

Taking the Good with the Bad: Examining German Citizens' Rosters of Immigrant Contact

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Abstract

The character of an interaction between a citizen and an immigrant can shape outgroup attitudes. Any variety — whether positive or negative — matters, but what if someone accumulates experiences with both? Using data from the 2016 German ALLBUS, this study develops a roster of contact experiences through cross-tabulation, permitting a detailed consideration of the totality and diversity of citizens' immigrant exposure. Results indicate that most experience frequent positive contact coupled with rare negative experiences. Despite their infrequency within a typical roster, negative experiences are widespread. Both types predict anti-immigrant sentiment in selection-corrected multivariate regressions but in opposing and roughly symmetrical directions. However, their statistical interaction demonstrates that positive contact serves to both buffer against the consequences of negative contact and facilitate prejudice reduction among those experiencing the most negative contact. Overall, the results demonstrate encouragingly that real-world citizen-immigrant interactions in Germany generally take a form that promotes positive intergroup relations.

Keywords: Intergroup Contact; Immigrants; Positive Contact; Negative Contact; Germany

Introduction

Between 2013 and 2022, more than 6 million people migrated to Germany (DW 2023). At the end of the year in 2022 the total foreign-born population reached 15.3 million people, which represents 18.4 percent of the country. The absolute figure places Germany second only to the United States among the world's largest immigrant destinations. The relative number actually exceeds the American figure, which makes Germany an important context in which to understand migration. In particular, given the recent and rapid growth of this population, it is useful for understanding the interpersonal experiences between citizens and immigrants. How does the typical citizen experience immigration on an interpersonal level? And what might be the benefits or consequences thereof? These questions constitute the focus of the current study.

There is a voluminous literature demonstrating that friendly and cooperative interpersonal contact can improve intergroup attitudes (Cook 1978; Pettigrew and Tropp 2006; 2011;

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Pettigrew et al. 2011; Dovidio et al. 2017; Tropp et al. 2018; Okamoto et al. 2020; Pettigrew, 2008; Herda, Forthcoming). The information gathered from these encounters is thought to increase sympathy and understanding, thereby decreasing intergroup hostility. This, of course, is the main prediction of the famous intergroup contact theory (ICT) (Allport 1954). So long as the interactions take on a friendly, positive, and cooperative character, they are likely beneficial for intergroup relations.

However, friendly interactions are not guaranteed in the real world. Recent research has demonstrated that individuals experience hostile and unfriendly encounters as well and that these can influence their attitudes (Tropp 2003; Paolini, Harwood, and Rubin 2010; Hayward, Tropp, Honsey, and Barlow 2017; Techakesari, et al. 2015; Barlow, et al. 2012; Aberson 2015; Lutterbach and Beehman 2019; Graf, Paolini, and Rubin 2014; Stephen et al. 2002; Stephan et al. 2000; Tropp et al. 2018). Consistently, negative contact is associated with greater hostility. People similarly use information from these encounters to understand outgroups, but with harmful results for intergroup relations.

In the real world, it is unlikely to be an either-or scenario. Ordinary citizens will experience a mix of contact varieties — some of them good and some of them bad. One can easily imagine diverse experiences across individuals. Someone might have uniformly friendly interactions with their immigrant coworker. Another person might have an argument after they are cut off in traffic by someone believed to be an immigrant. While still another might experience a friendly interaction today, get into an argument tomorrow, and meet a new friend the next day. Essentially, each individual who experiences contact with immigrants will accumulate their own unique catalog of experiences. The current study seeks to build on previous research (Lutterbach and Beelmann 2023; Schäfer et al 2022; Hayward et al. 2017; Árnadóttir 2018; 2022; Barlow et al. 2019; Herda 2018; 2022) to understand this totality of contact by analyzing a more complete roster of experiences and determining how different accumulations can shape anti-immigrant attitudes. Through a focus on building the contact roster, by incorporating those without intergroup contact, and by analyzing a large, nationally representative German sample, the current study provides a unique approach and some generalizable findings.

With data from the 2016 ALLBUS survey (*Allgemeine Bevölkerungsumfrage der Sozialwissenschaften* – General Population Survey for the Social Sciences), this study cross-tabulates two separate questions asking respondents to characterize their frequencies of positive and negative contact with immigrants. This provides a unique glimpse into the typical German's diversity of exposure to immigrants. Next, using a selection-corrected regression, the analysis examines the effects of both variables on an anti-immigrant attitudes outcome. Finally, the interaction between positive and negative contact will demonstrate how these variables work in conjunction to influence attitudes. The current paper considers four hypotheses related to possible moderation patterns between positive and negative contact.

Results indicate that the most common scenario is an abundance of positive experiences coupled with rare or no negative experiences. While the majority report negative encounters, they are infrequent and rarely happen without positive experiences to act as counterexamples. Positive and negative experiences with immigrants predict anti-immigrant attitudes in opposing and roughly symmetrical ways. When considered simultaneously, positive contact experiences work to buffer against damage caused by negative exposure. However, even at the maximum positive exposure, negative encounters still make attitudes worse. Positive



contact also has its strongest effects among respondents with the highest levels of negative contact. This indicates that positive exposure can facilitate improved attitudes when one experiences frequent negative contact. The results help us understand the typical German's totality of real-world contact with immigrants and how these different experiences can coalesce to shape their intergroup attitudes.

Considering Negative Intergroup Exposure

There is abundant evidence that positive intergroup contact improves intergroup attitudes and reduces prejudice (Allport 1954; Pettigrew and Tropp 2006, 2011; Pettigrew 2008; Tropp et al. 2018). Individuals are thought to generalize these friendly experiences and use them to understand entire outgroups, not just the individual involved in the encounter. Contact provides more sympathetic information than the negative cultural stereotypes that individuals might rely on in the absence of contact. As Pettigrew and Tropp's meta-analysis (2006) shows, there is overwhelming evidence indicating that this pattern exists. They found it in 94 % of the 700 samples analyzed.

