Appendix:

Wealth of Tongues: Why Peripheral Regions Vote for the Radical Right in Germany

Daniel Ziblatt Harvard University & WZB

Hanno Hilbig Princeton University

Daniel Bischof Aarhus University

A Appendix

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A.1 Relation to (Haffert 2021)

In Lipset and Rokkan's (1967) influential framework, several historical cleavages are hypothesized to affect contemporary politics (e.g. urban-rural; center-periphery; church-state). In the German context of 19th century state formation, some of these cleavages overlapped *(albeit never perfectly)*. For example, the Prussian state was dominated by Protestant forces and some of the cultural periphery was Catholic. Indeed, a Haffert (2021) has demonstrated the church-state conflict manifested itself in Prussian-led repression of certain Catholic regions, where AfD vote share is lower today.

But, it is crucial to note that much of the cultural-dialectic periphery of Germany was either Catholic and not subject to repression, or Protestant. This is consistent with the fact that our measure of the periphery (dialectic distance) does not correlate with Haffert's (2021) main independent variable, i.e. the interaction between state repression and Catholicism. The correlation between the two is 0.025. We arrive at this number by calculating the correlation between Haffert's measure of church-state conflicts and our measure of dialectal distance. The former is defined as the product of his index of Kulturkampf intensity and his measure of the share of Catholics, which we obtained from his replication archive. We note that (i) we aggregate Haffert's data to the county level and (ii) we only assess West Germany, since Haffert does not have data on East Germany. In short, the historical center-periphery divide matters, independent of the impact of historical church-state conflicts.

A.2 Summary statistics and coding decisions

A.2.1 County-level data

Table A.1: Summary statistics, county–level

	Mean	SD	Min	Max	Valid obs.
Dialectal distance					
Distance from standard German	10.60	4.69	0.00	18.00	401
Distance from standard German (Jaro-Winkler)	0.17	0.09	0.00	0.33	401
Aggregate voting outcomes					
AfD vote share 2017 (%, party)	13.39	5.33	4.94	35.46	400
County-level covariates					
CDU/CSU vote share 2017 (%, party)	43.29	7.41	25.98	63.47	400
Tot. population (1000s)	206.46	242.16	34.27	3613.49	401
Pop. density / km2	533.60	702.71	36.00	4686.00	401
Nominal GDP (EUR)	7269.56	9094.59	1087.70	109571.23	399
Nominal wage (EUR)	3698.72	4567.90	530.08	52825.89	399
Share Catholic (2011)	0.33	0.24	0.02	0.88	392
Unemployment rate (%)	6.46	3.15	1.40	16.70	392
Out-migration / capita (internal, 2017)	0.04	0.02	0.02	0.20	398
In-migration / capita (internal, 2017)	0.04	0.01	0.02	0.12	398
Combined migration / capita (internal, 2017)	0.08	0.03	0.04	0.31	398
In-commuters / capita (2017)	0.15	0.11	0.03	0.75	399
Out-commuters / capita (2017)	0.16	0.05	0.05	0.31	399
Avg. in-commuting distance (km, 2017)	48.51	17.14	14.73	122.15	398
Avg. out-commuting distance (km, 2017)	54.64	20.27	19.69	158.11	398
Dist. to state capital (km)	84.95	57.26	0.00	267.02	400
Pogroms in 1920s (0/1)	0.79	0.41	0.00	1.00	401
NSDAP vote share, 1933 (%)	45.31	11.03	15.60	78.21	396

Notes: The Tableshows summary statistics for all dependent and independent variables on the county level. The total number of counties is 401. The last column gives the number of counties for which the variable in question is not missing.

A.2.2 Individual-level data (GLES)

Summary statistics:

Table A.2: Summary statistics, individual–level (GLES)

Variable	Mean	Std. Dev.	N
Vote for AfD (party vote)	0.085	0.279	33,675
AfD likability scalometer (1-11)	3.309	2.919	41,493
Vote for radical right (party vote)	0.094	0.292	33,675
Female (binary)	0.495	0.5	49,050
Age (18-88)	51.106	13.906	49,050
Unemployed (binary)	0.068	0.252	49,050
Income (1-13)	6.485	2.607	48,294
Education (0-4)	2.374	1.181	49,050
Rurality (1-5)	2.572	1.493	48,834
East (binary)	0.197	0.398	49,050
Nationalism scale (1-5)	3.459	1.005	4,444
Local attachment (1-5)	3.719	1.071	6,686
National attachment (1-5)	3.932	0.950	6,648

Question wording and recoding: Below we report the original question wordings (translated into English) along with re-coding decisions. We also list the variable label in the original data set in square brackets, if applicable.

- Electoral district (2017)
  - Description: information on respondents' electoral district based on location s/he resides.
  - **Question wording:** none
  - *Re-coding:* none
- Respondent ID
  - Description: numeric identifier for each respondent, constant across waves
  - **Question wording:** none
  - *Re-coding:* none
- Wave
  - Description: identifier for each of the 18 waves in GLES survey
  - **Question wording:** none
  - *Re-coding:* none
- Vote for AfD (Zweitstimme) [kp*_190bb]
  - Description: Respondents' vote intention for Zweitstimme (party vote)
  - **Question wording:** 'Which of the following parties would you vote for with your Zweitstimme?'
  - *Re-coding:* coded 1 if AfD, 0 otherwise, missings excluded.
- Vote for radical right (Zweitstimme) [kp*_190bb]
  - **Question wording:** see above.
  - *Re-coding:* Coded 1 if radical right party (AfD, NPD, Rep, die Rechte), 0 otherwise, missings excluded.
- AfD likability scalometer (1-11) [kp*_430i]

  - Description: likeability scale for all parties in German Bundestag
  - **Question wording:** 'Generally speaking what do you think about each of the following parties?' Response: I don't like the party at all (-5); I like the party a lot (+5)
  - *Re-coding:* missings excluded.

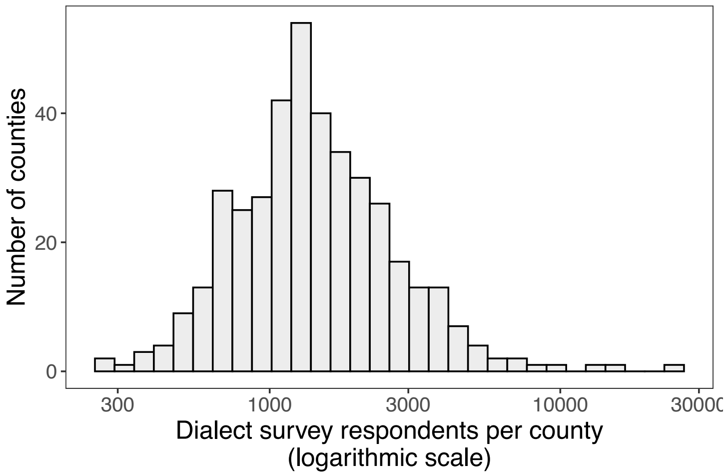
- Female (binary) [kpx_2280]
  - **Question wording:** none
  - *Re-coding:* 1 if female, 0 otherwise.
- Age (18-88) [kpx_2290]
  - **Question wording:** none
  - *Re-coding:* year of survey - year of birth [kpx_2290]
- Unemployed (binary) [kp*_2340]
  - Description: whether respondent was unemployed during survey fieldwork
  - **Question wording:** 'Moving on with questions on your employment and profession: Out of the following list what applies to you?' Response: currently unemployed
  - *Re-coding:* Re-coded to 1 if respondent is currently unemployed, 0 otherwise.
- Income (1-13) [kp1_2591]
  - Description: net household income scale for all respondents in first wave
  - **Question wording:** 'How high is the monthly net income of your household in total? We are talking about the sum, which is available after taxes and social security has been deducted.' Response: under 500 Euro (1); 10,000 or more (13)
  - *Re-coding:* missing values were excluded.
- Education (0-4) [kp1_2320]
  - Description: highest educational level of respondent
  - **Question wording:** 'What is your highest school-leaving qualification' Response: (1) left without qualification; (5) Abitur; (9) still in school
  - *Re-coding:* re-coded (9) into (1) because too few observations and equivalent with not having a qualifiation at the time of survey.
- Rurality (1-5) [kp1_2600]
  - Description: Rurality of respondents' place of residency.
  - **Question wording:** 'If you would characterize your place of residence, do you live in …' Response: (1) major city – (5) rural area close to small towns
  - *Re-coding:* missing values were excluded.
- East (binary) [kp1_2601]
  - Description: East/West indicator
  - **Question wording:** Based on information about state of residency and electoral districts
  - *Re-coding:* Split into states formerly belonging to West and East Germany. In case of Berlin split by relying on electoral district information.
- Nationalism scale (1-5) [(kp*_5000a + kp*_5000b + kp*_5000c) / 3]
  - Description: National identity as social identity (3 Item scale)

