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Disease and prejudice: risk attribution to ethno-racial groups over the course of a pandemic

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ARSTRACT

Past research suggests that disease outbreaks drive prejudice towards minorities as they increase economic and disease threats. Based on an open-ended survey question distributed to 7,902 German residents over the course of one year of the Covid-19 pandemic (April 2020 to April 2021), we investigate the link between life-threatening events and ethno-racial prejudice. We find that pandemic-related threats only drive respondents' tendency to scapegoat ethno-racial groups if they hold left and center leaning ideologies. However, for far-right supporters who are the most likely to attribute the spread of Covid-19 to ethnoracial groups, pandemic-related threats do not affect that attribution. We further find that threat theories are of limited relevance for explaining which ethno-racial groups are targeted: respondents held Chinese accountable at the beginning of the pandemic but guickly shifted their attention to immigrants – a salient figure in pre-Covid-19 rightist rhetoric. We show that ideology, more than pandemic-induced threat, continues to drive prejudice and demonstrate the under-utilized advantages of using open-ended survey questions for understanding the dynamics of intergroup prejudice.

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1. Introduction

There is ample evidence that plagues and epidemics tend to solidify group boundaries and deepen the stigmatization of certain groups as 'unhygienic', 'inferior' or even 'dangerous' (Markel and Stern 2002; White 2020). From early on, the coronavirus pandemic seemed to engender a similar dynamic: References to SARS-CoV-2 as the 'Chinese virus' by former U.S. president Donald Trump were followed by a wave of overtly racist, anti-Asian hashtags on Twitter (Hswen et al. 2020) and early reports indicated a surge in racially-motivated hate crimes in the US (Gover, Harper, and Langton 2020). Similarly, in Germany, there is evidence that anti-Asian discrimination and the number of racist attacks increased with the outbreak of the pandemic (Antidiskriminierungsstelle des

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Bundes 2020; Mediendienst Integration 2021; Suda, Mayer, and Nguyen 2020). Additionally, media reports repeatedly connected the coronavirus to China, thereby suggesting a linkage that went well beyond factual evidence. German newspapers used pictures of people of Asian descent even when reporting about rising national infections or about local residents who refused to wear masks (korientation 2021). In February 2020, for example, the cover of the weekly *Der Spiegel* read 'The Coronavirus. Made in China', showing an Asian person wearing a red protective suit and a gas mask. In April of the same year, the weekly *Die Zeit* used a similar cover image for a story titled 'Attack on the WHO'.

But how widespread is such prejudice among the wider population? And what drives it? According to theories of intergroup threat (Blumer 1958; Quillian 1995; Riek, Mania, and Gaertner 2006), discrimination is fuelled by concerns about economic or disease vulnerability. As people feel threatened by a disease or pressured to compete for material resources, they discriminate against perceived, often ethno-racial, outgroups. The proposed mechanism resembles what is also discussed as 'scapegoating': individuals tend to channel experiences of discomfort into acts of punishment towards vulnerable outsiders (Durkheim 1995 [1912]; Fauconnet 1920). Thus, ethno-racial prejudice is predicted to increase when people fear negative economic or health effects. Other work, in turn, suggests that political ideology is a far more salient predictor of negative attitudes towards ethno-racial minorities. From that perspective, the coronavirus pandemic should not affect the level of hostility among the whole population and in relation to respondents' exposure to threat but, if anything, only accentuate pre-existing prejudices among a section of society.

Drawing on survey data collected between April 2020 and April 2021 via a repeated cross-section survey with respondents in Germany (n = 7,902) over a full year of the Corona pandemic, this article investigates the link between life-threatening events and racial prejudice: Who is likely to link the spread of Covid to ethno-racial groups? Does people's propensity to single out ethno-racial groups change over the course of the pandemic? And, which ethno-racial groups do respondents target? Our analysis is based on an open-ended question, which asked respondents to name up to three groups who, in their view, had mostly contributed to the spread of the coronavirus. Respondents were thus free to distinguish groups along ethno-racial lines, age thresholds, certain behavioural characteristics such as commuting or frequent travelling, or by any other trait they might consider relevant.

We find that overall, ethno-racial groups do not dominate people's interpretation of the pandemic. But when they do¹, political ideology rather than economic or disease threat is the strongest predictor. Respondents who support the far-right party Alternative for Germany (AfD) have a 13 percentage points higher probability of attributing the spread of Covid-19 to ethno-racial groups than non-voters – a more than 87 percent increase compared to the fitted probability of ethno-racial group naming among non-far-right supporters. Support for the Left Party or the left-leaning, liberal Greens, in turn, decreases this probability by around 30 percent.

Conversely, our study offers only partial evidence to support theories of intergroup threat. We find that neither economic nor disease threat can reliably account for the ethno-racial responses in our survey. It is only for supporters of center and leftist political parties that pandemic-related factors show a substantial and clear effect. Among supporters of the left, only one measure of economic concern helps predict ethno-racial responses; among supporters of centrist parties, various measures of economic and health concerns show a relevant positive correlation. For those on the far-right, in contrast, such concerns do not play a role in intensifying their generally much greater propensity to draw ethno-racial boundaries. In short, pandemic-specific economic and disease threats seem to lose their effect as one moves further right on the ideological spectrum.

Crucially, all types of respondents shifted their ethno-racial attention as the pandemic progressed. Whereas early on, the ethno-racial group named most frequently was *Chinese*, references to *immigrants* soon took over. Pre-existing prejudice was, in other words, first directed to those closest to the disease's epicenter and then shifted towards the usual targets of rightist rhetoric in Germany. Importantly, this shift occurred well before outbreaks at meat processing plants and other places with many immigrant workers in Germany made headlines. Again, it seems that concrete pandemic risks are not vital to explain ethno-racial boundaries. Responses such as 'refugees' and 'immigrants' seemed to resuscitate figures that already informed far-right rhetoric prior to 2020.

