

Analyzing the Link Between Aging Populations and the Rise of the European Far Right

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Abstract

In this research paper I explore the relationship between aging populations, high levels of immigration, and the rise of far-right parties in Europe. Through a review of the literature, I find that while aging populations may lead to the rise of immigration in the future, neither old age nor the economic challenges associated with an aging population have thus far contributed to the rise of far right parties. I find that the literature mostly agrees that high levels of immigration in European nations contributes to more nativist attitudes. I perform my own analysis of age and immigration effects in the case of Germany and their far-right party, the AfD. By using logistic multi-level regression with the most extensive survey data available, I find evidence for immigration predicting vote intention for the AfD. Additionally, by using party level issue position data from the Manifesto History Project, I decompose voter party ratings into issue stances, finding that higher levels of immigration leads to higher levels of nationalism and lower levels of multiculturalism across the whole German electorate.

Background

Across Europe, far-right parties are ascendant. Currently, the AfD is the second most popular party in Germany, the FPÖ is the most popular party in Austria, and the Fdl governs Italy. At the same time, Europe faces a looming demographic crisis as its population ages and birthrates plummet. The motivation for this paper rests on the existence of two phenomena: An aging population in Europe, and the rise of far-right parties in Europe. Before any analysis on the relationship between these two phenomena is undertaken, I must first prove the existence of these two trends.

An Aging Population

Europe faces a looming demographic crisis due to a falling birth rate. In 2021, EU countries recorded only 1.53 live births per woman, on average — well below the replacement rate of 2.1 live births per woman (Eurostat 2023a). The population imbalance emerging within Europe can be further portrayed by the ratio of the older population to the population of the younger population. This Old Age Index is calculated by dividing the population over 65 years old by the population under 5 old. Figure 1 displays the increasing Old Age Index in Europe since 1994. Furthermore, the top-heavy population pyramid shown in figure 2 demonstrates the problem of an aging population that will only continue to worsen. The European Union predicts that the population of Europe will peak in 2026 (Eurostat 2023b).

Figure 1: Old Age Index from 1994-2022 in the EU and Switzerland ¹

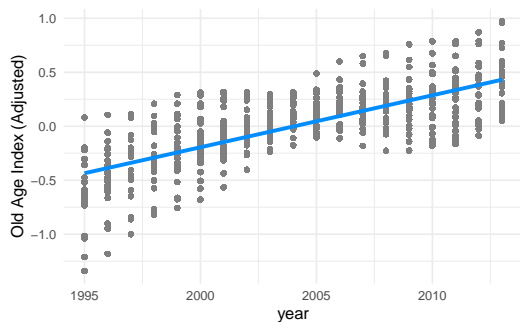
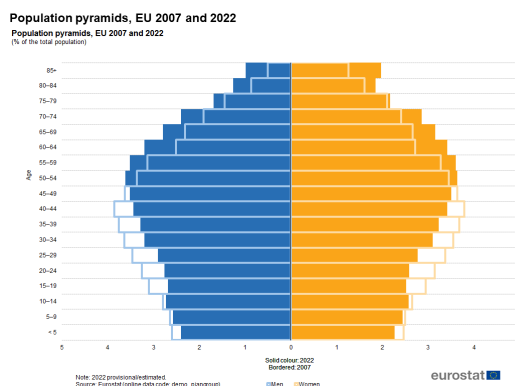


Figure 2: European Population Pyramid



The Rise of the European Far Right

Based on the conventional news media narrative of the past year, far-right parties have been on the rise (Marsili and Tassinari 2023; Henley 2023; Stein 2023). It is worth asking ourselves: what exactly constitutes a “radical right-wing” party? Based on the literature, it appears that the distinction between a run-of-the-mill center-right party and a far-right party comprises in something of a know-it-when-you-see-it standard, with anti-immigrant and populist sentiment playing major roles in the consideration. One study asked a panel of experts to rank European parties on various metrics, then defined the far-right as the parties who ranked above an arbitrary threshold on anti-immigrant sentiment (Lubbers, Gijsberts, and Scheepers 2002). The Manifesto Project, which tracks global political party policies, assigns the label “nationalist and radical right parties” to parties who’s founding manifesto fulfills that label, in the eyes of its experts (Lehmann, Pola et al. 2023).