  - **Question wording:** 'Please outline whether the following statements apply to you or not: (A) It is very important for me to be German (B) When I talk about Germans I use 'we' and not 'they' (C) The adjective "german" fits me very well' Response: (1) doesn't apply at all; (5) fully applies.
  - *Re-coding:* additive index, missing values were excluded.
- Local attachment (1-5) [kp*_2200a]
  - **Question wording:** 'People feel different strength in belonging to Germany, Europe, states and municipalities. How does this work for you? How strong do you feel belonging to (A) your municipality?' Response: (1) strongly belonging; (5) not belonging at all
  - *Re-coding:* Reversed to ease interpretation, missing values were excluded.
- National attachment (1-5) [kp*_2200c]
  - **Question wording:** 'People feel different strength in belonging to Germany, Europe, states and municipalities. How does this work for you? How strong do you feel belonging to Germany?' Response: (1) strongly belonging; (5) not belonging at all
  - *Re-coding:* Reversed to ease interpretation, missing values were excluded.

Differences between national attachment and nationalistic attitudes: As shown above, we use two distinct scales to measure (i) national attachment and (ii) nationalism. Conceptually, the national attachment scale is based on one survey item, which measures how strongly individuals express belonging to Germany, as opposed to Europe or sub-national entities. The nationalism scale is a composite of three survey items, and primarily measures how strongly a respondent's social identity is connected to their national identity. This scale includes measures of the importance of being German, using 'we' instead of 'they' to refer to Germans, and stating that the adjective 'German' fits the respondent well. The main conceptual difference between the two scales is therefore that the attachment scale merely measures whether respondents feel attached to Germany, while the nationalism scale primarily measures German-ness as a social identity. As we show in Table A.5, these two scales are related – the correlation between the two is about 0.6.

A.3 Respondents per county

Figure A.1: Spiegel dialect survey responses per county



Note: The Figure shows the number of respondents per county. Since the distribution is skewed, we use a logarithmic scale for the x-axis.

A.4 Correlates of dialectal distance

To assess correlates of our dialectal distance measure, we rely on evidence from four different large-scale surveys in combination with aggregate data. We use the , the German Socio-Economic Panel (SOEP, see Wagner, Frick, and Schupp 2007), the German Longitudinal Election Study (GLES, see Schmitt-Beck et al. 2010) as well the German sample of the Comparative Study of Electoral Systems (CSES, see Klingemann 2009).

Our first data source is the **German Longitudinal Election Study** (GLES, see Schmitt-Beck et al. 2010), which was conducted during the 2017 general election. GLES was created to capture political attitudes, behavior and knowledge among the German population. From GLES, we obtain a number of items that relate to attitudes towards immigration. These include preferences for future immigration policy, perceived salience of immigration as a policy issues as well as support for multiculturalism as opposed to assimilation of immigrants. Unlike the other three surveys, GLES does not include information on the county where respondents live. Rather, it reports the electoral district. Therefore, we aggregate the dialectal distance measure to the electoral district rather than the county level. Electoral districts are slightly bigger than counties, but remain roughly comparable in size. There are about 300 electoral districts and about 400 counties, and electoral districts frequently consist of just one county. The GLES consists of multiple waves. We generally pool all available waves, and include covariates for gender, age, employment status, the logarithm of income, education, urban/rural status as well as fixed effects for survey wave and East Germany. Since individuals are surveyed repeatedly, standard errors are clustered at the respondent level. We note that, for the GLES outcomes, the models presented in table A.3 and figure 3 are the same.

The second data source is the **Comparative Study of Electoral Systems** (CSES, see Klingemann 2009). A cross-national study, we use the German CSES sample. We select three characteristics, two of them related to attitudes towards elites, and a third one related to whether immigrants should adapt to the customs and traditions of the majority. As with the GLES data, the unit at which dialects are measured is the electoral district rather than the county. All CSES models include the following covariates: gender, education, employment status, household income, population density, unemployment rates as well as state fixed effects.

The last data source is the **German Socio-Economic Panel** (SOEP, see Wagner, Frick, and Schupp 2007). The SOEP is a large annual panel study with about 20,000 respondents per wave. We use two items from the 2018 SOEP. One of them asks respondents to rate how much they trust others in general (generalized trust). The other asks respondents whether they agree with the statement that refugees enrich the German culture. The covariates used in the SOEP are gender, education, household income, age, employment status as well as state fixed effects.

From each of the three surveys, we select a number of relevant correlates. We then regress each correlate on dialectal distance to standard German as well as a number of standard socio-economic controls and state fixed effects. To ease comparison between models, we standardize both the dialectal distance measure, as well as the correlates from the four survey data sets. We present the results in Table A.3, where each row displays the coefficient from regressing a given correlate on distance from standard German.

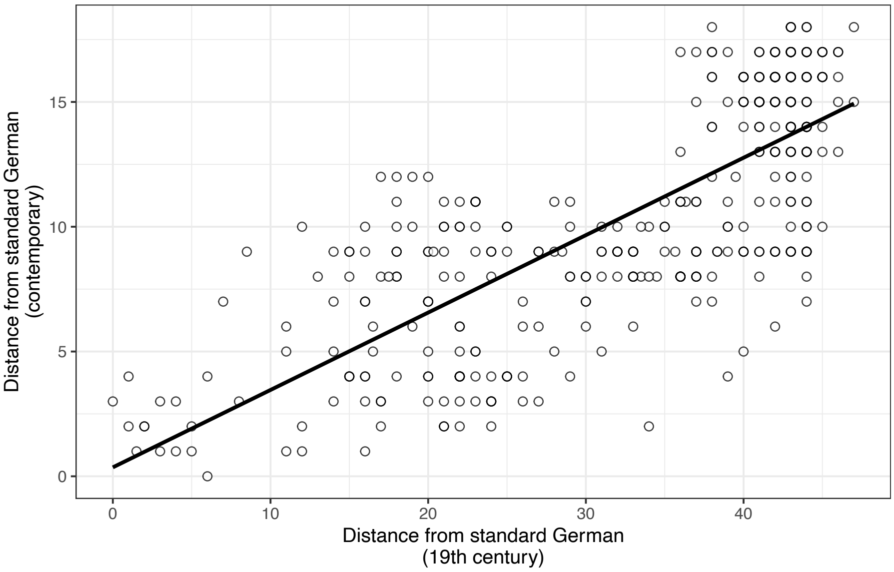
Table A.3: Correlates of dialectal distance

Characteristic	Estimate	SE	N	Year	Source
1. Scope of contact outside of region					
In-migration[a]	−0.121	0.089	392	2017	Official data
Out-migration[a]	-0.355***	0.123	392	2017	Official data
Avg. commuting distance (in)[a]	-0.093	0.107	392	2017	Official data
Avg. commuting distance (out)[a]	-0.265 ***	0.098	392	2017	Official data
2. Hostility towards outsiders					
Immigration of foreigners should be limited	0.058**	0.032	30,635	Multiple	GLES
Salience of immigration	-0.024	0.016	14,878	Multiple	GLES
Support for multiculturalism	-0.064**	0.023	14,614	Multiple	GLES
Local culture is harmed by immigrants	0.076	0.075	1524	2017	CSES
Minorities should adapt to the customs and traditions of the majority	0.086	0.101	1527	2017	CSES
3. Attitudes towards elites					
People, not elites, should make policy decisions	0.119**	0.059	1518	2017	CSES
Elites are trustworthy	-0.09	0.096	1518	2017	CSES

