



The long-term effects of war exposure on civic engagement

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What are the legacies of war exposure on civic engagement? Recent evidence suggests that domestic war may have short-term effects on participation in social organizations. Yet, it is unclear whether these effects will be present in internationalized conflicts and persist over long periods of time. Further, the pathways of persistence by which war exposure leads to greater civic engagement in the long term are even less understood. In this paper, I contribute to both questions using unique evidence from the Vietnam War. Empirically, I combine a unique US military dataset containing bombing intensity with respondents' wartime place of residence to generate an objective indicator of conflict intensity. Then, I exploit the distance to the arbitrarily drawn border at the 17th parallel as an instrument for conflict intensity. The results show that individuals who lived in a province heavily affected by the conflict during the war tend to be more engaged in social organizations and hold greater expressive values, at least 26 y later. Further, I empirically explore the mechanisms of persistence. The empirical evidence suggests that both persistence within individuals and community-wide transmission jointly account for the long-term increase of civic engagement after conflict.

conflict | civic engagement | Vietnam War | historical legacies

The short-term consequences of war are dreadful: the destruction of physical infrastructure, the weakening of economic and political institutions, and the obvious losses in human lives, among others. While the dramatic short-term consequences of war are self-evident, there is no consensus about the long-term consequences of war on societal and developmental outcomes. The conventional wisdom claims that war unavoidably and drastically alters development and social cohesion. Early developmental researchers describe wars as “development in reverse”: Their legacy is the persistence of underdevelopment through the weakening of local and national political institutions, the destruction of the social fabric, and division of populations by removing the foundation of norms, values, and interpersonal and communal group trust that facilitate interpersonal cooperation (1, 2). Consistent with this perspective, some microlevel researchers have found that armed conflicts negatively affect tangible factors such as individuals' investment, income, and consumption (3, 4), as well as less tangible elements such as psychological wellbeing and social trust (5, 6).

Notwithstanding this, a conflict could also spur institutional changes and alter social preferences in a different way (7–10). A body of microlevel evidence is now emerging to suggest that those citizens who have been more heavily affected by a civil war seem to engage in greater collective action in the aftermath of the civil conflict in Burundi (11), Nepal (12), Sierra Leone (13), and Uganda (14). In a recent metaanalysis, Bauer et al. (15) find substantial evidence that exposure to wartime violence increases prosocial behavior, yet they also find suggestive evidence that this prosocial behavior is biased toward ingroups.

Earlier studies have been limited in their ability to fully address the relationship between exposure to interstate wars and civic engagement in the long term. First, most evidence has thus far been limited to civil wars—in which perpetrators are domestic actors. In internal conflicts, war exposure may lead to civic

engagement with an ingroup bias because of heightened postwar intergroup tensions (15, 16). In this regard, Bauer et al. (15) suggest that parochial (ingroup) altruism is the most likely hypothesis to explain social cooperation. Therefore, it remains unclear whether the increased prosociality after exposure to domestic wartime violence generalizes to conflicts with a significant international dimension, interstate wars, in which the main perpetrator of violence is a foreign entity, or internationalized wars, in which a foreign state provides critical support to one of the warring parties involved in an armed conflict.

Second, prior work has often measured outcomes in the aftermath of war—usually within the first decade after the end of the violence—amid lingering violence or reconstruction efforts. This could bias the results in favor of more prosocial effects. Third, while scholars often acknowledge the existence of two competing frames to describe the pathways of conflict legacies—namely, persistence for first-order exposed individuals and transmission of effects to new secondarily exposed individuals—there have been few efforts to empirically distinguish between the two (17). Fourth, the nonrandom geographical distribution of conflict violence hampers our ability to establish a causal relationship from conflict exposure to preferences. Fifth, differences in outcomes across communities in postconflict settings may be due to the effect of war but also due to nonresponse bias (e.g., death, postconflict) (12). And, finally, most studies rely upon retrospective self-reported conflict victimization data, which may be subject to recall and nonresponse bias (18, 19).

This paper contributes to the current literature by estimating the effect of exposure to an internationalized war following a research design that overcomes these limitations in the same

Significance

Recent studies document that exposure to civil war violence could increase postwar participation in social organizations. Yet, we lack evidence on whether these effects persist over generations, the pathway of persistence, and whether they generalize to different types of conflict. I address these gaps, drawing on a very detailed dataset on the conflict intensity in the Vietnam War and a representative survey in contemporary Vietnam that includes respondents' migration history. I find that conflict-affected individuals tend to engage more in social organization and hold greater expressive values, at least 26 y after the individual's exposure to the war. Further, I find evidence that both persistence within individuals and community-wide transmission jointly account for the long-term increase of civic engagement.

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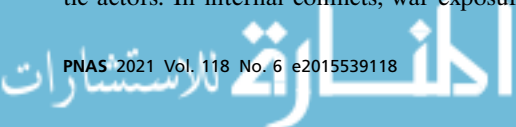
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project. Theoretically, I suggest a long-lasting legacy of political violence on participation in social organizations that comes together with an increase in participatory values; the importance people assign to expressive values such as freedom of speech; and people's efficacy in how things are managed in their proximate community, the society, and the government. Empirically, the case of the Vietnam War allows me to overcome some important empirical challenges. I identify the long-lasting effects of war exposure by exploiting the arbitrarily drawn border along the 17th parallel between North and South Vietnam in 1954. In choosing this as the instrumental variable, I build on a logic introduced by Miguel and Roland (20), and also followed by others (21, 22), whereby exposure to the war grew as one approached the former border that once divided Vietnam. The research design is complemented with two unique data sources on the Vietnamese conflict: 1) the geographic distribution of the US military campaigns drawn from a dataset containing province-level bombing intensity and 2) survey data collected in 2001 by the World Value Survey, which include respondents' province of birth, province of residence just before the end of the war in 1975, and place of residence for the period of 1990 to 2001. Using survey-based information on the postwar migration patterns, the research design can yield suggestive evidence on the persistence mechanisms, whether the effects of violence persist within individuals and close family members or the effects are associated with community-wide or societal outcomes.

The main finding of this paper is that those respondents who lived during the Vietnam War in a province that was heavily affected by the conflict are more likely to be engaged in civic organizations in 2001, 26 y after the end of the conflict. Additionally, I provide consistent evidence that experiencing bombing in the wartime province of residence also increases people's participatory values. These findings are robust to different measurement decisions in the outcome variables, removing individuals' self-selection during the war, accounting for selection bias in the sample due to death and migration, using the subsample of respondents from North Vietnam—those who did not experience a regime change—and including nonstrategic bombing only. In addition to the main findings, the richness of the data allows me to separate the effects from the experience of residing in a high-conflict intensity area during the conflict and/or after the conflict.

Additionally, I find suggestive evidence that wartime experiences influence civic engagement irrespective of the postwar setting. Individuals who live in a postwar setting are more likely to participate in social organizations even if they did not live in a conflict-affected area. These results show that wartime experiences within individuals and close family members and community-wide and societal postwar experiences jointly shape long-term civic engagement.

The Legacies of War on Civic Engagement

Two major pathways of persistence can influence the long-term effect of civic engagement: persistence within individuals through traumatic experiences and community-wide transformations such as collective memories and institutions. The first process of transmission and persistence works through the traumatic experiences of the conflict. These effects are not limited to direct exposure to violence, but they can also follow from indirect experiences, or “second-hand trauma” as people learn from the experiences of others (23). Early scholarship on the effects of war on people's psychology portrays a gloomy picture. Most studies report that survivors of trauma, even many years after the events, often suffer from a wide range of physical and mental health problems, such as lower physical wellbeing and signs of posttraumatic stress disorder, including anxiety and depression (24). These results, in turn, are generally associated

with hopelessness about the future, feelings of threat, and social withdrawal (25), all of which would lead to lower levels of civic engagement. While posttraumatic stress disorder is an important concern that affects victims of wartime violence, citizens may also transform their psychological makeup in a way that facilitates long-term civic engagement and participatory values through several interrelated processes (26).

Growth after trauma could account for a long-term link between war exposure and civic engagement (27, 28) as a result of a “psychological change experienced as a result of the struggle with highly challenging life circumstances” (p. 1 in ref. 28). The process of traumatic growth begins with the idea that people hold a set of beliefs and assumptions that they depend on to make sense of their world. These beliefs guide analytical thinking and understanding of causes and effects and direct people's courses of action. A traumatic event is then defined as a major challenge to this assumptive world. After the traumatic event, individuals struggle with the new reality by rebuilding a new set of assumptive world dictums that incorporate the trauma and the potential that similar events could happen in the future. The result of the entire process is that individuals respond to trauma by reflecting on and reassessing their lives, particularly by changing their social preferences. These changes lead to an augmented perception of social connectedness, self-efficacy, and personal strength to exercise control over events that affect their lives, as well as an increase in the importance given to life, to other people, and to intimate relationships (29–31).

This process explains how wartime experiences increase tolerance toward the enemy after the end conflict (26) but it may also explain increases in civic engagement. In essence, it involves a process of psychological change that sets in motion a complex process of restructuring preferences that are strongly connected to major well-known triggers of civic participation. For instance, an augmented perception of self-efficacy is related to the concept of political efficacy; that is, citizens' beliefs about “one's own competence to understand and participate effectively” (ref. 32, p. 1407). A vast literature in political behavior supports the thesis that beliefs that one can make a difference in the social and political realm are associated with preferences for participating in public affairs—participatory values—as well as with actual levels of civic engagement (33, 34).