Given the clear existence of radical right-wing parties and the absence of a bright line to distinguish them from other parties, I will take the opinions of experts as gospel on this issue and submit to the Manifesto Project’s designations of parties. From these designations, figure 3 shows the average vote share of far-right parties in Europe over time, weighted for national population. A complementary trend alongside the rise in far right parties is the rise in overall nationalist sentiment (seen in figure 4), as calculated by data from the Manifesto Project.

1. The figure’s regression model includes random intercepts grouped by country and is weighted according to the population of each country. Data is from the World Bank.

Figure 3: Far Right Parties Average Vote Share from 1994-2022

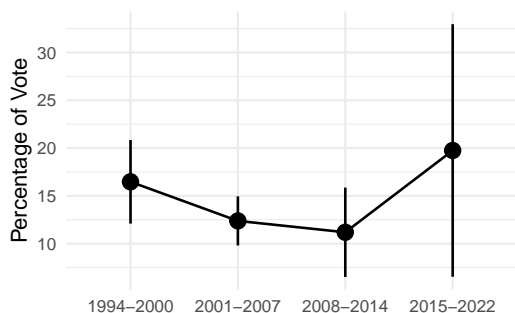
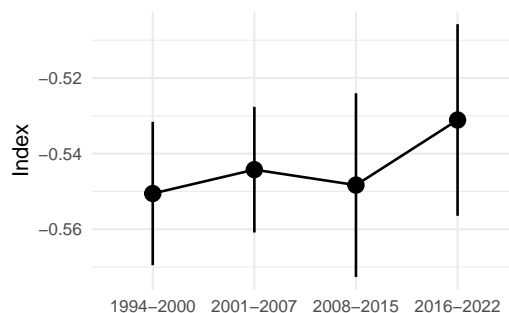


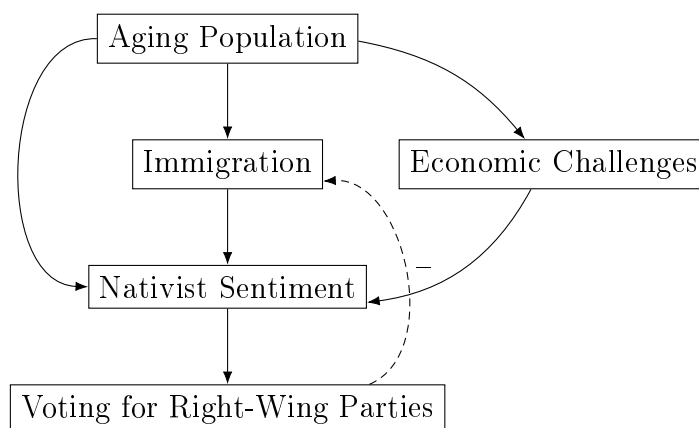
Figure 4: Average Index of Nationalism from 1994-2022



Hypothesized Causal Path

The causal diagram, as shown in figure 5, displays my initial hypothesis as to how Europe’s demographic challenges and rising immigration might be connected and influence nativist sentiment. There are four core causal assertions: 1) that nativist sentiment leads to voting for radical right-wing parties, 2) that heightened immigration in a country leads to nativist sentiment, 3) that an aging population leads to increased immigration, and 4) that an aging population independently leads to nativist sentiment, either by way of older people being more conservative, or by way of populist discontent from economies increasingly strained by the population imbalance. In the following sections I will explore what the existing literature has to say about each of these hypothesized causal pathways.

Figure 5: Hypothesized Causal Mechanisms



Causal Pathway 1: Nativist Sentiment Leads to Voting for Radical Right-Wing Parties

The claim that right-wing parties are more nativist than other parties is essentially definitional; that is to say, a quality necessary to making a party radically right-wing is its nativist attitude. Research into the values of right wing parties in Europe affirms the commonly held view that part of what makes radical right wing parties radically right wing is their nativist value foundation (Rooduijn et al. 2017, 555). Data from the Manifesto Project, which tracks party stances over time, supports this claim: Nationalist and radical right parties in the EU and Switzerland, as defined by the Manifesto Project, hold an average multiculturalism score 2.5 points lower than other parties, and a nationalism score 6.6 points higher than other parties.² A point in this context is calculated by taking positive references to nationalism and multiculturalism in party manifestos and subtracting negative references to the topics. Some research goes so far as to classify extreme far-right parties based solely on the party’s stance towards immigration (Lubbers, Gijsberts, and Scheepers 2002). My any measure, increased nativist attitudes in a population leads to higher vote shares for far-right parties.