Notes: The tables shows results from regressing selected survey items on dialectal distance from standard German. The results are from separate models, where the independent variable is always the standardized dialectal distance from standard German. All outcomes are standardized. Estimates are given in first column, standard errors are given in the second column. All models include socio-economic and demographic covariates as well as state fixed effects. For more information on the model specifications and data sources, see section A.4.
[a]These results are based on county-level official statistics rather than survey data. Data was obtained from the German Federal Statistical Office.
***p < .01; **p < .05; *p < .1

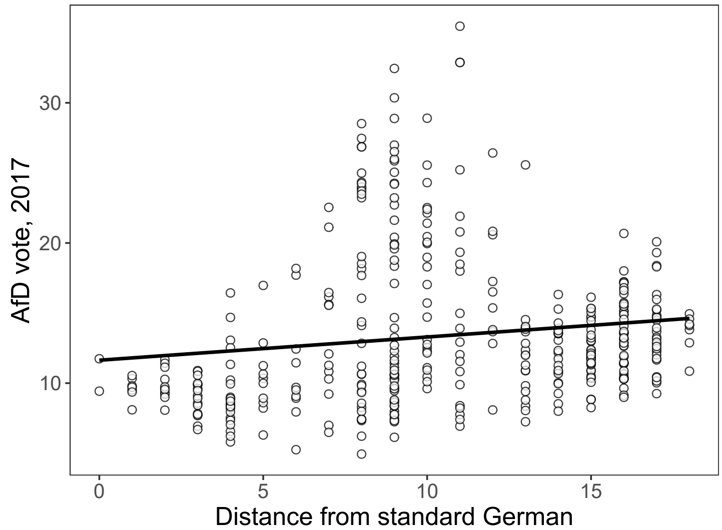
A.5 Dialectal distance measures – additional information

Figure A.2: Association between historical and contemporary measures of dialectal distance



Note: The Figure shows the relationship between the 18[text]-century Wenker dialectal distance and the Spiegel measure. Greater values on both axes indicate greater dialectal distance from standard German. Note that both measures have different ranges. The solid line represents the predicted relationship from a linear model.

Figure A.3: Dialectal distance and AfD vote shares in 2017



Note: Greater values on the x-axis indicate greater dialectal distance from standard German. The solid line represents the predicted relationship from a linear model.

A.6 Additional results

Table A.4: Dialectal distance and radical right voting in 2017

	DV: AfD vote share, 2017			
	Contemporary data		Historical data	
	(1)	(2)	(3)	(4)
Dialectal distance	0.778***	1.172***	0.898***	0.478**
	(0.264)	(0.354)	(0.188)	(0.230)
Pop. density / km2		−0.530**		−0.450
		(0.265)		(0.280)
Tot. population		−0.005		−0.194
		(0.529)		(0.567)
Nominal GDP (EUR)		2.694*		2.983**
		(1.395)		(1.511)
Nominal Wage (EUR)		−3.059**		−3.382**
		(1.387)		(1.501)
Share Catholic		−0.910***		−0.694**
		(0.305)		(0.304)
Unemployment rate (%)		2.131***		2.143***
		(0.286)		(0.288)
CDU/CSU vote share, 2013		0.949***		0.897***
		(0.306)		(0.309)
In-commuters / capita		−0.099		−0.173
		(0.184)		(0.196)
Dist. to state capital (km)		−0.519***		−0.525***
		(0.149)		(0.150)
Mean of DV	13.39	13.33	13.4	13.34
State FE		✓		✓
N	400	392	399	391
R^2	0.021	0.828	0.028	0.825

Notes: Standard errors are shown in parentheses. The dialectal distance measure and all covariates are standardized. The first two models use the contemporary dialectal distance measures, while the latter two models use the 19th-century measure. The county-level covariates are given in the table. This table contains the same models as Table 1. ***p < .01; **p < .05; *p < .1

A.6.1 Correlations between variables in the GLES data

Table A.5: Cross-correlation table – GLES data

	Dialectal distance	Nationalism scale	Local attachment	National attachment	Female	Age	Unemployed	Income	Education	Rurality	East Germany
Dialectal distance	1.00										
Nationalism scale	0.01	1.00									
Local attachment	-0.01	0.33	1.00								
National attachment	-0.04	0.58	0.46	1.00							
Female	0.01	-0.01	-0.02	-0.02	1.00						
Age	-0.00	0.16	0.16	0.18	-0.04	1.00					
Unemployed	-0.01	-0.01	-0.09	-0.07	-0.03	-0.07	1.00				
Income	0.00	0.01	0.08	0.11	-0.11	0.06	-0.27	1.00			
Education	-0.02	-0.19	-0.01	-0.01	-0.03	-0.14	-0.11	0.29	1.00		
Rurality	0.07	0.08	0.01	0.01	0.04	0.04	-0.00	0.10	-0.08	1.00	
East Germany	0.09	0.03	0.06	-0.02	-0.00	0.01	0.02	-0.13	0.10	-0.09	1.00

Notes: The Table contains correlations between the variables used for the GLES models (see also Table 2, where we present estimates from the models using this data). All variables are measured on the individual level, except for dialectal distance, which is measured on the level of the electoral district.

A.6.2 Results for the AfD in 2013, 2017 and 2021

Table A.6: Dialectal distance and radical right voting in three elections

	DV: AfD Vote share		
	2013	**2017**	**2021**
Dialectal distance	0.037	1.172^{***}	1.205^{***}
	(0.103)	(0.354)	(0.348)
N	392	392	391
R^2	0.655	0.828	0.871
State FE	✓	✓	✓
Covariates	✓	✓	✓

Notes: Standard errors are shown in parentheses. The dialectal distance is standardized. All models use the contemporary dialectal distance measure as the outcome. We present results for three elections. The electoral results for the 2021 election are based on preliminary data. The county-level covariates are GDP/capita, average wages, population density, unemployment rate, total population, % catholic, commuters per capita and distance to the respective state capital. All covariates are standardized. Coefficient estimates and standard errors for the control variables are returned by the code in the replication archive. $^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

A.6.3 Results for other parties

Table A.7: Dialectal distance and support for all parties

	DV: Vote share, 2017					
	CDU/CSU	**SPD**	**Left**	**Greens**	**FDP**	**AfD**
Dialectal distance	−0.142	0.141	−0.188	-1.087^{***}	−0.166	1.172^{***}
	(0.210)	(0.321)	(0.166)	(0.277)	(0.194)	(0.354)
Mean of DV	34.31	20.19	8.67	8.12	10.17	13.33
N	392	392	392	392	392	392
R^2	0.953	0.901	0.946	0.779	0.759	0.828
State FE	✓	✓	✓	✓	✓	✓
Covariates	✓	✓	✓	✓	✓	✓

Notes: Standard errors are shown in parentheses. The dialectal distance is standardized. The county-level covariates are GDP/capita, average wages, population density, unemployment rate, total population, % catholic, commuters per capita and distance to the respective state capital. Coefficient estimates and standard errors for the control variables are returned by the code in the replication archive. $^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

A.7 Robustness and sensitivity

Table A.8: Dialectal distance and radical right voting – robustness

	DV: AfD vote share, 2017				
	Baseline	**Control: 1920s pogroms**	**Control: NSDAP vote share**	**West Germany**	**East Germany**
Dialectal distance	1.172***	1.171***	1.168***	1.028***	2.382
	(0.354)	(0.354)	(0.356)	(0.331)	(1.590)
Mean of DV	13.33	13.33	13.36	11.37	22.36
N	392	392	388	322	70
R^2	0.828	0.828	0.828	0.530	0.701
State FE	✓	✓	✓	✓	✓
Covariates	✓	✓	✓	✓	✓