Taken together, our study shows that the concerns about a deepening of prejudice during the pandemic is not unfounded. Pandemic-induced economic and disease threats do have an effect – but only on politically moderate and left-leaning respondents. Those most likely to draw ethno-racial boundaries are, by contrast, unfazed by such economic and health concerns. Instead, far-right ideology turns out to best predict who harbors ethno-racial prejudice and whom they target. In highlighting the power of political ideology, our study contributes to a substantial and growing body of literature that so far has especially examined the centrality of party identification for US politics. Our findings suggest that also in Germany political ideology, more so than the socioeconomic burdens of the pandemic, drive outgroup hostility.

2. Disease and ethno-racial prejudice

A look at history reveals an entrenched tendency to attribute the spread of diseases to persons viewed as foreign or outsiders. Specifically, non-European, non-white populations and religious minorities have been associated with the outbreak of diseases and become targets of surges of xenophobia during epidemics (see e.g. Markel and Stern 2002; Mohr 2004; White 2020; Winkler 2005). Evidence suggests that drawing boundaries towards and laying blame on 'essential others' is also a prevalent response to more recent disease outbreaks.

Already in early 2020, researchers started to examine how the coronavirus pandemic was affecting attitudes towards ethno-racial minorities, discrimination and racism. A first strand of literature investigates the perceived or experienced discrimination by ethno-racial minorities and its consequences (Dollmann and Kogan 2021; Gray and Hansen 2021; Haft and Zhou 2021; Lui et al. 2021; Wang et al. 2021; Wu, Qian, and Wilkes 2021). A second set of literature focuses on the majority's attitudes towards outgroups during the pandemic (Bartoš et al. 2020; Bianco, Kosic, and Pierro 2021; Daniels et al. 2021; Drouhot et al. 2021; Elias et al. 2021; Reny and Barreto 2022). While earlier research suggested that negative attitudes towards stigmatized groups deepen in times

of disease, the evidence is not conclusive for the Covid-19 pandemic. Whilst Drouhot et al. (2021) observe that the pandemic had no effect when comparing reactions to a set of statements on minority rights and diversity as well as vignettes on discrimination in 2019 and 2020, Bianco, Kosic, and Pierro (2021) conclude that Covid-19 concern predicts prejudice towards migrants. Bartoš et al. (2020), Daniels et al. (2021), and Freitag and Hofstetter (2022) find mixed evidence for an increase in xenophobia. Similarly, Reny and Barreto (2022) demonstrate that an individual's Covid-19 concern is associated with anti-Asian attitudes, but not with prejudice towards other groups.

To explain the drivers of demarcation, we draw on intergroup threat theories and theories on political ideology. Intergroup threat theories point to (perceived) threats as motivating hostility and negative attitudes towards perceived out-groups, especially vis-à-vis ethno-racial others (Blumer 1958; Quillian 1995; Riek, Mania, and Gaertner 2006). As crises produce wider, unspecific threats, outgroups also function as scapegoats that help regain control by rendering a threat tangible and explainable (Allport 1954; Glick 2002; Becker, Wagner, and Christ 2011). Particularly in times of crisis, people will emphasize group membership and denigrate outgroups in order to restore their sense of safety and control (Fritsche, Jonas, and Kessler 2011). During the Covid-19 pandemic, economic and disease threats played an important role. As a consequence of the pandemic and its lockdowns, a large number of people lost their jobs or incurred salary cuts when placed in short-term work schemes. Economic threat theories predict that the competition for scarce material resources and power deepen in-group/out-group distinctions and foster ethno-racial prejudice (Blumer 1958; Quillian 1995; Riek, Mania, and Gaertner 2006). Disease threat, in turn, can be yet another factor that activates prejudice and negative reactions towards perceived foreigners. Faulkner et al. (2004) suggest that the avoidance of outgroups was originally an evolutionary mechanism to reduce the risk of coming in contact with harmful pathogens. Thereby, negative reactions target not only specific actors associated with supposed risk-threats but trigger a more generalised bias against ethno-racial outgroups (Aarøe, Petersen, and Arceneaux 2017).

Based on this literature we expect to find that respondents who are concerned about their economic situation during the pandemic and/or about contracting the coronavirus should be more likely to name ethno-racial minorities (H1). One might add, however, that the probability of drawing ethno-racial boundaries decreases as the disease threat becomes more proximate and as respondents start observing infections in their immediate in-group environment (H2). Just as intergroup contact, under certain conditions, has been found to reduce prejudice and conflict between the members of different groups (Allport 1954), encountering Covid-19 in one's immediate environment may act as a kind of 'reality check'.

While the previous theoretical explanations foreground pandemic-specific drivers of demarcation, the literature on political ideology proposes a different explanation. Several authors suggest that people's political ideology is the major explanation for people's attitudes, perceptions, and political behaviour (Bartels 2002; Czymara 2021; Green, Palmquist, and Schickler 2002). Campbell et al. (1960) show in their early investigation on US Americans' voting behaviour that most people vote for the same party throughout their lives, indicating that also their political partisanship or ideology remains rather stable. Bartels (2002) demonstrates that people's partisan bias, meaning if they see themselves as Democrats or Republicans, shape people's perceptions of

political events. Linking this to the current pandemic, Abascal, Makovi, and Xu (2021) find that non-Republican and Republican voters discriminated against Chinese-born Americans in the US in spring 2020, but only Republicans continued to do so in fall 2020. In a UK and Ireland based study, Hartman et al. (2021) observe that people with authoritarian views became more nationalist and more anti-immigrant in the beginning of the pandemic, reinforcing their previous political attitudes rather than changing them. Consequently, we expect that ethno-racial boundaries will be drawn disproportionately by those already predisposed to reject groups perceived as foreign (H3). In the German context, opposition to immigrants and to ethno-racial minorities has been shown to be particularly marked among those sympathizing with the far-right party Alternative for Germany (AfD) (Decker and Brähler 2020; Schade, Wiegerling, and Brücker 2019). While group-based hostility has decreased in the last years among the population as a whole, it has grown among far-right supporters. In 2016, more than half of them supported xenophobic, islamophobic and anti-Ziganist statements (Zick et al. 2016).