Figure 6: An AfD campaign poster in Germany. The message translates to, “‘New Germans?’ Let’s do it ourselves.”



Causal Pathway 2: Immigration Leads to Nativist Sentiment

Any causal path stemming from a concept as broad as “immigration” requires nuance with regard to what is meant, precisely, when one references the concept. The question of immigration’s effect on nativist sentiment requires two sets of distinctions to be made. Firstly, the distinction between between refugees and other immigrants, and secondly, the distinction

2. Numbers calculated by multilevel linear regression grouped by country using data from 1994 to 2022. Regression table can be found in the appendices (see table 4).

between media coverage of immigration and personal interactions with immigrants. It may well be the case that refugees, whose creation is spurred by geopolitical upheaval in a concentrated period of time, leads to greater nativist sentiment while other immigration, which occurs more predictably and slowly, does not incur the same nativist feelings. Likewise, it may be the case that media coverage of immigrants stokes nativist sentiment, while personal interaction with the immigrants assuages fears and actually lessens nativism. Far-right parties have certainly appealed to anti-immigrant sentiment in their campaigns in Europe, though the question here concerns the extent to which such anti-immigrant sentiment rises as a result of an increase of immigrants, or if the nativist attitude stems from other factors.

Research analyzing the political effects of the 2014-2015 Syrian refugee crisis in Upper Austria — a major transit region for refugees (Weiermair 2015) — came to the conclusion hinted at in the previous paragraph: the surge of immigration in the media landscape led to a significant rise in votes for the FPÖ (Austria’s far-right party), though individuals who actually interacted with the refugees for prolonged periods were significantly *less* likely to vote for the FPÖ (Steinmayr 2021). In other words, exposure to the refugee crisis concept helped the far right, while actual contact with refugees hurt the far right.

A study from Denmark took advantage of national policy mandating random dispersal of refugees within the country to test the political effects of refugees on various regions of the country. They found that “an exogenous increase in refugee allocation strongly affects anti-immigration parties’ vote shares in both parliamentary and municipal elections in all but the most urban municipalities,” with the increase in refugees benefiting far-right and center-right parties and coming at the expense of parties left of center (Dustmann, Vasiljeva, and Piil Damm 2019). This finding of high levels of immigration leading to higher vote shares for right wing parties in all regions except the most urban is supported by similar findings in Italy between 2001 and 2008 (Barone et al. 2016).

Another study on the FPÖ in Austria analyzed the political effects of long-term immigrants residing in communities (Halla, Wagner, and Zweimüller 2017). Unlike the aforementioned Steinmayr paper, which analyzed refugees passing through Austria, this paper by Halla, Wagner, and Zweimüller analyzes immigrants permanently or semi-permanently residing in Austria. They find that the presence of low to middle income immigrants increased the vote share of the FPÖ in the communities in which they resided. The authors attributed this result to the impression that benefits for the new immigrants came at the cost of benefits for the existing citizens.

The conclusions of Halla, Wagner, and Zweimüller are buttressed by the findings of Matt

Golder, who found that vote share for populist parties in Europe increased as a result of immigration (Golder 2003). Further, he found that unemployment levels also increased support for populist parties, but only when immigration levels in the country were high. This lends further credence to the assertion that citizens ascribe economic woes to immigrant populations.

Taken as a whole, the existing literature suggests that increases in refugees populations and other immigrant populations lead to higher vote shares for far-right populist parties, in most cases. This finding is not a particularly recent development in Europe; research demonstrating this same phenomenon using data from the 1980s came to the same conclusion (Knigge 1998; Otto and Steinhardt 2014). The true causal path connecting immigration to nativist attitudes appears to be complicated by urban vs. non-urban setting within a country as well as the economic strength of the country, though the broad conclusion gleaned from existing literature suggests that higher levels of refugees and immigrants in European countries leads to higher vote shares for right wing parties.

Causal Pathway 3: An Aging Population Leads to Increased Immigration

Given that refugees and asylum seekers make up a large portion of immigrants that Europe has accepted over the past decade, and given that such immigrants arrive out of sporadic geo-political crises and not out of receiving nations' express desire for more immigrants, it is difficult to say as a matter of fact that aging populations in Europe have led to increased immigration; however, as a matter of future policy, social scientists have recommended an increase in immigration to offset the negative economic effects of population decline.

