Nazi indoctrination and anti-Semitic beliefs in Germany

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Attempts at modifying public opinions, attitudes, and beliefs range from advertising and schooling to "brainwashing." Their effectiveness is highly controversial. In this paper, we use survey data on anti-Semitic beliefs and attitudes in a representative sample of Germans surveyed in 1996 and 2006 to show that Nazi indoctrination—with its singular focus on fostering racial hatred—was highly effective. Between 1933 and 1945, young Germans were exposed to anti-Semitic ideology in schools, in the (extracurricular) Hitler Youth, and through radio, print, and film. As a result, Germans who grew up under the Nazi regime are much more anti-Semitic than those born before or after that period: the share of committed anti-Semites, who answer a host of questions about attitudes toward Jews in an extreme fashion, is 2–3 times higher than in the population as a whole. Results also hold for average beliefs, and not just the share of extremists; average views of Jews are much more negative among those born in the 1920s and 1930s. Nazi indoctrination was most effective where it could tap into preexisting prejudices; those born in districts that supported anti-Semitic parties before 1914 show the greatest increases in anti-Jewish attitudes. These findings demonstrate the extent to which beliefs can be modified through policy intervention. We also identify parameters amplifying the effectiveness of such measures, such as preexisting prejudices.

cultural transmission | indoctrination | persistence | anti-Semitism

Schools, parents, and the media not only communicate information and teach skills, they transmit values and beliefs as well (1). Dictatorships and democracies alike use schooling in particular to influence the outlook of children and young adults—the period of their lives during which humans are most susceptible to outside influences. The efficiency of such interventions, ranging from mild attempts to modify attitudes to "brainwashing," is highly controversial (2–6). In particular, the effect of schooling has remained doubtful (5–7). Whereas many historians believe that Nazi propaganda and schooling prepared the ground for the Third Reich's excesses, scientific studies of indoctrination have typically found few systematic effects (8, 9).

In this paper, we use modern-day data on anti-Semitic beliefs in Germany to examine the effectiveness of indoctrination. Nazi schooling and extracurricular activities sought to inculcate racial hatred to an extraordinary extent. The entire curriculum—not only biology classes—was used to convince the young of the importance of race and the inferiority of Jews, blacks, etc. In addition to compulsory school attendance, young Germans had to join the Hitler Youth, where indoctrination continued; the official handbook for schooling the Hitler Youth devoted fully 45 out of 105 pages to racial ideology (10). Further, propaganda messages embedded in books and films reinforced indoctrination (11).

Germans who grew up under the Nazi regime were therefore exposed to a wide range of indoctrination methods. Using data from the German General Social Survey (ALLBUS), we show that these individuals are still markedly more anti-Semitic today than cohorts born either before or after. They are more inclined to deny Jews equal rights, to resent having them as neighbors or family members, and they believe more often that Jews have too much influence in the world. The creation of additional racial bias varies by location. Where anti-Semitism was already prevalent before World War I (WWI), the Nazi message of racial hatred produced many more zealots than elsewhere. This suggests that indoctrination is particularly effective where it can exploit preexisting stereotypes and beliefs (12), leading to a "magnification effect."

Data: Modern-Day Geographical Variation of anti-Semitic Beliefs

Two waves of the General Social Survey for Germany (ALLBUS 1996 and 2006) asked a set of seven questions about attitudes toward Jews (13, 14). For each of these questions, respondents answered on a numerical scale ranging from 1 to 7; we recoded the scale so that 7 is always the most anti-Semitic response. Table 1 shows the distribution of responses in the sample as a whole.

For example, 17% of German respondents felt that Jews should blame themselves for their own persecution, 25.7% were uncomfortable with the idea of a Jew marrying into their family, and 21.5% felt that Jews should not have equal rights (scores of 5 or higher on a scale from 1 to 7).

