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Commemorating local victims of past atrocities and far-right support over time

Oguzhan Turkoglu[a,1] (ID), Ruth Ditlmann[a] (ID), and Berenike Firestone[a,b] (ID)

Does public remembrance of past atrocities lead to decreased support for far-right parties today? Initiatives commemorating past atrocities aim to make visible the victims and crimes committed against them. This runs counter to revisionist actors who attempt to downplay or deny atrocities and victims. Memorials for victims might complicate such attempts and reduce support for revisionist actors. Yet, little empirical evidence exists on whether that happens. In this study, we examine whether exposure to local memorials that commemorate victims of atrocities reduces support for a revisionist far-right party. Our empirical case is the Stolpersteine ("stumbling stones") memorial in Berlin, Germany. It commemorates victims and survivors of Nazi persecution in front of their last freely chosen place of residence. We employ time-series cross-sectional analyses and a discontinuity design using a panel dataset that matches the location and date of placement of new Stolpersteine with the election results from seven elections (2013 to 2021) at the level of polling station areas. We find that, on average, the presence of Stolpersteine is associated with a 0.96%-point decrease in the far-right vote share in the following election. Our study suggests that local memorials that make past atrocities visible have implications for political behavior in the present.

remembrance | far-right support | intergroup relations | atrocities | victims

An increasing number of memorials around the world commemorate victims of atrocities. While many of them have multiple, sometimes conflicting goals, all have one objective in common: making visible the victims and the crimes committed against them (1). This runs counter to revisionist actors who attempt to downplay or deny atrocities and victims. Memorials for victims might complicate such attempts and reduce support for revisionist actors. In principle, revisionism can be pursued by a variety of actors with different ideological backgrounds, including the far left. Revisionism about the Holocaust in European democracies often comes from far-right parties (2, 3). We thus ask: Does public remembrance of past atrocities relate to decreased support for far-right parties?

Few empirical studies investigate the link between the commemoration of victims and support for far-right actors, even though preventing the rise of authoritarian regimes in the future is often part of the motivation behind commemoration initiatives (4–6). Transitional justice institutions that make past atrocities and victims visible can sometimes promote democratic values, which may—in turn—prevent people from voting for populist parties. More specifically, transitional justice museums and memorials in Chile and Romania increased visitors' self-reported support for democratic institutions (7, 8).

Much social psychological research, on the contrary, casts doubt that making past atrocities visible will reduce support for revisionist actors. People often respond with defensiveness to reminders about past atrocities committed by their ingroup (4, 9). Because people are motivated to view their national group in a positive light (10), learning about its implication in past atrocities can create aversive emotions (11). Many defense strategies help people avoid or cope with these emotions, for example, downplaying the significance of the negative chapter in national history (12), selectively remembering helper over perpetrator stories in one's family (13), or even derogating the victims (14). Instead of undermining support for revisionist, far-right actors, memorials for victims thus may have the opposite effect through creating a backlash. For example, removing Francoist street names in Spain led to an increase in support for a far-right party (15). This possibility makes it even more important to investigate the link between memorials for victims and support for revisionist far-right actors.

We investigate whether such a link exists for the interesting case of the Stolpersteine memorial and support for the far right. Stolpersteine are brass cobblestone pavement stones (10 cm–10 cm) that offer brief biographical information about victims of National Socialism. Stolpersteine are placed on the sidewalk in front of the last freely chosen place of

Significance

Commemoration initiatives seek to increase the public visibility of past atrocities and the fates of victims. This is counter to the objectives of revisionist actors to downplay or deny atrocities. Memorials for victims might complicate such attempts and reduce support for revisionist actors. The current research examines whether, on the level of local neighborhoods, exposure to memorials for victims of NS persecution can reduce support for a far-right, revisionist party. We find that, in Berlin, Germany, the placement of small, local "stumbling stones" commemorating victims and survivors of NS persecution, is associated with a substantial decrease in the local far-right vote share in the following election. Our study suggests that local, victim-focused memorials can reduce far-right support.

residence of these individuals and thus connect the past to the local environment. Our research focuses on Stolpersteine in Berlin, Germany, but the memorial can be found all over Europe and shares many important aspects with other memorials: Stolpersteine are focused on victims and survivors of atrocities, rather than victors; spread across space, rather than located in a central location, and provoke critical reflection, rather than celebration or mere sadness (16).*

In theory, anyone can commission a Stolperstein. In practice, in Berlin about 80% are commissioned by family members of former victims and survivors; others are commissioned by local institutions, such as schools or businesses (17). The installation of new Stolpersteine is accompanied by small ceremonies and there are regular initiatives to clean the stones or place candles and flowers next to them (18). The cleaning initiatives are meant to honor the victims and to make the stones more visible again as the brass surfaces darken over time.

