Refugee Labor Market Access Increases Support for Migration*

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Abstract

Does the economic integration of refugees affect public opinion toward migration? We assess this pertinent question by making use of a natural experiment in Germany where the government recently eased labor market access for refugees in 85% of its employment districts. Using administrative employment data spanning ten years, we show that the policy increased refugee employment by 50 percent. The policy also had a *positive* effect on natives' attitudes toward migration. Areas exposed to more refugees in the labor market were two percentage points less likely to vote for right-leaning parties across both state and federal elections. At the same time, left-leaning, pro-immigration parties gained significantly. The increase in pro-immigration voting is detectable both in aggregate electoral data as well as using panel survey evidence. Our findings support sociotropic accounts of public opinion formation toward migration. Rather than viewing migrants as a threat, citizens react positively to refugees in the labor market.

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Introduction

Public support for migration varies starkly across industrialized democracies. What explains this variance? This study hones in on the economic integration of refugees as a crucial determinant of public opinion toward migration. On the one hand, integrating refugees in the economy may spark labor market competition, which may lead natives to oppose migration. On the other hand, the economic integration of refugees provides firms with much-needed human capital and thus benefits society at large. What is more, the integration of refugees in the labor market means migrants and natives work side by side, which may lead natives to espouse a more welcoming attitude toward migrants. Taken together, the effect of refugee labor market integration on public support for migration is thus unclear.

Besides unclear theoretical predictions, the link from refugee labor market access to public opinion toward migration is also empirically vexed. First, the influx and subsequent location of migrants is not random. Far from it, migrants typically choose areas with better economic conditions and a more welcoming host population (Scott and Brindley 2012). Second, countries typically choose the degree of labor market access centrally. There is thus no subnational variation one could exploit. Third, the influx of migrants into any given local labor market is well-regulated and tends to unfold at low levels. Tracing the effect of refugee labor market access on public opinion is thus difficult, given the rather mild increase the overall population is exposed to.

The present study circumvents these challenges. We make use of a natural experiment that took place in Germany, where the government recently eased labor market access for refugees in 85% of its employment districts. In what follows, we describe our theoretical motivation—linking refugee employment to public opinion toward migration—; our empirical strategy; the main findings; and a conclusion.

Theoretical background

How does the economic integration of refugees affect natives' attitudes toward migration? The existing literature broadly delineates four causal channels that help explain how an influx of refugees into local labor markets can affect public attitudes toward migration.

The first channel linking the economic integration of refugees to natives' attitudes toward migration functions via **labor market competition**. Early research in the social sciences was dominated by the factor proportion model, which predicts that an influx of immigrants reduces employment and wages among natives. Such detrimental economic effects, in turn, may then generate opposition toward migration. Based on the factor proportion model, a variety of studies have hypothesized that anticipated labor market competition drives anti-immigration attitudes among natives (Dancygier and Donnelly 2013; Finseraas, Røed and Schøne 2017; Pardos-Prado and Xena 2019).

A second channel linking the economic integration of refugees to natives' attitudes toward migration functions via the host population's expectation about immigrants' **welfare dependence**. Specifically, the economic integration of migrants may have a positive effect on natives' attitudes because natives reward immigrants for working (Hager and Veit 2019). If refugees are integrated into the labor market, they contribute toward the economy and are less dependent on government support. As a result, natives may begin to view migration more positively if exposed to a greater share of refugees in the labor market.

A third channel that links the economic integration of refugees to natives' attitudes toward migration is **intergroup contact**. Refugees have been shown to settle in neighborhoods where other migrants with similar cultural backgrounds have already settled (Korinek, Entwisle and Jampaklay 2005). As a result, contact between refugees and natives is less pronounced than native-native contact. The economic integration of refugees can help mitigate this. If refugees join a local firm, contact with natives is facilitated. And such contact may

help overcome deep-seated stereotypes (Paluck, Green and Green 2019).

A fourth, rivaling channel linking the economic integration of refugees to natives' attitudes toward migration is **cultural backlash**. Intergroup contact need not be positive. Some authors, for instance, have found that refugee settlement benefits right-leaning parties (Dustmann, Vasiljeva and Piil Damm 2019). Negative experiences could well take place in the workplace where new arrivals have to come to terms with established work routines. It may thus be the case that contact in the workplace does not meaningfully build rapport between natives and refugees, leading to an increase in xenophobic attitudes among natives.

Design

Setting Beginning in 2015, Germany experienced the inflow of more than 1 million refugees. Today, refugees constitute more than two percent of the country's population. In response, the German government passed a comprehensive integration law (*Integrationsgesetz*) in August 2016. Aimed at integrating the unprecedented number of refugees, the new law, among other provisions, simplified labor market access by suspending the so-called priority review (*Vorrangprüfung*). The priority review stipulated that refugees with open asylum applications could only be hired if the local employment agency could not find an unemployed German to fill the position within six weeks after the refugee was offered the job. After the suspension of the priority review, employers were no longer forced to consider unemployed native candidates. The priority review suspension thus removed a major disincentive for employers to hire refugees.[1]

Treatment Crucially, the priority review was suspended in only 133 out of 156 employment agency districts. Figure A.1 shows a map of treated and non-treated counties. While the

[1]More detailed information on the setting and the suspension of the priority review is provided in Section A.2 in the SI.

integration law was passed by the federal government, state governments had some influence on the implementation of the policy. In North Rhine-Westphalia, the Ruhr area region was exempted from the policy. In Bavaria, agency districts with unemployment rates above the state average kept the priority review. Finally, in Mecklenburg-Vorpommern the policy was never implemented. To ensure the empirical validity of the results, we focus on within-state comparisons in the states of Bavaria and North Rhine-Westphalia, avoiding extrapolation across state boundaries.

Data We draw on a four core data sources to estimate the effect of refugee labor market access on public opinion toward migration (see Table A.1 for details). First, we obtained official data on employment. Specifically, we measure the number of employed refugees and natives in all German municipalities in every quarter between March 2008 and December 2018. In addition, we also observe the median monthly gross wage for native full-time employees at the county-level. Second, we collected municipality-level voting data for the most recent federal and state elections before and after the policy change. The key outcome of interest is the vote share of left- / right-leaning parties who favor / oppose migration, respectively. Third, we measure attitudes toward migration and party identification over time by drawing on the the German Socio-Economic Panel Survey (SOEP). Last, to pick up broader changes in attitudes, we also draw on a large-scale online survey conducted by the survey company *Civey* after the policy went into effect. The firm fielded a question from 2018 to 2019 to over 53,000 respondents, asking whether they support or oppose the integration of refugees into the German labor market. More details on all data sources are provided in Section A.3 in the SI.

