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69 Report by Christian Franz, Marcel Fratzscher, and Alexander S. Kritikos

German right-wing party AfD finds more support in rural areas with aging populations

- Correlation between strong support for the AfD in eastern Germany and elderly populations in rural areas
- The AfD received more votes in western German electoral districts with below-average incomes

LEGAL AND EDITORIAL DETAILS



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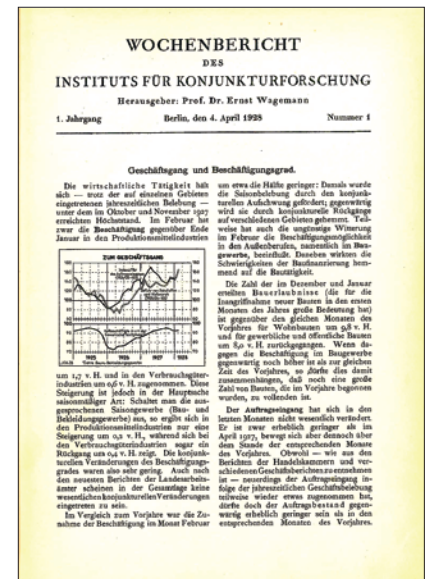
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Dear readers,

Since 1928—so for over 90 years—the DIW Wochenbericht (DIW Weekly Report) has been the flagship publication of the German Institute for Economic Research (DIW Berlin). Every week, it presents up-to-date and politically relevant research findings in a compact, substantiated, and understandable form. Over time, we have changed the design and format of the publication to present its content in the best possible way.

Today you're seeing the DIW Weekly Report with its new layout. New features should help orient you even faster to the individual reports' content. In addition to a short summary of the main results on the cover, there will be a new page before each report serving as an overview of the most important information, often in the form of an infographic. This infographic and all other graphic elements in the DIW Weekly Report will also now benefit from our new four-color scheme, which allows us to better present information graphically. Furthermore, the individual reports in each issue will now be color-coded. Additional improvements to the typography ensure even better readability, whether online or on paper. Moreover, we're improving the DIW Weekly Report's digital presence on our website and each issue of the DIW Weekly Report will soon receive a unique Digital Object Identifier (DOI) under which it can be permanently accessed. These changes will be implemented later this year as part of the Institute's website relaunch.

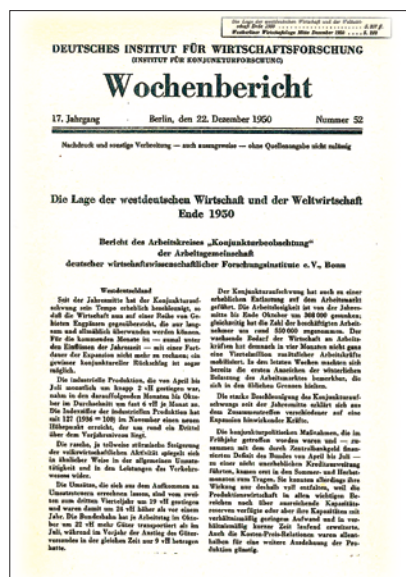
Some things won't be changing, however. You will still regularly receive quality-controlled, research-based, and citable reports that are based on current DIW Berlin studies or written specifically for the DIW Weekly Report. At the beginning of this year, the English-language version of the DIW Wochenbericht was renamed the "DIW Weekly Report – A policy bulletin from the German Institute for Economic Research," in order to emphasize the relationship between the reports.



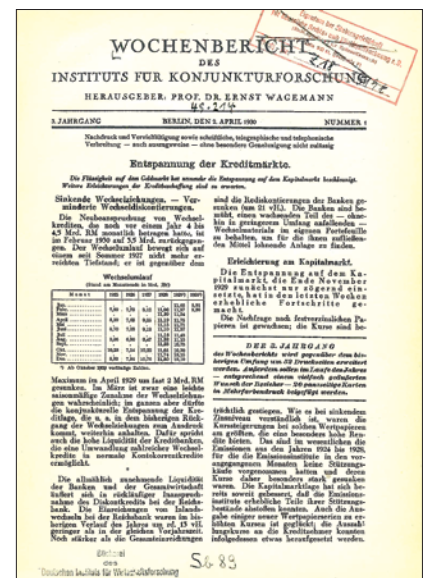
1928



1942



1950



1950

We hope that you like the DIW Weekly Report's new layout as much as we do and that the publication continues to prove useful for your work. We look forward to hearing your feedback.

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Best regards,

Gritje Hartmann, Mathilde Richter, and Wolf-Peter Schill

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1968



1978



2002



2012



2018

AT A GLANCE

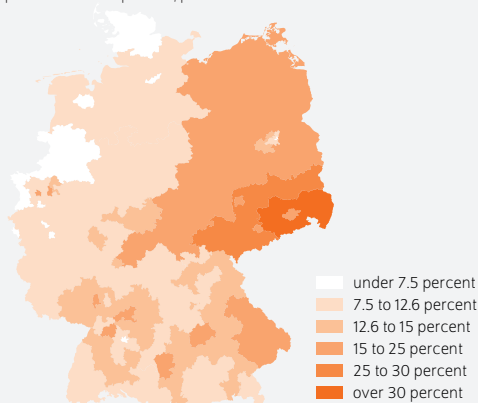
German right-wing party AfD finds more support in rural areas with aging populations

By Christian Franz, Marcel Fratzscher, and Alexander S. Kritikos

- Correlations analyzed between German right-wing party AfD's performance in the 2017 election and seven socioeconomic indicators at the electoral district level
- Differences in unemployment rates, education levels, and shares of foreigners stand in minor relation to variation in AfD votes
- In western Germany, low household income and share of manufacturing workers correlate with strong AfD performance
- In eastern Germany, positive correlation between high density of craft businesses, aging populations and strong AfD performance
- Policies must focus in particular on rural areas with an unfavorable demographic trend

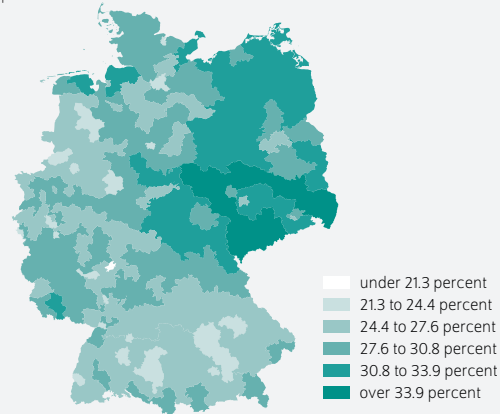
In eastern German electoral districts where the AfD performed strongly, the share of elderly is higher than the German average

AfD performance in the 2017 general election
Proportional vote. In percent, per electoral district



Source: Authors' own calculations.