Stolpersteine make visible the victims of national socialism and the crimes committed against them. This is in direct conflict with far-right parties that frequently downplay or outright deny historic atrocities committed by the ingroup (2, 3).

The German far-right party AfD downplays past atrocities, like other populist right-wing parties across Europe (2, 19). The party has had a difficult relationship with (neo-)Nazi ideology from its inception, aiming to garner the support of members of the extreme right while still presenting as a reasonably democratic party. This ambiguity has become particularly visible in the AfD's position on the Holocaust. While the party is unable to deny the Holocaust, it trivializes atrocities and expresses frustration with the Holocaust's central position in German memory culture (2, 20). Most famously, members of the party leadership have claimed that "Hitler and the Nazis are just some bird poop in over 1,000 y of successful German history," that the Holocaust memorial in Berlin is a "monument of shame," and that a "180-degree turn" is needed in German memory politics [(19), pp. 172–174; (20), p. 37]. The undeniability of the Holocaust, and with it its commemoration, is a core grievance for the AfD as it prevents a positive image of the German nation (2).

Given this conflict between the Stolpersteine's emphasis on commemorating the victims and the AfD's revisionist preferences, we set out to test whether there is a relationship between Stolpersteine in one's neighborhood and support for the AfD. We employ various strategies to test our argument. First, we analyze the relationship between Stolpersteine and voting for the far-right party AfD over time in a panel dataset with polling stations as the unit of analysis in Berlin between 2013 and 2021. This within-unit over-time analysis highlights the negative relationship between Stolpersteine and the AfD vote share and passes several robustness tests to overcome problems with two-way fixed effects models (21–23). Second, assuming that the timing of Stolpersteine is orthogonal to the timing of elections, we adopt a discontinuity design by comparing polling stations that received Stolpersteine before the elections (treatment group) to polling stations that received Stolpersteine after the elections (control group). Utilizing the arbitrariness of election time as it relates to placing Stolpersteine, this analysis can give us the causal effect of local memorials on voting for far-right parties if our assumptions are true. All analyses and robustness checks point to a decreasing effect of Stolpersteine on AfD voting. In the discussion of these results, we theorize two mechanisms and present preliminary evidence for their plausibility.

Materials and Methods

Our outcome is the local AfD vote share in a total of seven elections (state, federal, and European Parliament) between 2013[†] and 2021 in Berlin. In federal elections in Germany and state elections in Berlin, ballots include two votes. The first vote is for a specific candidate, and the second vote is for a party. Voters are free to either give both votes to the same party (this is commonly the case) or split their votes (e.g., the first vote for a candidate from the Social Democrats and the second vote for the Green Party). The second vote determines the distribution of seats in parliament. We therefore present the results for the second vote (i.e., voting for a party) in the main paper. We use the first vote as a robustness check and present the results in *SI Appendix*.[‡] For more information about elections in Berlin, please see *SI Appendix*, section B.

The unit of analysis is local polling stations. On average, they cover about 0.48 square kilometers and about 1,312 eligible voters. To comprehend our model specification, it is important to understand the geography of elections in Berlin, see Fig. 1 for a graphical representation. Boroughs are the highest level (*Bezirk* in German), and they are further divided into electoral constituencies (*Abgeordnetenhaus-Wahlkreis* in German). Each constituency is divided into postal voting districts (*Briefwahlbezirk* in German) and each postal voting district is further divided into polling stations (*Urnenwahlbezirk* in German). For instance, in the 2017 federal elections, there were 12 boroughs, 78 electoral constituencies, 660 postal voting districts, and 1,779 polling stations. For administrative reasons, some polling stations are redistricted between elections.[§] In general, most postal voting districts have two or three polling stations (range: 1 to 7). As an example, the polling station units in the 2017 elections in Berlin are depicted in Fig. 2.

