.526*** (0.096)	0.509*** (0.095)	0.153*** (0.033)	0.143*** (0.034)	0.373*** (0.068)	0.360*** (0.067)
Per-Capita Building Destruction	-0.449*** (0.128)	-0.455*** (0.127)	-0.189*** (0.048)	-0.186*** (0.048)	-0.343*** (0.090)	-0.345*** (0.088)
Per-Capita Bombing Deaths	0.203 (0.298)	0.236 (0.323)	0.087 (0.133)	0.109 (0.145)	0.155 (0.229)	0.184 (0.249)
Seiyukai Vote Share in 1928		0.038 (0.078)		0.051 (0.034)		0.044 (0.057)
N	3,900	3,900	2,700	2,700	6,600	6,600
Year FE	✓	✓	✓	✓	✓	✓
Prefecture FE	✓	✓	✓	✓	✓	✓
Latitude and Longitude		✓		✓		✓
R <sup>2</sup>	.36	.36	.6	.6	.53	.53

**Note:** The table shows the estimated coefficients and clustered standard errors (in parentheses) from estimating equation (1). We pool the data across all elections within the time period given in the second row. The dependent variable is the LDP Vote Share, i.e., the fraction of votes received by the Liberal Democratic Party. The LDP vote share since 1996 are calculated using the PRC election results. See Table 1 for variable definitions. We cluster standard errors at the prefecture level. Asterisks indicate significance: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

documented (c.f., [Davis and Weinstein 2002](#); [Bosker et al. 2007](#); [Takeda and Yamagishi 2024](#)), there is substantial measurement error in this variable due to people dying from bomb-related injuries in later years and whether people who went missing on the day of a raid were dead or just joined the vast number of homeless people created by the bombing.

Nevertheless, we control for civilian deaths per capita in Table 4. The coefficient on per-capita bombing deaths is positive but imprecisely measured. Nevertheless, the results let us draw two important conclusions. First, we cannot reject the hypothesis that killing civilians generates a positive martyr effect like killing soldiers. Second, the fact that the coefficient on per-capita death has the opposite sign of the per-capita building destruction also tells us something about the impact of killing civilians on pro-military attitudes. If the trauma of an attack on a civilian target determined the magnitude of the morale effect, one should expect a much larger effect from killing one in ten people in a city than from destroying one building for every ten people. The fact that the coefficient on per-capita building destruction has the opposite sign of the per-capita death indicates that killing civilians does not have the same impact on morale that destroying buildings does. The positive coefficient on per-capita death is consistent with the notion that killing civilians also produces some martyr effect that offsets the morale effect, but the lack of precision of the point estimate prevents us from drawing strong conclusions.

#### **6.4 *Veterans Benefits vs. Militarism***

Another potential threat to identification is that families of deceased veterans may not care about constitutional revision but instead support the LDP because it favors generous transfers to veterans and their families. Since these transfers are not allocated according to location, they do not appear in the (place-based) earmarked expenditures we examined earlier. The main problem with this argument is that historically, both the LDP and its opposition vied for these votes by advocating generous benefits for veterans' families. The principal cleavages were not over the amount of benefits, but over the relative amounts that should be allocated to the families of high-ranking officers

and the terminology used to describe the benefits.<sup>24</sup> Indeed, the Japan Socialist and Communist Parties have, at times, supported greater benefits than those offered by the LDP. Moreover, because opposition parties historically advocated a relatively even distribution of veterans' benefits, while the LDP favored dramatically higher benefits for high-ranking officers in the Imperial Japanese Army, opposition policies were likely to be financially better for a wider set of veterans' families (Akahata, 2001; Akazawa, 2012).

We formally test whether the driver of LDP support in high-military-casualty constituencies is financial or rearmament-related by rerunning our specifications using the JCP vote share instead of the LDP vote share. While the LDP has been pro-rearmament since its founding, the JCP is an extreme pacifist party. It not only opposes amending Article 9 but also advocates the dissolution of Japan's Self-Defense Force. It is also a relatively easy party to study because the JCP ran candidates in all electoral constituencies from 1958 through 1993 (Nakakita, 2021). It also ran candidates in every PRC in the later period, thereby obviating any sample-selection concerns.<sup>25</sup>

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<sup>24</sup>The parties do differ in the language used to describe benefits. (Akazawa, 2012) notes that the LDP's opponents often support calling the benefits "social security relief." In contrast, the LDP and the main lobby group for veterans' families, the Bereaved Families Association, have opposed using this term because it "disregards the essence of the pension system" and causes misunderstandings." It therefore advocates calling them "military pensions," which embodies the idea that veterans made special contributions to the nation and their benefits should not be lumped together with other social insurance schemes. The JCP and JSP are loath to use this terminology precisely because they do not want to institute policies that might appear to glorify Japan's military.