The notion of "replacement migration" has been proposed by scholars as a potential strategy to address the challenges posed by aging populations. This proposal involves encouraging immigration to counterbalance declining birth rates and mitigate the economic repercussions of population decline (Bijak et al. 2013). Economically, proponents argue that an influx of working-age immigrants can contribute to sustaining pension systems, fostering economic growth, and filling labor market gaps. The economic argument for immigration, therefore, extends beyond the immediate humanitarian concerns associated with forced migration, encompassing a strategic response to demographic shifts and potential economic benefits. The actual viability of replacement migration is, however, debated, with some social scientists arguing that the level of migration required to offset population declines would be unreasonably large (Coleman 2002). In any case, economists in general tend to point to immigration

as a potential economic benefit that could help an aging Europe.

Causal Pathway 4: An Aging Population Leads to More Nativism

The idea that European nativist attitudes are stratified by age is largely unsupported by the literature. With regards to the AfD, data from the German Socio-Economic Panel — a longitudinal survey administered every year since 1984 — suggests that the only predictive factor that can identify an AfD voter is their stance towards immigration (Schröder 2018). Factors such as age, social class, and occupation are not found to be significant traits of an AfD voter.

A Europe-wide study based on survey data from 2002 to 2010 similarly finds that voting for far-right parties depends most strongly on anti-immigrant attitudes. While age was weakly associated with voting for center-right parties, it was not shown to be associated with voting for far-right parties (Zhirkov 2014). Other evidence suggests that age is actually negatively correlated with voting for European far-right parties (Lubbers, Gijsberts, and Scheepers 2002).

In essence, the prevailing evidence challenges the notion that age serves as a decisive factor in shaping nativist attitudes across Europe. Instead, it highlights the pivotal role played by attitudes towards immigration in influencing far-right party affiliation.

Independent Assessment in the Case of Germany

Based on the access to individual-level data at the national level, as well as the simplicity gained by focusing on a single nation's political landscape, I decided to independently test my hypotheses by analyzing the case of Germany and their far-right party, the AfD (Alternative für Deutschland).

Methods

To test my hypotheses, I utilized multi-level regression, which allowed me to observe both individual-level effects along with regional-level effects. Because my research question hinges on regional level phenomena influencing individual level attitudes, such a regression design is ideal. I performed two sets of regressions corresponding to the different response variables used. In the first set, I performed a logistic multi-level regression on the binary response variable of whether or not an individual intended to vote for the AfD. In the second set, I

performed a linear regression on the response variables of an individual's stances on multiculturalism and nationalism.

Data

The German longitudinal study, the Politbarometer (Forschungsgruppe Wahlen, Mannheim 2023), served as my key source for individual-level data. In addition to key demographic questions, the survey asks respondents to rate each party on a scale from negative five to positive five, as well as to indicate the party they intend to vote for if the election were held on that day.

Data at the level of länder was gathered from the German Federal Statistical Office. These datasets provided unemployment rates, the foreign proportion of the population, and the ratio of the older population to the working age population (old age dependency ratio) for each land within Germany.

Variable	Description
Old_Age_Dependency_Ratio	The ratio of the population over 65 to the population 15 to 64.
foreign_perc	The percentage of foreigners in a given region.
unemployment_rate	Unemployment as a percentage of the civilian labour force
religion	A factor variable denoting whether the respondent is Atheist, Catholic, Protestant, or other.
age	The age of the respondent as denoted nine age groups. Please note that an increase of one in this variable corresponds to an increase of the respondent's age group.
sex	The sex of the respondent, with 1 being female.
education	A dummy variable denoting whether the respondent received a Bachelor's degree or equivalent.

Calculating Individual Issue Stances

In addition to using the intended-vote share of the AfD as a response variable, I also sought to use an individual's opinion towards multiculturalism and nationalism as a response variable. The motivation for this is twofold: 1) it could well be the case that even as the vote share of the AfD increases, the average opinion of all voters towards multiculturalism moves in the direction of being more welcoming to foreigners, and 2) much of the existing literature focuses solely on the rise of radical right-wing parties and not nationwide opinion.

The Manifesto Project, which codes party manifestos according to standard criteria meant for comparing parties across countries and time, provides insight into the policy stances of European parties. The Manifesto Project records a party's stance towards an issue as the normalized number of times that the party's manifesto mentions certain phrases associated with the issue. For instance, a manifesto might mention multiculturalism favorably in three instances, and negatively in one. By subtracting the negative mentions from the positive mentions and normalizing the values across all parties for the time frame in question, I can attain a measure of a party's stance on an issue. Since parties only issue manifestos in the run-up to elections, and not every year, I linearly interpolated party issue stances for the years between election years.