Regional differences in attitudes across German regions are large. The combined waves from the 1996 and 2006 surveys contain data from 5,300 respondents in 264 towns or cities. [We restrict the sample to individuals whose parents and grandparents are German. Altogether, there are 6,800 respondents in the 1996 and 2006 waves of the survey.] *SI Appendix*, Fig. S1 shows the percentage of people who do not agree with the statement that "Jews living in Germany should have equal rights with Germans in all respects" (response of 5 or higher). For example, only 10% of respondents in Hamburg disagreed. At the other

Significance

Attempts at modifying public opinions, attitudes, and beliefs range from advertising and schooling to "brainwashing." Their effectiveness is highly controversial. We demonstrate that Nazi indoctrination—with its singular focus on fostering racial hatred—was highly effective. Germans who grew up under the Nazi regime are much more anti-Semitic today than those born before or after that period. These findings demonstrate that beliefs can be modified massively through policy intervention. We also show that it was probably Nazi schooling that was most effective, and not radio or cinema propaganda. Where schooling could tap into preexisting prejudices, indoctrination was particularly strong. This suggests that confirmation bias may play an important role in intensifying attitudes toward minorities.

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Data deposition: The German General Social Survey (ALLBUS) data used in this paper are publicly available on-site at the German Social Science Infrastructure Services (GESIS) research facility in Cologne, Germany. The ALLBUS data were enriched with community-level data on Imperial elections and indicators of anti-Semitism (which are also publicly available) during a research visit at the GESIS Secure Data Center. Institutional Review Board (IRB) approval was not needed for the study because the survey had been conducted by GESIS.

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Table 1. Attitudes toward Jews in Germany, 1996/2006

	Least anti-Semitic				Most anti-Semitic		
ALLBUS questions	1	2	3	4	5	6	7
Do Jews have too much influence in the world?	30.4	12.5	10.3	19.7	10.5	7.5	9.2
Jews are responsible for their own persecution	44.4	14.7	7.5	16.3	7.5	4	5.5
Jews should have equal rights	36.5	13.4	10.6	18	8	6.2	7.3
I feel ashamed about German crimes against Jews	52.5	15.4	9.7	9.3	4.1	3.2	5.8
Jews exploit their victim status for their own advantage	14.6	11	8.8	20.1	13.2	12.2	20.3
How do you feel about a Jew marrying into your family?	8.5	8.1	8.8	49	8.9	6.6	10.2
How would you feel about having a Jewish neighbor?	13.6	12.7	11.4	50.4	4.7	3.4	3.7

The table summarizes attitudes toward Jews in Germany, as reflected in seven questions in two waves of the ALLBUS survey in 1996 and 2006. The table gives the share of respondents in each category, where all answers were ordered so that 1 = least anti-Semitic and 7 = most anti-Semitic. Rows sum to 100%.

end of the spectrum, 48% of people surveyed in Lower Bavaria (*Niederbayern*) felt that way––a concentration of anti-Jewish sentiment almost five times higher than in Hamburg. Other questions—whether respondents would accept a Jewish family member, a Jewish neighbor, or about the influence of Jews in the world—show similarly high dispersions of beliefs at the regional level.

Our study analyzes data using city-level information. The ALLBUS sensitive geographical data contain information on the place of residence of each respondent (15). Based on the seven questions in the ALLBUS general survey covering attitudes toward Jews, we construct a composite measure of anti-Semitism—the average across the seven questions listed in Table 1. We refer to this measure as "broad anti-Semitism" (AS^{broad}). One quarter of the German population holds mildly or strongly negative views of Jews according to this measure (corresponding to an average response of 4 or higher; the distribution is depicted in *SI Appendix*, section A.2). Responses are also highly correlated; for example, areas in which respondents do not want a Jewish neighbor are more likely to deny them equal rights, too, and they believe that Jews have too much influence in the world (*SI Appendix*, section A.3).

In addition to using average responses, we also analyze the share of individuals with consistent, strong, negative views. We define committed anti-Semites (AS^{comm}) as respondents who answer with 6 or more on each of three questions that are only asked about Jews in ALLBUS: "Do Jews have too much influence in the world?;" "Are Jews partly responsible for their own persecution?;" and "Are Jews trying to exploit their victim status for financial gain?" [The additional four questions that enter our measure of broad anti-Semitism (Table 1) are not only asked about Jews, but also about Turks, immigrants, and other foreigners. Because our AS^{comm} variable is derived only from the three Jew-specific questions, it can also be interpreted as a more narrow measure of anti-Semitism.] In Germany as a whole, some 4% of respondents are committed anti-Semites, according to this definition. However, the measure varies substantially across locations: Nearly half of the 264 towns and cities in our sample do not have any respondents in this category; at the opposite end of the spectrum, in 1 out of every 10 locations, 15% or more of respondents are committed anti-Semites.