Yet, the real world presents opportunities for contact that can stray from the ideal variety. If one were to experience an unfriendly interaction with an immigrant or perhaps become a victim of discrimination, the information gleaned from that type of encounter could also be generalized to understand an entire outgroup. This possibility has led several researchers to call for an expansion of the field to better characterize contact as it is experienced in the real world, including the prejudice-increasing varieties (Pettigrew and Tropp 2006; 2011; Pettigrew 2008; Dixon, Durrheim, and Tredoux 2005).

Many have already heeded this call, conducting either survey or experimental research testing the consequences of negative intergroup contact. Experimental studies (Hayward et al. 2017; Tropp 2003; Paolini, Hayward, and Rubin 2010) have created scenarios in which a research subject experiences an unfriendly interaction with an outgroup member, resulting in more negative attitudes toward that individual and their group. Tropp (2003) exposed subjects to a research confederate who expressed racial prejudice before a team activity. Those observing the remark rated the confederate and their racial group more negatively than those in the control condition who heard an innocuous, non-racial remark.

Survey research repeatedly finds that self-reported negative intergroup contact experiences are associated with more negative attitudes (Graf et al. 2020; Techakesari et al. 2015; Stephan et al. 2000; Stephan et al. 2002; Graf, Paolini, and Rubin 2014; Herda 2018), outgroup avoidance (Meleday and Forder 2019), decreased agreement in a shared reality (Lutterbach and Beelmann 2019), desires to exclude immigrants from the country (Herda 2022), and stereotype endorsement (Aberson 2015). However, these studies rely heavily on college student samples rather than national surveys. The latter would provide a more representative picture of how people accumulate different experiences with immigrants. Beyond the harmful effects of negative contact, this literature also documents several useful patterns which guide the current analysis.

Negative Contact is Much Rarer than Positive Contact

Consistently, researchers find that negative contact is rare compared to more positive, friendly encounters. (Barlow et al. 2012; Pettigrew 2008; Graf et al. 2014; Hayward et al. 2017; Schäfer et al. 2021; Herda 2022). For instance, Graf et al. (2014) found that descriptions of positive

experiences with immigrants were four times more common than negative ones. Their sample of Central European university students responded through an open-ended narrative analysis. In the internationally representative European Social Survey from 2014, Herda (2022) found that positive encounters with immigrants were more than 8 times more common than negative encounters. Furthermore, respondents were more than 3 times more likely to report neutral exposure to immigrants and more than 2 times likelier to report no exposure at all.

Overall, this is an encouraging pattern and somewhat ironic. The calls to focus on contact as it occurs in the real world ended up directing researchers toward a rare variety. Regardless, the current study expects positive contact to be more common. However, there is likely more nuance than one type being more common than the other. Expanding the consideration to a more complete roster of contacts will provide the needed detail.

Is Negative Contact More Consequential than Positive Contact?

A few studies have found that negative contact has a stronger influence on intergroup attitudes than positive contact, despite its rarity (Paolini, Harwood, and Rubin 2010; Hayward et al. 2017; Aberson 2015; Graf et al. 2014). The pattern was dubbed “positive-negative contact asymmetry” as it initially emerged as a consistent finding. It follows a larger pattern in psychology where negative experiences and memories are weighted heavier when individuals develop their opinions and attitudes (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001)

Barlow et al. (2012) found evidence for the asymmetrical contact pattern, concluding that “negative contact may be more strongly associated with increased racism and discrimination than positive contact is with its reduction” (1629). In the second study of their paper, they analyzed an online sample of 441 White Americans reporting on their experiences with Black Americans. Separate measures of positive/good contact and negative/bad contact were used to predict variation in modern racism, old-fashioned racism, and skepticism about Barack Obama’s birthplace. In each case, the slope coefficients for negative contact outpaced those of positive contact in absolute value, indicating asymmetry.

However, there are now several studies that do not find the asymmetrical effect (Aberson 2015; Pettigrew 2008; Pettigrew and Tropp 2011; Herda 2022). For instance, Árnadóttir et al. (2018) considered a sample of 367 Icelandic respondents and their opinions about Polish immigrants. They found no evidence supporting an asymmetry effect when considering direct interpersonal contact experiences. Rather, the associations were statistically equivalent in their absolute values, indicating symmetry. In other words, negative contact is about as bad as positive contact is good.

The current study will contribute to the accumulation of evidence either for or against the asymmetry effect. Regardless of which has a stronger influence over the outcome, if one accumulates positive contacts, it should predict more welcoming and friendly attitudes. Similarly, an accumulation of negative experiences should predict more hostile attitudes. But what if someone experiences both?

Considering the Interplay between Positive and Negative Contact

While both positive and negative experiences with immigrants are important predictors of attitudes, it is necessary to consider how each person’s combination of these experiences can work together. A few studies have analyzed this possibility (Schäfer et al 2022; Hayward et al.



2017; Árnadóttir 2018; 2022; Barlow et al. 2019), but differing patterns have emerged. It is from these examples that the current study develops and tests four hypotheses.