3. Data & methods

To evaluate our hypotheses, we draw on data from a repeated cross-section survey conducted by the Berlin Social Science Center (WZB). The survey was fielded between April 2020 and April 2021² among adult residents in Germany and comprises a total of 22 survey waves. As in many other northern hemispheric countries, that period contained the first two 'waves' of Covid – a first, in retrospect, comparably low peak in March and April 2020 and a second, longer and higher peak from October 2020 to January 2021 (see Figure 1).



Figure 1. Mean monthly infections in Germany and responses over time.

Respondents were recruited from an online access panel and were asked to complete an online survey about their personal situation and perspective on the pandemic. As detailed in appendix table A2, our sample matches the German population on most key socio-demographic characteristics.³ In total, we analyzed 7,902 responses⁴ to an open-ended question that asked participants to name groups they considered responsible for the spread of the coronavirus.

The exact wording we chose for the open question was '*Which groups have, in your opinion, especially contributed to the spread of the virus? You may name up to three groups.*⁵ By asking respondents to name 'groups' rather than 'people' or 'persons', we deliberately chose to invite respondents to name collectives. It is noteworthy that despite that prime, respondents more frequently settled on behavioural labels (e.g. 'travelers', 'protesters', 'those who party' or 'those who ignore the rules'). While explicitly emphasizing collectives, our formulation was otherwise discreet. We merely asked respondents who they thought 'contributed' to the spread of the pandemic – not who they 'blamed'. By employing such cautious wording, we sought to tap also into implicit patterns and biases that a more explicitly formulated question might not have captured. Hence, the responses we received do not per se indicate a culpability or moral devaluation of those groups (i.e. scapegoating) – although, as we suggest in our analysis, it is often implied.

Given our interest to find out whether the pandemic would increase ethno-racial biases and prejudice, we could, in theory, have also worked with a set of predefined answer options. However, there are two significant drawbacks to that design. For one, we would have been unable to see which ethno-racial groups and specific formulations respondents would bring up out of their own accord (for a similar approach see Schaeffer 2013). More importantly, we would have missed respondents' attention to non-ethno-racial actors that were numerous and emerged over the course of the pandemic in a way that we could not have predicted. As we show below, comparing who turned to ethnic-racial and other groups helped us teasing out the different mechanisms behind respondents' choices.

Non-response patterns

In total, 78.5 percent of respondents chose to answer our open question. As shown in Figure 2, 69.6 percent of the respondents named at least one specific group. Another 8.9 percent answered that no specific group contributed to the spread of the virus, noting, for example, that 'the virus affects everyone'. Some respondents even explicitly criticized the groupist (Brubaker 2002) logic that the question imposed, responding, for example, 'No discrimination please'. If respondents stated that they could name no group, we counted them as having responded to the question. Only 12 percent of the respondents did not reply to the question at all and 9.5 percent answered 'do not know'. Generally, open questions do not achieve such high answer rates (Peterson 2000).⁶

Coding the open-ended question

To analyze the open-ended question, we used coding categories that we developed inductively based on a close reading of responses from the first waves. Responses were coded in a binary fashion, encoding a category as '1' if it was among the respondent's answers and



Figure 2. Non-response patterns.

'0' otherwise.⁷ We revised and expanded our codebook over the course of the study as respondents named new groups and as some of our initially defined categories turned out to be too wide or too narrow. Excluding non-responses (missing data and 'don't know') our final codebook comprises ten categories and a total of 31 subcategories. The category *travelers*, for example, contains the subcategories *tourists*, *business travelers* and *ski tourists*.

Our ethno-racial category contains all responses that carry a connotation of ancestry and descent. In doing so, we follow Weber (1978) and scholars after him (Brubaker, Loveman, and Stamatov 2004; Chandra 2012; Wimmer 2008) who define ethnicity as belief in a common descent and advocate for including race, nationality, and related references in a broader descent-based concept. Among our survey responses, national references were for example 'Chinese' or 'Italians'. Labels such as 'Asian' could signal a geographic location but often also carry a racial connotation. Respondents almost never used phenotypical labels such as 'Black' and rarely named 'Muslims' or 'Jews'. Common, by contrast, were references to 'immigrants', 'asylum seekers' or 'foreign' youth in Germany.

Importantly, the subcategories we chose for the category of *ethno-racial* do not follow those criteria of difference (e.g. citizenship, race, culture). Instead, we defined four subcategories based on the geographic origin of those groups: *Chinese, Europeans, persons of foreign descent in Germany* and *other ethno-racial labels*. As a form of shorthand, we will refer to the last two as *immigrants* and *ethno-racial others* in the remainder of the article.

Answers coded as *immigrants* included, for example, 'refugees', 'foreigners', 'Turkish families', or 'foreign workers'. As we detail in the appendix, some of those answers might be veiled references to Muslims, which is a salient category of othering in the European and German discourse (Allievi 2005; Spielhaus 2006). Other responses, however, do not carry that connotation. What all answers coded as immigrants have in common is that they denote that those groups have their origin outside of Germany and do not

'truly belong'. Importantly, also the term 'foreigner' denotes a deeper, symbolic exclusion and is thus very different in meaning from references to 'tourists' or 'travelers'.

