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# Trust behaviour of sexual minorities: Evidence from a large-scale trust game experiment

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#### Abstract

Using a large-scale incentivized trust game experiment conducted across all 27 EU member states, we find that sexual minorities exhibit greater prosocial behaviour toward another vulnerable group but not toward an unknown counterpart, compared to heterosexual individuals. The observed effects are both relationship- and context-specific. Specifically, bisexual individuals and those identifying with a sexual orientation other than lesbian, gay, or heterosexual demonstrate higher trusting behaviour toward counterparts who frequently experience loneliness. This effect is not attributable to higher expectations of return, differences in risk preferences, or the individual's own lone-liness status. Furthermore, we find evidence that this relationship-specific prosocial behaviour among sexual minorities is more pronounced in countries with lower levels of LGBTIQ+ rights protection, suggesting that it is heightened in contexts where minorities face a greater risk of exclusion or discrimination. We do not find statistically significant differences in overall trustworthiness across sexual orientations. However, the results offer some evidence that bisexual individuals are more trustworthy than heterosexual trustees when they feel a strong connection to their counterpart.

Keywords: C91, C71, D64, J15, H80.

JEL Classification: Trust game, pro-sociality, LGBTIQ+, loneliness.

<sup>\*</sup>Corresponding author: E-Mail: Matija.KOVACIC@ec.europa.eu; matija.kovacic@unive.it The authors would like to thank Beatrice d'Hombres, Andrea Garnero, Caterina Mauri and Marius Alt for their contributions to the design of the EU Loneliness Survey (EU-LS) and the trust game experiment. Authors names are in alphabetical order.

# Declarations

**Conflicts of interest/Competing interests**: None of the authors have actual or potential conflict of interest. The scientific output expressed does not imply a policy position of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of this publication. **Availability of data**: https://data.jrc.ec.europa.eu/collection/id-00421.

# 1 Introduction

Between 5% and 10% of people in Europe report having a sexual orientation other than heterosexual or straight (Berlingieri and Kovacic, 2025; Ipsos, 2024).<sup>1</sup> Despite improvements in social attitudes toward sexual minorities over the past decades (Badgett et al., 2024), more than 40% of LGBTIQ+ individuals in Europe still report experiencing discrimination in various areas of life, including the workplace, housing, healthcare, and social services (FRA, 2020). Experienced and perceived discrimination have been shown to contribute to minority stress, negatively impacting health and well-being (Meyer, 1995; Dohrenwend, 2000; Meyer, 2003; Rivers et al., 2018; Meyer et al., 2019; Hoy-Ellis, 2023). Discrimination may also affect how sexual minorities interact with unfamiliar individuals, influencing their trust in others and their prosocial attitudes, with potential negative consequences for social cohesion and the economy.

Existing research on trust and pro-sociality among disadvantaged groups yields mixed findings. On the one hand, some studies suggest that individuals from marginalized backgrounds, such as racial and ethnic minorities, exhibit lower levels of generalized trust (Wilkes and Wu, 2018). A possible explanation for this is that experiences of discrimination, social exclusion, or economic disadvantage may lead individuals to be more cautious in their interpersonal interactions and less trusting of others. On the other hand, social psychology research indicates that social exclusion can, in some cases, foster prosocial behaviour rather than diminish it. Specifically, excluded individuals tend to mistrust and avoid their excluders but display higher empathy and altruism toward others (Gerber and Wheeler, 2009; Maner et al., 2007). There is also evidence that such attitudes and behaviours are transmitted across generations by historically excluded groups (Ramos-Toro, 2023). While some previous studies suggest that the level of trust among sexual minorities depends on the characteristics of their counterpart and the context (Platt and Scheitle, 2019), little is known about the specific contextual factors, such as group identity, shared vulnerability, and per-

<sup>&</sup>lt;sup>1</sup>The actual size of sexual minority populations in Europe is likely even larger, as respondents may be unwilling to disclose their true sexual orientation in surveys (Coffman et al., 2017).

ceived social connection, that shape trust, trustworthiness, and prosocial attitudes among sexual minorities.

This study examines the trusting and trustworthiness behaviour of LGB+ individuals (i.e., lesbian, gay, bisexual, or those with a sexual orientation other than heterosexual or straight) using a large-scale incentivized trust game experiment involving nearly 24,000 respondents across all 27 EU member states. Specifically, we investigate whether disclosing information about a counterpart's psychological state—namely, their experience of frequent loneliness—affects trustor behaviour and trustee reciprocity. On the one hand, a counterpart's loneliness status may signal a shared vulnerability for LGB+ individuals who also experience loneliness. On the other hand, LGB+ individuals who do not feel lonely may perceive lonely individuals as belonging to a different marginalized group, as loneliness is often associated with stigma and discrimination (Neves and Petersen, 2025; Barreto et al., 2022; Kerr and Stanley, 2021; Lau and Gruen, 1992).