From a similar perspective, Wood's (35) ethnographic work in El Salvador reports that war-related violence increased participation in collective action through an increased sense of injustice. Compared to unexposed citizens, wartime victims and their family members were more likely to join the rebellion and to engage in social organizations. In this regard, Wood describes that victims had an intrinsic pleasure of participation in public activities. Others refer to these intrinsic motives as “expressive preferences” (36), that is, the value that citizens give to the act of participating and expressing their preferences in public affairs. Participation may thus be viewed as an intrinsically valuable act regardless of the decisiveness of that behavior because it is a channel that serves conflict victims to reaffirm beliefs, values, and identities (37).

Despite the focus on the persistent effects of violence through personal trauma in some earlier work, wartime violence is not experienced in social isolation, but it may also involve community-wide transmission (17). Prosocial motivations and, thus, civic engagement may result from a process of communal coping by which individuals unite to cope with existential threats (12). In this regard, exposure to war-related violence is a stressful situation that is experienced in social groups; that is, many individuals are simultaneously affected by a common stressor. In this context, communal coping may be the way in which several individuals pool resources and efforts to confront common adversity (38, 39). The process to solve this collective problem involves a concerted effort by members of a community to tackle

the shared problems that are particularly daunting in conflict-affected areas.

Although most sociopsychological theories directly speak to the immediate effects of exposure to war on public engagement, there are reasons to believe that they may have persistent effects through the crystallization of social and political attitudes and the intergenerational transmission process. In the long run, political events that exert sociopsychological transformations are likely to crystallize in a new set of attitudes and behaviors that are sustained over time (40–42). In this regard, one extreme possibility has been described as the “persistence” model, which depicts that attitudes acquired prior to adulthood remain more or less unchanged through life. In this scenario, the very high stability of social and political orientations would sustain the immediate effects of wartime experiences through long periods of time (43). Therefore, the new set of preferences that results from traumatic experiences should be sustained in the long term through this crystallization or persistence mechanism.

Moreover, social preferences are difficult to reverse, socially reinforced, and transmitted across generations. In this regard, Nunn and Wantchekon (44) find that individuals whose ancestors were subject to heavy raids during the slave trade four centuries ago are less trusting of their relatives, neighbors, out-group members, and political institutions today. And, more generally, the legacies of political violence have been found to influence contemporaneous authoritarian values, preferences toward those who are related to the perpetrators, and social identities directly, through personal experiences, and indirectly, through their transmission across generations (45–47). In addition, the transformations of community-wide patterns of interactions, institutions, and political structures during the war are likely to linger to the postwar periods.

Similarly, the scope of community-wide coping strategies is not limited to the periods of intense fighting, but they might linger to postwar. Communal coping strategies are likely to generate positive externalities, patterns of cooperation, and social networks that may strengthen social action, trust, and prosocial motivations. Added to the wartime experiences, the conditions in the postconflict context may even exacerbate these socialization experiences. In heavily affected areas, individuals experience high levels of material destruction followed by a slow, grinding reconstruction process in the depth of a postwar economic recession. In this context, local communities may respond by rebuilding the country themselves. As one of the many consequences, people become more accustomed to volunteering, engage more frequently in public debates, and think that participation in society and politics is good, possibly to prevent another war. Taken together, these cooperative processes learned during wartime, and extended into the postwar period, may define new values and behaviors that emphasize expressive or participatory values, as well as participation in social organizations.

Therefore, the effects of war-related violence on civic engagement are likely to last even decades after the end of the conflict through these several interconnected pathways of persistence. This leads to the main hypothesis that exposure to wartime violence should enhance individuals’ civic engagement in the long term. Further, we suggest that both persistence within individuals and community-wide transmission jointly account for the long-term increase in civic engagement. In addition, these mechanisms suggest that those respondents who were more exposed to the war may generally place greater value in the act of civic participation itself. Hence, a key empirical implication of this is that these individuals would also report a high priority for achieving greater levels of freedom of speech, expanding the space for civic engagement, and greater value in the role of people’s influence in public affairs. This leads to the expectation that exposure to wartime violence enhances individuals’ participatory values in the long term.

Contextual Background: The Vietnam War

The Vietnam War (1954 to 1975) was a conflict officially fought between North Vietnam and the government of South Vietnam. Its origins can be traced back to the end of World War II (WWII). In 1945, the Viet Minh—a Vietnamese opposition movement to the French rule led by Ho Chi Minh—took power in Vietnam in the August Revolution, amid the vacuum of power left by the defeat of Imperial Japan. However, the allied victors of WWII agreed that Vietnam belonged to the French. The British helped to rebuild French control in the area, which allowed them to take over South Vietnam. In addition, the French landed in Hanoi and ousted the Viet Minh. Soon after the British departed in 1946, the Viet Minh initiated a rural counterinsurgency guerrilla war against the French government with the support of the Chinese communists. After the guerrillas took control of the northern border of Vietnam in 1949, the war became the First Indochina War. Although the conflict engulfed the entire Indochina area, the Red River Valley in Tonkin, northern Vietnam, was the geographic location of the most intense fighting between the French army and Viet Minh forces (48, 49).

Following the defeat of the French army (7 May 1954), the Soviet Union, the United States, France, the United Kingdom, and China participated in the Geneva Conference to restore peace in Vietnam (8 May 1954). At first, none of the parties thought that a partition was possible in Vietnam, and France and the United States were opposed to it.[†] Yet, the turnover of the French government in June, as well as the military defeats on the ground, led to a moderation of the French position; the French would now accept a partition.[‡] In June, negotiations focused on the exact location of the partition, which was uncertain at that time. On the one hand, the Democratic Republic of Vietnam called for the partition line to be at the 13th parallel (ref. 50, pp. 595 to 596). On the other hand, understanding that Ho Chi Minh would accept an agreement only if the territory would include Hanoi, the French suggested a division at the 18th parallel, which runs south of Hanoi. Finally, the Geneva Accord, which was struck on 21 July 1954, set out a “provisional military demarcation line” running through the 17th parallel.

Although quite arbitrary, the border had an enormous impact on the subsequent Second Indochina War, or Vietnam War (1954 to 1975). The first stage of the war was characterized by a low-intensity insurgency war in South Vietnam, and the military intervention of the United States escalated it in 1964.[§] Between 1964 and 1973, the conflict was characterized by stark asymmetries of firepower and a massive US air bombing campaign. Bombing in Vietnam was indiscriminate; that is, targets were not chosen on the basis of individual characteristics, but bombings targeted areas where civilians lived and, thus, collectives of civilians rather than specific individuals (21). In a context of indiscriminate bombing, aggregate bombing data of an area capture the average exposure to the war of a region’s inhabitants. To illustrate the geographic variation of the impact of the

[†]On the one hand, Bao Dai, the chief State of Vietnam, rejected “partition, direct or indirect, definitive or provisional, in fact or in law, of the national territory” (ref. 50, p. 562). Eisenhower thought similarly. In fact, the Central Intelligence Agency director, John Foster Dulles, is believed to have said to the cabinet and privately to his brother that he thought that it was not possible “to draw a line, given both the present balance of forces and the geography of Indochina” (ref. 50, p. 562). Alternatively, France suggested the physical separation of combatants but in the form of enclaves controlled by each side, the so-called leopard-skin approach, French forces would retain control over the Red River Delta, including the major urban areas of Hanoi and Haiphong (ref. 50, pp. 562–563). These statements reflect the positions of the parties as of 12 May 1954.

[‡]The United States withdrew from major participation in the convention in early to mid-June.

[§]After the Gulf of Tonkin Resolution, on 7 August 1964, which allowed the US president to launch a full-scale war if it was considered necessary by the president.

Vietnam War across throughout the Vietnamese territory, the map in Fig. 1 shows the distribution of bombings across provinces.[¶] In addition to some areas around Hanoi, the coastline of North Vietnam, and the area around Ho Chi Minh City that are closest to the Cambodian border—the end of the Ho Chi Minh trail that connected North and South Vietnam through Laos and Cambodia—the most intensely bombed regions are close to the 17th parallel of the North–South border.

Empirical Strategy

A correlation between war exposure and civic engagement may not reflect a causal effect because of potential reverse causation or omitted variable bias. This applies when analyzing both the short- and long-term effects of exposure to war. The most obvious issue is that conflict intensity, and thus exposure to war-related violence, is not random. For instance, areas with well-organized groups, with a more active citizenry, or with more individuals holding profreedom values may be either more likely to be targeted for violence by the attackers or more likely to defend themselves from a violent attack.

This is arguably the major issue in the literature establishing the consequences of war. Some scholars have attempted to mitigate its impact by following five different strategies: 1) adding fixed effects at an aggregate unit to maintain constant village-specific characteristics if there is within-unit variation (13, 14, 51), 2) controlling for prewar communities' characteristics through regression or matching approaches (12, 51), 3) subsampling on most affected populations (13), and/or 4) providing a qualitative account about why violence onset was random (12). While these strategies alleviate some concerns of endogeneity, a causal effect can hardly be disentangled without a source of exogenous variation in the geographic distribution of war conflict.

The Vietnamese case provides a natural experiment to overcome some of the inferential concerns that are present in other studies. Building on the logic introduced by ref. 20, and also followed by others (21, 22), I identify the long-lasting effects of war exposure on civic engagement and participatory values by exploiting the arbitrarily drawn border along the 17th parallel between North and South Vietnam in 1954 as an instrument of conflict intensity. For an instrument to be valid, it must have a strong first stage and be independent of potential outcomes. First, as Fig. 1 shows, exposure to the war strongly grew as one approached the former border that once divided Vietnam. This strong correlation implies that the distance to the 17th parallel is a relevant instrument of conflict exposure. Second, we must evaluate whether the instrument is independent of potential outcomes. While I control for earlier population size and geographic features, one could still be concerned about a potential correlation between the distance to the parallel and prior civic engagement. This could be the case if, for instance, the separation line mapped a historically relevant boundary, was located in conflict-prone or conflict-absent areas, or was drawn because of the characteristics of the population in those areas.