One way of understanding how a variety of contacts might work is through a perceived fit process (Paolini et al. 2014). Essentially, when one experiences a certain type of contact, it will be interpreted based on that person's history of contacts. When one experiences a form that does not fit with previous experience (ie. a negative contact experience for someone with a long history of positive ones), it will be interpreted as an exception. One's accumulated positive counter-examples will neutralize or buffer against the consequences of negative contact and vice versa. This logic leads to two research hypotheses (Fell 2015):

The Buffering Hypothesis: the effects of negative contact will be weakest in the presence of many positive contacts and strongest in the absence of positive contact

The Poisoning Hypothesis: the effects of positive contact will be weakest in the presence of many negative contacts and strongest in the absence of negative contact

Previous research finds evidence for these patterns. For instance, in Árnadóttir's et al. (2018) examination of Icelandic citizens' perceptions of Polish immigrants, they found that those with negative contact experiences exhibited lower outgroup trust, more negative orientations, and a greater perception of Polish involvement in crime, but only when they lacked positive experiences to act as buffers. When respondents accumulated positive experiences, negative contact was unassociated with trust and negative orientations. It was also linked to lower crime estimates. Lutterbach and Beelmann (2023), Árnadóttir et al. (2022), Paolini et al. (2014), Bagci et al. (2022), and Barlow et al. (2019) all found a similar buffering pattern in their research. Additionally, in a study of 126 Latino/a youth in US public schools, Árnadóttir et al. (2022) found that a lower quality of positive contact only improved attitudes in the absence of any negative contact. It is as if the negative experiences worked to spoil the benefits of positive ones, providing evidence for the poisoning hypothesis. Although it is unclear if this same pattern holds when considering citizens' experiences and attitudes about immigrants.

However, another recent study identified a different pattern. Schäfer et al. (2022) found that negative contact experiences have their strongest effects when one has a history of positive contacts. The authors developed a longitudinal experimental design in which respondents participated in 17 successive iterations of a behavioral game. In each the respondent is placed into a prisoner's dilemma scenario with a unique partner — sometimes a member of their ingroup and other times a member of an outgroup. Depending on the decisions made by the partner in the scenario, the interaction could be considered positive or negative. The high number of interactions allowed for a history of contacts to develop within the study, which provided the context in which later experiences would be interpreted. Their results indicated that the effects of negative contact were actually at their strongest when respondents accumulated a history of positive contacts, which does not follow either the buffering or poisoning hypotheses.

Rather, this pattern was understood under adaptation level theory (Helson 1964), which also posits that people interpret stimuli based on prior experience with the stimuli, but in a different way. This history of experience creates a normal, baseline a perception (i.e. lots of positive contact make people like immigrants). Whenever they experience something new and different from what they have experienced before (i.e. a negative intergroup experience), they

adjust that perceived norm. An extreme stimulus can drastically alter their baseline perception. Thus, a positive experience will have its strongest effect when one accumulates negative experiences. In this case, the positive experience is a more extreme stimulus compared to one's established norm. Similarly, negative encounters should have their strongest effects when one has an accumulation of positive experiences. Hayward et al. (2017) also found evidence that negative contact had the strongest effects when positive contacts were most common in a sample of Americans. This leads to two other possibilities (Fell 2015):

The Facilitation Hypothesis: the effect of positive contact will be strongest in the presence of many negative contacts and weakest in the absence of negative contact

The Exacerbating Hypothesis: the effects of negative contact will be strongest in the presence of many positive contacts and weakest in the absence of positive contact

With these possibilities in mind, the current study examines the interaction between positive and negative contact and its influence on anti-immigrant sentiment. This approach will determine which hypothesis best explains how different characters of contact work together to shape attitudes.

Note on Sample Selection

Unfortunately, when asking respondents to characterize their experiences with immigrants, it excludes those with no intergroup exposure at all. Without any immigrant interactions, they cannot rate their contact as either positive or negative. Most surveys would exempt them from quality questions, as is the case with the ALLBUS examined here. Others might misclassify them as having neutral exposure, which represents a unique type of contact that differs from none at all (Herda 2022). Either approach could introduce selection bias into regression results that can produce incorrect estimates or inefficient standard errors. Fortunately, there exist statistical corrections that can account for this selection issue. Specifically, the Heckman two-step procedure (Heckman 1979) models the selection process and controls for it when predicting the dependent variable of interest. The current study will use this approach, which will be described in greater detail in the analysis section.

Data, variables, and methods

Data

The current study analyses responses from the 2016 German ALLBUS, which was gathered between April and September 2016 using a two-stage cluster sample design. The sampling universe consisted of all persons residing in private households who were born before January 1st of 1998. Interviews were conducted in person using a standardized questionnaire. The final analytical sample included 2,946 respondents. Those without German citizenship ($n = 216$) were removed from the sample. Means, percentages, and standard deviations for all relevant variables are included in Table 1.

Variables

Contact quantity and quality valences

The main variables of focus are two measures of the quantity and quality valences of contact with immigrants. In the survey, both are preceded by a question asking if the respondent has



“any personal contact with foreigners living in Germany”. If they respond affirmatively, they are asked to follow up: “When you think about all your contacts with foreigners who live in Germany: How often have you had positive experiences?” The five response options range from “Never” to “Very Often”, with the category “Sometimes” in the middle. Immediately after, respondents receive a second follow-up: “and how often have you had negative experiences?” This question has the same response options as the previous one. Details about the univariate and bivariate distributions of these two variables are included in the analysis section.

Anti-immigrant attitudes

The dependent variable for the multivariate portion is a mean scale of six survey items. Each measures respondents’ feelings about immigrants’ impact on German society. The section begins with the prompt: “What about the following statements about foreigners who live in Germany? Using the scale, please tell me how far you agree with these statements”. The current study considers the following six items: 1) immigrants take jobs away from Germans; 2) they lead to a loss of social cohesion; 3) They commit crimes more often than Germans; 4) their children prevent German children getting a good education; 5) their presence leads to problems in the housing market; and 6) they are a burden on the social welfare system. All are measured on 7-point scales ranging from “completely disagree” to “completely agree”. The items have a Cronbach’s alpha value of 0.81 and are combined to form a mean scale of anti-immigrant sentiment. A principal components analysis indicates that these six items load highly onto a single factor with an eigenvalue of 3.056 ($\chi^2 = 4340.00$; $p < .000$).