Share of those over 60 years old in the overall population
In percent. Per electoral district. Data from 2015



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FROM THE AUTHORS

“Our study shows that in eastern Germany, the right-wing populist party AfD performed better in rural areas with aging populations. In the west, the AfD perform better in electoral districts with a high share of industry workers and lower-than-average household incomes. However, there is no correlation between the unemployment rate and votes for the AfD.”

— Alexander S. Kritikos —

German right-wing party AfD finds more support in rural areas with aging populations

By Christian Franz, Marcel Fratzscher, and Alexander S. Kritikos

ABSTRACT

This study examines in which setting the German political party Alternative for Germany (Alternative für Deutschland, AfD) performed well in the 2017 parliamentary elections. The AfD's popularity was relatively high in electoral districts with an above-average amount of craft businesses, a disproportionately high amount of older residents and workers in the manufacturing sector, and—applicable mainly to western German electoral districts—where the disposable household income was lower than the national average. The unemployment rate in the electoral districts and the share of foreigners in the population affect the AfD's popularity to a lesser extent. Generally, the AfD performs better in rural areas with negative demographic trends—a phenomenon that occurs more frequently in eastern German districts than in western districts. This allows for the conclusion that perspective is lacking among those living in rural areas with negative demographic developments.

The AfD received 12.6 percent of all votes in the parliamentary election on September 24, 2017 (Box 1), making them the third most powerful party in the German parliament (*Bundestag*). The AfD even came in second place in the five large eastern German federal states and eastern Berlin with 21.9 percent of the vote while the Social Democratic Party of Germany (*Sozialdemokratische Partei Deutschlands*, SPD) fell to fourth place with 13.9 percent of the vote. These results mark the first time that a right-wing populist party¹ has cleared the five percent threshold that has been in effect nationwide since 1953 (Box 2). Given that the party may now take on the role of opposition leader, the question of how they were so successful in the election is becoming more and more important.

The beginning of the refugee crisis in the second half of 2015 is viewed as an important trigger for the rise of the AfD. Party leadership turned the refugee crisis and fear of migrants into a key campaign issue.² Intense discussions were already occurring the day after the election regarding to what extent the AfD's popularity was actually related to the proportion of foreigners.³ Other possible explanations often discussed are that people “left behind by structural change” and “losers of globalization” as well as those who feel let down—especially in the eastern federal states—are receptive to the AfD's election rhetoric. Support for the AfD is especially high in these areas due to continuing major economic problems and the simultaneous perception that other groups of people, especially migrants, are treated in a better way.

¹ See for example Martin Kroh and Karolina Fetz, “Das Profil der AfD-AnhängerInnen hat sich seit Gründung der Partei deutlich verändert,” *DIW Wochenbericht*, no. 34 (2016): 711-719 (in German; available online, accessed February 2, 2018; this applies to all other online sources in this report unless stated otherwise).

² The following speech from Alexander Gauland on June 2, 2017, at the market square in Elsterwerda, Germany is a good example and available online.

³ See “Wie Einkommen, Arbeitslosigkeit und Migration das Wahlverhalten mitbestimmen,” *Neuer Züricher Zeitung*, September 25, 2017 (in German; available online); Katharina Brunner and Christian Endt, “Je mehr Autos, desto mehr Stimmen für die Union,” *Süddeutsche Zeitung*, September 26, 2017 (in German; available online); Kolja Rudzio, “Wo Fremde fremd sind,” *Die Zeit*, September 27, 2017 (in German; available online). In other countries, a cause and effect relationship between the proportion of foreigners in an electoral district and support for a far right-wing party was identified, such as in Austria for the Freedom Party of Austria (*Freiheitliche Partei Österreichs*, FPÖ), cf. Martin Halla, Alexander F. Wagner, and Joseph Zweimüller, “Immigration and Voting for the Extreme Right,” *Journal of the European Economic Association* no. 15 (2017): 1341-1395.

Box 1

The German voting system

The German Bundestag is Germany's national parliament, the elected legislative branch of government at the federal level. Every four years, the country elects its members according to the principle of *personalized proportional representation*. Eligible voters elect at least 598 representatives, 299 of whom are directly elected in Germany's 299 voting districts. The other half receive their seats in the Bundestag via the parties' state candidate lists. Accordingly, each voter has two votes.

First and second votes

Candidates who receive the largest number of votes in their voting district enter the Bundestag as direct candidates. The first vote ensures that each region has at least one representative in the Bundestag. However, the second vote, which affects parties' state lists, is more important. It determines which party or coalition of parties has the majority in the Bundestag. For example, if a party receives 15 percent of second votes, it has a right to 15 percent of the seats in the Bundestag. The number of candidates from each list who actually receive seats in the Bundestag depends on the proportion of second votes their party received in the relevant state. If the Green Party, for example, gets 11 percent of second votes in Hesse, it will receive precisely 11 percent of seats in the Bundestag, filled according to the candidates' ranking on the Green Party state list, from slot one in descending order. The AfD results examined in this report refer to these second votes.

However, these explanations do not fully account for the AfD's election success. The party performed best in the eastern German federal states, but its performance differed between districts. At the same time, we still observe significant economic and social problems in eastern Germany, even almost 30 years after reunification. Economic disparities, of course, are not the only decisive factor; there are also other non-economic influences. In addition to many psychological, historical, and political-cultural differences as well as different social milieus, the party ties differ greatly between east and west.⁴

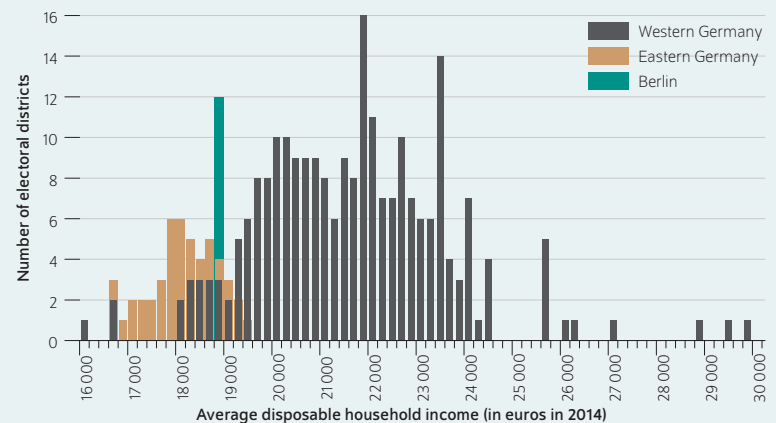
This report focuses on the economic factors and explores to what extent economic and sociodemographic living conditions in electoral districts are correlated with a higher number of votes for the AfD. It should be emphasized that individual votes are not analyzed in this report. This study is based on the election results for the 299 electoral districts (henceforth: districts) in addition to economic and socio-demographic structural data available for a majority of the districts, such as age structure, economic structure, income structure, educational structure, the labor market situation, or the share of foreigners in the population (Box 3).