To deal with the redistricting of electoral units, we kept polling stations that have at least 90%[¶] overlap[#] in all elections. To assess the relationship between Stolpersteine and the AfD vote share within the full sample of polling stations, we also carried out further analyses as reported in *SI Appendix*, section F. Redistricting is a challenge for creating a panel dataset, but it is critical to have a panel to account for time-invariant variables within units (e.g., the number of
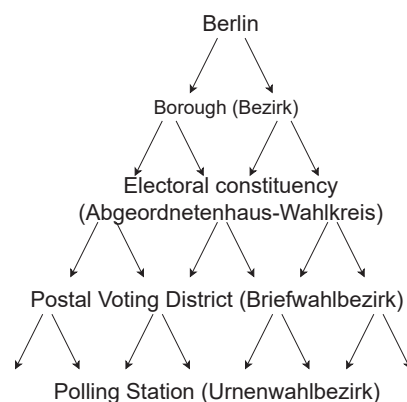

Fig. 1. Hierarchical electoral system in Berlin.

[†] The federal parliamentary election of 2013 was the first time the AfD was on the ballot.

[‡] As a robustness check, we also present the result with the dependent variable of the vote share of radical right-wing parties AfD, NPD, BüSo, and dieBasis whenever they ran in the elections, in *SI Appendix*.

[§] Except for the 2021 elections, the number of electoral units is similar. For example, in the 2013 federal elections, there were 78 electoral constituencies, 529 postal voting districts, and 1,709 polling stations. Similarly, in 2019, there were 78 electoral constituencies, 718 postal voting districts, and 1,800 polling stations. However, there was a significant change in the 2021 elections. There were 78 electoral constituencies, 1,507 postal voting districts, and 2,257 polling stations.

[¶] We acknowledge 90% as being arbitrary and carried out additional analyses with other cutoff points as reported in *SI Appendix*, section F.

[#] Here, the overlap should happen in all elections. For instance, one-third of polling station A might be merged with polling station B, and polling station A keeps two-thirds of its area in the next election. The overlap of polling station A in election t to election $t + 1$ is 66% and the overlap of polling station A in election $t + 1$ to election t is 100%. Since we do not observe at least 90% overlap in both elections, we do not keep this polling station in our analysis.

*For more information on Stolpersteine, please see *SI Appendix*, section A.

Fig. 2. Polling station units in the 2017 elections in Berlin.

Jews living in a polling station before 1945) as well as temporal trends (e.g., changes in vote preference from election to election). For each polling station, we know the election results and if Stolpersteine were placed in this area prior to the election. Redistricting occurs at different levels, from electoral constituencies to polling stations. Unfortunately, these changes are beyond dividing an area into two or merging two areas. Most of the time, a small portion of an area is merged with another area. We therefore use the 90% overlap cutoff and conduct robustness checks with overlap cutoffs from 75% to 99%. For more information about the construction of the panel dataset and the analyses with different cutoff points that replicate all our main results, please see *SI Appendix*, sections C and F.

We will present the results for two different time periods. We summarize this in Table 1. First, we will examine the first five elections and then for all seven elections (these are the 2013, 2017, and 2021 federal elections, 2014 and 2019 European Parliament elections, and 2016 and 2021 state elections). The reason for that is a major change in the number of polling stations in the 2021 elections. While there were 1,709 polling stations in the 2013 federal elections and 1,800 polling stations in the 2019 European Parliament elections, there were 2,257 polling stations in the 2021 federal and local elections. This significantly affects the number of polling stations that have at least 90% overlap over time. While the number of polling stations that have at least 90% overlap in the first five elections is 1,070, the number of polling stations that have at least 90% overlap in seven elections is 526. Additionally, there were administrative problems in the 2021 elections in Berlin, and running the analysis without the 2021 elections can serve as a robustness check. The distribution of the polling stations that are used in the analysis is depicted in *SI Appendix*, Fig. S5.