We find that bisexual individuals and those identifying with another sexual orientation exhibit significantly higher levels of trust toward a lonely counterpart than their heterosexual counterparts. However, the increased trusting behaviour of these sexual minority groups is relationship-specific, as we do not observe significant differences in trusting behaviour by sexual orientation when no information about the counterpart is provided in the same game setting. The observed effect on trusting behaviour cannot be attributed to more optimistic beliefs about a counterpart's actions, stated risk preferences, or the individual's own loneliness status. This indicates that the effect is not merely a result of in-group favouritism but rather suggests prosocial behaviour toward another potentially vulnerable group. Moreover, the trusting behaviour of sexual minorities toward lonely counterparts is higher in countries with weaker protections for LGBTIQ+ rights. This suggests that their behaviour is also context-specific, with stronger potential exclusion or discrimination being associated with greater trust toward game partners who may face similar exclusion or stigmatization.

Relational closeness to the counterpart and the stigmatization of loneliness appear to

influence the higher trusting behaviour of sexual minorities. Specifically, the increased trusting behaviour of bisexual individuals and those identifying with another sexual orientation toward lonely trustees is more pronounced among individuals who perceive a stronger connection to the counterpart and among those who do not stigmatize loneliness. Moreover, while we do not observe statistically significant differences in trustworthiness behaviour by sexual orientation overall, we find that bisexual individuals exhibit higher trustworthiness toward lonely counterparts than heterosexual individuals when they perceive a strong connection to the counterpart.

Overall, the findings support the notion of higher unconditional prosocial behaviour among sexual minority groups toward another vulnerable group. Survey evidence on selfreported prosocial behaviour aligns with this finding, suggesting that LGB+ individuals, particularly women, exhibit a greater willingness to donate and volunteer. In contrast, bisexual individuals report lower generalized trust in others compared to heterosexual individuals, while the differences for other sexual minority groups are not statistically significant. Although self-reported generalized trust and trusting behaviour in an incentivized game may not provide fully comparable measures of trust (Glaeser et al., 2000), the results generally suggest that sexual minorities do not exhibit generally higher trust in others but rather show greater trust toward other vulnerable and potentially excluded groups.

Our study contributes to the literature examining the prosocial behaviours of socially excluded groups. While pro-sociality is a broad concept that extends beyond utility considerations in economic games, it encompasses behaviours that benefit others, sometimes at a personal cost. It is associated with charitable giving, volunteering, acts of kindness, and other forms of altruistic behaviour. A series of experiments by Twenge et al. (2007) found that socially excluded individuals were less likely to engage in prosocial behaviours such as donating to a student fund, volunteering for further experiments, helping after a mishap, and cooperating in mixed-motive games. This reduction in prosocial behaviour is thought to result from a diminished sense of responsibility toward others following exclusion. However, some studies suggest that social exclusion can also drive pro-sociality. Gerber and Wheeler (2009) found that experiences of social exclusion decrease prosocial behaviour only toward those responsible for the exclusion while increasing pro-sociality toward new potential sources of affiliation. Similarly, Ramos-Toro (2023) uses the case of leper colonies in Colombia as a historical example to show that socially excluded individuals tend to be more prosocial but exhibit mistrust toward those who excluded them. Research in social psychology has reached similar conclusions: socially excluded individuals tend to avoid interacting with those who excluded them while displaying greater empathy and altruism, particularly toward underprivileged groups (Maner et al., 2007; Vollhardt and Staub, 2011; Greenberg et al., 2018).

Our study also relates to the experimental literature examining behaviours in trust game settings involving sexual and gender minorities (Aksoy et al., 2023) or other minority groups (Kudashvili and Lergetporer, 2022; Cetre et al., 2024). However, while this literature primarily focuses on discrimination within the in-group–out-group interaction framework (Enke, 2024; Cappelen et al., 2025), we address intersectional solidarity, specifically, the behaviour of minorities toward other potentially discriminated groups.