⁴ Felix Arnold, Ronny Freier, and Martin Kroh, "Geteilte politische Kultur auch 25 Jahre nach der Wiedervereinigung?," *DIW Wochenbericht*, no. 37 (2015) (in German; available online).

Figure 1

Distribution of electoral districts by average disposable household income

Income in euros in 2014



Note: No disaggregated data is available for Berlin.

Sources: Federal Returning Officer; authors' own calculations.

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Electoral districts with high income are only in western Germany.

Following early theoretical approaches to voting behavior from an economic perspective,⁵ we utilize a multivariate regression analysis using the aforementioned data to examine how different labor market and income situations as well as other economic life situations and demographic characteristics correlate with the support for the AfD. Furthermore, we explore to what extent the unexplained share of the variation in the AfD's election performance is connected with the election performance of the right-wing National Democratic Party of Germany (*Nationaldemokratische Partei Deutschlands*, NPD) in 2013. First, economic and sociodemographic differences between the districts, especially between western and eastern Germany, are illustrated.

Economic and demographic differences still present between eastern and western Germany

In 2014, the average disposable household income—a socioeconomic variable that influences voting behavior⁶—was 18,085 euros in eastern German districts and 21,749 euros in western German districts, over 20 percent higher.⁷ Although the western German district Gelsenkirchen has the lowest average income in Germany, overall, the eastern German districts lag far behind the western in terms of income. There is not a single eastern German district where the household income is as high as the average household income in west-

⁵ Anthony Downs, *An Economic Theory of Democracy* (New York: Harper & Row, 1957).

⁶ See Downs, *An Economic Theory of Democracy* as well as the most recent empirical findings on the different income structures of voters in Karl Brenke and Alexander Kritikos, "Wählerstruktur im Wandel," *DIW Wochenbericht*, no. 29 (2017): 595-606 (in German; available online).

⁷ The descriptive statistics are calculated as unweighted averages across electoral districts.

Box 2

Political orientation of the AfD and AfD voters in the parliamentary election

Founded in April 2013 in the context of the euro crisis, the Alternative for Germany party has developed into a right-wing populist party.¹ Its campaign focused on immigration and refugee issues. Various personnel decisions reflected the changes in the party's political positions. After the party founder exited the party, later joined by various supporters of the "national-liberal wing" in summer 2015, the party pivoted to national-conservative positions.² This development continued with the most recent resignations after the 2017 parliamentary elections.³ In terms of economic policy, the AfD has followed a regulative course since its founding that demands a lower public spending ratio, lower tax rates, and more personal responsibility from citizens. In terms of social policy, the AfD presented itself in its 2017 election platform as a party that acts to correct what they call undesirable developments; for example, they want to strengthen traditional family values or—when it comes to education policy—emphasize training programs over universities.⁴

AfD voters in the parliamentary election

The AfD received 12.6 percent of the second votes nationwide. The representative election statistics show that support for the party was significantly higher among men (16.3 percent) than women (9.2 percent) in all federal states.⁵ Furthermore, the AfD received 21.9 percent of second votes in the new federal states of Germany⁶ and eastern Berlin, more than double the percentage received in the west. The party found significant support from men between 35 and 59: almost every fifth man in this age group voted for the AfD. The weakest support for the party was among first-time and young voters as well as men 70 and older; in the 70 plus group, only one in every ten men's second vote went to the AfD. A similar distribution, albeit at a lower level, can be found among female AfD voters. The voter structure differentiates the AfD from most other parties significantly; the age structure of AfD voters most closely resembles that of the Left Party (*Die Linke*).

¹ See Box 1 in Martin Kroh and Karolina Fetz, "Das Profil der AfD-AnhängerInnen hat sich seit Gründung der Partei deutlich verändert," *DIW Wochenbericht*, no. 34 (2016): 711-719 (in German; available online).

² Franck Decker, "Die 'Alternative für Deutschland' aus der vergleichenden Sicht der Parteienforschung," in *Die Alternative für Deutschland: Programmatik, Entwicklung und politische Verortung*, ed. Alexander Häusler (Wiesbaden: Springer VS, 2016), 7-23 (in German).

³ The former party leader justified her decision by referring to her differing views on historical-political statements made by leading AfD politicians and demanded to lead a differentiated discussion about Islam. See Peter Huth and Matthias Kamann, "Ich möchte nicht länger sozial geächtet werden," *Welt am Sonntag*, October 1, 2017 (in German; available online).

⁴ "AfD, Programm für Deutschland – Wahlprogramm der Alternative für Deutschland für die Wahl zum Deutschen Bundestag am 14. September 2017" (in German; available online).

⁵ Der Bundeswahlleiter, "Heft 4 – Wahlbeteiligung und Stimmabgabe der Frauen und Männer nach Altersgruppen," in *Wahl zum 19. Deutschen Bundestag am 24. September 2017* (Wiesbaden: Statistisches Bundesamt, 2017) (in German; available online).

⁶ The new federal states of Germany are the five re-established federal states that were once a part of the German Democratic Republic: Mecklenburg-West Pomerania, Brandenburg, Saxony-Anhalt, Saxony, and Thuringia.

ern German districts (Figure 1).⁸ Even more importantly, the variation in average incomes between the western German districts is higher than the variation between the eastern German districts.

Eastern and western Germany also differ in terms of employment. The unemployment rate as of March 2017 averaged 5.8 percent across all districts: 7.9 percent in the east and 5.4 percent in the west (Figure 2).