Our choice of those four subcategories was in part motivated by an interest to relate ethno-racial mentions to the geographic hotspots of the pandemic. Important to note is that answers which referred to regions as a place or destination of travel rather than to an entire country or nation do not count as *ethno-racial* (for a detailed description of what we coded as *ethno-racial* see appendix A1).

Respondents often provided answers that combined multiple categories, e.g. 'adolescents with a migration background'. The official term migration background in the German context refers to people who are either foreign-born or who have at least one immigrant parent. It is also used by the general public, sometimes with a negative connotation. In cases that comprise multiple categories, we counted the reply towards all categories included, i.e. as *age group* and as *ethno-racial*. Given those double or even triple counts, the frequency of responses does not add up to 100 percent. Figure 3 depicts the share of responses that falls into a specific category. By far the greatest share of responses fell into our category of *travelers* (35 percent). With 17 percent of responses, *ethno-racial groups* came in fifth place.

What can we say about respondents' view of the ethno-racial groups they mention? A look at the data reveals that numerous respondents used the open question format not only to name a group but to explain why they did so. Some, although very few, made clear that while they had named an ethno-racial group they did not blame that group for the pandemic. One respondent, for example, wrote 'East Europeans' and added 'who work for the low-wage sector due to their miserable living situation'. Another respondent answered 'Chinese' but clarified 'but this could have happened to any other country in the world. I won't start hating all Chinese because of this. At most, the Chinese government.' A larger number of respondents, however, chose to use the



Figure 3. Types of groups mentioned as shares among respondents.

open question to express their disdain for the ethno-racial groups they had mentioned. Several respondents referred, for example, to their supposed inferior cultural practices. Others suggested that the propensity of certain groups to congregate had contributed to the spread and argued that Germany's immigration policy was part of the problem. While these examples outline the breadth of evaluations that may lie behind responses, most answers were shorter (e.g. 'Chinese' or 'refugees').

To parse out what might be driving ethno-racial mentions, it requires a more detailed analysis. In the next section, we quantitatively assess different explanations for ethnoracial boundary-making, both pandemic-related and non-pandemic related, and compare how far these explanations also apply to other frequently named categories. We also investigate heterogeneous effects regarding the most pronounced explanatory factor, political party preference.

Empirical model

To estimate the effect of various variables on the probability of associating an ethnoracial group with the spread of the pandemic, we use variants of the following logistic regression model:

$$P(z) = G(\beta_0 + z'\beta), \tag{1}$$

where

$$G(\beta_0 + z'\beta) = \Lambda(\beta_0 + \beta'_1 E conomicThreat_i + \beta'_2 D iseaseThreat_i + \beta'_3 D iseaseProximity_{i,c} + \beta'_4 PartyIdeology_i + \beta'_5 x_i + \pi_t + \chi_s)$$
(2)

Index *i* indicates variables measured at the individual-level, *c* refers to the county level, *s* to the state (*Bundesland*) and *t* to survey waves. Descriptive statistics of all variables for the sample employed in the regression analysis are depicted in appendix table A3. The model illustrated in equations (1) and (2) tests the following hypotheses, referring to the variable vectors *EconomicThreat_i*, *DiseaseThreat_i*, *DiseaseProximity_{i,c}*, and *PartyIdeology_i*:

H1. Increased threat, both economic and pathogenic, entails a higher probability of attributing the cause of the threat to ethno-racial outgroups.

We hypothesize that if respondents are confronted with a threat, e.g. economic loss during the pandemic or risk of contracting the coronavirus, they are more likely to draw boundaries towards ethno-racial groups. We distinguish between perceived and actual threat. We proxy economic threat by (i) the individual's perceived economic condition on a five-point scale, where 1 equals a very good condition and 5 a very bad one, (ii) a dummy variable that is 1 if a respondent stated that their economic condition got worse over the course of the pandemic and 0 otherwise, and (iii) pandemic-induced economic loss, defined as a dummy variable that indicates if a respondent lost their job or if they were placed on reduced hours and given short-time work benefits (*Kurzarbeit*').⁸ Disease threat was measured as being worried about oneself or a family member contracting Covid-19 and measured on a 5-point scale, where 1 indicates no worries and

5 equals being very worried. Being a member of a risk group⁹ served as an indicator of the intensity of the threat, assuming that risk groups are more likely to suffer from more severe symptoms than the average person.

The mean respondent perceived her economic condition to be a little better than average. However, almost a third of respondents thought that their financial situation at the time of the survey was worse than before the start of the pandemic. 17.6 percent of respondents had incurred economic losses. The average respondent was only a little worried about contracting Covid-19 herself and only slightly more worried about a family member falling sick.

H2. Increased proximity of the pandemic reduces the probability of naming an ethno-racial group.

We assume that infections in one's personal surroundings serve as a 'reality check' and reduce the probability of associating the pandemic with ethno-racial groups. Respondents who live in counties with many infections and who know personally of someone who has been infected are more likely to be aware of coronavirus cases that are unrelated to race and ethnicity. The 7-day incidence is the number of new infections per 100,000 people per county over the last 7 days before the survey. We expect the 7-day incidence, which was reported daily in the German news, to proxy proximate disease prevalence and therefore exhibit a negative marginal effect. We further computed an index of disease proximity at the individual level with weights increasing linearly with relationship proximity.¹⁰

H3. Political ideology predicts ethno-racial group naming in relation to the spread of the coronavirus.

