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Regional Determinants of Attitudes Towards Immigrants

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Abstract

Attitudes toward immigrants play a crucial role in voting behaviour and political decision-making. Such attitudes are shaped by individual characteristics, but the regional environment may also be important. This paper examines how individual attitudes toward immigrants are related to the economic, political, and social environment. We use individual-level data based on a large-scale representative survey and district-level administrative data. Specifically, we examine regional variation in economic growth, voting patterns, and characteristics of the immigrant population and their relation to beliefs about and attitudes toward immigrants. We also use an information experiment in which information about the actual characteristics of the immigrant population in Germany is provided and assess its impact on attitudes toward immigrants in the regional context. Our results suggest that the impact of the environment – over and above individual characteristics – is small and depends on the type of attitude.

JEL classification: C90, D83, F22, J15, R11, R23

Keywords: attitudes, immigrants, regional determinants, economic concerns, policy preferences

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1 Introduction

Public attitudes towards immigrants remain a complex and multifaceted issue, influenced by a combination of economic, political and social factors. Recent waves of immigration have sparked controversial debates among the public and policymakers in host countries (Halla et al. 2017, Dustmann et al. 2019, Tabellini 2020). Attitudes are likely to be an important determinant of voting behaviour and policy choices, particularly in relation to immigration. They can be linked to concerns about labour market competition and negative effects on the welfare state (Mayda 2006). However, people often lack accurate and complete information about the immigrant population and the impact of immigrants on the host economy. (Dustmann and Preston 2007, Facchini and Mayda 2009, Ortega and Polavieja 2012, Polavieja 2016). Individual characteristics are important determinants of these beliefs and the resulting attitudes towards immigrants, but the regional environment in which an individual lives can also contribute to both beliefs and attitudes (Markaki and Longhi 2013).

In this paper, we aim to explore how regional characteristics about the economic and political environment and the immigrant population shape individual attitudes towards immigrants and how these attitudes can be changed by providing information about the immigrant population.¹ So far, the literature on attitudes towards immigrants has mainly focused on individual-level determinants (see Mayda 2006 or Alesina et al. 2023). We aim to extend this literature by shedding light on the role of regional and, in particular, district level determinants for individual beliefs about the characteristics of the immigrant population and the resulting individual attitudes towards immigrants. We use data from two large-scale representative surveys of the German population, conducted in 2020 and 2021, with a total number of observations of more than 5700 participants and administrative data at the district level.

Our analysis consists of three steps: First, we examine the regional determinants of beliefs about immigrants. We then examine how these beliefs and other individual-level variables affect individual attitudes toward immigrants and policy preferences, paying particular attention to the role of the regional environment. Finally, to also shed light on the role of information, we use an information provision experiment in which respondents were provided with information about the characteristics of the immigrant population in Germany based on Dylong and Uebelmesser (2023). More specifically, we elicit respondents' beliefs about the share of immigrants and the unemployment rate of immigrants. We examine how the provision of information affects attitudes toward immigrants and policy preferences, and how this differs across districts. Because regional characteristics may shape individual beliefs and attitudes, the effect of providing information about the immigrant population may also vary by region. Respondents from different regions may be more or less receptive to the information and draw different conclusions. In particular, we are interested in economic and political differences, as well as differences in the characteristics of the immigrant population.

We hypothesize that the local economy may play a role in shaping attitudes towards immigration. The underlying mechanism may operate through the availability of jobs in a region, where respondents from districts with higher economic output and more available jobs may be less

¹In our study, immigrants are regarded as people living in Germany without German citizenship.

concerned about labor market competition from immigrants or adverse effects on the welfare state. In addition, attitudes may vary depending on whether a district is experiencing economic growth or downturn. More generally, times of crisis, like the COVID-19 pandemic, may have affected regions differently leading to different prospects for the future. Overall, as a consequence, concerns in a society may increase in less prosperous regions with less positive outlooks, which may translate into less supportive views on immigration (Poutvaara and Steinhardt 2018). Similarly, the effect of providing information on respondents' attitudes may depend on the regional economy.

In addition to the economic context, other regional aspects can be associated with attitudes toward immigrants. Therefore, we also focus on political differences. Most parties have immigration as part of their party platforms, but with different emphases. Clearly anti-immigration platforms are widespread among German right-wing parties (Marx and Naumann 2018). One example is the *Alternative for Germany* (AfD), which won 10.3 % of the votes in the last federal election in 2021 (Bundeswahlleiter 2023).² At the district level, the share of the votes ranged from 2.8 % in the city of Münster (North Rhine-Westphalia) to 32.5 % in the district of Görlitz (Saxony). In particular, “left-behind” regions (Ford and Goodwin 2017) and regions experiencing economic hardship show an increase in right-wing populist voting (Gozgor 2022). Thus, a region's political environment may also influence narratives about immigration and shape attitudes. Furthermore, respondents from right-leaning regions may be less responsive to information about the immigrant population and thus less likely to adjust their attitudes.

Another dimension of our analysis concerns regional differences in the characteristics of the immigrant population. We operationalize this by looking at the regional share of immigrants, the regional unemployment rate of immigrants, and the regional share of refugees in the immigrant population. According to the contact hypothesis, contact with immigrants can change individual attitudes (Allport 1958; Pettigrew 1998). German regions differ in the share of immigrants, with regions in the western parts of Germany having higher shares compared to the eastern parts of Germany. Therefore, a higher presence of immigrants in one's own region may also contribute to shaping individual attitudes and may affect the need for – and the responsiveness to – information about the immigrant population.

We aim to provide insights into the role of these district-level characteristics in the beliefs about and the attitudes towards the immigrant population by focusing on the relationship with individual-level characteristics. We find evidence that regional characteristics are correlated with the formation of beliefs about immigration. Respondents living in regions with a higher share of immigrants tend to have higher and more biased beliefs of the share of immigrants in Germany, while respondents living in regions with a higher unemployment rate of immigrants hold lower, and less biased beliefs of the unemployment rate among immigrants. When examining district-level characteristics and attitudes toward immigration, we observe that respondents in more densely populated districts tend to perceive the benefits of immigration in society. Conversely, those in more right-wing districts view disadvantages linked to immigration and consider immigrants as a burden on the welfare state. However, the significant regional correlations are

²At the federal elections in September 2021, campaigns mostly revolved around topical issues, such as the COVID-19 pandemic or climate change.

mostly offset when we introduce individual-level covariates. Thus, the regional impact beyond individual characteristics is relatively small and depends on the type of attitude examined. Providing information about the immigrant population generally leads to more positive attitudes towards immigration. The changes in attitudes are greater in regions with lower AfD vote shares and higher economic growth. The results for the regional share of immigrants are more mixed.

Overall, while the correlational evidence points to a role for the regional environment, we must refrain from a causal interpretation of our regional-level findings regarding biases in prior beliefs and concerns about immigration. The regional environment may shape individual attitudes, but at the same time, individuals may shape the characteristics of their regional environment. Moreover, individuals, both natives and immigrants, are not randomly distributed across regions. Rather, they choose to live in particular places according to certain individual and regional characteristics.

Our paper is related to three different strands of the literature. First, there are links to studies that also use survey experiments with information provision in the context of migration. These studies show that providing information about the immigrant population can improve people's beliefs about immigration and make them more supportive of immigration policies (see, for example, Grigorieff et al. 2020, Haaland and Roth 2020, and Dylong and Uebelmesser 2023). Alesina et al. (2023) do not find that respondents change their support for redistribution after being provided with statistical information about the immigrant population. However, information in the form of narratives does shape people's attitudes toward immigration. We add to this literature by providing insights into regional differences in the treatment effects of information provision.

Second, there are studies that focus on how economic circumstances affect people's attitudes toward immigrants, especially during times of economic crisis. Kuntz et al. (2017) show that anti-immigrant sentiment increases when people perceive greater economic insecurity. McGinnity and Kingston (2017) find that in Ireland, attitudes towards immigrants became more negative as unemployment increased during the financial crisis. They also show that a recession particularly affects the attitudes of the less educated.

Third, economic studies often focus on individual determinants of attitudes toward immigrants. But a person's regional and social environment also contributes to shaping attitudes. However, the economic literature is rather sparse on this point. Hatton (2016) finds that the share of immigrants and the share of social benefits in GDP play an important role for attitudes towards immigrants. Both a higher share of immigrants and a higher share of social benefits in GDP are associated with more negative attitudes. Brenner and Fertig (2006) find that average attitudes toward immigrants in a country are positively correlated with GDP per capita. Gallegos Torres (2023) finds that concerns about immigrants in Germany declined in districts with a higher share of asylum seekers after the influx of refugees in 2015.

Other studies find a link between regional characteristics and political attitudes more broadly. Lechler (2019) uses panel data regression and an instrumental variable approach to show that, in particular, unemployed and low-skilled individuals living in regions with a higher share of immigrants from EU member states have negative attitudes towards the European Union. Moreover,

in the context of the Brexit referendum, Becker et al. (2017) find that at the district-level, people in areas with lower incomes and employment were more likely to vote to leave the European Union. Another aspect is highlighted by Dancygier and Donnelly (2013), who use the financial crisis of 2008. They show that in times of economic hardship, individuals reduce their support for immigration if their employment sector experiences an influx of immigrants. Czaika and Di Lillo (2018) show that anti-immigrant attitudes are spatially linked across Europe. In other words, closer regions have more similar attitudes than more distant regions. Our paper contributes to this strand of literature by providing insights into the role of regional characteristics for attitudes towards immigrants.