Breeding Hatred

We analyze if growing up under Nazi rule had a lasting effect on attitudes later in life using cohort-specific indoctrination in the past as a source of identifying variation for present-day behavior (16). We find that anti-Semitic attitudes are particularly pronounced for ALLBUS respondents who grew up under the Nazi regime.

Fig. 1 shows the share of committed anti-Semites (AS^{comm}) by birth decade from 1910 to 1980. There is a general downward trend; people born later are on average less anti-Semitic. In addition, there is a striking outlier: about 10% of respondents from the 1930s birth cohort show strongly anti-Semitic attitudes—almost three times the percentage after 1950, and more than double the percentage of the preceding and the next cohort. [At the end of World War II (WWII), individuals from the 1930s cohort were between 6 and 15 years old. Below, we show that our results are robust to using the larger cohort born between 1920 and 1939, who were between 6 and 25 years old at the end of WWII. We also discuss why committed anti-Semitism is not unusually pronounced among the 1920s cohort in Fig. 1—this is likely due to differential selection of fervent Nazi supporters from this cohort into army divisions that saw particularly high casualty rates.] The difference in AS^{comm} for the 1930s birth cohort is statistically highly significant, as indicated by the 95% confidence intervals in the figure.

Regression results confirm these findings. Table 2 shows that individuals in the cohort 1930–1939 have significantly more pronounced anti-Semitic attitudes, even after controlling for personal characteristics such as education or the perception of the economic situation. According to our estimates in column 1, they are 5.8 percentage points more likely to be committed anti-Semites than the individuals outside of this cohort, who have a proportion of 3.6% of committed anti-Semites. In other words, those born in the 1930s are approximately twice as likely to hold extreme anti-Semitic beliefs (after controlling for individual characteristics). A similar pattern holds when we restrict the sample to individuals

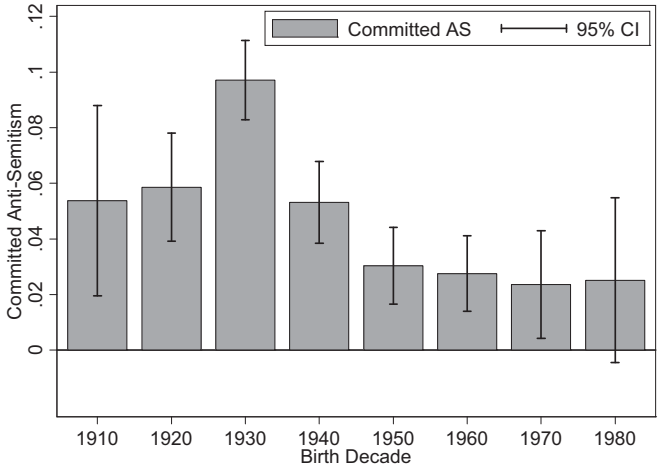

Fig. 1. Share of committed anti-Semites by birth decade. Source: ALLBUS data. The figure shows the proportion of respondents who answer with 6 or more (on a scale of 7) on each of three Jew-specific questions asked in ALLBUS: "Do Jews have too much influence in the world?," "Are Jews partly responsible for their own persecution?," and "Are Jews trying to exploit their victim status for financial gain?"

Table 2. Anti-Semitic attitudes by birth cohort

Dependent variable	(1) Committed anti-Semitism (AS^{broad})	(2) Committed anti-Semitism (AS^{broad})	(3) Committed anti-Semitism (AS^{broad})	(4) Broad measure of anti-Semitism (AS^{broad})	(5) Broad measure of anti-Semitism (AS^{broad})	(6) Broad measure of anti-Semitism (AS^{broad})
Birth cohorts	All	Pre-1950	All	All	Pre-1950	All
1930–1939 birth	0.0575***	0.0386***		0.350***	0.200***	
Cohort	(0.0114)	(0.0125)		(0.0496)	(0.0546)	
1920–1939 birth			0.0444***			0.367***
Cohort			(0.00914)			(0.0447)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	4,452	2,036	4,452	4,286	1,952	4,286
R^2	0.029	0.034	0.027	0.099	0.072	0.104