Notes: Standard errors are shown in parentheses. The dialectal distance is standardized. The first model is the same baseline model as in Table 1. In the second model, we additionally control for whether a current county experienced pogroms in the 1920s. In the third model, we control for the per capita number of new NSDAP members between 1925 and 1933. In the fourth model, we control for the per-capita number of internal out-migrants. The last two models split the sample into East and West Germany. The county-level covariates are GDP/capita, average wages, population density, unemployment rate, total population, % catholic, commuters per capita and distance to the respective state capital. Coefficient estimates and standard errors for the control variables are returned by the code in the replication archive. ***p < .01; **p < .05; *p < .1

Table A.9: Dialectal distance and radical right voting – Jaro-Winkler distance

	DV: AfD Vote share, 2017					
	Baseline		**Jaro-Winkler**		**J-W, West Germany**	**J-W, East Germany**
Dialectal distance	0.778***	1.172***	0.713***	1.288***	1.165***	1.938
	(0.264)	(0.354)	(0.265)	(0.349)	(0.326)	(1.442)
Mean of DV	13.39	13.33	13.39	13.33	11.37	22.36
N	400	392	400	392	322	70
R^2	0.021	0.828	0.018	0.830	0.535	0.702
State FE		✓		✓	✓	✓
Covariates		✓		✓	✓	✓

Notes: Standard errors are shown in parentheses. The dialectal distance measure is standardized. The first and second models are the same as in Table 1. The third and fourth models use standardized Jaro-Winkler distance instead of the distance measure given in section 4.1. The last two models split the sample into East and West Germany, using the standardized Jaro-Winkler distance as the independent variable. The county-level covariates are GDP/capita, average wages, population density, unemployment rate, total population, % catholic, commuters per capita and distance to the respective state capital. Coefficient estimates and standard errors for the control variables are returned by the code in the replication archive. ***p < .01; **p < .05; *p < .1

Table A.10: Dialectal distance and radical right voting – administrative district FE.

	DV: AfD Vote share, 2017			
	Baseline distance		Jaro-Winkler distance	
Dialectal distance	0.778***	1.607***	0.713***	1.397***
	(0.264)	(0.407)	(0.265)	(0.406)
Mean of DV	13.39	13.33	13.39	13.33
N	400	392	400	392
R^2	0.021	0.872	0.018	0.871
Admin. district FE		✓		✓
Covariates		✓		✓

Notes: Standard errors are shown in parentheses. The first two models use the baseline dialectal distance measure, while the third and fourth model use Jaro-Winkler distance. Both distance measures are standardized. Instead of state fixed effects, we use lower-level adminstrative district fixed effects. The county-level covariates are GDP/capita, average wages, population density, unemployment rate, total population, % catholic, commuters per capita and distance to the respective state capital. Coefficient estimates and standard errors for the control variables are returned by the code in the replication archive. $^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Table A.11: Dialectal distance and radical right voting – control coefficients & controlling for distance to Hannover and distance to the border

	DV: AfD Vote share, 2017				
Dialectal distance	0.778***	1.705***	0.862***	1.596***	1.184***
	(0.264)	(0.521)	(0.273)	(0.552)	(0.385)
Pop. density / km2					−0.676***
					(0.260)
Tot. population					−0.291
					(0.588)
Nominal GDP (EUR)					−0.106
					(0.367)
Share Catholic					−0.964***
					(0.290)
Unemployment rate (%)					2.070***
					(0.253)
CDU/CSU vote share, 2013					0.999***
					(0.299)
In-commuters / capita					−0.080
					(0.181)
Dist. to state capital (km)					−0.500***
					(0.189)
Dist. to Hannover (km)		−1.094**		−0.915	0.208
		(0.519)		(0.598)	(0.413)
Dist. to Border (km)			0.427	0.190	0.071
			(0.272)	(0.313)	(0.220)
State FE	No	No	No	No	Yes
N	400	399	399	399	392
R^2	0.021	0.031	0.026	0.032	0.826
State FE					✓

Notes: Standard errors are shown in parentheses. The dialectal distance is standardized. All models use the contemporary dialectal distance measures as the outcome. The county-level covariates are GDP/capita, average wages, population density, unemployment rate, total population, % catholic, commuters per capita and distance to the respective state capital. The models also include distance to Hannover and distance to the German border as additional covariates. All covariates are standardized. $^{***}p < .01$; $^{**}p < .05$; $^{*}p < .1$

Table A.12: Dialectal distance and radical right voting – CBPS weights.

	DV: AfD Vote share, 2017			
	Baseline (weighted)		**West Germany**	**East Germany**
Dialectal distance	2.024***	1.592***	1.752***	0.675
	(0.251)	(0.233)	(0.203)	(0.426)
Mean of DV	13.92	13.92	11.32	22.28
N	392	392	322	70
R^2	0.860	0.896	0.585	0.755
State FE		✓	✓	✓
Covariates		✓	✓	✓
CBPS weights	✓	✓	✓	✓

Notes: Standard errors are shown in parentheses. The dialectal distance measure is standardized. The first two models are similar to the baseline models in Table 1. We weight each observations using weights given by the CBPS method (see Imai and Ratkovic 2014). The last two models split the sample into East and West Germany. The county-level covariates are GDP/capita, average wages, population density, unemployment rate, total population, % catholic, commuters per capita and distance to the respective state capital. Coefficient estimates and standard errors for the control variables are returned by the code in the replication archive. ***p < .01; **p < .05; *p < .1

Table A.13: Sensitivity analysis – full results.

Variable	**Partial R^2 w.r.t. treatment**	**Partial R^2 w.r.t. outcome**	**Adjusted estimate**	**Adjusted SE**	**Adjusted t-stat**
Pop. density / km2	0.01	0.01	1.10	0.35	3.12
Tot. population	0.00	0.00	1.17	0.35	3.31
Nominal GDP	0.00	0.01	1.13	0.35	3.20
Nominal wage	0.01	0.01	1.12	0.35	3.16
Share Catholic (2011)	0.03	0.03	0.96	0.35	2.70
Unemployment rate	0.01	0.20	0.95	0.32	2.98
CDU/CSU vote share 2017 (party)	0.00	0.03	1.16	0.35	3.31
Commuters / capita (2017)	0.01	0.00	1.15	0.36	3.24
Dist. to state capital (km)	0.00	0.03	1.12	0.35	3.22

Notes: Full results from the sensitivity analysis outlined in section 7. Each row outlines the reduction in effect sizes for a hypothetical unobserved confounder with the same partial correlations w.r.t radical right voting and dialectal distance from standard German as the current covariates.

A.7.1 Uncertainty in the dialectal distance measure

As described in section 4.1, we use the county-specific modal quiz answers to calculate dialectal distance between a given county and standard German. Since the respondents in each county only constitute a sample of the overall county population, there is some uncertainty associated with our estimates of dialectal distance. We use a bootstrap approach to address this uncertainty. To implement this, we proceed as follows:

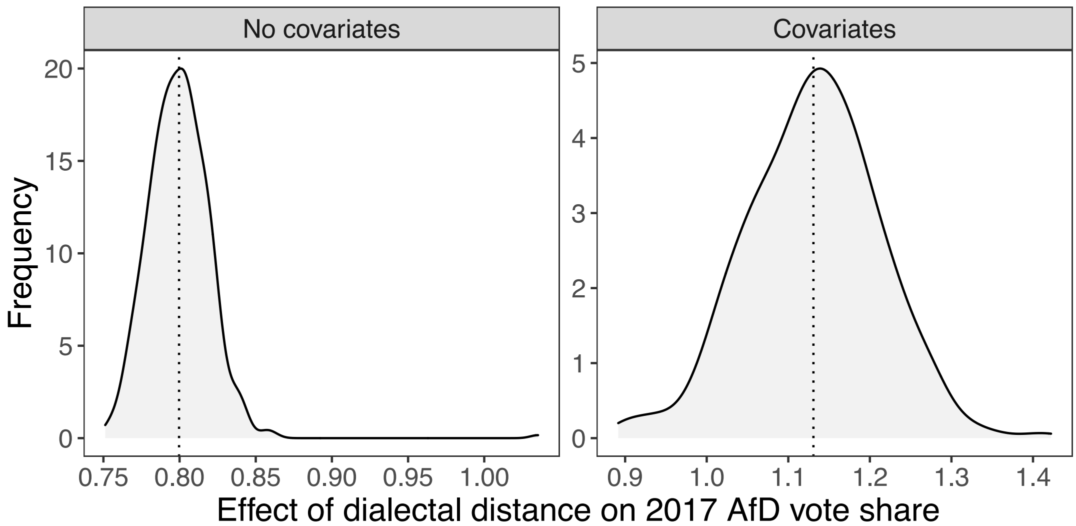
1. We sample from all 725,000 quiz respondents with replacement to form bootstrap sample j.