The remainder of this paper is organized as follows. Chapter 2 presents our data. In chapter 3 we give an overview of the descriptive statistics. The empirical model is explained in chapter 4 and our results are discussed in chapter 5. Chapter 6 concludes.

2 Data

In our analysis, we want to capture not only individual-level determinants of beliefs about and attitudes toward immigrants, but also focus on regional characteristics and how they relate to individual-level outcomes. We use individual-level data from a representative survey of the German population (see Dylong and Uebelmesser 2023). Data on regional characteristics are obtained from the district level administrative data INKAR (BBSR Bonn 2023). We are able to match our regional data based on NUTS-3 regions with the survey data. In total, our dataset consists of 5703 individuals and 401 districts³. See table A1 in the appendix for a description of the variables and table A3 for summary statistics.

2.1 Individual-level Data / Experimental Design

Data on individual-level characteristics come from two large-scale representative surveys on attitudes toward immigrants in Germany, conducted in November/December 2020 and September 2021 among the German adult population. The surveys are representative in terms of age, gender, education, and residence in East or West Germany. The dataset includes variables on the assessment of the general economic situation, beliefs about immigration, economic concerns about immigration, and immigration policy preferences, variables on the COVID-19 crisis, and a large number of socio-demographic characteristics.⁴ Informed consent was given by all participants at the beginning of the survey; this was a prerequisite for starting the survey.

In addition, the surveys include an information provision experiment, which is described below.⁵ The first step is to elicit prior beliefs about the immigrant population in Germany. Respondents are asked about the share of immigrants and the unemployment rate of immigrants in Germany. In the second step, respondents are randomly assigned to one of three treatment groups or to the control group. In the first treatment group, respondents are provided with information on

³Districts correspond to NUTS-3 regions in Germany. More specifically, the districts are made up of 294 counties and 107 independent cities.

⁴We dropped respondents from the second wave if they had already participated in the first wave, as we used the same survey provider for both waves.

⁵For more details on the surveys and the information provision experiment, see Dylong and Uebelmesser (2023).

the actual share of immigrants in Germany. In the second treatment group, respondents are provided with information on the actual unemployment rate of immigrants in Germany. Finally, individuals in the third treatment group receive information on both the share of immigrants and the unemployment rate of immigrants. The control group receives no information.⁶

In the third step of the experiment, respondents answer questions about their attitudes toward immigrants and policy preferences. The questions and responses are as follows:

- Welfare state attitudes: "Immigrants pay taxes and receive social benefits from the health care and social insurance systems. On balance, do you think that immigrants in Germany receive more social benefits than they pay taxes, or that they pay more taxes than they receive social benefits?"
Answers: "Receive more social benefits" (0) to "Pay more taxes" (10)
- Labor market attitudes: "Do you think that immigrants rather take away jobs from workers in Germany, or that they rather help to create new jobs?"
Answers: "Take jobs away" (0) to "Create new jobs" (10)
- Immigration (dis-)advantage: "Do you think immigrants have created more disadvantages or more advantages for Germany in the last 10 years?"
Answers: "more disadvantages" (0) to "more advantages" (10)
- Immigration policy preferences: "Do you think that the number of immigrants coming to Germany each year should be:"
Answers: "decreased a lot / decreased slightly / stay the same / increased slightly / increased a lot?"

The absolute bias in prior beliefs is calculated as the difference between the actual value and the respondents' answers. The outcome variables are coded so that higher values indicate more positive attitudes. We measure attitudes toward the welfare state and the labor market as well as immigration (dis)advantage on an 11-point scale. Immigration policy preferences are measured on a 5-point scale.

2.2 District-level Data

In addition to individual-level factors, the regional environment may also shape individuals' beliefs and attitudes. We use administrative data for the 401 counties in Germany. District level data are obtained from INKAR (BBSR Bonn 2023). Our set of district level covariates includes indicators for regional characteristics of the immigrant population as well as economic and political characteristics. For immigrant population characteristics, we report the share of immigrants, the unemployment rate of immigrants, and the share of refugees in the immigrant population, all for 2020 and at the district level. To capture economic conditions, we include GDP per capita in 2020 to highlight a district's overall economic output, and regional growth in GDP per capita from 2019 to 2020 to account for changes in output in the district. For the political dimension, we use the district-level vote share of the right-wing Alternative for Germany (AfD) party in the 2021 federal election. With this variable, we aim to proxy the

⁶All individuals are also asked about their posterior beliefs about both facts at the end of the survey.

political climate and voting behavior in a district with respect to right-wing parties with anti-immigrant platforms. In addition, we include population density measured in inhabitants per km² for each district in 2020 to capture whether respondents live in rural or urban areas. We also include an East Germany dummy to account for differences between East and West Germany.⁷

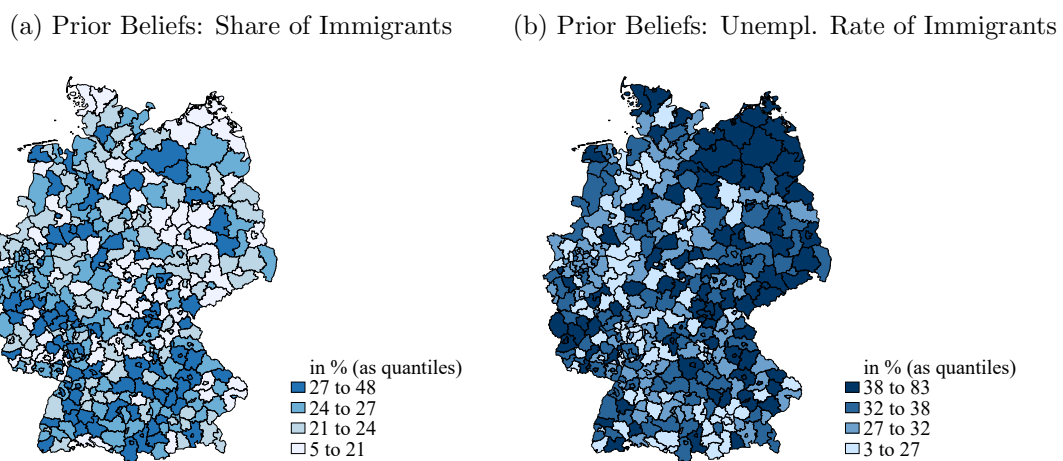
3 Descriptive Statistics

In the following, we present descriptive statistics on beliefs about immigrants and the regional context in Germany. In particular, we focus on how individual beliefs, as well as economic, political, and immigrant population characteristics, differ across districts. Descriptive statistics are presented in table A3 in the appendix.

3.1 Prior Beliefs

In general, respondents have biased beliefs about the immigrant population. At the time of the survey, the actual share of immigrants in Germany was about 13 % and the actual unemployment rate of immigrants was about 15 %. Figure 1 shows the average beliefs by district. Both the share and the unemployment rate of immigrants are greatly overestimated in all districts. On average, respondents believe that the share of immigrants is about 20 % and the unemployment rate of immigrants is about 30 %. However, beliefs vary considerably at the district level. Beliefs about the share of immigrants range from under 20 % in eastern German districts to over 27 % in western German districts. Conversely, beliefs about the unemployment rate of immigrants range from under 27 % in southern and western German districts to over 38 % in eastern German districts. In the eastern regions, beliefs about the unemployment rate are much more upwardly biased than in the western regions, while beliefs about the share of immigrants are on average less biased.

Figure 1: Regional Distribution of Prior Beliefs

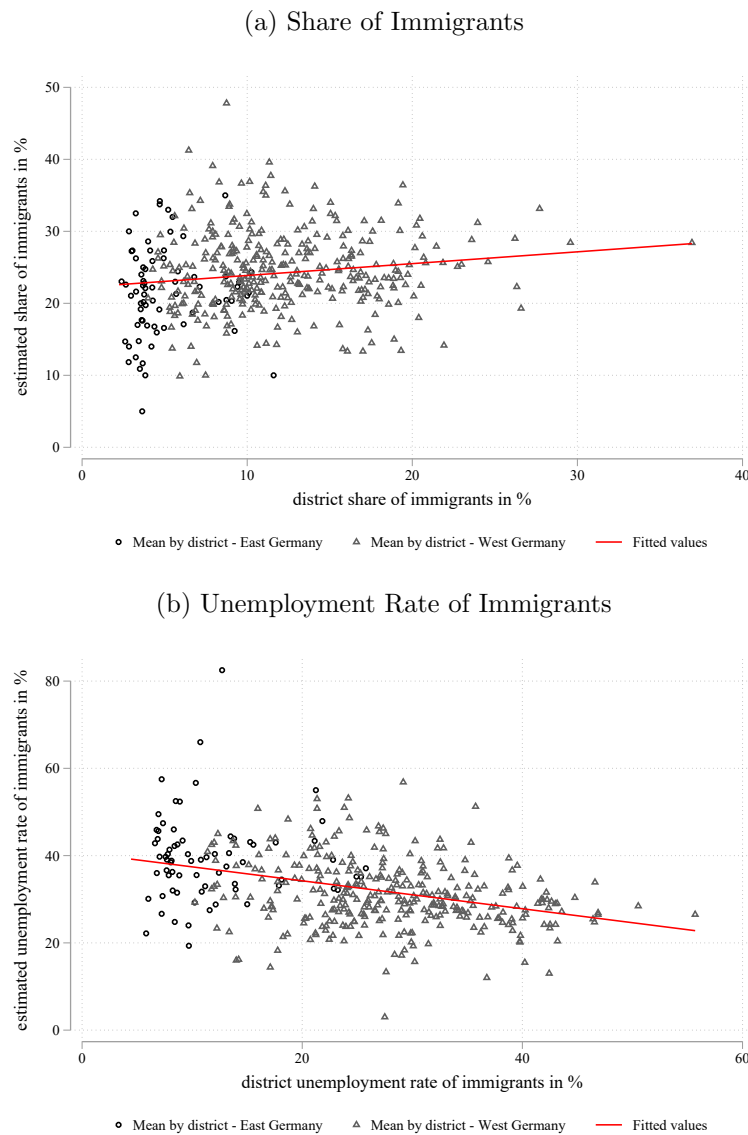


Respondents are likely to base their views on regional characteristics of the immigrant population. Regional characteristics may therefore be more explanatory than national averages

⁷For the district-level covariates, the latest available data is currently from 2020 (except for AfD vote share, which is available for 2021).