Some characteristics of the Vietnam case are reassuring for identification purposes. First, the 17th parallel had not been used before for any other circumstance of political relevance. Second, the parallel did not coincide with areas of conflict throughout the First Indochina War, when most of the conflict occurred around the River Red Delta and the Chinese border, around the 21st parallel and north. Third, it was unclear before the beginning of the negotiations in 1954 whether Vietnam would be parti-

tioned, and, even more importantly, the specific parallel that would be used for partition was uncertain. Fourth, the parallel did not reflect the relative forces of the parties on the ground. For instance, a member of the French delegation remarked “one is entitled to think that the division of the country at the 13th parallel would have more accurately reflected the true state of affairs than the partition at the 17th parallel which we achieved” (ref. 50, p. 608). Overall, historical evidence suggests that the border was arbitrarily drawn and the preexisting geographic distribution of Vietnamese people's political attitudes or behavior on the ground played no role in the location of the border. On the contrary, the First Indochina War and the numerous communists' hubs in the northern border with China suggest that, if anything, the most socially and politically engaged people would be located in the urban and northern areas. Thus, they are geographically far from the middle areas of the country.

Beyond civic engagement and political values, bombing could also influence other outcomes such as health, education, and infrastructure (2, 52). However, these are essentially posttreatment outcomes and, thus, do not affect the internal validity of the instrumental variable (IV) design. If anything, they should be considered as mechanisms of the main effects.

With an instrument that is relevant and valid, the empirical strategy enables us to identify the average causal effect of war exposure on engagement among “compliers,” the local average treatment effect (LATE), that is, the average treatment effect among those who live in provinces that were exposed to the bombing if geographically close to the 17th parallel (treatment group) but not exposed to the bombing if not geographically close to the 17th parallel (control group). The problem is whether the LATE from the IV regression estimates may be different from the average effect in the entire population of Vietnam. In this setup, compliers include both individuals who lived in regions close to the parallel that received heavy bombing and individuals who lived in regions far from the parallel that received little bombing. The variation in Fig. 1 suggests a relatively continuous and linear relationship between bombing and distance. The vast majority of provinces can be defined as compliers because their bombing intensity is closely connected to their distance to the parallel. In fact, the province of Lào Cai is the only province in the dataset—of 49 provinces with at least one observation in the survey data—that has an absolute value in its standardized residual greater than 2, which implies that this province is the only one that received more or less bombing than expected given its distance to the 17th parallel (i.e., this “always taker” would have always received heavy bombing regardless of its location).[#] The wartime population of Lào Cai was estimated to be around 699,700 inhabitants (1.6%), which implies that the vast majority of the Vietnamese population (98.4%) lived in provinces where their treatment status was associated with their distance to the 17th parallel. Therefore, there are reasons to expect that the LATE is likely to generalize to the average treatment effect for the entire country.

Data and Measures

I rely on a public opinion survey conducted in Vietnam, the World Value Survey 2001 (WVS).^{||} The survey in the field was conducted by the Institute of Human Studies in Vietnam using a multistage area probability sample with a random walk household selection. The sample consists of 1,000 respondents

[¶]Lào Cai is a northern province far from the parallel that was, nonetheless, heavily bombed during the war and has a standardized residual of -2.43 .

^{||}While some academics criticize the WVS for its lack of comparability across countries, these considerations do not affect analysis within a country sample (53).

[¶]See the section *Data and Measures* for further discussion on the size of provinces and more details on the bombing data.

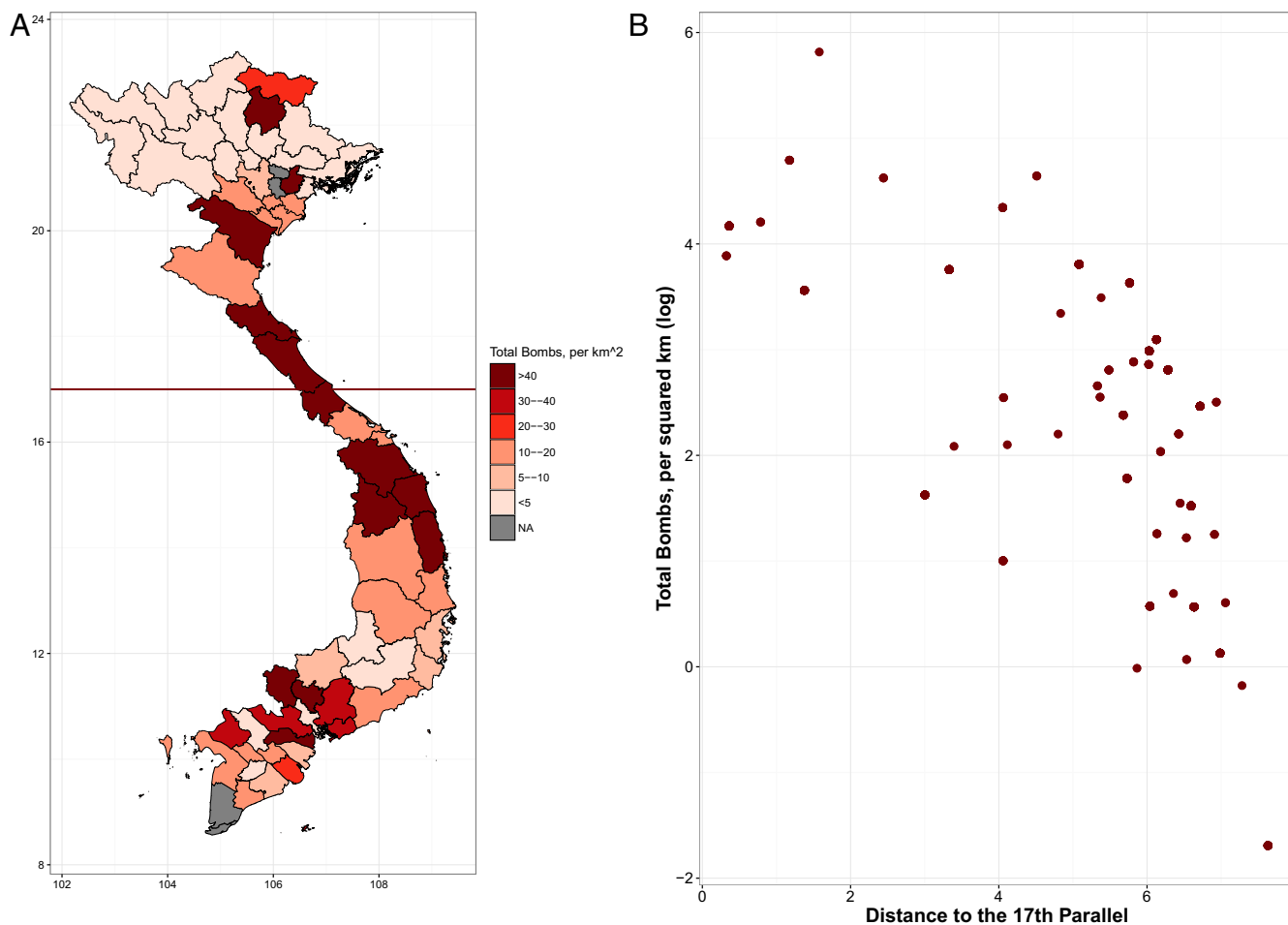


Fig. 1. Geographic distribution of bombing and distance to the 17th parallel.

distributed proportionately throughout the eight census regions of Vietnam. The survey respondents were selected to be representative of the adult population in Vietnam.^{††} To the core questionnaire of the international WVS project, the Vietnamese survey adds a set of country-specific questions on socioeconomic development that are relevant for the object of this study, including an extensive battery of items on civic engagement. Besides, the survey also includes specific questions on the respondents' province of birth and place of residence before 1975 (the year of the end of the Vietnam war) and in the period 1990 to 2001 (year of the survey).^{‡‡} These questions allow me to match each respondent to the province-level conflict data.

Civic Engagement. I use respondents' self-reported participation in social groups to measure civic engagement. Specifically, respondents were asked to indicate whether they were doing unpaid voluntary work in 14 types of voluntary associations or activities offered in the questionnaire: 1) social welfare ser-

vices for elderly, handicapped, or deprived people; 2) religious organizations; 3) education, arts, music, or cultural activities; 4) labor unions;^{§§} 5) political groups or organizations;^{¶¶} 6) local community action on issues like poverty, employment, housing, and racial equality; 7) third world development or human rights; 8) conservation, environment, and animal rights groups; 9) professional associations; 10) youth work (e.g., scouts, guides, youth clubs); 11) sports or recreation; 12) women's groups; 13) peace movement; and 14) voluntary organizations concerned with health.^{##} *SI Appendix, section E* reports the question wordings and *SI Appendix, section B* the descriptive statistics for these items. In Vietnam, about one-fourth of the respondents report engagement in community action organizations, labor unions, women's groups, or organizations that provide welfare services.

^{††} See *SI Appendix, section A* for a comparison table of some standard survey demographics and the census demographics and a more complete description of the survey methodology. The survey sample is comparable to the population statistics on key demographics such as gender and age, although it overrepresents well-educated citizens.

^{‡‡} This set of questions was included by the researchers to meet the Institute's own research program, but is not available in the public WVS data files. I thank Juan Diez-Nicolas, Chair of the Scientific Committee at the World Values Survey Association, for access to the original data files.

^{§§} Although labor unions in Vietnam are formally controlled by the Communist Party, membership is voluntary and, in practice, workers are autonomous with respect to the national party. This explains the prevalence of wildcat strikes among Vietnamese workers (54). Yet, excluding this category from the list does not alter any of the results and conclusions.