2. We then calculate county specific modal answers $X_{i,j}^{k}$ within the sample, and use the modal answers to calculate our main independent variable $d_{i,j}$. We note that this measure varies between bootstrap samples j.

3. We then estimate the main specification shown in section 5, which gives us the sample-specific coefficient estimate $\hat{\beta}_j$.

We repeat steps 1-3 500 times, giving us a distribution of estimates $\hat{\beta}_j$ for $j \in \{1, ..., 500\}$. This distribution allows us to quantify how much our estimates vary when we change the sample that is used to calculate the dialectal distance. We show the resulting distributions in figure A.4. We find that neither the distribution of $\hat{\beta}_j$ with or without adding covariates includes zero, indicating that measurement uncertainty does not lead us to falsely rejecting the null hypothesis of no effect.

Figure A.4: Distribution of bootstrap coefficient estimates

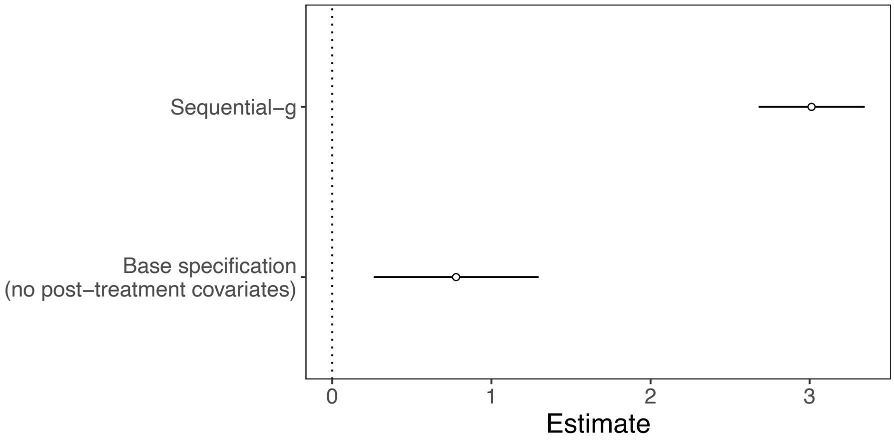


Note: The figures show the distribution of the coefficient estimate $\hat{\beta}_j$ for 500 bootstrap samples. The left-hand panel shows the coefficient estimates from the model without covariates, while the right-hand side corresponds to the full model. The dotted vertical lines indicate the mean of each distribution. See the preceding discussion for more details.

A.7.2 Accounting for post-treatment bias

In our main specification (see Table1), we run unconditional models, as well as models that condition on a range of contemporary variables. In a basic regression specification, this may induce post-treatment bias. Therefore, we rely on the sequential-g estimator, which allows us to include post-treatment controls without inducing post-treatment bias. For more information, we refer to Homola, Pereira, and Tavits (2020) for an example of the sequential-g estimator in a similar setting. In figure A.5, we compare the coefficient from the base specification that excludes covariates with the coefficient based on the sequential-g estimator. We find significant and positive effects in both cases. The sequential-g coefficient estimate is noticeable larger, although we caution against over-interpreting its magnitude.

Figure A.5: Comparing sequential-g estimates with unadjusted estimated



Note: The figure shows the unadjusted coefficient from the first model in Table 1, as well as the sequential-g estimates, using bootstrapped standard errors. Details on the estimates can be found in the replication materials.

A.7.3 GLES: results showing covariate coefficients

Table A.14: Dialectal distance, radical right voting intentions and likability.

	AfD vote intentions			AfD scalometer		
	Party vote			Range: 1–11		
	(1)	(2)	(3)	(4)	(5)	(6)
Dialectal distance	0.008**	0.016**	0.009*	0.141***	0.157***	0.130**
	(0.004)	(0.007)	(0.005)	(0.047)	(0.060)	(0.051)
Female (vs. male)	-0.045***	-0.068***	-0.046***	-0.047	-0.465***	-0.123
	(0.009)	(0.014)	(0.011)	(0.098)	(0.124)	(0.108)
Age	0.000	-0.001***	0.000	-0.019***	-0.021***	-0.019***
	(0.000)	(0.001)	(0.000)	(0.003)	(0.005)	(0.004)
Unemployed (vs. employed)	0.048**	0.074**	0.055**	0.339	0.575*	0.451*
	(0.022)	(0.036)	(0.027)	(0.216)	(0.295)	(0.247)
Income (1-13)	-0.002	-0.002	-0.002	-0.053**	-0.049*	-0.053**
	(0.002)	(0.003)	(0.002)	(0.021)	(0.026)	(0.024)
Education (base: no secondary degree)						
Hauptschule	-0.055	-0.070	-0.092	-0.682	-0.841	-1.043*
	(0.058)	(0.091)	(0.081)	(0.572)	(0.604)	(0.613)
Realschule	-0.060	-0.095	-0.104	-1.086*	-1.276**	-1.493**
	(0.058)	(0.091)	(0.081)	(0.567)	(0.598)	(0.607)
Fachhochschulreife	-0.046	-0.081	-0.096	-1.084*	-1.188*	-1.503**
	(0.060)	(0.093)	(0.083)	(0.596)	(0.636)	(0.635)
Abitur	-0.102*	-0.139	-0.151*	-1.897***	-1.923***	-2.316***
	(0.058)	(0.091)	(0.081)	(0.569)	(0.601)	(0.608)
Rurality (base: major city)						
Suburban towns in metro areas	-0.001	-0.024	-0.008	0.129	0.011	0.104
	(0.012)	(0.020)	(0.015)	(0.139)	(0.177)	(0.154)
Suburban towns in less dense areas	0.011	0.017	0.006	0.156	-0.048	0.220
	(0.015)	(0.023)	(0.017)	(0.154)	(0.194)	(0.169)
Rural areas close to larger towns	0.022	0.026	0.014	0.325**	0.232	0.374**
	(0.014)	(0.022)	(0.016)	(0.147)	(0.192)	(0.163)
Rural areas close to small towns	0.002	-0.013	-0.010	0.148	-0.005	0.188
	(0.014)	(0.021)	(0.016)	(0.146)	(0.187)	(0.159)
East (vs. West)	0.041***	0.061***	0.052***	0.676***	0.809***	0.800***
	(0.013)	(0.020)	(0.016)	(0.138)	(0.175)	(0.155)
Nationalism scale (1-5)		0.066***			0.781***	
		(0.007)			(0.061)	
Local attachment (1-5)			-0.004			-0.054
			(0.006)			(0.055)
National attachment (1-5)			-0.003			0.072
			(0.007)			(0.063)
Constant	0.166***	0.110	0.239***	5.578***	2.978***	5.791***
	(0.062)	(0.098)	(0.085)	(0.598)	(0.671)	(0.669)
Mean of DV	0.09	0.14	0.09	3.32	2.94	3.22
N	26841	3414	4975	33104	3581	5265
Unique respondents	2061	1992	2012	2089	2065	2073
R^2	0.02	0.07	0.03	0.05	0.12	0.06
East-West FE	✓	✓	✓	✓	✓	✓

Notes: The Tablecontains coefficient estimates from six linear models. The main independent variable is dialectal distance to standard German, aggregated to the level of electoral districts. We pool 18 waves of the German Longitudinal Survey (GLES). Standard errors, clustered by respondent, are shown in parentheses. ***p < .01; **p < .05; *p < .1

A.7.4 GLES: voting for all radical right parties

In the Table below, we report additional results for the GLES / individual-level analyses. In the main body of the text, the outcome was whether respondents reported that they intend to vote for the AfD party. In Table A.15, we re-code the outcome such that all voters for any radical right party are coded as '1', which includes the AfD as well as the smaller *NPD*, *Republikaner* and *Die Rechte* parties.