Additionally, as the trust game is embedded in a survey with rich information about individual preferences and attitudes, we contribute to the emerging literature on the social and economic preferences of sexual and gender minorities (Coffman et al., 2024). In particular, we extend the results of Carpenter et al. (2025); Berlingieri and Kovacic (2025) on patience and risk taking by documenting that LGB+ women display a greater willingness to volunteer and to donate compared to heterosexual women.

The rest of the article is organised as follows. Section 2 describes the trust game, the survey used and the hypotheses. In Section 3, we show descriptive statistics and differences in self-reported trust and prosocial attitudes by sexual orientation. Section 4 presents the results of the trust game, followed by Section 5 in which we critically discuss the findings and provide conclusive remarks.

# 2 Methodology

This research relies on data from the European Union Loneliness Survey (EU-LS), which was conducted online across all 27 EU member states in late 2022. The survey collected responses from 25,646 participants aged 16 and above.<sup>2</sup> The trust game experiment was incorporated into the survey with the general objective of examining trusting behaviour toward lonely individuals (Stepanova et al., 2024).

#### 2.1 Trust game

To assess trusting behaviour and trustworthiness, a standard two-player, one-shot trust game was employed, following the framework established by Berg et al. (1995). In this game, two anonymous participants were randomly assigned to either the role of trustor (A player) or trustee (B player). Each participant, regardless of role or country of residence, began with an endowment of five coins. The trustors were then deciding how much of their endowment to transfer to the trustee. Any transferred amount was subsequently tripled, and the trustee then decided how many of the available coins to return to the trustor.

The game was introduced halfway through the survey. After engaging with an instructional module and completing an interactive tutorial, participants were required to answer two control questions designed to assess their comprehension of the game's structure and implications. Trustees indicated the amount they would return for each potential amount (ranging from 1 to 5 coins) transferred by the trustor. Participants were informed that, upon completion of the game, coins would be converted into survey points (the "currency" used for compensation by the survey provider) at a predefined exchange rate specific to each country. The exchange rate varied across countries to ensure comparability of incentives, adjusted for purchasing power parity. Additionally, participants were made aware that payouts would be

<sup>&</sup>lt;sup>2</sup>The survey was conducted by LE Europe, Ipsos, and VVA Market Research. Participants were recruited from the CINT online panels, which adhered to industry standards, including those set by ESOMAR (European Society for Opinion and Marketing Research) and the Insights Association. The survey includes approximately 1,000 respondents per country, except for Cyprus, Luxembourg, and Malta (around 500). Quotas based on the population of each member state were applied to sample selection from online consumer panels to ensure representation in terms of age, gender, education, and NUTS region of residence.

probabilistic, with one in every 25 participants being selected for payment. Implementing partial payment selection is a common practice in large-scale experimental studies (Charness et al., 2016), which, while potentially influencing the amount transferred, has not been found to significantly alter reciprocal behaviour (Johnson and Mislin, 2011).

For the trustee's role, the Selten (1967)'s strategy method was implemented, meaning that trustees were required to decide in advance how much they would return in response to each possible transfer from the trustor (1, 2, 3, 4, or 5 coins). This method is widely used in trust game experiments and has been shown to yield behaviourally equivalent results to direct response methods (Brandts and Charness, 2011).

#### **Belief Elicitation**

After making their decisions, both trustors and trustees were asked to provide an incentivized prediction about their counterpart's behaviour. Correct predictions were rewarded with an additional coin. Trustees were asked how many coins they believed the trustor had sent to them, while trustors, in turn, were supposed to predict the trustee's response:

- i. Trustors: Imagine you sent 3 coins, meaning B receives 9 coins, making their total budget 14 coins. How many coins do you think B will return to you?
- ii. Trustees: How many coins do you think A will send you?

Belief reports from trustors were standardized, as they referred to a common reference point (the same budget) rather than being dependent on actual transfers, ensuring their comparability.

#### Information Treatments

Participants were assigned to one of three treatments that varied the level of information available about their counterpart's loneliness status. The experimental conditions were structured as follows:

- i. Baseline (control) treatment: Neither the trustor nor the trustee received any information about their counterpart.
- ii. Trustee-lonely treatment: Trustors were informed that the trustee assigned to them had reported feeling lonely. Trustees received no information about their trustor, and trustors were explicitly told that their counterpart remained unaware of their own status.
- iii. Trustor-lonely treatment: Trustees were informed that their assigned trustor had reported feeling lonely, while trustors received no information about their trustee. Trustees were also made aware that trustors did not receive information about their own status.

To ensure the credibility of these treatments, participant matchings were conducted ex post, and participants were not explicitly informed that their own loneliness status was exposed to their interaction partner. All pairings in the game, therefore, reflected truthful information as disclosed in each treatment condition.