In addition to the labor market situation, this report takes differences in the economic structure into account. The structure of the eastern German economy is still very different from the western one.⁹ To capture this at an electoral district level, the density of craft businesses—traditionally a smaller

industry—per 1,000 inhabitants in 2014 was used.¹⁰ This variable also indirectly indicates the urban structure, as a high density of craft businesses is more likely to be found in rural areas or those with low population density. The eastern and western parts of the country also differ significantly in this variable (Figure 3): While there were 9.2 craft businesses per 1,000 inhabitants in the east, the average for western German districts was 7.2.

Germany is also divided demographically. A disproportionately large amount of people over 60 and a disproportionately low amount of young people live in eastern Germany (Figure 4a & 4b),¹¹ the only exceptions being the Dresden, Leipzig, and Potsdam metropolitan areas. This may be reflected in voting behavior, as districts comprised of mainly

⁸ Disposable household income, which reflects the spending power of residents in a district, may be more important for analyzing voting decisions from an economic perspective than GDP per capita in a district, as it gives more information about the economic output. Nevertheless, it should be noted that a comparison of GDP by districts presents a similar picture, although the difference between the east (25,400 euros) and west (37,300) is much more pronounced overall.

⁹ Cf. Michael Arnold et al., "Die ostdeutsche Wirtschaft ist zu kleinteilig strukturiert," *DIW Wochenbericht*, no. 35 (2015): 764-772 (in German; available online).

¹⁰ There is a negative correlation between the density of craft businesses and the economic performance in a district—measured by GDP per resident. This means that economic performance tends to be lower in districts with a higher density of craft businesses and vice versa.

¹¹ In this context, there is talk of an "aging east-west divide" in the rural districts of eastern Germany. See Stefan Gärtner, "Alte Räume und neue Alte: Lebensentwürfe, Chancen und Risiken," in *Gerontologie und ländlicher Raum: Lebensbedingungen, Veränderungsprozesse*, eds. Uwe Fachinger and Harald Künemund (Wiesbaden: Springer Verlag, 2015): 167-184.

older inhabitants have a different dynamic and worse economic prospects than districts with lots of younger people.¹²

Three further variables are included in this study. One is the share of foreigners in the overall population in the districts. At the end of 2015, the nationwide average was around ten percent: around 11 percent in western German districts and almost four percent in eastern German districts (and almost 15 percent in Berlin).¹³

Additionally, the share of employees in the manufacturing industry is taken into account. In the context of the discussion around globalization and digitalization, the question arises: To what extent are jobs—above all, those in the manufacturing sector—threatened due to the increasing use of robots and artificial intelligence?¹⁴ In the United States, initial studies show that progressive automation in manufacturing accompanies a reduction in the employment rate as well as in wages.¹⁵ In Germany, employment in the manufacturing industry was still increasing by around six percent between 2010 and 2017, and wages rose. Nevertheless, the manufacturing sector and blue-collar workers will also be confronted with changes. Interesting enough, there is a north-south divide rather than a west-east divide with respect to this variable (Figure 5).

Lastly, the high school graduation rate is taken into consideration. One's level of education, measured by the highest level of education completed, has been demonstrated to influence voting preferences.

Strong support for AfD in districts with a large share of older inhabitants

The analysis of the sociodemographic and economic structural data for the districts reveals which structural characteristics are correlated with the variation in the AfD's election performance (Table 1, Column 1; see Box 4 for methodical notes). The number of second votes for the AfD increased significantly in regions with a higher-than-average proportion of older residents and density of craft businesses. The estimation also shows the number of votes for the AfD was higher in districts where there is an above-average amount of non-German citizens. These three factors describe over

¹² Cf. Felix Arnold et al., "Large and Lasting Regional Disparities in Municipal Investments," *DIW Economic Bulletin*, no. 42/43 (2015) (available online).

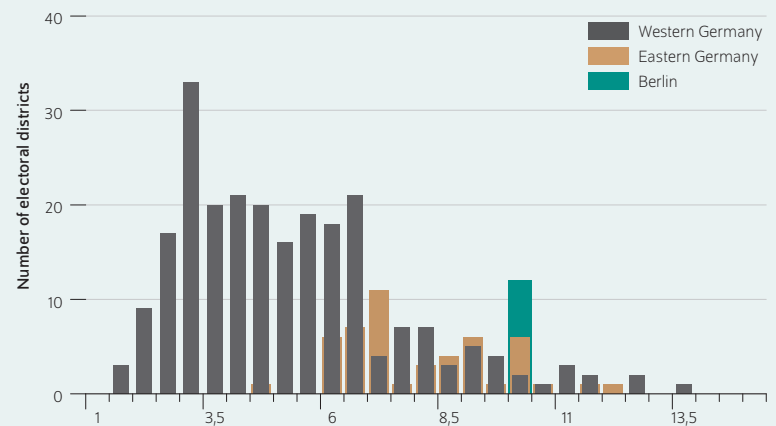
¹³ Changes have occurred since the last time these variables were classified according to electoral districts at the end of 2015 due to the distribution of refugees in electoral districts. Examples of such significant changes include Potsdam (from 6.47 percent in 2015 to 8.25 percent in 2017) and Cottbus (from 5.5 percent on December 31, 2015 to 8.35 percent on December 31, 2017). Cf. "Bevölkerung: Ausländer und Ausländeranteil seit 1992," Stadt Potsdam, 2017 (in German; available online); "Cottbus in Zahlen: Bevölkerung," Stadtverwaltung Cottbus (in German; available online). Accordingly, results for this variable are not interpreted further.

¹⁴ For example, a representative survey of 1,400 employees in Germany in 2017 showed that workers in the automobile industry in particular feel their jobs are in danger due to technological developments. Thirty-five percent of the respondents are "somewhat" or "very" worried. Cf. Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, *EY Jobstudie 2017* (2017) (in German; available online). Also cf. Brenke and Kritikos, "Wählerstruktur im Wandel," according to which a disproportionate amount of blue-collar workers are potential AfD voters.

¹⁵ Daron Acemoglu and Pascual Restrepo, "Robots and Jobs: Evidence from the US Labor Markets," (2017) (available online).

Figure 2

Distribution of electoral districts by unemployment rate In percent of labor force in this district



Note: No disaggregated data is available for Berlin.

