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DID THE OUTBREAK OF COVID-19 AND INDIVIDUAL EXPOSURE TO IT INCREASE IN-GROUP BIAS IN THE UNITED STATES? AN EXPERIMENTAL INVESTIGATION OF INTER-ETHNIC TRUST

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Did the Outbreak of COVID-19 and Individual Exposure to It Increase In-Group Bias in the United States? An Experimental Investigation of Inter-Ethnic Trust*

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Abstract

Pathogen-stress and terror-management theories predict that lethal epidemics heighten parochial cooperation. We test this prediction experimentally in two nationally representative U.S. samples surveyed before and at the onset of the COVID-19 pandemic. We compare trust and expected trustworthiness across the two waves in monetarily incentivized trust games involving non-Hispanic Whites, African Americans, and Hispanics. We find significant ingroup favoritism in both waves. However, the aggregate ingroup premium fell by about one-half between waves. This decline was concentrated among left-leaning and White respondents. Conversely, both African Americans and Hispanics displayed significant ingroup bias in both waves. While non-Hispanic Whites tended to reduce their ingroup bias in expected trustworthiness, the opposite was found for African Americans. Respondents more exposed to COVID-19 displayed higher inter-group trust, altruism and expected trustworthiness than others. These results contradict the hypothesis that lethal epidemics intensify parochialism, also suggesting that the response may be diversified across groups.

JEL Codes: D01, D63, D91, I14, J15

Keywords: COVID-19, Pandemic, Inter-group Relationships, Parochialism, Ingroup, Outgroup, Discrimination, Prosociality

Competing interests: None.

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1 Introduction

Ingroup favoritism - treating perceived ingroup members more favorably than outgroup members - is a robust feature of social behavior, documented from minimal-group settings to salient real-world cleavages such as ethnicity and nationality (Tajfel et al., 1971; Brewer, 1999; Balliet, Wu and de Dreu, 2014; Romano et al., 2021). Yet we know much less about how stable such group-contingent behavior is over time, and how it responds to major environmental shocks. There is some evidence that drastic events such as war exposure increase cooperation within groups (Gneezy and Fessler, 2012; Bauer et al., 2014), while leaving outgroup cooperation largely unchanged (Bauer et al., 2016), consistent with threat-induced parochialism - group boundaries matter more under adversity. The COVID-19 pandemic offers a particularly sharp test of this logic because the threat is both biological and social: contagion turns interpersonal contact into a potential hazard, while the crisis makes mortality unusually salient. This dual feature makes pathogen-stress accounts (Fincher and Thornhill, 2012) and terror-management theory (Greenberg, Pyszczynski and Solomon, 1986) natural benchmarks for our setting.

In the pathogen-stress framework, exposure to pathogens and parasites has been a powerful force in human evolution (Anderson and May, 1991), shaping not only the physiological immune system (Curtis, 2007) but also a "behavioral immune system" that regulates social behavior under infection threat (Schaller and Park, 2011; Schaller, Murray and Hofer, 2022). This influence operates through several channels. The first is xenophobia and concerns the *prevention* of diseases. Exposure to communicable diseases likely fostered ingroup assortative sociality - the tendency to avoid or limit interactions with outgroup members (Fincher and Thornhill, 2012). Contact with outgroups would increase infection risk, both because they might carry pathogens to which the ingroup lacked immunity (Bressan, 2021) and because they might follow hygiene norms less effective at preventing disease transmission (Karinen et al., 2019). The second channel is ethnocentrism and regards the *reaction* to diseases. Since ancestral times (Henrich, 2016), maintaining a reputation as a cooperator within the ingroup would have increased the likelihood of receiving help when facing debilitating or life-threatening illness (Thornhill, 2014). Adaptations to pathogen exposure have become embedded in human psychology, often operating unconsciously through physiological reactions of disgust toward phenotypes even loosely associated with disease transmission (Makhanova, Miller and Maner, 2015). Based on these mechanisms, pathogen-stress theory predicts that ingroup favoritism should have risen in response to the outbreak of the Covid-19 pandemic (Imada and Mifune, 2021).

A distinct but related framework is terror-management theory, which predicts that heightened mortality salience increases attachment to culturally meaningful group identities and amplifies defensive reactions toward perceived outgroups (Greenberg, Pyszczynski and Solomon, 1986; Solomon, Greenberg and Pyszczynski, 2004). Unlike pathogen-stress theory, which emphasizes contagion-related avoidance and the instrumental value of ingroup support under infection risk, terror-management theory highlights existential threat as a driver of stronger ingroup orientation even when the threat is not uniquely tied to disease. From an economic perspective, both frameworks imply state-dependent social preferences: under threat, people place greater weight on group identity when making other-regarding decisions, leading to larger ingroup-outgroup gaps in standard economic games (Akerlof and Kranton, 2000; Chen and Li, 2009).

Our main research question is whether ingroup favoritism between the three largest racial and ethnic groups in the U.S. increased during the COVID-19 pandemic relative to before it. We address this question using two waves of the Trustlab survey (Murtin et al., 2018), conducted in the summers of 2017 and 2020. Each wave is nationally representative by gender, age, and income (N = 1,090 in Wave I; N = 1,120 in Wave II). Ingroup favoritism may be driven by a preference for benefiting ingroup members above outgroup members - as posited by social identity theory (Tajfel and Turner, 2004)- and by beliefs about others' willingness to cooperate, as postulated by bounded generalized reciprocity (Yamagishi and Kiyonari, 2000). We measured these components through the amount sent (AS) and the expected return (ER) in monetarily incentivized trust games (TGs; see Methods, Section 2). Each participant played three anonymous between-group TGs with counterparts identified as belonging to one of the three largest racial/ethnic groups in the United States: non-Hispanic Whites, Hispanics, or African Americans.

Our results show, contrary to pathogen-stress and terror-management predictions, that ingroup bias in sending did not rise; if anything, it declined by roughly half (from 0.060 to 0.033 SD; ~\$0.18 to \$0.10 on a \$10 endowment), and is statistically indistinguishable across waves. The key heterogeneity is ideological: non-right-wing respondents significantly reduced their ingroup bias, while right-wing respondents did not change. Beyond ideology, patterns also vary by racial/ethnic sender-receiver pairing: among African American respondents, average ingroup bias in sending is roughly stable across waves, but the ingroup-outgroup gap vis-à-vis White recipients is slightly larger in Wave II (not statistically significant). Expectations moved in the opposite direction across political groups: right-wing respondents increased expected reciprocity, with little change among others. At the same time, expectations also display heterogeneity by sender group: among African American respondents, ingroup-outgroup differentiation in expected returns increases in Wave II, reflecting a relative decline in expected reciprocity from White recipients. Personal or local COVID-19 exposure did not amplify ingroup bias; if anything, exposure is associated with higher prosociality and expected trustworthiness. Overall, the pandemic did not widen racial divides in trust-game behavior, although expectations show some subgroup-specific widening; the modest shifts we detect are ideologically polarized rather than uniformly parochial.

A caveat of our strategy, which leverages the timing of Trustlab's two U.S. waves, is that Wave 2 (summer 2020) coincided not only with the COVID-19 pandemic but also with the nationwide mobilization following George Floyd's murder. A growing literature documents that the 2020 protests served as a major focusing event, shifting attitudes and discourse in domains closely related to intergroup trust. In particular, they reduced favorability toward the police and increased perceived anti-Black discrimination, with especially pronounced changes among low-prejudice and politically liberal Americans (Reny and Newman, 2021; Shuman et al., 2022), and they moved both news and social-media discourse toward the movement's agenda (Dunivin et al., 2022). Related work further suggests that the protests affected political behavior and perceptions of discrimination in ways that can vary across local contexts (Mutz, 2022; Klein Teeselink and Melios, 2025). Accordingly, our cross-wave estimates should be interpreted against the broader backdrop of this 2020 "racial reckoning."

Because protest exposure varied substantially across counties, we examine whether local BLM protest intensity is related to ingroup favoritism in our data. Using ACLED (Kishi, Stall, Hampton, Wolfson, Aaron and Jones, 2021; ACLED, 2021) county-level protest counts in the seven days prior to, and including, each respondent's survey date, we find no evidence of such an association: the interaction between ingroup status and protest exposure is statistically indistinguishable from zero across outcomes, and protest exposure is not consistently related to average behavior in the games. By contrast, the heterogeneity we do observe is tied to the pandemic: increases in prosociality and expected trustworthiness are stronger among respondents with greater personal COVID-19 exposure and in areas with higher local pandemic severity. While we cannot fully disentangle these overlapping shocks, and indeed we think it likely that the public mood surrounding the early COVID-19 hospitalization waves, the BLM protests, and inter-racial and inter-ethnic views were interconnected, these patterns suggest a pandemic-specific component and are difficult to reconcile with a purely protest-driven account.

The relationship between the COVID-19 infection threat and intergroup attitudes has been extensively studied. Tumino et al. (2025) concluded their review arguing that COVID-19 *mostly* acted as a catalyst for heightened outgroup prejudice, although increased empathy for vulnerable outgroups was also observed (Adam-Troian and Bagci, 2021). For instance, Huber et al. (2022), Szymkow, Frankowska and Gałasińska (2021), Fuochi et al. (2021) found significant correlation between threat of COVID-19 infection and outgroup aversion directed against the Chinese, foreigners, and socially disadvantaged groups in the US, Poland, and Italy, respectively. Priming COVID-19 increases prejudice and discriminatory intent toward East and South Asians and Hispanic targets in a vignette study in the U.S. (Lu, 2021). It also increases extreme hostility toward foreigners, while not significantly reducing overall pro-sociality, in experimental third-party transfers in the Czech Republic (Bartoš et al., 2021).

A related empirical literature asks whether COVID-19 shifted the overall level of prosociality and trust, often without focusing on ingroup-outgroup differences. Much of the evidence points to increases in trust early in the pandemic, though negative findings and longer-run adverse legacies also exist (Aassve, Le Moglie and Mencarini, 2021; Esaiasson et al., 2021; Gambetta and Morisi, 2022; Aassve et al., 2024). Evidence on altruism is similarly mixed: several studies document higher charitable giving associated with personal or local exposure (Grimalda et al., 2021; Adena and Harke, 2022; Zagefka, 2022), while others find null or adverse effects (Shachat, Walker and Wei, 2021; Brañas-Garza et al., 2022; Lohmann et al., 2023). Relatedly, reminders of the pandemic increased voluntary donations in England (Adena and Harke, 2022) and raised willingness to prioritize societal issues in the U.S. (Cappelen et al., 2021). Our findings extend this literature by suggesting no widespread increase in ingroup bias during the pandemic, while documenting higher overall prosociality among respondents personally exposed to COVID-19.

Our study also speaks to a broader literature on how disasters and crises shape prosocial behavior, and, crucially, whether any increase in cooperation is parochial (ingroup-favoring) or more universal. Evidence on disaster exposure is mixed: many studies document higher cooperation, helping, or trust in the short to medium run (Rao et al., 2011; Toya and Skidmore, 2014; Cassar, Healy and von Kessler, 2017; Calo-Blanco et al., 2017), while others find null or even adverse effects (Fleming, Chong and Bejarano, 2014; Carlin, Love and Zechmeister, 2014; Becchetti, Castriota and Conzo, 2017). Much of this work, however, focuses on cooperation within affected communities and therefore cannot directly assess whether crisis-induced prosociality becomes more ingroup-biased. A useful theoretical lens for why crises can raise prosociality in the first place comes from social-identity approaches: shared adversity can generate perceived common fate and an emergent shared identity, which supports mutual aid, coordination, and trust among affected individuals (Drury, 2018; Alfadhli et al., 2019; Ntontis et al., 2021). Consistent with this view, Méon and Verwimp (2022) show that a local disaster increased donations even to geographically distant outgroup beneficiaries (famine relief in Africa), illustrating that shocks can sometimes crowd in more universal prosociality rather than parochialism. Pandemics, however, differ from sudden-onset disasters (earthquakes, floods) in ways that make the direction of crisis responses theoretically ambiguous, and therefore an informative testbed for pathogen-stress and terror-management accounts. They unfold over time, and their transmissibility turns social contact itself into a potential hazard, so "solidarity" may be expressed through distancing and avoidance rather than direct interpersonal aid. This feature makes othering and parochial reactions plausible (Washer, 2004; Dionne and Turkmen, 2020; Reny and Barreto, 2022), yet it also creates scope for broader, cross-cutting solidarity when people perceive shared vulnerability, echoing UN Secretary General Guterres's reminder that "we are only as strong as the weakest" (United Nations, 2020). Against this background, our finding that prosociality increases among respondents personally exposed to COVID-19 is more consistent with common-fate accounts of crisis solidarity than with the parochialism predictions of pathogen-stress or terror-management theories.

Finally, most research on disease exposure and intergroup relations fielded during COVID-19 relies on cross-sectional correlations or experimentally induced salience (primes), often exploiting between-subject differences in disgust sensitivity - a core facet of the behavioral immune system - rather than observing cooperation itself (Schaller and Duncan, 2011). Much of it targets pandemic-specific compliance behaviors such as social distancing or helping that entails contact avoidance (Campos-Mercade et al., 2021; Ding, Ji and Guo, 2021; Szymkow, Frankowska and Gałasińska, 2021). When economic games are used, work often relies on dictator games, which gauge unilateral generosity rather than strategic cooperation (Hellmann, Dorrough and Glöckner, 2021; Lotti and Pethiyagoda, 2022; Sweijen et al., 2022). An exception is Filippin and Pace (2025), who exploit the staggered timing of stay-at-home orders in New York versus Arizona and combine this with a between-subject ingroup/outgroup manipulation. They find that stricter social distancing increases trust toward ingroup partners, while reporting no significant effects in the outgroup condition and no effects on trustworthiness or solidarity. Overall, evidence directly linking pathogen exposure to cooperation in strategic settings remains scarce (Imada and Mifune, 2021). Our study addresses this gap by using incentivized trust games, which are explicitly cooperative and reciprocal, and, to our knowledge, is the only study that repeats the same design on nationally representative U.S. samples before (Wave I in 2017) and during (Wave II in 2020) the pandemic. This enables a clean comparison of inter-racial/ethnic ingroup favoritism without primes or compliance outcomes in the absence and in the presence of a major pandemic event (see also Bartoš et al. (2021); Zhao, Tinkler and Clayton (2022), for important exceptions on broader attitudes and discrimination).

The remainder of the paper proceeds as follows: Section 2 introduces the methods, design, and hypotheses; Section 3 presents the results. Section 4 concludes.

2 Method, Participants, Hypotheses, and Procedure

2.1 The Trustlab Survey

Trustlab is an international survey that collected data on interpersonal trust and trust in institutions in six different countries (Murtin et al., 2018). The present dataset comes from the two waves of Trustlab conducted in the United States - the only country in which data were collected prior to and during the COVID-19 pandemic. The first wave was conducted from September 2 to 9, 2017, and the second wave from June 12 to September 7, 2020, during the early summer of the COVID-19 pandemic, when the U.S. already faced a second surge in cases and deaths and uncertainty was substantially higher than later in the pandemic. Participants first completed baseline games without information about counterpart ethnicity: a trust game (both roles), a dictator game, and two public goods variants (Andreoni, 1988). Participants then participated in three inter-group trust games that disclosed the counterpart's racial/ethnic group, with and without income information (see Section 2.3; in Wave II, three inter-group dictator games (Forsythe et al., 1994) were added to the Trustlab). These economic games with information on the counterpart's racial/ethnic group affiliation are the object of our study. At the end of the experimental section, participants also made lottery choices to determine risk preferences (Eckel and Grossman, 2002). After the experiments, participants answered a broad range of survey questions on trust, political views, values, and demographics. In Wave II, at the end of the survey, we also included questions on participants' experience with the COVID-19 pandemic (Grimalda et al., 2023).

Participants provided electronic informed consent, and data were handled in accordance with applicable privacy rules. All games were fully incentivized with real money: participants were paid the outcome of one randomly selected game from the experimental section of Trustlab, with outcomes withheld until all modules were completed. This random-pay design (each block selected with equal probability) eliminates income effects. Payments, ranging from $0 to $40, were transferred to participants' PayPal accounts under the polling company's standard procedures; because counterparts did not always participate simultaneously, payments were processed within 48 hours. No deception was used. Data, code, and details on the survey questions and experimental protocols are available at https://osf.io/97fyt/overview?view_only=0b2b8acf71b24d0cbc0e6e2e4abed84b.

Table 1: Sample Characteristics Trustlab U.S. Waves

	Wave I (N = 1,090)		Wave II (N = 1,120)	
	Sample mean	Population mean	Sample mean	Population mean
Targeted characteristics: Age, Sex, and Income				
Female	0.51	0.52	0.55	0.52
Age	45.39	-	47.96	-
Age 18-20	0.04	0.05	0.04	0.05
Age 21-44	0.41	0.41	0.40	0.41
Age $\geq$ 45	0.55	0.54	0.56	0.54
Bottom income	0.23	0.20	0.23	0.20
Medium income	0.61	0.60	0.62	0.60
High income	0.16	0.20	0.15	0.20
Non-targeted characteristics				
White	0.71	0.60	0.74	0.60
African-American	0.11	0.13	0.11	0.13
Hispanic	0.11	0.16	0.09	0.16
Asian American	0.04	0.06	0.03	0.06
High school or less	0.20	0.40	0.17	0.38
Some college	0.38	0.29	0.33	0.28
Tertiary diploma	0.42	0.31	0.50	0.35
Employed	0.55	0.56	0.49	0.53
Self-employed	0.08	0.04	0.09	0.04
Unemployed	0.12	0.03	0.16	0.05
Out of the labor force	0.25	0.37	0.26	0.38
Right-Wing	0.31	-	0.39	-
Left-Wing	0.15	-	0.17	-
Polit. Missing	0.11	-	0.13	-
Conservative	-	0.35	0.38	0.36
Liberal	-	0.26	0.23	0.25
Ideology Missing	-	-	0.07	-

Notes: The table reports means (unless otherwise indicated) for key sample characteristics in both waves of the U.S. Trustlab, alongside population benchmarks from representative data sources. All variables are binary except for age. Bottom (top) income refers to respondents in the lowest (highest) 20 percent of the income distribution. Respondents are classified as right-wing (left-wing) if they score 7 or higher (3 or lower) on an 11-point scale ranging from 0 (left) to 10 (right). Conservative (liberal) is defined analogously on a separate scale from 0 (liberal) to 10 (conservative). Population benchmarks are taken from several official sources. Labor force statistics are drawn from the U.S. Bureau of Labor Statistics (https://www.bls.gov/cps/cpsaat01.htm). Age and gender distributions are based on estimates from the CIA World Factbook (2017 and 2020) and the U.S. Census Bureau (2017 and 2019) (https://www.census.gov/data/tables/2019/demo/age-and-sex/2019-age-sex-composition.html); population shares by age group are adjusted to the adult population (18+). Data on race and race/ethnicity are from the U.S. Census Bureau (2016 estimates and 2019 population figures) (https://www.census.gov/quickfacts/fact/table/U.S./PST045219). Population ideology is measured using data from Gallup (https://news.gallup.com/poll/225074/conservative-lead-ideology-down-single-digits.aspx and https://news.gallup.com/poll/328367/americans-political-ideology-held-steady-2020.aspx). In the U.S. Trustlab, the 0-10 Likert-scale measure of political ideology (0 = liberal, 10 = conservative) is available only in Wave II. However, a parallel 0-10 measure of political orientation (0 = left, 10 = right) yields nearly identical results in both waves. Likewise, GALLUP data show that the distribution of U.S. citizens political ideology remained virtually unchanged between 2017 and 2020.

2.2 Participants

The sample comprises 2,210 participants, of whom 1,090 (1,120) participated in Wave I (II) of the U.S. Trustlab. Based on an a priori G*Power analysis (Faul et al., 2007), detecting a small effect (d = 0.15; Cohen (1988)) with 80% power at alpha = 0.05 in a two-tailed t-test requires two groups of 699 respondents. Our sample size meets this threshold. The samples are representative of the adult U.S. population concerning the targeted dimensions of age, gender, and income in both waves. The samples also closely resemble the population values in several non-targeted dimensions such as race, education, and political ideology (see Table 1). We restrict the analysis sample to the participants affiliated with one of the three largest racial/ethnic groups (Whites, African Americans, Hispanics) to match the three target racial/ethnic groups respondents interact with in the inter-group games, which applies to 1,024 participants in the first and 1,056 in the second wave.

2.3 The Inter-Group Trust Game

The inter-group TG followed the original design of Berg, Dickhaut and McCabe (1995). Two players were matched in pairs and assigned 10 USD ($10). The first mover (or "sender") could transfer any multiple of 1 USD (from 0 to 10 USD) to the second mover (or "receiver").We refer to this transfer as the amount sent (AS). The transfer was tripled. The second mover could then return any amount (up to the second decimal digit) from $0 to the total sum in their possession (10 USD plus the tripled AS).[1] The payoff for the sender was then equal to 10 USD, minus the AS, plus the amount returned by the sender. The payoff for the receiver was equal to $10, plus three times the AS, minus the amount returned to the sender. Participants made three decisions in the inter-group TG, one for each of the three largest U.S. racial/ethnic groups - non-Hispanic White, African American, and Hispanic. Each participant played played a trust game in both roles without information about their counterpart's race of ethnicity at the outset of the games module, and then played two versions of the inter-group TG towards the end of the module: a baseline version with no information on the recipient's income, and a version in which the recipient was identified as belonging to the top 20 percent of the U.S. income distribution. Second-mover decisions in the initial TG were also used in the inter-group TGs, in which players were informed that their second mover did not know their group identity. Results with information about the recipient's income are very similar; they are discussed in Online Appendix Section A.3.

In each inter-group TG decision, the receiver was introduced as a person from one of the three racial/ethnic groups. The order of the three groups was randomized. Participants indicated their racial/ethnic group in the post-experiment survey (see Section 2.1). Participants also stated their expectation of the recipient's return if 5 USD were sent, on a 0 to 25 USD scale. We refer to this

[1] A difference of detail is that in Berg, Dickhaut and McCabe (1995), the second mover was required to retain their original endowment of 10 USD.

variable as expected return (ER).

2.4 Personal Exposure to COVID-19 and Political Orientation

To analyze the effect of exposure to COVID-19 in Wave II, we constructed a binary indicator of self-reported infection by the participant or by people in their network. This variable equals one if the respondent reported that (i) they themselves, (ii) or someone they live with, (iii) or a family member or close friend, or (iv) a neighbor, acquaintance, colleague, or co-worker was diagnosed with COVID-19. 33.8 percent of respondents in Wave II fell into one of these categories.

Political orientation was gauged on a 0-to-10 scale, asking respondents to position themselves between the political “left” (0) and “right” (10). We classified scores of seven or higher, or three or lower, as right-wing and left-wing orientations, respectively.

2.5 Local-Level Exposure to COVID-19

We further tested our hypotheses using county-level COVID-19 case and death statistics as an “objective” measure of exposure to the virus. Participants’ residence was deduced from the ZIP codes they indicated in the survey. These were then matched with the statistics of county-level infection and mortality statistics provided by the The New York Times (2021). We accessed these via the “covdata” R package (Healy, 2020). This dataset consolidates cumulative case and death counts at the county level, but combines New York City’s five boroughs (the counties New York, Kings, Queens, Bronx, and Richmond) into a single entity. Population data and density figures were sourced from the United States Census Bureau (2021), facilitating the calculation of cases and deaths per 100,000 residents. Counties of residence for participants were obtained using the crosswalk between 5-digit ZIP codes and counties “zipcodeR” R package (Rozzi, 2021). For seven individuals lacking valid ZIP codes, we utilized IP-based geolocation to ascertain the residences of six, while the one remaining participant without locatable information was excluded from geographical variable-dependent analyses.

2.6 Hypotheses

Building on the discussion in the introduction (Section 1), where pathogen-stress and terror-management theories serve as our main benchmarks for a pandemic as a combined disease-threat and mortality-salience shock, we formulated the following hypotheses:

Hypothesis 1: The ingroup bias, measured as the ingroup-outgroup difference in AS and ER in the inter-group TGs between survey waves, is larger in Wave II than in Wave I. We carry out two further tests of Hypothesis 1, positing that respondents exposed to COVID-19 in Wave II (see Methods, Section 2.4), or those living in areas with higher death rates at the time of the survey (see Methods, Section 2.5) display stronger ingroup bias than those unexposed.

Hypothesis 2: Since baseline ingroup bias appears similar across non-Hispanic Whites, Hispanics, and African Americans (Cetre et al., 2024), variation in ingroup bias between waves is uniform across the three target groups.

Moreover, we also tested the overall variation in prosociality and expected prosociality in relation with the pandemic. Based on results from, e.g., Umer (2024) we posited:

Hypothesis 3: Average prosociality (AS) and expected prosociality (ER) increase under the influence of the pandemic.

To probe mechanisms, we also examined heterogeneity by political orientation, a central correlate of ingroup psychology (Jost, 2017; Brewer et al., 2023).

2.7 Research Transparency Statement

We pre-registered and date-stamped our hypotheses at the AER repository (`https://doi.org/10.1257/rct.5995-1.1`). On the OSF page `https://osf.io/97fyt/?view_only=0b2b8acf71b24d0cbc0e6e2e4` we host the Wave I and Wave II questionnaires, together with the complete replication package (data and code for all figures and tables). Deviations from the preregistration are as follows:

- The preregistered analyses on the relative roles of taste-based versus statistical discrimination in ingroup bias are reported in Cetre et al. (2024) and have not been replicated here.
- We estimate regressions with the amount sent as the outcome and include indicators for recipient ingroup status, rather than using an ingroup-bias difference as the dependent variable. This specification clarifies interpretation, reduces the number of regressions, and allows direct controls for order effects.
- One pre-registered hypothesis focused on the inter-group trust game with additional information on the recipient's real-life income (see Section 2.3). Results are qualitatively similar to those without income information and are reported in Online Appendix Section A.3.

2.8 Analysis

We estimated OLS models and report two-sided p-values. The main outcome is the amount sent in the inter-group TGs. Standard errors are clustered at the respondent level, since each participant makes three independent choices. All outcomes and continuous covariates are standardized to mean zero and unit variance; indicator variables are left in levels.

Each specification includes a control for the first group encountered in the game, a Wave-II indicator, indicators for respondent racial/ethnic belonging (with White as the reference), and demographic characteristics: female, age and age squared, education dummies for "Some college, diploma, trades certificate" and "Tertiary" with "High school or less" as the reference, urbanization dummies for "Town" and "City" with "Rural" as the reference, four income-quintile dummies relative to the lowest quintile, and employment dummies for "Self-employed," "Unemployed," and "Inactive" with "Employed" as the reference.