#### Feeling of connection to the counterpart

To assess the perceived connection to the counterpart in the game, participants were asked to report their feeling of closeness to their counterpart using the "Inclusion of the Other in the Self" (IOS) Scale (Aron et al., 1992) (Figure 1). Fong and Luttmer (2009) show that the closer potential donors feel to the perceived race of donation recipients, the more they donate. Their findings reaffirm that claiming to "feel close to" can arguably be interpreted as a stated preference toward a group. In the analysis, we distinguish three levels of perceived connection to the counterpart: no connection (circles not touching), low connection (small overlapping region), and high connection (large overlapping region).



#### 2.2 The EU Loneliness Survey (EU-LS)

While the main focus of the EU-LS was to measure loneliness and social connectedness, individuals were also asked about their sexual orientation. In particular, they were asked the following question: Which of the following best describes your sexual orientation? The possible answers were: Heterosexual/straight, Lesbian or gay, Bisexual, Other sexual orientation, Don't know and Prefer not to say. The survey also includes a question on gender identity, allowing for the category in another way besides male and female. However, given that few respondents do not identify with the male or female gender identity and the survey does not allow to include the full range of sexual minorities and gender identities<sup>3</sup>, in our analysis we only focus on sexual minorities.

A direct question that asked participants how often, during the past 4 weeks, they have been feeling lonely (5-point Likert scale: from None of the time to all of the time) was used to identify lonely individuals. Only individuals who reported feeling lonely most or all of the time in the last four weeks were eligible to be selected as counterparts in the information treatment setup of the trust game, ensuring that all pairings in the game for payouts were truthful to the information given to participants. Based on this question, we also construct a dummy variable denoting whether individuals feel lonely most or all of the time to analyse heterogenous effects of the treatment depending on the loneliness status of survey respondents.

Participants were also asked to report several socio-economic preferences and attitudes. Self-reported general trust was elicited by asking participants: In general how much do you

 $<sup>^{3}</sup>$ Only 0.4% of the respondents in the EU-LS survey select the category *in another way* when answering the gender question. The survey does not include information about being transgender.

trust most people? (10-points Likert scale from not at all to completely) (OECD, 2017). Prosocial preferences were elicited by asking about the willingness to donate money and to volunteer with an answer scale of ten points from not willing at all to very willing to do so (Falk et al., 2018). Time preferences were elicited by asking participants how much they were willing to give up benefits today for future profits with answer scale of ten points from not willing at all to very willing to do so (Falk et al., 2018). Respondents were also asked about their risk attitudes in three different domains (*i.e.*, financial, health and adventure risk taking). In particular, the following question was asked to measure financial risk attitudes: Are you more of a risk-taking person, or do you try to avoid risks when it concerns taking financial decisions? (Dohmen et al., 2012).

Finally, the survey asked individuals about a full range of demographic and socio-economic characteristics, childhood experiences, and behaviours in other domains, such as time usage, patterns, motivations, and potential overuse of social media (Berlingieri et al., 2024).

#### 2.3 Hypotheses

Our empirical analysis involves testing three primary hypotheses.<sup>4</sup> First, we examine trusting behaviour and trustworthiness of sexual minorities in comparison to their heterosexual counterparts. Next, we investigate how sexual minorities' trusting behaviour is influenced when information regarding the counterpart's loneliness is disclosed. In addition, we explore whether and how certain contextual factors, such as the protection of LGBTIQ+ rights and the strength of social norms and beliefs, shape the behaviours of sexual minorities. Accordingly, we define the following hypotheses:

**Hypothesis 1** Sexual minorities exhibit higher trust and trustworthiness behaviour in terms of coins sent and coins returned compared to heterosexual individuals.

**Hypothesis 2** Sexual minorities exhibit higher trust and trustworthiness behaviour towards the lonely counterpart compared to heterosexual individuals.

<sup>&</sup>lt;sup>4</sup>The hypotheses have been pre-registered in the AsPredicted Platform of the Penn Wharton Credibility Lab: https://aspredicted.org/fsx6-4x79.pdf

**Hypothesis 3** Differences in trust and trustworthiness between sexual minorities and heterosexual people are larger in countries with a lower protection of LGBTIQ+ rights.