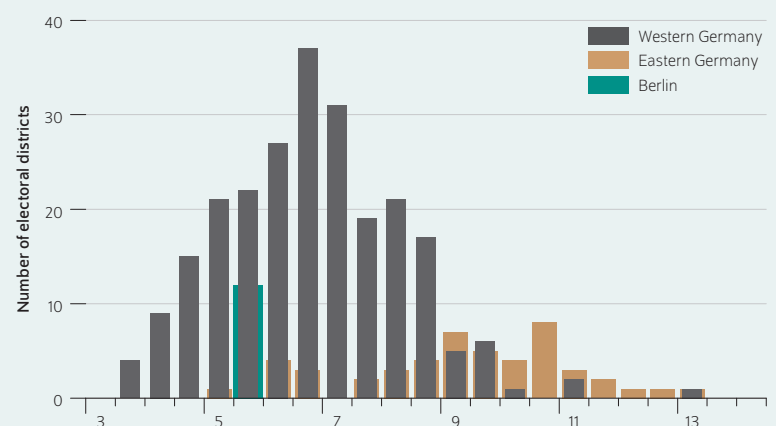
Sources: Federal Returning Officer; authors' own calculations.

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Electoral districts in western Germany tend to have lower unemployment rates.

Figure 3

Distribution of electoral districts by density of building and contracting firms In percent of labor force in this district



Note: No disaggregated data is available for Berlin.

Sources: Federal Returning Officer; authors' own calculations.

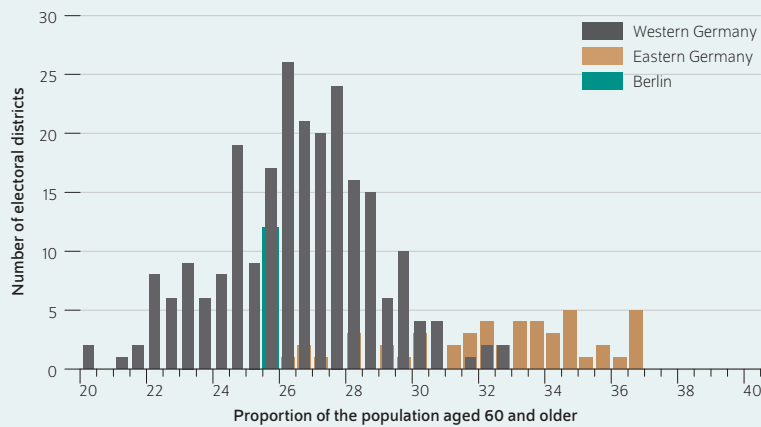
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Eastern German electoral districts tend to have higher densities of building and contracting firms.

Figure 4a and 4b

Distribution of electoral districts by share of people aged 60 and older

In percent of total population in the district



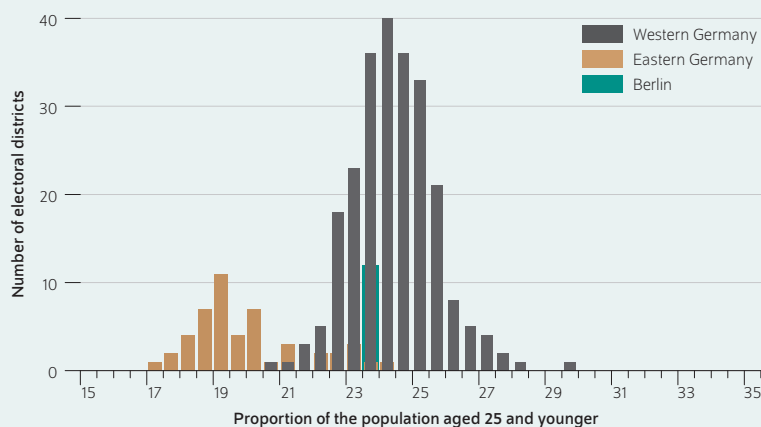
Note: No disaggregated data is available for Berlin.

Sources: Federal Returning Officer; authors' own calculations.

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Distribution of electoral districts by share of people aged 25 and younger

In percent of total population in the district



Note: No disaggregated data is available for Berlin.

Sources: Federal Returning Officer; author's own calculations.

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Eastern German electoral districts have fewer young people and more old people.

half of the variation in the AfD's election performance by district (adjusted $R^2 = 0.54$).

Taking all variables into account (Table 1, Column 2), the AfD performs better on average in districts with a disproportionately high number of older residents, more employees in the manufacturing sector, more foreigners, and more craft businesses. The party performs less well on average in districts where residents have above-average household incomes and vice versa. The correlations between the high school graduation and unemployment rates and the variation in the AfD's election performance are much less pronounced and not statistically significant. There is an insignificant negative correlation between the high school graduation rate and the AfD's election performance and an insignificant positive correlation between the unemployment rate and the AfD's election performance.

The significance of the east-west dummy variable's coefficients confirms that the AfD performs significantly better in eastern Germany than in the western part of the country. Even more importantly, the demographic variable has special relevance for the east, as the additional east-west dummy for the age variable is significant in addition to the overall east-west dummy.

Economic significance of structural variables

Standardizing the data (Box 4) allowed for an estimation of how strongly individual structural variables influence the variation in the AfD's election performance.

For example, an increase in the disposable annual household income to above the national average of 21,080 euros leads to a reduction in votes for the AfD. Conversely, votes for the AfD increase in districts where the disposable incomes are lower than the national average. The estimated effect of a standard deviation of this variable (2,287 euros) on the AfD's election performance is approximately 0.59 percentage points (Table 1). The differences in average disposable household incomes between districts have been shown to be large in Germany (Figure 1); incomes can differ by up to 13,000 euros between the western districts alone. This heterogeneity makes it more understandable why the AfD's election performance differs so strongly between districts, especially those in the west.

The same applies to the demographic variable: When the proportion of inhabitants over 60 in a district is greater than 28 percent (the national average), the AfD performs better. In districts where the proportion is less than 28 percent, the AfD tends to perform worse. A change of one standard deviation above the national average, around 3.1 percentage points, would improve the AfD's performance by a good 0.82 percentage points in the west and almost 2.3 percentage points in the east. Differences to this degree are not unusual as the age structure between eastern and western German districts varies significantly in some cases. On average, the proportion of older inhabitants is 5.4 percentage points

Box 3

Data used for the analysis

This analysis links the final election results of the 2017 parliamentary election to structural data at an electoral district level. The structural data encompass a total of 48 "structural variables" and describe an electoral district along the dimensions of age and population structure, average income situation, employment structure, unemployment, or religion.