We predict the AfD vote share with the presence of Stolpersteine in polling stations. We have information on when and where each Stolperstein was placed. By the end of 2021, 8,741 Stolpersteine had been placed in Berlin. Out of 2,257 polling stations in 2021, 40 percent ($N = 909$) of them had at least one Stolperstein and 1,347 of them did not have any Stolpersteine. While the average number of Stolpersteine in a polling station is around 3.5, the highest number is 174. We use three different independent variables. The first one is

Table 1. Number of observations in the analysis by period of analysis

Period	Number of polling stations with 90% overlap	% of polling stations with 90% overlap
2013 to 2019	1,070	63%
2013 to 2021	526	31%

the count of Stolpersteine in the polling station. We log-transform it and account for 0 s by adding one to the number of Stolpersteine before the transformation.[∥] The second is a binary variable indicating whether a polling station has at least one Stolperstein. Third, Stolpersteine for the same family are generally placed in the same location. To account for exposure to Stolpersteine at different locations in the same polling station, we use the log-transformed number of unique Stolperstein locations (i.e., clusters). We present examples of Stolpersteine in Fig. 3 *A* and *B*. In Fig. 3*A*, there is one Stolperstein and in Fig. 3*B*, there are five Stolpersteine next to each other, forming a cluster. For a polling station with Stolpersteine in Fig. 3 *A* and *B* in two different spots, the first explanatory variable is the logged transform of six, the second independent variable is one, and the third explanatory factor is the logged transform of two. In these transformations, smoothing will be taken into account.

The model of the analysis is

$$\text{AfD vote}_{it} = \beta_0 + \beta_1 \text{Stolpersteine}_{it} + \delta_i + \gamma_t + \epsilon_{it},$$

where AfD vote_{it} is the AfD vote share in polling station$_i$ in election$_t$, $\text{Stolpersteine}_{it}$ denotes the independent variables explained above for polling station$_i$ in election$_t$, δ_i is polling station fixed effects, γ_t is election fixed

A An example of a Stolperstein. Image: Stolpersteine-Initiative CW, Hupka. Source: https://www.stolpersteine-berlin.de/de/knesebeckstr/32/peter-abarbanell

B An example of multiple Stolpersteine located in the same spot. Image: Koordinierungsstelle Stolpersteine Berlin. Source: https://www. stolpersteine-berlin.de/de/oranienburger-str/9/gisela-kozower

Fig. 3. Examples of Stolpersteine. (*A*) Shows an example of Stolperstein, (*B*) shows an example of multiple Stolpersteine located in the same spot.

[∥]We do not necessarily expect a linear effect. The effect of one additional Stolperstein might be different depending on how many Stolpersteine exist in the area. For example, one additional Stolperstein might be more impactful if there were three Stolpersteine compared to twenty. Thus, to account for this nonlinearity, we log- transform the independent variable.

Table 2. Panel OLS regression of Stolperstein and AfD vote share with polling station and election fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
Stolperstein number (ln)	−2.420***			−1.728*		
	(0.497)			(0.732)		
Stolperstein binary		−1.300***			−0.962†	
		(0.373)			(0.517)	
Stolperstein locations (ln)			−4.284***			−3.319**
			(0.787)			(1.085)
Observations	5,350	5,350	5,350	3,682	3,682	3,682
R^2	0.839	0.834	0.841	0.850	0.847	0.852

SEs are clustered by polling station are in parentheses. Election and polling station fixed effects are included in all models. The first three models include polling stations that have at least 90% overlap in the 2014 and 2019 European Parliament elections, 2016 local elections, and 2013 and 2017 federal elections. The last three models include polling stations that have at least 90% overlap in the 2014 and 2019 European Parliament elections, 2016 and 2021 local elections, and 2013, 2017, and 2021 federal elections. Since there are significant changes in polling station areas in 2021 elections, the number of polling stations that have consistently at least 90% overlap significantly decreases. While the number of polling stations that have at least 90% overlap in the first five elections is 1,070, the number of polling stations that have at least 90% overlap in seven elections is 526. Hence, the number of observations for the last three models is lower than the first three models, although the temporal coverage of the last three models is more extensive than the first three ones. Furthermore, there were administrative problems in the 2021 elections in Berlin, and excluding them can serve as a robustness check. The dependent variable is the vote share of the second votes for AfD. In the first and fourth models, the independent variable is the count of Stolpersteine (ln), in the second and fifth models, it is a binary indicator of at least one Stolperstein, and in the third and sixth models, it is the count of unique Stolperstein locations (ln). $^\dagger P < 0.1$, $^*P < 0.05$, $^{**}P < 0.01$ $^{***}P < 0.001$.