Demographic controls

The multivariate models also include several standard demographic control variables that may predict the dependent variable or experience with either positive or negative contact. Female is coded as one for females and zero for males. Age and education are both measured in years. Migration background is coded as one if the respondent has at least one parent born outside Germany and zero if both parents are German-born. Self-identified social class is measured using five categories ranging from “lower class” to “upper class”. Self-characterized financial situation is measured in five categories ranging from “very good” to “very bad”. Marital status is measured in four categories: 1) married (reference); 2) widowed; 3) divorced; and 4) never married. Political conservatism is measured on a 10-point scale, with higher values indicating more conservative views. Also included is a dummy variable indicating residence in former West Germany versus former East Germany. Lastly, residence type is measured in five categories: 1) big city (reference); 2) suburb of big city; 3) small city, town; 4) country village; and 5) solitary (farm) house.

Table 1. Sample Means/Percentages and Standard Deviations for the Analytical and Heckman Probit Models

	Mean/Percentage	Std. Dev.
Analytical sample (n = 2946)		
Anti-immigrant sentiment	3.044	1.402
Positive contact frequency	3.945	0.989
Negative contact frequency	2.186	1.051
Age	50.136	18.312
Female	49.35%	-----
Migration background	13.28%	-----
Education (years)	12.763	3.957
Financial situation	2.309	0.808
Social class	2.883	0.705
Conservatism	5.119	1.762
West Germany	83.80%	-----
Marital status		
<i>Married</i>	54.65%	-----
<i>Widowed</i>	5.95%	-----
<i>Divorced</i>	10.63%	-----
<i>Never Married</i>	28.78%	-----
Urbanicity		
<i>City</i>	19.27%	-----
<i>Suburb</i>	10.78%	-----
<i>Town</i>	33.61%	-----
<i>Village</i>	35.51%	-----
<i>Rural</i>	0.83%	-----
Hazard into intergroup contact	0.119	0.133
Heckman model variables (n = 3271)		
Contact with immigrants	90.11%	-----
Religious attendance	2.154	1.154
Read foreign newspapers	26.35%	-----
Watch foreign television	27.70%	-----
Vacation abroad	52.77%	-----
Lived abroad	16.83%	-----
Work hours	21.481	21.261
Supervise employees	26.87%	-----
Internet use	4.464	1.949
Life satisfaction	7.744	1.768
Political party member	3.70%	-----
Union member	13.43%	-----
Second job	4.95%	-----
Health	2.396	0.994
The fear of crime	21.16%	-----
Attractiveness (researcher reported)	7.811	1.882
Trust in others	1.898	0.754
Others don't care	64.02%	-----
Kids would be a mistake	28.30%	-----



Methods

The analysis begins with a description of respondents' reported contact with immigrants. A cross-tabulation will test the pattern that positive experiences out-number negative ones, but it will go further by considering nuanced combinations of the different characters of contact by developing a roster of intergroup experiences. The multivariate portion will use the characters of contact and their interaction to predict anti-immigrant attitudes. The models adjust for the omission of those with no contact using a two-step Heckman estimator, which will be explained below. All results are weighted based on ALLBUS recommendations. The weights correct for the oversampling of respondents from former East Germany. Finally, missing data are replaced using multiple imputation methods. Across the full sample, more than 77 % of respondents had no missing responses. Respondents were most likely to miss the education (5.01 percent) and political ideology (3.82 percent) questions. The values for positive and negative contact are not imputed for those reporting no contact at all.

Analysis

Positive and Negative Contact with Immigrants

Table 2 presents a cross-tabulation of the respondents' characterizations of their contact with immigrants as either positive (rows read left to right) or negative (columns read top to bottom). Note that this chart excludes anyone who reports no intergroup contact. The marginal distribution — the bottommost row and the rightmost column — displays the univariate patterns.

Among those who have contact with immigrants, positive experiences are nearly ubiquitous. Fewer than 4 % of the sample reported no positive contacts at all. Compare this to the 30 % of respondents who reported no negative contact at all. Nearly 75 % report their contacts with immigrants as positive either "often" (43.38 percent) or "very often" (29.06 percent). Compare this to the combined 10.5 % of the sample who characterize their contact as negative either "often" or "very often". Positive contacts far outnumber negative ones, but negative experiences are present in the totality of interracial contacts for all but 30 % of the sample. This indicates that most Germans have at least one negative experience with immigrants that may influence their attitudes.

Diverse Contact Experiences with Immigrants

The joint distribution of negative and positive contact variables is also included in Table 2 in the center. The cells are shaded to indicate the most and least common combinations. The darker the color, the more commonly the two options are selected concomitantly.

What is immediately clear is that the darkest cells are at the bottom left of the table. These options indicate frequent levels of positive contact (very often or often) and rare negative contact ("seldom" or "never"). A majority — more than 55 % of the sample — selected any combination of these four options. Conversely, the opposite corner — representing frequent negative contact ("very often" or "often") and infrequent positive contact ("seldom" or "never") is much rarer. Fewer than 3.5 % of the sample selected any combination of these options.

It is similarly rare to experience many positive encounters along with many negative encounters. Fewer than 5 percent of the sample report both contact characterizations very

often or often. It is slightly more common to identify both types of experiences as rarely. About 2 % of the sample never experienced either positive or negative contact. Perhaps they interpret their interactions as more neutral in character.