Our key regressors are the recipient's racial/ethnic identity and a binary "ingroup" indicator that equals one when the recipient shares the sender's racial/ethnic group. The main ingroup indicator compares transfers to one's own group with the average transfer to the other two groups; its coefficient is the standardized ingroup-outgroup difference. We also include dyadic indicators to study bias toward specific groups, and we replicate the analysis within sender-race/ethnicity group subsamples as a robustness check.

To measure change over time, we interact the ingroup indicator with the Wave II dummy. In models that use COVID-19 exposure during Wave II, we interact the ingroup indicator with individual exposure. In pooled specifications, we use the triple interaction of ingroup status, Wave II, and exposure, including all lower-order terms. These models control for the log of one plus county-level cases on the survey date, the survey date, and the logs of county population and population density, along with the full set of respondent demographics. Full tables and a survey-based trust measure appear in the Online Appendix.

3 Results

3.1 Descriptives

Figures 1, 2, and 3 summarize amounts sent by first movers and expected returns in the interethnic/interracial trust game for the three largest racial/ethnic groups across the two U.S. Trustlab waves. Below, we reports simple within-sender mean differences across recipient groups with corresponding p-values.

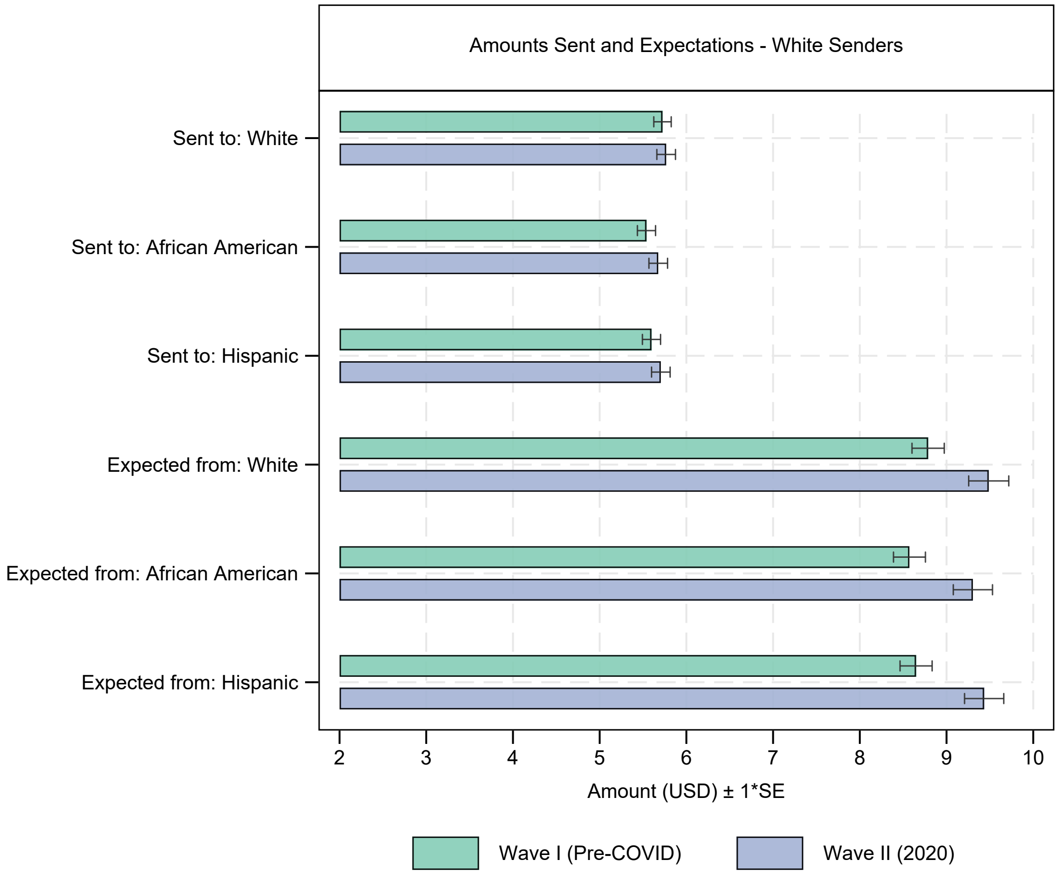
White senders (N = 779 in Wave I; N = 832 in Wave II) exhibit small but detectable ingroup differences in Wave I that attenuate in Wave II. In Wave I, Whites sent \$5.73 (SD = 2.80) to White recipients versus \$5.54 (SD = 2.92) to African American recipients (difference \$0.185; $p < 0.001$) and \$5.60 (SD = 2.92) to Hispanic recipients (difference \$0.127; $p = 0.009$). In Wave II, these gaps shrink and are no longer conventionally significant: the White-African American difference is \$0.091 ($p = 0.078$) and the White-Hispanic difference is \$0.061 ($p = 0.231$), with average transfers around \$5.70 across groups. Expectations show a similar pattern. In Wave I, Whites expected slightly higher returns from White than African American recipients (difference \$0.215; $p = 0.007$), while the White-Hispanic expectation gap is smaller and not significant (difference \$0.139; $p = 0.107$). In Wave II, both expectation gaps are small and statistically weak (White-African American difference \$0.183; $p = 0.080$; White-Hispanic difference \$0.053; $p = 0.618$).

African American senders (N = 122 in Wave I; N = 125 in Wave II) display the clearest ingroup preference in sending. In Wave I, they sent \$4.78 (SD = 2.58) to African American recipients versus \$4.40 (SD = 2.46) to White recipients (difference \$0.373; $p = 0.029$) and \$4.46 (SD = 2.51) to Hispanic recipients (difference \$0.314; $p = 0.024$). In Wave II, the ingroup gap relative to White recipients remains and is statistically significant (difference \$0.456; $p = 0.018$), whereas the gap relative to Hispanic recipients is small and not significant (difference \$0.096; $p = 0.581$). Expectations are flat across groups in Wave I (African American vs White: difference −\$0.178; $p = 0.596$; African American vs Hispanic: difference \$0.115; $p = 0.538$). In Wave II, African American senders expect higher returns from African American than White recipients (difference \$0.928; $p = 0.018$), while the corresponding difference vis-à-vis Hispanic recipients is smaller and statistically insignificant (difference \$0.528; $p = 0.190$).

Hispanic senders (N = 123 in Wave I; N = 99 in Wave II) show weak and partly imprecise differences across recipient groups. In Wave I, Hispanics sent \$5.52 (SD = 2.74) to Hispanic recipients compared with \$5.37 to White recipients (difference \$0.150; $p = 0.073$) and \$5.36 to African American recipients (difference \$0.163; $p = 0.031$). Expectations in Wave I are directionally higher for White than Hispanic recipients but not statistically significant (difference −\$0.317; $p = 0.099$), and there is no evidence of an expectation gap vis-à-vis African American recipients (difference \$0.085; $p = 0.728$). In Wave II, none of the Hispanic sender differences is statistically distinguishable from zero for either sending (Hispanic-White: difference \$0.182; $p = 0.376$; Hispanic-African American: difference −\$0.111; $p = 0.395$) or expectations (Hispanic-White: difference \$0.222; $p = 0.574$; Hispanic-African American: difference −\$0.222; $p = 0.525$).

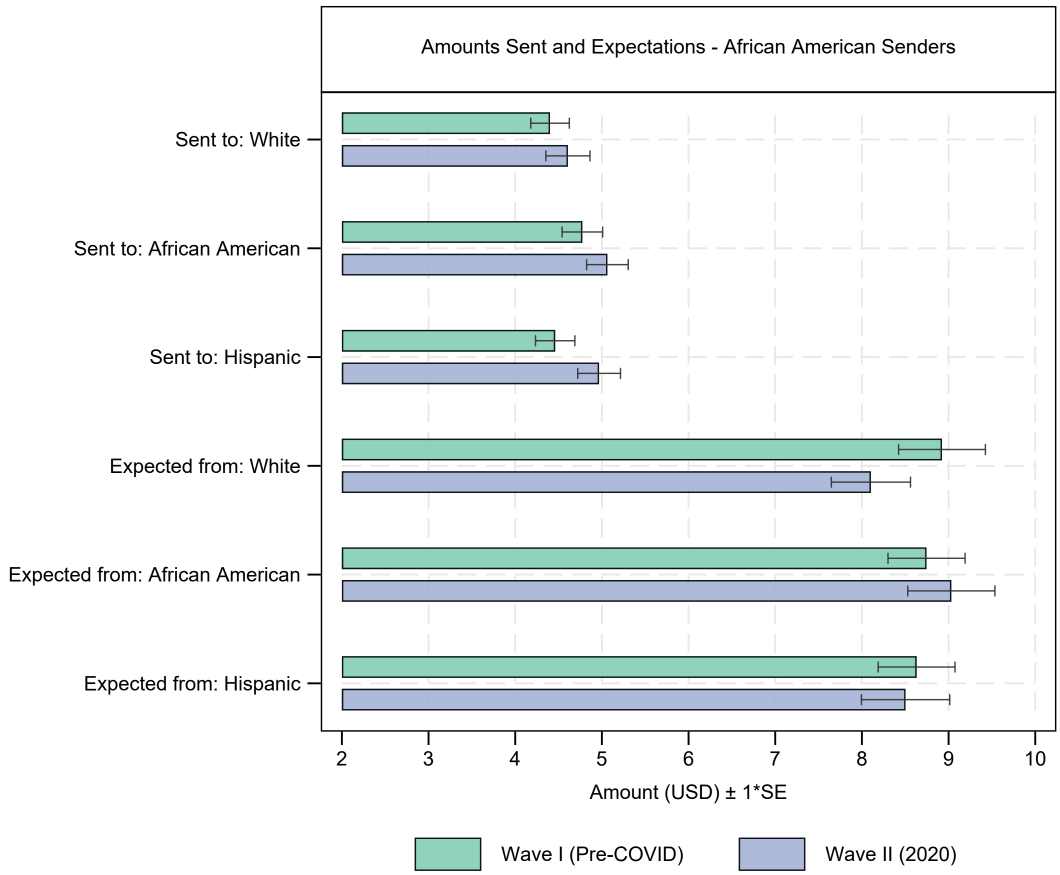
Taken together, these descriptives suggest that ingroup bias in sending did not increase between waves and, if anything, weakened among White senders, while remaining most pronounced for African American senders, particularly vis-à-vis White recipients. Expectations display a similar heterogeneity: the most salient shift is among African American senders in Wave II, who report higher expected returns from African American than from White recipients, whereas expectation gaps for White and Hispanic senders are small and generally imprecise. In the next subsection, we move beyond these pairwise comparisons and quantify cross-wave changes and heterogeneity more formally using our regression framework.

Figure 1: Amounts Sent and Expected Returns in the Inter-Group TG (White Senders)



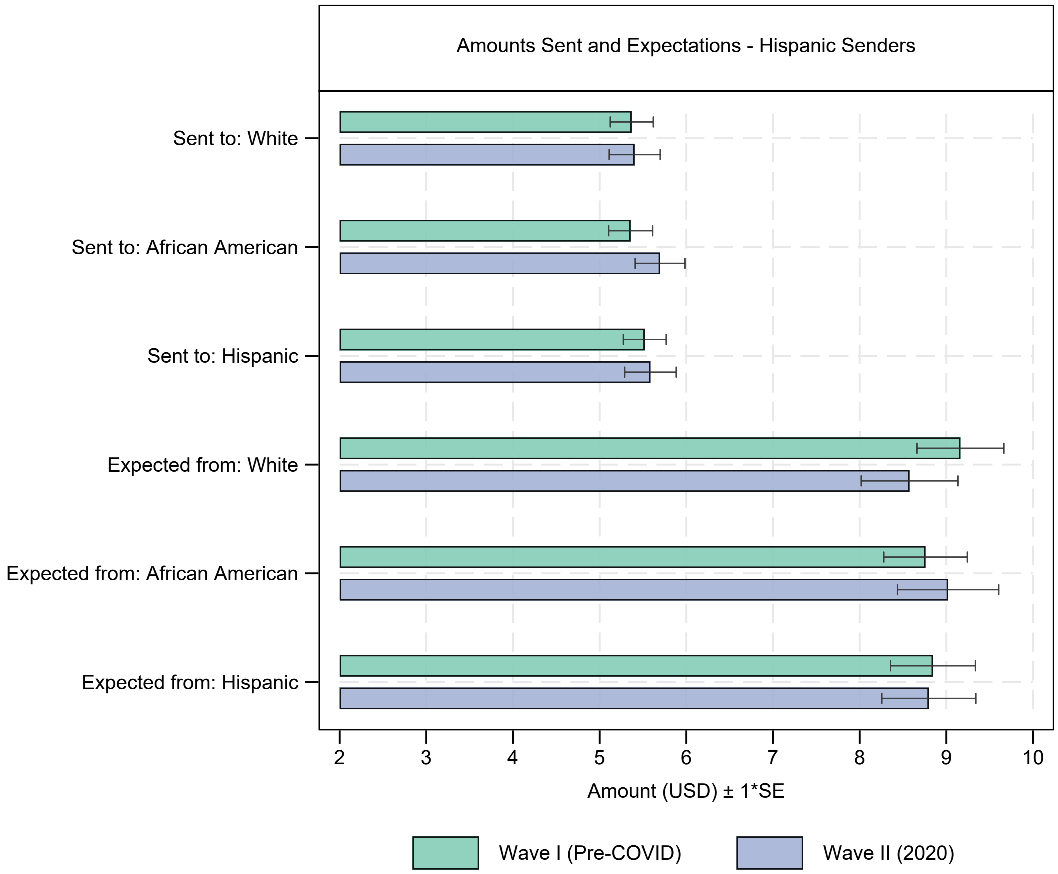
Notes: This figure displays amounts sent by White participants to White, African American, and Hispanic recipients, as well as White participants' beliefs about expected returns from each of these three racial/ethnic groups in the inter-group trust game without income information. Bars represent means for Wave I (Pre-COVID) and Wave II (2020). Whiskers extend one standard error from the mean in each direction.

Figure 2: Amounts Sent and Expected Returns in the Inter-Group TG (Hispanic Senders)



Notes: This figure displays amounts sent by African American participants to White, African American, and Hispanic recipients, as well as African American participants' beliefs about expected returns from each of these three racial/ethnic groups in the inter-group trust game without income information. Bars represent means for Wave I (Pre-COVID) and Wave II (2020). Whiskers extend one standard error from the mean in each direction.

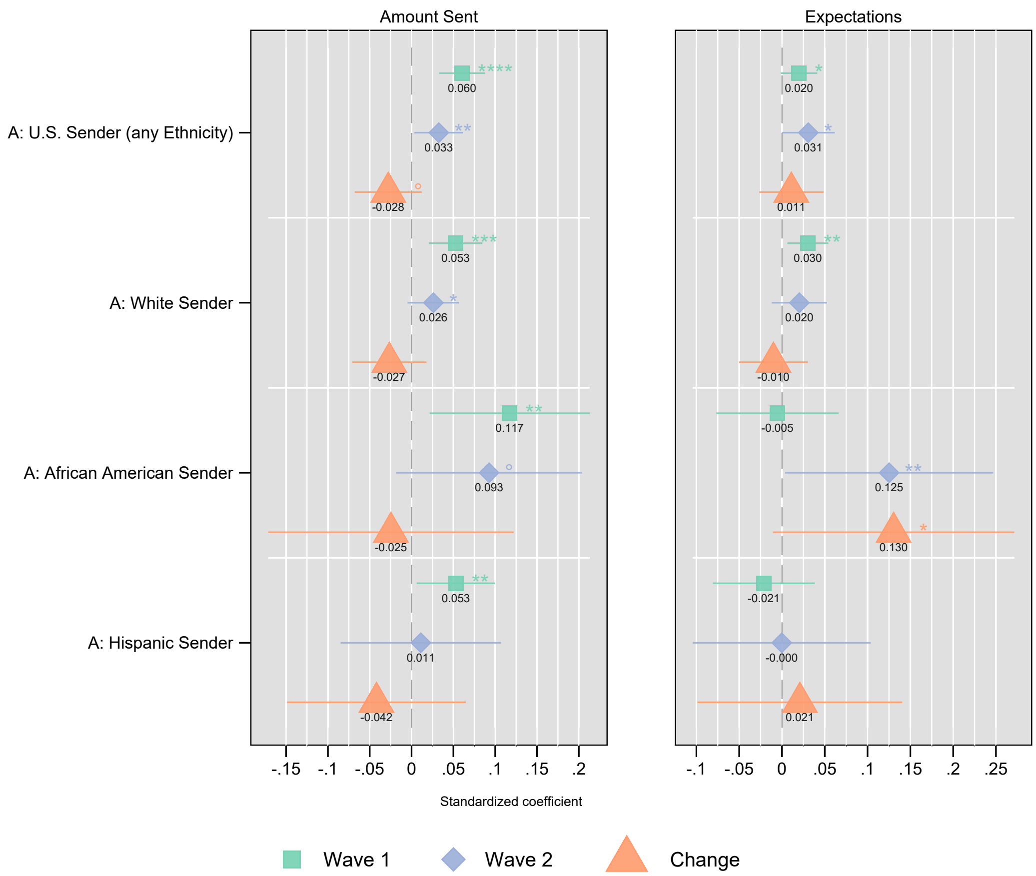
Figure 3: Amounts Sent and Expected Returns in the Inter-Group TG (Hispanic Senders)



Notes: This figure displays amounts sent by Hispanic participants to White, African American, and Hispanic recipients, as well as Hispanic participants' beliefs about expected returns from each of these three racial/ethnic groups in the inter-group trust game without income information. Bars represent means for Wave I (Pre-COVID) and Wave II (2020). Whiskers extend one standard error from the mean in each direction.

3.2 Average Ingroup Favoritism and Expectation Bias

Figure 4: Ingroup Bias in the Inter-Group TG



Notes: The figure displays standardized coefficients and 95 percent confidence intervals from OLS regressions. The dependent variables (standardized) are the amount sent and expected return in the inter-group trust game without income information. The key explanatory variable is a binary indicator equal to one if the recipient shares the sender's race/ethnicity. All regressions include a dummy for the first race/ethnicity encountered in the game and control for respondent race/ethnicity, gender, age, age squared, two education levels, three employment statuses, two urbanization categories, and four income quintiles. Standard errors are clustered at the individual level. Significance levels: **** $p < 0.001$, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, ° $p < 0.2$.

We find statistically significant average ingroup favoritism in the AS in the TG in both experimental waves. However, contrary to Hypothesis 1, ingroup favoritism does not increase during the COVID-19 pandemic. In fact, the tendency is for ingroup favoritism to decline, albeit at insignificant levels of significance. The standardized mean difference in AS to ingroup versus outgroup recipients is nearly twice as large in Wave I (b = 0.060, 95% CI [0.033; 0.088], $p < 0.001$) as in Wave II (b = 0.033, 95% CI [0.003; 0.062], $p = 0.028$) (see Table A.4 in the Online Appendix for the underlying regression results and Figure 4). On the basis of the estimates for non-standardized coefficients, senders transferred on average \$0.18 (out of the available \$10) more to ingroup than to outgroup members in Wave I, while this difference dropped to \$0.10 in Wave II. A Wald test fails to reject the null of equality of the two coefficients (b = -0.028, 95% CI [-0.068; 0.012], p = 0.172). The coefficients of average ingroup favoritism decrease for all three ethnic groups, never reaching statistical significance: Whites (b = -0.027, 95% CI [-0.071; 0.018], p = 0.241), African Americans (b = -0.025, 95% CI [-0.171; 0.122], p = 0.742), and Hispanics (b = -0.042, 95% CI [-0.149; 0.065], p = 0.441).

Although the decline in ingroup favoritism across waves is not statistically significant, the remaining levels of favoritism in Wave II are no longer distinguishable from zero in any group. Among White participants, ingroup favoritism is significant in Wave I (b = 0.053, 95% CI [0.021; 0.085], p = 0.001), but not in Wave II (b = 0.026, 95% CI [-0.005; 0.057], p = 0.097). Likewise, favoritism is significant in Wave I for African Americans (b = 0.117, 95% CI [0.022; 0.213], p = 0.016), but not in Wave II (b = 0.093, 95% CI [-0.019; 0.204], p = 0.103). The decrease is relatively more pronounced among Hispanic participants: while favoritism is significant in Wave I (b = 0.053, 95% CI [0.006; 0.099], p = 0.027), it becomes negligible and far from significant in Wave II (b = 0.011, 95% CI [-0.085; 0.107], p = 0.820).

As for ER, elicited for the hypothetical case of sending 5 USD, we find a different pattern. The standardized mean difference in ER for ingroup versus outgroup members is small and not statistically significant in Wave I (b = 0.020, 95% CI [-0.001; 0.041], p = 0.068) and remains so in Wave II (b = 0.031, 95% CI [-0.000; 0.062], p = 0.051). Using non-standardized coefficients, participants expected ingroup members to return 0.12 USD more than outgroup members in Wave I; and the difference rose to 0.18 USD in Wave II. This minor upward shift between waves is far from statistically significant (b = 0.011, 95% CI [-0.027; 0.048], p = 0.569). This aggregate stability, however, masks divergent patterns across ethnic groups. For White participants, while the ingroup bias is significant in Wave I (b = 0.030, 95% CI [0.006; 0.054], p = 0.013), it is no longer significant in Wave II (b = 0.020, 95% CI [-0.012; 0.053], p = 0.220). Conversely, African American participants, who showed no bias in Wave I, developed a statistically significant ingroup bias in Wave II (b = 0.125, 95% CI [0.004; 0.247], p = 0.044); this increase is, however, not statistically significant at conventional levels (b = 0.130, 95% CI [-0.011; 0.271], p = 0.070). We find no evidence of ingroup bias for Hispanic participants in either wave. Therefore, Whites and African Americans seem to have reacted differently to the pandemic with respect to their expectations on trustworthiness.

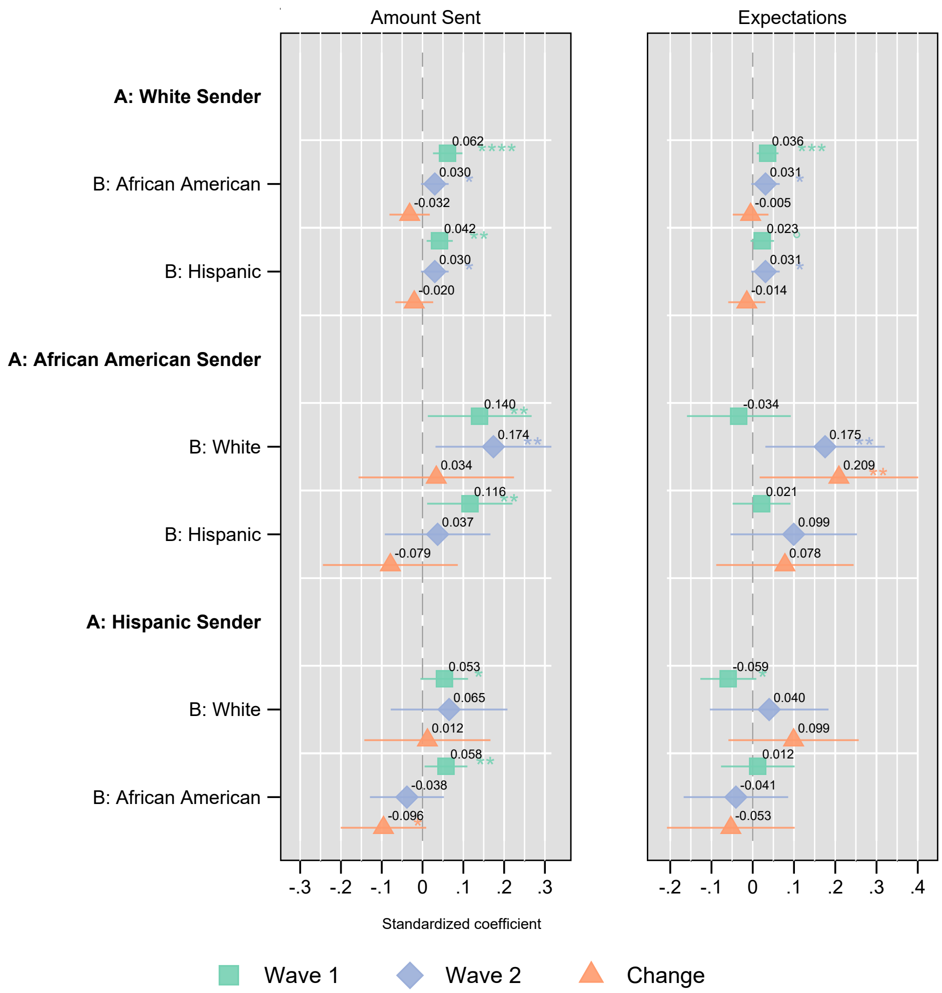
To formally test the stability of ingroup bias between waves, we employ equivalence testing using a two one-sided test (TOST) procedure (Schuirmann, 1987; Tryon and Lewis, 2008; Lakens, 2017). For this analysis, we define the equivalence bounds (Δ) as a percentage of the dependent variable's standard deviation. The results support our main finding that the average ingroup bias did not meaningfully change. Specifically, for the bias in AS, the change between waves is statistically equivalent to zero within bounds of $\Delta = \pm 0.19$ (6.5% of the outcome's SD), as the tests against both the lower (p = 0.035) and upper ($p < 0.001$) bounds are significant. Likewise, the change in bias in expected trustworthiness is statistically equivalent to zero within bounds of $\Delta = \pm 0.29$ (5% of the outcome's SD), with both one-sided tests again being significant ($p = 0.001$ and $p = 0.020$).

3.3 Group-specific Ingroup Favoritism

Ingroup favoritism in AS within the inter-group TG, assessed separately for each ingroup relative to each of the two outgroups, shows no significant change between the two waves (see Figure 5 reporting standardized coefficients of ingroup favoritism based on the regression reported in the Online Appendix: Table A.10). Specifically, for White senders, the change in bias between Wave I and Wave II was statistically insignificant for both African American recipients ($b = -0.032$, 95% CI [-0.081; 0.018], $p = 0.210$) and Hispanic recipients ($b = -0.020$, 95% CI [-0.067; 0.026], $p = 0.391$). Similarly, for African American senders, the changes in bias toward White recipients ($b = 0.034$, 95% CI [-0.157; 0.224], $p = 0.728$) and Hispanic recipients ($b = -0.079$, 95% CI [-0.244; 0.086], $p = 0.348$) were not significant. For Hispanic senders, the change in bias toward White recipients was also not significant ($b = 0.012$, 95% CI [-0.143; 0.167], $p = 0.879$). However, we note a marginally significant decrease in bias from Hispanic senders toward African American recipients ($b = -0.096$, 95% CI [-0.201; 0.009], $p = 0.073$).