Model To estimate the effect of the policy, we use a panel specification to address unobserved confounding.[2] Our identifying assumption is that assignment to the policy is inde-

[2]We discuss balance for a number of covariates in Figure A.2.

pendent of *trends* in the outcome variables. Given different time intervals for our key measures, we adopt two related difference-in-differences models for the employment or electoral outcomes, respectively. Since we have quarterly data on refugee and native employment, we model these outcomes using the following generalized difference-in-differences equation: $Y_{ijt} = \mu_i + \delta_t + \sum_{k=-10}^{10} \beta_k \big(T_j \times 1_{t=k}\big) + \varepsilon_{ijt}$, where Y_{ijt} is the total number of employed refugees or natives in municipality i nested in employment agency district j in quarter t divided by the same municipality's total population in the same year. μ_i and δ_t are municipality and quarter fixed effects. The main parameters of interest are leads and lags of the treatment, denoted by β_k. Since elections take place less regularly, we model these outcomes using a standard two-period difference-in-differences specification: $Y_{ijt} = T_j + P_{it} + \tau(P_{it} \times T_j) + \varepsilon_{ijt}$, where Y_{ijt} is the election outcome for municipality i in agency district j in time period t. For treated districts where the labor market was liberalized after August 2016, $T_j = 1$ and $T_j = 0$ otherwise. Finally, $P_{it} = 1$ for municipality i when $t >$ August 2016. In all specifications, we cluster standard errors at the level of the agency district, the level of treatment assignment. When we include both states in the same sample for the analysis, we interact T_j and P_{it} with a state-indicator variable, allowing for state-specific baseline differences and time trends. Finally, to assess the effect of the labor market liberalization policy on pro-immigration attitudes, we use a geographic regression discontinuity design, which we lay out in Section A.12.

Results

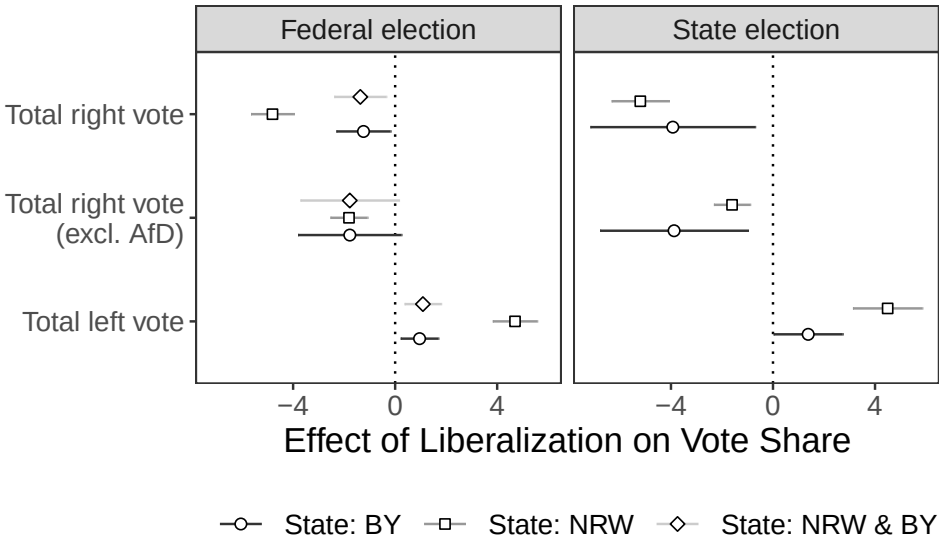
In a first step, we demonstrate that the labor market liberalization policy did, indeed, increase refugee employment. Examining refugee employment trends in the top panel of Figure A.3, we find that refugee employment increased at a significantly faster rate after the liberalization in treated municipalities compared to the control group. The lag and lead specification in the center panel of Figure A.3, confirms this. We find statistically insignificant point estimates in all pre-treatment periods, supporting the parallel trends assumption. For the

post-treatment periods, refugee employment in counties where the priority review was abolished is significantly greater. In the bottom panel of Figure A.3, we show that increased refugee labor market participation did not affect native employment. As a final piece of evidence, we use a similar panel specification to demonstrate that increased refugee employment had no effect on natives' wages (see Figure A.4). Taken together, we find that the labor market liberalization policy had a pronounced positive effect on refugee employment, while native employment and native wages remained unchanged.

Next, we examine how the policy affected vote shares for left- and right-leaning parties in federal and state elections. Evidence supporting the key identifying assumption—parallel trends prior to treatment —is provided in Figures A.7, A.8 and A.9. In Figure 1, we demonstrate that the labor market liberalization reduced support for parties on the political right by two percentage points. The result is detectable both for the 2017 federal election as well as two state elections in Bavaria and North Rhine-Westphalia. Reassuringly, there is no evidence that the effect is driven by one of the two states alone. We find statistically significant point estimates of similar magnitude in both states. We also note that the negative effect on right-wing vote shares is present both when including or excluding the far-right Alternative for Germany. By the same token, we find that left-leaning parties experience a rise in support due to the labor market liberalization policy.

Finally, to buttress the validity of our design, we address the possibility that regions with high and low unemployment were on different political trends regardless of the policy change. First, we examine the case of Bavaria, where the labor market liberalization was enacted conditional on a sharp, district-level unemployment rate cutoff. We demonstrate that the effect on right-wing parties remains similar when we estimate the treatment effect in small bandwidths around the assignment cutoff (see Figure A.6). Second, we exploit variation in employment rates across municipalities nested within employment agency districts. In Table A.3, we show that local employment patterns are unrelated to trends in electoral support for right-wing parties.

Figure 1: Effect of Refugee Labor Market Access on Voting Behavior



Note: The Figure plots coefficients and 95 percent confidence intervals from two-period difference-in-differences models. The x-axis shows the estimated effect of labor market liberalization on the vote share of different party groups (in percentage points). We analyze elections for federal and state parliaments. Standard errors are clustered at the employment agency district level. We examine the results both including and excluding the AfD, since the AfD did not compete in the last state elections prior to the policy change. That is, AfD votes shares are not observed in some pre-treatment periods.

Mechanism

Why did increased refugee labor market access change voting behavior? More specifically, did the policy change voters' preferences or did it merely alter who turned out to vote? To adjudicate between both channels, we provide three pieces of evidence. First, we do not find evidence that the policy affected overall turnout (see Figure A.5). This suggests that the policy change did not lead to the mobilization of new voter groups, pointing toward a persuasion mechanism. That said, a null finding on turnout does not provide conclusive evidence for changed preferences at the individual level (ecological inference problem).

Second, to adjudicate between both channels with greater clarity, we turn to individual-level panel evidence, tracking people before and after the policy change. In Table A.2, we show that residents in treated areas are significantly more likely to identify with left-leaning parties after the policy went into effect compared to residents in the control group. In

Table A.2, we subset the data by respondents' prior attitudes toward immigration. Reassuringly, we find that the change in party identification is more pronounced among right-wing respondents who were worried about immigration prior to the labor market liberalization policy. This is sensible inasmuch as this subsample should i) be more receptive to the policy (given their interests), and ii) should have been positively surprised by the policy given the absence of any negative economic effects, despite widespread fears on the political right.

Third, we rely on additional local-level survey evidence to corroborate that the policy changed preferences. Using survey data from *Civey* coupled with a geographic regression discontinuity design, Figure A.10 shows that natives' attitudes towards refugees became significantly more positive in regions where the labor market was liberalized. We address concerns about endogeneity by comparing residents living in geographically close regions with differing treatment status. For the lowest reported distance of 20km, we find that liberalizing the labor market increased the likelihood of supporting refugee integration by between three and five percentage points. Reassuringly, we observe the strongest effects in the specification with the smallest bandwidth, where the treatment assignment is least likely to be subject to confounding.

Before concluding, we briefly discuss whether the treatment effect is a result of voters punishing the incumbent. Our results could be interpreted as electoral punishment, since right-wing parties experience electoral losses due to the labor market liberalization. This could suggest that voters punish Angela Merkel's ruling CDU for implementing a policy that constituents reject. Upon closer inspection, however, this argument has no empirical bearing. We find that the labor market liberalization policy *increased* support for parties to the left of the CDU. If constituents disliked the policy and punished the sitting government, it seems implausible that they would do so by electing parties that favor *more* immigration.