Table A.15 shows the results using the alternative outcome that measure preferences for any radical-right party, not just the AfD. Using this alternative outcome, we find similar results as with the outcome that just measures AfD support.

Table A.15: Dialectal distance and radical-right voting intentions, using all radical-right parties

	DV: Radical right vote intentions		
	(1)	(2)	(3)
Dialectal distance	0.011**	0.017**	0.010**
	(0.005)	(0.007)	(0.005)
Nationalism scale (1-5)		0.068***	
		(0.007)	
Local attachment (1-5)			-0.005
			(0.006)
National attachment (1-5)			-0.002
			(0.007)
Mean of DV	0.10	0.14	0.10
N	26841	3414	4975
Unique respondents	2061	1992	2012
R^2	0.02	0.08	0.03
East-West FE	✓	✓	✓
Covariates	✓	✓	✓

Notes: The table contains coefficient estimates from three linear models. The main independent variable is dialectal distance to standard German, aggregated to the level of electoral districts. We pool 18 waves of the German Longitudinal Survey (GLES). Standard errors, clustered by respondent, are shown in parentheses. Coefficient estimates and standard errors for the control variables are returned by the code in the replication archive.***p < .01; **p < .05; *p < .1

A.8 Individual-level dialects

A.8.1 Data description & estimation

To provide additional information on individual rather than aggregate–level dialect measures, we rely on data from the German Socio-Economic Panel Survey (SOEP, see also section A.4). Specifically, we use data from the *Innovation Sample* in 2016 and 2017, a special sample that includes survey items that are not part of the standard

SOEP questionnaire. The IS sample includes several survey items on whether respondents use dialects, as well as on individual background characteristics and the location where respondents reside. Based on this sample, we present additional results on (i) the correlation between aggregate and individual measures of dialect usage and (ii) the correlation between individual–level dialects and party preferences.

Measures of dialect: We rely on two explanatory variables that measure whether individuals use dialects. The first is a general item, which asks "Can you speak a German dialect or Low German?", and the second asks "Do you use dialect or Standard High German with colleagues?". In our analysis, both variables are binary - the first variable is equal to one if the respondents report being able to speak a dialect, and the second one is equal to one if respondents indicate using dialects at work. We chose two outcomes, since we aimed to measure gradations of dialect competency. The general dialect items measure only whether people can speak dialects (and not whether they use them regularly), while the second item measures whether respondents use dialects in a relatively formal environment. The "dialect at work" items therefore measures a much stronger form of dialect usage. We note that the second measure – using dialects at work – is only asked if respondents indicate that they can speak any dialect, which leads to a lower number of observations. In table A.16 below, we present information on the coverage of the data, particularly with respect to how many counties are covered. There are responses for 120 counties, which means that 30% of all German counties are covered by the data. The average number of respondents per county is 21.9, while the median number of respondents is 19. Covered counties tend to be, on average, larger than counties that are not covered. As a result, the total population of covered counties is about 37 million people, or about 44.7% of the total German population in 2017.

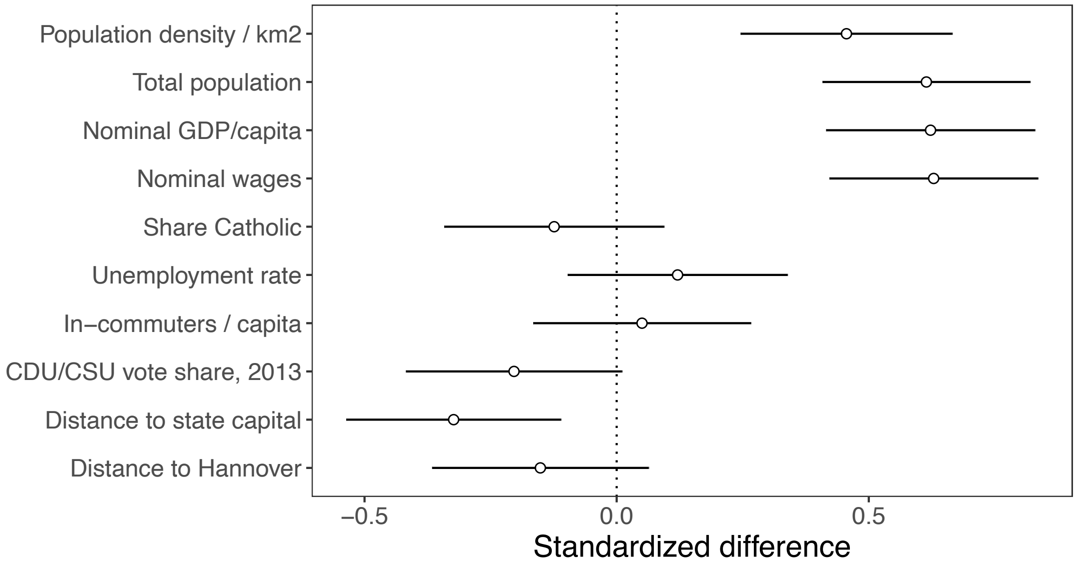
In figure A.6, we present additional information on differences between counties that are covered and counties that are not covered. Inclusion in the sample appears mostly uncorrelated with unemployment rates, commuting, and the share of Catholics. We do, however, observe that covered counties tend to be larger, more densely populated and have higher wages and higher GDP/capita. Finally, covered counties are slightly less supportive of the CDU/CSU party, and tend to be somewhat more distant from their respective state capitals. In sum, we caution that the SOEP-IS data only cover a minority of all counties in Germany. In addition, the counties that are covered tend to be higher-income, larger, and more densely populated counties.

Estimation: We estimate series of linear models, where the binary outcome measures whether respondents identify with the AfD party (the survey item is "Which party do you lean toward"). In addition, we control for the county county–level characteristics that we include in all of our main models, as well as the following individual-level variables: individual income, employment status, age, years of education, and gen-

Table A.16: SOEP-IS coverage

Number of counties with any survey responses	120
% of counties covered	30
Mean number of responses per county	21.9
Median number of responses per county	19
% of total German population covered	44.7

Figure A.6: Correlates of SOEP-IS coverage



Notes: The figure presents information on differences between counties that are covered by the SOEP-IS data set, and counties that are not covered. Counties are defined as covered if there is at least one respondent from the county in the survey data. A total of 120 counties are covered, which leaves 281 counties that are not covered. The figure presents standardized differences, i.e. the difference is measured in standard deviations. Positive values indicate that the average for a given variable is higher in counties that are covered than in counties that are not covered.

der. Finally, some models include state fixed effects. Since the dialect questions were asked in two waves (2016 and 2017), some respondents enter the sample twice. We use this pooled sample, but also add survey wave fixed effects and cluster by respondent to account for duplicate inclusions of some respondents. Finally, we also present models where we additionally control for the aggregate-level dialectal distance. The results of these models are given in Table A.18.

Instrumental variables: As an additional empirical strategy, we rely on an instrumental variables design, where we instrument individual dialects with a proxy for the "linguistic enviroment" when survey respondents where in school. This is instrument was first used by Grogger, Steinmayr, and Winter (2020), who we follow in constructing the instrument. The instrument draws on the following survey item:

> Think back to when you were in elementary school. How would you rate the speech of the majority of your classmates?