The first two hypotheses rely on the literature demonstrating that socially marginalized individuals exhibit heightened prosocial behaviour with general tendencies towards empathy and altruism (Ramos-Toro, 2023; Maner et al., 2007; Vollhardt and Staub, 2011; Greenberg et al., 2018). The third hypothesis has to do with the degree of marginalization of sexual minorities. Since social and emotional marginalisation is generally higher in societies with lower protection of sexual minorities rights and/or in more traditional countries where predefined rules of conduct embedded in social norms and restrictions are more pronounced (Berlingieri and Kovacic, 2025), we expect that the prosocial behaviour of sexual minorities is more accentuated in those societies.

# 3 Characteristics and attitudes of sexual minorities

#### 3.1 Descriptive statistics

Our analytical sample consists of 23,990 respondents residing in all 27 EU member states who participated in the trust game and answered the loneliness question. The survey's large sample size allows for a separate analysis of different sexual orientations. Table 1 shows that 89% of respondents identify as heterosexual/straight, 2.5% as lesbian/gay, 3.9% as bisexual, 1% as having another sexual orientation, while 2.5% prefer not to disclose their sexual orientation. In addition to sexual orientation, Table 1 also presents key demographic and socio-economic characteristics considered in the analysis, by sexual orientation. Sexual minorities (i.e., lesbian/gay, bisexual individuals, and those with other sexual orientations) tend to be younger than heterosexual individuals and have lower household incomes. Moreover, they are more likely to be single and less likely to be married or to have children under the age of six.

In addition, sexual minorities are more likely than heterosexual individuals to feel lonely most or all of the time (see Table A.1 in the Appendix). While bisexual individuals do not differ from heterosexual individuals in terms of risk attitudes, lesbian and gay individuals, as well as those with another sexual orientation, tend to be more risk-prone, particularly in the health domain (see also Berlingieri and Kovacic, 2025). Finally, LGB+ individuals are more likely to report being long-term oriented (i.e., willing to forgo immediate benefits for future gains) compared to their heterosexual peers. While we do not include controls for loneliness, risk aversion, and long-term orientation in the main analysis, we present separate robustness checks demonstrating that differences in these characteristics do not drive our main findings.

Regarding individuals' behaviour concerning trust and trustworthiness in the trust game, Table 2 and Table 3 indicate that bisexual trustors, as well as those who identify with a sexual orientation other than heterosexual or gay/lesbian, send on average more coins to their counterparts when informed about their experienced disadvantage (loneliness). Interestingly, the proportion of coins returned to trustors (trustworthiness) does not differ either between sexual minority categories or between treated and untreated samples. These differences will be tested and discussed in section 4.