Conclusion

How does the economic integration of refugees affect public opinion toward migration? This paper made use of a natural experiment in Germany where some employment districts granted refugees unrestricted labor market access, while access in others remained restricted. We found that the policy not only had a pronounced positive effect on refugee employment, but that it also led natives to espouse pro-immigration parties in federal and state elections. The evidence adds to an ongoing debate in the social sciences whether a lack of economic opportunities and welfare dependence among refugees fuel xenophobic attitudes. In line with sociotropic accounts of attitude formation toward migration, our study demonstrates that natives reward refugees for joining the labor force. Interestingly, we also show that increasing refugee employment has no effect on natives' wages or employment. Our findings suggest that the economic integration of refugees affects natives' attitudes via a "social" channel, not a purely economic one.

Our study offers a second important insight into political behavior concerning integration policy. The finding that the center-right CDU and CSU were punished for liberalizing labor market access offers one explanation for why conservative parties oppose liberal integration policies despite positive economic effects. In Germany, the labor market liberalization had a positive effect on refugee employment. Fears of labor market competition with natives did not materialize. Conservative parties might oppose pro-integration policies because they fear that voters will learn that the hypothesized negative effects—propelled by conservative parties—do not materialize and then shift to progressive parties. Conservative parties are thus trapped in their own rhetoric and may need to oppose pro-integration policies because implementing them—despite yielding positive effects—benefits the political left.

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Part I

Appendix

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A Supporting Information (Online Only)

A.1 Summary Statistics

Table A.1: Summary Statistics

Variable	Dataset	Level of Analysis	Time-period	Subset	Mean	S.D.	N	Min	Max
Native Employment Rate	Employment Data	Municipality	2008 - 2018	Bavaria + NRW	0.46	0.04	107888	0.20	0.83
Refugee Employment per 1,000 capita	Employment Data	Municipality	2008 - 2018	Bavaria + NRW	0.64	1.13	107888	0.00	16.37
Monthly gross wage: all employees	Wages	County	2014 – 2018	Bavaria + NRW	3150.42	348.45	745	2483.00	4896.90
Monthly gross wage: men	Wages	County	2014 – 2018	Bavaria + NRW	3349.69	419.00	745	2619.66	5544.46
Monthly gross wage: women	Wages	County	2014 – 2018	Bavaria + NRW	2721.89	305.96	745	2033.92	3846.63
Monthly gross wage: german natives	Wages	County	2014 – 2018	Bavaria + NRW	3238.94	374.59	745	2491.26	5132.56
Monthly gross wage: foreigners	Wages	County	2014 – 2018	Bavaria + NRW	2427.42	339.92	704	1642.10	4082.02
Monthly gross wage: 15 - 25 years old	Wages	County	2014 – 2018	Bavaria + NRW	2339.70	164.38	740	1838.25	3105.57
Monthly gross wage: 25 - 55 years old	Wages	County	2014 – 2018	Bavaria + NRW	3207.98	364.22	745	2528.09	5136.45
Monthly gross wage: 55 - 65 years old	Wages	County	2014 – 2018	Bavaria + NRW	3399.55	407.09	745	2509.75	5294.02
Monthly gross wage: low education	Wages	County	2014 – 2018	Bavaria + NRW	2474.28	250.27	722	1922.87	3557.55
Monthly gross wage: vocational training	Wages	County	2014 – 2018	Bavaria + NRW	3119.25	277.29	745	2503.63	4593.24
AfD vote share	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	8.22	5.04	4895	0.00	28.11
CDU/CSU vote share	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	47.06	8.47	7358	21.26	82.66
FDP vote share	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	9.46	4.74	7358	0.40	30.74
Greens vote share	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	7.49	2.82	7358	0.67	22.41
Die Linke vote share	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	4.84	1.93	7358	0.00	18.18
Other parties vote share	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	8.46	2.86	7358	1.23	24.29
SPD vote share	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	17.23	6.85	7358	2.04	48.77
Turnout in %	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	74.10	6.29	7326	37.85	91.15
Total right vote share	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	61.98	7.26	7358	30.66	87.10
Total right (excl. AfD) vote share	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	56.52	7.82	7358	29.06	86.05
Total left vote share	Federal Elections	Municipality	2013 – 2017	Bavaria + NRW	29.56	8.25	7358	7.14	62.65
CSU vote share	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	48.01	9.35	4112	18.84	83.96
SPD vote share	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	12.03	6.86	4112	0.98	43.78
Freie Waehler vote share	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	11.99	5.96	4112	2.12	47.94
Greens vote share	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	9.92	5.31	4112	0.46	35.16
FDP vote share	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	3.23	1.87	4112	0.27	39.58
Other parties vote share	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	15.02	5.14	4112	3.48	40.39
AfD vote share	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	10.80	3.12	2056	3.83	24.54
Total right vote share	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	56.65	7.15	4112	28.58	85.19
Total right (excl. AfD) vote share	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	51.25	8.68	4112	23.69	84.41
Total left vote share	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	21.95	7.20	4112	4.94	49.90
Turnout in %	Bavarian State Elections	Municipality	2013 – 2018	Bavaria	70.77	6.84	4112	47.70	90.60
CDU vote share	NRW State Elections	Municipality	2012 – 2017	NRW	34.74	8.42	792	15.56	60.93
SPD vote share	NRW State Elections	Municipality	2012 – 2017	NRW	33.36	7.10	792	13.15	56.66
FDP vote share	NRW State Elections	Municipality	2012 – 2017	NRW	10.47	2.96	792	3.49	23.20
Greens vote share	NRW State Elections	Municipality	2012 – 2017	NRW	7.42	2.94	792	2.04	19.56
Other parties vote share	NRW State Elections	Municipality	2012 – 2017	NRW	7.82	4.06	792	1.77	16.12
AfD vote share	NRW State Elections	Municipality	2012 – 2017	NRW	6.72	1.79	396	3.09	14.59
Die Linke vote share	NRW State Elections	Municipality	2012 – 2017	NRW	2.83	1.21	792	0.80	8.40
Total right vote share	NRW State Elections	Municipality	2012 – 2017	NRW	48.57	11.44	792	19.04	76.92
Total right (excl. AfD) vote share	NRW State Elections	Municipality	2012 – 2017	NRW	45.21	9.69	792	19.04	72.16
Total left vote share	NRW State Elections	Municipality	2012 – 2017	NRW	43.61	8.48	792	16.82	67.52
Turnout in %	NRW State Elections	Municipality	2012 – 2017	NRW	63.98	5.30	792	48.70	78.20

A.2 Additional Information on Refugee Integration and Labor Market Liberalization

After a period of relatively low levels of immigration, Germany—like other parts of Europe—saw a stark increase in asylum requests beginning in 2014. In 2015 alone, the country received 1.3 million requests for asylum. Once in Germany, refugees are assigned to the sixteen federal states on the basis of a deterministic rule known as the Königstein key. The rule takes into consideration a federal state's population and its tax revenue. Once within a federal state, refugees are assigned to so-called intake facilities. Importantly, refugees are largely not allowed to relocate unless they have credible justification. What is more, most states do not allow refugees to travel to other states, including the two federal states we focus on.