Unfortunately, the Politborometer survey did not directly ask respondents about their individual stances towards any policy issue over time. As such, I am left with estimating individual policy stances of Germans given the individual opinions of voters towards political parties, as provided by the Politborometer, in conjunction with the policy stances of parties, as provided by the Manifesto Project. I explore two approaches to this problem: the naive approach, and the modeled approach

Under the naive approach, I simply assume that an individual's rating of a political party applies also to all the policy stances of that political party. If a voter rates the AfD as -0.6, and the AfD's policy position towards the environment is -0.2, then I assume that the voter's opinion of the environment is -0.6×-0.3 , or 0.2. If I add up the inferred policy positions from all the parties, then I arrive at an estimated value for the voter's issue stances.

I call the naive approach naive because it fails to consider that different issues hold different salience to voters. Consider a voter who wants stronger borders very strongly and also stronger environmental regulation very weakly. Even as their positions on both of these issues are positive, the issues will hold different importance to them. If this voter cares about stronger borders with a salience of 0.9 and environmental protection with a salience of 0.1, then they may end up ranking the AfD quite high and the Green party rather low. A voter with the same issue positions but opposite salience values would rank the Green party high and the AfD low. In each case, the voter's rating of a political party is a function of the voter's issue positions and the salience those positions hold to the voter.

My model of individual party ratings draws on the long political science literature of position and salience as an effective modeling framework in which to measure an actor's behavior. Under this model, an actor has a position (p) regarding a policy issue, and this issue holds a certain amount of salience (s) to them. A voter also possesses personal ratings of political

parties (\mathbf{r}), which captures the extent to which a voter likes or dislikes a particular party. My model assumes that a voter’s rating of a party is determined by the following process: A voter determines the similarity between their issue positions and a party’s issue positions, then averages the similarity values weighted by the salience they hold towards each issue.

Across n policy issues, an individual’s position and salience values can be represented by vectors \mathbf{p} and \mathbf{s} of length n . For m parties, we can represent parties’ policy stances by matrix \mathbf{A} with dimensions $m \times n$. A voter’s rating of political parties is represented by vector \mathbf{r} of length m . The model is specified below.

$$\mathbf{r} = \mathbf{s}(1 - |\mathbf{P} - \mathbf{A}|) \tag{1}$$

$$\sum_{i=1}^n \mathbf{s}_i = 1 \tag{2}$$

Table 1 shows matrix \mathbf{A} for the year 2022.

Table 1: Party Positions 2022

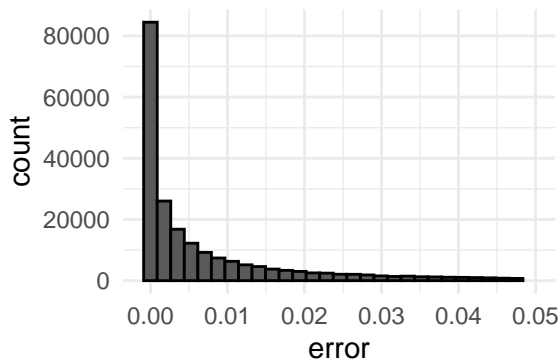
	nationalism	multiculturalism	trad_morality	welfare	law_and_order	remove_corruption	military	equality	environment	econ_growth	protectionism	regulation
Green	-0.645	0.388	-0.020	-0.210	-0.090	-0.706	0.008	-0.102	0.561	-0.892	-0.873	0.717
CDU	-0.350	0.212	0.242	-0.400	1	-0.984	1	-0.898	-0.204	-0.033	-0.940	0.307
SPD	-0.589	0.408	0.009	0.105	-0.072	-0.894	0.021	-0.130	-0.369	-0.746	-0.801	0.110
Left	-0.597	0.403	-0.052	-0.036	-0.593	-0.715	-1	0.715	-0.109	-0.987	-0.690	0.413
AfD	0.715	-0.449	1	-0.637	0.085	0.729	0.670	-0.962	-0.568	-0.186	0.063	-0.432
FDP	-0.540	0.204	-0.106	-0.530	0.004	-0.980	0.314	-0.461	-0.194	0.324	-0.777	-0.208