<sup>25</sup>These facts make focusing on the JCP cleaner than using voting data for other opposition parties, which typically only ran candidates in some constituencies.

**Table 5: Military Deaths and the Japan Communist Party Vote Share**

	1958–1993		1996–2021		1958–2021	
	(1) JCP Vote Share	(2) Share of Opposition Votes for JCP	(3) JCP Vote Share	(4) Share of Opposition Votes for JCP	(5) JCP Vote Share	(6) Share of Opposition Votes for JCP
Draft-Cohort Gender Ratio	-0.061* (0.035)	0.022 (0.056)	-0.021 (0.018)	-0.004 (0.023)	-0.045 (0.027)	0.012 (0.040)
Per-Capita Building Destruction	0.165*** (0.030)	0.225*** (0.073)	0.072*** (0.015)	0.076*** (0.021)	0.126*** (0.021)	0.164*** (0.047)
Seiyukai Vote Share in 1928	-0.060** (0.026)	-0.086* (0.043)	-0.022* (0.013)	-0.020 (0.015)	-0.044** (0.020)	-0.059* (0.029)
N	3,900	3,900	2,700	2,700	6,600	6,600
Year FE	✓	✓	✓	✓	✓	✓
Prefecture FE	✓	✓	✓	✓	✓	✓
Latitude and Longitude	✓	✓	✓	✓	✓	✓
R <sup>2</sup>	.54	.45	.82	.83	.6	.48

*Note:* The table shows the estimated coefficients and clustered standard errors (in parentheses) from estimating equation (1). We pool the data across all elections within the time period given in the second row. The dependent variable in columns 1, 3, and 5 is the Japan Communist Party Vote Share, which is defined to be votes for the Japan Communist Party divided by total votes cast in the election. The dependent variable in columns 2, 4, and 6, “Share of Opposition Votes for JCP,” is defined as total votes for the Japan Communist Party in PRC elections divided by total votes for parties other than the LDP. See Table 1 for definitions of the other variables. We cluster standard errors at the prefecture level and report them in parentheses. Asterisks denote significance: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

We report the results of the analysis of drivers voting for Japan's most pacifist party in Table 5. To avoid a mechanical relationship in which districts that supported the LDP tend to support opposition parties less, we run our regressions two ways. First, we calculate the JCP vote share as a fraction of all votes cast, and second, we calculate it as a fraction of all votes cast for opposition (i.e., non-LDP) parties. In contrast to the LDP Vote Share regressions, we find that cities that voted more for the pro-military *Seiyukai* party in the prewar period were less likely to vote for the pacifist JCP party in the postwar period. More important for our thesis are the coefficients on the draft-cohort gender ratio and per-capita building destruction. The first row of the table shows that military casualties are not associated with higher support for the JCP. This is consistent with the martyr effect: high military casualty rates make cities more likely to support the pro-military LDP and less likely to support pacifist parties, regardless of whether they offer the cities' residents generous veterans' benefits.

In contrast, the second row of the table indicates that residents of cities that suffered the most urban devastation are more likely to vote for the pacifist JCP. While the results presented in columns 1, 3, and 5 might simply reflect the fact that people who do not support the LDP are more likely to support opposition parties of any stripe, the results in columns 2, 4, and 6 tell a different story. In these columns, we present results in which we define the JCP vote share as relative to votes for opposition parties. Since the opposition is entirely composed of relatively pacifist Japanese parties, the positive and significant coefficient on per-capita building destruction means that it is associated with voting for the most extreme pacifist party.

In summary, we find that voters in cities that experienced high military casualties are not simply seeking financial restitution. They support parties that support rearmament. Voters in cities that experienced devastation, however, are more likely to support the most extreme pacifist party in the spectrum.