The table gives coefficient estimates and SEs (in parentheses, clustered at the municipality level), for regressions of modern-day anti-Semitism on birth cohort dummies and control variables. * indicates significance at the $P < 0.1$ level, **$P < 0.05$, ***$P < 0.01$. Dependent variable in columns 1–3 is AS^{comm} (the proportion of subjects with committed anti-Semitic attitudes), and in columns 4–6, AS^{broad} (the average of the seven variables listed in Table 1, reflecting broad anti-Semitism). "Controls" include a constant term, individual-level sex, high school, and university degree dummies, a dummy for the Soviet occupation zone, and a variable on how each respondent judges the current economic situation (on a scale from 1 to 5). We also control for (ln) city population and its share of foreigners in 2008, and for a dummy for the second wave of the survey (2006). All regressions include only subjects with German nationality and at least two generations of German ancestors.

born before 1950 (column 2) and when analyzing broad anti-Semitism instead (columns 4 and 5). For the latter, the 1930–1939 birth cohort shows values that are 0.35 points higher on a scale from 1 to 7 (and relative to an average of 3.15 for all other cohorts). Results are also very similar when we repeat the analysis for the broader birth cohorts 1920–1939 (columns 3 and 6).

In *SI Appendix*, section A.4, we examine the 1920s and 1930s cohorts separately. Cohorts born in the 1920s were also exposed to Nazi indoctrination. We find that they similarly show higher shares of average anti-Semitic beliefs (AS^{broad}). This pattern holds for men and women. The 1920s cohort also shows a significantly higher share of committed anti-Semites (AS^{comm}) among women. The one group for which there is no effect for the 1920s cohort are male extremists. We argue that these were more likely to become war casualties. Many young fanatic Nazi supporters volunteered for the Waffen-SS, which had particularly high casualty rates. We show that in places with more anti-Semitic activity, fewer men born in the 1920s survived and entered our sample (*SI Appendix*, section A.4). [To proxy for the extent of anti-Semitic activity in the 1920s and 30s, we use measures from ref. 17 for anti-Semitic actions and violence: attacks on synagogues, deportations of Jews, anti-Semitic letters to the Nazi pamphlet *Der Stürmer*, and pogroms against Jews.]

In combination, these results suggest that Nazi indoctrination—in school, through propaganda, and in youth organizations—successfully instilled strongly anti-Semitic attitudes in the cohorts that grew up under the Nazi regime, and that the differential effect is still visible today, more than half a century after the fall of the Third Reich.

The strength of effects for the 1930s cohort may be surprising; children born in 1939 were only 6 y old in 1945. However, results in social psychology show high levels of ethnocentric bias at early ages. Studies from several countries demonstrate that preschool children already exhibit in-group favoritism and out-group dislike (18–21). In addition, memoirs of Germans who grew up under the Nazis speak eloquently of how as early as age 5 and 6, they were being indoctrinated in nationalist ideology and racial hatred (22, 23). [Alfons Heck, who rose to a high position in the Hitler Youth before the end of the war, describes how "we five- and six-year olds knew nothing of the freedom. . .of the Weimar Republic. More than any other political party, the NSDAP recognized that those who control the children own the future. We swallowed our daily dose of nationalistic instruction as naturally as our morning milk."]

Amplifying Prejudice. What made Nazi indoctrination so powerful? In the following, we examine two competing explanations: (*i*) the extent to which Nazi propaganda confirmed preexisting prejudices among the local population, and (*ii*) regional variation in the implementation of Nazi indoctrination efforts, proxied by media exposure and the strength of the Nazi party organization. We find strong evidence for the former but much less for the latter, lending support to theories that emphasize the importance of confirmation bias in shaping attitudes and beliefs (24).