^{¶¶} While political groups or organizations could be considered to belong to national formal institutions, the party structure in Vietnam is decentralized. This means that local party organizations or groups are, for most of their activities, rather independent with respect to the national party leadership. Because citizens are much more likely to devote their time to a local party organization rather than to the national organization, we should consider it as not belonging to national organizations. Yet, excluding this category from the list does not alter any of the results.

^{##} A residual category of "others" is also included in the survey, although not used here.

This illustrates that Vietnam has a generally strong broad-based civic society with high levels of civic participation.^{†††}

To estimate scores for each respondent on separate scales of participation on civic organizations, I apply a binary factor analysis (FA) based on a matrix of tetrachoric correlation coefficients. Results from the binary FA suggest a one-factor structure for the participation items.^{†††} Due to the skewness of the distribution of the index—most people report not being a member or an active participant of any organization or type of activity—I take the log of the first factor from the binary factor analysis as the dependent variable of civic engagement. (*SI Appendix, section G* maps the civic engagement index to the number of organizations in which the respondent is active. Results remain substantively unaltered if I proceed with the natural scale.)

Participatory Values. To measure participatory values, I use a subindex of the postmaterialist index, called “provoice values.” This subindex intends to measure respondents’ priorities for freedom of speech and people’s say in national and local affairs (ref. 57, pp. 66–69). Respondents were asked to choose the statements that best reflect their life priorities among eight items (two four-item blocks). Of the eight items, three measure an emphasis on people’s participatory values: 1) “Seeing that people have more say about how things are done at their jobs and in their communities,” included in block 1, and 2) “Giving people more say in important government decisions” and 3) “Protecting freedom of speech,” both included in block 2. (Because their interitem correlation is moderately low, $r = 0.35$, I ensure that the validity of the index does not jeopardize the results by reporting the results for the two blocks of the voice index separately. For further information on the variable, coding procedures, and a full table with the three four-item batteries that were used in the original WVS questionnaire, see *SI Appendix, section E*.) Responses from each block are recoded to 0 when the item has not been chosen as important, to 0.5 when it has been chosen as second-most important, and to 1 when it has been chosen as most important. [The coding procedure follows Welzel (ref. 57, pp. 66–69) coding instructions and is imposed by the way in which the WVS asks these questions.]

Conflict Intensity. The data used to construct an individual-level measure of war exposure were initially assembled by Miguel and Roland (20) and derived from three different sources: 1) records of naval gunfire support in North and South Vietnam (March 1966 to January 1973); 2) the Combat Air Activities File (CACTA), which details daily air combat operations flown by the US Navy, Marine Corps, and Pacific Air Forces, by fixed-wing aircraft from October 1965 through December 1970 (a bombing sortie usually included multiple aircraft and weapons; the CACTA was assembled from postflight pilot debriefs conducted on the day of each sortie); and 3) daily records of allied air combat operations by fixed-wing aircraft and helicopters flown by the US Army, (South) Vietnamese Air Force, Royal Lao Air Force, and Khmer (Cambodian) Air Force between 1970 and 1975. (The datasets are hosted by the US National Archives and access is unrestricted.)

The data include the number of general-purpose bombs, cluster bombs, missiles, rockets, cannon artillery, incendiary bombs,

white phosphorus, and ammunition (in thousands) dropped in each province per square kilometer. (Ordnance is measured in units.) The total number of ordnance per square kilometer dropped in a province constitutes the measure of the province-level war intensity. *SI Appendix, section C* reports the descriptive statistics of each of the ordnance categories per square kilometer and *SI Appendix, section D* reports the correlation matrix between the summed index and the different types of bombs. The total number of ordnance is highly correlated with all types of ordnance, especially with general-purpose bombs. Hence, it provides a good measure of bombing intensity in a province. [An alternative source of information comes from the Hamlet Evaluation System. Kocher et al. (21) and Kalyvas and Kocher (58) could match these fine-grained administrative boundaries with hamlet-level bombing intensity. However, this dataset includes only a full cross-section of South Vietnam from July through December 1969. While the benefits of using such a level of precision outweigh the data limitations of time and scope for their research purposes, I use the dataset that includes the most extensive bombing information for the entire country and wartime period (1965 to 1975).]

To construct an individual-level measure of exposure, I match the bombing data to respondents’ information about their province of residence before 1975, which is included in the WVS 2001 survey in Vietnam. (The sample includes all respondents that provide a valid response to a place of residence before 1975. Although most respondents younger than 26 y old have a missing value in this question, some respondents who are too young to have experienced the war themselves have valid responses. The main analyses are implemented using all respondents whose response is valid. All results are unaltered if I exclude these respondents from the sample.) Unlike earlier work that relies on self-reported measures of victimization, which are prone to recall bias and nonresponse bias (18, 59), I use an objective measure of exposure based on their residence during the war. Another important consideration for evaluating the empirical results is the number and size of the units. Vietnam is divided into relatively small units. The entire country has a surface area of 128,455 mi², which is similar to that of American states such as New Mexico. Each province has an average area that is smaller than the average area of counties in New Mexico. (The average surface area of Vietnamese provinces is 2,039 mi², which is smaller than the average surface of counties in New Mexico.) The small size of provinces reduces the potential measurement error around the independent variable. [Although other finer-grained datasets of conflict in Vietnam are currently available (20, 21, 60), respondents’ location in the survey can only be known at the province level. Therefore, cumulative bombing in each province is the most fine-grained value that can be attributed to respondents. The disadvantage of using this level of aggregation is that individuals within units may have had different levels of exposure to bombardments, which produces measurement noise. On average, individuals in heavily affected areas are more likely to have experienced bombardments than individuals in lightly affected areas. The important within-unit variance of exposure increases the measurement noise of the independent variable. However, this source of measurement error will bias our regression estimates toward zero (61).] In any event, the use of an instrumental variable will also help to alleviate issues related to measurement error. [This is true to the extent that distance to the parallel—instrument—is uncorrelated with the within-unit variance in exposure—one of the major sources of measurement error in the sample (61).] The sample geographically encompasses the Vietnamese population and the disparity in conflict intensity. Of the 63 administrative units existing in today’s Vietnam, there are 49 provinces that both can be matched to the codes in the bombing records and have at least one respondent in the WVS dataset that reports having lived in the province

^{†††} Compared to all other countries in the WVS survey wave, civic engagement in Vietnam—an average of 15% across all items—is above the average of that of all other countries in the wave—an average of 8% across all items. This is consistent with early results from Vietnamese scholars, who suggested that associational life is comparable to that of many Western countries and surpasses that of other authoritarian countries (55, 56).

^{†††} The Cronbach’s alpha of the participation items is 0.79. *SI Appendix, section B* reports the factor loadings of each item that are used to compute respondents’ score in the index of participation.

during the war. (*SI Appendix, section F* reports the number of respondents by province.)

Instrumental Variable: Distance to the 17th Parallel. The main empirical concern to estimate a consistent effect in the hypothesized relationship is that conflict intensity and civic engagement may be endogenous. First, bombing can be targeted to those areas with greater mobilization or more actively involved people. Second, both a province's conflict intensity before 1975 and today's civic engagement may result from an unobserved omitted variable. Third, the number of bombing units dropped in each province is an imperfect historical measure of conflict intensity. Although it is highly correlated with true conflict intensity, there are a number of aspects that it does not capture, such as the violence induced by the North Vietnamese army, additional damage from ground operations, and the fact that the measure is the total number of bombs dropped rather than the actual damage inflicted in a province. Therefore, the measure of conflict intensity is prone to measurement error. Due to the existence of these problems, the ordinary least-squares (OLS) estimate may be biased and inconsistent.

The exogenous variation provided by the distance to the arbitrary North–South border may serve as an instrument for conflict intensity (20–22). The validity of the instrument is based on the fact that the location of the border drawn in the 1954 Geneva Accords was exogenous to the characteristics of the people living in those areas. However, distance to the parallel can itself be endogenous to time-invariant conditions. Hence, distance to the border can be considered exogenous conditional on average precipitation, latitude, the prewar population density of the province, and whether the province is located in South or North Vietnam. These controls adjust for geographic and cultural disparities within Vietnam that are correlated with distance to the parallel.

Control Variables. The models also include three individual-level control variables: female, age, and education. (*SI Appendix, section B* reports the descriptive statistics. The theoretical rationale is that conflict exposure influences civic engagement through individuals' psychological processes, which may be reflected in some individual-level variables. Yet, if these intervening variables that reflect such attitudinal processes matter, and they are included as part of the model specifications, they may bias the causal estimate of the treatment. Hence, the model includes demographic controls that are immune to the influence of province-level exposure to bombings—such as age and female—but it does not control for factors that may mediate or be a product of bombing exposure—such as political orientations, current town size, and the like. (The control for educational attainment may be posttreatment for some respondents. None of the results depend on its inclusion.)

Results

Table 1 reports OLS and IV estimates of the impact of bombing on civic engagement. The OLS models suggest a strong positive and significant effect of the number of total bombs per square kilometer in a respondents' province of residence before 1975 on the level of engagement in social organizations.