Given this model, I attempt to estimate an individual’s position and salience towards an issue given their ratings of political parties and the policy stances of those political parties. Calculating these estimated values consists in solving a computationally intensive optimization problem, the details of which can be found in the appendices of this paper. It is important to note that the solution to this optimization problem can depend on the initial guess of individual positions. I chose to use the results of the naive approach as my initial guess. The optimizer then converges to a solution which has an error value. For my analysis, I used only the observations that produced a valid result³ with an error less than 0.01. Only 17.5% of the observations used in the analysis with AfD as the response variable met this criteria. To my knowledge, the ability of the optimizer to converge is independent of any characteristics of the data, meaning that I do not believe this loss in data was such that it would skew my

3. a valid result in this context is a result in which no salience value was negative.

results in one direction. Supplementary regression analyses performed on the entire dataset using the naive approach happened to produce very similar results to the regression analyses performed on the more limited data using the modeled approach.

Figure 7: Distribution of Optimizer Error



Given the values of \mathbf{p} and \mathbf{s} , I multiply the vectors pairwise to determine the response variable of the regression. Several sanity checks were performed on the outputs of this method, including testing whether my models predict that voters who think highly of environmental issues would be more likely to vote for the Green party. All of these tests produced results in line with expectations.

Results

Table 2 Displays the results of the logistic regression models aimed at finding variables that correlate with voting for the AfD. Before analysis of the salient issues are discussed, it is worth examining if correlations among the control variables point in reasonable directions. For instance, the model predicts that men and non-college educated individuals are significantly more likely to vote for the AfD, which aligns with expectations.

In the model, age held a consistent positive — albeit small — correlation with AfD vote likelihood, even corrected for old age dependency. This finding technically supports my hypothesis, though should not be treated too seriously because 1) it contradicts much of the existing literature, and 2) the age variable measures age groups, not precise ages, thus making the resolution of the data not ideal for forming any concrete conclusions based off a correlation.

The effect of regional unemployment was precisely opposite what I expected based on my hypothesis: my model predicts that areas with higher unemployment are *less* likely to vote

for the AfD. Additionally, coefficients of the old age dependency ratio and unemployment rate in models 1 and 2 strongly suggests that the two are not related. The substantial and significant positive coefficient for the foreign percentage variable aligns with my hypothesis as well as existing research. More immigrants in a region is significantly correlated with a higher likelihood to vote for the AfD. The old age dependency coefficient likely does not tell us too much about any potential relationships. It's large changes as I add variables to the model suggests that something is amiss with the variable as an addition to the model.⁴

Table 3 displays the results of the linear regression models with individual issue stances as the response variable.⁵ Once again, the age variable correlates with the response variables as I would expect — older respondents were more likely to hold more nationalist views and views less favorable to multiculturalism — and once again, the age coefficient should not be taken too seriously for the same reasons as with the previous set of models (its small effect size and the low resolution of the variable). While the correlations found in the unemployment rate variable are at times significant, it never remains significant when the foreign percentage is added to the model. As for the old age dependency variable, the drastic shifts in its coefficient keep me from forming any conclusions based on its value. Much like with the previous models, the core conclusion from these models is that overall sentiment towards nationalism and multiculturalism tended to turn more nativist as the number of immigrants in the respondent's region increased.

4. Multicollinearity is often the culprit here, though model diagnostics suggest that this is not an issue (VIF < 1.3 for all models).

5. It should be noted that in these models, the assumption of normally distributed residuals for fixed-effects does not hold. In multi-level regression this assumption is less important, as the random effects account for some of the non-normality of the fixed-effect residuals, but it should nonetheless be noted that these models do not satisfy one assumption of linear regression.