In response to the 2015 refugee influx, the German Federal Government passed an integration law (*Integrationsgesetz*) in August 2016. Aimed at integrating the unprecedented number of refugees, the law regulated the issuance of residency permits, refugees' domestic freedom of movement as well as labor market access. Most importantly, the new law simplified labor market access by suspending the so-called priority review (*Vorrangprüfung*) for refugees for a period of three years. The policy change constituted a significant labor market liberalization for refugees.

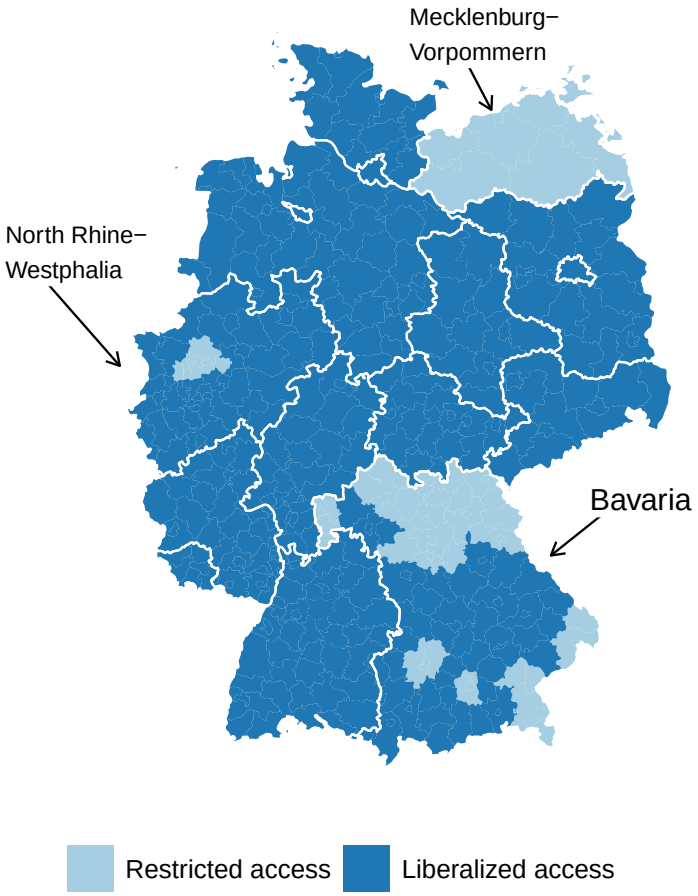
Prior to the priority review suspension, refugees faced significant hurdles in the labor market. Refugees were not allowed to seek employment during the first three months after their arrival. Starting in month four after arrival, refugees became, on paper, eligible for employment. In reality, however, refugee employment remained tightly regulated. Employers that wished to hire a refugee whose asylum application was not yet approved for an open position had to obtain written approval from the Federal Employment Agency. The approval of the agency was subject to a so-called priority review: for a period of up to six weeks, the local employment agency office needed to try to find an unemployed German or foreign permanent resident who fit the job description. These candidates would then be required to apply for the open position in order to remain eligible for unemployment benefits. This policy applies also in cases where no refugees apply for a given position. Only if no other candidate could be hired within the six-week period, the refugee could take up the position. After the suspension of the priority review, employers were no longer forced to consider alternative employees. This change removed a major disincentive for employers to hire refugees and was designed to facilitate refugees' integration into the German labor market.

In August 2016, the priority review was suspended in 133 out of 156 employment agency districts. The Federal Employment Agency divides Germany into 156 agency districts, which

form the agency's main organizational unit. Each agency district typically consist of 2-4 adjacent counties. Crucially, employment agency districts are of limited political and administrative importance in other domains apart from the labor market. Policy changes are generally not implemented at this level. The aggregation of votes for seats in federal or state legislatures likewise occurs at a lower geographic level.

Figure A.1 shows a map of treated and non-treated counties. While the integration law was passed by the federal government, state governments had some influence on the implementation of the policy. In North Rhine-Westphalia, the Ruhr area region was exempted from the policy. In Bavaria, the government chose a cutoff-based approach: employment agency districts with unemployment rates greater than the state average kept the priority review. Finally, in Mecklenburg-Vorpommern the policy was never implemented. To ensure the empirical validity of the results, we focus on within-state comparisons over time and avoid extrapolation across state boundaries. In our empirical analyses, we therefore focus on Bavaria and North Rhine-Westphalia. The two states are the largest and third largest states in terms of population, with a combined population of over 30 million, while their combined GDP equals that of Spain.

Figure A.1: Treated and Control Counties



Note: The map shows counties where the labor market was liberalized for refugees (dark blue) and counties where the priority review remained in place (light blue). Note that the treatment was assigned at the level of the employment agency district, which consists of three or four adjacent counties. For reasons of causal identification, the empirical part of the paper focuses on two states with within-state variation, Bavaria and North Rhine-Westphalia.

A.3 Additional Information on Data Sources

Refugee employment To examine the effect of the policy change on refugee employment, we obtained official data from the Federal Employment Agency. We observe the number of employed refugees in all German municipalities in every quarter between March 2008 and December 2018. The data captures both part-time and full-time employment. To ease interpretation, we scale the data by the total population of a given municipality in a given year.

Native employment and incomes To examine the effect of the policy change on natives' employment and wages, we gathered quarterly employment and wage data from the Federal Statistical Agency. Specifically, we observe the median monthly gross wage for full-time employees at the county-level. Importantly, we are able to break this information down to different sub-groups of employees. We observe the evolution of wages for men, women, natives, foreigners, different age groups, and workers with differing educational backgrounds.

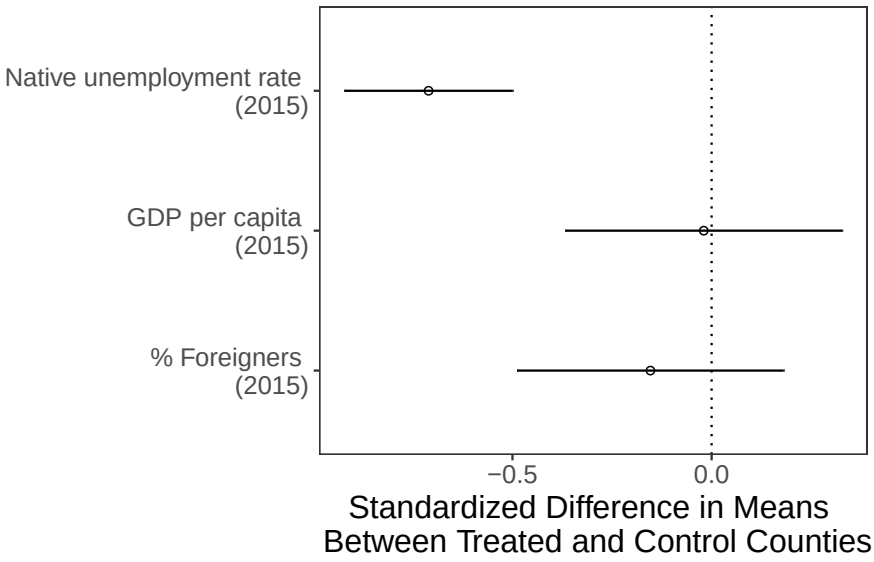
Voting behavior The primary political outcome is electoral behavior. We draw on municipality level voting data for the most recent federal and state elections before and after the policy change. In the mixed German electoral system, voters cast two votes. The first is for a 'direct' candidate in single member districts, while the second vote is cast for a party list. We focus on the second vote, which determines the proportional allocation of seats in the parliament. The key outcome of interest is the vote share of left- / right-leaning parties who favor / oppose migration, respectively. We classify the Social Democratic Party, the Green Party and the Left Party as left-leaning, while the Christian Democratic Union, the Christian Social Union, the Free Democratic Party and the Alternative for Germany are classified as right Chou et al. (2018).