effects, and ϵ_{it} is the error term. As highlighted above, polling stations regularly undergo redistricting, so we only keep polling stations that have at least 90% overlap across elections. For each independent variable, we run separate models, and SEs are clustered by polling station to account for nonindependent panel observations. Following the suggestions of ref. 24, we clustered SEs by polling station. When using conventional or robust SEs, the results are still supportive of our argument.

Results

We examine with a panel whether there is a negative relationship between Stolpersteine and the AfD vote share within polling stations over time, and with a discontinuity design if the effect of Stolpersteine on AfD vote shares is causal.

Panel Analysis. In a panel analysis, we find evidence that in the election after a Stolperstein is placed in a polling station (on average 1,312 eligible voters in 0.48 km^2) fewer people vote for the AfD in that area. This finding suggests that AfD vote shares decrease in local neighborhoods where countermemorials are placed.

Formally, we run three models that each predict AfD vote shares[**] with Stolpersteine as a continuous variable of the number of Stolpersteine (ln), as a dummy variable (at least one Stolperstein vs. no Stolpersteine), and as a continuous variable of the number of distinct locations with Stolpersteine (ln) (please see *Materials and Methods* and the Fig. 3 *A* and *B*). We include polling station and election fixed effects in the models to account for fixed unit characteristics as well as temporal trends. By including polling station fixed effects, we rule out the effect of constant variables (time-invariant confounders) such as how many Jewish residents lived in the polling station before WWII, whether there was a settlement at all during that time and whether the polling station is in a traditionally liberal or conservative neighborhood of Berlin. By including election fixed effects, we rule out temporal trends such as the number of Stolpersteine and AfD vote shares independently increasing over time. Our dataset includes information from seven elections over 9 y.

The results of the panel analysis are reported in Table 2 and indicate that a greater number of Stolpersteine in polling stations before an election is associated with a lower AfD vote share in the following election.[††] The coefficient size is large: polling stations that received one or more Stolpersteine for the first time prior to an election record 0.96% points fewer AfD votes compared to those that received none.[‡‡] Given that the AfD vote share is around 10%, a 0.96% points decrease is substantively significant. The results also suggest that more Stolpersteine (models 1 and 4 in Table 2) and more unique locations with Stolpersteine (models 3 and 6 in Table 2) in a place correspond to further decreases in AfD vote shares.[§§] These results are robust to changes in the cutoff of between-elections overlap (from 75% to 99%; *SI Appendix*, section F). Moreover, as would be expected because people frequently cross the arbitrarily demarcated polling stations as they walk around their neighborhoods, we observe that AfD vote shares in one unit are also predicted by preelection Stolpersteine in adjacent units (*SI Appendix*, section G).[¶¶]

We still observe a negative relationship between Stolpersteine and AfD vote share when we use the estimator suggested in ref. 22 to correct for problems stemming from negative weights and heterogeneous treatment effects with two-way fixed-effects in panels (*SI Appendix*, Table S7). For further discussion, please see *SI Appendix*, section H. Overall, the panel analysis provides strong evidence for a strong negative relationship between Stolpersteine and AfD vote shares.

Discontinuity Analysis. In a discontinuity analysis, we find that fewer people vote for the AfD in polling stations that receive at least one Stolperstein before the elections (i.e., treatment group) than in polling stations that receive at least one Stolperstein after

[**]Here, we use the vote share of the second votes for AfD as the dependent variable. We run the analysis with the vote share of the first votes for AfD (*SI Appendix*, Table S1) and the vote share of second votes for far-right parties AfD, NPD, BüSo, and dieBasis (*SI Appendix*, Table S2), and the results confirm our findings. Please see *Materials and Methods* and *SI Appendix*, section B for more details on the German voting system and the differences between first and second votes.