Schooling changed in character everywhere, and historical accounts emphasize the importance of this channel. In addition, we examine interactions with preexisting anti-Jewish sentiment. To this end, we compile data on voting behavior from the late 19th and early 20th century—long before the Nazis' rise to power. Soon after the founding of the German Empire in 1870, anti-Semitism emerged as a political force. For example, a petition in 1881 urged the government to restrict immigration of Jews, ban them from teaching professions and the army, and revoke their emancipation and access to equal rights. It was signed by 265,000 supporters and presented to Chancellor Bismarck. From the 1890s onward, political parties with an exclusively anti-Jewish agenda competed in national elections. Although the anti-Semitic parties never received a high share of the national vote, electoral support exceeded 40% in some districts (see *SI Appendix*, section A.5 for details).

We combine historical voting records with the modern-day survey data for all 264 locations in our sample. As indicators of historical anti-Jewish sentiment, we use the average vote shares of anti-Semitic parties between 1890 and 1912. As a first step, we show that attitudes on average persisted in the same location—where voters turned to anti-Jewish parties in the 1890s and 1900s, they are still much more anti-Semitic today. In Fig. 2, we group all electoral districts according to the tercile of the vote share for anti-Semitic parties between 1890 and 1912. [The data are from six parliamentary elections over the period 1890–1912. Anti-Semitic parties in these elections are classified according to Schmädeke (25). We describe these parties in more detail in *SI Appendix*, section A.5.] The long arm of the past is clearly visible in the share of committed anti-Semites (Fig. 2, *Left*). In locations that were in the lowest third of districts supporting anti-Semitic parties before 1914, only a little more than 2% of respondents are committed anti-Semites today. In places in the top third of support for the anti-Semitic parties, this proportion rises to nearly 8%, a fourfold increase compared with localities in the bottom third of historical support for anti-Semitic parties. These differences are statistically highly significant, as indicated by the 95% confidence intervals. In Fig. 2 (*Right*), we confirm this

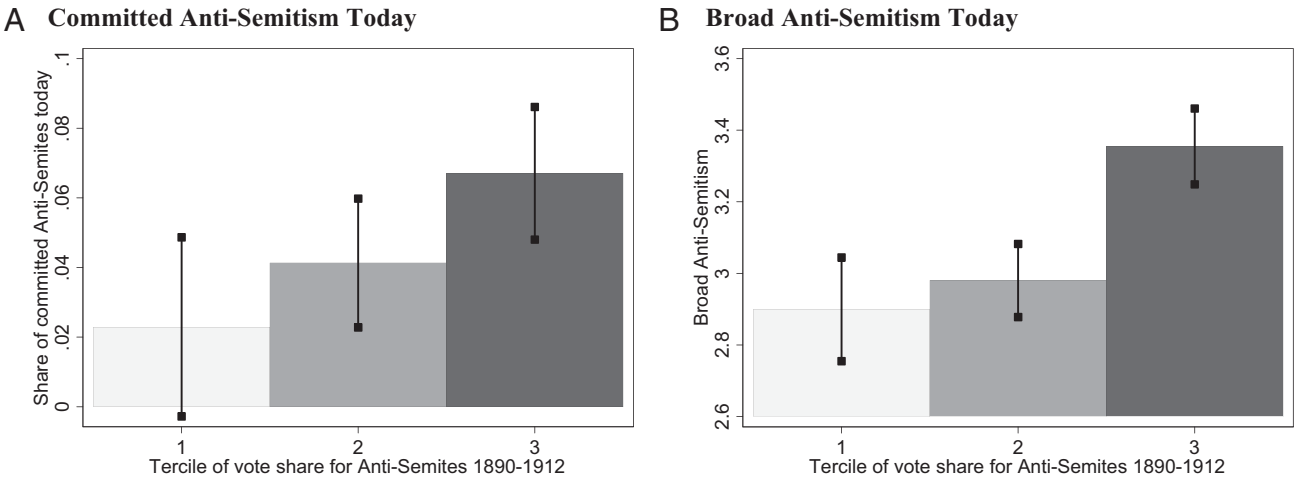

Fig. 2. Contemporaneous individual-level anti-Semitic attitudes and historic voting patterns. (*A*) Share of committed anti-Semites (individuals answering 5 or higher on three specific Jew-related questions); (*B*) Average of our broad anti-Semitism measure (on a scale from 1 to 7, with 7 the most anti-Semitic). Data are grouped into terciles based on electoral support for anti-Semitic parties in the period 1890–1912. The lines with whiskers represent the 95% confidence intervals. Overall, the two figures show that modern-day anti-Semitism is consistently and significantly greater in areas with higher levels of historical electoral support for anti-Jewish parties.

pattern for broad anti-Semitism (AS^{broad}). Attitudes in Germany today are markedly more negative toward Jews in towns and cities in the upper third of historical support for anti-Jewish parties, compared with the lowest third, as indicated by the 20% higher average score.