Party identification To supplant the electoral outcome and to assess mechanisms, we draw on individual-level panel data on residents' party identification from the German Socio-Economic Panel (SOEP; SOEP-Group 2001). The SOEP constitutes the largest (∼20,000 respondents) annual panel survey in Germany. In addition to standard demographic and socio-economic covariates, the SOEP includes an item on residents' party identification. This variable thus captures whether respondents lean toward pro-immigration parties.

Attitudes Finally, to pick up broader changes in attitudes, we draw on a large-scale online survey conducted by the survey company *Civey* after the policy went into effect. The firm fielded a question from 2018 to 2019 to over 53,000 respondents, asking them whether they support or oppose the integration of refugees into the German labor market. The outcome variable is a binary indicator that equals one if a respondent supports the economic integration of refugees.

A.4 Balance Across Regions With and Without Liberalization

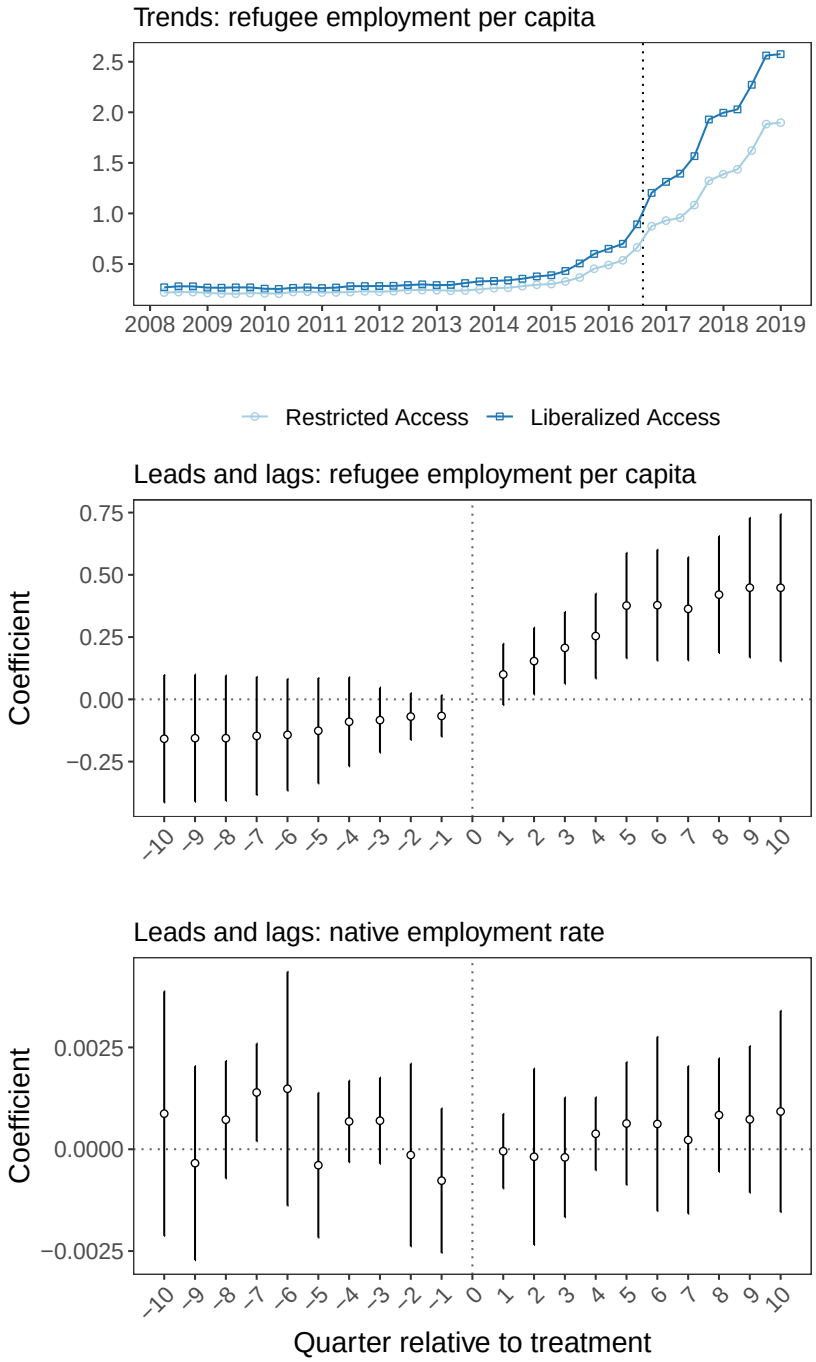
Figure A.2: Covariate balance: treated and control counties



Note: The Figure shows the pre-treatement covariate balance between treated and control counties as of December 2015. We examine three covariates: the native unemployment rate, GDP per capita, and the local foreigner share in the population. The sample contains all counties in Bavaria and North Rhine-Westphalia. We adjusted for baseline differences between the two states using state-fixed effects. All variables were standardized.