If ethno-racial group naming can also be interpreted as blaming, we should observe a positive correlation with far-right party preference. We proxy approval for ethnoracial discrimination by the intention to vote for specific political parties if elections for the German parliament were held the following Sunday. We thus would expect a shift of signs of the average marginal effect for ethno-racial group naming over the political spectrum from left wing (negative sign) to right wing (positive sign).

As Mudde (2019, 7) notes, one of the central differences between the political left and right is their view of equality: Whereas the left views inequalities as 'artificial and negative', the right tends to regard them as 'natural and positive'. This is also true for the 'mainstream right' (ibid), which in Germany would be represented by the Christian Democrats (CDU/CSU) and the economically liberal Free Democrats (FDP). The Social Democrats (SPD), the Greens, and the party The Left, in turn, lean ideologically to the left. The Alternative for Germany (AfD) is the only party in parliament that fits the definition of far-right, which 'accepts the essence of democracy but opposes fundamental elements of liberal democracy, most notably minority rights, rule of law, and the separation of powers' (ibid).

Since we cannot assert causality due to a lack of random assignment, we include a variety of socio-demographic controls, denoted as vector x_i , to address potential confounders. State dummies, indexed by *s*, capture time-constant differences across German states that may drive variation in disease and economic threat such as population density or being a state that formed part of the former socialist German

Democratic Republic (GDR) prior to 1990. Research has shown significantly more xenophobic hate-crimes in states that belonged to the GDR (Entorf and Lange 2019). Dummy variables for waves, indexed by *t*, account for general time trends, such as the prominence of certain groups in the public discourse at the time. In addition, we include state-wave controls in some of our specifications to account for the effect of Covid-19 regulations and policy measures that were jointly determined by the federal government and the heads of the state governments.

4. Results

Table 1 depicts the average marginal effects from the logistic regression on ethno-racial group mentions, adding sets of explanatory factors column by column. Columns 5 to 7 introduce controls for states, waves and state-wave groups. All specifications include controls for gender, age, education, migration background, household size and frequency of contact with people living abroad as an indicator of cosmopolitanism.¹¹ For interpretation, remember that 17.05 percent of respondents associated the spread of the coronavirus with an ethno-racial group.

Pandemic threats and ethno-racial mentions

Our analysis of the entire sample shows mixed evidence for the hypothesis that economic threat might increase the probability of attributing the spread of the virus to ethno-racial groups. While all coefficients point towards the expected positive correlation, statistical significance remains above or just below the 10 percent level across columns. Significant effects hinge on the respondent's perception that her financial situation changed for the worse while actual economic losses directly related to the pandemic are insignificant.¹²

Moving on to our various proxies of disease threat in column 2, we observe that worries about the fatal consequences of contracting Covid-19 for oneself, are indeed predictive of ethno-racial group naming. All coefficients are statistically significant at the one percent level. An increase in worry by 1 point on the 5-point-scale can be associated with 1.4 to 1.9 percentage point increases (across specifications) in the probability of associating an ethno-racial group with the spread of the virus. This result is consistent with Bianco at al.'s (2021) and Reny and Barreto's (2022) studies that also find a positive link between Covid-19 concern and prejudice against migrants. Yet, being worried about one's family appears to have the opposite effect, with some of the effect's size being picked up by party ideology. Being a member of a risk group and thus having valid fears about contracting the virus does, however, not show the same positive effect as worry about oneself does.

In column 3 we add measures for disease proximity. Contrary to our expectations, disease proximity does not predict a lower probability of mentioning an ethno-racial group. Yet, the share of respondents who know someone who had Covid-19 is relatively low and gets lower the more proximate the relationship, i.e. very few respondents had Covid-19 themselves or have a family member who got infected (1.3 and 4.2 percent). Overall, personal contacts therefore seem an unlikely information channel compared to publicly available infection rates.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Economic Threat							
Perceived econ. condition _i	0.0090*	0.0085*	0.0082	0.0035	0.0033	0.0031	0.0017
	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0052)
Econ. condition worsened _i	0.0191*	0.0200*	0.0199*	0.0169	0.0178*	0.0164	0.0203*
	(0.0105)	(0.0105)	(0.0105)	(0.0104)	(0.0104)	(0.0104)	(0.0109)
Economic loss _i	0.0119	0.0120	0.0134	0.0110	0.0111	0.0100	0.0119
	(0.0119)	(0.0119)	(0.0120)	(0.0118)	(0.0118)	(0.0118)	(0.0124)
Disease Threat							
Worried about self _i		0.0139***	0.0141***	0.0181***	0.0181***	0.0189***	0.0189***
		(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0058)
Worried about family _i		-0.0133***	-0.0124**	-0.0086*	-0.0086*	-0.0087*	-0.0087
		(0.0051)	(0.0052)	(0.0052)	(0.0052)	(0.0052)	(0.0055)
Risk group _i		-0.0090	-0.0085	-0.0107	-0.0102	-0.0112	-0.0115
		(0.0104)	(0.0104)	(0.0102)	(0.0102)	(0.0102)	(0.0107)
Disease Proximity							
7-Day incidence			-0.0001	-0.0001	-0.0001	0.0002	0.0003
,			(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)
Personal proximity _i			-0.0749	-0.0747*	-0.0751*	-0.0556	0.0452
			(0.0464)	(0.0451)	(0.0449)	(0.0458)	(0.0477)
Party Preference							
AfD _i				0.1297***	0.1303***	0.1292***	0.1318***
				(0.0173)	(0.0174)	(0.0173)	(0.0182)
CDU/CSU _i				-0.0047	-0.0055	-0.0075	-0.0069
				(0.0171)	(0.0171)	(0.0170)	(0.0176)
SPD _i				-0.0223	-0.0219	-0.0241	-0.0296
				(0.0196)	(0.0197)	(0.0196)	(0.0204)
FDP _i				0.0435*	0.0444**	0.0386*	0.0403*
				(0.0223)	(0.0224)	(0.0223)	(0.0233)
Left party _i				-0.0425**	-0.0441**	-0.0452**	-0.0513**
				(0.0209)	(0.0210)	(0.0209)	(0.0216)
Greensi				-0.0556***	-0.0551***	-0.0574***	-0.0597***
				(0.0191)	(0.0192)	(0.0191)	(0.0197)
Other _i				-0.0168	-0.0168	-0.0177	-0.0202
				(0.0224)	(0.0224)	(0.0223)	(0.0230)
Undecided:				-0.0122	-0.0113	-0.0117	-0.0185
				(0.0181)	(0.0181)	(0.0181)	(0.0186)