A notable pattern emerges when comparing bias levels across waves. Although the period-over-period changes are themselves not statistically significant, several ingroup biases in AS that were significant in Wave I lose their statistical significance in Wave II. For instance, White senders' bias against African American recipients, which was highly significant in Wave I ($b = 0.062$, 95% CI [0.026; 0.098], $p < 0.001$), became insignificant, at conventional levels, in Wave II ($b = 0.030$, 95% CI [-0.004; 0.064], $p = 0.082$). A similar attenuation occurred for the biases of White senders against Hispanic recipients, African American senders against Hispanic recipients, and Hispanic senders against African American recipients, all of which followed the same trajectory from statistically significant in the first wave to insignificant in the second. The sole exception to this trend is the substantial ingroup bias of African American senders against White recipients. This bias was statistically significant in the first wave ($b = 0.140$, 95% CI [0.013; 0.267], $p = 0.031$) and remained so in the second wave ($b = 0.174$, 95% CI [0.032; 0.316], $p = 0.017$).

Figure 5: Ingroup Bias in the Inter-group TG: By Sender's and Recipient's Ethnicity



Notes: The figure displays standardized coefficients and 95 percent confidence intervals from OLS regressions estimated separately by sender race/ethnicity. The dependent variables (standardized) are the amount sent and expected return in the inter-group trust game. Coefficients are shown by sender group and capture responses to recipient-type dummies (defined by race/ethnicity and income), which are multiplied by (-1) to represent ingroup bias relative to the respective ethnic outgroup. The sender's ethnic group serves as the reference category. All regressions include a dummy for the first race/ethnicity encountered in the game and control for age, age squared, education (two categories), employment status (three categories), urbanization (two categories), and income quintile (four dummies). Standard errors are clustered at the individual level. Significance levels: **** $p < 0.001$, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, ° $p < 0.2$.

Turning to ER, the results reveal divergent patterns that both mirror and depart from the findings on AS. While most period-over-period changes in bias are not statistically significant, the evolution of bias levels tells a different story. For White senders, a significant bias in their beliefs about African American recipients in Wave I (b = 0.036, 95% CI [0.010; 0.062], p = 0.007) attenuates to become insignificant in Wave II (b = 0.031, 95% CI [-0.004; 0.065], p = 0.078), mirroring the pattern observed for AS. No significant bias is observed from White senders toward

Hispanic recipients in either wave. A starkly different pattern emerges for African Americans. While showing no initial bias toward White recipients (b = -0.034, 95% CI [-0.159; 0.092], p = 0.600), they developed a strong and statistically significant bias in Wave II (b = 0.175, 95% CI [0.031; 0.320], p = 0.018). The increase in the bias between the waves is large and statistically significant (b = 0.209, 95% CI [0.017; 0.401], p = 0.033). Finally, we find no evidence of ingroup bias in the beliefs of Hispanic senders regarding either White or African American recipients.

3.4 Exposure to COVID, BLM Protests, and Ingroup Favouritism

We further test Hypothesis 1 by relating ingroup favoritism to alternative measures of personal exposure to COVID-19. These include our survey-based indicator of exposure (see Methods: Section 2.4) and local pandemic statistics (Section 2.5). We find no evidence that greater exposure to the pandemic increased ingroup bias. First, using the self-reported responses on COVID-19 exposure, we find no significant difference in favoritism between groups. The coefficient for respondents who reported more exposure to the pandemic is b = 0.042 (95% CI [-0.011; 0.096], p = 0.120), while for those who did not, it is b = 0.026 (95% CI [-0.007; 0.059], p = 0.121). The difference between the two coefficients is statistically insignificant (b=0.017, 95% CI [-0.046; 0.079], p = 0.606).

Second, the results are unchanged when using objective measures of local pandemic intensity (see Methods: Section 2.5). We find no significant difference in ingroup bias between respondents living in counties with above-median versus below-median mortality rates (b = -0.004, 95% CI [-0.060; 0.053], p = 0.895). This null result holds for other objective measures, including local death counts and weekly incidence rates (see Online Appendix, Section A.7). A similar lack of association between pandemic exposure and ingroup bias is found for ER.

In addition, we examine whether local exposure to Black Lives Matter protests following the death of George Floyd moderated ingroup favoritism. Using ACLED data (Kishi, Stall, Hampton, Wolfson, Aaron and Jones, 2021) on the county-level number of protests in the seven days prior to (and including) each respondent's survey date, we find that the interaction between protest exposure and the ingroup dummy is statistically indistinguishable from zero across outcomes (see Online Appendix Table A.28).

3.5 Levels of Inter-Racial Trust and Expected Trustworthiness Across Waves and Exposure to COVID

To test Hypothesis 3, we examine whether overall prosocial behavior and expectations of reciprocity changed across waves, and within Wave II as a function of exposure to COVID-19. We find no significant change in the average AS in the TG (b = 0.058, 95% CI [-0.027; 0.142], p = 0.182). This stability holds across all three major ethnic groups, with no evidence of differential shifts between waves. In contrast, expectations of trustworthiness increased significantly from Wave I to Wave II (b = 0.122, 95% CI [0.038; 0.206], p = 0.004). This aggregate increase was driven entirely by White participants (b = 0.145, 95% CI [0.049; 0.241], p = 0.003), as the changes for African American (b = 0.038, 95% CI [-0.175; 0.251], p = 0.727) and Hispanic participants (b = 0.051, 95% CI [-0.186; 0.288], p = 0.673) were statistically insignificant. Supplementary details on the cross-wave evolution of trust game sending and return expectations are available in Online Appendix Section A.6.

Next, we test Hypothesis 3 by examining whether prosociality was associated with personal exposure to COVID-19 within Wave II. We find that reported exposure is linked to a significant, though selective, increase in prosociality. Specifically, exposed respondents sent more in the inter-group TG (b = 0.145, 95% CI = [0.020; 0.270], p = 0.023), in the inter-group DG (b = 0.128, 95% CI = [0.000; 0.255], p = 0.050), and exhibited greater ER in the inter-group TG (b = 0.169, 95% CI = [0.045; 0.294], p = 0.008) compared to unexposed respondents (see Online Appendix Section A.8).

3.6 Heterogeneity Analysis

We examined whether changes in ingroup bias relative to the average outgroup varied with respondents' observable characteristics. Among those not identifying as right-wing, ingroup favoritism in AS fell significantly (b = −0.058, 95% CI [−0.108; −0.007], p = 0.025). For right-wing respondents, the cross-wave change was negligible (b = −0.003, 95% CI [−0.082; 0.076], p = 0.940). No comparable heterogeneity emerges when we stratify by age, gender, income, or education (see Online Appendix A.4 for detailed results on other characteristics).

A heterogeneity analysis further reveals a significant rise in ER across waves among right-wing participants (b = 0.247, 95% CI = [0.097, 0.398], p = 0.001), with expectations remaining largely constant for non-right-wing respondents (b = 0.018, 95% CI = [-0.087, 0.122], p = 0.738). Similarly, the increase is concentrated among male respondents (b = 0.202, 95% CI = [0.073, 0.332], p = 0.002), whereas the estimated change in ER is small and statistically insignificant among female respondents (b = 0.051, 95% CI = [-0.054, 0.157], p = 0.338).

Interestingly, the heterogeneity analysis (for further details, see Online Appendix Section A.9) reveals that the positive effect of COVID-19 exposure on prosocial behavior (reflected in higher AS, increased transfers in the inter-group DG) and greater expected trustworthiness is concentrated exclusively among right-wing respondents. This is consistent with the more pronounced cross-wave improvement in expectations regarding recipients' returns (expected trustworthiness) in this group. We also detect gender heterogeneity in the exposure effects: the positive association is present among male participants but not among female participants.

4 Discussion

Contrary to pathogen-stress predictions, we do not find a broad-based increase in behavioral ingroup bias during the early months of the pandemic. Comparing two nationally representative U.S. samples from the summers of 2017 and 2020, the aggregate coefficient for ingroup favoritism in prosocial behavior fell to about half its pre-pandemic level, although the decline is not statistically significant. Crucially, this movement is ideologically asymmetric: The overall reduction in ingroup bias was entirely driven by respondents who identified as left-leaning or moderate in 2020. In Wave II, none of the dyadic ingroup bias coefficients was statistically significant, except for the coefficient of African Americans vis-à-vis Whites, which remained positive and significant in both waves. Patterns of ingroup bias in ER were on aggregate insignificant, but differed by sender group (Sections 3.2 and 3.3). Among White senders, the modest expectation gap vis-à-vis African American recipients observed in Wave I attenuates and becomes statistically weak in Wave II, mirroring the decline in behavioral bias. Among African American senders, by contrast, expectations shift in the opposite direction: little difference is visible in Wave I, but a sizable and statistically significant ingroup-outgroup expectation gap emerges in Wave II, and the increase across waves is itself statistically significant. Average prosociality showed no meaningful change across waves. However, this aggregate stability masks meaningful within-wave heterogeneity: consistent with Hypothesis 3, respondents exposed to COVID-19 in Wave II behaved more prosocially than unexposed respondents.

Specifically, we find that personal COVID-19 exposure, rather than local pandemic severity, is positively associated with interethnic trust game sending, trustworthiness expectations, and dictator game transfers. Such an increase in prosociality during the pandemic, corroborated by other studies (Esaiasson et al., 2021; Grimalda et al., 2021; Aassve et al., 2022; Gambetta and Morisi, 2022), may reflect several channels. Cassar, Healy and von Kessler (2017) suggest that witnessing mutual aid during disasters or observing others helping each other (Abel and Brown, 2022) can enhance trust and expectations of trustworthiness, driven by the assumption of reciprocal assistance. Moreover, experiencing a disaster might heighten awareness of potential future crises, fostering trustworthiness in anticipation of mutual aid (Cassar, Healy and von Kessler, 2017). Additionally, media coverage of COVID-19 fatalities may have heightened empathy towards those at risk, positively influencing trust and prosocial behavior (Kamas and Preston, 2021), and reinforcing compliance with protective health measures (Pfattheicher et al., 2020).

The exposure results are not only positive on average; they are also concentrated in particular subgroups. In the heterogeneity analysis, the positive association between personal COVID-19 exposure and trust-game sending, expected trustworthiness, and inter-group dictator transfers is strongest among right-leaning respondents, and for some outcomes concentrated among men (Online Appendix Section A.9). One plausible interpretation is that personal exposure operated as a salient information shock for groups that, on average, perceived the pandemic as less threatening or were less responsive to public-health messaging early on, patterns that differ sharply by partisanship in the U.S. (Allcott et al., 2020; Zickfeld et al., 2020; Gadarian, Goodman and Pepinsky, 2021; McLamore et al., 2022). In this view, the stronger effects among men fit naturally, given evidence that men report lower perceived COVID-19 risks and weaker protective responses than women, with part of this gender gap mediated by ideology (Galasso et al., 2020; Grimalda et al., 2023).

A separate source of heterogeneity concerns how ingroup differentials changed from 2017 to 2020. The cross-wave attenuation of ingroup bias is concentrated among left-leaning and moderate respondents, whereas we do not detect comparable shifts when stratifying by gender, age, income, or education (Online Appendix Section A.4). Conceptually, this pattern fits a broader view in which group-based behavior depends on how strongly individuals map social categories onto their self-concept and moral obligations (Turner, Brown and Tajfel, 1979; Akerlof and Kranton, 2000). In the contemporary U.S. context, political identities can be especially powerful "organizing categories" that shape intergroup perceptions and norm compliance, often more strongly than standard sociodemographics, due to affective polarization and motivated reasoning (Iyengar, Sood and Lelkes, 2012; Mason, 2018; Iyengar et al., 2019; Peterson and Iyengar, 2021). In line with this, Kranton et al. (2020) show that average ingroup bias masks substantial type heterogeneity: "groupy" individuals shift their social preferences when interactions are framed in ingroup-outgroup terms, whereas "not-groupy" individuals respond little to group labels. In our context, political orientation may therefore capture both baseline differences in the weight placed on group cues and differences in how a major shock reshapes those cues. One plausible mechanism is that pandemic information and public-health messaging were processed through partisan lenses, with trust in science and compliance norms diverging sharply across the political spectrum (Allcott et al., 2020; Algan et al., 2021; Kerr, Panagopoulos and van der Linden, 2021; Grimalda et al., 2023). Among left-leaning and moderate respondents, greater receptiveness to scientific narratives emphasizing collective protection and shared vulnerability may have increased the salience of egalitarian norms, thereby reducing ingroup-outgroup differentials; among right-leaning respondents, by contrast, more contested interpretations of the crisis may have left group boundaries largely stable, even if the pandemic shifted the overall level of cooperation or perceived trustworthiness.

More generally, our two-wave comparison is a reduced-form estimate of how interethnic trust and altruism differed between summer 2017 and summer 2020, and it necessarily aggregates multiple contemporaneous forces beyond infection and mortality risk. In the United States, COVID-19 rapidly became politicized: partisan identities and elite cues shaped risk perceptions and behavioral responses (Allcott et al., 2020; Gadarian, Goodman and Pepinsky, 2021; Kerr, Panagopoulos and van der Linden, 2021), while media environments and misinformation contributed to divergent beliefs about the severity of the crisis and appropriate protective behavior (Motta, Stecula and Farhart, 2020; Roozenbeek et al., 2020; Barrios et al., 2021; Loomba et al., 2021; Simonov et al., 2022). These political, social, and informational dynamics plausibly affected expectations about others' trustworthiness and the norms governing intergroup interaction, and they caution against interpreting our estimates as isolating a single mechanism.

One salient component of this compound 2020 environment is that the pandemic coincided with a major nationwide mobilization around racial justice. Our Wave 2 survey was fielded in mid-2020, amid the nationwide Black Lives Matter mobilization following George Floyd's murder, which made racial justice highly salient and shifted White respondents' views about discrimination and policing (Reny and Newman, 2021; Dunivin et al., 2022; Shuman et al., 2022). In that context, and given Black Americans' disproportionate COVID-19 risks (Zelner et al., 2021), heightened empathy (Zhao, Tinkler and Clayton, 2022) offers a parsimonious explanation for the contemporaneous drop in ingroup bias among left-leaning and moderate respondents in our study. Importantly, however, a purely protest-driven account is difficult to reconcile with our heterogeneity patterns showing that increases in prosociality and expected trustworthiness are systematically stronger among respondents with greater personal exposure to COVID-19 (and robust to controls for local pandemic conditions), whereas local BLM protest intensity shows no clear association with either ingroup bias or the level of prosocial behavior in the games. Taken together, this pattern points to pandemic-related variation across individuals and local conditions, rather than a uniform nationwide shift driven by protest exposure.[2]

A limitation of our study is that our design did not include outgroups directly associated with the outbreak, such as Chinese or Asians, or foreigners more generally (Huber et al., 2022). Reny and Barreto (2022) documented that negative affect toward Asian Americans correlated with both worry about the pandemic and avoidance of foreigners. We do not believe this omission undermines our conclusions. Early spikes in hostility toward Asians and Asian Americans were soon accompanied by broader outgroup hostility against other outgroups (Lu et al., 2021; Fuochi et al., 2021; Tumino et al., 2025), suggesting a general tightening of social norms (Andrighetto et al., 2024).

More broadly, support for pathogen-stress accounts is not unambiguous (Currie, Lin and Meng, 2013; Hruschka and Henrich, 2013). Several studies did not detect significant levels of outgroup prejudice during COVID-19 (Koller et al., 2021; Fan, Tybur and Jones, 2022; Zingora et al., 2023; Fan, Tybur and van Lange, 2024). One reason may be that a global shock like the COVID-19

[2]Since much of the exposure to news of the George Floyd killing and the BLM movement came through nationwide media and not as a result of observation or coverage of local demonstrations, the lack of significant results for local protest exposure cannot rule out that the atmosphere triggered by those events across the country as a whole influenced the way in which this stage of the Covid-19 pandemic affected experimental trusting and prosociality. Indeed, because the more national media through which Americans received news of developments relating to both Covid-19 and BLM tended to differ by ideological leaning, one cannot rule out that changes between mid-2017 and mid-2020 behaviors differed by ideology in ways affected by the blending of the two sets of developments within the different media worlds each group inhabited. Relatedly, the scale of the response to the killing of George Floyd is widely argued to have been significantly impacted by the extraordinary social environment engendered by rising Covid-19 hospitalizations and deaths and by differences in disease exposure and in ability to self-quarantine between White and non-Whites (Asfaw, 2022), indicating that the two sets of events were difficult to disentangle (Gallicano et al., 2023; Rohlinger and Meyer, 2024; Wimmer and Torrats-Espinosa, 2025), with the pandemic nonetheless being the main exogenous change relative to 2017.

pandemic can blur traditional ingroup-outgroup boundaries and elicit "inclusive altruism born of common suffering" (Vollhardt and Staub, 2011; Hartman and Morse, 2020). Consistent with this view, Adam-Troian and Bagci (2021) documented greater empathy among Turkish citizens toward Syrian refugees in relation to COVID-19.

Two further concerns are experimenter-demand effects and social-desirability / image-management motives, which may be particularly salient in discrimination settings (de Quidt, Haushofer and Roth, 2018; Andreoni and Bernheim, 2009; Boring and Delfgaauw, 2024). A supplementary check using a survey-based proxy, asking whether participants responded in line with perceived researcher goals, suggests that these forces did not significantly affect our results (see Online Appendix Section A.5). Specifically, Wave 2 includes a post-module item capturing whether participants believed researchers preferred a particular pattern of choices. In robustness checks, interacting this "desirability" indicator with the ingroup dummy yields no systematic moderation (with only one marginal exception). Together with the two-wave design, which differences out any time-invariant bias, this suggests that demand effects are unlikely to drive our main results. Moreover, Bursztyn et al. (2025) emphasize that behavior and self-reports in sensitive domains can be shaped by self-image and social-image concerns. In our two-wave design, these forces are therefore most problematic only if changes in norm salience across waves alter their importance. Still, we acknowledge that making ethnicity salient may shift the level of expressed bias through social-image concerns (Bašić and Quercia, 2022).

Another possible limitation is the correlational nature of our study. Longitudinal designs face severe attrition, e.g., 36% over three months in Böhm, Fleiß and Rybnicek (2021) - making a three-year panel very hard to attain. Our main identifying assumption was that COVID-19 was the dominant macro shock shifting behavior between 2017 and 2020. We cannot rule out other shocks of similar magnitude operating in the opposite direction, but, given the breadth of COVID-19's impact, this seems unlikely. Our regressions control for a range of covariates that may vary across waves, and the findings are robust when using individual-level exposure to COVID-19 as the main identifying regressor.

How can our results be reconciled with extensive evidence of pandemic-era prejudice against outgroups (Tumino et al., 2025)? Much of that literature relies on within-sample variation, either experimentally induced by priming the pandemic or captured by traits such as disgust sensitivity (Schaller and Duncan, 2011). While these methods are valid to induce variation in exposure to diseases or to test pathogen-stress theories, they cannot offer a before-during comparison of inter-racial/inter-ethnic ingroup bias, which is what our study does. Our measure of ingroup favoritism is decontextualised from immediate contagion fears, as questions on COVID-19 exposure were administered only after the experimental choices (see Methods). We can, albeit tentatively, infer that, even if priming or disease-avoidance traits can activate outgroup derogation and ingroup bias, the associated effects are modest and do not alter the underlying pattern of intergroup cooperation over time at the population level.

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A Online Appendix

Supplemental Online Material for

Did the Outbreak of COVID-19 and Individual Exposure to It Increase In-Group Bias in the United States? An Experimental Investigation of Inter-Ethnic Trust

by Gianluca Grimalda, Fabrice Murtin, David Pipke, Louis Putterman, and Matthias Sutter

Below is a roadmap to the Online Appendix, organized by section headline and what each part contributes.

- Section A.1 Descriptive Analyses — Provides the basic descriptive evidence: sample characteristics, distributions, and raw patterns in behavior/beliefs across waves and groups.
- Section A.2 Regression Tables for Main Results on Ingroup Bias Change Between Waves — Collects the full regression output underlying the paper's main "ingroup bias vs. outgroup" results across waves (including both transfers and expectation outcomes), i.e., the tables behind the main figures/tests referenced in the text (e.g., Table A.4 and related specifications).
- Section A.3 Ingroup Bias Change Between Waves in Experiments with Receiver Belonging to Top Quintile of the Income Distribution — Repeats the core ingroup-bias analyses for the trust-game version with income information (receiver in the fifth income quintile), to test whether providing income context changes the cross-wave pattern.
  - A.3.1 Ingroup Bias Versus Average Outgroup (with Income Information) — "Average outgroup" version; visual summary in Figure A.6 and underlying regressions in Table A.5; includes equivalence-testing discussion.
  - A.3.2 Ingroup Bias by Sender's and Recipient's Ethnicity (with Income Information) — Dyadic/sender-by-recipient breakdown (Figure A.7; underlying regressions in Table A.11).
- Section A.4 Ingroup Bias Change Between Waves in Trust Games: Heterogeneity Analysis w.r.t. Respondents' Characteristics — Tests whether ingroup bias (and its change across waves) differs by pre-specified respondent characteristics (age, gender, education, income, political orientation), with graphical summaries (Figures A.12-A.13) and full tables (A.7-A.8).

- Section A.5 Experimenter demand effects — Implements a demand-effect diagnostic using a "desirability" proxy asked at the end of Wave 2, and checks whether ingroup bias is larger among those who think researchers have a preference (Table A.13).
- Section A.6 Levels of Trust Game Sending and Expected Receiver Returns — Shifts from bias to levels: documents cross-wave patterns in average sending and expectations, with supplementary tables (and an additional survey-based trust measure).
- Section A.7 COVID-Exposure and Ingroup Bias in the Inter-group Games — Within Wave 2, relates ingroup bias to (i) self-reported COVID exposure and (ii) objective local pandemic intensity (county-level metrics), across trust game / dictator game / expectations and versions with vs. without income information (Tables A.19-A.24).
- Section A.8 COVID-Exposure and Prosocial Behavior in the Inter-group Games — Links COVID exposure to overall prosociality (levels of transfers and expectations), rather than ingroup-outgroup differences (Table A.25).
- Section A.9 Heterogeneity: COVID-Exposure and Prosocial Behavior in the Intergroup Games — Explores moderators of the COVID-exposure-prosociality relationship (tables and figures reporting subgroup patterns; Tables A.26-A.27 and Figures A.10-A.11).
- Section A.10 Black Lives Matter Protest Intensity and Ingroup Bias — Tests whether local BLM protest intensity (county-level counts in the week before the survey date) moderates ingroup bias across outcomes and game variants; core evidence in Table A.28.

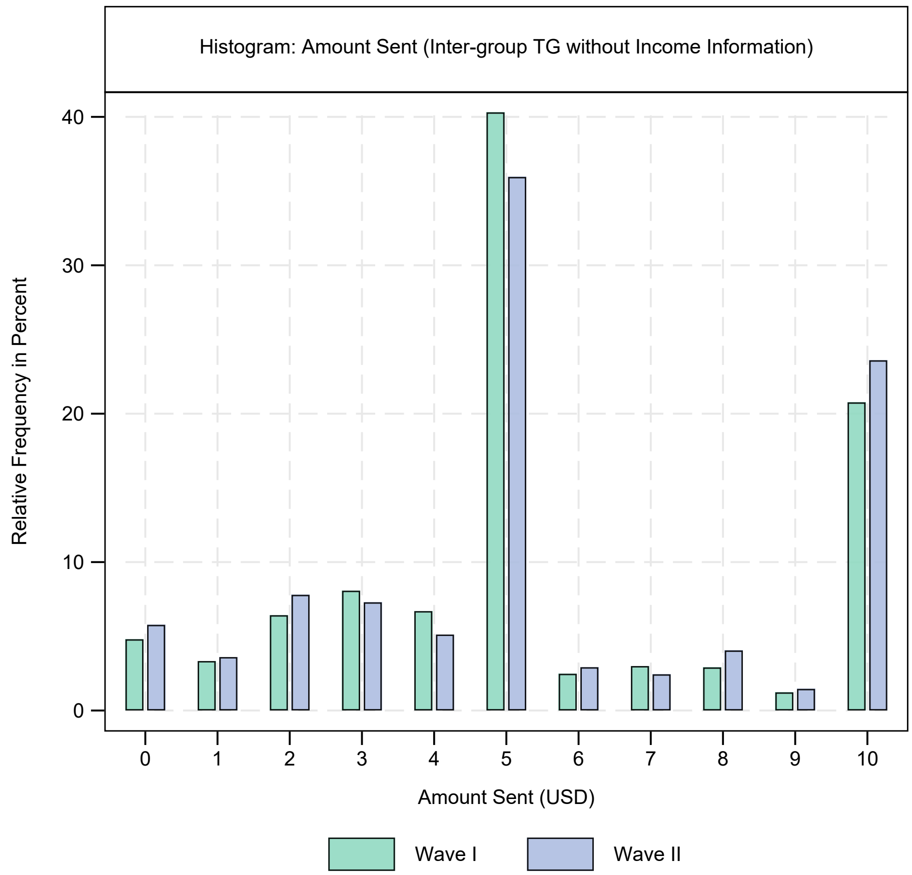
A.1 Descriptive Analyses

Table A.1: Self-Reported Exposure to COVID-19

Variable	No	Yes	Do not know	Obs.
Indicator for COVID-19 Exposure (At least one question answered with “Yes”)	741	379	0	1,120
Have you been diagnosed with COVID-19?	1,036	84	0	1,120
If yes: Have you been hospitalized?	36	48	0	84
Has someone you live with been diagnosed with COVID-19?	1,038	61	21	1,120
If yes: Have they been hospitalized?	19	41	1	61
Has a family member or a close friend (not living with you) been diagnosed with COVID-19?	879	212	29	1,120
If yes: Have they been hospitalized?	106	98	8	212
Has any of your neighbors, acquaintances, colleagues or co-workers diagnosed with COVID-19?	721	204	195	1,120
If yes: Have they been hospitalized?	84	102	18	204
Do you have a family member or close friend, who died from COVID-19?	1,017	86	17	1,120
Do you have a friend, neighbor, acquaintance, colleague or co-worker who died from COVID-19?	952	103	65	1,120

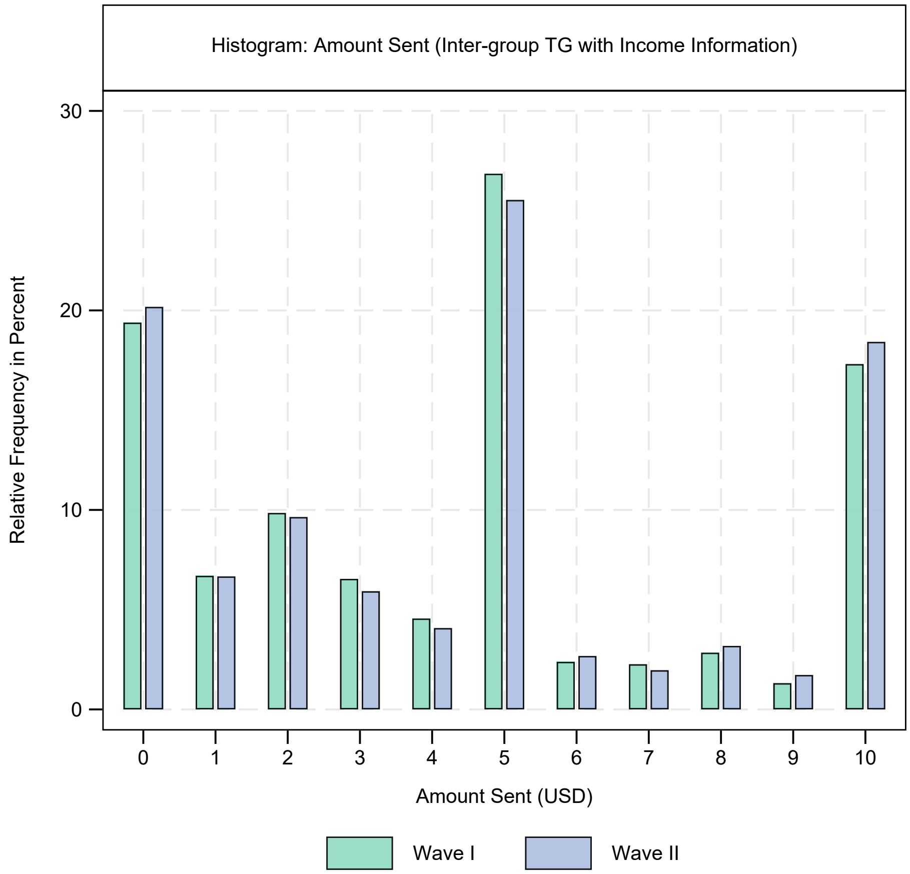
Notes: The table shows respondents’ answers to the questions concerning exposure to COVID-19. The indicator for COVID-19 Exposure is one if at least one question has been answered with yes.