Overall in the 2017 parliamentary election, there were 299 electoral districts—61 in eastern German federal states and 238 in western German. On average, around 275,000 people live in each electoral district (min: 198,000; max: 377,000), of whom 206,000 are eligible to vote on average (min: 160,000; max: 256,000). This Weekly Report only analyzes the second vote results calculated per electoral district:

$$\text{Party's performance in the second vote} = \frac{\text{valid votes for the party}}{\text{number of all valid votes}}$$

The "structural variables" were converted to an electoral district level by the Federal Returning Officer (*Bundswahlleiter*) using data from the Federal Labor Office (*Bundesagentur für Arbeit, BA*), the census database, and the Federal and State Statistical Offices (*Statistische Ämter des Bundes und der Länder*). Some electoral districts do not follow the boundaries of the municipalities and districts, making conversion partly impossible. This applied to a total of 41 electoral districts, most of them parts of large cities made up

of multiple electoral districts. The analysis addresses this limitation in two ways. First, 29 of the affected electoral districts are grouped into one data point in the cities concerned. Where there was disaggregated data (such as the share of foreigners), the city-wide values were determined. Otherwise, the unweighted averages were used, which were specified by the Federal Returning Officer. The situation is different for the 12 electoral districts in Berlin; grouping is not recommended here due to the fact that the electoral districts are systematically different from each other in regards to their party preferences and that this variation in the election results is unmatched by any variation in the data. For this reason, Berlin was excluded from the analysis altogether.

A further limitation is the difference in the survey dates between mid-2011 (for the percent of the population with a migratory background) and March 2017 (for the unemployment rate in an electoral district). Only variables valid for 2014 or later were used for the rest of the analysis. It is assumed that the differences between the electoral districts have only slightly changed in these surveys. An important exception is the variable of the proportion of people in an electoral district with non-German citizenship. There have been significant changes to this variable in the individual electoral districts since the end of 2015 (footnote 13).

higher in the eastern German districts than in the western districts (see Figure 4b). The share of the older population can also fluctuate significantly over the medium-term.¹⁶ Demographic development forecasts for Brandenburg, for instance, estimate an increase in the share of older inhabitants of 3.2 percentage points between 2013 and 2020.¹⁷ Such changes are not only due to the demographic development but also to migratory movements, such as when younger people move from rural to metropolitan areas or the southern federal states. This dynamic, the variable's relatively high coefficient, and the fact that this effect is more pronounced in the east than in the west make the age structure a significant factor for how the AfD performed in the second vote in the 2017 parliamentary election.

Imperfect estimations of the model in a few electoral districts

Together with the dummy variables, the seven structural variables describe almost 80 percent of the variation in the data (adjusted $R^2 = 0.793$). However, the AfD's election performance is over- or underestimated in some districts. The

factors used are less able to reflect the number of votes the AfD received in these districts (Figure 6).

The model underestimates support for the AfD in districts located in Saxony as well as in three Bavarian districts (Deggendorf, Straubing, and Schwandorf). Five of the ten districts where the AfD's election performance was most strongly underestimated are on the border with Poland and the Czech Republic. Conversely, the characteristics of the structural variables, such as those in the district of Harz, would indicate stronger election performance from the AfD—over 24 percent—although the actual result was only about 17 percent.

Past NPD performance of limited use to capture AfD outliers

In the final stage of the analysis, it is investigated to what extent there is a correlation between the "unexplained" part of the variation in the AfD's performance in the 2017 election and the popularity of right-wing parties in the past, especially for the NPD in the 2013 parliamentary election (Figure 7). There was a positive correlation for both the eastern and western German districts, expressed by the respective lines in Figure 7. This variable shows a higher correlation between eastern German districts and AfD voters than between western districts and AfD voters.

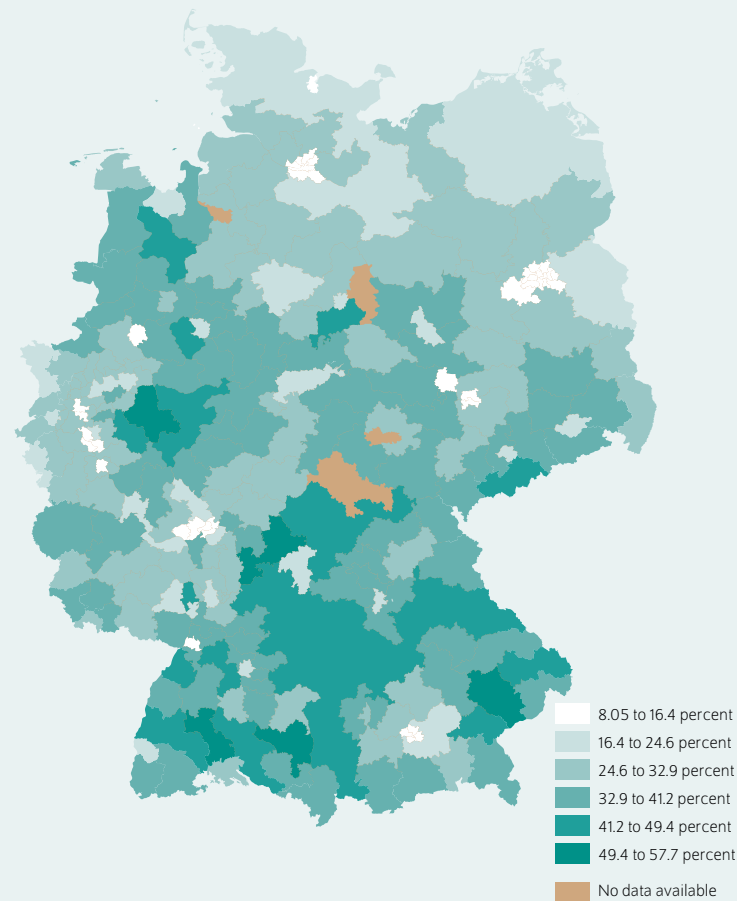
¹⁶ See for example Gärtner, "Alte Räume und neue Alte: Lebensentwürfe, Chancen und Risiken." Accordingly, outward migration is common in the rural districts in the east with low population density and sparsely populated districts and leaves these regions with large aging populations and few young people.

¹⁷ Landesamt für Bauen und Verkehr Brandenburg, *Bevölkerungsvorausschätzung 2014 bis 2030* (2015) (in German; available online).

Figure 5

People working in the manufacturing sector

percent of all employees who are subject to social security contributions



Note: No disaggregated data is available for Berlin. Data for Friesland—Wilhelmshaven—Wittmund, Helmstedt—Wolfsburg, Bremen I, Bremen II—Bremerhaven, Erfurt—Weimar—Weimarer Land II, Suhl—Schmalkalden-Meiningen—Hildburghausen—Sonneberg is unavailable.