	Heterosexual	Lesbian/gay	Bisexual	Other SO	Pref. not say
Age					
16-25	2.353(11.0%)	141 (23.7%)	269 (28.7%)	72 (30.9%)	68(11.2%)
26-35	3,937(18.4%)	142 (23.9%)	199 (21.2%)	56 (24.0%)	73(12.1%)
36-45	4.599(21.5%)	138 (23.2%)	191 (20.4%)	44 (18.9%)	126 (20.8%)
46-55	4.937(23.1%)	105(17.7%)	137(14.6%)	38(16.3%)	142(23.5%)
56-65	3.094(14.5%)	49 (8.2%)	78 (8.3%)	12(5.2%)	107 (17.7%)
65+	2,432(11.4%)	19(3.2%)	64(6.8%)	11 (4.7%)	89 (14.7%)
Education					
< Secondary	7,748 (36.3%)	213(35.9%)	385 (41.0%)	96 (41.2%)	269(44.5%)
Post-secondary	8.025 (37.6%)	226(38.0%)	374 (39.9%)	75 (32.2%)	206 (34.0%)
Postgraduate	5.579(26.1%)	155(26.1%)	179 (19.1%)	62(26.6%)	130(21.5%)
Gender					
Male	10.276 (48.1%)	382(64.3%)	394 (42.0%)	76(32.6%)	199(32.9%)
Female	11.052 (51.8%)	193(32.5%)	517 (55.1%)	138 (59.2%)	405 (66.9%)
In another way	24(0.1%)	19(3.2%)	27(2.9%)	19 (8.2%)	1(0.2%)
HH income					
Quintile 1	2.471 (11.6%)	99(16.7%)	152(16.2%)	52(22.3%)	107 (17.7%)
Quintile 2	3.458(16.2%)	110(18.5%)	188(20.0%)	50(21.5%)	103(17.0%)
Quintile 3	4.616(21.6%)	124(20.9%)	202(21.5%)	43(18.5%)	129(21.3%)
Quintile 4	5.028(23.5%)	126(21.2%)	189(20.1%)	39(16.7%)	81 (13.4%)
Quintile 5	4,427 (20.7%)	107 (18.0%)	141 (15.0%)	37 (15.9%)	62(10.2%)
DK/refusal	1.352(6.3%)	28(4.7%)	66 (7.0%)	12(5.2%)	123(20.3%)
Type of residence					
Rural area	5.013(23.5%)	117 (19.7%)	229 (24.4%)	61 (26.2%)	148(24.5%)
Small town	6.517(30.5%)	197 (33.2%)	289(30.8%)	57 (24.5%)	190(31.4%)
City	9.696(45.4%)	278(46.8%)	410 (43.7%)	111 (47.6%)	256(42.3%)
$\widetilde{\mathrm{DK}/\mathrm{refusal}}$	126(0.6%)	2(0.3%)	10(1.1%)	4(1.7%)	11 (1.8%)
Relationship	~ /	× /	( )	· · · ·	~ /
Single	4,205 (19.7%)	280 (47.1%)	295 (31.4%)	90(38.6%)	156(25.8%)
In rel.	2,937(13.8%)	165 (27.8%)	185 (19.7%)	40 (17.2%)	64(10.6%)
Married/cohab.	11,945 (55.9%)	124 (20.9%)	377(40.2%)	81 (34.8%)	297(49.1%)
Separated	1,628 (7.6%)	23(3.9%)	57(6.1%)	12(5.2%)	37(6.1%)
Widowed	564(2.6%)	2(0.3%)	16(1.7%)	7(3.0%)	34(5.6%)
$\mathrm{DK/refusal}$	73(0.3%)	0(0.0%)	8(0.9%)	3(1.3%)	17(2.8%)
Working status	~ /	× /	( )	· · · ·	~ /
working	14,224 (66.6%)	395~(66.5%)	545 (58.1%)	122 (52.4%)	331 (54.7%)
studying	1,149(5.4%)	52(8.8%)	145 (15.5%)	30(12.9%)	33(5.5%)
unemployed	1,398(6.5%)	76 (12.8%)	87(9.3%)	35(15.0%)	58(9.6%)
retired	3,142 (14.7%)	36(6.1%)	89(9.5%)	17(7.3%)	116 (19.2%)
houseperson	1.439(6.7%)	35(5.9%)	72 (7.7%)	29(12.4%)	67(11.1%)
Children in HH					
No young kids	13,179~(61.7%)	433 (72.9%)	598~(63.8%)	140 (60.1%)	410 (67.8%)
Kids, below 6	1,968 (9.2%)	26(4.4%)	72(7.7%)	15(6.4%)	39(6.4%)
Kids, 6-15	6,205~(29.1%)	135 (22.7%)	268 (28.6%)	78 (33.5%)	156 (25.8%)
Observations	21,352 (89.0%)	594 (2.5%)	938~(3.9%)	233 (1.0%)	605~(2.5%)

Table 1: Summary statistics by sexual orientation, main covariates

**Notes:** The overall sample consists of 13,990 observations. Statistics on 268 individuals answering don't know to the sexual orientation question (1.1% of the sample) are not reported.

Panel A: Treated sample						
	Heterosexual	${\rm Lesbian/gay}$	Bisexual	Other SO	Prefer not say	
A coins to B	3.673(0.020)	3.539(0.122)	3.918(0.099)	4.069(0.203)	3.968(0.127)	
A expects from B	4.994(0.028)	4.838(0.169)	4.940(0.121)	4.983(0.305)	4.942(0.163)	
Correct answer	0.724(0.010)	0.587(0.054)	0.768(0.049)	0.586(0.085)	0.500(0.052)	
Closeness (none)	0.153(0.005)	0.180(0.030)	0.142(0.023)	0.241(0.057)	0.208(0.033)	
Closeness (low)	0.552(0.007)	0.479(0.039)	0.575(0.032)	0.500(0.066)	0.455(0.040)	
Closeness (high)	0.295(0.006)	$0.341 \ (0.037)$	0.283(0.030)	0.259(0.058)	0.338(0.038)	
Observations	5,374 (89.8%)	167~(2.8%)	233~(3.9%)	58 (1.0%)	154~(2.6%)	
	Р	anel B: Untre	ated sample			
	Heterosexual	${\rm Lesbian/gay}$	Bisexual	Other SO	Prefer not say	
A coins to B	3.513(0.020)	3.453(0.128)	3.608(0.101)	3.772(0.203)	3.506(0.122)	
A expects from B	5.024(0.028)	5.115(0.170)	5.037(0.126)	4.754(0.313)	4.878(0.162)	
Correct answer	0.722(0.010)	0.763(0.063)	0.688(0.048)	0.544(0.094)	$0.551 \ (0.049)$	
Closeness (none)	$0.151 \ (0.005)$	0.144(0.030)	0.167(0.024)	0.140(0.046)	0.244(0.034)	
Closeness (low)	0.522(0.007)	0.561(0.042)	0.562(0.032)	0.544(0.067)	0.455(0.040)	
Closeness (high)	0.327(0.006)	0.295(0.039)	$0.271 \ (0.029)$	0.316(0.062)	$0.301 \ (0.037)$	
Observations	5,362 (90.1%)	139 (2.3%)	240 (4.0%)	57 (1.0%)	156 (2.6%)	