## 6.5 *Single-Member-Constituency Results*

Our results in the post-reform period were based on measuring the LDP's vote share in proportional representation constituencies because this type of voting existed before and after the reform. Comparing PRCs in the pre-reform period with SMCs in the post-reform period is not a clean experiment and creates a host of problems.<sup>26</sup> Nevertheless, we report results using SMC data in Appendix A.2.

Using SMC data in the post-reform period yields results that are broadly consistent with the martyr and morale effects discussed earlier. In the post-reform period, military casualties raise LDP vote shares, while per-capita building destruction lowers them. However, the results have larger standard errors, making it harder to detect differences between the two time periods.

## 7 Conclusion

This paper provides an answer to a puzzle in the literature: why do some people emerge from war believing in pacifism, while others emerge believing that a strong military is needed to deal with future challenges? Our answer is that the lessons from war depend on how one experiences it. Municipalities that suffered high military casualty rates tended to vote for militaristic socialist parties in post-WWI Italy, militaristic fascist parties in post-WWI Germany, and the pro-rearmament LDP in post-WWII Japan. In contrast to this “martyr effect,” we find that the devastation of civilian targets led to more pacifist voting. This was one of the main objectives of U.S. “morale bombing,” which sought to lower the fighting morale of Japanese civilians and put pressure on their government to sue for peace. While we cannot assess its effectiveness during WWII, this “morale effect” is clearly present in the postwar period and, like the martyr effect, persisted for seventy-five years after the fighting stopped. The fact that we can identify the different effects of killing combatants and

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<sup>26</sup>First, it is difficult to interpret how the formation of the LDP-pacifist coalition affected voting after the reform, because often small parties did not run candidates in SMCs because it was impossible for them to win a plurality. This strategic behavior in SMCs distorts vote shares relative to PRCs. The second problem is more insidious. One of the LDP's pacifist coalition members, the CGP, was a small party that struggled to win seats in SMCs but could win in more PRCs. It therefore instructed its voters to vote for LDP candidates in SMCs in exchange for powerful cabinet positions in the coalition government. Since some pacifists voted for the LDP in SMCs and against it in PRCs, the voting behavior in SMCs likely did not reflect voter attitudes towards militarism.

targeting civilians in the same country and conflict provides a unifying framework for understanding the disparate findings across countries and time.

Our paper also raises questions for future research. The first is whether the martyr effect arises from *military* deaths or whether civilian deaths have a similar effect on survivors. While our point estimates suggest that all killing tends to cause survivors to favor pro-military politicians, our estimates of the impact of killing civilians lack precision, making it impossible to reach strong conclusions. A second question concerns the causes of the persistence of the effects we identify. Both effects are clearly present in the data long after most people who experienced WWII are no longer alive, but why this happens is unclear. A reasonable conjecture is that the large number of local memorials to Japanese military and civilian casualties is effective at transmitting the different “lessons” of past generations to the living.

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## Online Appendix

### A.1 Data Construction

#### A.1.1 Geographic Boundaries

Our analysis is conducted at various levels of regional aggregation, depending on the variables we construct. At the most aggregated level, Japan’s geography can be divided into 47 “prefectures” or *ken* in Japanese. However, we often work with more disaggregated data when building our dataset. For much of our analysis, we work with data at the “municipality” (*shi-ku-cho-son*) level, in which Japan was divided into 3,284 municipalities in 1980.<sup>27</sup> The number of municipalities varies across time, but this number gives some sense of the level of aggregation at the midpoint of our sample. We aggregate these data in various ways to make them suitable for our analysis. The centers of the largest cities are divided into wards (*ku*), which we aggregate to form the data for the largest Japanese cities like Tokyo and Osaka. This results in our definition of Tokyo having an area approximately equal to that of New York City. We combine our definitions of the largest Japanese cities with those of the official set of cities (*shi*) to form our city database. Japanese cities, therefore, constitute more densely populated regions. We also merge “towns” (*cho*) and “villages” (*son*) into (rural) “counties” (*gun*), which yields a database in which Japan’s land mass is divided into 646 cities and 571 counties (in 1980).