Sources: Federal Returning Officer; authors' own calculations.

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There is a north-south divide as far as the share of employees in the manufacturing industry is concerned.

Table 1

Influence of select structural variables on the AfD's election performance

| | Model 1 (three variables) | | Model 2 (all variables) | |
|---|------------------------------|----------------|----------------------------|----------------|
| | coefficient | standard error | coefficient | standard error |
| Proportion of foreigners | 0.601 | 0.327 | 1.306 | 0.203 |
| Building and contracting firms density | 2.177 | 0.325 | 0.957 | 0.291 |
| Population aged 60+ | 3.138 | 0.337 | 0.821 | 0.309 |
| Unemployment rate | | | -0.235 | 0.336 |
| Household income | | | -0.587 | 0.299 |
| Employees in the manufacturing sector | | | 0.849 | 0.190 |
| 2015 high school graduation rate | | | -0.291 | 0.215 |
| East-west dummy | | | 8.756 | 1.173 |
| Interaction: east-west dummy & aged 60+ | | | 1.465 | 0.656 |
| Constants | | | 11.116 | 0.204 |
| F-statistic | 79.206 | | 64.566 | |
| R ² | 0.55 | | 0.800 | |
| Adjusted R ² | 0.544 | | 0.793 | |
| Observations | 263 | | 257 | |

Reading example: the coefficient in line 6 (0.849) means that an increase in the share of people working in the manufacturing sector by a standard variation of 9.1 percentage points above the German average translates into a rise of 0.849 percentage point of the AfD election results, ceteris paribus.

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It should be noted that this analysis does not aim to identify a causal effect; rather, it is an exploratory contribution to the understanding of a phenomenon that has already been discussed.¹⁸ One possible explanation for this correlation could be that certain organizational structures already existed in districts where far right-wing parties performed well in the past and could be used by the AfD. Further on, other analyses show a positive correlation between the NPD's losses between the 2013 and 2017 elections and the AfD's election performance.¹⁹

Conclusion: politicians must focus on structural weaknesses in the east

This report examines the correlations between the characteristics of different socioeconomic and demographic structural variables and the AfD's performance in the districts. First, the analysis clarifies that single reason explanations fall short. Neither unemployment nor low incomes alone account for the AfD's strong performance; the proportion of foreigners in the districts also cannot solely explain the party's success. Instead, a more differentiated picture emerges in which a distinction between western and eastern German districts must be made. Support for the AfD increases in districts where there is a high amount of people working in the manufac-

¹⁸ Cf. Davide Cantoni, Felix Hagemeister, and Mark Westcott, "Explaining the Alternative für Deutschland party's electoral success: The shadow of Nazi voting," Voxeu.org (2017) (available online); Achim Görres, "AfD und rechter Wahlerfolg 2: Der komplementäre Wahlerfolg der AfD und der NPD in Sachsen," Aus der Wissenschaft für die Politik (blog), Universität Duisburg-Essen, September 22, 2014 (in German; available online).

¹⁹ Carl C. Berning, "Alternative für Deutschland (AfD) – Germany's New Radical Right-wing Populist Party," ifo DICE Report 15, no. 4 (2017): 16-19 (available online).

Box 4

Methodical approach

A multivariate regressions analysis was used in the study to examine what influences affected the AfD's election performance using seven structural variables at an electoral level as well as one east-west dummy variable. The model takes the form:

$$AFD_i^{2017} = \beta_0 + \beta_1 Pop60plus_i^{2015} + \beta_2 PopForeign_i^{2015} + \beta_3 Income_i^{2014} + \beta_4 Contracting_i^{2014} + \beta_5 Unemployed_i^{2017} + \beta_6 GradRate_i^{2015} + \beta_7 EmployeesManufacSect_i^{2016} + \beta_8 DummyEW + \epsilon_i$$

The dependent variable is the AfD's second vote performance in the electoral district i in September 2017 in percent. The following eight independent variables were used: (1) the proportion of the population over 60 years old in percent, (2) the proportion of the population with a non-German passport in percent, (3) the average disposable yearly household income of private households in euros, (4) the number of craft businesses per 1,000 inhabitants, (5) the unemployment rate in percent, (6) the proportion of people who graduated from high school in 2015 and are eligible to enter university, (7) the proportion of employees in the manufacturing industry who are subject to social security contributions in percent, and (8) a dummy variable that differentiates between the eastern and western German electoral districts (east = 1). The years in superscript indicate the respective survey year. The error term ϵ includes measurement errors as well as influences from confounding variables that were not taken into account.

There was no disaggregated data for some electoral districts in big cities (Box 2). Furthermore, some electoral districts were excluded because information regarding the proportion of employees in the manufacturing industry subject to social security contributions was not available.¹ The data set for the analysis thus contains 257 out of the 299 electoral districts.

The table shows descriptive statistics for the variables used here. Unweighted averages are used, meaning differences in the population were not taken into consideration—every electoral district counts as an equivalent observation. This approach explains the deviations from the official statistics.

Standardization of the variables

The continuous variables were standardized according to the following scheme in order to achieve a consistent interpretation of the variables: $\hat{x}_i = \frac{x_i - \bar{x}}{\sigma_x}$. The transformed value \hat{x}_i corresponds to the original value x_i minus the arithmetic mean of the variable across all electoral districts divided by the standard deviation of the variable in the data set (σ_x). The dependent variables in the regression (each party's performance in the second vote in percent) as well as the dummy variable were not transformed. While the value and the interpretation of the estimated coefficients are changed by the transformation, the confidence interval is not.

Use of error terms

The regression formula above specifically only includes structural variables. In order to investigate the extent to which the AfD's performance in the 2017 election correlates with earlier voter preferences for right-wing parties, the following correlation was shown in a second bivariate regression:

$$\epsilon_i = \beta_0 + \beta_1 NPDPerformance_i^{2013} + \epsilon_i^{2nd-Step}$$

The error term ϵ_i from the first regression for the respective electoral district i was used as a dependent—that is, a variable to be explained. The only independent variable is the NPD's second vote performance in the 2013 parliamentary election in electoral district i while $\epsilon_i^{2nd-Step}$ expresses the error of estimation.