Because there are reasons to believe that the OLS estimates may be biased and inconsistent, models 3 and 4 show instrument bombing intensity with the absolute distance of the province to parallel 17. The results from the first-stage regression are reported at the bottom of Table 1 both with and without the second-stage controls (controls are included but omitted from the output). The coefficient of the absolute distance to the parallel is significantly negative, which confirms that provinces located closer to the parallel were more heavily bombed than provinces that were located farther away. Table 1 shows that the instru-

Table 1. The impact of US bombings on civic engagement

	Civic engagement (log)			
	OLS	OLS	IV	IV
Bombs, per km ² (log) (residence pre-1975)	0.08** (0.01)	0.12** (0.02)	0.12** (0.03)	0.23** (0.04)
Education		0.03** (0.01)		0.02* (0.01)
Female		−0.06* (0.04)		−0.07* (0.04)
Age		−0.001 (0.001)		−0.002 (0.001)
South		−0.46** (0.14)		−0.28* (0.16)
Latitude (°0)		−0.28** (0.13)		0.01 (0.16)
Population density (1960 to 61) ('000)		−0.05** (0.02)		−0.11** (0.03)
Average precipitation (°00)		0.01 (0.09)		−0.23** (0.11)
First stage				
Distance to the 17th parallel			−0.42**	−0.55**
F statistic (instrument)			483**	354**
Observations	875	862	875	862
Provinces	48	49	48	49
R ²	0.04	0.09		

** $P < 0.05$, * $P < 0.1$. The number 1 has been added to the dependent variable to ensure strictly positive values. Shown are robust clustered standard errors at the level of the province in all models. (*SI Appendix, section Q* checks the robustness of the main results to the use of the wild cluster bootstrap. The use of this correction does not alter the findings. Bonferroni P values adjusted for multiple comparisons are < 0.01 across the four models. Intercepts are excluded from the output.

ment is significant at conventional levels and correlated with the endogenous regressor with an F statistic that far exceeds the suggested threshold of 10.

Consistent with the OLS estimates, the effects of the instrumented bombings are also positively associated with civic engagement in the model without controls (model 3), as well as in the model with controls (model 4). The coefficients are substantially larger compared to the OLS estimates. The increase in magnitude suggests that the downward bias due to measurement error dominates the potential threat from upward bias due to omitted variable bias or reverse causation.

Because both the dependent and the independent variables are measured in a natural logarithmic scale, we can interpret the coefficients in terms of elasticities. Thus, the estimates suggest that increasing 10% of the total number of ordnance per square kilometer in a province increases the expected value in the index of civic engagement by 2.3% ($e^{0.24 \times \ln(1.1)} = 1.023$). In terms of standard deviations, an increase in one standard deviation in the log of the total number of ordnance, i.e., 1.33 logs, is expected to lead to an increase in the log of civic engagement of 0.31, so about 0.56 standard deviations of the outcome.

Fig. 2 illustrates the magnitude of the effect of conflict intensity on civic engagement, after keeping all continuous control variables at their mean value and categorical control variables at their median value. Predicted values of civic engagement are generated from model 4 in Table 1. Fig. 2 shows only observations with the number of ordnance per square kilometer lower than 30. (*SI Appendix, section U* reports the same number with an x axis that ranges from its minimum to its maximum value.

Fig. 2*B* transforms the predictor and the predicted values to their natural scale. From this, we can see that increasing the number of ordnance dropped in the respondents' province of residence in 1975 leads to substantial increases in the expected

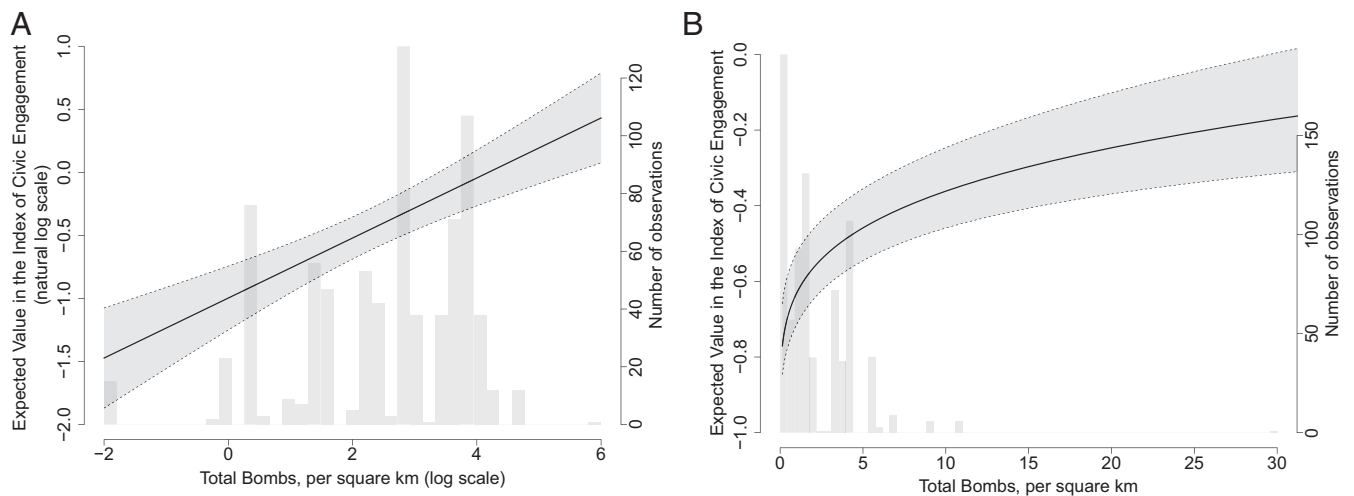


Fig. 2. (A and B) Predicted values of civic engagement at different levels of bombing intensity.

values of civic engagement. For the civic engagement index, which ranges from -0.64 to 1.70 , an increase from 0 to $5,000$ ordnance leads to an increase from no participation at all, -0.64 , to actively participating in one or two organizations, -0.45 . A further increase in the level of bombing to $25,000$, about the mean of the distribution, leads to a further increase in the expected value of civic engagement to -0.25 , which is equivalent to actively engaging in two or three organizations. Finally, respondents who lived in the most heavily bombed provinces, above $100,000$, are expected to have a value of civic engagement above 0.20 , which is equivalent to being actively engaged in about four, five, or six organizations. These increases in the expected values of civic engagement are substantial, especially when we consider that the effect took place between two and four decades ago.

Table 2 reports the effects of bombing on participatory values. Those respondents who lived in areas that were more heavily affected by the war before 1975 are more likely to report a greater level of participatory values today. We find consistent evidence for each of its components: people's preference for having for voice in community matters, as well as a desire to have more freedom of speech and voice in governmental matters. The instrumental variable regressions yield a substantively larger effect of war exposure on participatory values, as well as on each of the items. Taken together, the effects of wartime experiences on participatory values provide evidence consistent with the sociopsychological theories of war legacies on civic engagement.

Robustness Checks. The survey contains two items of civic engagement: volunteering and membership. Table 3 (row 1) reestimates the main result using formal membership—rather than volunteering—as the outcome of interest.

A concern that one may have is that using the place of residence allows for self-selection into the province of residence due to mobility after birth. Indeed, while some people may have answered their place of residence during the Vietnam War, others may have moved during the war and, thus, the self-selection into a relocation province may bias the results. (The issue is less problematic than one could imagine given the small size of domestic migratory movements among the survey respondents: 1) Only 11% of the respondents report a pre-1975 place of residence different from the 1990 to 2001 place of residence and 2) only 12% of the respondents report a province of birth that is different from their pre-1975 province of residence.) Table 3 (row 2) uses the respondents' place of birth, which is arguably outside the control of the respondents.

Another potential concern is that the relationship might be driven by engagement in specific organizations or respondents in specific provinces. I rule out the first possibility by reestimating the models after 1) excluding one item each time (Table 3, row 3); 2) excluding the most politically driven organizations, parties, and labor unions (Table 3, row 4); and 3) including all observations but controlling for party and labor union membership (Table 3, row 5). While the logarithmic scale should alleviate the latter concern by adjusting the skewness of the distribution of bombing, I further check the potential impact of influential observations in three ways: 1) by excluding respondents from the Quang Tri province, a province located right on the 17th parallel and the most heavily bombed of all Vietnamese provinces (Table 3, row 6); 2) by excluding the top 20% most bombed observations (Table 3, row 7); and 3) by excluding observations from provinces with fewer than five respondents (Table 3, row 8).

The fourth potential concern is the preexisting distribution of preferences. The parallel could run through a particularly engaged population, and the high postwar engagement may not

Table 2. The effect of conflict exposure on participatory values

	Participatory values (index)			
Bombs, per km ² (log) (pre-1975)	0.01** (0.01)	0.04** (0.01)	0.03** (0.01)	0.07** (0.02)
	More voice in community (item 1)			
Bombs, per km ² (log) (pre-1975)	0.03** (0.01)	0.05** (0.01)	0.05** (0.01)	0.10** (0.02)
	More voice in government (item 2)			
Bombs, per km ² (log) (pre-1975)	0.02** (0.01)	0.05** (0.01)	0.02 (0.02)	0.07** (0.02)
Estimation	OLS	OLS	IV	IV
Controls?	N	Y	N	Y
Observations	875	862	875	862
Provinces	48	47	48	47

The index of participatory values is divided into two items. Item 1 is based on the agreement to the following statement: "Seeing that people have more say about how things are done at their jobs and in their communities." Item 2 is based on the agreement to the following two statements: a) "Giving people more say in important government decisions" and b) "Protecting freedom of speech." Question wording is in *SI Appendix, section E*. ** $P < 0.05$, * $P < 0.1$. Robust clustered standard errors at the level of the province are in parentheses. P values adjusted for multiple comparisons are 0.05 , <0.01 , 0.05 , and <0.01 (top); <0.01 , 0.01 , 0.05 , and 0.01 (middle); and 0.06 , <0.01 , 0.25 , and <0.01 (bottom), respectively. *SI Appendix, section V* reports the full models. N, no; Y, yes.