One issue with municipality data is that their definitions frequently change, so we need to construct a consistent set of municipality boundaries. We follow (Eckert et al., 2020)’s procedure to standardize all data to 1980 municipality boundaries. The process involves three steps:

1. We denote the set of municipalities in 1980 by  $I$  and the set of municipalities in some other year by  $J$ . We then overlay the maps of municipalities in years  $I$  and  $J$  and compute the area of municipality  $j \in J$  that falls within the boundary of municipality  $i \in I$  and denote this by  $A_{ij}$ .
2. We define  $w_{ij}$  to be the fraction of municipality  $j$  in year  $J$ ’s set of municipalities that overlaps with municipality  $i$ :

$$w_{ij} \equiv \frac{A_{ij}}{A_j}$$

where  $A_j$  is the total area of municipality  $j$ .

3. Our estimate of the 1980 value of any variable  $X_i$  from a dataset based different municipal boundaries in year  $J$  is given by

$$X_i = \sum_{j \in J} w_{ij} X_j.$$

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<sup>27</sup>See <https://uub.jp/upd/transition.html> for more details on the definitions of municipalities.

### A.1.2 *Details on the Construction of Other Variables*

**Civilian Death and Destruction Data** We follow [Davis and Weinstein \(2002\)](#) in that our regression results are based entirely on the data of Japan’s 300 largest cities in 1940. Since the U.S. Air Force did not area bomb small cities and rural regions, this sample covers virtually all civilian death and destruction. All of our data on civilian death and destruction comes from this paper. We exclude cities in Okinawa, as the region was under U.S. occupation during the early postwar period, making it difficult to measure attitudes toward military action using LDP vote share.

**LDP Vote Share** We obtain LDP vote share for all postwar lower house elections since the LDP’s formation, except for 2024, from ([Mizusaki and Mori, 2021](#)). These data include votes for each candidate, party affiliation, and the number of eligible voters (all people over the age of 19 before 2016 and over the age of 17 thereafter) at the municipality level. In some elections, a single municipality contains multiple electoral constituencies or candidates from the same party. In these cases, we aggregate vote counts across constituencies to construct municipality-level vote shares and then aggregate across municipalities to obtain city data.

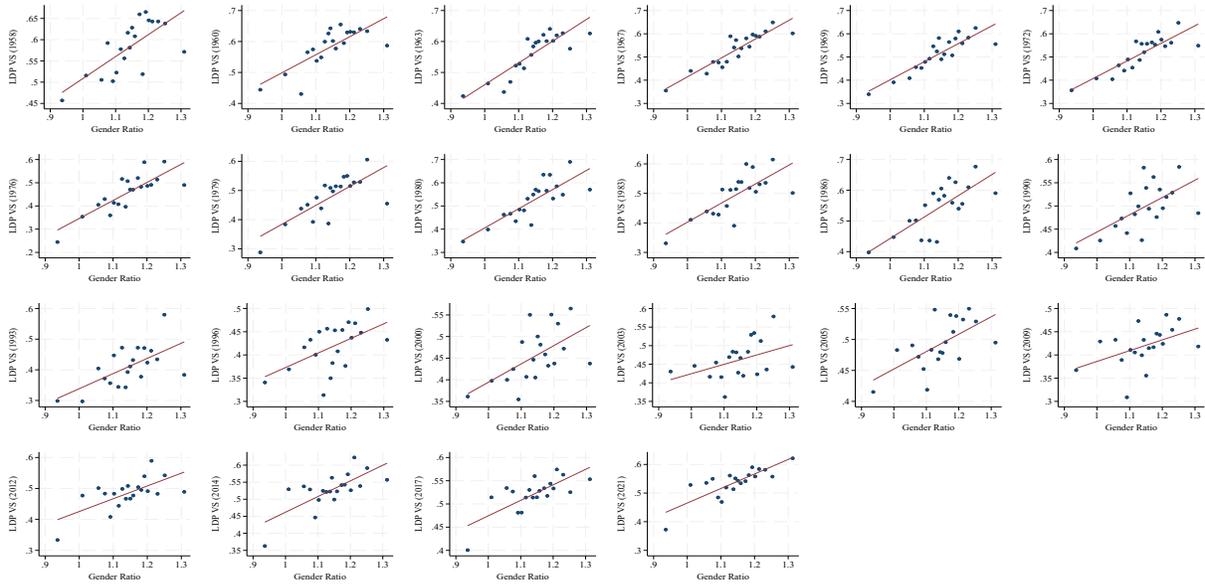
**Seiyukai Vote Share** We obtain pre-war voting results at the electoral constituency level from ([Kawato and Kawato, 1997](#)). We aggregate these to the city level using a correspondence table between electoral constituencies and cities <https://lab.ndl.go.jp/dl/book/1445520?page=35>

**Gender Ratio** Population by gender are reported at the municipality level based on census data reported in [Murayama and Watanabe \(2007\)](#) for 1930, [Statistics Bureau of Japan \(1940\)](#) for 1940, [Statistics Bureau of Japan \(1950\)](#) for 1950, and from 1960 onwards, we use the quinquennial census data from ([Sinfonica, 2005](#)). We compute the gender ratio in municipality  $j$  for age cohort  $k$  as the ratio of the number of women in cohort  $k$  divided by the number of men in cohort  $k$ .