Figure A.1: Inter-group TG without Income Information: Amount Sent by Wave



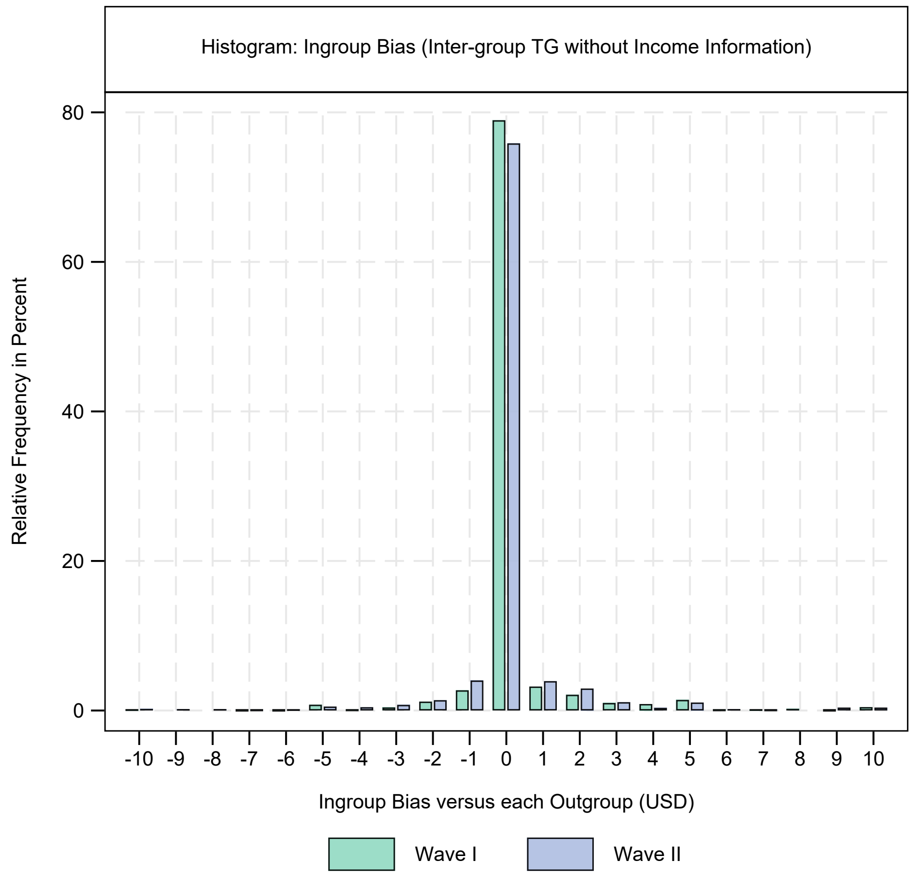
Note: The figure displays a histogram of AS in the inter-group trust game without income information, pooled across both waves of the U.S. Trustlab.

Figure A.2: Inter-group TG with Income Information: Amount Sent by Wave



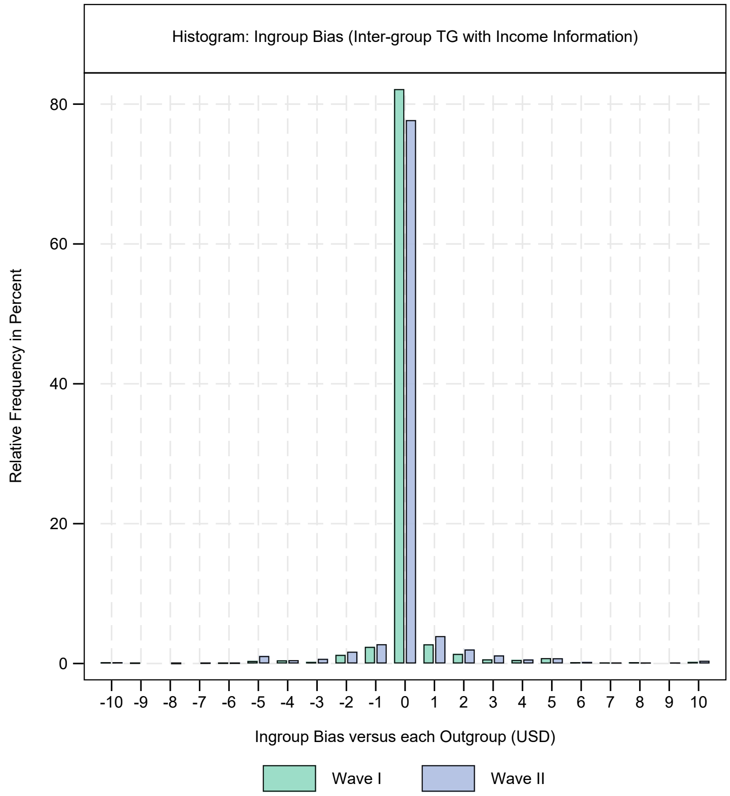
Note: The figure shows a histogram of AS in the inter-group trust game (TG) with income information, specifically for cases in which the receiver is described as belonging to the top 20 percent of income earners in the U.S., pooled across both waves of the U.S. Trustlab.

Figure A.3: Inter-group TG without Income Information: Ingroup Bias by Wave



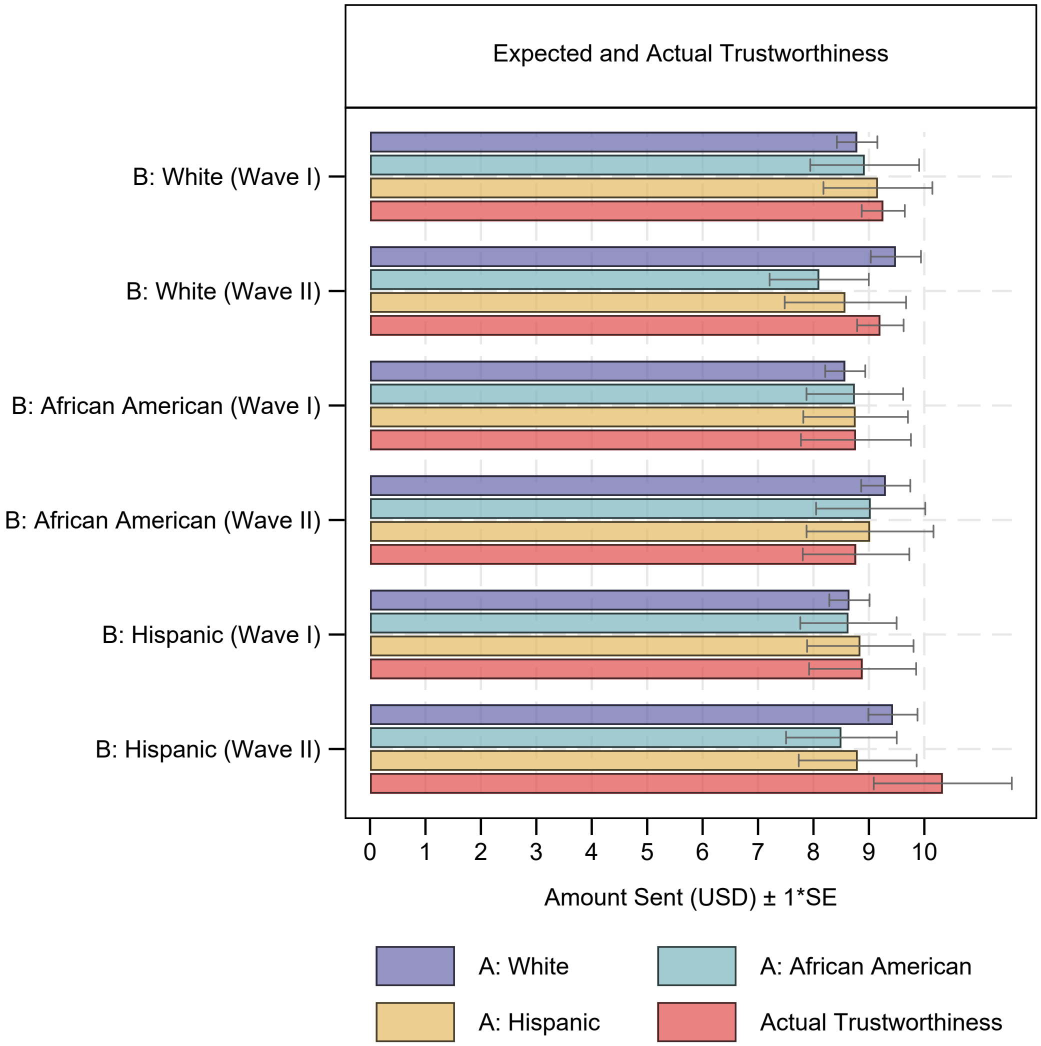
Note: The figure displays a histogram of ingroup bias in the inter-group trust game (TG) without income information, pooled across both waves of the U.S. Trustlab. Each participant contributes two observations, corresponding to decisions involving two distinct outgroups.

Figure A.4: Inter-group TG with Income Information: Ingroup Bias by Wave



Note: The figure displays a histogram of ingroup bias in the inter-group trust game (TG) with income information, pooled across both waves of the U.S. Trustlab. Each participant contributes two observations, corresponding to decisions involving two different outgroup recipients.

Figure A.5: Inter-group TG without Income Information: Expectations and Observed Trustworthiness



Note: The figure presents the average expectations (± 1*SE) that White, African American, and Hispanic senders (A) have for each type of recipient (B) regarding the amount the recipient would return after receiving 5 USD. It also displays the average observed trustworthiness (based on the median amount returned after receiving 5 USD) for each type of recipient (± 1*SE) across both waves of the U.S. Trustlab. Senders are told that recipients have no information about the sender's race/ethnicity at the time of decision.

Table A.2: Summary Statistics Wave I: Games

	mean	sd	median	min	max	Obs.
White Respondents.-						
Trust White	5.725	2.803	5	0	10	779
Trust African American	5.540	2.923	5	0	10	779
Trust Hispanic	5.598	2.921	5	0	10	779
Exp. Trustw. White	8.788	5.198	10	0	25	779
Exp. Trustw. African American	8.573	5.146	10	0	25	779
Exp. Trustw. Hispanic	8.649	5.168	10	0	25	779
Trust White Top 20%	4.555	3.418	5	0	10	779
Trust African American Top 20%	4.482	3.382	5	0	10	779
Trust Hispanic Top 20%	4.542	3.395	5	0	10	779
Exp. Trustw. White Top 20%	.	.	.	.	.	0
Exp. Trustw. African American Top 20%	.	.	.	.	.	0
Exp. Trustw. Hispanic Top 20%	.	.	.	.	.	0
Trustworthiness (mean)	9.241	5.342	9.273	0	25	779
Trustworthiness | AS = 5	9.259	5.539	10	0	25	779
DG White	.	.	.	.	.	0
DG African American	.	.	.	.	.	0
DG Hispanic	.	.	.	.	.	0
DG White Top 20%	.	.	.	.	.	0
DG African American Top 20%	.	.	.	.	.	0
DG Hispanic Top 20%	.	.	.	.	.	0
African American Respondents.-						
Trust White	4.402	2.459	5	0	10	122
Trust African American	4.775	2.583	5	0	10	122
Trust Hispanic	4.461	2.508	5	0	10	122
Exp. Trustw. White	8.924	5.532	10	0	25	122
Exp. Trustw. African American	8.746	4.914	10	0	25	122
Exp. Trustw. Hispanic	8.631	4.896	10	0	25	122
Trust White Top 20%	3.323	3.188	3	0	10	122
Trust African American Top 20%	3.613	3.183	3	0	10	122
Trust Hispanic Top 20%	3.299	3.117	3	0	10	122
Exp. Trustw. White Top 20%	.	.	.	.	.	0
Exp. Trustw. African American Top 20%	.	.	.	.	.	0
Exp. Trustw. Hispanic Top 20%	.	.	.	.	.	0
Trustworthiness (mean)	8.973	5.477	7.773	0.909	25	122
Trustworthiness | AS = 5	8.766	5.591	7	0	25	122
DG White	.	.	.	.	.	0
DG African American	.	.	.	.	.	0
DG Hispanic	.	.	.	.	.	0
DG White Top 20%	.	.	.	.	.	0
DG African American Top 20%	.	.	.	.	.	0
DG Hispanic Top 20%	.	.	.	.	.	0

Hispanic Respondents.-						
Trust White	5.370	2.753	5	0	10	123
Trust African American	5.358	2.811	5	0	10	123
Trust Hispanic	5.520	2.741	5	0	10	123
Exp. Trustw. White	9.163	5.559	8	0	25	123
Exp. Trustw. African American	8.760	5.341	7	0	25	123
Exp. Trustw. Hispanic	8.846	5.433	7	0	25	123
Trust White Top 20%	4.358	3.443	4	0	10	123
Trust African American Top 20%	4.407	3.421	4	0	10	123
Trust Hispanic Top 20%	4.398	3.437	4	0	10	123
Exp. Trustw. White Top 20%	.	.	.	.	.	0
Exp. Trustw. African American Top 20%	.	.	.	.	.	0
Exp. Trustw. Hispanic Top 20%	.	.	.	.	.	0
Trustworthiness (mean)	8.736	5.148	7.818	0	25	123
Trustworthiness | AS = 5	8.886	5.462	8	0	25	123
DG White	.	.	.	.	.	0
DG African American	.	.	.	.	.	0
DG Hispanic	.	.	.	.	.	0
DG White Top 20%	.	.	.	.	.	0
DG African American Top 20%	.	.	.	.	.	0
DG Hispanic Top 20%	.	.	.	.	.	0
Total.-						
Trust White	5.524	2.789	5	0	10	1024
Trust African American	5.427	2.879	5	0	10	1024
Trust Hispanic	5.453	2.875	5	0	10	1024
Exp. Trustw. White	8.849	5.279	10	0	25	1024
Exp. Trustw. African American	8.616	5.139	10	0	25	1024
Exp. Trustw. Hispanic	8.670	5.164	10	0	25	1024
Trust White Top 20%	4.384	3.414	5	0	10	1024
Trust African American Top 20%	4.369	3.372	5	0	10	1024
Trust Hispanic Top 20%	4.377	3.389	5	0	10	1024
Exp. Trustw. White Top 20%	.	.	.	.	.	0
Exp. Trustw. African American Top 20%	.	.	.	.	.	0
Exp. Trustw. Hispanic Top 20%	.	.	.	.	.	0
Trustworthiness (mean)	9.149	5.333	8.841	0	25	1024
Trustworthiness | AS = 5	9.156	5.534	10	0	25	1024
DG White	.	.	.	.	.	0
DG African American	.	.	.	.	.	0
DG Hispanic	.	.	.	.	.	0
DG White Top 20%	.	.	.	.	.	0
DG African American Top 20%	.	.	.	.	.	0
DG Hispanic Top 20%	.	.	.	.	.	0

Notes: This table presents summary statistics for behavioral variables from the first wave of the U.S. TrustLab. "Trust White/African American/Hispanic (Top 20 percent)" refers to the amount sent to individuals of the respective race/ethnicity in the trust game, without (with) income information. "Exp. Trustw. White/African American/Hispanic (Top 20 percent)" indicates the expected return from a player of the respective race/ethnicity in the trust game after sending 5 USD without (with) income information. "Trustworthiness (mean)" represents the average amount returned across all 11 possible received amounts (0-10 USD) in the trust game, while "Trustworthiness | AS = 5" refers to the amount returned being sent 5 USD by the other player. "DG White/African American/Hispanic (Top 20 percent)" denotes the amount transferred to individuals of the respective race/ethnicity in the dictator game without (with) income information.

Table A.3: Summary Statistics Wave II: Games

	mean	sd	median	min	max	Obs.
White Respondents.-						
Trust White	5.767	3.092	5	0	10	832
Trust African American	5.675	3.096	5	0	10	832
Trust Hispanic	5.706	3.094	5	0	10	832
Exp. Trustw. White	9.487	6.664	10	0	25	832
Exp. Trustw. African American	9.304	6.516	10	0	25	832
Exp. Trustw. Hispanic	9.434	6.521	10	0	25	832
Trust White Top 20%	4.626	3.536	5	0	10	832
Trust African American Top 20%	4.570	3.533	5	0	10	832
Trust Hispanic Top 20%	4.578	3.556	5	0	10	832
Exp. Trustw. White Top 20%	9.867	7.122	10	0	25	832
Exp. Trustw. African American Top 20%	9.724	7.048	10	0	25	832
Exp. Trustw. Hispanic Top 20%	9.806	7.063	10	0	25	832
Trustworthiness (mean)	8.997	5.737	8.182	0	25	832
Trustworthiness | AS = 5	9.207	6.176	9	0	25	832
DG White	4.999	2.949	5	0	10	832
DG African American	4.906	2.889	5	0	10	832
DG Hispanic	4.956	2.908	5	0	10	832
DG White Top 20%	4.288	3.313	5	0	10	832
DG African American Top 20%	4.255	3.282	5	0	10	832
DG Hispanic Top 20%	4.191	3.250	5	0	10	832
African American Respondents.-						
Trust White	4.608	2.848	5	0	10	125
Trust African American	5.064	2.684	5	0	10	125
Trust Hispanic	4.968	2.759	5	0	10	125
Exp. Trustw. White	8.104	5.105	7	0	25	125
Exp. Trustw. African American	9.032	5.621	10	0	25	125
Exp. Trustw. Hispanic	8.504	5.698	8	0	25	125
Trust White Top 20%	3.584	3.093	3	0	10	125
Trust African American Top 20%	3.800	3.144	4	0	10	125
Trust Hispanic Top 20%	3.792	3.231	3	0	10	125
Exp. Trustw. White Top 20%	9.208	6.330	10	0	25	125
Exp. Trustw. African American Top 20%	10.072	6.621	10	0	25	125
Exp. Trustw. Hispanic Top 20%	9.488	6.500	10	0	25	125
Trustworthiness (mean)	8.341	5.166	7.455	0	25	125
Trustworthiness | AS = 5	8.768	5.480	10	0	25	125
DG White	4.056	2.346	5	0	10	125
DG African American	4.808	2.432	5	0	10	125
DG Hispanic	4.608	2.399	5	0	10	125
DG White Top 20%	3.512	2.887	3	0	10	125
DG African American Top 20%	4.008	3.099	4	0	10	125
DG Hispanic Top 20%	3.800	2.910	4	0	10	125

Hispanic Respondents.-						
Trust White	5.404	2.931	5	0	10	99
Trust African American	5.697	2.862	5	0	10	99
Trust Hispanic	5.586	2.955	5	0	10	99
Exp. Trustw. White	8.576	5.557	10	0	25	99
Exp. Trustw. African American	9.020	5.812	10	0	25	99
Exp. Trustw. Hispanic	8.798	5.398	10	0	25	99
Trust White Top 20%	4.040	3.326	5	0	10	99
Trust African American Top 20%	4.212	3.202	5	0	10	99
Trust Hispanic Top 20%	4.374	3.385	5	0	10	99
Exp. Trustw. White Top 20%	9.242	6.349	10	0	25	99
Exp. Trustw. African American Top 20%	9.414	6.578	10	0	25	99
Exp. Trustw. Hispanic Top 20%	9.899	6.686	10	0	25	99
Trustworthiness (mean)	9.689	5.925	8.273	0.909	25	99
Trustworthiness | AS = 5	10.333	6.321	10	0	25	99
DG White	4.798	2.821	5	0	10	99
DG African American	4.758	2.778	5	0	10	99
DG Hispanic	5.000	2.567	5	0	10	99
DG White Top 20%	4.071	3.227	5	0	10	99
DG African American Top 20%	4.141	3.127	5	0	10	99
DG Hispanic Top 20%	4.192	3.112	5	0	10	99
Total.-						
Trust White	5.596	3.070	5	0	10	1056
Trust African American	5.605	3.033	5	0	10	1056
Trust Hispanic	5.607	3.050	5	0	10	1056
Exp. Trustw. White	9.238	6.415	10	0	25	1056
Exp. Trustw. African American	9.245	6.349	10	0	25	1056
Exp. Trustw. Hispanic	9.264	6.335	10	0	25	1056
Trust White Top 20%	4.448	3.483	5	0	10	1056
Trust African American Top 20%	4.445	3.466	5	0	10	1056
Trust Hispanic Top 20%	4.466	3.509	5	0	10	1056
Exp. Trustw. White Top 20%	9.730	6.963	10	0	25	1056
Exp. Trustw. African American Top 20%	9.736	6.952	10	0	25	1056
Exp. Trustw. Hispanic Top 20%	9.777	6.959	10	0	25	1056
Trustworthiness (mean)	8.985	5.694	8.091	0	25	1056
Trustworthiness | AS = 5	9.260	6.117	9	0	25	1056
DG White	4.868	2.886	5	0	10	1056
DG African American	4.881	2.827	5	0	10	1056
DG Hispanic	4.919	2.822	5	0	10	1056
DG White Top 20%	4.176	3.265	5	0	10	1056
DG African American Top 20%	4.215	3.245	5	0	10	1056
DG Hispanic Top 20%	4.145	3.198	5	0	10	1056

Notes: This table presents summary statistics for behavioral variables from the second wave of the U.S. TrustLab. "Trust White/African American/Hispanic (Top 20 percent)" refers to the amount sent to individuals of the respective race/ethnicity in the trust game, without (with) income information. "Exp. Trustw. White/African American/Hispanic (Top 20 percent)" indicates the expected return from a player of the respective race/ethnicity in the trust game after sending 5 USD without (with) income information. "Trustworthiness (mean)" represents the average amount returned across all 11 possible received amounts (0-10 USD) in the trust game, while "Trustworthiness | AS = 5" refers to the amount returned after being sent 5 USD by the other player. "DG White/African American/Hispanic (Top 20 percent)" denotes the amount transferred to individuals of the respective race/ethnicity in the dictator game without (with) income information.

A.2 Regression Tables for Main Results on Ingroup Bias Change Between Waves

The following regression tables present the detailed results that support the main findings discussed in Section 3 of the main text. The heterogeneity categories in Tables A.7-A.9 are: (i) age 60 years or older, (ii) female gender, (iii) tertiary education (high education), (iv) income in the fifth quintile of the income distribution (high income), and (v) right-wing political orientation (7 or above on the 0-to-10 left-right Likert scale).