Table 3. Robustness checks

	Civic engagement (log)				SI Appendix section
	OLS	OLS	IV	IV	
1) Dependent variable: Membership	0.04** (0.01)	0.06** (0.01)	0.07** (0.02)	0.12** (0.02)	H
2) Independent variable: Birthplace	0.08** (0.01)	0.11** (0.02)	0.12** (0.02)	0.22** (0.03)	I
3) Dependent variable: Excluding one item each time [†]	0.07** (0.01)	0.11** (0.02)	0.10** (0.03)	0.20** (0.03)	J
4) Excluding members of parties and labor organizations	0.05** (0.01)	0.06** (0.02)	0.07** (0.02)	0.14** (0.03)	K.1
5) Controlling for members of parties and labor organizations	0.06** (0.01)	0.07** (0.02)	0.08** (0.02)	0.14** (0.03)	K.2
6) Excluding Quang Tri	0.08** (0.01)	0.12** (0.02)	0.12** (0.03)	0.24** (0.03)	L.1
7) Excluding top 20%	0.08** (0.01)	0.11** (0.02)	0.13** (0.04)	0.24** (0.03)	L.2
8) Excluding provinces with ≤5 respondents	0.08** (0.01)	0.11** (0.02)	0.10** (0.03)	0.22** (0.04)	L.3
9) North Vietnam only	0.15** (0.02)	0.16** (0.02)	0.21** (0.03)	0.21** (0.02)	M
10) Colonial-era administrative boundaries fixed effects	0.07** (0.02)	0.08** (0.02)	−0.02 (0.03)	0.15** (0.04)	N
11) High-altitude bombardment only	0.09** (0.02)	0.13** (0.03)	0.14** (0.03)	0.32** (0.05)	O
12) Attrition/survival bias	0.05** (0.01)	0.09** (0.01)	0.07** (0.02)	0.19** (0.02)	P
13) Spatial models	0.05** (0.01)	0.11** (0.02)	0.12** (0.03)	0.17** (0.02)	R
Controls	N	Y	N	Y	

** $P < 0.05$, * $P < 0.1$. Robust clustered standard errors at the level of the province are in parentheses. N, no; Y, yes.
[†] Reports the most conservative coefficient only.

be due to war exposure but to high prewar engagement. First, the geographic distribution of the Vietnamese urbanization should lead us to believe that, in the absence of wars, those living around the major cities, around parallels 13 and 21, should be, if anything, more engaged than those living around parallel 17 because of greater skills or opportunities. And, second, most fighting between the French troops and the active guerrillas of Viet Minh (1945 to 1949) was located in northern areas of North Vietnam, where the Communist hubs were located. [See, for instance, the historical accounts that report this evidence (p. 167 in ref. 62, p. 643 in ref. 63). Additionally, the *Declassified per Executive Order 13526, Section 3.3 NND Project Number: NND 63316. By: NWD Date: 2011* (64) report that “the first permanent Viet Minh bases were established in 1942–1943” (p. B26) in the northern areas of North Vietnam above Hanoi. In these areas, “the first locally recruited guerrilla forces were formed under Viet Minh auspices after the people had been well organized” (p. B26). “As of the end of 1944, the Viet Minh claimed a membership of 500,000 in Vietnam” (p. B26) and the region that embraced the largest number of them was Tonkin (North Vietnam).] Because the prewar pro-Communist mobilization—before the parallel was drawn and the war began—was located far north of the 17th parallel, the hardest test for the main relationship is to focus only on evidence from North Vietnam. Table 3 (row 9) uses only the 473 respondents from North Vietnam. From a substantive perspective, the results are comparable to those obtained from entire Vietnam. This test also allows one to control for a potential effect of winning or losing the war and regime change.

Historical institutions could also drive the preexisting distribution of preferences. While the 17th parallel does not correspond to any previously important boundary, the French colonial administration divided Vietnam into northern Vietnam (named

Tonkin by the French), central Vietnam (named Annam), and southern Vietnam (named Cochinchina). [An historical map of French Indochina in 1937 showing the protectorates and provinces is obtained from the PCL Map collection at the University of Texas (65).] While no drastic differences are reported in the colonial experiences across the three regions with regard to predictors of social norms and preferences such as the colonizer identity (66) and state centralization (67), it could still be a source of nonrandomness in the treatment assignment. I account for them by adding the colonial province fixed effect in the main models. Table 3 (row 10) shows that the results remain unchanged for the OLS models and the IV model with controls.

A considerable amount of bombardment was dropped from heavy aircrafts that aimed at blasting Vietnamese supply lines out of existence. Strategic bombings from high altitude are likely exogenous from prewar conditions on the ground as, at the time, they could hardly target specific coordinates but relatively large territories. In fact, historical accounts suggest that about 50% of the bombs fell outside the target zone (68). Following this logic, Table 3 (row 11) shows that the main findings remain unaltered when using a measure of bombardment that excludes incendiary munitions and rockets.

A sixth concern is nonrandom attrition (or selection bias), which might be present if a nonrandom subsample of provinces had more wartime deaths, postwar deaths, or international migration after the war. Since those provinces that were more affected by the war are likely to have greater attrition, attrition may be a source of bias. To check the robustness of the estimates to this, I place bounds on the treatment effect by generating additional observations and imputing extreme values on their missing potential outcomes in the following manner (69). First, I use an exceedingly liberal estimate of the total number of people who are no longer in the country due to the war—a

liberal estimate of attrition will lead to a conservative treatment effect. Although the most reasonable attrition rate is of 5.8% of the 2001 Vietnamese population, I check my findings to an implausibly large attrition rate of 10%. Second, I generate artificially attrited observations equivalent to 10% of the survey sample through a weighted resampling with replacement from the observed respondents. The weights are based on the value of conflict intensity. Thus, the likelihood that an observation from the original sample is reused as an artificial observation in the final sample is proportional to the intensity of the conflict in the province of residence before 1975. Third, I assign the lowest possible value of civic engagement to these resampled observations. (If all missing observations would have had an extremely low value of engagement had they been in the sample, this would reduce the relationship between war exposure and engagement. Therefore, assigning extremely low values places a lower bound to the average treatment effect.) Table 3 (row 12) shows that the worst-case scenario of attrition exerts little influence on the main estimates.

Another kind of endogeneity is ignored in the models: spatial interdependence. Spatial interdependence in the outcome may affect the estimates even if the instrument is randomly assigned and, especially, if the instrument is spatially clustered (70). I test this possibility by creating a row standardized matrix based on the inverse distance of the provinces' centroids. (I estimate Moran's I based on the residuals of the original OLS model—with the logged civic engagement index. Moran's I value is -0.004 ($P = 0.06$.) Then, I employ a general estimation strategy—spatial autoregressive models and spatial two-stage least squares—that accounts for both outcome interdependence and predictor endogeneity. Table 3 (row 13) shows that the estimates remain unaltered when accounting for spatial interdependence.

Sensitivity Analyses. *SI Appendix, section S* relaxes the assumption of perfect exogeneity of the instrument. It reports the variation in the confidence intervals of the IV estimate with controls as a function of changes in δ —the parameter that violates the exclusion restriction (71). The results show that for the estimates of conflict intensity on the civic engagement to lose significance at a 90% confidence interval, distance to the parallel needs to influence people's civic engagement by 0.18 standard deviations through a channel other than conflict intensity and the controls. This is about half of the total effect, so it would require a massive violation for the effect to lose its statistical significance. (The standardized coefficient of the first stage with controls is -0.38 .)

The reliance on responses to the WVS as the principal outcome variable in a country with a single-party system that encourages state-controlled mobilization is an additional source of concern due to social desirability bias (SDB). While the mere presence of SDB does not affect the results, if SDB was greater for those who lived in a heavily affected province compared to those who lived in unaffected provinces, then the findings could be the result of these patterns. In a recent metaanalysis, however, Blair et al. (72) demonstrate that sensitivity biases “are typically smaller than 10 percentage points and in some domains are approximately zero,” (p. 1297 in ref. 70) although they might jump to 24 points in some domains. *SI Appendix, section T* shows that the findings of this paper would remain statistically significant even in the presence of an extreme level of SDB.

Exploring the Persistence Mechanism. I empirically explore whether the increase in civic engagement after experiencing an intense conflict is associated with persistence within individuals, community-wide transmission, or both. As argued in the section *The Legacies of War on Civic Engagement*, wartime violence may have a strong impact on individuals not only through trauma within individuals and immediate family socialization but also through broader societal and community-wide experiences.

Even though scholars widely acknowledge that the legacy of violence may work through these two pathways, there has been little effort to provide empirical evidence for them (17).

While I acknowledge that the subsequent analyses depart from the identification strategy outlined throughout this article, respondents' migration history from the survey may provide suggestive evidence that separates the two pathways of conflict legacies. Of the 875 individuals that provide a place of residence before 1975, 868 also provide a province of residence in 2001. These 868 respondents can be matched to the province-level bombing data. From these, 123 respondents, or 14.1% of the sample with valid responses on both questions, changed their province of residence between 1975 and 2001. I use the bombing data linked to their historical residence and to their current residence to explore whether the place of postwar residence has an independent effect compared to the effect of the place of prewar residence. In other words, do migrant respondents behave in the way expected given the conflict intensity in their pre-1975 province of residence or, alternatively, does their behavior resemble what we would expect from the intensity of the conflict in their post-1975 province of residence? Although none of the models can offer a valid causal estimate of the historical effect because they condition on a posttreatment variable—the postwar place of residence—they do provide us with a rare estimate of the effects of bombing on current civic engagement through their postconflict context.

Table 4 reports the results from regressing civic engagement on the value of bombing in the postwar province of residence (1990 to 2001) minus the bombing in the wartime province of residence (pre-1975). After adjusting for the baseline bombing intensity in the wartime province of residence, these specifications capture the impact of deviations in the variable of bombing due to migration—the value of 1990 to 2001 periods with respect to pre-1975—on respondents' level of civic engagement net effect of the bombing in the province of residence in the pre-1975 period. To keep the consistency across specifications, both coefficients are also estimated using the instrument of the distance to the 17th parallel and the difference in distance to the 17th parallel between the province of residence before 1975 and 2001, respectively. The results show an independent effect of exposure to bombing in the wartime province of residence—even after adjusting for postwar experiences. The size of the effects is statistically significant and similar to the average effect reported in Table 1.