1. No regional accent (like a news anchor in the Tagesschau)
2. Weak regional accent
3. Medium regional accent
4. Rather strong regional accent
5. Very strong regional accent

The instrument used by Grogger, Steinmayr, and Winter (2020) is based on the observations that individuals partially acquire their dialect from peers. It measures the average response to the above question among survey respondents that live close to a given respondent. More formally, the instrument for respondent i is defined as

$$Z_i = \frac{1}{N_{\text{Neighbors}}} \sum_j X_j \tag{3}$$

Where j is a respondent from the set $\{j \mid j \neq i, j \text{ and } i \text{ are close}\}$. While Grogger, Steinmayr, and Winter (2020) use physical distance to define whether individuals i and j are "close", we rely on a somewhat simpler definition – we consider an individual j to be close to i if they reside in the same administrative district (see also section 7 for the definition of administrative districts). As we show in TableA.19, this definition leads to a relatively strong first stage, i.e. the instrument is strongly correlated with speaking any dialect. We note that this instrument may not fulfill the assumptions necessary for unbiased instrumental variable estimates. The exclusion restriction requires us to assume that regional linguistic environment during childhood only affects AfD party preferences through its effect on individual dialects. However, childhood linguistic environment likely correlates with, for example, regional development, connection to the rest of the country or urbanity. Therefore, we recommend exercising caution when interpreting the IV estimates in Table A.19.

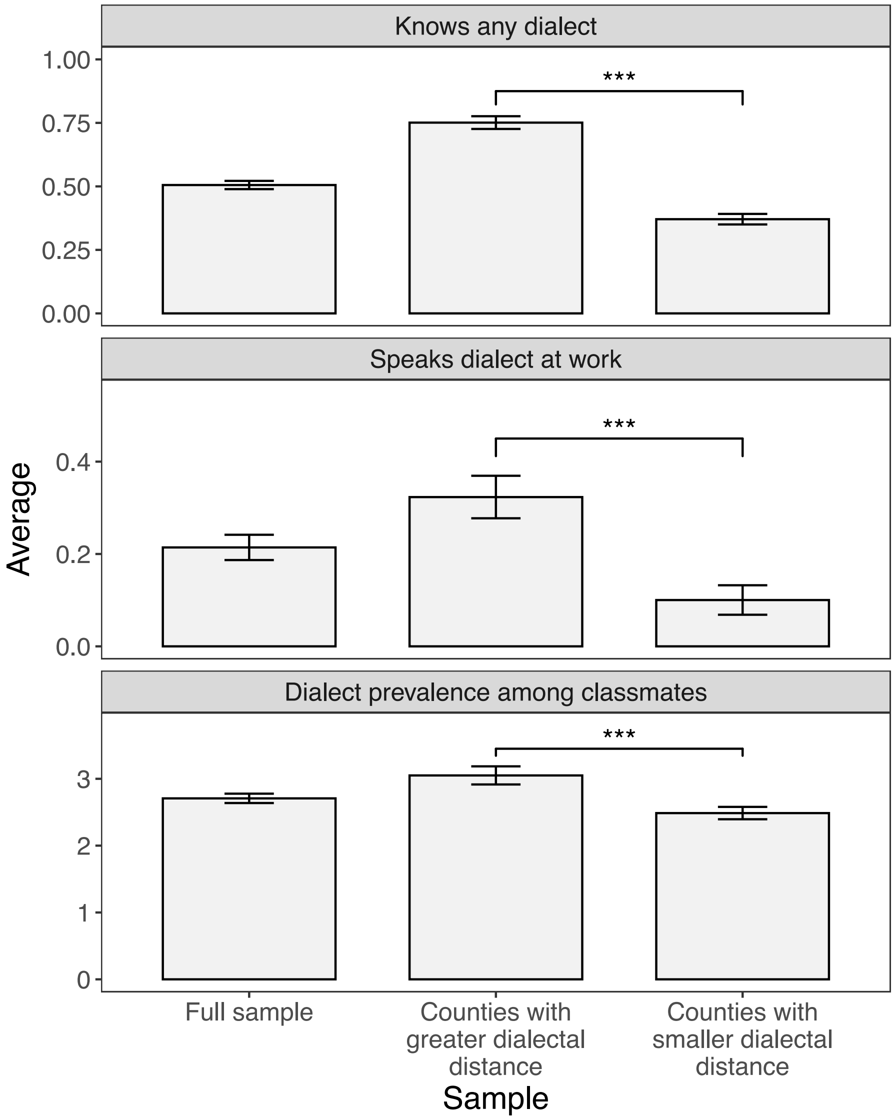
A.8.2 Prevalence of self-reported dialects

Table A.17: Correlation between the aggregate-level and three individual-level dialect measures

	Correlation with aggreggate-level dialectal distance
Knows any dialect	0.367
Speaks dialect at work	0.329
Dialect prevalence among classmates	0.255

Notes: The table shows the correlation between each of the three individual-level dialect variables discussed above and the aggregate-level dialectal distance measure.

Figure A.7: Dialect prevalence at the individual level



Note: The figure shows average values for the three individual-level dialect variables, for three different samples. The first two variables are binary, while the third is a five-point scale. We show averages for the whole sample, as well as for the set of counties with above-average aggregate dialectal distance, and the set of counties with below-average dialectal distance. For the latter two, we indicate whether the difference in means is statistically significant. Values for the conditional expectations as well as the p-values for the associated t-tests can be found in replication code.

We first demonstrate descriptively that (i) knowledge of dialects is common among SOEP respondents, and (ii) individual knowledge and usage of dialects is much more prevalent in regions that are more distant from standard German, as measured by our main dialectal distance measure. In figure A.7, we first show that about 50% of respondents report being able to speak any dialect. Of these 50%, about 21% report speaking dialects at work. In counties with above-average dialectal distance, about 75% of respondents report being able to use dialects. In these regions, respondents are also about three times as likely to use dialects at work, compared to counties that are closer to standard German. Similarly, respondents in counties that are more distant from standard German also report that speaking dialects was more common among their classmates in school. We further present correlations between the three dialect variables in table A.17. We note that the operationalization of the aggregate-level dialectal distance variable differs between figures A.7, which uses a binary split, and table A.17, which uses the original, continuous measure of dialect usage. Depending on the operationalization, the variable most strongly associated with aggregate-level dialects is either the "dialects at work" or the "knows any dialect variable". Since the exact strength of the association depends on the operationalization of the variable, there is no clear pattern regarding which of the two variable is clearly most strongly associated with aggregate-level dialect usage.

Taken together, this shows that our aggregate-level measure of dialects captures not only the presence but also the usage of dialects in everyday life.

A.8.3 Individual-level dialect and AfD support

Table A.18: Association between individual–dialect and AfD party preference (SOEP data)

	DV: AfD party preference (0/1)					
Any dialect (indiv.)	0.005	0.001	−0.0003			
	(0.010)	(0.013)	(0.013)			
Dialect at work (indiv.)				0.048**	0.062*	0.062*
				(0.022)	(0.032)	(0.032)
Covariates		✓	✓		✓	✓
State FE		✓	✓		✓	✓
Agg. dialectal distance			✓			✓
R^2	0.000	0.067	0.068	0.011	0.156	0.159
N	1,731	1,375	1,375	451	362	362

Notes: Standard errors are shown in parentheses. We use two binary measures for whether respondents use dialects. The first measures whether respondents indicate speaking any dialect, and the second indicates whether they use dialects at work (conditional on saying yes to the first item). All models a binary indicator of AfD party preference as the outcome. The county-level covariates are GDP/capita, average wages, population density, unemployment rate, total population, % catholic, commuters per capita and distance to the respective state capital. The individual–level covariates are individual income, employment status, age, years of education, and gender. We also present additional models where we add county–level dialectal distance as an additional covariates. Coefficient estimates and standard errors for the control variables are returned by the code in the replication archive. ***p < .01; **p < .05; *p < .1

Table A.19: Association between individual–dialect and AfD party preference (SOEP data) – IV estimates

	DV: AfD party preference (0/1)			
Any dialect (indiv.)	0.034	0.091		
	(0.041)	(0.103)		
Dialect at work (indiv.)			0.155**	0.323
			(0.072)	(0.224)
Covariates		✓		✓
State FE		✓		✓
First stage F-stat	121.795	21.808	58.907	7.977
N	1,731	1,375	451	362