Table 2. Cross-Tabulation between Reported Positive Contact and Negative Contact Frequency among those Reporting Any Contact with Immigrants (n = 2946)¹

		Negative Contact					Total
		Never	Seldom	Sometimes	Often	Very Often	
Positive Contact	Never	54 1.83%	7 0.24%	8 0.27%	12 0.41%	12 0.41%	93 3.16%
	Seldom	50 1.70%	47 2.60%	37 1.26%	57 1.93%	21 0.71%	212 7.20%
	Sometimes	110 3.73%	106 3.60%	213 7.23%	73 2.48%	5 0.17%	507 17.21%
	Often	323 10.96%	578 19.62%	276 9.37%	85 2.89%	16 0.54%	1278 43.38%
	Very Often	349 11.85%	384 13.03%	94 3.19%	17 0.58%	12 0.41%	856 29.06%
	Total	886 30.07%	1122 38.09%	628 21.32%	244 8.28%	66 2.24%	2946 100%

¹ Darker shades in the bivariate distribution correspond to larger combined frequencies

The center of the table, representing “sometimes” for both characters of contact, is reported moderately often — above 7 %. Nevertheless, the data clearly show that positive contacts dominate and that the typical respondent rarely experiences negative contact. However, these negative experiences are present among most respondents, whether common or uncommon. It is important to consider whether they bring about any direct consequences or if they can poison the benefits of positive contact.

Predicting Anti-Immigrant Attitudes

Considering the consequences of positive and negative contact characterizations is important, but in order to do so, it is necessary to select out the 325 respondents who have no contact experience at all. To account for the potential bias that their exclusion may produce, the current analysis uses the Heckman two-step procedure (Heckman 1979). This involves the initial step of estimating a probit regression model predicting the likelihood of intergroup contact with immigrants. From this model, one can calculate each respondent’s hazard into contact by taking the ratio of the model’s probability density function and cumulative density function. This new variable is then included in the second step as a control in a model predicting negative attitudes toward immigrants. The hazard variable effectively controls for the likelihood of being selected into contact with immigrants.

The first-step probit model is presented in Table 3. The dependent variable is a dichotomous measure of whether the respondent has contact with immigrants (coded as 1) or not (coded as 0). The independent variables include many of the demographic controls described above but also several unique ones. The general rule is to select predictors that are associated



Table 3. Probit Regression Model Predicting the Hazard into Intergroup Contact (n = 3271)

	B	SE
Female	-.129	.081
Age	-.018***	.004
Migration background	.057	.139
Education (years)	.028*	.013
Marital status		
	<i>Widowed</i>	-.047
	<i>Divorced</i>	-.023
	<i>Never married</i>	-.018
Urbanicity		
	<i>Suburb</i>	.040
	<i>Town</i>	-.360**
	<i>Village</i>	-.469***
	<i>Rural</i>	-.545
Read foreign newspapers	.293*	.129
Watch foreign television	.100	.117
Internet use	.016	.022
Vacation abroad	.186*	.081
Lived abroad	.068	.142
Work hours	.001	.003
Supervise employees	.179	.135
Second job	-.158	.221
Life satisfaction	-.047*	.024
Church attendance	-.007	.036
Political party membership	.446	.279
Union membership	-.082	.115
Health	-.057	.044
The fear of crime	.154	.103
Attractiveness (researcher rating)	-.038+	.022
Trust in others	.095+	.056
Others don't care	-.108	.089
Kids would be a mistake	-.063	.085
Länder fixed effects		
	<i>Schleswig-Holstein (with Hamburg)</i>	2.808***
	<i>Lower Saxony (with Bremen)</i>	3.364***
	<i>Rhineland-Palatinate (with Saarland)</i>	3.328***
	<i>North Rhine Westphalia</i>	3.172***
	<i>Hesse</i>	3.418***
	<i>Baden Württemberg</i>	3.370***
	<i>Bavaria</i>	2.964***
	<i>Berlin (West)</i>	3.149***
	<i>Berlin (East)</i>	2.845***
	<i>Brandenburg</i>	2.556***
	<i>Mecklenburg Pomerania</i>	2.045***
	<i>Saxony</i>	2.547***
	<i>Saxony Anhalt</i>	2.138***
	<i>Thuringia</i>	2.394***
Model F statistic		30.30***
+p<.10; *p<.05; **p<.01; ***p<.001		

With the selection process but not the anti-immigrant attitude dependent variable (McCarthy and Casey 2008). The current study casts a wide net, focusing on factors that might deter or promote all contact with others, immigrant or otherwise. The relevant variables from the ALLBUS questionnaire include: their number of hours worked per week, whether they have a second job, whether they supervise employees, their level of life satisfaction, self-reported health, interviewer-reported physical attractiveness, membership in a political party, membership in a trade union, fear of crime, whether the respondent trusts other people, whether the respondent thinks other people care for others, whether the respondent thinks it would be a bad idea to bring children into the world, whether the respondent watches television in a foreign language, whether they read newspapers in a foreign language, their amount of time spent using a private internet connection, whether they have taken a trip abroad over the last 12 months, and whether they have ever lived abroad.

Several of these variables have significant associations with the probability of contact with immigrants. Younger, urban and more educated respondents were more likely to report contacts. Among the variables considered only in this probit model, foreign language use, vacationing abroad, attractiveness, life satisfaction, and trusting others are all related to greater contact with immigrants. The actual slopes and their interpretations are not as important as the hazard coefficient that will be drawn from this model. This variable is included as a control in Table 4.

Step Two of the Heckman Model

The second step of the Heckman approach involves a multivariate regression model predicting anti-immigrant attitudes. The results are presented in Table 4 and developed with four separate models. The first two examine the positive and negative contact coefficients on their own. The third model includes both variables at the same time. The final model includes the interaction between the two.

The first two models indicate that positive and negative contact with immigrants have significant associations with anti-immigrant attitudes net of controls and the hazard into contact, but in opposite directions. The positive coefficient in model 1 indicates that for each unit increase in the amount of positive contact, one's score on the anti-immigrant attitudes scale is predicted to decrease by 0.386 units. A unit increase in the amount of negative contact in model 2 is associated with a 0.326 unit increase in negative attitudes. Comparing the size of the point estimates indicates asymmetry but with positive exhibiting a larger association. However, the sizes of the standard errors indicate overlapping confidence intervals (absolute values), which indicate that the pattern shows no statistically significant evidence for an asymmetrical effect.