Table 1. Predicting ethno-racial group mentions (Logistic regression results).

Controls							
State	No	No	No	No	Yes	Yes	No
Wave	No	No	No	No	No	Yes	No
State-wave	No	No	No	No	No	No	Yes
Socio-demographics	Yes						
Observations	7,902	7,902	7,902	7,902	7,902	7,902	7,574

WZB Corona Survey (2021); Logistic regression results; The dependent variable indicates whether the respondent named an ethno-racial group. Columns (1) to (4) sequentially add sets of explanatory variables by topic. Column (5) includes controls for states, column (6) further includes survey wave controls. Column (7) adds controls for all state.-wave combinations. Coefficients show average marginal effects. Socio-demographic controls, which are included in all specifications, include gender, age, education, migration background, household size and frequency of contact with people living abroad. Robust standard errors in parentheses, * p < 0.1 ** p < 0.05, *** p < 0.01.

Political ideology and ethno-racial mentions

Column 4 introduces a measure of party support and reveals the strongest correlations. The base category is non-voters. The correlations are especially strong for the parties at the ends of the political spectrum: The intention to vote for the Left Party and for the leftist-center Green Party is associated with an up to 5.1 (Left Party) to 6 (Green Party) percentage point lower probability of naming an ethno-racial group than non-voters. Conversely, support of the far-right party AfD goes along with a 12.9 to 13.2 percentage point higher probability of naming an ethno-racial group than non-voters (i.e. a more than 87 percent increase compared to the fitted probability of ethno-racial group naming among non-far-right supporters).

Columns 5 and 6 introduce state and wave controls while column 7 adds state wave controls to account for the aforementioned unobserved heterogeneity across states and time. The average marginal effects of our explanatory variables are only slightly affected and there are no qualitative changes in results.

Predictors by far-right ideology

Taken together, our results suggest that far-right support is the strongest predictor for associating the pandemic with an ethno-racial group.¹³ While the finding that rightwing party support predicts ethno-racial mentions might generally not be surprising, it is less straightforward during a pandemic when there were concerns about a wider surge in xenophobia. The results we presented so far suggest that the pandemic has not triggered a preoccupation with ethno-racial groups among the general public but has rather led the 'usual suspects' to link the coronavirus to race and ethnicity. Of course, party preferences cannot be considered isolated from the pandemic, especially as the former governing parties, the Christian Democrats (CDU/CSU) and the Social Democrats (SPD), received varying support. However and most importantly for our investigation, the far-right (AfD) did not gain in popularity over the course of the pandemic: while our data does not allow us to identify whether individual respondents changed their party preferences towards the far-right in reaction to the pandemic, population and sample average provide supporting evidence that this was not the case. First, as shown in appendix table A2 support for the AfD among sample respondents reflects support for the AfD among the general public over the same time period. Second, the average intention to vote for the far-right between April 2020 and April 2021 stays stable for our sample. In addition, we find no significant shifts in the composition of AfD supporters with respect to age, gender or education over time.

Based on the behaviour and statements of AfD politicians one might also ask whether supporters of the far-right orientation do feel generally less threatened by the pandemic: several AfD members of parliament refused to wear face masks and get vaccinated (Hackenbruch 2022). Our survey data confirms that AfD supporters are less concerned about their own health than other respondents; at the same time, they report a higher concern about pandemic-induced economic losses than the average. And yet: for those on the farright, economic concerns are not predictive of ethno-racial mentions.

If we take a closer look at the subsamples of far-right supporters in contrast to nonfar-right supporters we get a better idea about heterogeneous effects among the predictors. The main coefficients of interests are plotted in Figure 4 (for the point estimates, see columns 1 and 2 of appendix table A4). Interestingly, in the subsample of the 811 far-right supporters, of which 36.3 percent named an ethno-racial group, none of the explanatory factors discussed above are statistically significant. Instead, the significant associations discussed above appear to be driven entirely by supporters of the nonfar-right parties.

For proponents of non-far-right parties, pandemic-related factors appear to predict ethno-racial naming to some extent. Respondents who think that their economic condition worsened over the course of the pandemic are significantly more likely to associate Covid-19 with an ethno-racial group. The point estimates are similar in size to the estimates for the entire sample presented in table 1. Worrying about oneself and worrying about one's family exhibit the same pattern for moderate supporters as for the entire sample. A higher 7-day incidence, however, actually contributes to ethno-racial group naming, refuting the 'reality check' hypothesis and pointing towards an interpretation in terms of an additional indicator of threat per se.