Table 3 examines these patterns statistically, using pre-WWI voting for anti-Semitic parties as an explanatory variable. Because anti-Semitic parties were typically small, they did not put forward candidates in all cities for all elections. To deal with the resulting missing vote shares, we present results for three different samples. Sample (a) includes all cities, treating those without anti-Semitic candidates as zero votes [thus sample (a) implicitly assumes that where anti-Semitic parties before WWI did not put forward candidates, they would have won zero (or very few) votes]; sample (b) drops these observations; and sample (c) only includes cities where anti-Semitic parties presented candidates in at least three out of the six elections between 1890 and 1912. Thus, by going from sample (a) to (c), we use increasingly precise information on pre-WWI anti-Semitism. However, this comes at the cost of sample size: the number of cities falls from 264 in sample (a) to 160 in sample (b), and to 46 in sample (c). [*SI Appendix*, section A.5 shows the distribution of vote shares for anti-Semitic parties for the three samples.]

We present results with and without controls. The latter include several individual- and city-level characteristics, including age, education, city size, and the share of foreigners living in a location, as well as historical city characteristics. We find strong and significant effects of historical anti-Semitism in all specifications, for

Table 3. Persistence of anti-Semitism at the city level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	Committed anti-Semites (AS^{comm})				Broad anti-Semitism (AS^{broad})			
ASVote	0.966**	0.863**	1.005**	1.535**	0.969**	1.007***	0.850**	1.292***
	(2.02)	(2.19)	(2.12)	(2.03)	(2.32)	(2.92)	(2.51)	(2.70)
Standard coefficient†	[0.7%]	[0.9%]	[1.0%]	[2.1%]	[0.07]	[0.11]	[0.10]	[0.18]
Controls	No	No	Yes	Yes	No	No	Yes	Yes
Sample	(a)	(b)	(b)	(c)	(a)	(b)	(b)	(c)
N (individual)	4,802	3,105	2,594	806	4,622	2,996	2,504	921
N (cities)	264	160	41	47	264	160	141	47
R^2					0.004	0.010	0.137	0.226

The table gives coefficient estimates and t-statistics (in parentheses, clustered at the municipality level), for regressions of modern-day anti-Semitism on the historical vote share of anti-Semitic parties. * indicates significance at the $P < 0.1$ level, **$P < 0.05$, ***$P < 0.01$. Columns 1–4 use Probit regressions, where the indicator variable AS^{comm} is the proportion of subjects with committed anti-Semitic attitudes, defined as individuals who score at least 6 (on a scale of 7) for all variables Influence, Exploit, and Responsible. Columns 5–8 use OLS regressions. AS^{broad} is the average of seven variables, reflecting broad anti-Semitism. The explanatory variable *ASVote* is the average vote for anti-Semitic parties in six parliamentary elections between 1890 and 1912. Sample (a) includes all cities, treating those where the party did not put forward candidates as zero votes; sample (b) drops these observations; and sample (c) only includes cities where anti-Semitic parties presented candidates in at least three out of the six elections. Controls include individual-level high school and university degree dummies, age and age squared, a dummy for the Soviet occupation zone, and a variable on how each respondents judges the current economic situation (on a scale from 1 to 5). We also control for (ln) city population, the share of foreigners in each city, and a dummy for the second wave of the survey (2006). In addition, controls include city-level characteristics in 1925: the share of Protestants, the share of Jews, the shares of workers in industry and agriculture, the share of self-used in retail and trade (typical Jewish professions), and the share of blue-collar workers. All regressions include only subjects with German nationality and at least two generations of German ancestors.