Table A.4: Ingroup Bias Change (Inter-group TG without Income Information)

	(1)	(2)	(3)	(4)
Dependent	AS-TG	AS-TG	AS-TG	AS-TG
Ingroup	0.060****	0.099**	0.053***	0.099**
	(0.014)	(0.039)	(0.016)	(0.040)
Ingroup × Wave 2	-0.028	-0.018	-0.027	-0.017
	(0.020)	(0.021)	(0.023)	(0.023)
Ingroup × Female		-0.047**		-0.047**
		(0.022)		(0.022)
Ingroup × Age		0.043		0.043
		(0.084)		(0.084)
Ingroup × Age_sq		-0.045		-0.045
		(0.089)		(0.089)
Ingroup × Med. Educ.		0.026		0.027
		(0.030)		(0.030)
Ingroup × High Educ.		-0.007		-0.007
		(0.032)		(0.032)
Ingroup × Town		-0.055**		-0.055**
		(0.025)		(0.025)
Ingroup × City		0.004		0.004
		(0.025)		(0.025)
Ingroup × Income Quintile 2		-0.013		-0.013
		(0.029)		(0.029)
Ingroup × Income Quintile 3		-0.033		-0.033
		(0.033)		(0.033)
Ingroup × Income Quintile 4		-0.023		-0.023
		(0.034)		(0.034)
Ingroup × Income Quintile 5		0.008		0.008
		(0.040)		(0.040)
Ingroup × Self-employed		-0.03		-0.030
		(0.038)		(0.037)
Ingroup × Unemployed		-0.057*		-0.057*
		(0.032)		(0.033)
Ingroup × Inactive		0.004		0.004
		(0.027)		(0.027)
Ingroup × African American		0.060	0.065	0.059
		(0.041)	(0.051)	(0.051)
Ingroup × Hispanic		-0.009	0.000	-0.005
		(0.029)	(0.029)	(0.030)

Ingroup × Wave 2 × African American			0.002	0.003
			(0.078)	(0.077)
Ingroup × Wave 2 × Hispanic			-0.015	-0.008
			(0.059)	(0.059)
Female	-0.108**	-0.092**	-0.108**	-0.093**
	(0.043)	(0.044)	(0.043)	(0.044)
Age	-0.060	-0.074	-0.061	-0.075
	(0.130)	(0.135)	(0.130)	(0.135)
Age_sq	-0.014	0.001	-0.014	0.001
	(0.133)	(0.138)	(0.133)	(0.138)
Med. Educ.	0.032	0.024	0.031	0.022
	(0.059)	(0.060)	(0.059)	(0.060)
High Educ.	0.088	0.090	0.088	0.090
	(0.063)	(0.064)	(0.063)	(0.064)
Town	-0.094	-0.075	-0.092	-0.074
	(0.063)	(0.064)	(0.063)	(0.064)
City	0.006	0.004	0.007	0.006
	(0.057)	(0.059)	(0.057)	(0.059)
Income Quintile 2	0.094	0.098	0.096	0.100
	(0.062)	(0.064)	(0.062)	(0.064)
Income Quintile 3	0.059	0.070	0.061	0.072
	(0.066)	(0.067)	(0.066)	(0.067)
Income Quintile 4	0.127*	0.135*	0.131*	0.139*
	(0.075)	(0.077)	(0.075)	(0.077)
Income Quintile 5	0.173**	0.170**	0.174**	0.171**
	(0.078)	(0.080)	(0.078)	(0.080)
Self-employed	-0.081	-0.071	-0.083	-0.073
	(0.078)	(0.080)	(0.078)	(0.080)
Unemployed	-0.026	-0.007	-0.028	-0.009
	(0.073)	(0.075)	(0.073)	(0.074)
Inactive	0.047	0.046	0.048	0.046
	(0.056)	(0.057)	(0.056)	(0.057)
First Ethnicity TG	0.019**	0.020**	0.019**	0.020**
	(0.009)	(0.009)	(0.009)	(0.009)
African American	-0.311****	-0.331****	-0.391****	-0.389****
	(0.060)	(0.063)	(0.083)	(0.083)
Hispanic	-0.061	-0.058	-0.087	-0.085
	(0.069)	(0.070)	(0.092)	(0.092)

Wave 2	0.067	0.063	0.047	0.044
	(0.044)	(0.044)	(0.051)	(0.051)
Wave 2 × African American			0.115	0.115
			(0.121)	(0.121)
Wave 2 × Hispanic			0.059	0.057
			(0.136)	(0.136)
Constant	-0.076	-0.089	-0.065	-0.080
	(0.084)	(0.086)	(0.085)	(0.087)
Obs.	6240	6240	6240	6240
Clusters	2080	2080	2080	2080
R2	0.028	0.029	0.028	0.029
Adj. R2	0.025	0.023	0.024	0.023

Notes: The table presents OLS regression results for the inter-group trust game (TG) without income information. The dependent variable is the amount sent (AS) in the inter-group TG. These regressions correspond to the main results figure in the text, as well as those discussed in the text. Both dependent and independent variables (except for dummy variables) are standardized. "Ingroup" is a dummy variable equal to one if the recipient shares the same race/ethnicity as the sender. The data is drawn from the two waves of the U.S. Trustlab conducted in 2017 and 2020, with three TG decisions per respondent (each sender makes three decisions: one for White, one for African American, and one for Hispanic receivers). "African American" and "Hispanic" dummies indicate the sender's race/ethnicity. Standard errors, clustered at the individual level, are shown in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.5: Ingroup Bias Change (Inter-group TG with Income Information)

	(1)	(2)	(3)	(4)
Dependent	AS-TG	AS-TG	AS-TG	AS-TG
Ingroup	0.020**	0.043	0.012	0.045
	(0.010)	(0.033)	(0.011)	(0.033)
Ingroup × Wave 2	0.002	0.010	0.003	0.009
	(0.016)	(0.017)	(0.017)	(0.018)
Ingroup × Female		-0.027*		-0.028*
		(0.017)		(0.017)
Ingroup × Age		-0.006		-0.007
		(0.045)		(0.045)
Ingroup × Age_sq		-0.005		-0.004
		(0.044)		(0.045)
Ingroup × Med. Educ.		0.026		0.025
		(0.021)		(0.021)
Ingroup × High Educ.		-0.002		-0.002
		(0.021)		(0.021)
Ingroup × Town		-0.040*		-0.041**
		(0.020)		(0.020)
Ingroup × City		0.006		0.006
		(0.019)		(0.019)
Ingroup × Income Quintile 2		-0.018		-0.02
		(0.025)		(0.024)
Ingroup × Income Quintile 3		-0.053**		-0.053**
		(0.027)		(0.027)
Ingroup × Income Quintile 4		-0.009		-0.009
		(0.027)		(0.027)
Ingroup × Income Quintile 5		-0.007		-0.006
		(0.031)		(0.031)
Ingroup × Self-employed		-0.034		-0.035
		(0.034)		(0.034)
Ingroup × Unemployed		-0.036*		-0.037*
		(0.020)		(0.020)
Ingroup × Inactive		0.018		0.018
		(0.018)		(0.018)
Ingroup × African American		0.038	0.075*	0.067
		(0.031)	(0.045)	(0.044)
Ingroup × Hispanic		0.013	-0.008	-0.018
		(0.026)	(0.032)	(0.032)
Ingroup × Wave 2 × African American			-0.058	-0.057
			(0.062)	(0.061)
Ingroup × Wave 2 × Hispanic			0.064	0.069
			(0.053)	(0.053)
Female	-0.253****	-0.244****	-0.253****	-0.244****
	(0.044)	(0.044)	(0.044)	(0.044)
Age	0.145	0.147	0.146	0.149
	(0.133)	(0.134)	(0.133)	(0.134)
Age_sq	-0.249*	-0.247*	-0.250*	-0.249*
	(0.136)	(0.137)	(0.136)	(0.137)
Med. Educ.	-0.027	-0.035	-0.026	-0.035

	(0.059)	(0.059)	(0.059)	(0.059)
High Educ.	0.026	0.027	0.027	0.027
	(0.063)	(0.063)	(0.063)	(0.063)
Town	-0.135**	-0.122*	-0.134**	-0.120*
	(0.064)	(0.064)	(0.064)	(0.064)
City	0.007	0.005	0.008	0.006
	(0.057)	(0.057)	(0.057)	(0.057)
Income Quintile 2	0.106*	0.112*	0.109*	0.115*
	(0.062)	(0.063)	(0.062)	(0.063)
Income Quintile 3	0.054	0.072	0.056	0.073
	(0.066)	(0.067)	(0.066)	(0.067)
Income Quintile 4	0.113	0.116	0.115	0.118
	(0.073)	(0.074)	(0.073)	(0.074)
Income Quintile 5	0.147*	0.150*	0.147*	0.149*
	(0.079)	(0.080)	(0.079)	(0.080)
Self-employed	0.038	0.049	0.038	0.05
	(0.076)	(0.078)	(0.076)	(0.078)
Unemployed	-0.063	-0.051	-0.063	-0.051
	(0.071)	(0.071)	(0.071)	(0.071)
Inactive	-0.023	-0.029	-0.023	-0.029
	(0.058)	(0.058)	(0.058)	(0.058)
First Ethnicity TG	0.003	0.002	0.003	0.001
	(0.007)	(0.007)	(0.007)	(0.007)
African American	-0.281****	-0.294****	-0.366****	-0.363****
	(0.063)	(0.064)	(0.090)	(0.090)
Hispanic	-0.073	-0.077	-0.056	-0.053
	(0.070)	(0.071)	(0.095)	(0.095)

Wave 2	0.061	0.059	0.051	0.049
	(0.044)	(0.044)	(0.050)	(0.051)
Wave 2 × African American			0.136	0.136
			(0.124)	(0.124)
Wave 2 × Hispanic			-0.055	-0.057
			(0.137)	(0.138)
Constant	0.090	0.083	0.096	0.085
	(0.082)	(0.083)	(0.083)	(0.084)
Obs.	6240	6240	6240	6240
Clusters	2080	2080	2080	2080
R2	0.049	0.049	0.049	0.05
Adj. R2	0.046	0.044	0.045	0.043

Notes: The table presents OLS regression results for the inter-group trust game (TG) with income information (recipient belongs to the top quintile of the income distribution). The dependent variable is the amount sent (AS) in the inter-group TG. These regressions correspond to the main results figure in the text, as well as those discussed in the text. Both dependent and independent variables (except for dummy variables) are standardized. "Ingroup" is a dummy variable equal to one if the recipient shares the same race/ethnicity as the sender. The data is drawn from the two waves of the U.S. Trustlab conducted in 2017 and 2020, with three TG decisions per respondent (each sender makes three decisions: one for White, one for African American, and one for Hispanic receivers). "African American" and "Hispanic" dummies indicate the sender's race/ethnicity. Standard errors, clustered at the individual level, are shown in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.6: Ingroup Bias Change (Return Expectations, Inter-group TG without Income Information)

	(1)	(2)	(3)	(4)
Dependent	ER-TG	ER-TG	ER-TG	ER-TG
Ingroup	0.020*	0.025	0.030**	0.034
	(0.011)	(0.037)	(0.012)	(0.038)
Ingroup × Wave 2	0.011	0.013	-0.010	-0.008
	(0.019)	(0.021)	(0.021)	(0.022)
Ingroup × Female		-0.024		-0.024
		(0.020)		(0.020)
Ingroup × Age		0.043		0.043
		(0.056)		(0.056)
Ingroup × Age_sq		-0.048		-0.048
		(0.057)		(0.058)
Ingroup × Med. Educ.		0.024		0.023
		(0.027)		(0.027)
Ingroup × High Educ.		0.022		0.022
		(0.028)		(0.028)
Ingroup × Town		-0.02		-0.018
		(0.022)		(0.022)
Ingroup × City		0.02		0.022
		(0.023)		(0.022)
Ingroup × Income Quintile 2		-0.026		-0.023
		(0.028)		(0.028)
Ingroup × Income Quintile 3		-0.006		-0.004
		(0.029)		(0.029)
Ingroup × Income Quintile 4		-0.011		-0.007
		(0.031)		(0.031)
Ingroup × Income Quintile 5		-0.018		-0.017
		(0.033)		(0.033)
Ingroup × Self-employed		-0.013		-0.014
		(0.040)		(0.040)
Ingroup × Unemployed		-0.006		-0.009
		(0.028)		(0.028)
Ingroup × Inactive		-0.017		-0.017
		(0.023)		(0.023)
Ingroup × African American		0.030	-0.036	-0.042
		(0.039)	(0.038)	(0.040)
Ingroup × Hispanic		-0.042	-0.051	-0.059*
		(0.031)	(0.033)	(0.033)
Ingroup × Wave 2 × African American			0.140*	0.143*
			(0.075)	(0.074)
Ingroup × Wave 2 × Hispanic			0.031	0.035
			(0.064)	(0.064)
Female	-0.189****	-0.182****	-0.189****	-0.181****
	(0.043)	(0.043)	(0.043)	(0.043)
Age	0.026	0.012	0.028	0.014
	(0.137)	(0.138)	(0.137)	(0.138)
Age_sq	-0.108	-0.092	-0.109	-0.093
	(0.144)	(0.146)	(0.144)	(0.146)

Med. Educ.	-0.036	-0.044	-0.035	-0.042
	(0.058)	(0.058)	(0.058)	(0.058)
High Educ.	0.019	0.012	0.020	0.012
	(0.061)	(0.062)	(0.061)	(0.062)
Town	-0.02	-0.014	-0.021	-0.015
	(0.057)	(0.058)	(0.057)	(0.058)
City	0.158***	0.152***	0.157***	0.150***
	(0.053)	(0.054)	(0.053)	(0.054)
Income Quintile 2	0.105*	0.114**	0.103*	0.110*
	(0.057)	(0.058)	(0.057)	(0.058)
Income Quintile 3	0.01	0.012	0.008	0.009
	(0.063)	(0.064)	(0.063)	(0.064)
Income Quintile 4	0.097	0.101	0.093	0.096
	(0.067)	(0.068)	(0.067)	(0.068)
Income Quintile 5	0.149**	0.155**	0.148**	0.154**
	(0.073)	(0.074)	(0.073)	(0.074)
Self-employed	-0.093	-0.089	-0.091	-0.086
	(0.080)	(0.081)	(0.080)	(0.081)
Unemployed	-0.135**	-0.132**	-0.132**	-0.129*
	(0.066)	(0.067)	(0.066)	(0.067)
Inactive	-0.037	-0.032	-0.037	-0.032
	(0.054)	(0.054)	(0.053)	(0.054)
First Ethnicity TG	0.008	0.009	0.009	0.008
	(0.009)	(0.010)	(0.009)	(0.010)
African American	-0.084	-0.094	-0.018	-0.016
	(0.062)	(0.064)	(0.085)	(0.085)
Hispanic	-0.053	-0.039	0.008	0.010
	(0.066)	(0.068)	(0.089)	(0.089)

Wave 2	0.118***	0.118***	0.148***	0.148***
	(0.043)	(0.043)	(0.049)	(0.050)
Wave 2 × African American			-0.154	-0.155
			(0.121)	(0.121)
Wave 2 × Hispanic			-0.104	-0.106
			(0.132)	(0.132)
Constant	-0.066	-0.068	-0.080	-0.081
	(0.077)	(0.078)	(0.077)	(0.078)
Obs.	6240	6240	6240	6240
Clusters	2080	2080	2080	2080
R2	0.04	0.04	0.041	0.041
Adj. R2	0.037	0.035	0.037	0.035

Notes: The table presents OLS regression results for the inter-group trust game (TG) without income information. The dependent variable is the stated expectation of how much the receiver will return after being sent 5 USD (ER). These regressions correspond to the main results in the text. Both dependent and independent variables (except for dummy variables) are standardized. "Ingroup" is a dummy variable equal to one if the recipient shares the same race/ethnicity as the sender. The data is drawn from the two waves of the U.S. Trustlab conducted in 2017 and 2020, with three expectations per respondent (each sender provides three expectations: one for White, one for African American, and one for Hispanic receivers). "African American" and "Hispanic" dummies indicate the sender's race/ethnicity. Standard errors, clustered at the individual level, are shown in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.7: Heterogeneity Analysis: Ingroup Bias Change (Inter-group TG without Income Information)

	(1)	(2)	(3)	(4)	(5)
Dependent	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG
Heterogeneity Variable H	Age $\geq$ 60	Female	Tertiary ed.	High income	Right-wing
Ingroup	0.059****	0.091****	0.072****	0.056****	0.045***
	(0.016)	(0.022)	(0.017)	(0.015)	(0.015)
Wave 2	0.081	0.102	0.137**	0.060	0.077
	(0.050)	(0.067)	(0.058)	(0.048)	(0.060)
Ingroup × Wave 2	-0.018	-0.039	-0.041	-0.027	-0.058**
	(0.024)	(0.034)	(0.027)	(0.022)	(0.026)
H	0.066	-0.058	0.169**	0.141	-0.019
	(0.094)	(0.060)	(0.075)	(0.098)	(0.067)
H × Ingroup	0.008	-0.062**	-0.028	0.029	0.035
	(0.031)	(0.028)	(0.029)	(0.043)	(0.034)
H × Wave 2	-0.070	-0.068	-0.152*	0.045	-0.041
	(0.109)	(0.087)	(0.087)	(0.120)	(0.094)
H × Ingroup × Wave 2	-0.035	0.026	0.030	-0.006	0.055
	(0.044)	(0.042)	(0.042)	(0.055)	(0.048)
Constant	-0.086	-0.100	-0.102	-0.071	-0.134
	(0.086)	(0.086)	(0.085)	(0.085)	(0.094)
Obs.	6240	6240	6240	6240	5502
Clusters	2080	2080	2080	2080	1834
R2	0.028	0.028	0.029	0.028	0.029
Adj. R2	0.025	0.025	0.026	0.024	0.024
Tests					
Ingroup Bias (Wave 1, for H = 0) = 0	0.000	0.000	0.000	0.000	0.003
Ingroup Bias (Wave 1, Heterogeneity) = 0	0.795	0.028	0.335	0.508	0.301
Ingroup Bias (Wave 1, for H = 1) = 0	0.012	0.085	0.058	0.038	0.009
Change Ingroup Bias (for H = 0) = 0	0.455	0.247	0.136	0.231	0.025
Change Ingroup Bias (Heterogeneity) = 0	0.431	0.524	0.462	0.910	0.252
Change Ingroup Bias (for H = 1) = 0	0.149	0.586	0.745	0.510	0.940
Ingroup Bias (Wave 2, for H = 0) = 0	0.026	0.047	0.135	0.080	0.542
Ingroup Bias (Wave 2, Heterogeneity) = 0	0.392	0.255	0.932	0.498	0.008
Ingroup Bias (Wave 2, for H = 1) = 0	0.570	0.311	0.107	0.072	0.003

Notes: This table presents the results from a heterogeneity analysis based on OLS regressions. The dependent variable is the amount sent in the inter-group trust game (TG) without income information, with three decisions per sender. Both dependent and independent variables (except dummy variables) are standardized. "Ingroup" is a dummy variable set to one if the recipient shares the same race/ethnicity as the sender. The data is drawn from the two U.S. waves of the Trustlab conducted in 2017 and 2020. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively. Below tests, p-values from tests whether the ingroup bias in wave 1, its change between both waves, and the ingroup bias in wave 2 is (a) statistically significantly different from zero in the category of H = 0, (b) statistically significantly different between both groups (H = 0 vs. H = 1), and (c) significant in the category of H = 1. p-values from the following tests of linear combinations of coefficients: Ingroup = 0; H × Ingroup = 0; Ingroup + H × Ingroup = 0; Ingroup × Wave 2 = 0; Ingroup × Wave 2 + H × Ingroup × Wave 2 = 0; Ingroup + Ingroup × Wave 2 = 0; H × Ingroup + H × Ingroup × Wave 2 = 0; Ingroup + H × Ingroup + Ingroup × Wave 2 + H × Ingroup × Wave 2 = 0.

Table A.8: Heterogeneity Analysis: Ingroup Bias Change (Inter-group TG with Income Information)

	(1)	(2)	(3)	(4)	(5)
Dependent	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG
Heterogeneity Variable H	Age $\geq$ 60	Female	Tertiary ed.	High income	Right-wing
Ingroup	0.021*	0.030**	0.024*	0.022**	0.030**
	(0.012)	(0.015)	(0.013)	(0.011)	(0.013)
Wave 2	0.068	0.093	0.134**	0.063	0.029
	(0.050)	(0.065)	(0.058)	(0.047)	(0.061)
Ingroup $\times$ Wave 2	0.008	0.007	0.010	-0.003	-0.017
	(0.020)	(0.025)	(0.021)	(0.017)	(0.020)
H	0.060	-0.216****	0.112	0.151	0.123*
	(0.096)	(0.061)	(0.076)	(0.099)	(0.067)
H $\times$ Ingroup	-0.003	-0.020	-0.009	-0.010	-0.02
	(0.019)	(0.021)	(0.022)	(0.034)	(0.024)
H $\times$ Wave 2	-0.036	-0.060	-0.159*	-0.012	0.009
	(0.111)	(0.086)	(0.087)	(0.122)	(0.093)
H $\times$ Ingroup $\times$ Wave 2	-0.017	-0.007	-0.014	0.035	0.045
	(0.030)	(0.033)	(0.033)	(0.046)	(0.036)
Constant	0.080	0.073	0.062	0.090	-0.016
	(0.084)	(0.085)	(0.083)	(0.082)	(0.094)
Obs.	6240	6240	6240	6240	5502
Clusters	2080	2080	2080	2080	1834
R2	0.049	0.049	0.050	0.049	0.047
Adj. R2	0.045	0.045	0.047	0.045	0.043
Tests					
Ingroup Bias (Wave 1, for H = 0) = 0	0.088	0.048	0.059	0.042	0.018
Ingroup Bias (Wave 1, Heterogeneity) = 0	0.888	0.345	0.679	0.780	0.387
Ingroup Bias (Wave 1, for H = 1) = 0	0.210	0.451	0.385	0.704	0.631
Change Ingroup Bias (for H = 0) = 0	0.709	0.777	0.625	0.854	0.405
Change Ingroup Bias (Heterogeneity) = 0	0.578	0.820	0.663	0.443	0.220
Change Ingroup Bias (for H = 1) = 0	0.680	0.987	0.869	0.451	0.359
Ingroup Bias (Wave 2, for H = 0) = 0	0.079	0.057	0.034	0.169	0.415
Ingroup Bias (Wave 2, Heterogeneity) = 0	0.401	0.280	0.343	0.397	0.382
Ingroup Bias (Wave 2, for H = 1) = 0	0.567	0.505	0.552	0.099	0.101

Notes: This table presents the results from a heterogeneity analysis based on OLS regressions. The dependent variable is the amount sent in the inter-group trust game (TG) with income information, with three decisions per sender. Both dependent and independent variables (except dummy variables) are standardized. "Ingroup" is a dummy variable set to one if the recipient shares the same race/ethnicity as the sender. The data is drawn from the two U.S. waves of the Trustlab conducted in 2017 and 2020. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively. Below tests, p-values from tests whether the ingroup bias in wave 1, its change between both waves, and the ingroup bias in wave 2 is (a) statistically significantly different from zero in the category of H = 0, (b) statistically significantly different between both groups (H = 0 vs. H = 1), and (c) significant in the category of H = 1. p-values from the following tests of linear combinations of coefficients: Ingroup = 0; H $\times$ Ingroup = 0; Ingroup + H $\times$ Ingroup = 0; Ingroup $\times$ Wave 2 = 0; Ingroup $\times$ Wave 2 + H $\times$ Ingroup $\times$ Wave 2 = 0; Ingroup + Ingroup $\times$ Wave 2 = 0; H $\times$ Ingroup + H $\times$ Ingroup $\times$ Wave 2 = 0; Ingroup + H $\times$ Ingroup + Ingroup $\times$ Wave 2 + H $\times$ Ingroup $\times$ Wave 2 = 0.

Table A.9: Heterogeneity Analysis: Ingroup Bias Change (Return Expectations, Inter-group TG without Income Information)

	(1)	(2)	(3)	(4)	(5)
Dependent	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG
Heterogeneity Variable H	Age ≥ 60	Female	Tertiary ed.	High income	Right-wing
Ingroup	0.023*	0.018	0.024*	0.019	0.009
	(0.013)	(0.016)	(0.013)	(0.012)	(0.012)
Wave 2	0.139***	0.186***	0.085	0.083*	0.013
	(0.049)	(0.067)	(0.056)	(0.046)	(0.054)
Ingroup × Wave 2	0.011	0.049	-0.012	0.011	0.014
	(0.024)	(0.031)	(0.026)	(0.021)	(0.021)
H	-0.002	-0.116**	-0.023	0.031	0.068
	(0.091)	(0.055)	(0.071)	(0.088)	(0.062)
H × Ingroup	-0.017	0.004	-0.010	0.006	0.017
	(0.022)	(0.022)	(0.023)	(0.029)	(0.026)
H × Wave 2	-0.094	-0.128	0.074	0.230*	0.220**
	(0.104)	(0.085)	(0.084)	(0.124)	(0.094)
H × Ingroup × Wave 2	0.007	-0.069*	0.047	-0.000	0.028
	(0.037)	(0.039)	(0.039)	(0.054)	(0.044)
Constant	-0.063	-0.101	-0.053	-0.051	-0.192**
	(0.079)	(0.081)	(0.078)	(0.077)	(0.087)
Obs.	6240	6240	6240	6240	5502
Clusters	2080	2080	2080	2080	1834
R2	0.041	0.042	0.041	0.042	0.057
Adj. R2	0.037	0.038	0.037	0.038	0.052
Tests					
Ingroup Bias (Wave 1, for H = 0) = 0	0.069	0.267	0.073	0.110	0.460
Ingroup Bias (Wave 1, Heterogeneity) = 0	0.438	0.849	0.669	0.851	0.519
Ingroup Bias (Wave 1, for H = 1) = 0	0.761	0.138	0.442	0.362	0.265
Change Ingroup Bias (for H = 0) = 0	0.648	0.116	0.641	0.597	0.519
Change Ingroup Bias (Heterogeneity) = 0	0.856	0.075	0.224	0.998	0.525
Change Ingroup Bias (for H = 1) = 0	0.512	0.383	0.225	0.828	0.282
Ingroup Bias (Wave 2, for H = 0) = 0	0.105	0.012	0.588	0.078	0.195
Ingroup Bias (Wave 2, Heterogeneity) = 0	0.712	0.044	0.234	0.905	0.207
Ingroup Bias (Wave 2, for H = 1) = 0	0.241	0.949	0.029	0.402	0.030

Notes: This table presents the results from a heterogeneity analysis based on OLS regressions. The dependent variable is the expected return (ER) in the inter-group trust game (TG) without income information, with three decisions per sender. Both dependent and independent variables (except dummy variables) are standardized. "Ingroup" is a dummy variable set to one if the recipient shares the same race/ethnicity as the sender. The data is drawn from the two U.S. waves of the Trustlab conducted in 2017 and 2020. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively. Below tests, p-values from tests whether the ingroup bias in wave 1, its change between both waves, and the ingroup bias in wave 2 is (a) statistically significantly different from zero in the category of H = 0, (b) statistically significantly different between both groups (H = 0 vs. H = 1), and (c) significant in the category of H = 1. p-values from the following tests of linear combinations of coefficients: Ingroup = 0; H × Ingroup = 0; Ingroup + H × Ingroup = 0; Ingroup × Wave 2 = 0; Ingroup × Wave 2 + H × Ingroup × Wave 2 = 0; Ingroup + Ingroup × Wave 2 = 0; H × Ingroup + H × Ingroup × Wave 2 = 0; Ingroup + H × Ingroup + Ingroup × Wave 2 + H × Ingroup × Wave 2 = 0.

Table A.10: Ingroup Bias Change By Sender's and Recipient's Ethnicity (Inter-group TG without Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)
Sender Ethnicity	White	White	A.A.	A.A.	Hisp.	Hisp.
African American recipient	-0.062****	-0.139***			-0.058**	-0.116
	(0.018)	(0.043)			(0.027)	(0.116)
Hispanic Recipient	-0.042**	-0.090**	-0.116**	-0.058		
	(0.016)	(0.038)	(0.053)	(0.258)		
White recipient			-0.140**	-0.105	-0.053*	-0.083
			(0.065)	(0.263)	(0.030)	(0.123)
Wave 2	0.028	0.029	0.138	0.161	0.048	0.072
	(0.050)	(0.050)	(0.139)	(0.139)	(0.139)	(0.141)
African American recipient × Wave 2	0.032	0.033			0.096*	0.05
	(0.025)	(0.026)			(0.053)	(0.045)
Hispanic recipient × Wave 2	0.020	0.016	0.079	0.029		
	(0.024)	(0.025)	(0.084)	(0.080)		
White recipient × Wave 2			-0.034	-0.053	-0.012	-0.04
			(0.097)	(0.091)	(0.078)	(0.073)
Constant	-0.084	-0.042	-0.216	-0.244	0.074	0.102
	(0.095)	(0.096)	(0.310)	(0.343)	(0.295)	(0.315)
Obs.	4833	4833	741	741	666	666
Clusters	1611	1611	247	247	222	222
R2	0.025	0.026	0.045	0.052	0.048	0.056
Adj. R2	0.021	0.016	0.018	-0.014	0.019	-0.018
Interactions demographics × race/ethnicity dummies	no	yes	no	yes	no	yes
Tests						
White recipient = 0	.	.	0.031	0.689	0.074	0.502
A. A. recipient = 0	0.001	0.001	.	.	0.032	0.321
Hisp. recipient = 0	0.010	0.017	0.030	0.822	.	.
White recipient × Wave 2 = 0	.	.	0.728	0.566	0.879	0.586
A. A. recipient × Wave 2 = 0	0.210	0.198	.	.	0.073	0.264
Hisp. recipient × Wave 2 = 0	0.391	0.521	0.348	0.716	.	.
White recipient + White recipient × Wave 2 = 0	.	.	0.017	0.561	0.371	0.427
A. A. recipient + A. A. recipient × Wave 2 = 0	0.082	0.016	.	.	0.406	0.620
Hisp. Recipient + Hisp. recipient × Wave 2 = 0	0.204	0.066	0.574	0.917	.	.