(Anselin 1988). The number of immigrants living in a district and their unemployment rate may influence respondents' estimates of both at the national level. Figure 2 puts this into perspective. Figure 2a shows the relationship between the actual share of immigrants in the district and the district average of prior beliefs about the share of immigrants in Germany. Despite respondents overestimating the actual share of immigrants, there is still a positive relationship. Respondents from districts with a higher regional share of immigrants tend to expect an even higher share of immigrants in Germany. This observation does not hold for prior beliefs about the unemployment rate of immigrants. Figure 2b shows the relationship between the actual unemployment rate of immigrants in the district and the district average of prior beliefs about the unemployment rate of immigrants in Germany. Again, respondents generally overestimate the unemployment rate, but we observe a slightly negative relationship with the actual values. The scatter plot suggests that respondents are somewhat unaware of the unemployment rate of immigrants in their region.

Figure 2: Prior beliefs about immigration about the actual regional values.



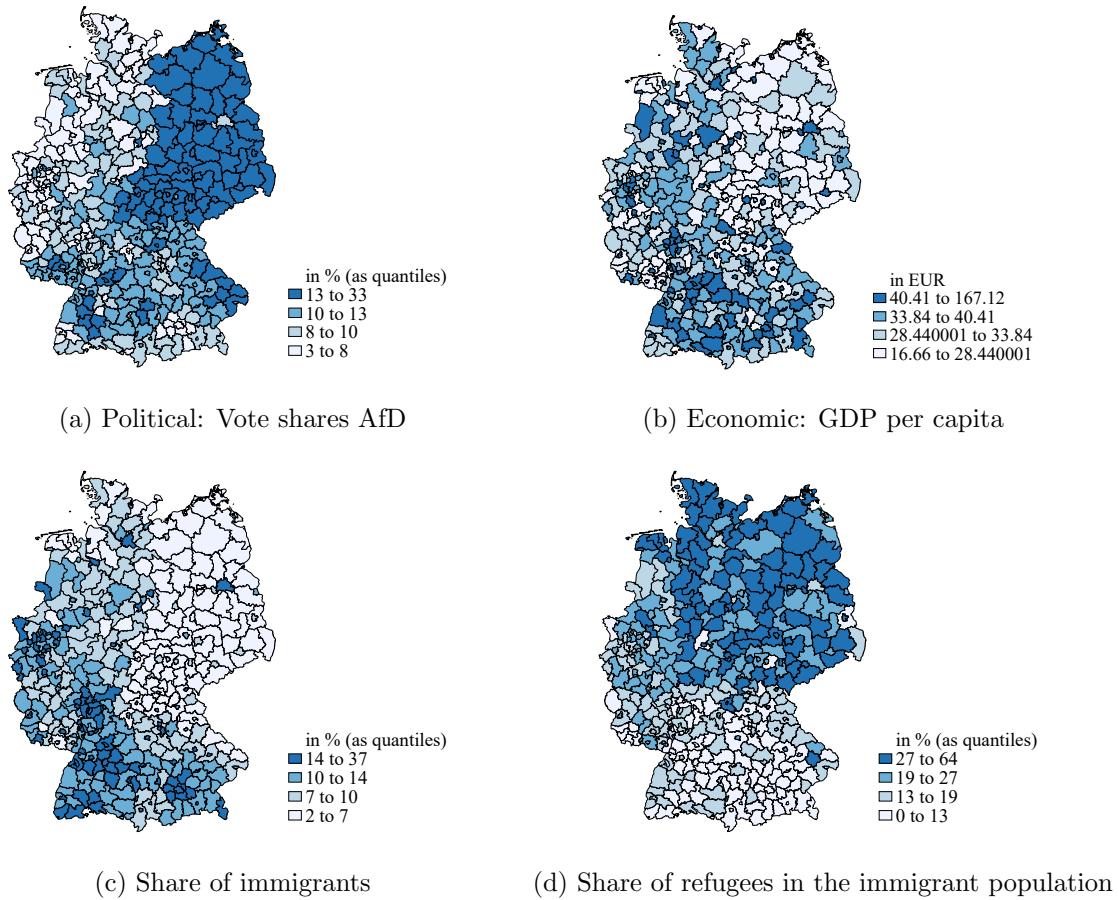
In general, respondents estimate the share of immigrants more accurately than the unemploy-

ment rate. For the immigrant share, respondents seem to base their estimates on their perception of their regional environment. The unemployment rate of immigrants, on the other hand, does not seem to be a very salient statistical fact.

3.2 Regional Heterogeneity

Next, we will focus on different aspects of regional heterogeneity in Germany. In particular, we will look at economic and political differences across German districts as well as regional characteristics of the immigrant population. Figure 3 shows the respective regional distributions.

Figure 3: Regional heterogeneity



In Figure 3a, the regional distribution of the AfD's vote share in the federal election in September 2021 is presented. There is a clear east-west divide in AfD vote shares. The party did better in East Germany than in other parts of the country, with the highest vote shares of around 30 % in eastern and southern Saxony. We expect a positive relationship between the AfD vote share and beliefs about immigration, i.e. higher estimates for the share and the unemployment rate, and a negative relationship with attitudes towards immigrants as well as policy preferences.⁸

German regions also differ in terms of economic performance as measured by GDP per capita. Figure 3b shows that districts with higher economic performance are clustered in the southwest of Germany, while districts with lower economic performance are found mainly in the eastern

⁸Remember that we coded the variables so that higher values indicate more positive attitudes towards immigration.

part and in the western part close to the French border. For example, GDP per capita ranges from around EUR 20,000 for districts in Rhineland-Palatinate to over EUR 100,000 for districts in Baden-Württemberg and Bavaria.

Figure 3c also shows that the immigrant population varies considerably within Germany. The share of immigrants is higher in the western and southern parts of Germany, among other reasons due to historical settlement patterns or more favorable economic conditions. On the other hand, the Share of refugees in the immigrant population as shown in Figure 3d is considerably higher in the northern and eastern regions of Germany, despite the lower share of immigrants.

We find some important correlations for the considered regional characteristics. Right-wing voting tends to occur more in regions in the East with lower economic GDP per capita. There, also the share of immigrants is relatively low, while the share of refugees is rather large. All together may shape the beliefs and attitudes of respondents (Dustmann and Preston 2007).

4 Empirical Method

4.1 Prior Beliefs

We use a linear regression model to estimate the correlation between prior beliefs about immigration and potential individual and regional determinants of those beliefs as part of step 1 of our analysis. We estimate the following OLS model

$$beliefs_i = \beta_0 + \beta_1 X_i + \beta_2 Z_i + \varepsilon \quad (1)$$

where $beliefs_i$ denotes prior beliefs about the share of immigrants and the unemployment rate of immigrants, respectively. X_i is a vector of individual covariates and Z_i is a vector of regional covariates. Regional determinants include GDP per capita, GDP per capita growth, right-wing voting, population density, and regional characteristics of the immigrant population such as the share of immigrants, the unemployment rate of immigrants, and the share of refugees in the foreign population. Standard errors are clustered at the district level.⁹

4.2 Attitudes about Immigration

The relationship between individual and regional covariates with attitudes about immigrants and policy preferences are estimated with the following OLS model

$$attitude_i = \beta_0 + \beta_1 treat1_i + \beta_2 treat2_i + \beta_3 treat3_i + \beta_4 X_i + \beta_5 Z_i + \varepsilon \quad (2)$$

where $attitude_i$ represents the four outcome variables – attitudes toward the welfare state, the labor market, and immigration advantage as well as immigration policy preferences. The individual and regional covariates are again denoted by X_i and Z_i , respectively. The model now also includes indicator variables for the three different treatment arms of our information treatment to estimate average treatment effects (ATE). The indicator variables take the value 1

⁹Our results do not change when we use different clustering methods.

if a respondent was assigned to the respective treatment arm and 0 otherwise. The error term is ε_i . The standard errors are again clustered at the district level.

Equation (2) is the basis for steps 2 and 3 of our analysis. Related to step 2, it allows us to analyze how individual- and region-specific factors correlate with attitudes toward immigrants and policy preferences. For these baseline results, we consider only the control group, i.e., untreated individuals, to avoid any interaction with the information treatment. Related to step 3, we examine the treatment effects. We use the full sample and focus on the average treatment effects. We are interested in the heterogeneity of treatment effects due to regional differences. In particular, we focus on regional differences in political and economic factors as well as in regional characteristics of the immigrant population.

5 Results

In this section, we first examine the role of regional determinants of prior beliefs. In a second step, we look at the outcomes, i.e., attitudes toward immigration and policy preferences. We consider the untreated outcomes of the control group as well as the treatment effects, again focusing on regional differences. For better comparability, we have standardized all outcome variables and covariates according to their mean and standard deviation.