Model three controls for both negative and positive contacts simultaneously, allowing for the possibility that individuals experience a diversity of contact types as they navigate their social world. Both coefficients maintain their significance and direction but have lost magnitude. The positive and negative coefficients are 19.9 % and 28.2 % smaller than the previous models, respectively. While the positive coefficient is larger, they are still roughly symmetrical. The 95 percent confidence intervals around the absolute values overlap, indicating statistical equivalence.



Table 4. Multivariate Regression Model with Heckman Correction Predicting Perceived Impacts of Immigrants on Society (n = 2946)

	Model 1		Model 2		Model 3		Model 4	
	B	SE	B	SE	B	SE	B	SE
Contact Variables								
Positive freq.	-.386***	.026			-.309***	.026	-.182***	.049
Negative freq.			.326***	.024	.234***	.024	.442***	.075
Positive X Negative							-.057**	.020
Control Variables								
Age	.007***	.002	.011***	.002	.009***	.002	.009***	.002
Female	-.014	.044	.058	.047	.056	.043	.054	.043
Migration backgrnd.	-.029*	.067	-.121+	.070	-.139*	.066	-.140*	.066
Education (years)	-.029***	.007	-.031***	.007	-.025***	.007	-.025***	.007
Financial situation	.198***	.034	.178***	.035	.166***	.034	.166***	.034
Social class	.016	.042	-.005	.042	.017	.041	.017	.041
Conservatism	.182***	.014	.190***	.015	.167***	.014	.168***	.014
West Germany	-.099	.067	-.215**	.068	-.141*	.066	-.135*	.066
Marital status								
<i>Widowed</i>	.111	.109	.031	.111	.078	.109	.086	.108
<i>Divorced</i>	.019	.080	.020	.081	.012	.078	.008	.078
<i>Never married</i>	-.082	.059	-.028	.061	-.059	.059	-.059	.058
Urbanicity								
Suburb	.014	.080	.021	.083	.033	.079	.032	.079
Town	-.077	.066	-.027	.066	-.045	.064	-.051	.064
Village	.060	.069	.127+	.070	.102	.068	.093	.068
Rural	-.153	.224	-.058	.242	-.075	.227	-.076	.225
Hazard	.107	.248	.809***	.242	.377	.244	.436+	.243
Intercept	3.541***	.249	1.136***	.241	2.653***	.262	2.173***	.307
Model F	53.33***		52.42***		60.90***		58.39***	

+p<.10; *p<.05; **p<.01; ***p<.001

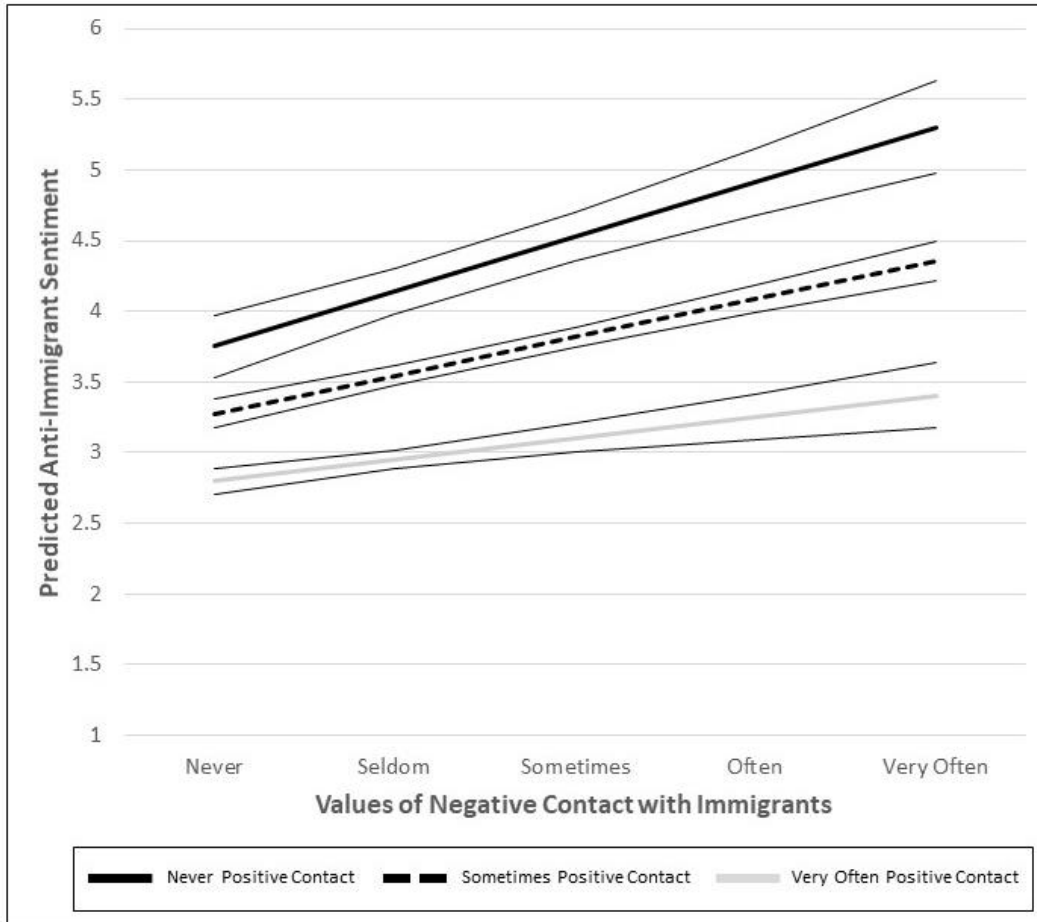
The Interplay between Positive and Negative Contact

The final model considers how negative and positive intergroup contact experiences work together to shape anti-immigrant attitudes. The addition of the interaction term between the two characters of contact drastically changes the magnitudes of the two coefficients, but both remain statistically significant. With the interaction in the model, the coefficients now refer to the predicted slope when the other is equal to zero. The interaction term is the added value for both effects combined. With two semi-continuous variables interacted, the pattern can be difficult to envision. Figures 1 and 2 provide representations for clarity. Figure 1 shows the effect of negative contact in three scenarios: 1) positive contact reported never, 2) positive contact reported sometimes, and 3) positive contact reported very often. From left to right, each trajectory spans all values of negative contact from never to very often.