 Table 2:
 Summary statistics by sexual orientation: trust behaviour (A players)

Table 3: Summary statistics by sexual orientation: trustworthiness (B players)

Panol A: Trastad sample								
	Heterosexual	Lesbian/gay	Bisexual	Other SO	Prefer not say			
Share B to A	0.643(0.003)	0.630(0.016)	0.646(0.013)	0.654(0.027)	0.652(0.018)			
B expects from A	3.315(0.020)	3.213(0.123)	3.381(0.101)	3.311(0.217)	3.253(0.131)			
Correct answer	0.733(0.010)	0.687(0.058)	0.619(0.050)	0.623(0.094)	0.512(0.056)			
Closeness (none)	0.142(0.005)	0.113(0.026)	0.117(0.022)	0.131(0.044)	0.241(0.034)			
Closeness (low)	0.469(0.007)	0.520(0.041)	0.498(0.034)	0.475(0.064)	0.383(0.038)			
Closeness (high)	$0.388\ (0.007)$	$0.367 \ (0.039)$	$0.386\ (0.033)$	$0.393\ (0.063)$	$0.377 \ (0.038)$			
Observations	5,300 (89.9%)	150~(2.5%)	223~(3.8%)	61~(1.0%)	162 (2.7%)			
	Р	anel B: Untre	ated sample					
	Heterosexual	${\rm Lesbian/gay}$	Bisexual	Other SO	Prefer not say			
Share B to A	0.608(0.003)	0.612(0.019)	0.618(0.013)	0.619(0.025)	0.627 (0.019)			
B expects from A	3.242(0.021)	3.246(0.140)	3.293(0.088)	3.000(0.212)	3.263(0.146)			
Correct answer	0.742(0.010)	0.630(0.064)	0.719(0.046)	0.509(0.080)	$0.534\ (0.059)$			
Closeness (none)	$0.150\ (0.005)$	$0.087 \ (0.024)$	0.169(0.024)	$0.175\ (0.051)$	$0.226\ (0.036)$			
Closeness (low)	0.445(0.007)	0.391(0.042)	$0.401 \ (0.032)$	0.439(0.066)	0.489(0.044)			
Closeness (high)	0.405(0.007)	0.522(0.043)	0.430(0.032)	$0.386\ (0.065)$	$0.286\ (0.039)$			
Observations	5,316~(90.3%)	138~(2.3%)	242~(4.1%)	57~(1.0%)	133 (2.3%)			

#### 3.2 Self-reported trust and prosocial attitudes of sexual minorities

In addition to behaviours in the incentivized trust game, sexual minorities also display different self-reported levels of generalised trust and pro-social attitudes (Figure 2). Bisexual individuals, in particular women, exhibit significantly lower levels of trust compared to their heterosexual counterparts. Lesbian women and gay man, on the other hand, have, on average, higher levels of trust but these differences are not statistically different from zero. This finding aligns with Pew Research on the LGBT community in the United States (Pew, 2013), as well as the work of Wilkes and Wu (2018) and Platt and Scheitle (2019), who argue that individuals from marginalized backgrounds, including sexual minorities, tend to exhibit lower levels of trust due to experiences of discrimination, social exclusion, or economic disadvantage. However, the observed lower trust among sexual minorities contrasts with the findings of Gerber and Wheeler (2009) and Ramos-Toro (2023), who suggest that socially excluded and discriminated groups may demonstrate heightened pro-social behaviours, driven by increased empathy and altruism. This discrepancy indicates that trust levels may be influenced by contextual factors such as group identity, shared vulnerability, and perceived social connection.