**Earmarked Expenditures** In order to control for the impact of pork-barrel politics, we control for earmarked expenditures directed to each locality (*kokko shishutsukin*). These are expenditures by the central government to municipalities that are not based on nationally mandated formulas. Examples of earmarked expenditures include infrastructure projects (e.g., road construction, schools, hospitals, etc.), special subsidies for agriculture, forestry, and fisheries, and elderly care facilities. Earmarked expenditures are a principal mechanism used to obtain votes in a municipality by delivering special benefits to the locale. (c.f., [Catalinac et al. 2020](#)). To obtain the amount of discretionary intergovernmental expenditures at the city level, we digitized the 1960 and 1970 Local Public Finance Statistics Yearbooks. For later years, we use the Nikkei Needs FinancialQuest database.

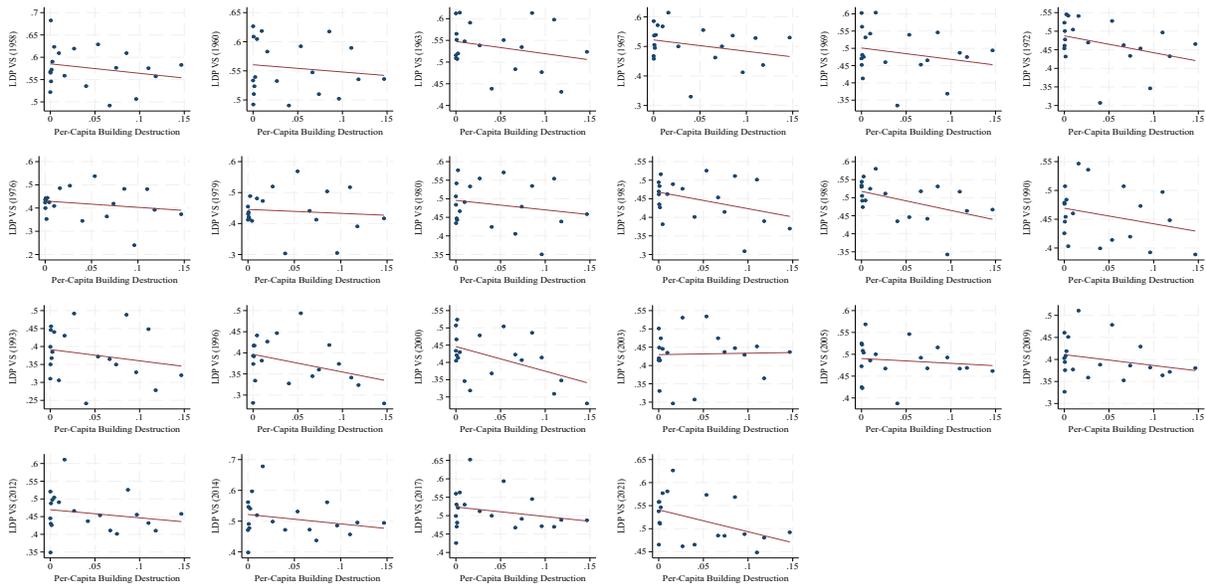
## A.2 Additional Results

**Figure A.1: LDP Share (SMC) and Gender Ratio (Draft Cohort as of 1950)**



Note: This figure presents a bin-scatter plot of the LDP vote share in SMC elections (vertical axis) against the female-to-male ratio of people in the draft cohort (horizontal axis) for each election year after 1994. Each dot represents a bin scatter of cities, and we plot the fitted line.