†Standardized coefficient: shows the change in the dependent variable due to a 1-SD change in ASVote. In columns 1–4, the effect is expressed in percentage points (of committed anti-Semites, who account on average for 4.8% of the population); in columns 5–8, it is relative to a mean of 3.12 for broad anti-Semitism.

both the share of extremists in a location (columns 1–4) and average levels of Jew-hatred (columns 5–8). To illustrate the magnitude of effects, we compute how much the dependent variable changes in response to a 1-SD increase in the vote share of pre-WWI anti-Semitic parties. Such an increase goes hand-in-hand with a rise of 0.7–2.1% in the share of committed anti-Semites (relative to a sample average of 4.8%), and it is associated with a broad anti-Semitism score today that is 0.07–0.18 points higher (equivalent to 6–16% of an SD). The results hold across all possible definitions of the relevant sample. [*SI Appendix*, section A.6 shows that this also holds if we restrict the sample to individuals born after 1945.]

Having shown that anti-Semitism persisted locally in Germany throughout the 20th century, we analyze the extent to which preexisting anti-Semitic sentiment (*i*) favored Nazi indoctrination, and (*ii*) was, in turn, reinforced during the Nazi regime. In Table 4, we regress individual-level measures of committed and broad Jew-hatred on the share of voters for anti-Semitic parties pre-1914, a birth decade dummy, and an interaction effect between these two variables. The interaction effect reflects whether Nazi indoctrination was particularly effective in regions with a history of anti-Semitic sentiment. We find strong support for a magnification effect, for both committed and broad anti-Semitism (columns 1 and 4). This pattern also holds when we add control variables (columns 2 and 5), and when defining the longer period 1920–1939 as the birth years exposed to Nazi indoctrination (columns 3 and 6).

These findings illustrate the extent to which Nazi indoctrination reinforced local persistence of anti-Semitism. Approximately 17% of the individuals in our sample belong to the birth cohort 1930–1939. Thus, the interaction term in our baseline specification with controls (column 2) implies a total coefficient on ASvote of $0.0438+0.17 \times 0.399 = 0.11$, i.e., more than double the coefficient for other cohorts (0.0438). [The results in Table 4 are obtained using the full sample (a) from Table 3. In *SI Appendix*, section A.7, we show that results are very similar when using samples (b) or (c). Also, because interaction effects cannot be readily interpreted in Probit models, we run ordinary least square (OLS) regressions throughout, including for committed anti-Semitism.] In addition, we show that in towns and cities where indoctrination was most effective—and the share of extremists in the 1930s cohort is particularly high—there is markedly higher anti-Semitism also among those born after 1945, 1955, 1965, and even after 1975 (*SI Appendix*, section A.6). [This is true even after controlling for historical anti-Semitism. This implies that effective indoctrination in the 1930s created an "echo effect," with the share of committed anti-Semites higher than one would expect based on historical anti-Semitism alone.] These findings suggest that by reinforcing preexisting racial hatred, Nazi indoctrination contributed importantly to the long-term persistence of anti-Semitism in Germany. And conversely, the strong interaction with preexisting attitudes suggests that confirmation bias played an important role in shaping anti-Semitic beliefs.

We also examine other possible explanations for the success of Nazi indoctrination. Youth growing up in 1930s Germany were also exposed to propaganda in school and the National Socialist (NS) youth organizations (both were universal across Nazi Germany); the "modern" media film and radio also had a decidedly anti-Semitic slant (but their coverage varied by region). Similarly, the local strength of Nazi party organization may have fostered indoctrination, while suppressing voices from the opposition. To evaluate the relative importance of these proxies for the local intensity of propaganda, we exploit their regional variation. We use data on the number of radio subscribers, cinema seats, and of Nazi party members on a per-capita basis in each city. The data and results are described in detail in *SI Appendix*, section A.8. We find that these variables have no predictive power for the additional rise in anti-Semitism among the cohorts who grew up under the Nazis (effects are insignificant, with tight confidence intervals around zero). This suggests that—at least among the impressionable young cohorts—spatial variation in the intensity of propaganda was of minor importance, relative to the huge and universal indoctrination in schools and youth organizations.