Table 2: AfD Vote Share Regression Models

	Model 1	Model 2	Model 3
Level 2 Effects			
Old_Age_Dependency_Ratio	0.619 (1.871)	3.049* (1.255)	19.156*** (1.582)
unemployment_rate		-0.373*** (0.037)	-0.348*** (0.036)
foreign_perc			0.435*** (0.050)
Level 1 Effects			
year	-0.073*** (0.008)	-0.163*** (0.001)	-0.344*** (0.001)
religionCatholic	-0.359*** (0.045)	-0.368*** (0.045)	-0.369*** (0.045)
religionProtestant/Evangelical	-0.360*** (0.037)	-0.368*** (0.037)	-0.368*** (0.037)
religionOther	-0.091 (0.103)	-0.096 (0.103)	-0.100 (0.103)
age	0.075*** (0.007)	0.077*** (0.007)	0.077*** (0.007)
sex	-0.998*** (0.035)	-0.996*** (0.035)	-0.996*** (0.035)
education	-0.357*** (0.035)	-0.359*** (0.035)	-0.360*** (0.035)
(Intercept)	143.617*** (15.052)	328.371*** (1.572)	684.468*** (2.747)
AIC	37934.910	37835.694	37812.931
BIC	38049.615	37988.635	38013.666
Log Likelihood	-18955.455	-18901.847	-18885.466
Num. obs.	104695	104695	104695
Num. groups: region	14	14	14
Var: region (Intercept)	2.852	6.742	14.138
Var: region Old_Age_Dependency_Ratio	33.212	32.892	54.362
Cov: region (Intercept) Old_Age_Dependency_Ratio	-9.733	-14.857	-27.723
Var: region unemployment_rate		0.000	0.000
Cov: region (Intercept) unemployment_rate		0.005	-0.023
Cov: region unemployment_rate Old_Age_Dependency_Ratio		-0.010	0.046
Var: region foreign_perc			0.005
Cov: region (Intercept) foreign_perc			-0.266
Cov: region unemployment_rate foreign_perc			0.000
Cov: region Old_Age_Dependency_Ratio foreign_perc			0.522

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 3: Multiculturalism and Nationalism Regression Models

	Nationalism			Multiculturalism		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Level 2 Effects						
Old_Age_Dependency_Ratio	0.060 (0.082)	0.092 (0.072)	-2.141*** (0.557)	-1.938*** (0.326)	-26.142* (10.804)	-2.576 (1.894)
unemployment_rate		-0.007* (0.003)	-0.004 (0.006)		-0.108*** (0.019)	-0.024 (0.013)
foreign_perc			0.073*** (0.015)			0.498*** (0.026)
Level 1 Effects						
year	-0.037*** (0.001)	-0.040*** (0.001)	-0.047*** (0.004)	0.010*** (0.002)	0.121*** (0.007)	-0.126*** (0.008)
religionCatholic	0.016** (0.006)	0.013* (0.006)	0.015* (0.006)	0.001 (0.006)	-0.001 (0.006)	0.001 (0.006)
religionProtestant/Evangelical	0.002 (0.005)	0.001 (0.005)	0.003 (0.005)	0.018*** (0.005)	0.015** (0.005)	0.015** (0.005)
religionOther	0.021 (0.015)	0.020 (0.015)	0.022 (0.015)	-0.003 (0.015)	-0.002 (0.014)	-0.003 (0.014)
age	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)
sex	-0.041*** (0.004)	-0.041*** (0.004)	-0.041*** (0.004)	0.041*** (0.004)	0.039*** (0.004)	0.039*** (0.004)
education	-0.006 (0.005)	-0.006 (0.005)	-0.007 (0.005)	-0.002 (0.005)	-0.002 (0.005)	-0.003 (0.005)
residence_size	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	0.003** (0.001)	0.003** (0.001)	0.003** (0.001)
(Intercept)	75.262*** (2.107)	80.286*** (2.314)	94.216*** (7.909)	-19.503*** (3.458)	-233.647*** (13.816)	252.673*** (16.065)
AIC	5816.413	5816.462	5830.298	4638.348	3624.723	2932.885
BIC	5925.835	5957.148	6010.063	4747.770	3765.409	3112.649
Log Likelihood	-2894.207	-2890.231	-2892.149	-2305.174	-1794.362	-1443.442
Num. obs.	18322	18322	18322	18322	18322	18322
Num. groups: region	14	14	14	14	14	14
Var: region (Intercept)	0.000	0.001	0.026	0.000	119.281	2.027
Var: region Old_Age_Dependency_Ratio	0.001	0.003	0.118	0.081	1607.607	34.219
Cov: region (Intercept) Old_Age_Dependency_Ratio	0.000	0.002	0.023	0.000	-434.716	-4.495
Var: Residual	0.080	0.080	0.079	0.075	0.070	0.068
Var: region unemployment_rate		0.000	0.000		0.004	0.002
Cov: region (Intercept) unemployment_rate		-0.000	-0.002		0.429	-0.022
Cov: region unemployment_rate Old_Age_Dependency_Ratio		-0.000	-0.003		-1.806	-0.081
Var: region foreign_perc			0.001			0.003
Cov: region (Intercept) foreign_perc			0.004			0.041
Cov: region unemployment_rate foreign_perc			-0.000			0.001
Cov: region Old_Age_Dependency_Ratio foreign_perc			0.009			-0.169