The IV models also reveal a substantively significant effect of postwar experiences. Although less reliable, the coefficients

Table 4. The effect of wartime and postwar experiences

	Civic engagement (log)			
	OLS	OLS	IV	IV
Bombs, per km ² (log) (pre-1975)	0.08** (0.01)	0.12** (0.02)	0.16** (0.04)	0.29** (0.04)
Δ Bombs, per km ² (log) (1975 to 2001)	0.003 (0.03)	0.04 (0.05)	0.33* (0.20)	0.47** (0.20)
Controls?	N	Y	N	Y
Observations	868	857	868	857
Provinces	49	48	49	48

** $P < 0.05$; * $P < 0.1$. Individual controls: age, female, and education. Geographic controls: population density of the province in 1960 (log), average precipitation, average temperature, south latitude. Each geographic control includes its value in the pre-1975 province of residence and its value in 2001 minus its pre-1975 value. Instrumental variables: distance to the 17th parallel, pre-1975 and its value in 2001 minus its value before 1975. Province-level heteroskedastic clustered standard errors are in parentheses. Constants and controls are omitted here. *SI Appendix, section W* reports the full models.

suggest that the effect of the bombing in the province of residence after the war is about two times greater than the effect of residing in that province only during the war. While I consider this evidence as suggestive but in no way conclusive, it does point out a twofold process. On the one hand, wartime experiences generate an impact that persists irrespective of a postwar environment. This speaks to how exposure to wartime violence directly shapes individuals. On the other hand, postwar experiences generate an impact that goes beyond the effect of being directly exposed to the conflict. This speaks to how postwar context directly shapes individuals even in the absence of within-individual experiences. These results show that wartime and postwar experiences jointly shape long-term civic engagement.

Discussion and Conclusion

This paper shows evidence that exposure to war increases civic engagement after more than a quarter of a century since the end of the conflict. Using bombing data from the Vietnam War and a representative public opinion survey conducted in 2001, I find a positive association between having lived in a heavily bombed province during the war and participation in social organizations in 2001. I also report a positive impact of conflict exposure on holding participatory, expressive values.

To deal with the nonrandom distribution of the conflict, the empirical analysis exploits the arbitrarily drawn North–South Vietnamese border and implements a number of robustness checks and sensitivity analyses that include 1) using an IV regression framework, 2) using different outcome measures, 3) excluding subsamples of extreme observations, 4) accounting for nonrandom attrition due to deaths and migrants, 5) relaxing the exclusion restriction assumption, and 6) assuming a high level of SDB. In addition, I report some suggestive evidence showing that the main association is due to both wartime experiences and postwar experiences.

These findings contribute to the literature of the microlevel consequences of war and to the understanding of the historical sources of political behavior in general. Adding knowledge to a growing literature (15), the results from the Vietnam War show that the association between war exposure and civic engagement 1) persists over long periods of time, at least, 25 y after conflict ended; 2) is causal; 3) generalizes to distinct types of wars such as interstate or internationalized wars, which resemble more the current Syrian war; 4) generalizes to postwar institutional environments that constrain civic engagement such as authoritarian regimes; and 5) is due to both wartime experiences and postwar experiences.

Further, the impact of having experienced the Vietnam War is about three times—0.30 standardized effect in the OLS full model—and five times—0.56 standardized effect in the IV full model—greater than Bauer et al.'s (15) average standardized effect. While there could be different interpretations of this discrepancy of coefficients, one could argue that the larger coefficients could be a result of two factors: 1) the long-term perspective and 2) the type of war.

First, Bauer et al. (15) report an increasing relationship between the magnitude of the effect of conflict experiences on cooperation and the time between the end of the conflict and the timing of each study. Even though their longest-term study is 12 y, their evidence suggests that the effect of conflict exposure increases over time. Following this logic, it is reasonable to expect that the impact of conflict exposure after more than 25 y later would be several times greater than that found in the average study that measures outcomes between 2 and 8 y after the conflict. Moreover, I also find that both wartime and postwar experiences have unique and independent effects on postwar civic engagement. If the postwar context has its independent consequences for civic engagement, it is not sur-

prising to see that the effects of war become greater as time goes by through its consolidation and enhancement in the postwar environment. Future research should develop postwar panel measures of civic engagement in the long term to unpack this enhancement mechanism.

Second, the type of war—domestic versus interstate or internationalized war—could also account for the discrepancy in the magnitude of effects. According to Bauer et al. (15), parochial (ingroup) altruism is the most likely hypothesis to explain social cooperation. Their logic, however, fits well with civil wars but less so for interstate wars. In civil wars, wartime violence comes from actors or groups with whom victims will have to coexist in the postwar setting. Those who were more exposed to the conflict might increase their participation with, and cooperation toward, members of their village or identity group, but not toward outgroup members. Thus, the social heterogeneity of the postwar setting might limit the increases of cooperation among the survivors. Unlike in civil wars, violence in interstate, or internationalized, conflicts often comes from foreign actors. As those more heavily exposed to violence will not have to coexist with the perpetrators of violence in the postwar social environment, conflict experiences are more likely to influence generalized (nonparochial) preferences toward participation in interstate, or internationalized, wars. Thus, it is reasonable to find a larger effect of violence in Vietnam compared to earlier-studied domestic conflicts.

These findings also contribute to our knowledge of the social, political, and economic effects of the Vietnam War. In the short term, the US bombings had significant effects on the security environment of bombed areas, weakened local institutions, and enhanced communist civic engagement, during the peak of the war (1969 to 1973) (60). In the long run, the bombings had no effects on Vietnamese regional differences in economic development (20). This paper adds to this literature by showing that those who lived in high-conflict areas are more likely to engage in civic organizations and hold more participatory values, at least 26 y later.

Nevertheless, we should acknowledge that the implication of an increased civic engagement in Vietnam is an open question. According to the classic civil society model developed in Tocqueville's *Democracy in America* (73), civic engagement supposedly nurtures interpersonal, communication, and organizational skills and broadens the perspectives of those who engage in them, altogether laying the ground for developing a democratic political culture. While one could imagine that civic engagement in a Communist single-party state might not lead to the same experiential learning, leading contemporary scholars have argued that these deep social and political implications of civic life take root even in countries where democracy is absent and freedom limited (74). While this question lies outside the scope of this project, I encourage future researchers to study whether the consequences of civic engagement suggested in Tocqueville's model generalize to those observed in postwar contexts and, especially, whether these positive effects depend on the postwar institutions.

Scholars should strive to combine exogenous variation in conflict exposure with survey data to explore the long-term microlevel consequences of war on preferences. A next step in this agenda is to link the microlevel effects of war to macro-political outcomes, including the maintenance of peace, changes toward democratization, public policies, and the reduction of social and political divisions.

Data Availability. Replication files (dataset and code) and data have been deposited in Harvard Dataverse (<https://doi.org/10.7910/DV/N/YSNFN>).