[††]R^2 in Table 2 is the output of the model with polling station fixed effects, election fixed effects, and Stolpersteine as explanatory variables. When we run the first model separately for these factors, R^2 is 0.526, 0.307, and 0.120, respectively.

[‡‡]The use of polling station fixed effects accounts for whether the polling station is in East or West Berlin. Given the city's history, one might worry that the observed relationship is driven by polling stations in West Germany. To alleviate concerns, we run the analysis separately for polling stations in East and West Berlin. The coefficient sizes are very close to each other and if there is any difference, the relationship between Stolpersteine and AfD vote share is even stronger in East Berlin than in West Berlin.

[§§]The observed relationship might be driven by outliers and analyses with categorical variables also corroborate our findings. For more information, please see *SI Appendix*, section E.

[¶¶]An alternative explanation for our findings could be that people who vote for the AfD move out of polling stations after Stolpersteine are placed, and different types of people move in. Analyses of the relationship between Stolpersteine and different indicators of the real estate market suggest that this is not a threat to our inferences, *SI Appendix*, section J.

the elections but not before the election (i.e., control group). This finding suggests that Stolpersteine cause a reduction in AfD votes.

The discontinuity analysis leverages noise around an arbitrary cutoff value to create treatment and control conditions (25). In our case, election times are arbitrary cutoffs that we assume to be orthogonal to the timing of Stolpersteine placement. The placement of new Stolpersteine takes place sporadically when the artist comes to Berlin. New Stolpersteine are not prioritized based on neighborhood characteristics. Instead, priority is given to elderly descendants of victims/survivors who are still alive and able to come to the placement ceremony. The timing is not related to elections—time to elections could not predict Stolpersteine placements in additional analyses we ran. Moreover, we assume that whether a Stolpersteine is placed shortly before or shortly after this arbitrary cutoff date is noisy because there is varying (up to 4 y) lag between commissioning and placing a Stolperstein. Thus, in the time window shortly before and after an election, Stolpersteine in treatment and control condition have likely already been commissioned but—for reasons that have nothing to do with the outcome (i.e., AfD vote shares)—have not been placed yet. Therefore, variables that might motivate people to both commission a Stolperstein and also against vote for the AfD, such as concerns about fascism, exist in both conditions (recall that such concerns are already minimal because most people who commission Stolpersteine live outside of Berlin). In other words, because of the arbitrariness of the time lag between commissioning and placing Stolpersteine, polling stations that receive a Stolperstein soon after elections can serve as counterfactuals to polling stations receiving a Stolperstein just before elections.

The results of the discontinuity analysis are reported in Fig. 4 and show that the effect of Stolpersteine on AfD vote share is significant and negative. Given our context, carrying out a conventional regression discontinuity design analysis with a running variable as suggested in ref. 26 is not possible. Thus, we vary the time window between three months and a year, run the regression analysis with this sample, and present the results (given that the artists places Stolpersteine every three to four months, when we further limit the time window, we do not have a large enough number of observations for a meaningful analysis). Across samples, the effect of Stolpersteine is quite substantive and varies between −1 and −0.5. Overall, the discontinuity analysis provides causal evidence for the impact of Stolpersteine on the AfD vote share.
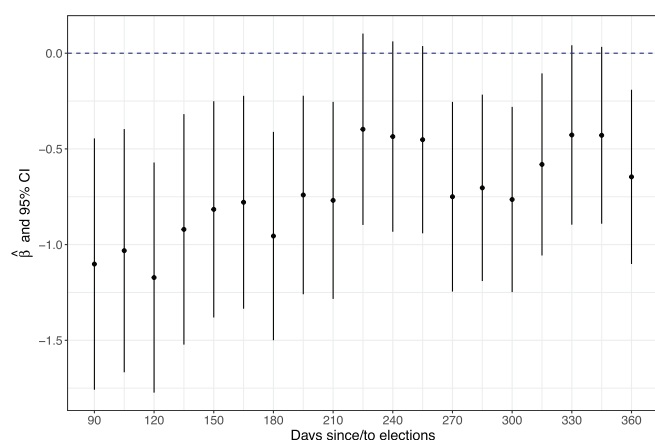

Fig. 4. Effects of Stolperstein on AfD vote share in a discontinuity design.