**Figure A.2:** LDP Share (SMC) and Per-Capita Building Destruction Excluding Zero Destruction



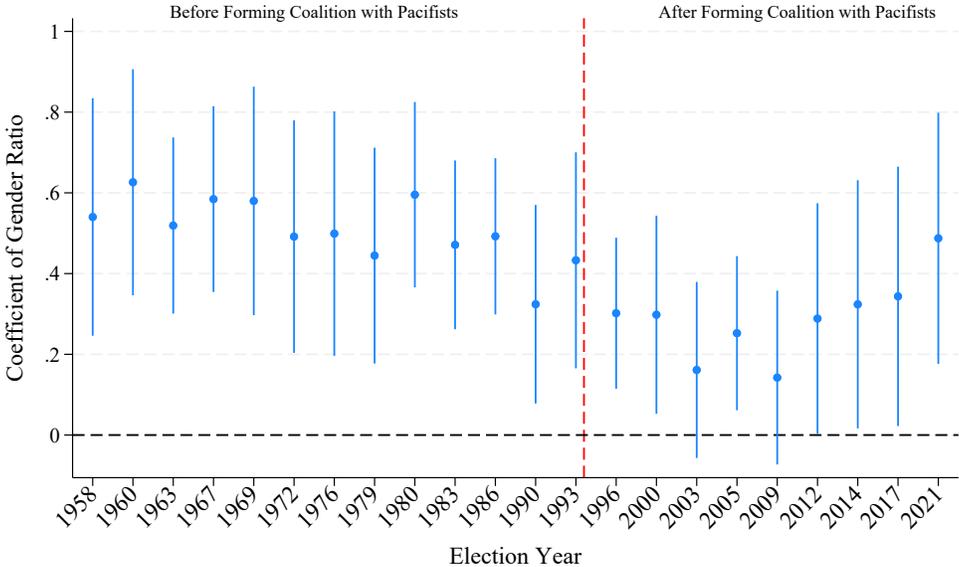
Note: This figure presents a bin-scatter plot of the LDP vote share in SMC elections (vertical axis) against the per capita building destruction (horizontal axis) for each election year after 1994. Each dot represents a bin scatter of cities, and we plot the fitted line.

**Table A.1:** Pooled Regression Results (SMC)

	(1)	(2)	(3)	(4)	(5)	(6)
	1958-1993	1958-1993	1996-2021	1996-2021	1958-2021	1958-2021
Draft-Cohort Gender Ratio	0.525*** (0.096)	0.508*** (0.094)	0.345*** (0.093)	0.288*** (0.098)	0.451*** (0.083)	0.418*** (0.083)
Per-Capita Building Destruction	-0.419*** (0.138)	-0.420*** (0.137)	-0.331*** (0.122)	-0.315** (0.121)	-0.383*** (0.120)	-0.377*** (0.119)
Seiyukai Vote Share in 1928		0.037 (0.079)		0.175** (0.067)		0.093 (0.065)
N	3,900	3,900	2,689	2,689	6,589	6,589
Year FE	✓	✓	✓	✓	✓	✓
Prefecture FE	✓	✓	✓	✓	✓	✓
Latitude and Longitude		✓		✓		✓
R <sup>2</sup>	.36	.36	.31	.32	.31	.31

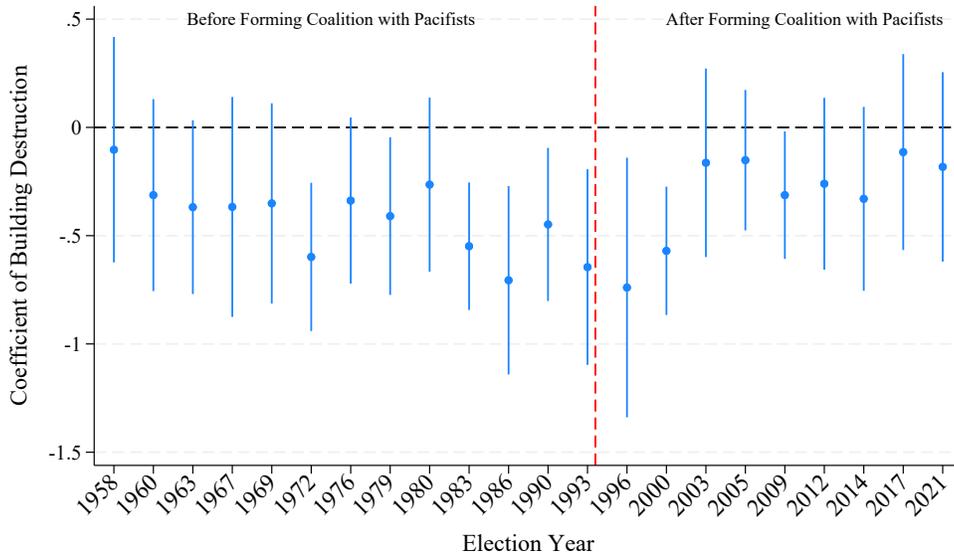
Note: The table shows the estimated coefficients and clustered standard errors (in parentheses) from estimating equation (1). We pool the data across all elections within the time period given in the second row. The dependent variable is the LDP Vote Share, i.e., the fraction of votes received by the Liberal Democratic Party in SMC elections. See Table 1 for variable definitions. We cluster standard errors at the prefecture level but cannot cluster at the city level because city definitions change over time. Asterisks indicate significance: \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Figure A.3:** Persistence of the Impact of 1950 Draft-Cohort Gender Ratio on the LDP Vote Share (SMC)