Notes: This table presents OLS regression results where the dependent variable is the amount sent in the inter-group trust game (TG) without income information. The first row indicates the sender's race/ethnicity. Both dependent and independent variables (excluding dummies) are standardized. "African American recipient," "Hispanic recipient," and "White recipient" are dummy variables set to one if the recipient belongs to the respective race/ethnicity. In columns 2, 4, and 6, we interacted the recipient race/ethnicity dummies with a set of demographic variables (only the interactions of these dummies with the dummy for the second wave should be interpreted). The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.11: Ingroup Bias Change By Sender's and Recipient's Ethnicity (Inter-group TG with Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)
Sender Ethnicity	White	White	A.A.	A.A.	Hisp.	Hisp.
African American recipient	-0.021*	-0.005			0.002	-0.101
	(0.012)	(0.036)			(0.032)	(0.097)
Hispanic Recipient	-0.004	-0.005	-0.099**	-0.273		
	(0.012)	(0.034)	(0.049)	(0.181)		
White recipient			-0.093*	-0.281	-0.012	-0.105
			(0.049)	(0.194)	(0.035)	(0.122)
Wave 2	0.049	0.051	0.180	0.203	0.053	0.051
	(0.051)	(0.051)	(0.132)	(0.133)	(0.132)	(0.134)
African American recipient × Wave 2	0.005	0.002			-0.049	-0.050
	(0.019)	(0.020)			(0.052)	(0.055)
Hispanic recipient × Wave 2	-0.010	-0.015	0.097	0.059		
	(0.018)	(0.020)	(0.069)	(0.064)		
White recipient × Wave 2			0.028	-0.003	-0.087	-0.081
			(0.069)	(0.064)	(0.059)	(0.059)
Constant	0.016	0.011	0.167	0.287	0.229	0.297
	(0.093)	(0.095)	(0.285)	(0.314)	(0.265)	(0.278)
Obs.	4833	4833	741	741	666	666
Clusters	1611	1611	247	247	222	222
R2	0.045	0.046	0.083	0.089	0.082	0.085
Adj. R2	0.041	0.036	0.058	0.026	0.053	0.014
Interactions demographics × race/ethnicity dummies	no	yes	no	yes	no	yes
Tests						
White recipient = 0	.	.	0.060	0.148	0.730	0.391
A. A. recipient = 0	0.080	0.901	.	.	0.948	0.302
Hisp. recipient = 0	0.750	0.883	0.044	0.134	.	.
White recipient × Wave 2 = 0	.	.	0.682	0.961	0.145	0.173
A. A. recipient × Wave 2 = 0	0.801	0.902	.	.	0.347	0.364
Hisp. recipient × Wave 2 = 0	0.583	0.442	0.163	0.359	.	.
White recipient + White recipient × Wave 2 = 0	.	.	0.171	0.152	0.039	0.195
A. A. recipient + A. A. recipient × Wave 2 = 0	0.268	0.958	.	.	0.257	0.160
Hisp. Recipient + Hisp. recipient × Wave 2 = 0	0.325	0.605	0.959	0.248	.	.

Notes: This table presents OLS regression results where the dependent variable is the amount sent in the inter-group trust game (TG) with income information. The first row indicates the sender's race/ethnicity. Both dependent and independent variables (excluding dummies) are standardized. "African American recipient," "Hispanic recipient," and "White recipient" are dummy variables set to one if the recipient belongs to the respective race/ethnicity. In columns 2, 4, and 6, we interacted the recipient race/ethnicity dummies with a set of demographic variables (only the interactions of these dummies with the dummy for the second wave should be interpreted). The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.12: Ingroup Bias Change By Sender's and Recipient's Ethnicity (Return Expectations, Inter-group TG without Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)
Sender Ethnicity	White	White	A.A.	A.A.	Hisp.	Hisp.
African American recipient	-0.036***	-0.060			-0.012	0.011
	(0.013)	(0.041)			(0.045)	(0.172)
Hispanic Recipient	-0.023	-0.072	-0.021	0.059		
	(0.014)	(0.049)	(0.036)	(0.189)		
White recipient			0.034	0.337	0.059*	-0.133
			(0.064)	(0.266)	(0.034)	(0.157)
Wave 2	0.147***	0.146***	0.024	0.019	0.015	0.028
	(0.050)	(0.050)	(0.136)	(0.138)	(0.143)	(0.147)
African American recipient × Wave 2	0.005	0.005			0.053	0.035
	(0.022)	(0.025)			(0.079)	(0.075)
Hispanic recipient × Wave 2	0.014	0.017	-0.078	-0.075		
	(0.023)	(0.024)	(0.085)	(0.081)		
White recipient × Wave 2			-0.209**	-0.196**	-0.099	-0.12
			(0.098)	(0.098)	(0.080)	(0.079)
Constant	-0.122	-0.097	0.316	0.191	0.143	0.197
	(0.085)	(0.089)	(0.309)	(0.339)	(0.350)	(0.359)
Obs.	4833	4833	741	741	666	666
Clusters	1611	1611	247	247	222	222
R2	0.055	0.056	0.022	0.029	0.031	0.039
Adj. R2	0.051	0.046	-0.005	-0.038	0.001	-0.036
Interactions demographics × race/ethnicity dummies	no	yes	no	yes	no	yes
Tests						
White recipient = 0	.	.	0.600	0.206	0.087	0.399
A. A. recipient = 0	0.007	0.149	.	.	0.786	0.948
Hisp. recipient = 0	0.110	0.141	0.549	0.757	.	.
White recipient × Wave 2 = 0	.	.	0.033	0.047	0.218	0.129
A. A. recipient × Wave 2 = 0	0.815	0.842	.	.	0.500	0.644
Hisp. recipient × Wave 2 = 0	0.533	0.473	0.357	0.355	.	.
White recipient + White recipient × Wave 2 = 0	.	.	0.018	0.608	0.586	0.191
A. A. recipient + A. A. recipient × Wave 2 = 0	0.078	0.248	.	.	0.526	0.805
Hisp. Recipient + Hisp. recipient × Wave 2 = 0	0.620	0.288	0.203	0.940	.	.

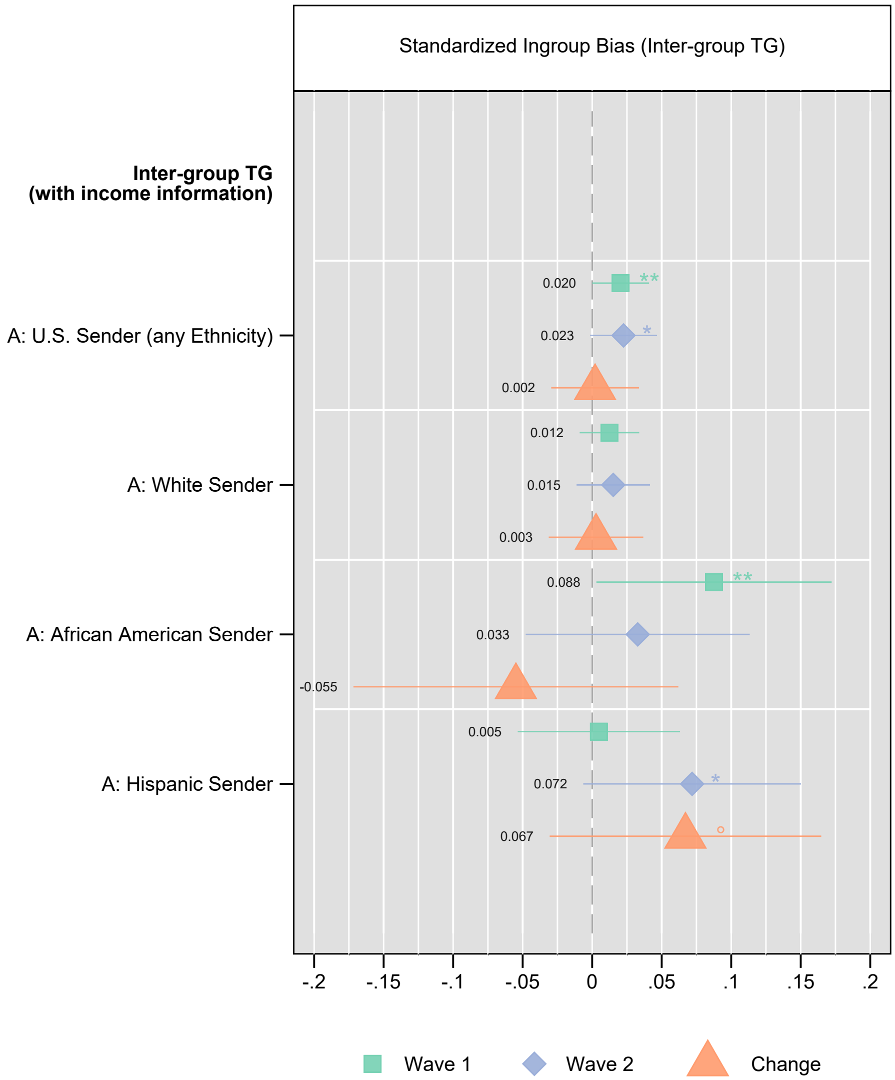
Notes: This table presents OLS regression results where the dependent variable is the expected return (ER) in the inter-group trust game (TG) without income information. The first row indicates the sender's race/ethnicity. Both dependent and independent variables (excluding dummies) are standardized. "African American recipient," "Hispanic recipient," and "White recipient" are dummy variables set to one if the recipient belongs to the respective race/ethnicity. In columns 2, 4, and 6, we interacted the recipient race/ethnicity dummies with a set of demographic variables (only the interactions of these dummies with the dummy for the second wave should be interpreted). The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

A.3 Ingroup Bias Change Between Waves in Experiments with Receiver Belonging to Top Quintile of the Income Distribution

In this section, we present the results using data from the inter-group TG where the senders play with a recipient whose income falls within the top (fifth) quintile of the income distribution.

A.3.1 Ingroup Bias Versus Average Outgroup (with Income Information)

Figure A.6: Ingroup Bias in the inter-group TG with Income Information



Notes: The figure shows standardized coefficients and 95 percent confidence intervals from OLS regressions. The standardized dependent variable is the amount sent in the inter-group TG with income information (receiver belongs to the top 20 percent with the highest income in the U.S.). The explanatory variable for which coefficients are depicted is a dummy variable equal to one if the recipient has the same race/ethnicity as the sender. The regressions contain a dummy equal to one for the first race/ethnicity encountered in the TG. The regressions contain demographic controls for race/ethnicity groups of the respondents, female sex, age, age-squared, two education categories, three employment dummies, two urbanization dummies, and four income quintile dummies. Standard errors clustered at the individual level. (****, ***, **, *, °) indicate two-sided p-values below 0.001, 0.01, 0.05, 0.1, and 0.2, respectively.

Figure A.6 presents standardized coefficients analyzing ingroup bias in inter-group trust games (TGs) with income information, across the three largest racial/ethnic groups in the U.S., detailed by sender race/ethnicity (see Table A.5 for underlying regression results). In TGs with income information, ingroup bias remained stable among U.S. senders (b = 0.002, 95% CI = [-0.029; 0.034], p = 0.896), showed an insignificant small decrease for African American senders (b = -0.055, 95% CI = [-0.172; 0.062], p = 0.357), and exhibited non-significant marginal increases for White (b = 0.003, 95% CI = [-0.031; 0.037], p = 0.874) and Hispanic (b = 0.067, 95% CI = [-0.031; 0.165], p = 0.178) senders.

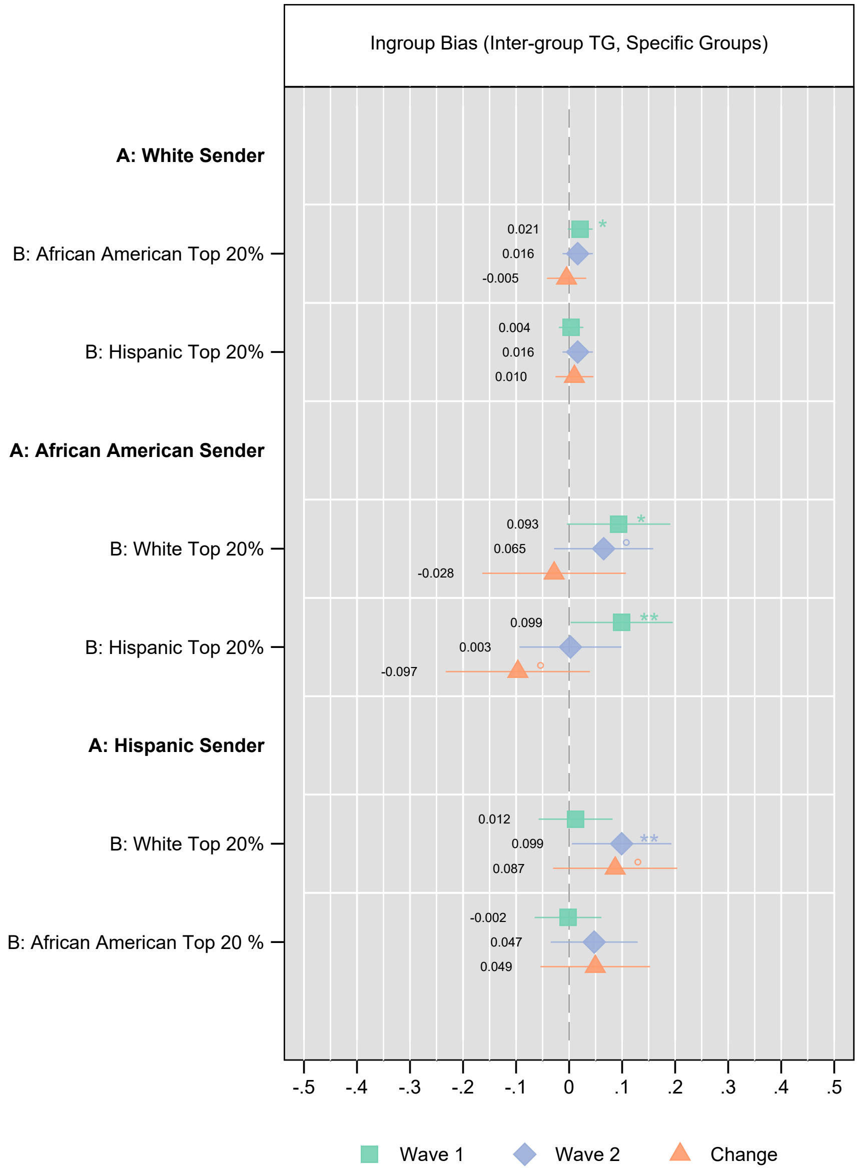
Table A.5 provides further analyses incorporating interaction terms between the ingroup dummy and demographic controls (female sex, age, age-squared, two education categories, three employment dummies, two urbanization dummies, and four income quintile dummies), adjusting for minor variations across waves in the inter-group TG with income information. This adjustment confirms no significant shifts in ingroup bias, with the trend remaining consistent (b = 0.01, 95% CI = [-0.023; 0.043], p = 0.563).

A.3.2 Ingroup Bias by Sender's and Recipient's Ethnicity (with Income Information)

Figure A.7 presents standardized coefficients assessing ingroup bias in the inter-group TG with income information across the three sender ethnicities relative to each ethnic outgroup (see Online Appendix Table A.11 for the underlying regression results).

For White senders, the ingroup bias toward African American recipients remained virtually unchanged in the version with income information (b = -0.005, 95% CI = [-0.042; 0.032], p = 0.801). Similarly, no significant change was observed in the ingroup bias toward Hispanic recipients (b = 0.010, 95% CI = [-0.026; 0.046], p = 0.583). These results with income information reinforce the pattern of stable ingroup bias among White senders, regardless of the recipient's race/ethnicity. Furthermore, the inclusion of income information in the TG did not result in any significant change in ingroup bias between waves, consistent with findings from the version without income information (see Section 3.3).

Figure A.7: Ingroup Bias in the Inter-group TG: By Sender's and Recipient's Ethnicity



Notes: The figure shows standardized coefficients and 95 percent confidence intervals from OLS regressions on subsamples defined by the sender's race/ethnicity. The standardized dependent variable is the amount sent in the inter-group TG with income information, respectively (receiver belongs to the top 20 percent with the highest income in the U.S.). The standardized coefficients are depicted by ethnic group of the sender. The sender's ethnic group serves as the base category. The explanatory variable for which coefficients are depicted are dummy variables for the recipient type (ethnicity and income information), multiplied with (-1) to align with the interpretation of showing the ingroup bias relative to the respective ethnic outgroup. The regressions contain a dummy equal to one for the first race/ethnicity encountered in the TG. The regressions contain demographic controls for age, age-squared, two education categories, three employment dummies, two urbanization dummies, and four income quintile dummies. Standard errors clustered at the individual level. (****, ***, **, *, °) indicate two-sided p-values below 0.001, 0.01, 0.05, 0.1, and 0.2, respectively.

For African American senders, the ingroup bias towards Hispanic recipients in the inter-group

TG with income information showed a slight, non-significant decrease (b = -0.097, 95% CI = [-0.233; 0.039], p = 0.163). A similar pattern emerged in the TG without income information, with a decrease in bias that was not statistically significant. Changes in ingroup bias towards White recipients did not reach statistical significance with income information (b = -0.028, 95% CI = [-0.164; 0.107], p = 0.682), as it did not without income information, too.

Hispanic senders exhibited a statistically insignificant, marginal increase towards White recipients in the TG with income information (b = 0.087, 95% CI = [-0.030; 0.204], p = 0.145), echoing the insignificant increase in the TG without income information. Similarly, slight increases in ingroup bias towards African Americans recipients (b = 0.049, 95% CI = [-0.054; 0.153], p = 0.347) did not achieve statistical significance.

A.4 Ingroup Bias Change Between Waves in Trust Games - Heterogeneity Analysis w.r.t. Respondents' Characteristics

Figure A.8 presents standardized coefficients for a heterogeneity analysis on ingroup bias across inter-group trust games (TGs), both with and without income information, during both waves of the Trustlab study and examines changes over time (detailed regression outcomes available in Online Appendix Tables A.7 and A.8). This analysis incorporates interactions of dummies for specific characteristics of the respondents with the ingroup dummy and the interactions between the ingroup dummy and the second-wave dummy. The variables defining our heterogeneity analysis - labeled as “H” dummies - include binary indicators for respondents who are (a) 60 years or older, (b) female, (c) holders of tertiary education degrees, (d) within the top 20% income bracket, or (e) identify as right-wing politically. For analysis simplicity, right-wing individuals are contrasted against a combined group of left-wing (selected response three or below on the political orientation scale) and moderate respondents (selected response four to six). Although comparing right-wing to left-wing respondents yields similar qualitative results, some comparisons lack statistical significance, possibly due to smaller sample sizes within certain groups.

Figure A.8: Ingroup Bias in the Inter-group TG: Heterogeneity Analysis

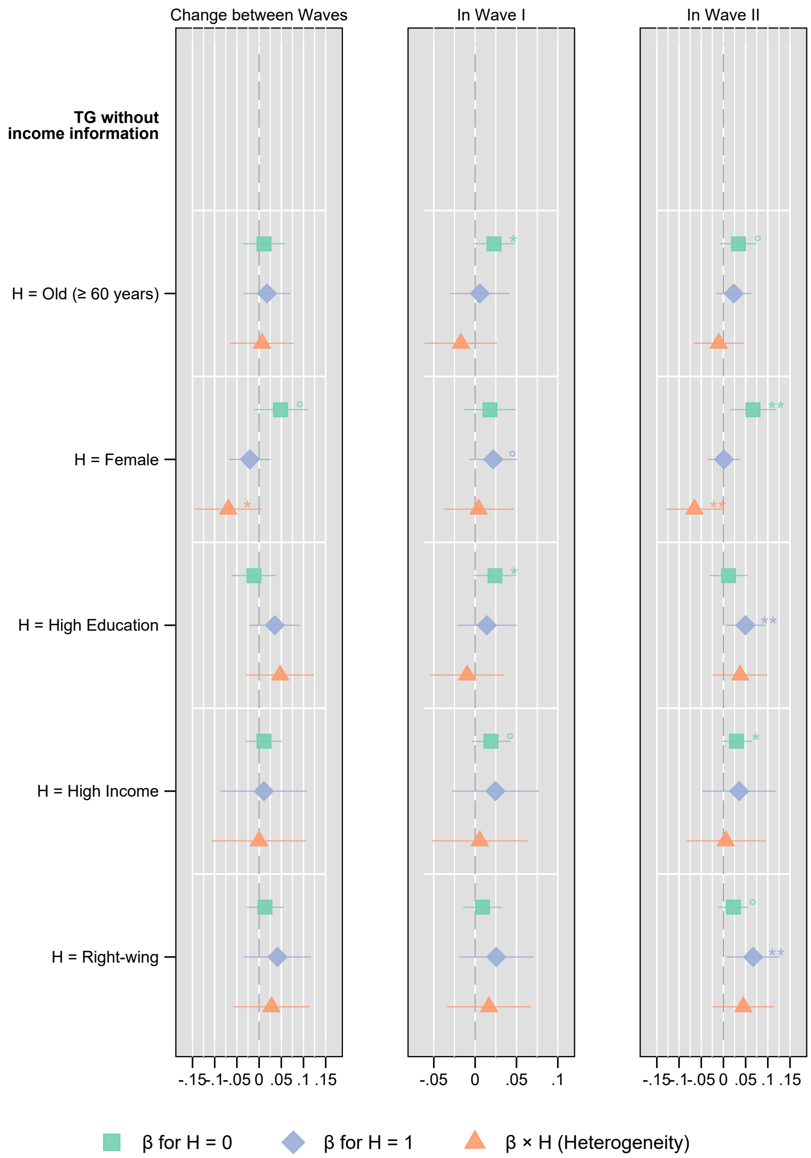
Notes: The figure shows standardized coefficients and 95 percent confidence intervals from OLS regressions. The standardized dependent variable is the amount sent in the inter-group TG with (receiver belongs to the top 20 percent with the highest income in the U.S.) and without income information, respectively. The explanatory variable for which interacted coefficients are depicted is a dummy equal to one if the recipient has the same race/ethnicity as the sender. Heterogeneity analysis testing (i) whether the change of the ingroup bias between waves is different across categories defined by H and (ii) ((iii)) whether the ingroup bias in wave 1 (wave 2) differs across categories defined by H. Separate regressions for each heterogeneity category variable H interacted with the explanatory variable. The regressions contain a dummy equal to one for the first race/ethnicity encountered in the TG. The regressions contain demographic controls for race/ethnicity groups of the respondents, age, age-squared, two education categories, three employment dummies, two urbanization dummies, and four income quintile dummies. Standard errors clustered at the individual level. (****, ***, **, *, °) indicate two-sided p-values below 0.001, 0.01, 0.05, 0.1, and 0.2, respectively.

Figure A.8 reveals no statistically significant heterogeneity concerning the above characteristics regarding the cross-wave change of the ingroup bias, neither in the inter-group TG without income information nor in the inter-group TG with income information. However, the analysis shows that the slight decrease of the ingroup bias in the inter-group TG without income information is entirely driven by the respondents who do not identify as right-wing (b = -0.058, 95% CI = [-0.108; -0.007], p = 0.025) whereas the change is virtually zero for right-wing respondents (b = -0.003, 95% CI = [-0.082; 0.076], p = 0.940). As depicted in Figure A.8, the difference in the cross-wave change between non-right-wing and right-wing respondents is not statistically significant (b = 0.055, 95% CI = [-0.039; 0.148], p = 0.252).

Analyzing each Trustlab wave individually reveals that ingroup bias was significant for both non-right-wing (b = 0.045, 95% CI = [0.015; 0.074], p = 0.003) and right-wing participants (b = 0.080, 95% CI = [0.020; 0.140], p = 0.009) in the first wave, with no significant difference between the two groups (b = 0.035, 95% CI = [-0.031; 0.102], p = 0.301). In contrast, during the second wave, the ingroup bias for non-right-wing respondents was negligible (b = -0.013, 95% CI = [-0.054; 0.028], p = 0.542), while for right-wing respondents, it remained significant and comparable to the first wave (b = 0.077, 95% CI = [0.026; 0.128], p = 0.003). The disparity in ingroup bias between non-right-wing and right-wing respondents in the second wave was significant (b = 0.090, 95% CI = [0.024; 0.156], p = 0.008), highlighting a divergent response to the pandemic's context between these two segments of the political spectrum.

In the inter-group trust game (TG) with income information, Figure A.8 shows no statistically significant heterogeneity in the ingroup bias, either within each wave or across the two waves. Nevertheless, there is an observable trend where the difference in ingroup bias between right-wing and non-right-wing respondents - specifically, a narrower ingroup bias among the latter - appears to widen in the second wave compared to the first (b = 0.045, 95% CI = [-0.027; 0.116], p = 0.220). This pattern is consistent in the inter-group TGs, regardless of whether income information about the recipient is provided.

Figure A.9: Ingroup Bias in the Inter-group TG: Heterogeneity Analysis (Expectations)



Notes: The figure shows standardized coefficients and 95 percent confidence intervals from OLS regressions. The standardized dependent variable is the expected return in the inter-group TG without income information, respectively. The explanatory variable for which interacted coefficients are depicted is a dummy equal to one if the recipient has the same race/ethnicity as the sender. Heterogeneity analysis testing (i) whether the change of the ingroup bias between waves is different across categories defined by H and (ii) ((iii)) whether the ingroup bias in wave 1 (wave 2) differs across categories defined by H. Separate regressions for each heterogeneity category variable H interacted with the explanatory variable. The regressions contain a dummy equal to one for the first race/ethnicity encountered in the TG. The regressions contain demographic controls for race/ethnicity groups of the respondents, age, age-squared, two education categories, three employment dummies, two urbanization dummies, and four income quintile dummies. Standard errors clustered at the individual level. (****, ***, **, *, °) indicate two-sided p-values below 0.001, 0.01, 0.05, 0.1, and 0.2, respectively.

Figure A.9 replicates this analysis for expectations in the inter-group trust game without income information (expectations for the version with income information were not elicited in Wave 1). We find no statistically significant heterogeneity across the characteristics listed above in the cross-wave change in ingroup bias in expectations.