Is It a Change in Turnout Instead of Vote Preferences? A decrease in the AfD vote share could either be the result of fewer voters casting their votes for the AfD (i.e., a change in the numerator) or of higher turnout (i.e., a change in the denominator). To rule out that the observed effect is an artifact of higher turnout rates, we repeated the panel analysis with the count of total votes, turnout ratio, and the count of AfD votes as alternative outcomes. We find no change in turnout or total votes cast. We do find a decrease in votes cast for the AfD.

These additional analyses indicate that the decrease in the AfD vote share is indeed driven by a decrease in the number of votes cast for the AfD, thus confirming that what we observe is a change in voting preferences, not turnout. Center-right parties, such as the Christian Democrats (CDU) in Germany, play a crucial role in shaping the far-right vote share (27). As we observe a change in voting preference away from the AfD, we might therefore see an increase in the vote share of the center right. Indeed, when we repeat the panel analysis with the vote share of CDU, we find a positive association between Stolpersteine and CDU vote share. For more details on these additional analyses and further discussion, please see *SI Appendix*, section K.

Discussion

Our study is one of only a handful that shows an empirical relationship between the commemoration of victims of past atrocities and support for revisionist actors today. It provides evidence for a negative relationship between memorials for victims in local neighborhood and electoral support for a revisionist, far-right party, using the case of Stolpersteine. The Stolpersteine memorial are over 8,700 individual "stumbling stones" commemorating victims and survivors of NS persecution across the city of Berlin. We examined the effect of Stolpersteine on the local vote shares of the AfD, a far-right party, that has repeatedly downplayed the Holocaust.

To test our research question, we employed time-series cross-sectional analyses and a discontinuity analysis using a panel dataset that matches the location and date of placement of new Stolpersteine with the election results from seven elections (2013 to 2021) at the level of polling station areas, resulting in over 5,000 observations. All analyses point to a decreasing effect of Stolpersteine on AfD support. On average, the presence of a Stolperstein is associated with a 0.5 to 1% point decrease in the local AfD vote share in the following election. The discontinuity analysis bolsters this result and removes lingering concerns about omitted variable bias. We observe no evidence for backlash, i.e., no increase in AfD support in response to Stolpersteine placements.

Possible Mechanisms. Stolpersteine may influence residents in two ways: as material objects and as a social practice. As material objects, the brass plaques with information about victims may draw the attention of passersby to the history of the Holocaust and highlight how widespread and omnipresent the Nazi crimes were. For potential AfD voters, this reminder is in stark contrast to the AfD's downplaying of and moral disregard for the victims and crimes of the NS past. Such incongruence in moral values is an important predictor of people's vote choice (28) and could possibly make some people reconsider their potential vote for the AfD.

Results from two surveys about Stolpersteine are consistent with this argument. First, respondents agreed highly that Stolpersteine are reminders of how widespread NS crimes were in an online survey we conducted with a convenience sample

($N = 210$). This was followed by statements about feeling empathy for the victims. To illustrate, when asked to describe what they associate with Stolpersteine, one respondent wrote: "You realize immediately that the racial extermination program by the Nazis was executed in every part of Germany. The idea 'but where we lived it wasn't so bad' clearly becomes absurd [when seeing the stones]." Another wrote: "I first always think about how these people must have felt back then when they were abducted, how afraid of death they may have been [...]"

Second, in a different survey by other authors ($N = 739$), people report strong emotional, negative reactions to Stolpersteine (29). Especially their high levels of anger and disgust suggest that Stolpersteine may indeed remind passersby of moral violations against the victims (30).

Instead of, or in addition to the material presence of the memorials, Berlin residents may respond to the social practices that accompany them. Social practices give memorials life and render them meaningful as people actively engage with them (31). As described in the introduction, the Stolpersteine memorial invites everyone in a neighborhood to participate and many do. For example, residents attend the placement ceremonies, receive or hand out printed biographies of the victims, and attend regular initiatives to clean the stones or place candles and flowers next to them, especially on the anniversaries of the pogroms (November 9th) and of liberation (May 8th).