Table

Descriptive statistics of the data set

| | N | Arithmetic mean | Standard deviation | Minimum | Maximum | Unit |
|---|-----|-----------------|--------------------|---------|---------|--------------------------------|
| AfD proportional vote performance | 263 | 13.1 | 5.6 | 4.9 | 35.5 | (percent) |
| Proportion of foreigners | 263 | 9.3 | 4.7 | 1.2 | 28 | (percent) |
| Disposable household income | 263 | 21,080 | 2,287 | 16,135 | 29,954 | (euros) |
| High school graduation rate | 263 | 33.4 | 6.9 | 19.7 | 55.1 | (percent) |
| Density of building and contracting firms | 263 | 7.6 | 1.7 | 3.8 | 13.6 | (number per 1,000 inhabitants) |
| Employees in the manufacturing sector | 257 | 31.6 | 9.1 | 8.1 | 57.7 | (percent) |
| Unemployment rate | 263 | 5.8 | 2.3 | 2 | 14.1 | (percent) |
| Age 60+ | 263 | 28 | 3.1 | 20.6 | 36.7 | (percent) |

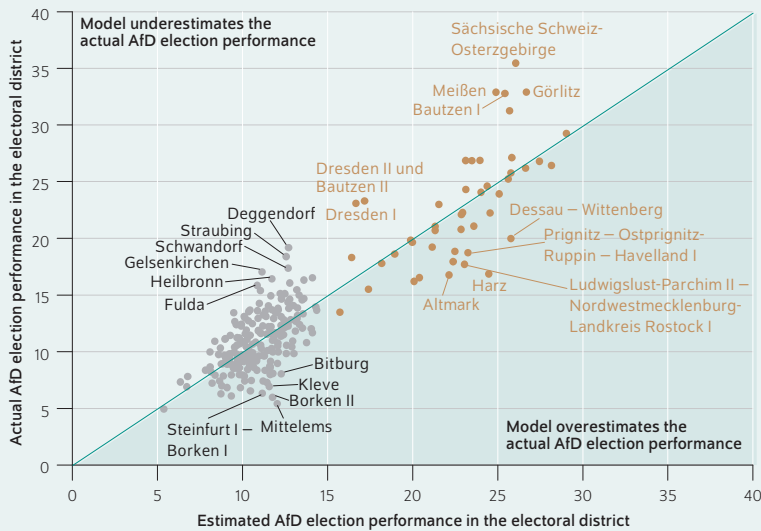
¹ Friesland – Wilhelmshaven – Wittmund, Helmsedt – Wolfsburg, Bremen I, Bremen II – Bremerhaven, Erfurt – Weimar – Weimarer Land II, Suhl – Schmalkalden-Meiningen – Hildburghausen – Sonneberg.

Sources: Federal Returning Officer; authors' own calculations.

Figure 6

Over- and underestimation of actual AfD election performance using "structural factors"

Actual vs. estimated AfD election performance in percent



Note: N = 257 electoral districts.

Sources: Federal Returning Officer; authors' own calculations.

Named election districts represent observations with the highest deviation from the actual result.

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The most underestimated election districts (above the 45-degree line) are located in Saxony.

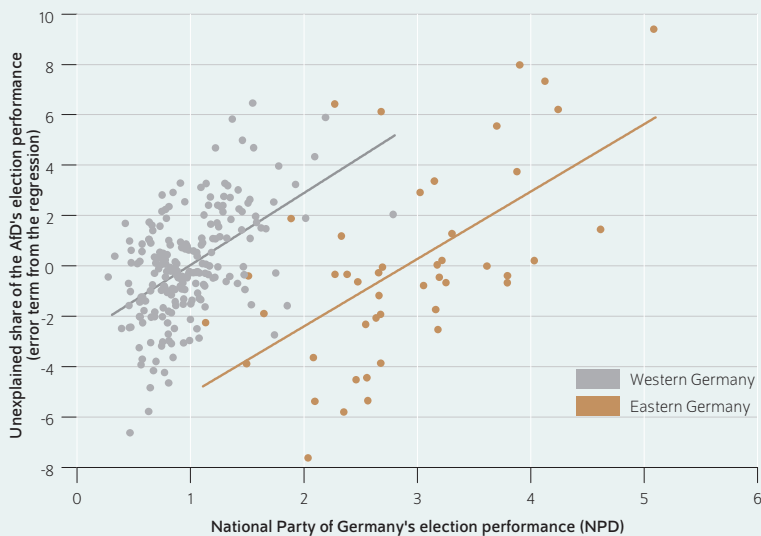
turing industry as well as in districts where the household income is below the national average. The income situation accounts for the variation in the AfD's performance in western German districts, which are characterized by considerable disparities in average income. At the same time, differences in the unemployment rate do not explain the variation in the AfD's performance, at least at the electoral district level. Overall, the AfD receives more votes in western districts where the residents on average earn relatively little or are working in the manufacturing sector.

More importantly, AfD support is very pronounced in sparsely populated areas where there is a high density of craft businesses or where an unfavorable demographic change is occurring—in other words, in areas where many older residents and few young people are living.²⁰ Both structural characteristics are often typical of eastern German districts. They might be a consequence of the basic economic problems in these districts and allow for certain conclusions to be drawn about the noticeably high support for the AfD in eastern Germany. Although individual voting decisions cannot be analyzed, it seems as if support for established parties disappears in areas with an aging population due to a perceived lack of perspectives regarding the further development of these regions.

These results show that economic and social policy are in serious need of reform. Social participation must be improved and more emphasis should be placed on developing structurally weak regions. Currently, public infrastructure (such as schools and hospitals) at the local level are displaying trends that threaten to increase existing economic gaps.²¹ If politicians continue with this strategy, regional disparities and political polarization will grow. In order to counteract this development in the rural areas of eastern Germany, politicians in federal, state, and local governments should strengthen public investments in structurally weak regions, expand rather than reduce this kind of public infrastructure, and consider providing targeted incentives for private investments in these regions. In this context, debt relief for heavily indebted communities becomes more important as well.

Figure 7

Relationship between the unexplained share of the AfD's election performance and the NPD's election performance in 2013



Sources: Federal Returning Officer; authors' own calculations.

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There is a weak but visible relationship between the NPD's performance in the 2013 election and the unexplained success of the AfD in 2017.

²⁰ It should be emphasized that, according to the representative election statistics, the AfD performed better among the 35-59 age group while its performance was below average among people over 70 years old. Thus, it is not necessarily elderly residents, even in the sparsely populated areas, but the younger adults living there who most often seem to vote for the AfD.

²¹ Felix Arnold et al., "Large and Lasting Regional Disparities in Municipal Investments."

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