A.5 Experimenter demand effects

Participants in the Trustlab faced multiple decisions involving the allocation of money between players of different ethnic groups. This may have prompted them to align with what they perceived to be the researchers' expectations or desired behavior (de Quidt, Haushofer and Roth, 2018). To assess the potential impact of experimenter demand effects, we included a question at the end of the survey, similar to the approach used by de Quidt, Haushofer and Roth (2018). This question, which was only available in the second wave of the U.S. Trustlab, asked participants whether they believed the researchers had a preference regarding their choices in the experimental module on inter-group relationships. This question serves as a general proxy to identify participants who thought the researchers desired a specific type of behavior or expectations in their decisions. The resulting "desirability" dummy variable, D, is set to one for participants who indicated that they believed researchers had certain expectations of their behavior.

We then added an interaction between the desirability dummy D and the dummy Ingroup, which indicates that the other player in the game belongs to the same race/ethnicity as the respondent. Only one instance showed a statistically significant interaction ($p = 0.064$). In the inter-group dictator game without income information, respondents who believed researchers had a preference for their decisions exhibited a more significant ingroup bias than those who did not. Overall, these results suggest that experimenter demand effects likely had a negligible impact on our findings.

Table A.13: Experimenter Demand Effects

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent	AS-TG	AS-DG	ER-TG	AS-TG	AS-DG	ER-TG
Ingroup	0.020	0.025	0.026	0.015	0.028*	0.026
	(0.017)	(0.017)	(0.016)	(0.014)	(0.016)	(0.018)
Ingroup × D	0.038	0.069*	0.008	0.025	0.011	0.016
	(0.032)	(0.037)	(0.035)	(0.028)	(0.028)	(0.037)
D	-0.001	-0.045	0.111*	-0.009	-0.001	0.131*
	(0.067)	(0.067)	(0.067)	(0.065)	(0.065)	(0.067)
Obs.	3168	3168	3168	3168	3168	3168
Clusters	1056	1056	1056	1056	1056	1056
R2	0.032	0.024	0.066	0.070	0.061	0.043
Adj. R2	0.026	0.018	0.060	0.064	0.055	0.036
Tests						
Ingroup = 0	0.230	0.150	0.101	0.279	0.082	0.134
Ingroup × D = 0	0.245	0.064	0.824	0.387	0.705	0.660
Ingroup + Ingroup × D = 0	0.040	0.005	0.280	0.117	0.097	0.193

Notes: This table shows the OLS regression results. The dependent and independent variables (except dummies) are standardized. The dependent variable in columns 1-3 is (1) the amount sent (AS) in the inter-group TG without income information, (2) the amount sent (AS) in the inter-group DG without income information, (3) the expected return (ER) in the TG without income information. Columns 4-6 use the corresponding dependent variables with income information. D is a dummy equal one if the respondent answered "yes" to the question "Do you think that the researchers had any preference on how you should transfer money to some groups - among non-Hispanic Whites, African Americans, and Hispanics, in comparison to others?". Ingroup is a dummy variable equal to one if the recipient is of the same race/ethnicity as the sender. The regressions contain a dummy equal to one for the first race/ethnicity encountered in the game. The regressions contain demographic controls for race/ethnicity groups of the respondents, age, age-squared, two education categories, three employment dummies, two urbanization dummies, and four income quintile dummies. Three decisions per respondent. Standard errors (clustered at the individual level) in parentheses. (****, ***, **, *) indicate two-sided p-values below 0.001, 0.01, 0.05, and 0.1 respectively. Below tests, p-values from Wald tests reported.

A.6 Levels of Trust Game Sending and Expected Receiver Returns (Trustworthiness) Across Waves in the Inter-group TG

Tables A.14 and A.15 analyze whether the AS in the inter-group TG, both with and without income information, and the expected amounts returned by the receiver after being sent 5 USD (so-called expected trustworthiness) in the inter-group TG without income information, changed significantly between the two waves of the U.S. Trustlab. While there is a slight trend toward sending larger amounts in the inter-group TGs, both with and without information about the receiver's income being in the top 20 percent, these differences are not statistically significant. However, expectations of the receiver's trustworthiness - specifically, the amount expected to be returned after being sent 5 USD - are significantly higher in the second wave compared to the first. This difference is primarily driven by White respondents, as shown in column 2 of Table A.15.

Table A.14: Levels of Trust Game Sending Across Waves (Without and With Income Information)

	(1)	(2)	(3)	(4)
Dependent	AS-TG	AS-TG	AS-TG	AS-TG
African American	-0.311****	-0.370****	-0.281****	-0.340****
	(0.060)	(0.081)	(0.063)	(0.088)
Hispanic	-0.061	-0.087	-0.073	-0.059
	(0.069)	(0.090)	(0.070)	(0.094)
Wave 2	0.058	0.038	0.062	0.052
	(0.043)	(0.050)	(0.044)	(0.050)
Wave 2 × African American		0.116		0.117
		(0.116)		(0.121)
Wave 2 × Hispanic		0.054		-0.034
		(0.135)		(0.136)
Constant	-0.055	-0.047	0.097	0.100
	(0.084)	(0.084)	(0.082)	(0.083)
Obs.	6240	6240	6240	6240
Clusters	2080	2080	2080	2080
R2	0.027	0.028	0.049	0.049
Adj. R2	(0.025)	(0.025)	(0.046)	(0.046)
Tests				
Wave 2 = 0	0.182	0.444	0.155	0.299
Wave 2 × African American = 0		0.321		0.332
Wave 2 × Hispanic = 0		0.687		0.804
Wave 2 + Wave 2 × African American = 0		0.149		0.128
Wave 2 + Wave 2 × Hispanic = 0		0.464		0.889
Wave 2 × A. A. - Wave 2 × Hispanic = 0		0.710		0.371
African American = 0		0.000		0.000
Hispanic = 0		0.339		0.532
African American - Hispanic = 0		0.010		0.017
African American + Wave 2 × African American = 0		0.003		0.009
Hispanic + Wave 2 × Hispanic = 0		0.752		0.360
A. A. + Wave 2 × A. A. - H. - Wave 2 × H. = 0		0.071		0.283

Notes: This table presents OLS regression results, with both the dependent and independent variables (excluding dummies) standardized. The dependent variable in columns 1-2 is the amount sent (AS) in the inter-group TG without income information, while in columns 3-4, it is the amount sent in the inter-group TG with income information. "African American" and "Hispanic" are dummy variables indicating the sender's race/ethnicity. The data is drawn from the two U.S. waves of the Trustlab conducted in 2017 and 2020. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.15: Levels of Expected Receiver Returns (Expected Trustworthiness) Across Waves

	(1)	(2)
Dependent	ER-TG	ER-TG
African American	-0.084	-0.030
	(0.062)	(0.083)
Hispanic	-0.053	-0.010
	(0.066)	(0.088)
Wave 2	0.122***	0.145***
	(0.043)	(0.049)
Wave 2 × African American		-0.107
		(0.118)
Wave 2 × Hispanic		-0.094
		(0.129)
Constant	-0.06	-0.07
	(0.08)	(0.08)
Obs.	6240	6240
Clusters	2080	2080
R2	0.04	0.04
Adj. R2	0.037	0.037
Tests		
Wave 2 = 0	0.004	0.003
Wave 2 × African American = 0		0.367
Wave 2 × Hispanic = 0		0.467
Wave 2 + Wave 2 × African American = 0		0.727
Wave 2 + Wave 2 × Hispanic = 0		0.673
Wave 2 × A. A. - Wave 2 × Hispanic = 0		0.937
African American = 0		0.715
Hispanic = 0		0.914
African American - Hispanic = 0		0.851
African American + Wave 2 × African American = 0		0.121
Hispanic + Wave 2 × Hispanic = 0		0.285
A. A. + Wave 2 × A. A. - H. - Wave 2 × H. = 0		0.774

Notes: This table presents OLS regression results, with both the dependent and independent variables (excluding dummies) standardized. The dependent variable in columns 1-2 is the expected return (ER) by the receiver after sending 5 USD in the inter-group TG without income information. "African American" and "Hispanic" are dummy variables indicating the sender's race/ethnicity. The data is drawn from the two U.S. waves of the Trustlab conducted in 2017 and 2020. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.16: Heterogeneity Wave Comparison Trust Game Sending (Inter-group TG without Income Information)

	(1	(2)	(3)	(4)	(5)
Dependent	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG
Heterogeneity Variable H	Female	Age $\geq$ 60	Tertiary ed.	High income	Right-wing
Wave 2	0.089	0.074	0.123**	0.051	0.058
	(0.065)	(0.049)	(0.057)	(0.047)	(0.059)
H	-0.078	0.068	0.159**	0.151	-0.007
	(0.058)	(0.093)	(0.074)	(0.095)	(0.065)
H $\times$ Wave 2	-0.059	-0.082	-0.142*	0.043	-0.022
	(0.085)	(0.107)	(0.085)	(0.116)	(0.091)
Constant	-0.069	-0.066	-0.078	-0.053	-0.120
	(0.085)	(0.086)	(0.084)	(0.084)	(0.093)
Obs.	6240	6240	6240	6240	5502
Clusters	2080	2080	2080	2080	1834
R2	0.028	0.028	0.029	0.028	0.028
Adj. R2	0.025	0.025	0.026	0.025	0.024
Tests					
Wave 2 = 0	0.169	0.128	0.031	0.276	0.322
H $\times$ Wave 2 = 0	0.482	0.443	0.093	0.710	0.807
Wave 2 + H $\times$ Wave 2 = 0	0.596	0.938	0.765	0.382	0.620

Notes: This table presents the results of a heterogeneity analysis using OLS regression to test whether the wave differences vary based on observed characteristics. The dependent variable is the amount sent (AS) in the inter-group TG without income information. Both the dependent and independent variables (excluding dummies) are standardized. The heterogeneity variables H in columns (1-5) are defined as follows: (1) H = Female, (2) H = Age 60 or above, (3) H = High Education (Tertiary diploma), (4) H = High Income (5th quintile of the income distribution), and (5) H = Right-wing (7 or above on the political orientation scale). The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.17: Heterogeneity Wave Comparison Trust Game Sending (Inter-group TG with Income Information)

	(1)	(2)	(3)	(4)	(5)
Dependent	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG
Heterogeneity Variable H	Female	Age $\geq$ 60	Tertiary ed.	High income	Right-wing
Wave 2	0.095	0.070	0.138**	0.062	0.023
	(0.065)	(0.049)	(0.057)	(0.047)	(0.060)
H	-0.222****	0.059	0.109	0.148	0.116*
	(0.060)	(0.096)	(0.076)	(0.098)	(0.067)
H $\times$ Wave 2	-0.062	-0.042	-0.164*	-0.001	0.023
	(0.085)	(0.111)	(0.086)	(0.120)	(0.091)
Constant	0.083	0.087	0.070	0.097	-0.006
	(0.085)	(0.084)	(0.082)	(0.082)	(0.093)
Obs.	6240	6240	6240	6240	5502
Clusters	2080	2080	2080	2080	1834
R2	0.049	0.049	0.050	0.049	0.047
Adj. R2	0.046	0.046	0.047	0.046	0.044
Tests					
Wave 2 = 0	0.141	0.152	0.017	0.186	0.702
H $\times$ Wave 2 = 0	0.465	0.707	0.056	0.995	0.797
Wave 2 + H $\times$ Wave 2 = 0	0.567	0.773	0.685	0.582	0.511

Notes: This table presents the results of a heterogeneity analysis using OLS regression to test whether the wave differences vary based on observed characteristics. The dependent variable is the amount sent (AS) in the inter-group TG with income information. Both the dependent and independent variables (excluding dummies) are standardized. The heterogeneity variables H in columns (1-5) are defined as follows: (1) H = Female, (2) H = Age 60 or above, (3) H = High Education (Tertiary diploma), (4) H = High Income (5th quintile of the income distribution), and (5) H = Right-wing (7 or above on the political orientation scale). The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.18: Heterogeneity Wave Comparison Return Expectations (Expected Trustworthiness, Inter-group TG without Income Information)

	(1)	(2)	(3)	(4)	(5)
Dependent	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG
Heterogeneity Variable H	Female	Age $\geq$ 60	Tertiary ed.	High income	Right-wing
Wave 2	0.202***	0.142***	0.081	0.086*	0.018
	(0.066)	(0.049)	(0.056)	(0.046)	(0.053)
H	-0.114**	-0.008	-0.026	0.032	0.073
	(0.054)	(0.091)	(0.070)	(0.086)	(0.061)
H $\times$ Wave 2	-0.151*	-0.092	0.090	0.230*	0.230**
	(0.084)	(0.104)	(0.083)	(0.122)	(0.092)
Constant	-0.094	-0.055	-0.045	-0.045	-0.189**
	(0.080)	(0.079)	(0.078)	(0.077)	(0.086)
Obs.	6240	6240	6240	6240	5502
Clusters	2080	2080	2080	2080	1834
R2	0.041	0.040	0.040	0.042	0.056
Adj. R2	0.038	0.037	0.038	0.039	0.053
Tests					
Wave 2 = 0	0.002	0.004	0.148	0.059	0.738
H $\times$ Wave 2 = 0	0.072	0.377	0.278	0.058	0.013
Wave 2 + H $\times$ Wave 2 = 0	0.338	0.579	0.007	0.005	0.001

Notes: This table presents the results of a heterogeneity analysis using OLS regression to test whether the wave differences vary based on observed characteristics. The dependent variable is the expected return (ER) in the hypothetical scenario where the sender transfers 5 USD in the inter-group TG without income information. Both the dependent and independent variables (excluding dummies) are standardized. The heterogeneity variables H in columns (1-5) are defined as follows: (1) H = Female, (2) H = Age 60 or above, (3) H = High Education (Tertiary diploma), (4) H = High Income (5th quintile of the income distribution), and (5) H = Right-wing (7 or above on the political orientation scale). The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

A.7 COVID-Exposure and Ingroup Bias in Inter-group Games

Tables A.19 and A.20 explore whether the AS in the inter-group trust games and the ingroup bias interact with (various measures of) exposure to COVID (called "C" in the tables) using data from the second U.S. Trustlab wave. Tables A.21 and A.22 replicate this analysis for return expectations. The first measure of exposure to COVID is based on self-reported exposure to COVID-19 in the survey. The dummy equals one if at least one of the following conditions is fulfilled: The respondent reports that (i) a household member, (ii) a family member or close friend, or (iii) a neighbor was diagnosed or hospitalized due to COVID-19 or (iv) if a family member or a neighbor died from it. Further measures are dummies for (a) above-median (using the sample median) deaths per 100k inhabitants up to the survey, (b) for above-median deaths per 100k inhabitants up to the day before the survey, (c) the natural logarithm of one plus the number of cases up to the day before the survey, (d) the natural logarithm of one plus the number of deaths up to the day before the survey, (e) a dummy for above-median (relative to the sample median) 7-day cases per 100k inhabitants, (f) a dummy for above-median 7-day deaths per 100k inhabitants. We report the results from Wald-tests in the tables. The test for the marginal effect of C weights the sum of coefficients C and the interaction of C with Ingroup to assess the marginal effect on the outcome (amount sent).

Overall, the results show no significant heterogeneity of the ingroup bias in trust game sending with respect to the measures of exposure to COVID-19. Only in the inter-group TG with income information (see Table A.20) the ingroup bias is slightly more significant among respondents with a higher number of deaths per 100,000 inhabitants at the county level up to the day before the survey ($p = 0.059$). The results are qualitatively equivalent controlling for self-reported vulnerability and worries about getting infected and the virus' spread in the local community. As shown in the first column of Table A.19, self-reported exposure to COVID-19 in the survey is associated with significantly higher AS ($p = 0.025$, for the marginal effect on the outcome) in the inter-group TG without income information. The results remain qualitatively similar when using return expectations as the dependent variable, showing no significant effects of self-reported exposure on ingroup bias but indicating significantly higher expected returns.

In Tables A.23 and A.24, we replicate the analysis for the inter-group versions of the dictator game introduced in the second wave of the U.S. Trustlab. Unlike the results from the trust game, the inter-group DG without income information shows a relatively uniform trend of increasing ingroup bias with COVID exposure, though this is observed only with measures 2-5 based on actual case and death counts but not with self-reported exposure in the survey. This trend is not present in the inter-group DG with income information.

Table A.19: COVID-Exposure and Ingroup Bias (Inter-group TG without Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG
Ingroup	0.026	0.033**	0.021	0.031**	0.031**	0.033*	0.015
	(0.017)	(0.015)	(0.015)	(0.014)	(0.014)	(0.019)	(0.017)
Ingroup × C	0.017	-0.004	0.019	0.010	0.011	-0.003	0.033
	(0.032)	(0.029)	(0.029)	(0.014)	(0.016)	(0.029)	(0.029)
C	0.137**	0.046	0.024	-0.012	0.017	-0.091	0.000
	(0.065)	(0.072)	(0.068)	(0.041)	(0.040)	(0.063)	(0.067)
Obs.	3165	3162	3162	3162	3162	3156	3156
Clusters	1055	1054	1054	1054	1054	1052	1052
R2	0.037	0.034	0.034	0.033	0.034	0.035	0.034
Adj. R2	0.030	0.027	0.027	0.026	0.027	0.028	0.026
Tests							
Ingroup = 0	0.121	0.035	0.162	0.032	0.032	0.083	0.382
Ingroup × C = 0	0.606	0.895	0.517	0.454	0.492	0.911	0.255
Ingroup + Ingroup × C = 0	0.120	0.232	0.098	0.101	0.109	0.182	0.043
C = 0	0.035	0.522	0.722	0.761	0.670	0.149	0.995
Marginal effect of C = 0	0.025	0.529	0.650	0.825	0.599	0.138	0.874

Notes: This table presents OLS regression results, where the dependent variable is the amount sent (AS) in the inter-group TG without income information (with three decisions per sender). Both dependent and independent variables (excluding dummies) are standardized. "Ingroup" is a dummy variable set to one if the recipient shares the same race/ethnicity as the sender. The variable for COVID-Exposure "C" in columns 1-7 is defined as follows: (1) self-reported exposure in the survey, (2) a dummy for above-median cases per 100k inhabitants up to one day before the survey date, (3) a dummy for above-median deaths per 100k inhabitants up to one day before the survey date, (4) the natural logarithm of one plus the number of cases up to one day before the survey date, (5) the natural logarithm of one plus the number of deaths up to one day before the survey date, (6) a dummy for above-median 7-day cases per 100k inhabitants, and (7) a dummy for above-median 7-day deaths per 100k inhabitants. The regressions also control for the survey date, the natural logarithm of the county population, and the natural logarithm of population density at the county level. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.20: COVID-Exposure and Ingroup Bias (Inter-group TG with Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG
Ingroup	0.017	0.013	0.010	0.020*	0.020*	0.032*	0.032*
	(0.014)	(0.016)	(0.015)	(0.012)	(0.012)	(0.018)	(0.017)
Ingroup × C	0.015	0.012	0.020	0.009	0.021*	-0.024	-0.024
	(0.027)	(0.024)	(0.024)	(0.011)	(0.011)	(0.024)	(0.024)
C	0.065	0.093	0.013	0.028	-0.028	0.034	0.046
	(0.066)	(0.070)	(0.067)	(0.040)	(0.038)	(0.063)	(0.066)
Obs.	3165	3162	3162	3162	3162	3156	3156
Clusters	1055	1054	1054	1054	1054	1052	1052
R2	0.071	0.072	0.070	0.071	0.071	0.071	0.071
Adj. R2	0.064	0.065	0.064	0.064	0.064	0.064	0.064
Tests							
Ingroup = 0	0.215	0.393	0.517	0.099	0.099	0.074	0.065
Ingroup × C = 0	0.585	0.603	0.399	0.445	0.059	0.308	0.311
Ingroup + Ingroup × C = 0	0.173	0.148	0.112	0.115	0.025	0.638	0.655
C = 0	0.327	0.185	0.848	0.492	0.472	0.591	0.489
Marginal effect of C = 0	0.284	0.162	0.768	0.446	0.591	0.679	0.563

Notes: This table presents OLS regression results, where the dependent variable is the amount sent (AS) in the inter-group TG with income information (with three decisions per sender). Both dependent and independent variables (excluding dummies) are standardized. "Ingroup" is a dummy variable set to one if the recipient shares the same race/ethnicity as the sender. The variable for COVID-Exposure "C" in columns 1-7 is defined as follows: (1) self-reported exposure in the survey, (2) a dummy for above-median deaths per 100k inhabitants up to one day before the survey date, (3) a dummy for above-median cases per 100k inhabitants up to one day before the survey date, (4) the natural logarithm of one plus the number of cases up to one day before the survey date, (5) the natural logarithm of one plus the number of deaths up to one day before the survey date, (6) a dummy for above-median 7-day cases per 100k inhabitants, and (7) a dummy for above-median 7-day deaths per 100k inhabitants. The regressions also control for the survey date, the natural logarithm of the county population, and the natural logarithm of population density at the county level. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.21: COVID-Exposure and Ingroup Bias (Return Expectations, Inter-group TG without Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG
Ingroup	0.027*	0.019	0.022	0.028*	0.028*	0.011	0.012
	(0.016)	(0.018)	(0.018)	(0.014)	(0.014)	(0.018)	(0.020)
Ingroup × C	0.004	0.018	0.013	0.010	0.009	0.035	0.032
	(0.033)	(0.029)	(0.029)	(0.014)	(0.015)	(0.029)	(0.029)
C	0.174***	0.035	0.013	0.057	0.032	-0.041	-0.051
	(0.064)	(0.068)	(0.066)	(0.039)	(0.039)	(0.063)	(0.064)
Obs.	3165	3162	3162	3162	3162	3156	3156
Clusters	1055	1054	1054	1054	1054	1052	1052
R2	0.071	0.064	0.064	0.066	0.065	0.064	0.064
Adj. R2	0.064	0.058	0.057	0.059	0.058	0.057	0.057
Tests							
Ingroup = 0	0.091	0.279	0.225	0.052	0.052	0.544	0.539
Ingroup × C = 0	0.904	0.536	0.659	0.485	0.536	0.232	0.270
Ingroup + Ingroup × C = 0	0.293	0.105	0.129	0.113	0.110	0.045	0.034
C = 0	0.007	0.601	0.847	0.146	0.407	0.517	0.424
Marginal effect of C = 0	0.006	0.538	0.796	0.122	0.360	0.639	0.524

Notes: This table presents OLS regression results, where the dependent variable is the expected return (ER) in the scenario where the sender transfers 5 USD in the inter-group TG without income information (with three expectations per sender). Both dependent and independent variables (excluding dummies) are standardized. "Ingroup" is a dummy variable set to one if the recipient shares the same race/ethnicity as the sender. The variable for COVID-Exposure "C" in columns 1-7 is defined as follows: (1) self-reported exposure in the survey, (2) a dummy for above-median cases per 100k inhabitants up to one day before the survey date, (3) a dummy for above-median deaths per 100k inhabitants up to one day before the survey date, (4) the natural logarithm of one plus the number of cases up to one day before the survey date, (5) the natural logarithm of one plus the number of deaths up to one day before the survey date, (6) a dummy for above-median 7-day cases per 100k inhabitants, and (7) a dummy for above-median 7-day deaths per 100k inhabitants. The regressions also control for the survey date, the natural logarithm of the county population, and the natural logarithm of population density at the county level. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.22: COVID-Exposure and Ingroup Bias (Return Expectations, Inter-group TG with Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG
Ingroup	0.046***	0.017	0.029*	0.032**	0.032**	0.013	0.042**
	(0.017)	(0.017)	(0.016)	(0.016)	(0.016)	(0.021)	(0.019)
Ingroup × C	-0.041	0.028	0.005	0.007	0.003	0.038	-0.021
	(0.037)	(0.032)	(0.032)	(0.015)	(0.016)	(0.032)	(0.032)
C	0.147**	-0.013	0.032	0.035	0.016	-0.032	-0.062
	(0.066)	(0.069)	(0.067)	(0.040)	(0.039)	(0.063)	(0.065)
Obs.	3165	3162	3162	3162	3162	3156	3156
Clusters	1055	1054	1054	1054	1054	1052	1052
R2	0.044	0.040	0.040	0.040	0.040	0.039	0.040
Adj. R2	0.037	0.033	0.033	0.033	0.033	0.032	0.033
Tests							
Ingroup = 0	0.008	0.313	0.075	0.047	0.047	0.55	0.024
Ingroup × C = 0	0.261	0.377	0.870	0.620	0.874	0.235	0.507
Ingroup + Ingroup × C = 0	0.893	0.087	0.209	0.135	0.198	0.034	0.425
C = 0	0.026	0.852	0.631	0.380	0.687	0.610	0.335
Marginal effect of C = 0	0.038	0.957	0.608	0.344	0.668	0.752	0.275

Notes: This table presents OLS regression results, where the dependent variable is the expected return (ER) in the scenario where the sender transfers 5 USD in the inter-group TG with income information (with three expectations per sender). Both dependent and independent variables (excluding dummies) are standardized. "Ingroup" is a dummy variable set to one if the recipient shares the same race/ethnicity as the sender. The variable for COVID-Exposure "C" in columns 1-7 is defined as follows: (1) self-reported exposure in the survey, (2) a dummy for above-median deaths per 100k inhabitants up to one day before the survey date, (3) a dummy for above-median cases per 100k inhabitants up to one day before the survey date, (4) the natural logarithm of one plus the number of cases up to one day before the survey date, (5) the natural logarithm of one plus the number of deaths up to one day before the survey date, (6) a dummy for above-median 7-day cases per 100k inhabitants, and (7) a dummy for above-median 7-day deaths per 100k inhabitants. The regressions also control for the survey date, the natural logarithm of the county population, and the natural logarithm of population density at the county level. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.23: COVID-Exposure and Ingroup Bias (Inter-group DG without Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent	AS-DG	AS-DG	AS-DG	AS-DG	AS-DG	AS-DG	AS-DG
Ingroup	0.035*	0.004	0.008	0.046***	0.046***	0.036	0.032
	(0.018)	(0.018)	(0.017)	(0.016)	(0.016)	(0.023)	(0.020)
Ingroup × C	0.032	0.083***	0.075**	0.040***	0.039**	0.020	0.028
	(0.035)	(0.031)	(0.031)	(0.015)	(0.017)	(0.031)	(0.032)
C	0.117*	0.010	-0.003	-0.007	0.007	-0.127**	-0.024
	(0.066)	(0.073)	(0.068)	(0.043)	(0.040)	(0.063)	(0.067)
Obs.	3165	3162	3162	3162	3162	3156	3156
Clusters	1055	1054	1054	1054	1054	1052	1052
R2	0.028	0.025	0.025	0.025	0.025	0.028	0.025
Adj. R2	0.021	0.018	0.018	0.018	0.018	0.021	0.017
Tests							
Ingroup = 0	0.057	0.806	0.632	0.003	0.003	0.116	0.112
Ingroup × C = 0	0.352	0.008	0.016	0.008	0.026	0.535	0.372
Ingroup + Ingroup × C = 0	0.022	0.001	0.002	0.001	0.003	0.009	0.013
C = 0	0.076	0.886	0.959	0.877	0.854	0.043	0.723
Marginal effect of C = 0	0.048	0.595	0.747	0.872	0.608	0.050	0.829