These social practices increase the visibility of the stones and the awareness of important historical dates, such as November 9th. This heightened awareness in a neighborhood may decrease voting for the AfD, the party that downplays the significance of the Holocaust, through moral value incongruence as explained above. In addition, Stolpersteine might especially via these social practices become a symbol or "cue" to others that this is a place where victims of violence and oppression are valued. Past research shows that such cues can be powerful levers of behavior change (32). Stolpersteine might signal a local social norm of commemorating and honoring the victims of the Holocaust to residents, which is incompatible with voting for the revisionist AfD. Of course, to prove the mechanisms we suggest here, more systematic experimental and survey research is needed.

If social norms of commemoration are the mechanism, Stolpersteine likely contribute to a local climate of commemorating victims of past atrocities and condemning revisionist actors in a dynamic process. With each additional Stolperstein in a neighborhood, they promote social norms of an active culture of remembrance, which may spawn additional Stolpersteine placements and more social rituals. This assumption is consistent with our results showing a) no evidence for a backlash–suggesting that a receptive local climate evolves together with Stolpersteine placement,## and b) a robust trend where an increasing number of Stolpersteine further decreases AfD vote shares over time, although this effect saturates especially if more Stolpersteine are placed in the same location. Such a dynamic model is also consistent with theories on wise interventions that changes occur in an ongoing, mutually reinforcing transaction between people and their social environments (33).

Limitations. First, without a randomized experiment, we can never fully rule out omitted variable bias. Randomizing Stolpersteine or other memorials to neighborhoods is impossible for practical and ethical reasons. Practically, commissioning

Stolpersteine takes a long time and is expensive. Ethically, we believe that it would be wrong to commission or otherwise modify (e.g., clean) Stolpersteine that commemorate victims of the Nazi regime for experimental purposes as we would essentially instrumentalize the victims for our experiment.

In the absence of a randomized experiment, both Stolpersteine and AfD votes could be driven by an unobserved variable such as a positive local diversity climate. This is unlikely because our data are very granular (between 1,709 and 2,257 polling stations over 11 y). Moreover, 80% of people who commission Stolpersteine live outside of Berlin. While not likely, external commissioners might have social ties to residents in specific areas, and approximately 20% of Stolpersteine are placed by local organizations and residents. But even in that case, the people who might influence external commissioners or are part of the 20% that commission stones themselves, are "earlier adopters," and most likely not the same people who switch their vote from the AfD to a different party.

Second, our data do not allow us to distinguish between the impact Stolpersteine may have as material objects versus via the social practices accompanying them, such as the installment ceremonies. While the former would primarily encourage the placement of additional memorials, the latter would suggest that the focus should lie on more active engagement with memorials, whether old or new. Future research should investigate the impact of memorials as material objects or as social practices.

Third, while Stolpersteine are an interesting and widespread case, they are just one case, and the data only cover Berlin, Germany. Countries that committed past atrocities fall on a spectrum from acceptance to denial (3), and Germany is far on the acceptance dimension. While we expect our results to generalize to other places that largely accept past atrocities, we do not expect them to generalize to places of denial, such as Turkey. Because Stolpersteine or a similar memorial would be in strong opposition to the platform of virtually all governmental actors there, not just the far right as in Germany, we might instead see backlash. In places marked by "mnemonic warfare" (3), meanwhile, such as the United States, polarization might moderate the effects of local memorials. Examining the interplay between the level of public acceptance and local reactions to public memorials would be an interesting question for future research.

As an increasing number of initiatives seeks to increase the public visibility of past atrocities and the fates of victims, we investigated how one such initiative affects support for a revisionist party. The robust negative relationship we find between the installment of memorials and the vote share of the far right within the same district, speaks to the power of making past injustice visible. While further research is needed on the causal direction of the effect and the underlying mechanisms, the results we present here suggest that public memorials have implications for contemporary political behavior.

Since the data are aggregate vote shares and not individual-level data, we cannot exclude that some individuals respond with backlash to the memorials. We can only conclude that this was likely not a majority reaction since we do not observe backlash at the level of the polling station.

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