5.1 Prior Beliefs

Figure 4 shows individual and regional determinants of absolute biases in prior beliefs about immigration. Positive values indicate a higher bias in prior beliefs, i.e. a respondent's answer is further away from the actual value about the share or the unemployment rate of immigrants. Negative values indicate a smaller bias. More details can be found in Table A5 in the appendix.

Focusing first on regional factors, we find a positive and significant correlation with the bias in prior beliefs about the unemployment rate for respondents from East Germany (see also Figure 2b above). As the share of immigrants is lower in the eastern part of Germany, the larger bias about the labor market integration of immigrants may be explained by the contact hypothesis. Due to the lower regional exposure to immigrants, individuals seem to assume less labor market integration (Paluck et al. 2019). We observe that respondents from districts with higher population density tend to have less biased beliefs about the share of immigrants. This points at a difference between urban and rural regions.

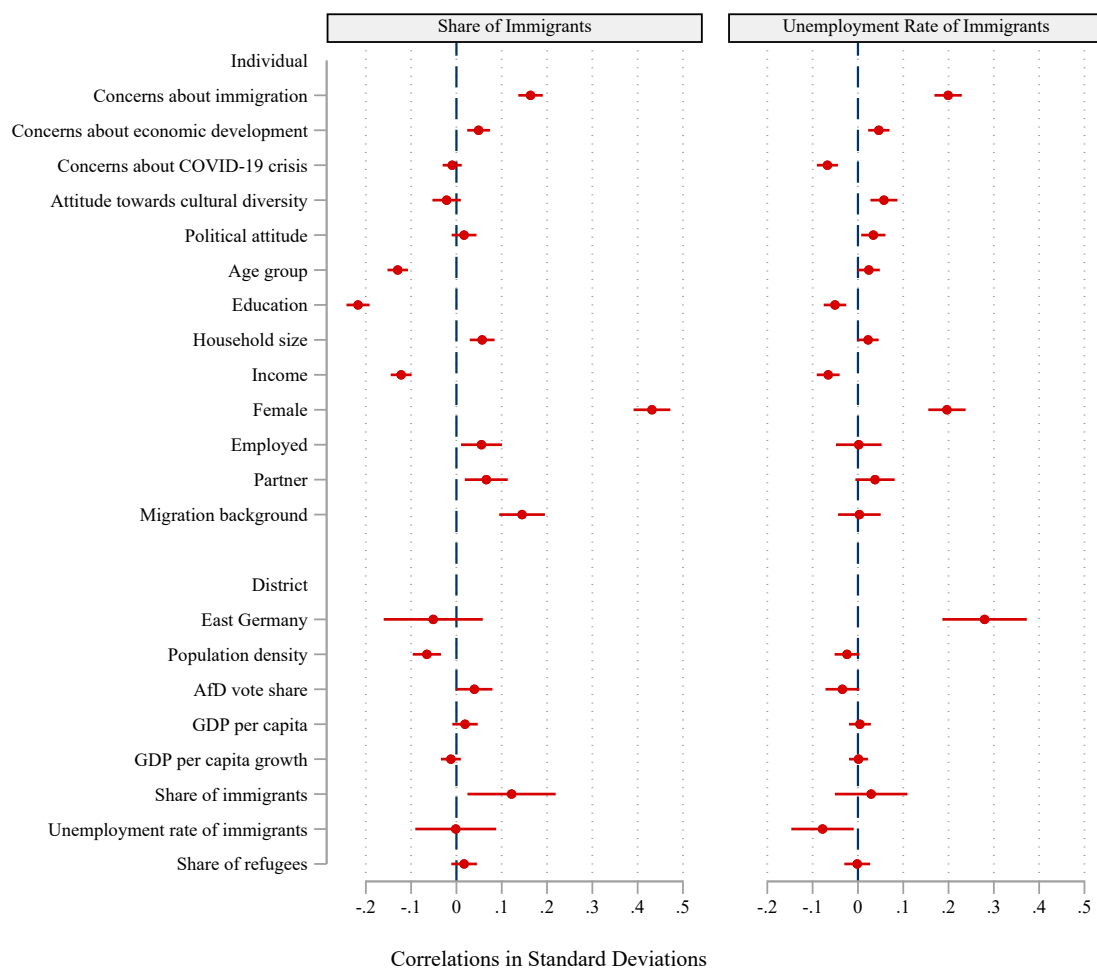
For the political and economic dimension, we find rather small and statistically insignificant results. This may be due to the fact that districts with high AfD vote shares and comparatively low economic performance are clustered in the eastern parts of Germany (see Figures 3a and 3b above). To test this and, more generally, to study the East-West differences, we correlate our regional determinants with the East German dummy. Table A4 in the appendix reports the results. Indeed, we find a strong positive correlation with the AfD vote share and a negative, albeit less strong, correlation with GDP per capita (even though GDP per capita growth is positively correlated with the East Germany dummy). It also shows that regions in East Germany are less densely populated, and thus less urban, and have a lower share of immigrants, but a

larger share of refugees.

Continuing with the characteristics of the immigrant population, we find that higher district shares of immigrants are associated with more biased beliefs about the national share of immigrants. This may indicate that beliefs about the share of immigrants are influenced by what respondents experience in their immediate environment. However, in districts with higher immigrant unemployment rates, immigrants are perceived to be better integrated into the labor market. The share of refugees in a district's foreign population is not statistically significant for either outcome.

Individual-level characteristics have a greater explanatory power for the biases in prior beliefs. We see that higher education and higher income lead to less biased estimates of both facts, while being female indicates a greater bias. Concerns about immigration and economic development are other examples of positive correlations with more biased beliefs.

Figure 4: Prior beliefs: Individual and regional determinants



Notes: Standard errors clustered by districts. 90 % confidence intervals displayed.

5.2 Attitudes about Immigration and Policy Preferences

Prior beliefs about the immigrant population are a first step in shaping attitudes toward immigrants. In the following section, we take a closer look at the regional determinants of immigration attitudes and policy preferences. We restrict observations to the control group to ensure that there is no interaction with the information experiment. Our sample is reduced to 1438 respondents.

The correlations with the district-level variables are in general small. Table 1 shows the correlations for our four outcome variables with the district level determinants, first without individual controls and then with these controls.

We observe that the regional political environment may contribute to shaping narratives about immigration, as living in a district with a higher AfD vote share is associated with more negative attitudes toward immigrants. In particular, respondents from these districts are more likely to perceive immigrants as a burden on the welfare state and more likely to see the disadvantages of immigration. GDP per capita shows a negative relationship with the outcome variables (slightly significant for labour market attitudes), while GDP growth is associated with more positive attitudes (slightly significant for immigrant advantages). In other words, regional economic growth, especially during the economic downturn in 2019-2020, may foster more positive attitudes towards immigrants. However, respondents living in an economically strong regional environment have less supportive views on immigration.

One indication of the contact hypothesis is that respondents from more densely populated districts are more likely to see the advantages that immigrants bring to Germany and, although not statistically significant, are more likely to be in favor of less restrictive immigration policies. However, a higher proportion of immigrants in a district is not significantly associated with our outcome variables. For the district level unemployment rate, we report a positive correlation with immigration policy preferences. This seems counter-intuitive. One possible explanation may be that the unemployment rate of immigrants is not very salient in Germany (see also Figure 2b above).

When we add individual controls, our regional determinants are no longer significant. Nevertheless, the signs and magnitudes of the correlations remain the same for most of the regional factors. Given the rather low adjusted R^2 for the specifications without individual controls, the regional covariates add little to the overall fit of the model. Despite regional heterogeneity, individual covariates are more explanatory of attitudes toward immigrants and policy preferences.

Table 1: Regional Determinants of Attitudes towards Immigrants - Control Group

	Welfare State		Labor Market	
	(1)	(2)	(3)	(4)
<i>Panel A: Economic attitudes</i>				
Population density	0.037 (0.053)	-0.020 (0.043)	0.013 (0.035)	-0.043 (0.032)
AfD vote share	-0.074* (0.038)	-0.061 (0.053)	-0.019 (0.035)	0.028 (0.049)
GDP per capita	-0.035 (0.037)	-0.026 (0.035)	-0.060* (0.032)	-0.046* (0.027)
GDP per capita growth	0.044 (0.031)	0.029 (0.027)	0.039 (0.028)	0.025 (0.024)
Share of immigrants	-0.020 (0.112)	0.051 (0.095)	0.054 (0.108)	0.147 (0.098)
Unemployment rate of immigrants	0.062 (0.092)	-0.005 (0.074)	0.081 (0.094)	-0.006 (0.084)
Share of refugees	-0.009 (0.032)	-0.048 (0.029)	0.063* (0.034)	0.027 (0.031)
Individual controls	No	Yes	No	Yes
Observations	1438	1438	1438	1438
R^2	0.011	0.355	0.010	0.371
Adjusted R^2	0.007	0.345	0.006	0.361
	Immigration Advantage		Immigration Policy	
	(1)	(2)	(3)	(4)
<i>Panel B: Societal acceptance and policy preferences</i>				
Population density	0.088* (0.046)	0.035 (0.034)	0.065 (0.044)	0.001 (0.029)
AfD vote share	-0.070* (0.038)	-0.010 (0.036)	-0.038 (0.037)	0.004 (0.040)
GDP per capita	-0.021 (0.034)	-0.009 (0.026)	-0.028 (0.033)	-0.021 (0.024)
GDP per capita growth	0.048* (0.027)	0.032 (0.022)	0.048 (0.030)	0.029 (0.021)
Share of immigrants	-0.175 (0.108)	-0.085 (0.081)	-0.148 (0.109)	-0.040 (0.075)
Unemployment rate of immigrants	0.137 (0.086)	0.047 (0.063)	0.166* (0.092)	0.070 (0.064)
Share of refugees	0.014 (0.033)	-0.020 (0.024)	-0.001 (0.032)	-0.038 (0.023)
Individual controls	No	Yes	No	Yes
Observations	1438	1438	1438	1438
R^2	0.012	0.536	0.010	0.549
Adjusted R^2	0.007	0.528	0.005	0.542