Notes: This table presents OLS regression results, where the dependent variable is the amount sent (AS) in the inter-group DG without income information (with three decisions per sender). Both dependent and independent variables (excluding dummies) are standardized. "Ingroup" is a dummy variable set to one if the recipient shares the same race/ethnicity as the sender. The variable for COVID-Exposure "C" in columns 1-7 is defined as follows: (1) self-reported exposure in the survey, (2) a dummy for above-median cases per 100k inhabitants up to one day before the survey date, (3) a dummy for above-median deaths per 100k inhabitants up to one day before the survey date, (4) the natural logarithm of one plus the number of cases up to one day before the survey date, (5) the natural logarithm of one plus the number of deaths up to one day before the survey date, (6) a dummy for above-median 7-day cases per 100k inhabitants, and (7) a dummy for above-median 7-day deaths per 100k inhabitants. The regressions also control for the survey date, the natural logarithm of the county population, and the natural logarithm of population density at the county level. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.24: COVID-Exposure and Ingroup Bias (Inter-group DG with Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent	AS-DG	AS-DG	AS-DG	AS-DG	AS-DG	AS-DG	AS-DG
Ingroup	0.030*	0.008	0.013	0.031**	0.031**	0.034*	0.030*
	(0.017)	(0.016)	(0.014)	(0.013)	(0.013)	(0.018)	(0.017)
Ingroup × C	0.003	0.045*	0.035	0.018	0.020	-0.006	0.002
	(0.026)	(0.026)	(0.026)	(0.013)	(0.013)	(0.026)	(0.026)
C	0.077	0.053	0.024	0.017	-0.021	-0.064	0.002
	(0.065)	(0.071)	(0.066)	(0.041)	(0.039)	(0.062)	(0.065)
Obs.	3165	3162	3162	3162	3162	3156	3156
Clusters	1055	1054	1054	1054	1054	1052	1052
R2	0.063	0.062	0.062	0.062	0.062	0.063	0.062
Adj. R2	0.056	0.055	0.055	0.055	0.055	0.056	0.055
Tests							
Ingroup = 0	0.077	0.596	0.361	0.018	0.018	0.062	0.082
Ingroup × C = 0	0.919	0.085	0.176	0.160	0.145	0.810	0.932
Ingroup + Ingroup × C = 0	0.102	0.011	0.026	0.026	0.024	0.141	0.108
C = 0	0.236	0.450	0.713	0.674	0.589	0.300	0.978
Marginal effect of C = 0	0.228	0.330	0.583	0.570	0.708	0.280	0.969

Notes: This table presents OLS regression results, where the dependent variable is the amount sent (AS) in the inter-group DG with income information (with three decisions per sender). Both dependent and independent variables (excluding dummies) are standardized. "Ingroup" is a dummy variable set to one if the recipient shares the same race/ethnicity as the sender. The variable for COVID-Exposure "C" in columns 1-7 is defined as follows: (1) self-reported exposure in the survey, (2) a dummy for above-median deaths per 100k inhabitants up to one day before the survey date, (3) a dummy for above-median cases per 100k inhabitants up to one day before the survey date, (4) the natural logarithm of one plus the number of cases up to one day before the survey date, (5) the natural logarithm of one plus the number of deaths up to one day before the survey date, (6) a dummy for above-median 7-day cases per 100k inhabitants, and (7) a dummy for above-median 7-day deaths per 100k inhabitants. The regressions also control for the survey date, the natural logarithm of the county population, and the natural logarithm of population density at the county level. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

A.8 COVID-Exposure and Prosocial Behavior in inter-group Games

Table A.25 shows regressions to test whether the dummy for self-reported exposure to COVID has a statistically significant effect on prosocial behavior as measured by transfers and expectations in the inter-group TGs and DG transfers without and with income information. Overall, self-reported COVID-Exposure in the survey is associated with stronger prosociality. Participants who reported exposure made larger transfers in the inter-group TGs and DGs and stated higher expectations about the other player's trustworthiness. However, the effect on TG and DG transfers is only statistically significant in the games without income information.

Table A.25: COVID-Exposure and Prosociality in Experiments

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	AS-TG	AS-DG	ER-TG	AS-TG	AS-DG	ER-TG
COVID	0.145**	0.128**	0.169***	0.067	0.075	0.129**
	(0.064)	(0.065)	(0.063)	(0.066)	(0.065)	(0.064)
Cases per 100k	-0.016	0.002	0.054	0.027	0.020	0.031
	(0.040)	(0.043)	(0.039)	(0.040)	(0.041)	(0.040)
Obs.	3162	3162	3162	3162	3162	3162
Clusters	1054	1054	1054	1054	1054	1054
R2	0.037	0.027	0.072	0.072	0.062	0.044
Adj. R2	0.031	0.021	0.066	0.065	0.056	0.037
Tests						
COVID = 0	0.023	0.050	0.008	0.308	0.247	0.045
Cases = 0	0.692	0.966	0.169	0.495	0.628	0.427

Notes: This table presents OLS regression results. The dependent variable in column 1 (4) is the amount sent (AS) in the inter-group TG without (with) income information. In column 2 (5), the dependent variable is the amount sent (AS) in the inter-group DG without (with) income information. In column 3 (6), the dependent variable is the expectation of the receiver's return (ER) in the inter-group TG without (with) income information. Both dependent and independent variables (excluding dummies) are standardized. The variable "COVID" refers to self-reported exposure in the survey, while "Cases per 100k" represents the natural logarithm of one plus the number of cases up to the survey date. The regressions also control for the survey date, the natural logarithm of the county population, and the natural logarithm of population density at the county level. The regressions contain demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

A.9 Heterogeneity: COVID-Exposure and Prosocial Behavior in Inter-group Games

The Figures A.10 (for the games without income information) and A.11 (for the games with income information) show an heterogeneity analysis of the effect from self-reported exposure to COVID-19 in the survey on prosocial behavior. The dependent variables in the three columns of the figures are transfers in the inter-group TG & DG without (with) income information and expectations in the inter-group TG without (with) income information.

The heterogeneity analysis presented in the Online Appendix Tables A.26 and A.27 underlying the figures explores how demographic factors influence the relationship between COVID-19 exposure and prosocial behavior. This analysis reveals that the impact of COVID-19 exposure on prosocial actions, particularly in terms of transfers in the inter-group dictator game (DG) without income information (b = -0.272, p = 0.035) and expectations of trustworthiness in inter-group trust games (TGs) both without (b = -0.370, p = 0.003) and with income information (b = -0.341, p = 0.006), is significantly less pronounced among female respondents compared to male ones. For remaining outcomes, the direction of gender-based heterogeneity is similar but lacks statistical significance at the 5 percent level when comparing females to males.

Conversely, right-wing respondents exhibited a significantly stronger response to COVID-19 exposure in their prosocial behavior, as evidenced by increased AS in the inter-group TG with income information (b = 0.331, p = 0.011), higher transfers in the DG both without (b = 0.319, p = 0.019) and with income information (b = 0.313, p = 0.016), and greater return expectations (expected trustworthiness) in the TGs without (b = 0.356, p = 0.006) and with income information (b = 0.296, p = 0.023).

To provide an overview, we briefly list the following results concerning the heterogeneity analysis of the effect from self-reported exposure to COVID-19 regarding female sex, African American race/ethnicity, old age (60 years and above), high education (tertiary education), high income (fifth quintile of the income distribution), and right-wing political orientation.

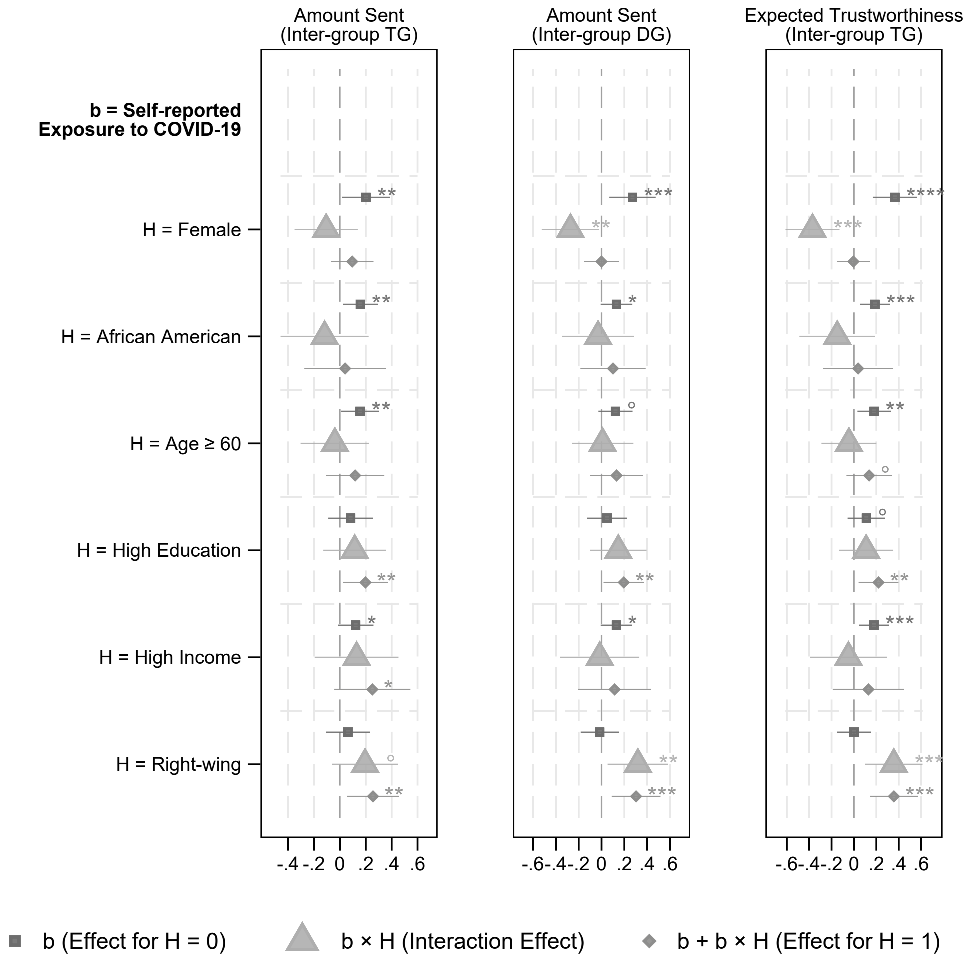
- COVID-Exposure has a significantly smaller effect on transfers in the inter-group DG without income information and expectations about the return in the inter-group TG without income information among female respondents ($p < 0.05$). Similar results are obtained in the inter-group DG with income information ($p < 0.1$) and expectations about the return in the inter-group TG with income information ($p < 0.01$). Results in the inter-group TGs without and with income information are not statistically significant.
- COVID-Exposure is associated with a significantly smaller transfer by African American respondents relative to the remaining ethnicities in the inter-group TG with income information ($p < 0.05$). There is no significant heterogeneity w.r.t. African American race/ethnicity for the other dependent variables.
- There is no statistically significant heterogeneity w.r.t. old age (60 years and above), high

education, and high income. However, there is a tendency that the positive effect of COVID-Exposure is relatively minor in the group of old persons. Instead, effects tend to be slightly more positive among highly educated respondents (not statistically significant).

- The effect of COVID-Exposure on transfers in the inter-group DG without income information and on return expectations in the inter-group TG without income information is significantly larger among right-wing respondents ($p < 0.05$ and $p < 0.01$, respectively) than for non-right-wing respondents. The effect is only marginally statistically significant regarding AS in the inter-group TG without income information ($p = 0.134$). Furthermore, the effect of COVID-Exposure is statistically significantly ($p < 0.01$) larger among right-wing respondents for AS in the inter-group TG with income information, transfers in the inter-group DG with income information, and expectations about the return in the inter-group TG with income information.

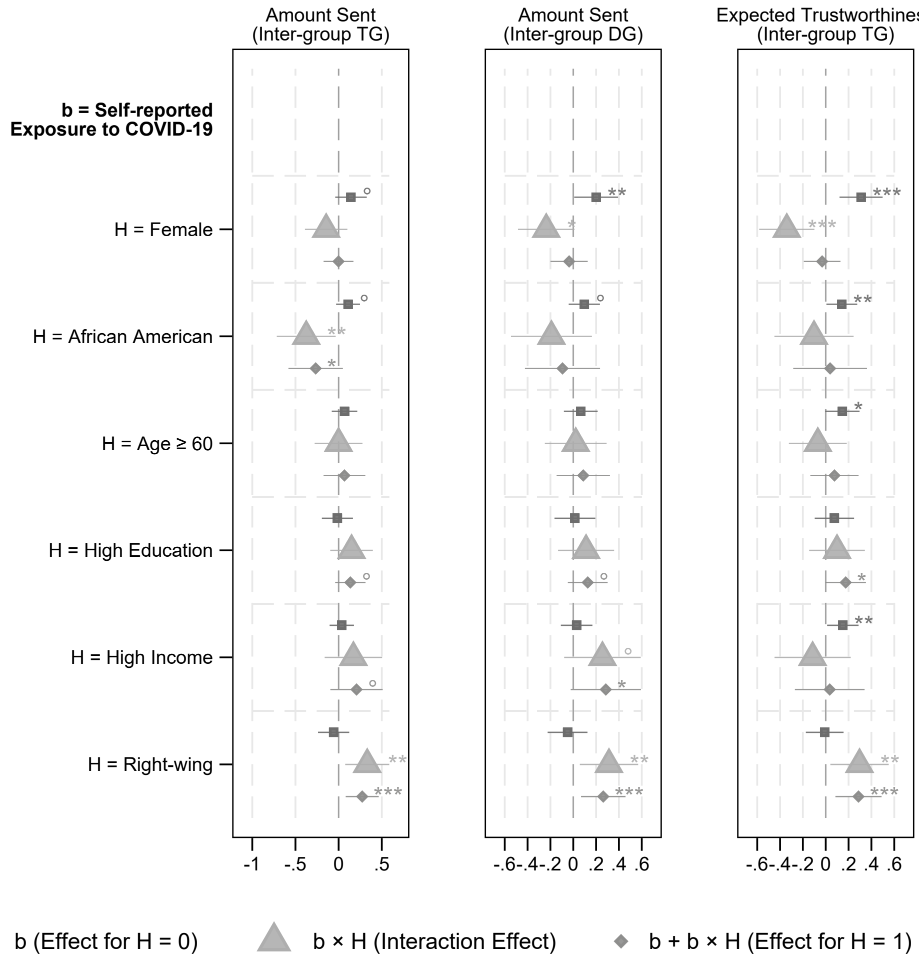
The results are qualitatively unaffected when controlling for self-reported measures of vulnerability and worries about getting infected and about the virus' spread in the local community in unreported regressions.

Figure A.10: COVID-Exposure and Prosociality in Experiments (Heterogeneity, Inter-group Experiments without Income Information)



Note: The figure summarizes the results from the heterogeneity analysis (refer to the corresponding regression tables) on whether the impact of self-reported COVID-19 exposure on the AS in the inter-group TG, DG, and the expected return by the receiver (trustworthiness) in the inter-group TG (all without income information) varies by observed characteristics. The figure presents the (sum of) coefficients from standardized OLS regressions. The heterogeneity categories are: (i) female sex, (ii) African American race/ethnicity, (iii) age 60 years or older, (iv) tertiary education (high education), (v) income in the fifth quintile of the income distribution (high income), and (vi) right-wing political orientation (7 or above on the 0-to-10 left-right Likert scale). Separate regressions were conducted for each heterogeneity variable H. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Figure A.11: COVID-Exposure and Prosociality in Experiments (Heterogeneity, Inter-group Experiments with Income Information)



Note: The figure summarizes the results from the heterogeneity analysis (refer to the corresponding regression tables) on whether the impact of self-reported COVID-19 exposure on the AS in the inter-group TG, DG, and the expected return by the receiver (trustworthiness) in the inter-group TG (all with income information) varies by observed characteristics. The figure presents the (sum of) coefficients from standardized OLS regressions. The heterogeneity categories are: (i) female sex, (ii) African American race/ethnicity, (iii) age 60 years or older, (iv) tertiary education (high education), (v) income in the fifth quintile of the income distribution (high income), and (vi) right-wing political orientation (7 or above on the 0-to-10 left-right Likert scale). Separate regressions were conducted for each heterogeneity variable H. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.26: COVID-Exposure and Prosociality in Experiments (Heterogeneity, Inter-group Experiments without Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG
COVID	0.201**	0.158**	0.156**	0.083	0.122*	0.061
	(0.094)	(0.069)	(0.075)	(0.088)	(0.070)	(0.086)
COVID × H	-0.106	-0.118	-0.038	0.115	0.129	0.195
	(0.124)	(0.173)	(0.135)	(0.123)	(0.165)	(0.130)
R2	0.038	0.038	0.038	0.038	0.038	0.044
Adj. R2	0.031	0.031	0.031	0.031	0.031	0.036
Tests						
COVID = 0	0.033	0.021	0.037	0.344	0.083	0.477
COVID × H = 0	0.395	0.496	0.776	0.354	0.434	0.134
COVID + COVID × H = 0	0.258	0.801	0.305	0.027	0.094	0.012
Dependent variable	AS-DG	AS-DG	AS-DG	AS-DG	AS-DG	AS-DG
COVID	0.271***	0.131*	0.122	0.048	0.130*	-0.016
	(0.103)	(0.071)	(0.076)	(0.090)	(0.070)	(0.085)
COVID × H	-0.272**	-0.030	0.009	0.147	-0.016	0.319**
	(0.129)	(0.162)	(0.138)	(0.126)	(0.177)	(0.135)
R2	0.031	0.027	0.028	0.029	0.027	0.037
Adj. R2	0.025	0.021	0.021	0.022	0.021	0.029
Tests						
COVID = 0	0.009	0.064	0.109	0.592	0.064	0.851
COVID × H = 0	0.035	0.851	0.945	0.243	0.930	0.019
COVID + COVID × H = 0	0.994	0.490	0.264	0.032	0.480	0.006
Dependent variable	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG
COVID	0.365****	0.186***	0.180**	0.111	0.178***	0.001
	(0.101)	(0.068)	(0.076)	(0.085)	(0.068)	(0.077)
COVID × H	-0.370***	-0.149	-0.045	0.109	-0.049	0.356***
	(0.123)	(0.172)	(0.125)	(0.124)	(0.176)	(0.130)
R2	0.079	0.072	0.072	0.072	0.072	0.1
Adj. R2	0.073	0.066	0.065	0.066	0.065	0.093
Tests						
COVID = 0	0.000	0.006	0.018	0.195	0.009	0.991
COVID × H = 0	0.003	0.386	0.720	0.380	0.780	0.006
COVID + COVID × H = 0	0.946	0.817	0.190	0.016	0.428	0.001
Obs.	3162	3162	3162	3162	3162	2775
Clusters	1054	1054	1054	1054	1054	925

Notes: This table presents OLS regression results from a heterogeneity analysis that tests whether the effect of COVID-19 exposure on the dependent variables varies based on observed characteristics. Both dependent and independent variables (excluding dummies) are standardized. The dependent variables, as indicated in the table, include the amount sent (AS) in the inter-group TG without income information, the amount sent (AS) in the inter-group DG without income information, and the expected return (ER) in the inter-group TG without income information. The "COVID" variable represents self-reported exposure in the survey. The heterogeneity variables H in columns (1-6) are defined as follows: (1) H = Female, (2) H = African American (A.A.), (3) H = Older Age (above or equal 60 years), (4) H = High Education (Tertiary diploma), (5) H = High Income (5th quintile of the income distribution), and (6) H = Right-wing (7 or above on the political orientation scale). The regressions control for the natural logarithm of one plus the number of cases up to the day of the survey at the county level (where the respondent resides), the survey date, the natural logarithm of the county population, and the natural logarithm of population density at the county level. The regressions contain demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

Table A.27: COVID-Exposure and Prosociality in Experiments (Heterogeneity, Inter-group Experiments with Income Information)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG	AS-TG
COVID	0.143	0.109	0.068	-0.014	0.036	-0.058
	(0.093)	(0.071)	(0.075)	(0.092)	(0.072)	(0.092)
COVID × H	-0.145	-0.375**	-0.001	0.150	0.171	0.331**
	(0.125)	(0.174)	(0.141)	(0.126)	(0.170)	(0.130)
R2	0.073	0.075	0.072	0.073	0.072	0.079
Adj. R2	0.066	0.068	0.065	0.066	0.066	0.072
Tests						
COVID = 0	0.125	0.122	0.366	0.878	0.614	0.529
COVID × H = 0	0.249	0.031	0.995	0.235	0.314	0.011
COVID + COVID × H = 0	0.988	0.098	0.586	0.131	0.180	0.005
Dependent variable	AS-DG	AS-DG	AS-DG	AS-DG	AS-DG	AS-DG
COVID	0.200**	0.097	0.066	0.015	0.030	-0.05
	(0.098)	(0.070)	(0.075)	(0.091)	(0.070)	(0.089)
COVID × H	-0.237*	-0.191	0.022	0.112	0.256	0.313**
	(0.126)	(0.181)	(0.138)	(0.125)	(0.171)	(0.130)
R2	0.066	0.063	0.064	0.063	0.064	0.081
Adj. R2	0.059	0.057	0.057	0.057	0.058	0.074
Tests						
COVID = 0	0.041	0.165	0.381	0.873	0.675	0.574
COVID × H = 0	0.061	0.290	0.875	0.370	0.135	0.016
COVID + COVID × H = 0	0.663	0.574	0.461	0.154	0.069	0.008
Dependent variable	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG	ER-TG
COVID	0.310***	0.141**	0.146*	0.076	0.150**	-0.009
	(0.096)	(0.069)	(0.077)	(0.088)	(0.070)	(0.084)
COVID × H	-0.341***	-0.103	-0.069	0.099	-0.115	0.296**
	(0.123)	(0.177)	(0.129)	(0.124)	(0.170)	(0.130)
R2	0.050	0.044	0.044	0.044	0.044	0.067
Adj. R2	0.043	0.037	0.037	0.037	0.037	0.059
Tests						
COVID = 0	0.001	0.041	0.058	0.388	0.033	0.915
COVID × H = 0	0.006	0.561	0.592	0.427	0.500	0.023
COVID + COVID × H = 0	0.700	0.816	0.478	0.054	0.822	0.005
Obs.	3162	3162	3162	3162	3162	2775
Clusters	1054	1054	1054	1054	1054	925

Notes: This table presents OLS regression results from a heterogeneity analysis that tests whether the effect of COVID-19 exposure on the dependent variables varies based on observed characteristics. Both dependent and independent variables (excluding dummies) are standardized. The dependent variables, as indicated in the table, include the amount sent (AS) in the inter-group TG without income information, the amount sent (AS) in the inter-group DG without income information, and the expected return (ER) in the inter-group TG without income information. The "COVID" variable represents self-reported exposure in the survey. The heterogeneity variables H in columns (1-6) are defined as follows: (1) H = Female, (2) H = African American (A.A.), (3) H = Older Age (above or equal 60 years), (4) H = High Education (Tertiary diploma), (5) H = High Income (5th quintile of the income distribution), and (6) H = Right-wing (7 or above on the political orientation scale). The regressions control for the natural logarithm of one plus the number of cases up to the day of the survey at the county level (where the respondent resides), the survey date, the natural logarithm of the county population, and the natural logarithm of population density at the county level. The regressions contain demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.

A.10 Black Lives Matter Protest Intensity and Ingroup Bias

Table A.28 reports an analysis testing whether average ingroup bias varies with local BLM protest intensity. We estimate separate regressions for (i) transfers in the inter-group Trust Game (TG) without income information (column 1), (ii) expectations about returns in the inter-group TG without income information (column 2), (iii) transfers in the inter-group Dictator Game (DG) without income information (column 3), and (iv) the corresponding outcomes in the three games with income information (columns 4-6). Protest exposure is measured as the county-level number of protests following George Floyd's murder, counted over the seven days prior to (and including) each respondent's survey date. Across all specifications, the interaction between the ingroup dummy and protest exposure is statistically indistinguishable from zero. We obtain the same qualitative conclusion when estimating the regressions separately by respondents' racial/ethnic group.

Table A.28: BLM Protest Intensity and Ingroup Bias

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent	AS-TG	ER-TG	AS-DG	AS-TG	ER-TG	AS-DG	AS-DG
Ingroup	0.032**	0.028*	0.046***	0.022*	0.031**	0.031**	0.030*
	(0.014)	(0.014)	(0.016)	(0.012)	(0.016)	(0.013)	(0.017)
Ingroup × BLM	0.003	0.005	0.001	0.005	-0.001	-0.007	0.002
	(0.012)	(0.012)	(0.012)	(0.009)	(0.013)	(0.010)	(0.026)
BLM	0.061	0.036	-0.001	0.078**	0.022	0.000	0.002
	(0.037)	(0.037)	(0.035)	(0.039)	(0.036)	(0.035)	(0.065)
Obs.	3165	3165	3165	3165	3165	3165	3156
Clusters	1055	1055	1055	1055	1055	1055	1052
R2	0.036	0.065	0.025	0.074	0.041	0.062	0.062
Adj. R2	0.029	0.059	0.018	0.067	0.034	0.055	0.055
Tests							
Ingroup × BLM = 0	0.807	0.651	0.941	0.581	0.945	0.522	0.082

Notes: This table reports OLS regression results. In columns (1)-(6), the dependent variables are: (1) amounts sent (AS) in the inter-group Trust Game (TG) without income information, (2) expected returns (ER) in the inter-group TG without income information, (3) amounts sent (AS) in the inter-group Dictator Game (DG) without income information (three decisions per sender), and (4)-(6) the corresponding outcomes for the versions with income information. Both dependent and independent variables (excluding dummies) are standardized. "Ingroup" is a dummy variable set to one if the recipient shares the same race/ethnicity as the sender. BLM measures the county-level number of protests up to each respondent's survey date, including the preceding seven days. The regressions include a dummy variable for the first race/ethnicity encountered in the game and demographic controls, including race/ethnicity (African American and Hispanic, with White as the base category), age, age-squared, education (Some college and University degree, with High school or less as the base category), employment status (Self-employed, Unemployed, and Inactive, with Employed as the base category), urbanization (Town and City, with Rural as the base category), and income quintiles (with the first quintile as the base category). The regressions also control for the survey date, the natural logarithm of the county population, and the natural logarithm of population density at the county level. Standard errors, clustered at the individual level, are reported in parentheses. Significance levels are indicated by (****, ***, **, *) for two-sided p-values below 0.001, 0.01, 0.05, and 0.1, respectively.