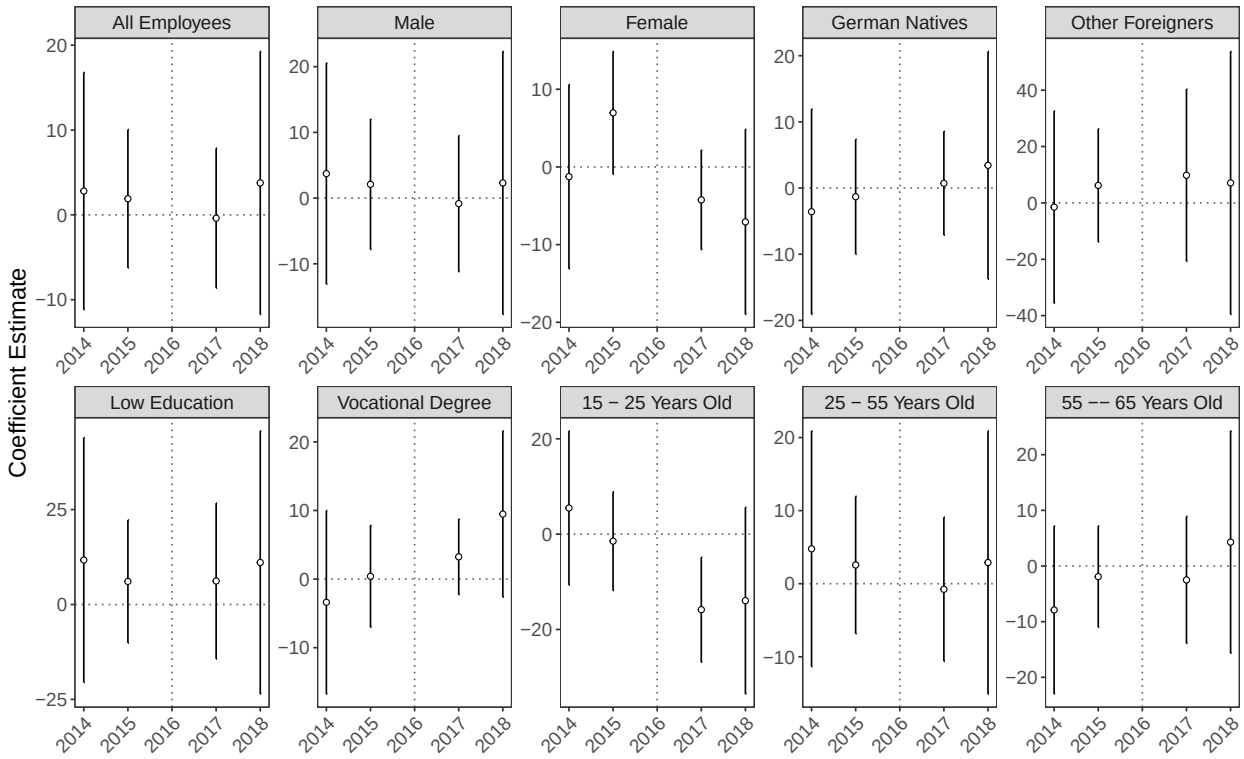
A.5 Effects on Employment and Wages

Figure A.3: Refugee employment: Lags and Leads estimation



Note: The top panel shows the raw trends in refugee employment in treated and control districts between 2008 and 2018. The bottom two panels plot coefficients and 95 percent confidence intervals from leads and lags specifications as described in Section . Standard errors are clustered at the employment agency district level. The sample contains all municipalities in Bavaria and North Rhine-Westphalia.

Figure A.4: Effect of labor market liberalization on wages



Note: Effect of the labor market liberalization on the median monthly gross wages of workers with varying socio-demographic characteristics. Treatments effects are estimated on the basis of county-level panel data 2014 – 2018. Standard errors are clustered at the employment agency district level. The sample consists of all counties in Bavaria and North Rhine-Westphalia.

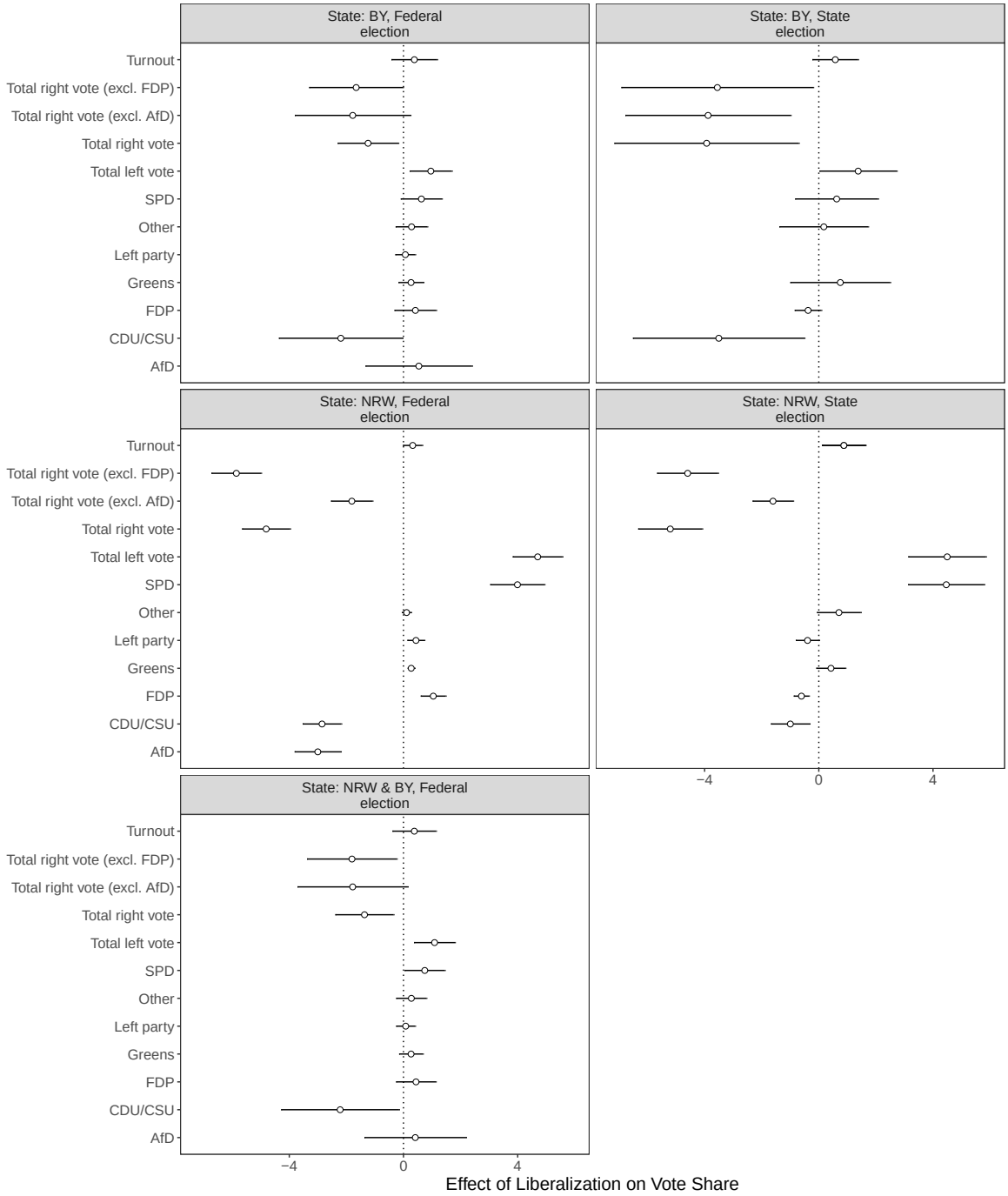
A.6 Effects on Contact Between Refugees and Natives

The estimated labor market effects translate into a substantial increase in contact between natives and refugees. The average municipality in the two affected states has about 12,500 inhabitants. In a municipality of 12,500 people, we estimate that an additional 5.5 refugees find employment due to the labor market liberalization. Based on survey data from the SOEP[3] , we know that most employed refugees work in medium-sized firms with between 20 and 100 employees. Given the relatively small size of such firms, all employees likely either knew of, or directly interacted with the new refugee coworkers. Using the lower firm size bound of 20 employees, an additional 110 (5.5*20) people had first-hand contact with refugees. Moreover, since refugee integration was a highly salient issue at the time, employees in affected firms likely talked about their new coworkers with contacts in their social networks. Assuming that each affected employee talked to two additional people about their refugee coworkers, the number of people who learned about the newly employed refugees already exceeds 300. Taken together, it therefore appears likely that the number of natives that learned about the effects of the policy—directly or indirectly—is substantively significant, explaining potential effects on voting behavior (more below).

[3]Descriptive statistics based on the 2017 SOEP-IAB-BAMF refugee sub-sample.

A.7 Effects on Aggregate Electoral Outcomes

Figure A.5: Refugee Labor Market Access and Electoral Behavior, Disaggregated by Party



Note: Results from two-period difference-in-differences models. The x-axis shows the estimated effect of labor market liberalization on the vote share of different parties and party groups (in percentage points). We analyze elections for federal and state parliaments. Standard errors are clustered at the employment agency district level.