The solid black line represents those without positive contact with immigrants. The upward trajectory indicates that anti-immigrant sentiment worsens for these folks as they accumulate more negative experiences. This line is also the highest and steepest on the chart, showing

that the effects of negative contact are strongest in the absence of positive contact, following the Buffering Hypothesis.

Figure 1. Graphical Depiction of the Interaction Effect across Levels of Negative Contact from Model 4 of Table 4 with 95 Percent Confidence Intervals (n = 2946)



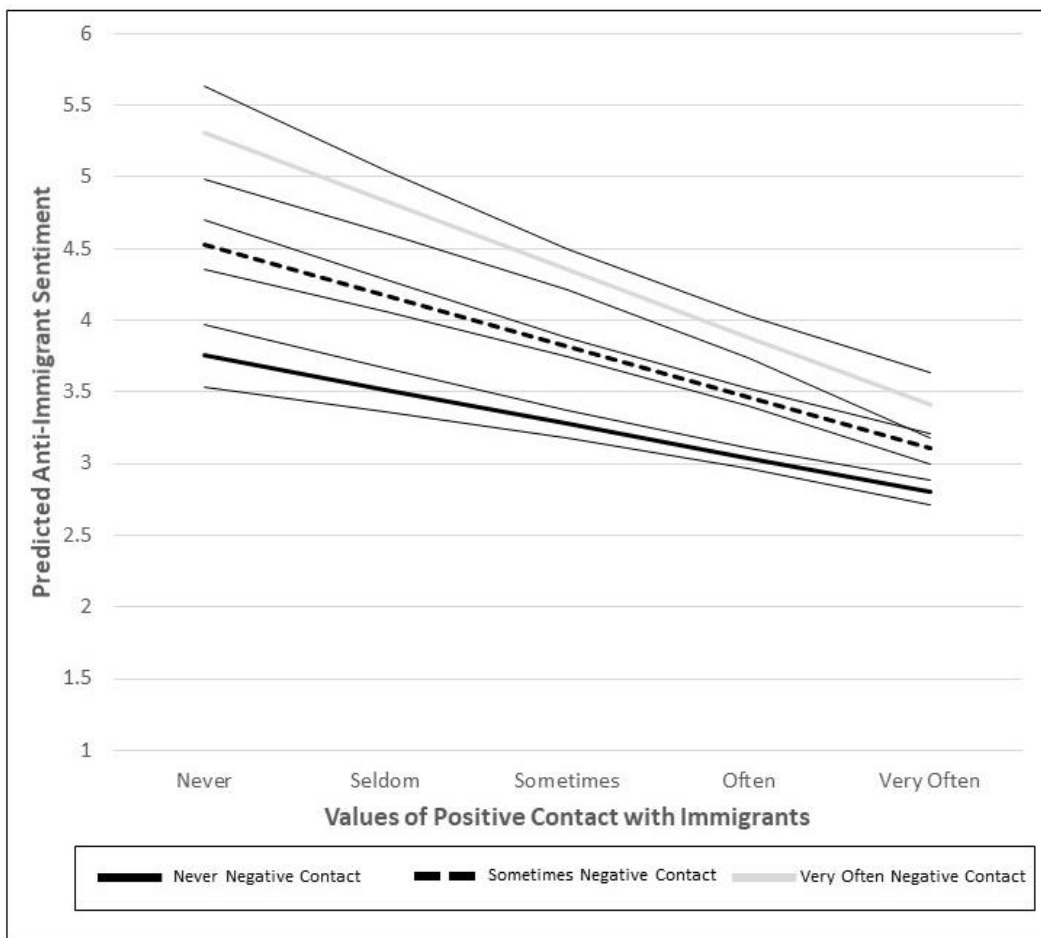
When negative experiences occur alongside positive contact — shown in the broken black and solid grey lines — we still observe the upward trajectory across values of negative contact. However, the slopes become noticeably flatter as the effects weaken when one accumulates more positive experiences. Overall, this shows that positive contact buffers against the deleterious effects of negative contact. However, it does not eliminate them completely. Negative contact remains associated with worsened anti-immigrant attitudes, even at the highest levels of positive contact.

Figure 2 depicts the same interaction but with each line corresponding to the effects of positive contact in three scenarios: 1) negative contact reported never, 2) negative contact reported sometimes, and 3) negative contact reported very often. Each slope has a downward trajectory, indicating that positive contact is related to more pro-immigrant attitudes. However, the slope is steepest for those experiencing negative contact very often. This



indicates that the effects of positive contact are strongest when coupled with high levels of negative contact. This is evidence for the Facilitation Hypothesis. At the highest levels of positive contact, the attitudes of those with negative contact “very often” and “sometimes” are statistically equivalent, based on the overlapping confidence intervals.

Figure 2. Graphical Depiction of the Interaction Effect across Levels of Positive Contact from Model 4 of Table 4 with 95 Percent Confidence Intervals (n = 2946)



Discussion

In the real world, when native-born citizens experience intergroup contact with immigrants it can take many forms. Rather than having exclusively one type of contact or another, the current study considered German citizens’ experiences with varying quantities of both positive and negative contact and how they might work in conjunction to influence anti-immigrant attitudes. Overall, the findings draw greater attention to the complex and nuanced ways that people experience immigration on an interpersonal level and how their totality of intergroup exposure can shape their views.