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Conclusion

The results of my independent analysis largely support the existing literature, which says that an increase in the immigrant population leads to an increased likelihood to vote for far-right parties, increased nationalism, and an aversion to multiculturalism as a positive national value. In contrast to existing research is my finding that unemployment rate negatively correlated with AfD vote likelihood in my models. This result could lead to future research as to the extent to which economic prosperity might lead individuals to vote for far-right parties, though the causal mechanism to explain such a phenomenon is beyond my pay grade. As for the effect of an aging population, very little in my research lent credence to the claim that any age-related phenomena are related to the rise of the AfD. While the literature suggests that Europe's population crisis may soon lead to increased immigration, no evidence I have found supports any present linkages between aging populations and increased immigration.

In summary, my overall findings suggest that the current rise of far-right parties cannot be attributed to the challenges posed by an aging population. Instead, a consensus in the literature points to high levels of immigration — mostly of refugees — as a significant factor fostering nativist attitudes. The study's original analysis, focusing on Germany and the Alternative for Germany (AfD), reinforces this perspective by revealing a clear connection between immigration and voter support for the AfD. Furthermore, an exploration of individual-level issue positions demonstrates that heightened immigration correlates with heightened nationalism and diminished support for multiculturalism within the broader German electorate.

Appendices

Table 4: Manifesto Project Multiculturalism Score for Far-Right Parties

	Multiculturalism Score	Nationalism Score
(Intercept)	0.62*** (0.15)	1.53*** (0.26)
far_right	-2.62*** (0.50)	6.56*** (0.78)
AIC	6890.32	8098.61
BIC	6922.01	8130.29
Log Likelihood	-3439.16	-4043.30
Num. obs.	1452	1452
Num. groups: countryname	27	27
Var: countryname (Intercept)	0.47	1.52
Var: countryname far_right	4.66	11.30
Cov: countryname (Intercept) far_right	0.44	-0.51
Var: Residual	6.33	14.48

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Calculating Individual Issue Stances

Given an estimated vector \mathbf{p} of individual positions on issues, we can calculate the salience and the predicted party ratings based off that value. The salience vector \mathbf{s} can be calculated as follows, given the party issue matrix \mathbf{A} and the actual party ratings \mathbf{r} .

$$\mathbf{s} = \mathbf{r}(1 - |\mathbf{P} - \mathbf{A}|)^{-1} \quad (3)$$

The inverse of the similarity matrix $(1 - |\mathbf{P} - \mathbf{A}|)$ is taken by a generalized Moore-Penrose inverse function.

Given \mathbf{p}_{pred} and \mathbf{s}_{pred} , I calculate \mathbf{r}_{pred} according to the model. The error of the guess \mathbf{i}_{pred} can therefore be calculated by $(\mathbf{p}_{\text{pred}} - \mathbf{p})^2$. To ensure that \mathbf{p} remains bounded by -1 and 1 throughout the optimization process, I use the “L-BFGS-B” method of the R optim package to set box constraints. Additionally, to ensure that the vector \mathbf{s} remains bounded and sums to 1, I add error terms to the objective function to penalize the optimizer for producing predicted values of \mathbf{s} that fail to meet the constraints.

The pertinent R code can be found here:

```

Get_Sim_Matrix <- function(i,A){
  p_expanded <- rep.row(i,nrow(A))
  p_sim_matrix <- 1-abs(i_expanded-A)
  return(p_sim_matrix)
}

Get_Saliency <- function(p,A,r){
  p_sim_matrix <- Get_Sim_Matrix(p,A)
  saliency <- c(t(ginv(p_sim_matrix) %*% r))
  return(saliency)
}

Calculate_Error <- function(p,r,A){
  sim <- Get_Sim_Matrix(p,A)
  s <- Get_Saliency(p,A,r)
  r_pred <- sim %*% s
  error <- r-r_pred
  return(sum(error^2) + (1-sum(s))^2 + sum(pmin(s,0)^2))
}

# optimize based on the Calculate_Error objective function
p_pred <- optim(par=p_initial,
  fn = Calculate_Error,
  lower = rep(-1,ncol(A)),
  upper = rep(1,ncol(A)),
  method = "L-BFGS-B",
  # control = list(trace=2),
  A = A,
  r = r
)

```

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