Notes: Standard errors clustered at district level. Individual controls include beliefs about the share of immigrants in Germany, beliefs about the unemployment rate of immigrants in Germany, concerns about immigration, concerns about economic development, concerns about economic development, concerns about COVID-19 crisis, attitudes towards cultural diversity, political attitudes, age, education, household size, living in East Germany, gender, employed, partner, migration background and income. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

We are aware that there may be endogeneity issues arising from the location choices of both immigrants and natives. Immigrants may select regions with a higher share of co-nationals, resulting in a concentration of immigration in specific regions. This concentration may not be exogenous, but instead dependent on the past settlement patterns of co-nationals. To address this potential source of endogeneity, we could use a shift-share instrument based on the inflow of immigrants in the past, following Card (2009). In addition, natives may have specific motives for choosing where to live, and some of those motives may be related to immigration issues. As a result, the composition of the regional population may be shaped as a function of immigration. However, the literature provides mixed evidence on this topic. Card and DiNardo (2000) find no evidence of out-migration of the native population following a regional increase in immigrants. In contrast, Borjas (2006), finds that immigration is associated with an outflow of native workers. With our dataset, we cannot address this issue since our dataset does not cover the mobility patterns of our respondents.

5.3 Treatment Effects: Regional Heterogeneity

As a final step in our analysis, we examine whether treatment effects differ by regional characteristics. Overall, in line with other studies (e.g., Grigorieff et al. 2020, Haaland and Roth 2020, or Facchini et al. 2022), we find that providing information can improve attitudes toward immigrants (see Table A8 in the appendix). Specifically, receiving information about the share of immigrants significantly increases attitudes for all of our outcome variables by about 6 to 10 % of a standard deviation. We get similar results when respondents are provided with information about the unemployment rate of immigrants. However, the information bundle only significantly increases attitudes toward the welfare state in our sample. In the following, we examine treatment heterogeneity based on district-level variation in the share of immigrants as well as AfD vote share and GDP growth.¹⁰

5.3.1 Regional Share of Immigrants

Immigrants are distributed unevenly across German districts (see Figure 3c). Therefore, different exposure to immigrants in one’s own district may affect the perception of immigrants and may also have an effect on the treatment. We divide districts into two groups based on the district level share of immigrants. Districts with shares above the median are coded as “high immigrant share” districts and districts with shares below or equal to the median are coded as “low immigrant share” districts. The results are shown in Figure 5.

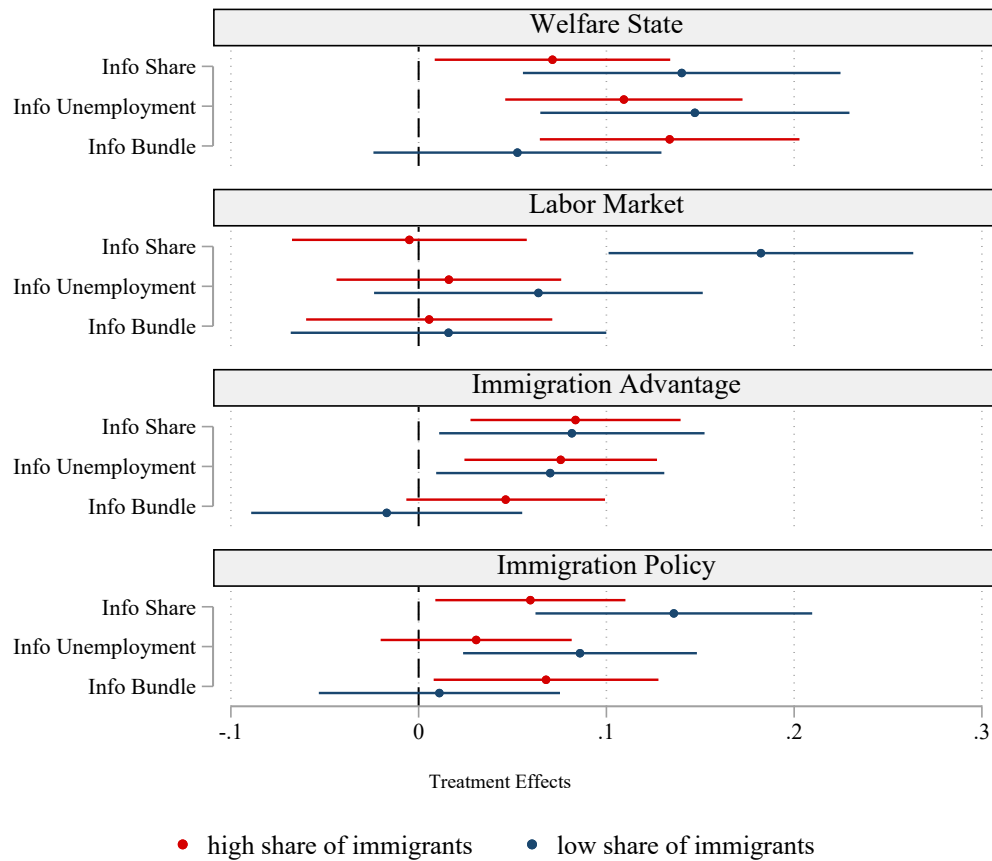
Looking at the point estimates, respondents from districts with lower immigrant shares have mostly significant and somewhat higher treatment effects than respondents from districts with higher immigrant shares. This suggests that respondents from districts with lower immigrant shares tend to respond more strongly and positively to the information treatment.

Attitudes toward the welfare state and immigration advantages are not significantly different for the two subgroups. In general, providing information about the share and unemployment rate of

¹⁰For a detailed discussion of treatment heterogeneity by individual characteristics, see Dylong and Uebelmesser (2023).

immigrants increases welfare state attitudes, regardless of the district level share of immigrants. However, the information bundle only produces an (almost) significant result for districts with a higher share of immigrants.

Figure 5: Treatment effect heterogeneity: Share of Immigrants



Notes: Standard errors clustered by districts. 90 % confidence intervals displayed.

Looking at labor market attitudes, we find a rather inelastic response from individuals living in districts with higher shares of immigrants. The response is more elastic for respondents from “low immigrant share” districts. In particular, these respondents have significantly higher treatment effects than respondents from high share districts when receiving information about the share of immigrants in Germany. Thus, knowing the true share of immigrants in Germany, which in most cases is lower than the perceived one, leads to less concern about labor market competition. This pattern may be explained by how respondents are exposed to immigrants in their daily lives. Respondents who live in districts with a higher share of immigrants may not be convinced by the information - even those this refers to the share of Germany - because they experience a different reality. Respondents from districts with a lower share of immigrants may be more convinced when they receive information about a lower share of immigrants in Germany as the shares for Germany and for the district may be more aligned. We also find similar results when providing information about the unemployment rate of immigrants.

Policy preferences increase for both groups only when information on the share of immigrants is provided. Information about the unemployment rate leads to significant treatment effects only

for respondents from districts with a low share of immigrants, and the provision of the information bundle leads to a borderline significant treatment effect for respondents from districts with a high share of immigrants.

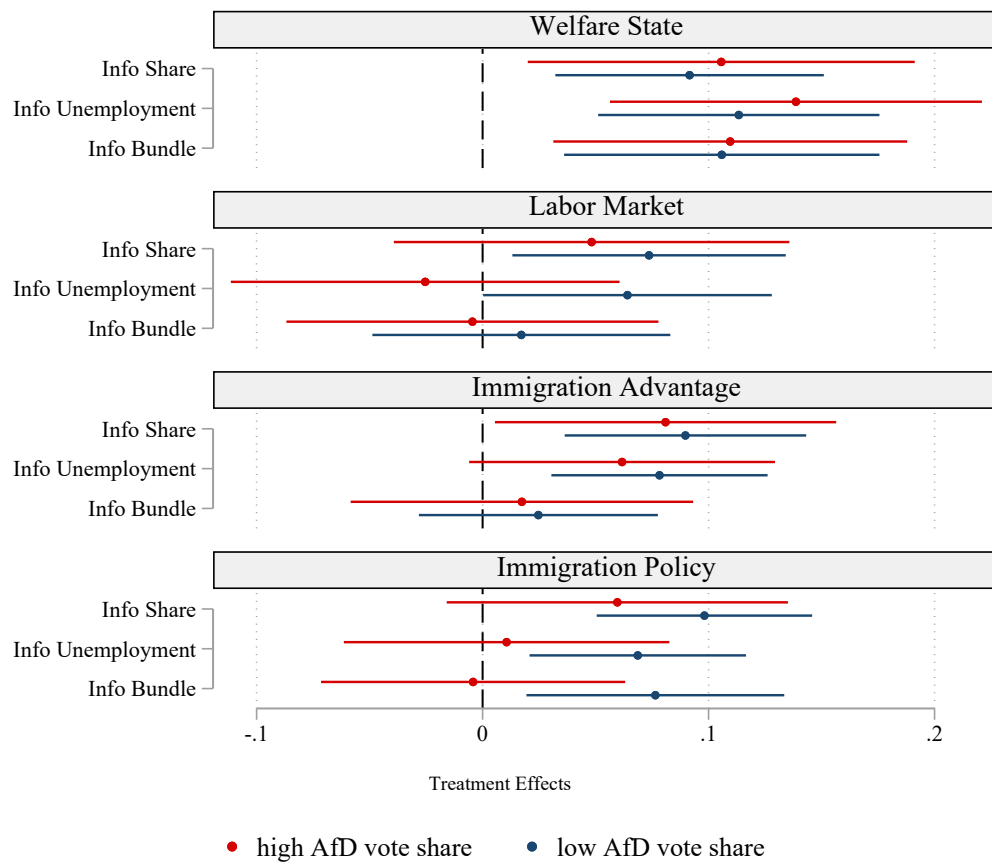
5.3.2 Regional AfD vote turnout

The political environment in a region can also shape the regional narrative on immigration (Rustenbach 2010). In particular, immigration is an important issue in the party platforms of populist and right-wing conservative parties. To test whether this plays a role in the effects of our information treatment, we divide districts into two groups based on AfD vote share. Districts with a vote share above the median are coded as “high AfD vote share” districts, and districts with a vote share below or equal to the median are coded as “low AfD vote share” districts. The results are shown in Figure 6.