A.8 Effects on Individual Party Identification

Table A.2: Effects of labor market liberalization on party identification

	DV: Identifying with any left-wing party (0/1)			
	All respondents	Right-wing respondents		
	(1)	(2)	(3)	(4)
Liberalization	0.011*	0.017*	0.031*	0.005
	(0.006)	(0.009)	(0.018)	(0.007)
Sample	Full	Full	Worry ab. immigration	Don't worry ab. immigration
N	6648	3564	1608	1956

Notes: DiD estimates from two-period models for 2016 and 2017. The outcome is binary indicator of preferring any either any right-wing or any left-wing party. Standard errors are clustered at the employment agency district level. We subset the survey based on (1) stated party identification as well as (2) a survey item on worries about immigration to Germany. Both items were measured prior to the treatment in 2016. ***p < .01; **p < .05; *p < .1

A.9 Employment Trends and Right-wing Voting

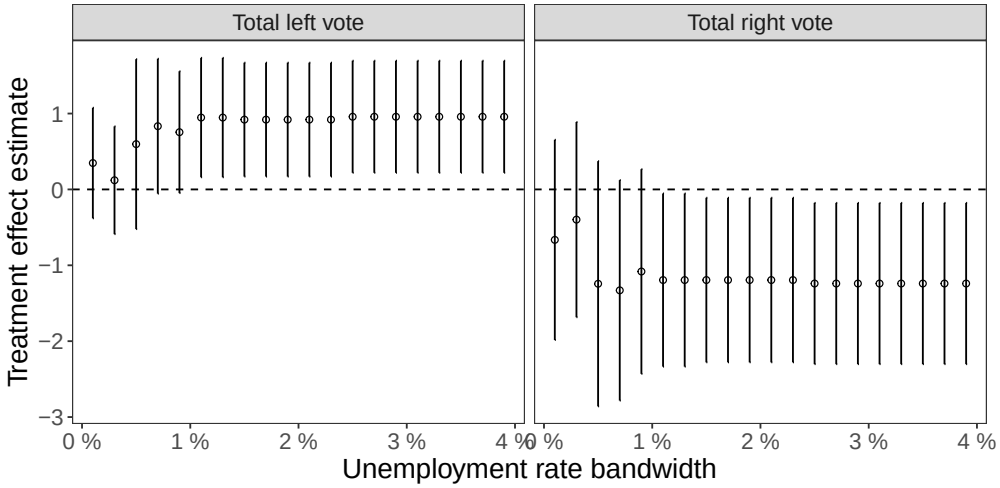
Table A.3: Effect of Employment on Right-wing voting Within Employment Agency Districts

	DV: Δ Total right vote
Native Employment Rate	0.568
	(1.386)
Employment Agency District FE	Yes
N	2442
R-squared	0.416

Notes: Estimates from OLS regression. The outcome is the change in the vote share for right-wing parties (including the AfD) between the federal elections 2017 and 2013, measured at the municipality-level. The main independent variable is the native full-time employment rate in 2016. This variable is measured as the share of individuals in full-time employment divided by the total population in the municipality. The sample consists of all municipalities in Bavaria and North Rhine-Westphalia. The model includes employment agency district fixed effects. ***p < .01; **p < .05; *p < .1

A.10 DiD Estimation Around Treatment Assignment Cutoff in Bavaria

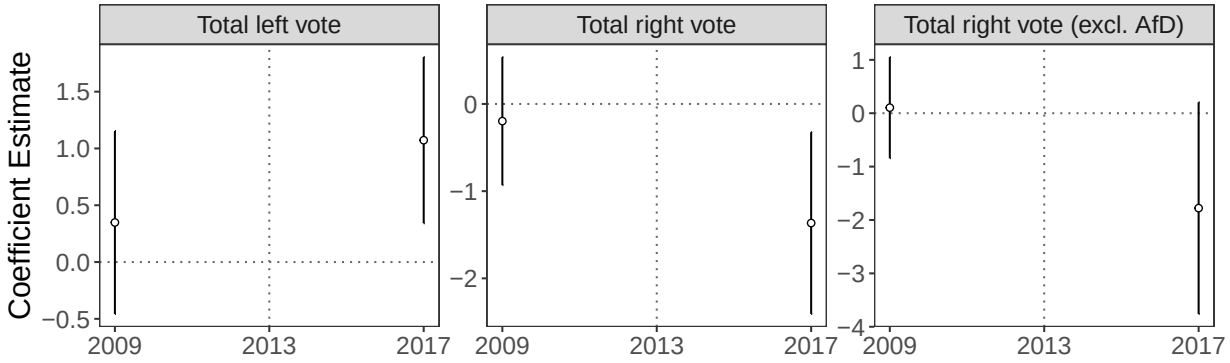
Figure A.6: DiD estimation around the treatment assignment cutoff



Note: The figure shows the results from two-period difference in differences models at varying bandwidths around the treatment assignment cutoff in Bavaria. The outcomes are the vote shares of parties in the 2013 and 2017 federal elections. The total vote share for right-wing parties includes the votes cast for the AfD. The sample includes all municipalities in Bavaria. The treatment is the labor market liberalization for refugees in August 2016. In Bavaria, employment agency district with an average unemployment rate of less than 3.6% in 2015 were treated. Employment Agency districts with a higher unemployment rate were exempted from the policy change. We present two-period treatment effect estimates for varying samples around the treatment assignment cutoff. The 1% bandwidth estimate, for example, contains all municipalities nested in employment agency districts with an unemployment rate between 2.6% and 4.6% in 2015. The error-bars indicate 95% confidence intervals. Standard errors are clustered at the employment agency district level. The confidence intervals are likely too narrow for small bandwidths, because we only have a small number of clusters in these restricted samples.

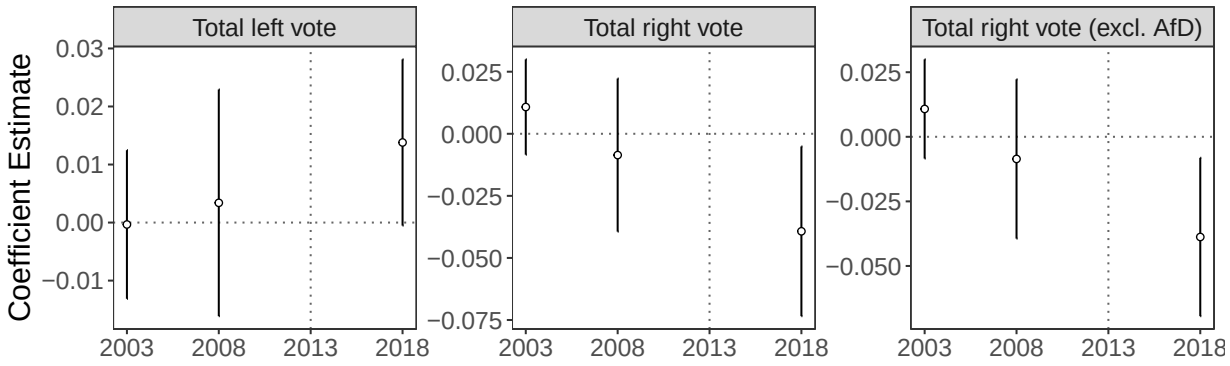
A.11 Lags and Leads Analysis in Federal and State Elections