Evidence from the subsample analysis suggests that respondents without persistent negative political predisposition against ethno-racial groups may indeed be sensitive to pandemic-induced economic and disease threats when it comes to relating ethno-racial groups to the spread of the pandemic. However, the evidence also implies that pandemic-induced threats do not intensify the generally much stronger tendency of rightwing supporters to name ethno-racial groups compared to people with preferences for other parties, non-voters or undecided ones.¹⁴

The disparate reactions of far-right adherents and the supporters of other parties becomes even more apparent if we compare their probability of associating *ethno-racial groups* and *travelers* with the pandemic. As shown above, travelers are the most prominent category among all groups mentioned and they figured centrally in the media coverage as well as in political debates on travel bans, quarantine regulations, and testing requirements. While one could argue that there are 'objective' reasons to connect the spread of the coronavirus with that group, only certain respondents do so. If we regress the probability of mentioning an ethno-racial group and travelers on party support, a clear pattern emerges (see appendix A4, columns 3 to 6): Supporters of conservative and left-wing parties show an elevated probability to name travelers,



Figure 4. Pandemic threat and ethno-racial mentions by political ideology; non-far-right (left) and far-right (right).

most of them significant at conventional levels. The only exception are supporters of the far-right. For them the average marginal effect on mentioning travelers is negative and not significant. Figure 5 visualizes the disparate average marginal effects of AfD supporters and non-AfD supporters with regards to the probability of listing *ethno-racial groups* and *travelers* compared to non-voters.

Ideology and shifts within ethno-racial mentions

We observe not only that far-right proponents and moderate party supporters tend to mention different groups. We can also observe that if they mention an ethno-racial group, they do so drawing different ethno-racial boundaries: Whereas non-far-right supporters focus on the subcategory of Chinese and thus seem to turn to the ethno-racial group that also dominated the public debate, far-right supporters fore-ground the subcategory of immigrants.¹⁵ Overall, 7.3 percent of non-AfD supporters name Chinese people and 5.8 percent name immigrants. For far-right supporters, where ethno-racial group naming is more than twice as common as for non-AfD advocates (36.3 versus 14.9 percent of respondents), we find that on average 19.3 percent of far-right adherents name immigrants, compared to 15 percent naming Chinese.

A closer look at those mentions over time reveals, however, a more complex pattern. As mentioned above, there is a shift within the category of *ethno-racial* from Chinese to immigrants as the pandemic progresses – this shift holds independent of political party preference. In other words, both groups of respondents move from foregrounding Chinese people to focusing on immigrants. However, the shift is much more pronounced for far-right supporters than for the supporters of other parties or non-voters. As Figure 6 shows, the probability that the former will associate Chinese with the pandemic drops from 25 to 6.5 percent between April 2020 and April 2021, while that of mentioning immigrants increases from 13.7 to 32.3 percent. For moderate party supporters the inversion is less marked: Here the probability of Chinese mentions drops from almost 10.6 to 4.2 percent and that of naming immigrants rises from 2.7 to 9.8 percent.

Overall, the dynamic mirrors what other researchers (Roy et al. 2020) have observed with regards to social media comments during Ebola epidemic: early on 'blame [is] cast



Figure 5. The role of political ideology for different categories: ethno-racial groups (left) & travelers (right).



Figure 6. Naming ethno-racial groups (left) and ethno-racial subgroups (right) by party ideology over time¹⁶.

on those living 'close' to the epicenter' (Roy et al. 2020, 66) but as a disease outbreak progresses, 'localized dynamics' take over. The force with which people turn towards those different scapegoats, however, seems independent of the disease developments. Instead, pre-existing hostility temporarily targets those closest to the disease only to then turn with unbroken intensity to the usual 'culprits' – in the German context, refugees, and immigrants.

5. Discussion & conclusion

Have pandemic-induced threats spurred ethno-racial animosities among the German population at large? And if so, who would be most likely to develop such negative views? Our study examined those questions drawing on one year of cross-sectional survey data from German respondents. Acute pandemic-induced threat makes moderate voters more likely to attribute the virus to ethnic groups, even when those cannot be linked to the geographic origin of the disease. Yet, it does not appear to escalate prejudice among already-prejudiced people. Only respondents of left and center political ideology seem susceptible to Covid-related economic and health risks that according to threat theories should sharpen intergroup boundaries overall. Political ideology turns out to predict more reliably who will link the pandemic to ethno-racial groups. We find strong evidence that far-right ideology predicts the mention of ethno-racial groups. Whereas support for the Left Party or the leftist Green Party decreases the probability to name an ethno-racial group by about 30 percent, respondents who support the farright party AfD have a more than 87 percent higher probability of associating the pandemic with an ethno-racial group compared to the probability of ethno-racial group naming among supporters of other parties.

Our paper demonstrates the under-utilized advantages of using open-ended survey questions for understanding the dynamics of intergroup prejudice over time. Our data suggests that disease and economic threats are poor predictors for knowing which groups – ethnic and otherwise – and which *ethno-racial* groups in particular a respondent will single out. While respondents' initial focus on *Chinese* might be interpreted as plausible given the geographic hotspot at that time, it is harder to explain why respondents then turned their attention to *immigrants*. Especially among far-right supporters,

this shift in attention occurred well before Covid outbreaks occurred in workplaces or at events related to people read as 'foreign' (e.g. harvest work or Ramadan). Rather, respondents seemed to quickly return to categories that figured centrally in right-leaning rhetoric already pre-2020. Our open question allowed us to capture this stickiness of old salient categories much better than a question with predefined answer options would have. If we had offered respondents a set of answer boxes to choose from, those with strong anti-immigrant views would have probably marked all of them. But when asked to name groups by their own account it seems that only certain labels came to mind most readily.

Taken together, our results suggest that the pandemic temporarily affected ethnoracial boundaries; yet, pandemic-related economic and disease threats do not seem to be the main predictor of those boundaries to begin with. Right-wing political ideology is most predictive of the probability that respondents will associate the coronavirus with an ethno-racial group.