Comparing the confidence intervals of the estimated treatment effects, we do not find significantly different effects for districts with high and low AfD vote shares. However, the point estimates indicate that individuals living in districts with lower AfD shares tend to increase their positive attitudes towards immigrants more in response to the treatment. The treatment effects for both groups on attitudes toward the welfare state and immigration advantage appear to be comparatively similar, as we observe similar point estimates and largely overlapping confidence intervals. This suggests that despite local differences in the political environment, providing information about the immigrant population can foster more positive attitudes about the impact of immigration on the welfare state and about the advantages that immigration brings to Germany.

On the contrary, labor market attitudes and policy preferences are somewhat inelastic to the treatment for individuals living in districts with higher AfD voting shares. Only individuals from districts with lower AfD vote shares report significant and positive treatment effects. The AfD received high vote shares especially in “left-behind” regions, which are often rural or former industrial areas that have undergone significant social and economic change. These regions are characterized by a declining or stagnating economy and reduced labor market opportunities. This often leads to feelings of marginalization and economic insecurity that translate into right-wing voting (Ford and Goodwin 2017; Dijkstra et al. 2020) and may make individuals less willing to change their attitudes after receiving the information.

Figure 6: Treatment effect heterogeneity: AfD vote share



Notes: Standard errors clustered by districts. 90 % confidence intervals displayed.

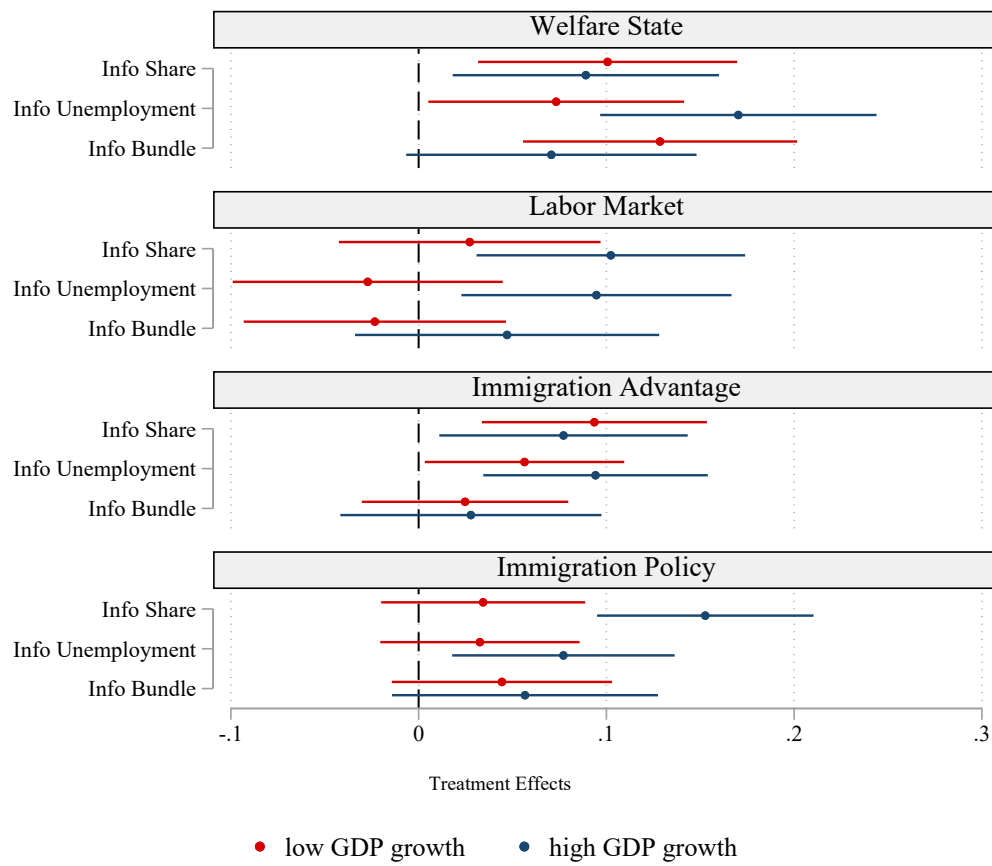
5.3.3 Regional GDP growth

Treatment effects may also differ according to the economic characteristics of the districts. Higher GDP growth, i.e., better performing districts, may facilitate better economic integration of immigrants due to greater availability of jobs, which may affect how strongly individuals react to the information treatment. Districts with GDP per capita growth above the median are coded as “high GDP growth districts”, and districts with GDP growth below or equal to the median are coded as “low GDP growth” districts. The results are shown in Figure 7.

Similar to before, we see that attitudes toward the welfare state and immigration advantages do not differ much for the two subgroups in reaction to the treatments. Providing information about the actual values leads to more positive attitudes towards the welfare state and more positive views on immigration advantages for both types of districts.

Labor market attitudes of respondents living in districts with lower GDP growth seem to be inelastic to information provision. That is, these respondents do not respond to the treatment, as they report insignificant treatment effects. On the contrary, districts with high GDP growth show a more elastic response to the treatment. They report significant and positive treatment effects after receiving information on the share of immigrants or the unemployment rate of immigrants. The information bundle does not lead to significant treatment effects for either group.

Figure 7: Treatment effect heterogeneity: GDP per capita growth



Notes: Standard errors clustered by districts. 90 % confidence intervals displayed.

We observe significant differences in the treatment effect between the two types of districts on immigration policy preferences when information on the share of immigrants is provided. Similar to before, respondents from districts with higher GDP growth react more significantly positively than respondents from districts with lower GDP growth. The difference in the treatment effects between the two types of districts is smaller when information on the unemployment rate of immigrants is provided, while providing both types of information does not lead to different effects.

6 Conclusion

In this paper, we analyze how individual attitudes toward immigration and policy preferences are shaped by the regional environment. The analysis is based on a representative survey of the German population and administrative data at the district level. We analyze regional determinants of biases in beliefs about the immigrant population and attitudes. We also examine how providing information about the characteristics of the immigrant population in Germany, i.e. their share and unemployment rate, changes attitudes differently in different regions of Germany. In particular, we consider the economic and political characteristics of the districts and the characteristics of the immigrant population.

We find that regional characteristics are correlated with the formation of beliefs and attitudes

about immigration. However, the effect depends on the type of attitudes examined and becomes insignificant when individual controls are added.

When focusing on the information effects, We find that informing respondents about the characteristics of the immigrant population can increase positive attitudes toward immigration. The treatment effects appear to be relatively similar for different district-level characteristics, as the confidence intervals between the subgroups mostly overlap. Nevertheless, there is some evidence that different types of information are perceived differently in different districts. Broadly speaking, respondents from districts that are economically better off, have lower shares of right-wing voters and lower share of immigrants seem to respond more positively to the treatment. Furthermore, attitudes towards the labor market seem to be most influenced by the regional environment. This may be because respondents perceive labor market competition with immigrants at the district or local level, and thus the regional context, in addition to individual characteristics, contributes to shaping these attitudes.

Policy makers should take into account that beliefs and attitudes towards immigrants are shaped not only by individual characteristics but also by the regional context. Therefore, information campaigns or policy interventions may have different effects depending on the region in which they are implemented. However, it should be noted that the local policy environment is also endogenously shaped by individual characteristics and the regional context, which makes different policies more or less feasible.

So far, we have only examined the short-term relationship between regional context and beliefs and attitudes towards immigrants. Areas for future research would be to examine changes in beliefs and attitudes about immigration over time and the role of the regional economic and social context. Moreover, our analysis is based on a representative survey of the German population. Thus, extending our analysis to other countries would provide insights into whether the relationship between beliefs and attitudes about immigration is to a larger extent region- or country-specific.