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1. N. J. Colletta, M. L. Cullen, *Violent Conflict and the Transformation of Social Capital: Lessons from Cambodia, Rwanda, Guatemala, and Somalia* (World Bank Publications, 2000), vol. 795.
2. P. Collier et al., *Breaking the Conflict Trap: Civil War and Development Policy* (World Bank Publications, 2003).
3. C. Blattman, J. Annan, The consequences of child soldiering. *Rev. Econ. Stat.* **92**, 882–898 (2010).
4. K. Deininger, Causes and consequences of civil strife: Micro-level evidence from Uganda. *Oxf. Econ. Pap.* **55**, 579–606 (2003).
5. A. Cassar, P. Grosjean, S. Whitt, Legacies of violence: Trust and market development. *J. Econ. Growth* **18**, 285–318 (2013).
6. S. Kijewski, M. Freitag, Civil war and the formation of social trust in Kosovo posttraumatic growth or war-related distress? *J. Conflict Resolut.* **62**, 717–742 (2018).
7. C. Cramer, *Civil War Is Not a Stupid Thing: Accounting for Violence in Developing Countries* (Hurst & Company, London, UK, 2006).
8. W. Leonard, The paradox of “warlord” democracy: A theoretical investigation. *Am. Polit. Sci. Rev.* **98**, 17–33 (2004).
9. I. Morris, “War! What is it good for?” in *Conflict and the Progress of Civilization from Primates to Robots* (Profile Books, London, 2014).
10. C. Tilly, G. Ardant, *The Formation of National States in Western Europe* (Princeton University Press, Princeton, NJ, 1975), vol. 8.
11. M. J. Voors et al., Violent conflict and behavior: A field experiment in Burundi. *Am. Econ. Rev.* **102**, 941–964 (2012).
12. M. J. Gilligan, B. J. Pasquale, C. Samii, Civil war and social cohesion: Lab-in-the-field evidence from Nepal. *Am. J. Polit. Sci.* **58**, 604–619 (2014).
13. J. Bellows, E. Miguel, War and institutions: New evidence from Sierra Leone. *Am. Econ. Rev.* **96**, 394–399 (2006).
14. G. De Luca, M. Verpoorten, Civil war and political participation: Evidence from Uganda. *Econ. Dev. Cult. Change* **64**, 113–141 (2015).
15. M. Bauer et al., Can war foster cooperation? *J. Econ. Perspect.* **30**, 249–274 (2016).
16. V. Mironova, S. Whitt, Social norms after conflict exposure and victimization by violence: Experimental evidence from Kosovo. *Br. J. Polit. Sci.* **48**, 1–17 (2016).
17. J. Walden, Y. M. Zhukov, “Historical legacies of political violence” in *Oxford Research Encyclopedia of Politics* (2020).
18. T. Brück, P. Justino, P. Verwimp, A. Avdeenko, A. Tedesco, Measuring violent conflict in micro-level surveys: Current practices and methodological challenges. *World Bank Res. Obs.* **31**, 29–58 (2016).
19. T. B. Child, E. Nikolova, War and social attitudes. *Conflict Manag. Peace Sci.* **37**, 152–171 (2020).
20. E. Miguel, G. Roland, The long-run impact of bombing Vietnam. *J. Dev. Econ.* **96**, 1–15 (2011).
21. M. A. Kocher, T. B. Pepinsky, S. N. Kalyvas, Aerial bombing and counterinsurgency in the Vietnam War. *Am. J. Polit. Sci.* **55**, 201–218 (2011).
22. E. J. Malesky, M. D. Taussig, Out of the gray: The impact of provincial institutions on business formalization in Vietnam. *J. East Asian Stud.* **9**, 249–290 (2009).
23. H. Johnson, A. Thompson, The development and maintenance of post-traumatic stress disorder (PTSD) in civilian adult survivors of war trauma and torture: A review. *Clin. Psychol. Rev.* **28**, 36–47 (2008).
24. G. A. Bonanno, S. Galea, A. Bucciarelli, D. Vlahov, Psychological resilience after disaster New York City in the aftermath of the September 11th terrorist attack. *Psychol. Sci.* **17**, 181–186 (2006).
25. T. Galovski, J. A. Lyons, Psychological sequelae of combat violence: A review of the impact of PTSD on the veteran’s family and possible interventions. *Aggress. Violent Behav.* **9**, 477–501 (2004).
26. C. Rapp, S. Kijewski, M. Freitag, The tolerance of Tamils: War-related experiences, psychological pathways, and the probability of granting civil liberties to former enemies. *J. Polit.* **81**, 1328–1341 (2019).
27. C. Blattman, From violence to voting: War and political participation in Uganda. *Am. Polit. Sci. Rev.* **103**, 231–247 (2009).
28. R. G. Tedeschi, L. G. Calhoun, Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychol. Inq.* **15**, 1–18 (2004).
29. E. Boehm-Tabib, Acute stress disorder among civilians during a war and post-traumatic growth six years later: The impact of personal and social resources. *Hist. Philos. Logic* **29**, 318–333 (2016).
30. L. G. Calhoun, R. G. Tedeschi, *Facilitating Posttraumatic Growth: A Clinician’s Guide* (Lawrence Erlbaum Associates, Mahwah, NJ, 1999).
31. P. A. Linley, S. Joseph, Positive change following trauma and adversity: A review. *J. Trauma Stress* **17**, 11–21 (2004).
32. R. G. Niemi, S. C. Craig, F. Mattei, Measuring internal political efficacy in the 1988 national election study. *Am. Polit. Sci. Rev.* **85**, 1407–1413 (1991).
33. P. R. Abramson, *Political Attitudes in America: Formation and Change* (W. H. Freeman & Co Ltd, San Francisco, CA, 1983).
34. G. A. Almond, S. Verba, *The Civic Culture: Political Attitudes and Democracy in Five Nations* (Princeton University Press, Princeton, NJ, 1963).
35. E. J. Wood, *Insurgent Collective Action and Civil War in El Salvador* (Cambridge University Press, New York, NY, 2003).
36. A. Hamlin, C. Jennings, Expressive political behaviour: Foundations, scope and implications. *Br. J. Polit. Sci.* **41**, 645–670 (2011).
37. A. A. Schuessler, *A Logic of Expressive Choice* (Princeton University Press, Princeton, NJ, 2000).
38. R. F. Lyons, K. D. Mickelson, M. J. Sullivan, J. C. Coyne, Coping as a communal process. *J. Soc. Pers. Relat.* **15**, 579–605 (1998).
39. J. W. Pennebaker, K. D. Harber, A social stage model of collective coping: The Loma Prieta earthquake and the Persian Gulf war. *J. Soc. Issues* **49**, 125–145 (1993).
40. P. Henry, D. O. Sears, The crystallization of contemporary racial prejudice across the lifespan. *Polit. Psychol.* **30**, 569–590 (2009).
41. S. Lelorain, A. Bonnaud-Antignac, A. Florin, Long term posttraumatic growth after breast cancer: Prevalence, predictors and relationships with psychological health. *J. Clin. Psychol. Med. Settings* **17**, 14–22 (2010).
42. D. O. Sears, “Long-term psychological consequences of political events” in *Political Psychology*, K. R. Monroe, Ed. (Erlbaum, Mahwah, NJ, 2002), pp. 249–269.
43. D. F. Alwin, R. L. Cohen, T. M. Newcomb, *Political Attitudes over the Life Span: The Bennington Women after Fifty Years* (University of Wisconsin Press, 1991).
44. N. Nunn, L. Wantchekon, The slave trade and the origins of mistrust in Africa. *Am. Econ. Rev.* **101**, 3221–3252 (2011).
45. L. Balcells, The consequences of victimization on political identities: Evidence from Spain. *Polit. & Soc.* **40**, 311–347 (2012).
46. N. Lupu, L. Peisakhin, The legacy of political violence across generations. *Am. J. Polit. Sci.* **61**, 836–851 (2017).
47. A. Rozenas, S. Schutte, Y. Zhukov, The political legacy of violence: The long-term impact of Stalin’s repression in Ukraine. *J. Polit.* **79**, 1147–1161 (2017).
48. R. D. Schulzinger, *A Time for War: The United States and Vietnam, 1941–1975* (Oxford University Press, New York, NY, 1997).
49. C. Jian, China and the first Indo-China war, 1950–54. *China Q.* **133**, 85–110 (1993).
50. F. Logevall, *Embers of War: The Fall of an Empire and the Making of America’s Vietnam* (Random House Incorporated, 2012).
51. A. De Juan, J. H. Pierskalla, Civil war violence and political trust: Microlevel evidence from Nepal. *Conflict Manag. Peace Sci.* **33**, 67–88 (2016).
52. H. A. Goharrah, P. Huth, B. Russett, Civil wars kill and maim people—Long after the shooting stops. *Am. Polit. Sci. Rev.* **97**, 189–202 (2003).
53. C. Kurzman, World values lost in translation. *Washington Post*, 2 September 2014. <https://www.washingtonpost.com/news/monkey-cage/wp/2014/09/02/world-values-lost-in-translation/>. Accessed 1 June 2020.
54. D. Q. Chi, D. van den Broek, Wildcat strikes: A catalyst for union reform in Vietnam? *J. Ind. Relat.* **55**, 783–799 (2013).
55. I. Nørlund, Civil society in Vietnam. Social organisations and approaches to new concepts. *ASIEN* **105**, 68–90 (2007).
56. W. Taylor, N. T. Hang, P. Q. Tú, H. T. N. Tuyet, *Civil Society in Vietnam* (The Asia Foundation, Hanoi, Vietnam, 2012).
57. C. Welzel, *Freedoms Rising: Human Empowerment and the Quest for Emancipation* (Cambridge University Press, New York, NY, 2013).
58. S. N. Kalyvas, M. A. Kocher, The dynamics of violence in Vietnam: An analysis of the hamlet evaluation system (HES). *J. Peace Res.* **46**, 335–355 (2009).
59. B. Rosenfeld, K. Imai, J. N. Shapiro, An empirical validation study of popular survey methodologies for sensitive questions. *Am. J. Polit. Sci.* **60**, 783–802 (2015).
60. M. Dell, N. Lane, P. Querubin, The historical state, local collective action, and economic development in Vietnam. *Econometrica* **86**, 2083–2121 (2018).
61. J. D. Angrist, J. S. Pischke, *Mostly Harmless Econometrics: An Empiricist’s Companion* (Princeton University Press, 2008).
62. L. E. Lee, *World War Two: Crucible of the Contemporary World - Commentary and Readings* (Routledge, New York, NY, 1991).
63. S. C. Tucker, *Encyclopedia of the Vietnam War: A Political, Social, and Military History* (ABC-CLIO, 2001).
64. Pentagon Papers Part I, Vietnam and the US, 1940–1950, Declassified per Executive Order 13526, Section 3.3, NND Project Number: NND 63316 (2011).
65. PCL Map Collection at The University of Texas at Austin, Indochina and Thailand AMS Topographic Maps. <http://legacy.lib.utexas.edu/maps/ams/indochina.and.thailand>. Accessed 10 January 2021.
66. N. Nunn, The importance of history for economic development. *Annu. Rev. Econ.* **1**, 65–92 (2009).
67. S. Lowes, N. Nunn, J. A. Robinson, J. L. Weigel, The evolution of culture and institutions: Evidence from the Kuba kingdom. *Econometrica* **85**, 1065–1091 (2017).
68. C. Hobson, *Vietnam Air Losses: United States Air Force, Navy and Marine Corps Fixed-Wing Aircraft Losses in Southeast Asia 1961–1973* (Midland Pub Limited, 2001).
69. D. S. Lee, Training, wages, and sample selection: Estimating sharp bounds on treatment effects. *Rev. Econ. Stud.* **76**, 1071–1102 (2009).
70. T. Betz, S. J. Cook, F. M. Hollenbach, Spatial interdependence and instrumental variable models. *Polit. Sci. Res. Methods* **8**, 646–661 (2020).
71. D. S. Small, Sensitivity analysis for instrumental variables regression with overidentifying restrictions. *J. Am. Stat. Assoc.* **102**, 1049–1058 (2007).
72. G. Blair, A. Coppock, M. Moor, When to worry about sensitivity bias: A social reference theory and evidence from 30 years of list experiments. *Am. Polit. Sci. Rev.* **114**, 1297–1315 (2020).
73. A. de Tocqueville, *Democracy in America*. (Knopf, New York, 1835).
74. L. Diamond, Rethinking civil society: Toward democratic consolidation. *J. Democr.* **5**, 4–17 (1994).