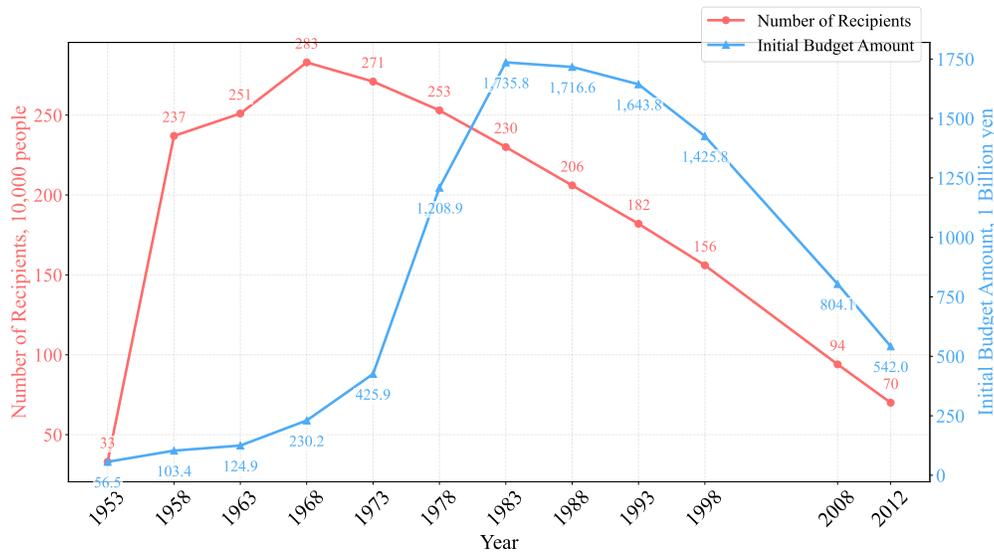
Note: The vertical axis shows the coefficient and 95-percentile confidence interval of  $\beta_{M_t}$ , the coefficient on draft-cohort gender ratio when estimating equation (1) clustered at the prefecture level. The red vertical line marks the 1994 electoral reform. The dependent variable is the LDP Vote Share in SMC elections. We also control for the per-capita building destruction, the *Seiyukai* Vote Share, prefecture fixed effects, longitude, and latitude. See Table 1 for variable definitions.

**Figure A.4:** Persistence of the Impact of Per-Capita Building Destruction on the LDP Vote Share (SMC)



Note: The vertical axis shows the coefficient and 95-percentile confidence interval of  $\beta_{D_i}$ , the coefficient on per capita building destruction when estimating equation (1) clustered at the prefecture level. The red vertical line marks the 1994 electoral reform. The dependent variable is the LDP Vote Share in SMC elections. We also control for the draft-cohort gender ratio, the *Seiyukai* Vote Share, prefecture fixed effects, longitude, and latitude. See Table 1 for variable definitions.

**Figure A.5:** Military Pensions Time Trends



Note: This figure shows the time trends of the total amount and recipient count of military pensions. Source: [https://www.soumu.go.jp/main\\_content/000175196.pdf#:~:text=237%20251%20282%20283%20271,253%20230%20206%20182%20156](https://www.soumu.go.jp/main_content/000175196.pdf#:~:text=237%20251%20282%20283%20271,253%20230%20206%20182%20156)