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Appendix

A Data Description and Summary Statistics

Table A1: Variable Description of Individual-level Survey Data

Variable Name	Year	Range	Description / Question in Survey
Beliefs:			
Belief: share of immigrants	2020 / 2021	Numerical	“Now it is about the share of immigrants in Germany. What do you estimate, please answer spontaneously: What percentage of people living in Germany do not have German citizenship?”. Hint text (clickable via question mark icon): “The percentage is understood here as the number of immigrants per 100 inhabitants in Germany.”
Belief: unemployment rate of immigrants	2020 / 2021	Numerical	Now it is about the unemployment rate of working-age immigrants in Germany. What do you estimate, please answer spontaneously: What percentage of these people are unemployed?”. Hint text (clickable via question mark icon): “The percentage is understood here as the number of unemployed persons per 100 immigrants of working age in Germany. Immigrants are considered unemployed if they are registered as unemployed with the Federal Employment Agency. Asylum seekers and tolerated persons are included in the unemployment rate if they have a work permit but no job and are registered as unemployed.”
Outcomes:			
Welfare State Attitudes	2020 / 2021	Numerical (0-10)	Do you think that immigrants in Germany get more in benefits than they pay in taxes, or pay more in taxes than they get in benefits?
Labor Market Attitudes	2020 / 2021	Numerical (0-10)	Are immigrants more likely to take jobs away from workers in Germany or are they more likely to help create new jobs?
Immigration Advantage Attitudes	2020 / 2021	Numerical (0-10)	Do you think immigrants have created more disadvantages or more advantages for Germany in the last 10 years?
Immigration Policy Preferences	2020 / 2021	Numerical (1-5)	Do you think that the number of immigrants coming to Germany each year should be

Variable Name	Year	Range	Description / Question in Survey
Control variables:			
Concerns about immigration	2020 / 2021	Numerical (0-10)	Concerns about immigration to Germany
Concerns about economic development	2020 / 2021	Numerical (0-10)	Concerns about economic development in Germany
Concerns about COVID-19 crisis	2020 / 2021	Numerical (0-10)	Concerns due to the Covid pandemic
Attitude towards cultural diversity	2020 / 2021	Numerical (0-10)	It is better for a country if almost everyone has the same customs and traditions
Political attitude	2020 / 2021	Numerical (0-10)	Measures a respondent's generalized political attitude on an 11-point scale from 0 for "Left" to 10 for "Right"
Age group	2020 / 2021	Numerical (1-5)	Respondent's age group according to the ranges: 16 to 29, 30 to 39, 40 to 49, 50 to 64, 65 and above
Education	2020 / 2021	Numerical (1-3)	Respondent's education based on highest school-leaving certificate according to the ranges: low, medium, high.
Household size	2020 / 2021	Numerical	Number of persons living in a respondent's household
Income	2020 / 2021	Numerical (1-5)	Respondent's household net income in Euro according to the ranges: Below 1500, 1500–2500, 2500–3500, 3500–4500, 4500 and above
Female	2020 / 2021	Binary	Indicates a respondent's gender
Employed	2020 / 2021	Binary	Indicates whether a respondent is employed
Partner	2020 / 2021	Binary	Indicates whether a respondent lives in a partnership
Migration Background	2020 / 2021	Binary	Indicates whether a respondent or one of their parents was born outside of Germany
East Germany	2020 / 2021	Binary	Indicates whether a respondent lives in East Germany (excluding Berlin)
Survey wave	2020 / 2021	Binary	Indicates whether a respondent took part in the first or second wave of the survey

Table A2: Variable Description of District-level Data (NUTS-3)

Variable Name	Year	Range	Description
Population density	2020	Numerical	Population density
AfD vote share	2021	Numerical	Regional vote share of AfD during the federal elections in Germany in 2021
GDP per capita	2020	Numerical	Regional GDP per capita
GDP per capita growth	2020	Numerical	Regional growth of GDP per capita with respect to 2019
Share of immigrants	2020	Numerical	Regional share of immigrants in Germany
Unemployment rate of im-migrants	2020	Numerical	Regional unemployment rate of immigrants
Share of refugees in the im-migrant population	2020	Numerical	Regional share of refugees as a share of immigrants in Germany

Table A3: Summary Statistics

	Mean	SD	Minimum	Maximum
Individual				
Welfare State Attitudes	3.86	2.45	0.00	10.00
Labor Market Attitudes	5.25	2.39	0.00	10.00
Immigration Advantage Attitudes	4.28	2.65	0.00	10.00
Immigration Policy Preferences	2.20	1.02	1.00	5.00
Belief: share of immigrants (%)	13.44	13.73	0.00	84.00
Belief: unemployment rate of immigrants (%)	20.42	20.01	0.00	84.00
Concerns about immigration	5.88	3.23	0.00	10.00
Concerns about economic development	6.18	2.53	0.00	10.00
Concerns about COVID-19 crisis	5.58	2.89	0.00	10.00
Attitude towards cultural diversity	5.22	2.94	0.00	10.00
Political attitude	4.71	1.91	0.00	10.00
Household size	2.14	1.31	0.00	20.00
East Germany	0.15	0.36	0.00	1.00
Female	0.51	0.50	0.00	1.00
Employed	0.53	0.50	0.00	1.00
Partner	0.63	0.48	0.00	1.00
Migration background	0.23	0.42	0.00	1.00
<i>Age group</i>				
16 to 29	0.16	0.37	0.00	1.00
30 to 39	0.16	0.37	0.00	1.00
40 to 49	0.15	0.36	0.00	1.00
50 to 64	0.27	0.45	0.00	1.00
65 and above	0.25	0.43	0.00	1.00
<i>Education</i>				
Low education	0.34	0.47	0.00	1.00
Medium education	0.32	0.46	0.00	1.00
High education	0.34	0.48	0.00	1.00
<i>Income</i>				
Below 1500 EUR	0.25	0.43	0.00	1.00
1500–2500 EUR	0.29	0.45	0.00	1.00
2500–3500 EUR	0.23	0.42	0.00	1.00
3500–4500 EUR	0.14	0.35	0.00	1.00
4500 EUR and above	0.09	0.29	0.00	1.00
Survey wave	1.59	0.49	1.00	2.00
Regional				
Population density (residents per km ²)	1086.93	1251.05	35.58	4789.84
Vote share AfD (%)	10.06	5.50	2.87	32.53
GDP per capita (1000 EUR)	41.30	16.43	16.66	167.12
GDP per capita growth (%)	-2.74	2.45	-14.70	9.16
Share of immigrants (%)	13.19	6.08	2.24	36.94
Unemployment rate of immigrants (%)	29.12	10.35	4.45	55.70
Refugees as share of immigrant population (%)	19.73	9.08	0.00	63.77
Observations	5703			

Table A4: Correlations with East-Germany Dummy

	East Germany
Population density (residents per km ²)	-0.185
Vote share AfD (%)	0.815
GDP per capita (1000 EUR)	-0.256
GDP per capita growth (%)	0.183
Share of immigrants (%)	-0.507
Unemployment rate of immigrants (%)	-0.615
Refugees as share of immigrant population (%)	0.496
Observations	5703

B Prior Beliefs

Table A5: Individual and Regional Determinants of Prior Beliefs

	Share of Immigrants		Unemployment of Immigrants	
	(1)	(2)	(3)	(4)
Population density	-0.100***	-0.065***	(0.019)	-0.024
AfD vote share	0.030	0.040	(0.024)	(0.018)
GDP per capita	0.004	0.019	(0.017)	(0.020)
GDP per capita growth	-0.011	-0.012	(0.013)	(0.014)
Share of immigrants	0.126*	0.122**	(0.059)	0.004
Unemployment rate of immigrants	-0.006	-0.002	(0.054)	0.001
Share of refugees	-0.007	0.017	(0.017)	0.029
Concerns about immigration		0.164***	(0.016)	-0.078*
Concerns about economic development		0.049***	(0.015)	-0.002
Concerns about COVID-19 crisis		-0.009	(0.013)	0.199***
Attitude towards cultural diversity		-0.022	(0.019)	0.046***
Political attitude		0.017	(0.017)	-0.067***
Age group		-0.130***	(0.014)	0.057***
Education		-0.217***	(0.015)	0.034**
Household size		0.057***	(0.017)	0.024
Income		-0.122***	(0.014)	-0.051***
Female		0.432***	(0.025)	0.022
Employed		0.055**	(0.027)	-0.066***
Partner		0.066**	(0.029)	0.196***
Migration background		0.145***	(0.031)	0.002
East Germany		-0.051	(0.066)	0.038
Survey wave		0.081***	(0.023)	0.003
Observations	5703	5703	5703	0.280***
R^2	0.007	0.185	0.020	0.020
Adjusted R^2	0.006	0.181	0.018	0.117

Notes: Standard errors clustered at district level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

C Post Treatment Attitudes - Control Group

Table A6: Individual and Regional Determinants of Welfare State and Labor Market Attitudes - Control Group

	Welfare State		Labor Market	
	(1)	(2)	(3)	(4)
Population density	0.037	(0.053)	-0.020	(0.043)
AfD vote share	-0.074*	(0.038)	-0.061	(0.053)
GDP per capita	-0.035	(0.037)	-0.026	(0.035)
GDP per capita growth	0.044	(0.031)	0.029	(0.027)
Share of immigrants	-0.020	(0.112)	0.051	(0.024)
Unemployment rate of immigrants	0.062	(0.092)	-0.005	(0.098)
Share of refugees	-0.009	(0.032)	-0.048	(0.084)
Belief: share of immigrants			-0.011	(0.031)
Belief: unemployment rate of immigrants			-0.131***	-0.108***
Concerns about immigration			-0.389***	(0.027)
Concerns about economic development			-0.002	(0.025)
Concerns about COVID-19 crisis			0.016	(0.025)
Attitude towards cultural diversity			-0.104***	(0.032)
Political attitude			-0.089***	(0.030)
Age group			-0.008	(0.027)
Education			0.082***	(0.029)
Household size			-0.027	(0.028)
Income			-0.023	(0.025)
Female			-0.153***	(0.042)
Employed			-0.008	(0.044)
Partner			0.073	(0.048)
East Germany			0.078	(0.052)
Survey wave			-0.011	(0.135)
Constant	-0.046*	(0.026)	-0.040	(0.050)
Observations	1438		0.017	(0.026)
R^2	0.011	1438	1438	(0.097)
Adjusted R^2	0.007	0.355	0.010	
		0.345	0.006	