In contrast, we have shown that regional variation in pre-WWI anti-Semitic votes is strongly associated with indoctrination. This suggests that broad compatibility of Nazi ideology with preexisting beliefs was important. Our results provide empirical support for Goebbels' famous argument that propaganda can only be effective if it is broadly in line with preexisting notions and beliefs (26). These findings suggest that the universal Nazi indoctrination in schools and youth organizations was highly effective, and especially so if it could build on preexisting anti-Semitic prejudices.

Table 4. Amplifying preexisting anti-Semitism

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Committed anti-Semites (AS^{comm})			Broad anti-Semitism (AS^{broad})		
Birth cohorts dummy (D_b)	1930–1939		1920–1939	–1930–1939–		1920–1939
ASvote	0.0757	0.0438	0.0593	0.617	0.604	0.542
	(0.0521)	(0.0622)	(0.0678)	(0.399)	(0.373)	(0.370)
D_b	0.0479***	0.0431***	0.0364***	0.332***	0.285***	0.317***
	(0.0118)	(0.0127)	(0.0106)	(0.0543)	(0.0554)	(0.0503)
$D_b \times$ ASvote	0.333**	0.399**	0.193**	2.102***	2.028***	1.578***
	(0.153)	(0.163)	(0.0875)	(0.566)	(0.611)	(0.553)
Controls	No	Yes	Yes	No	Yes	Yes
N	4,802	4,150	4,150	4,622	3,993	3,993
R^2	0.015	0.043	0.039	0.022	0.117	0.122

SEs in parentheses (clustered at the municipality level). *$P < 0.1$, **$P < 0.05$, ***$P < 0.01$. Dependent variable in columns 1–3 is AS^{comm} (the proportion of subjects with committed anti-Semitic attitudes), and in columns 4–6, AS^{broad} (the average of the seven variables listed in Table 1, reflecting broad anti-Semitism). Controls include a constant term, individual-level sex, high school, and university degree dummies, a dummy for the Soviet occupation zone, and a variable on how each respondent judges the current economic situation (on a scale from 1 to 5). We also control for (ln) city population and its share of foreigners in 2008, and for a dummy for the second wave of the survey (2006). In addition, controls include city-level characteristics in 1925: the share of Protestants, the share of Jews, the shares of workers in industry and agriculture, the share of self-used in retail and trade (typical Jewish professions), and the share of blue-collar workers. All regressions include only subjects with German nationality and at least two generations of German ancestors.

Conclusions

Whereas a rich literature in economics has documented that attitudes can persist a long time (27, 28), much less is known about cultural change (7, 29, 30). Few governments in history were more ambitious in their attempt to indoctrinate the population than the Nazi regime in Germany, and it particularly focused on the young. Our findings demonstrate that beliefs of Germans in their first decades of life were strongly malleable. Using data on racial attitudes today, more than half a century after the end of the Third Reich, we show that propaganda and schooling were highly effective in changing attitudes and beliefs of those growing up under the Nazis.

German racial beliefs show a high degree of persistence—locations with a past of anti-Jewish voting even before WWI are still markedly more anti-Semitic today. We also document a magnification effect; Nazi schooling was particularly effective where the population had previously held anti-Semitic beliefs. Nazi propaganda and schooling increased the number of youngsters who became fervent anti-Semites especially in those towns and cities where Germans in the 1890s and 1900s had voted heavily in favor of anti-Jewish parties. Conversely, where few Germans had shown signs of racial hatred before WW I, Nazi indoctrination made much smaller inroads into the collective psyche of the young. As one former member of the Hitler Youth later put it: "We who were born into Nazism never had a chance unless our parents were brave enough to resist the tide and transmit their opposition to their children. There were few of those" (23). This finding is in line with a broader pattern of social interactions, where attitudes and behaviors become more appealing the more common they already are, leading to social multiplier effects (31)—anti-Semitism among those subjected to Nazi education became particularly attractive where it was compatible with preexisting beliefs.

These findings have implications for our understanding of culture more generally. The fact that Nazi indoctrination was particularly effective in areas where anti-Semitic beliefs were already widespread suggests that confirmation bias may play an important role in intensifying attitudes toward minorities. This is in line with models where beliefs overreact to new information that confirms existing stereotypes (12). Thus, attitudes and beliefs may work as heuristic "rules of thumb" (32, 33) that help to economize on cognitive resources in making costly decisions under uncertainty (34).

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