Notes: Standard errors are shown in parentheses. We use two binary measures for whether respondents use dialects. The first measures whether respondents indicate speaking any dialect, and the second indicates whether they use dialects at work (conditional on saying yes to the first item). All models a binary indicator of AfD party preference as the outcome. The county-level covariates are GDP/capita, average wages, population density, unemployment rate, total population, % catholic, commuters per capita and distance to the respective state capital. The individual–level covariates are individual income, employment status, age, years of education, and gender. We also present additional models where we add county–level dialectal distance as an additional covariates. Coefficient estimates and standard errors for the control variables are returned by the code in the replication archive. ***p < .01; **p < .05; *p < .1

A.9 Dialectal distance: self reported origins

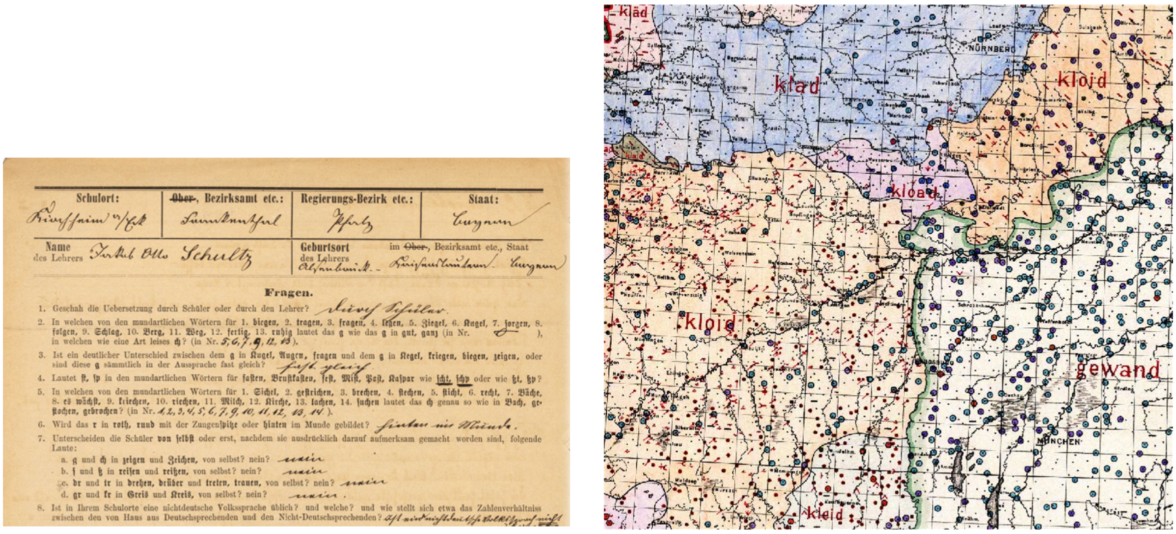
As stated in Section 4.1, we use the dialect quiz data to construct aggregate-level measures of dialectal distance. This is based on self-reported information on the place where respondents grew up, rather than the place where they currently reside, if the two are not the same. We now elaborate why it appears reasonable to assume that respondents usually indicate the place where they grew up, rather than their current place of residence. We note that the original version of the dialect quiz is not online anymore, which is why we rely on Leemann, Derungs, and Elspaß (2019) and Leemann (2021) – these authors are the original creators of the dialect quiz.

The two studies document how the instructions in the dialect quiz strongly prime readers to indicate the place where they grew up. One example is the beginning of the quiz, where respondents are instructed as follows: "Sagen Sie uns wie Sie sprechen, und wir sagen Ihnen, woher Sie stammen" (Tell us how you speak, and we will tell your where you originate). The German verb "stammen" suggests that the quiz is about the location where respondents grew up, rather than the place where they currently reside (in the latter case, the instructions would use "leben" (live) or "wohnen" (reside) instead of "stammen" (originate from)). After completing the quiz, respondents are then presented with an estimate of the location where grew up. They are then given the following prompt: "Wo spricht man wirklich so wie Sie? Klicken Sie dafür in die Karte" (Where does one actually speak like you? To indicate this, please click on the map). This is the prompt that asks respondents to indicate their place of origin, which we then use to measure dialectal distance from standard German. The language used here again suggests that respondents to indicate their place of origin, as it asks them for the location where people speak like them. Assuming that a respondent has moved to a different area, we would expect that the location "where people speak like them" is the one where they grow up, and not the one where they currently reside. This is also reflected in the discussion in Leemann, Derungs, and Elspaß (2019) and Leemann (2021), who consistently use "regional origin" rather than "current place of residence" to refer to the location variable in their data.

A.10 Dialectal distance: historical data

Our historical data is taken from the *Deutsche Sprachatlas* (see Falck et al. 2012; Lameli et al. 2014), a large-scale survey of the German language that was originally conducted in the late 19th century. Based on the survey, we use a measure of *dialectal distance* between the dialect spoken in a given region, and the standard German dialect that is spoken in the Hannover area in Northern Central Germany. This dialectal distance measure measure serves as a proxy for cultural remoteness, our main independent variable.

Initiated by the Georg Wenker in 1879, the *Deutscher Sprachatlas* survey was aimed at documenting differences between regional dialects. Wenker surveyed over 40,000 elementary schools across the whole German Empire, asking students and teachers to translate 40 German sentences into the local dialects. Respondents were specifically asked to use phonetic spelling when translating the example sentences, preserving regional differences in pronunciation. In the first panel of Figure A.8, we show an example of the survey questionnaire as well as a map the regional variation in the word *Kleid* (cloth or dress). Based on the survey results, Wenker's successor Ferdinand Wrede then identified 66 'prototypical characteristics' of the German language, relating to spelling, pronunciation, grammar and differential use of cases. For each of the 66 characteristics, Wrede created maps that document their geographic variation within the German Empire.



(a) Original dialect questionnaire of the language survey

(b) Variation of the word 'Kleid', drawn by Georg Wenker

Figure A.8: Questionnaire and map by Georg Wenker

We do not have direct access to the original surveys or the prototypical characteristics. Rather, we rely on an aggregated data set compiled by Lameli et al. (2014). They aggregate the Wenker surveys to the level of contemporary German counties. For possible pair between two counties, Lameli et al. (2014) create a measure of dialectal distance. We use part of this data to ascertain how close a county is to the standard German dialect that is spoken in Hannover.

A.11 Additional information on subjective social status data & estimation

In figure 3, we present the association between dialectal distance and self-perceived social status, based on individual-level data from the German Socio-Economic Panel (SOEP, see Wagner, Frick, and Schupp 2007) survey. Here we provide some further details on the data as well as on the estimation. While the SOEP is an annual panel, our outcome was measured only once in 2018, since it was part of an additional module of the survey. We reproduce the official translation of the prompt for the status item below:

> "Please imagine this ladder shows where people are situated in their social environment. At the top, we can find people which have the highest social importance to their social environment. At the bottom, we can find people with the lowest importance to their social environment. Where would you place yourself on the ladder? The higher your position on that ladder is the more you are alike to people at the top. The lower your position is the more your are alike to people at the bottom. Please select the rung of the ladder where you find yourself currently in comparison to other people in your social environment."

Respondents are then shown an image of a ladder with ten rungs, and are asked to indicate the rung that most closely matches their perceived social status. This results in a variable that ranges from 1-10, where 10 is the highest rung on the ladder. For the sample that we base the results in figure 3 on, the mean self placement is about 6.3 with a standard deviation of about 1.6. Before estimating the association between dialects and self-perceived status, we standardize this variable such that it has a mean of zero and a standard deviation of one.

We then estimate a series of OLS models, where we use the county-level dialectal distance to Hannover as the main independent variable. Similar to the main specifications that use county-level data, we always include state fixed effects to account for unobserved regional heterogeneity. Depending on the specification, we add individual-level controls and county-level controls. The county-level controls are the same ones used in the main models (see Table 1). Individual-level controls are income, age, gender, years of education, employment status and political interest. Crucially, the individual-level controls can be seen as a proxy for the true social status, since we can condition on income, employment and education. Therefore, these covariates ensure that self-perceived social status is not simply a measure of income or education. We show results based on different model specifications in figure 3. For all models, we cluster standard errors by county.