Our observations are consistent with other recent research on the pandemic: Drouhot et al. (2021) report that support for diversity and minority rights among urban residents in Germany did not change. Similarly, Daniels et al. (2021) find very limited evidence for a rise in xenophobia among Californian voters. More importantly, latest research agrees with our finding that political ideology rather than pandemic-induced grievances best predicts who harbors negative views towards ethno-racial others. For the US this means that conservatives are the ones who are more likely to respond with discrimination to a Covid prime (Daniels et al. 2021) or stigmatizing rhetoric (Abascal, Makovi, and Xu 2021). This point is both reassuring and disconcerting. On the one hand, it suggests that the pandemic has not intensified racism in society at large. On the other hand, it confirms, yet again, the stability of ideological orientation and the power of that orientation to define people's attitudes towards most social issues (Bartels 2002; Czymara 2021; Perry, Whitehead, and Grubbs 2021; Ruisch et al. 2021). Similarly, Hjerm (2007) shows that the actual and perceived numbers of immigrants in a country do not matter for anti-immigration sentiments in different economic and political contexts.

To be sure, our data does not allow us to assess who engages in the violent, abusive behaviour towards those viewed as ethno-racial outsiders that we described at the beginning of this paper. Our question design even leaves open the possibility that some survey respondents attribute the spread of the coronavirus to a certain ethno-racial group without harboring negative views. Yet, our results point in the opposite direction: Finding that a right-wing political ideology is the strongest predictor of ethno-racial responses and considering some of the explicitly racist responses we received, we suspect that we are also tapping into the kind of hostile views that some also chose to act upon.

Notes

1. Most survey responses fall within the following five, inductively built categories: the category of *travelers*, followed by lower shares of responses for the categories of *rule breakers*, *age groups*, *active people* and *ethno-racial groups*.

- 2. The question was included in 22 waves stretching from weekly waves between April and June 2020, over bi-weekly waves from July to September 2020 to a third period of data collection from November 2020 to April 2021.
- 3. Compared to the national average, our sample included fewer respondents with a migration background, i.e. persons who have been born abroad or have at least one parent born abroad (26 compared to 16 percent). This might be a result of the questionnaire being administered in German.
- 4. Overall, we received n = 10,346 responses. After excluding missing data and non-responses, our sample comprised n = 7,902 individuals, with an average of 376 participants per wave. 16 out of the 22 waves had more than 400 observations.
- 5. The original German wording was: 'Welche Gruppen haben Ihrer Meinung nach besonders zur Verbreitung des Coronavirus beigetragen? Nennen Sie bis zu drei Gruppen.'
- 6. The 21.5 percent of respondents who did not answer the open question do not differ from the other respondents in their socio-demographic characteristics. We are thus confident that there is no strong selection bias in our data. What is more plausible is that many respondents were put off by the additional time and effort that answering an open question takes.
- 7. Intercoder reliability across three independent coders is substantial for the Brennan and Prediger coefficient (0.98), Cohen and Conger's Kappa (0.74), Fleiss' Kappa (0.73), Gwet's AC (0.99) and Krippendorff's Alpha (0.73).
- 8. A short-term work scheme allows employers to drastically reduce workers' hours instead of laying them off. A significant portion of the lost income is covered by the state. The scheme has helped to avoid lay-offs during the pandemic. In April 2020, the unemployment rate was only slightly above that of April 2019 (5.8 percent compared to 4.9 percent), whereas the number of employees with reduced work hours rose to around 10 million people, i.e. a third of all employees in Germany (Bundesagentur für Arbeit 2020).
- 9. As part of the risk group, we define people over 65 and people that have at least one chronic disease which increases the risk of severe illness if infected by the coronavirus.
- 10. The index was calculated as 1*neighbor + 2*colleague + 3*friend + 4*family + 5*self, with each category being a dummy indicating whether the respondent knew a person in that category that got infected. The index was then normalized to range from 0 to 1 with higher values signifying more infections among people frequently interacted with. Controlling for all categories separately did not alter our results.
- 11. Marginal effects for socio-demographic controls are not depicted in table 1. We find consistent and highly statistically significant correlations for gender, age, and education. All coefficients show their expected signs: Women are less likely to name ethno-racial groups, while older and likely more conservative people are more likely to do so. A better education is detrimental to ethno-racial group naming. The coefficient of having a migration background is negative but not significant. The coefficients for household size and frequency of contact to people living abroad do not significantly differ from zero.
- 12. Also, a narrower definition of economic loss job loss due to the pandemic shows no statistically significant impact on the probability of naming ethno-racial groups.
- 13. A recent study by Richter et al. (2021) shows that counties with a strong far-right votership have significantly lower vaccination rates. One might thus expect a strong correlation between infection rates and AfD-votership to impact our results. However, on the last day of our data collection, April 15, 2021, only 6.5 percent of all Germans were fully vaccinated.
- 14. The above-mentioned heterogeneity in naming ethno-racial categories due to sociodemographic factors appears to be entirely driven by variation among non-far-right party supporters.
- 15. One might argue that the mention of 'Chinese' is motivated by a realistic threat. If we exclude Chinese mentions from our dependent variable, the effect size decreases (which is fully expectable given their share in our data), but the pattern remains the same and statistically significant at the one percent level. Given the in parts explicitly hostile answers from

respondents and the concentration of mentions of Chinese among AfD supporters, we also doubt that they represent simply a realistic assessment of the situation.

16. Observations from September, October and January are excluded from the graph. The survey was paused in September and October 2020. In January 2021, probably due to the Christmas break, there were only 130 valid observations with less than 20 AfD voters suggesting alimited representativeness.

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