Examining German Citizens' Roster of Experiences with Immigrants

The current results show that Germans' immigrant contact experiences are not exclusively positive or negative. Rather, it is a mix of different experiences, some of which may be detrimental, while others can be beneficial. Fortunately, in the German context, positive interactions with immigrants occur much more often than negative ones. Nearly one-third of the sample experiences no negative contact at all compared to about 3 percent who experience no positive contact at all. Across the full sample, the most common scenario is an abundance of positive contacts with rare or absent negative contacts.

The pattern follows that of previous research (Barlow et al. 2012; Pettigrew 2008; Graf et al. 2014; Hayward et al. 2017; Schäfer et al. 2021; Herda 2022) but with additional nuance. While positive contacts do indeed dominate, the majority of the sample experience a mix of positive and negative contacts. Nearly 70 % of those who experience contact with immigrants have had at least one negative experience, indicating that previous research may understate the extent of negative encounters among citizens. Fortunately, those who report them usually have a greater number of positive experiences in their catalog of encounters.

There is more to learn about the diversity of individuals' immigrant contact experiences. Survey researchers must continue asking questions about the presence, quality valence, and the quantity of intergroup contact to facilitate this work. Research focusing on the individual and structural circumstances that produce negative real-world experiences would be helpful. Further, researchers should also move beyond surveys to understand what respondents mean when they report negative contact. What are the circumstances of these encounters? How did they feel in the aftermath? Intensive interviewing can fill in the details that are missing from a literature dominated by survey and experimental research. With such a high percentage of people experiencing negative contact with immigrants, there should be plenty of potential interviewees.

Positive-Negative Contact Symmetry

The current study confirms the pattern of positive-negative contact symmetry (Aberson 2015; Pettigrew 2008; Pettigrew and Tropp 2011; Herda 2022; Árnadóttir et al. 2018). In effect, positive experiences are about as beneficial as negative experiences are detrimental. Overall, this is encouraging as the rare negative experiences do not exercise and outsize influence over negative attitudes. They also do not negate the positive impacts of positive contacts.

The Interaction between Positive and Negative Contact

With so many people experiencing both positive and negative contact with immigrants throughout their lives, it begs the question of how these different experiences will work together. Will the rare negative experiences completely neutralize the benefits of positive contact? Will friendly encounters shield against the deleterious effects of hostile contact? The current study tested these possibilities using a statistical interaction, finding that positive and negative experiences work in conjunction to influence attitudes. Negative experiences are at their most damaging in the absence of positive contact. The presence of amicable experiences in one's roster of interpersonal contact can help to shield one against the consequences of negative contact. This follows the Buffering Hypothesis and several studies that have considered this interaction (Árnadóttir et al. 2018; 2022; Paolini et al. 2014, Bağcı 2022 and Barlow et al. 2019). However, buffering does not mean eliminating. Negative contact



continued to have a significant and problematic association with attitudes even when coupled with the highest levels of positive contact.

At the same time, the analysis found no evidence that negative contacts can “poison” the benefits of positive contact. Rather, following adaptation level theory and the recent work of Schäfer et al. (2022), positive contact can facilitate the development of improved attitudes for those with an abundance of negative experiences. It had its strongest effect among those reporting the most negative contact. In such cases, positive contact serves as an extreme counter example to what one is used to, which may lead to a re-evaluation of how they think about immigrants. Overall, this represents another encouraging finding that demonstrates how beneficial real-world positive contact can be. It is the most abundant type of contact, it happens naturally in the real world, it can protect against negative contact, and it can repair damage that may result from intergroup hostility.

The combined effects of contact quality valence and frequency show that when researchers examine real-world intergroup contact, it is important to consider both positive and negative experiences. Individuals rarely experience just one type and each respondent’s catalog of intergroup experiences comes together to shape their attitudes.

Limitations and Directions for Future Research

Of course, the current research is not perfect, which leaves room for future research. For one, the causal order between contact and attitudes is unclear. The classic selection issue with positive contact applies. Those who experience positive contact may develop friendly attitudes. However, those who like immigrants to begin with may seek out immigrants for contact experiences or may be more likely to interpret an encounter as positive. It is unclear the degree to which negative experiences also suffer from this temporality issue. With cross-sectional data, this problem cannot be sorted out in the current study. However, future research may pursue this possibility as a way to improve our understanding of real-world negative contact.

Additionally, while the current study considered real-world contact with greater nuance than before, there is still room for more. As currently operationalized, the measures of positive and negative contact do not allow for degrees of negativity or positivity. Sharing a smile with someone may be positive, but it may not be as positive as someone generously filling your parking meter or engaging you in a conversation. Likewise, someone cutting you off in traffic is negative, but not as negative as someone stealing from you or attacking you. Further, with only positive and negative questions, there is no room for a neutral option in between. There is about 1.5 % of the sample who experience contact but classify it as neither positive nor negative. Their experiences could be exclusively neutral in character, which is another variety of contact highlighted in the literature (Herda 2022). However, this is indirect and presumptive. Adding a question on the quantity of neutral experiences with immigrants would provide even greater nuance and possibly more realistic and complete picture of real-world contact.

Conclusion

Regardless, German citizens' interpersonal experiences with immigrants are nuanced and diverse. Rather than being either positive or negative, people experience different flavors of contact as they navigate their social world. Not only can any of these can shape their worldviews, but each individual's unique combination of contact coalesces to do so. To better understand real-world intergroup relations, it is important that future research continue considering the totality of intergroup contact. For Germany, the abundance and power of positive contact bodes well as the country works to integrate the second largest immigrant population in the world (DW 2023).

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