Figure A.7: Leads and lags: federal elections



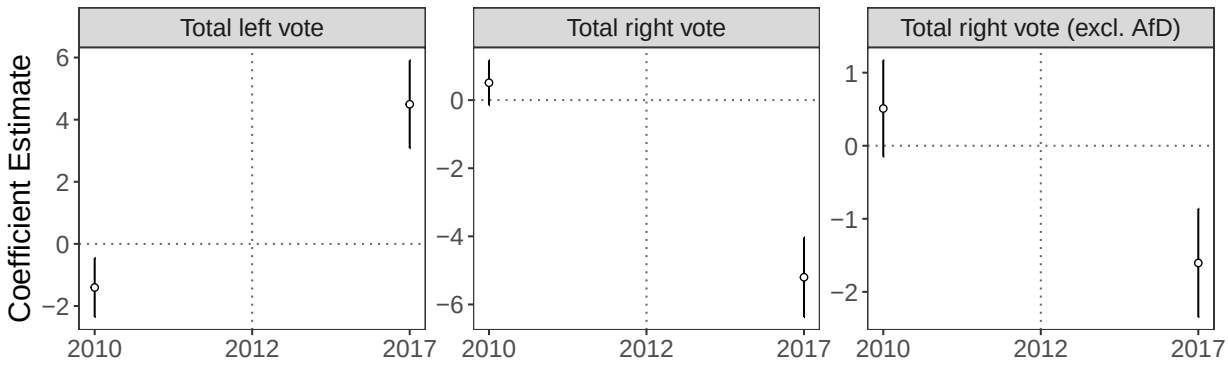
Note: Results from leads and lags analysis for federal elections between 2009 and 2017. We estimate the same generalized difference-in-differences specification as described in Section . We have two pre-treatment periods (2009 and 2013) and one post-treatment period (2017). The sample includes all municipalities in Bavaria and North Rhine-Westphalia.

Figure A.8: Leads and lags: state elections in Bavaria



Note: Results from leads and lags analysis for state elections in Bavaria between 2003 and 2018. We estimate the same generalized difference-in-differences specification as described in Section . We have three pre-treatment periods (2003, 2008, and 2013) and one post-treatment period (2018). The sample includes all municipalities in Bavaria.

Figure A.9: Leads and lags: state elections in North Rhine-Westphalia

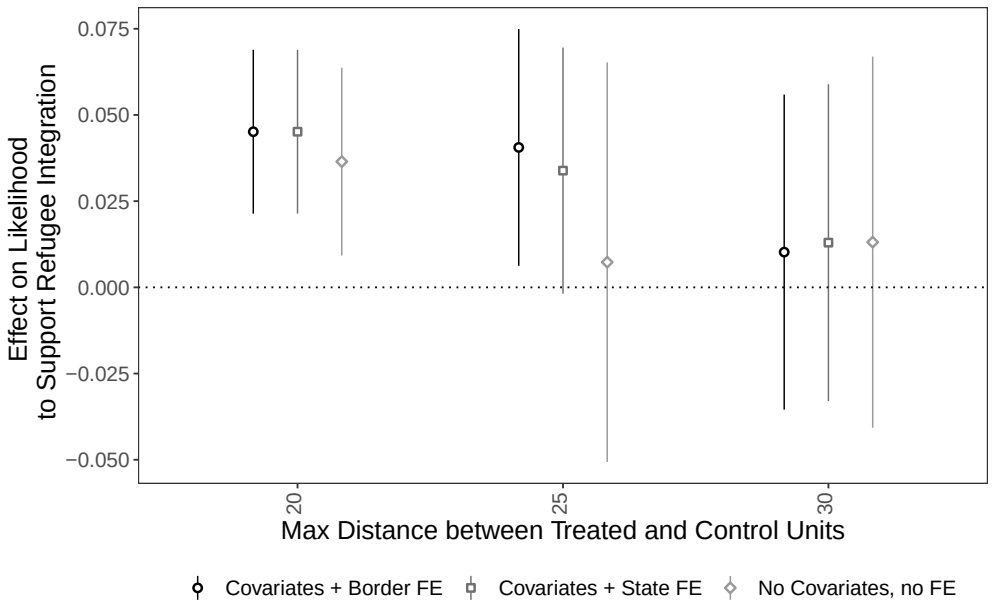


Note: Results from leads and lags analysis for state elections in North Rhine-Westphalia between 2010 and 2017. We estimate the same generalized difference-in-differences specification as described in Section . We have two pre-treatment periods (2010 and 2012) and one post-treatment period (2017). The sample includes all municipalities in North Rhine-Westphalia.

A.12 Geographic RD Design

In the geographic RD design, we compare individuals in treated regions who live very close to individuals in regions where the labor market was not liberalized. We show the sample of treated and control counties that we retain after geographic distance matching in Figure A.11. We also control for individual-level background characteristics. These variables include age, gender, religious affiliation, marital status, and the educational background of respondents. The identification assumption is that, conditional on geographic proximity *and* covariates, the treatment assignment is independent of potential outcomes.

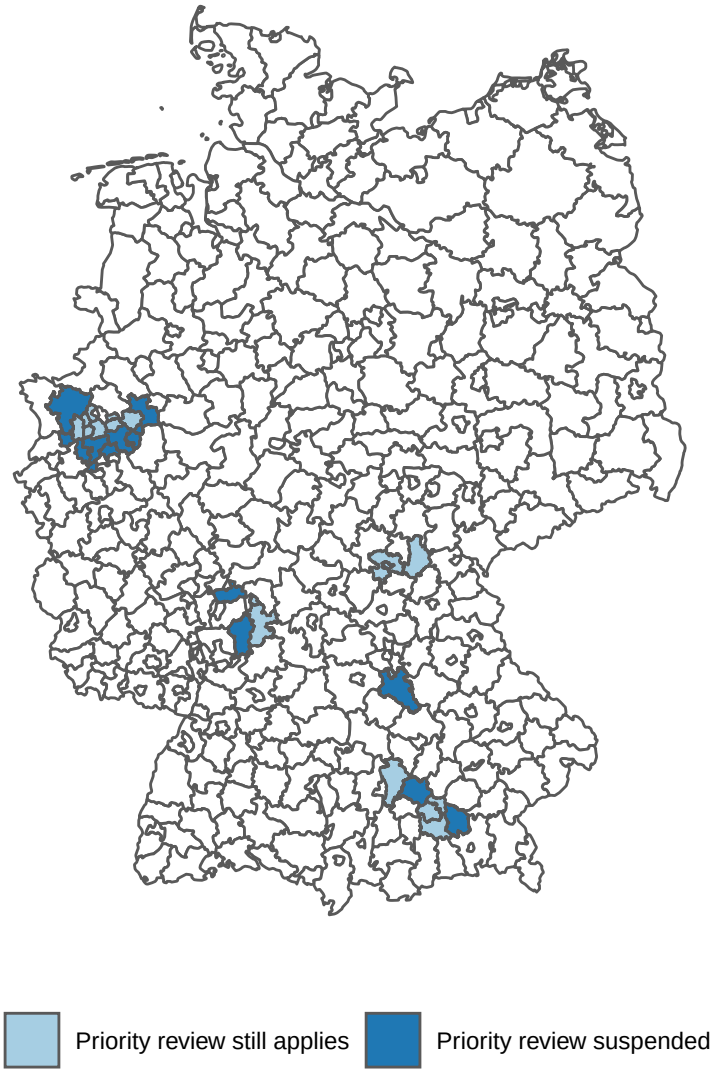
Figure A.10: Effect of Labor Market Liberalization on Attitudes towards Refugees



Note: Results from cross-sectional geographic RD OLS models. The y-axis shows the mean-difference in the likelihood to support refugee integration into the labor market between individuals in treated and control regions. We compare individuals living in regions that are geographically close but vary in terms of treatment status. Standard errors are clustered at the employment agency district levels.

A.13 Counties in Civey Sample

Figure A.11: Counties in civey sample



Note: The map shows the counties that were retained in the Civey sample. We pruned all respondents located in counties that are more than 25 kilometers away from a county of different treatment status.