Notes: Standard errors clustered at district level. The sample is restricted to the control group only. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A7: Individual and Regional Determinants of Immigration Advantage and Policy Preferences - Control Group

	Immigration Advantage		Immigration Policy	
	(1)	(2)	(3)	(4)
Population density	0.088*	0.035	0.065	0.001
AFD vote share	-0.070*	-0.010	-0.038	0.004
GDP per capita	-0.021	-0.009	-0.028	-0.021
GDP per capita growth	0.048*	0.032	0.048	0.029
Share of immigrants	-0.175	-0.085	-0.148	-0.040
Unemployment rate of immigrants	0.137	0.047	0.166*	0.070
Share of refugees	0.014	-0.020	-0.001	-0.038
Belief: share of immigrants		-0.033	0.026	-0.045
Belief: unemployment rate of immigrants		-0.081***	0.020	-0.060***
Concerns about immigration		-0.524***	0.034	-0.557***
Concerns about economic development		0.016	0.024	-0.002
Concerns about COVID-19 crisis		0.062***	0.023	0.050***
Attitude towards cultural diversity		-0.161***	0.029	-0.129***
Political attitude		-0.090***	0.028	-0.100***
Age group		-0.013	0.022	-0.025
Education		0.063***	0.023	0.054**
Household size		0.020	0.017	-0.032*
Income		0.019	0.024	0.017
Female		-0.080**	0.037	-0.038
Employed		-0.056	0.040	-0.020
Partner		-0.060	0.047	-0.017
East Germany		-0.030	0.098	0.029
Survey wave		0.081**	0.038	0.142***
Constant	0.001	-0.064	0.008	-0.233***
Observations	1438	1438	1438	1438
R^2	0.012	0.536	0.010	0.549
Adjusted R^2	0.007	0.528	0.005	0.542

Notes: Standard errors clustered at district level. The sample is restricted to the control group only. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D Treatment Effects

Table A8: Average treatment effects of information provision

	Welfare State (1)	Labor Market (2)	Immig. Advantage (3)	Immig. Policy (4)
Info Share	0.097** (0.030)	0.061* (0.030)	0.088** (0.027)	0.087*** (0.025)
Info Unemployment	0.122*** (0.030)	0.032 (0.031)	0.074** (0.024)	0.050* (0.024)
Info Bundle	0.105** (0.032)	0.009 (0.031)	0.026 (0.026)	0.047 (0.027)
Observations	5703	5703	5703	5703
R^2	0.317	0.325	0.478	0.536
Adjusted R^2	0.314	0.322	0.475	0.534

Notes: This table shows the average treatment effects of providing information about the share of immigrants, the unemployment rate and a combination of both types of information on welfare state attitudes, labor market attitudes, attitudes about immigration advantages and preferences for immigration policy. Standard errors clustered at district level. Individual controls include beliefs about the share of immigrants in Germany, beliefs about the unemployment rate of immigrants in Germany, concerns about immigration, concerns about economic development, concerns about economic development, concerns about COVID-19 crisis, attitudes towards cultural diversity, political attitudes, age, education, household size, living in East Germany, gender, employed, partner, migration background and income. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A9: Treatment effect heterogeneity: share of immigrants

	Welfare State (1)	Labor Market (2)	Immig. Advantage (3)	Immig. Policy (4)
<i>Panel A: Districts with high share of immigrants</i>				
Info Share	0.071* (0.038)	-0.005 (0.038)	0.084** (0.034)	0.060* (0.031)
Info Unemployment	0.109*** (0.038)	0.016 (0.036)	0.076** (0.031)	0.031 (0.031)
Info Bundle	0.134*** (0.042)	0.006 (0.040)	0.046 (0.032)	0.068* (0.036)
Observations	3657	3657	3657	3657
R^2	0.326	0.344	0.487	0.529
Adjusted R^2	0.321	0.339	0.483	0.525
	Welfare State (1)	Labor Market (2)	Immig. Advantage (3)	Immig. Policy (4)
<i>Panel B: Districts with low share of immigrants</i>				
Info Share	0.101** (0.042)	0.027 (0.042)	0.094** (0.036)	0.034 (0.033)
Info Unemployment	0.073* (0.041)	-0.027 (0.044)	0.056* (0.032)	0.033 (0.032)
Info Bundle	0.129*** (0.044)	-0.023 (0.042)	0.025 (0.033)	0.044 (0.035)
Observations	3032	3032	3032	3032
R^2	0.318	0.348	0.483	0.538
Adjusted R^2	0.312	0.342	0.479	0.534

Notes: This table shows treatment effects of information provision in districts with high and low share of immigrants. The sample was split along the median. Districts with a share of immigrants above the median are coded as “high share of immigrants” districts, and districts with a share of immigrants below or equal to the median are coded as “low share of immigrants” districts. Individual controls include beliefs about the share of immigrants in Germany, beliefs about the unemployment rate of immigrants in Germany, concerns about immigration, concerns about economic development, concerns about economic development, concerns about COVID-19 crisis, attitudes towards cultural diversity, political attitudes, age, education, household size, living in East Germany, gender, employed, partner, migration background and income. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A10: Treatment effect heterogeneity: AfD vote share

	Welfare State (1)	Labor Market (2)	Immig. Advantage (3)	Immig. Policy (4)
<i>Panel A: Districts with high AfD vote shares</i>				
Info Share	0.106** (0.052)	0.048 (0.053)	0.081* (0.046)	0.060 (0.046)
Info Unemployment	0.139*** (0.050)	-0.025 (0.052)	0.062 (0.041)	0.011 (0.044)
Info Bundle	0.110** (0.047)	-0.004 (0.050)	0.017 (0.046)	-0.004 (0.041)
Observations	2071	2071	2071	2071
R^2	0.313	0.288	0.447	0.513
Adjusted R^2	0.305	0.279	0.440	0.507
	Welfare State (1)	Labor Market (2)	Immig. Advantage (3)	Immig. Policy (4)
<i>Panel B: Districts with low AfD vote shares</i>				
Info Share	0.092** (0.036)	0.074** (0.037)	0.090*** (0.032)	0.098*** (0.029)
Info Unemployment	0.113*** (0.038)	0.064* (0.039)	0.078*** (0.029)	0.069** (0.029)
Info Bundle	0.106** (0.042)	0.017 (0.040)	0.025 (0.032)	0.076** (0.035)
Observations	3632	3632	3632	3632
R^2	0.318	0.348	0.494	0.549
Adjusted R^2	0.313	0.343	0.491	0.546

Notes: This table shows treatment effects of information provision in districts with high and low AfD vote shares. The sample was split along the median. Districts with a vote share above the median are coded as “high AfD vote share” districts, and districts with a vote share below or equal to the median are coded as “low AfD vote share” districts. Individual controls include beliefs about the share of immigrants in Germany, beliefs about the unemployment rate of immigrants in Germany, concerns about immigration, concerns about economic development, concerns about economic development, concerns about COVID-19 crisis, attitudes towards cultural diversity, political attitudes, age, education, household size, living in East Germany, gender, employed, partner, migration background and income. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A11: Treatment effect heterogeneity: GDP per capita growth

	Welfare State (1)	Labor Market (2)	Immig. Advantage (3)	Immig. Policy (4)
<i>Panel A: Districts with high GDP per capita growth</i>				
Info Share	0.089** (0.043)	0.102** (0.043)	0.077* (0.040)	0.153*** (0.035)
Info Unemployment	0.170*** (0.045)	0.095** (0.044)	0.094*** (0.036)	0.077** (0.036)
Info Bundle	0.071 (0.047)	0.047 (0.049)	0.028 (0.042)	0.057 (0.043)
Observations	2671	2671	2671	2671
R^2	0.324	0.308	0.475	0.541
Adjusted R^2	0.317	0.301	0.470	0.537
	Welfare State (1)	Labor Market (2)	Immig. Advantage (3)	Immig. Policy (4)
<i>Panel B: Districts with low GDP per capita growth</i>				
Info Share	0.101** (0.042)	0.027 (0.042)	0.094** (0.036)	0.034 (0.033)
Info Unemployment	0.073* (0.041)	-0.027 (0.044)	0.056* (0.032)	0.033 (0.032)
Info Bundle	0.129*** (0.044)	-0.023 (0.042)	0.025 (0.033)	0.044 (0.035)
Observations	3032	3032	3032	3032
R^2	0.318	0.348	0.483	0.538
Adjusted R^2	0.312	0.342	0.479	0.534

Notes: This table shows treatment effects of information provision in districts with high and low GDP per capita growth. The sample was split along the median. Districts with a GDP per capita growth above the median are coded as “high GDP growth” districts, and districts with a GDP per capita growth below or equal to the median are coded as “low GDP growth” districts. Individual controls include beliefs about the share of immigrants in Germany, beliefs about the unemployment rate of immigrants in Germany, concerns about immigration, concerns about economic development, concerns about economic development, concerns about COVID-19 crisis, attitudes towards cultural diversity, political attitudes, age, education, household size, living in East Germany, gender, employed, partner, migration background and income. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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