At the same time, sexual minorities are more willing to engage in pro-social behaviours, such as donating and volunteering. Indeed, panels (b) and (c) of Figure 2 show that nonheterosexual women exhibit stronger social attitudes toward others in both donation and volunteering activities. This finding, along with the observation that certain sexual minority groups display significantly more generous behaviour in the trust game compared to their heterosexual peers, provides an interesting insight into potential differences in pro-social tendencies across population subgroups based on sexual orientation.

The descriptive evidence presented thus far suggests that sexual minorities may differ from heterosexual individuals in terms of trust and pro-social attitudes. In the next section, we examine the determinants of individual trust behaviour and trustworthiness in a multivariate setting. Additionally, we conduct several robustness checks and heterogeneity analyses to assess whether, and to what extent, sexual minorities differ from the rest of the population.





**Notes:** Dependent variables are self-reported trust measured on a scale ranging between 1 (low trust) and 10 (high trust); willing to give to good causes and volunteer, both measured on a scale ranging between 1 (not at all) and 10 (perfectly). Control variables include: age, education, employments status, relationship status, household income quintiles, number of kids aged 0-5 and 6-15, rural versus urban, and country fixed effects. The method of estimation is OLS. Robust standard errors are clustered at the country of residence level. Number of observations: 23,990.

### 4 Results

#### 4.1 Trust game behaviour of sexual minorities

This section presents our main findings. Figure 3 displays the estimated coefficients from our baseline specification, in which we regress the standardized amounts of trustors' contributions on a full set of demographic and socio-economic characteristics, separately for treated and untreated individuals. For clarity and interpretational purposes, we report only the coefficients related to distinct sexual minority categories, without direct reference to the aggregated LGB+ category. In the absence of treatment (i.e., when no information is provided about the counterpart), differences in trust behaviour by sexual orientation are not statistically significant. However, when trustors are informed that their counterpart is lonely (treatment), those belonging to the LGB+ community tend to exhibit higher levels of trust (i.e., send more money) compared to heterosexual trustors.

While individuals of all sexual orientations send more coins to lonely individuals than to an unknown counterpart (see Table A.2 in the Appendix), the amount sent by bisexual individuals and those with other sexual orientations to a lonely counterpart is significantly higher than that sent by heterosexual individuals. Conversely, we do not find significant differences between lesbian or gay individuals and their heterosexual counterparts. This finding is not surprising, as several studies suggest that bisexual individuals experience higher levels of emotional distress (e.g., feelings of worthlessness, nervousness, hopelessness, and unhappiness) and loneliness compared to lesbian and gay individuals (Jorm et al., 2002; Semlyen et al., 2016; Harry Cross and Llewellyn, 2023; Berlingieri and Kovacic, 2025). This phenomenon may be attributed to the so-called "biphobia" (Meyer, 2003), which posits that bisexual individuals are particularly vulnerable due to discrimination and prejudice from both heterosexual and other sexual minority groups, in addition to the broader social stressors internalized by the entire LGB+ community (Friedman et al., 2014; Mereish et al., 2017). At the same time, as shown by Berlingieri and Kovacic (2025), gay and lesbian individuals generally do not differ from their heterosexual peers in these characteristics.

The finding that bisexual individuals exhibit higher levels of trust toward a lonely coun-

#### Figure 3: Trust behaviour by sexual orientation and treatment, trust game.



**Note**: The outcome variable is normalized to allow comparability of regression coefficients across the settings. The reference category of sexual orientation are heterosexual people. Control variables include: age, gender, education, employments status, relationship status, household income quintiles, number of kids aged 0-5 and 6-15, rural versus urban, country fixed effects, expectation about counterpart's behaviour and comprehension controls. The method of estimation is OLS. Robust standard errors are clustered at the country of residence level. Number of observations: 12074 (6057 treated and 6017 untreated).

terpart supports Hypothesis 2, suggesting that social exclusion may enhance pro-sociality toward other vulnerable and potentially stigmatized groups (Gerber and Wheeler, 2009; Ramos-Toro, 2023). Conversely, the absence of higher trust among sexual minorities toward an unknown counterpart does not confirm Hypothesis 1, although this result aligns with some existing studies. For instance, Gerber and Wheeler (2009) provide empirical evidence that experiences of social exclusion lead to a reduction in pro-social behaviour toward those responsible for the exclusion, while simultaneously fostering an increase in pro-social tendencies toward alternative potential sources of social affiliation. Similarly, Ramos-Toro (2023), drawing on the historical case of leper colonies in Colombia, demonstrates that socially marginalized individuals exhibit heightened pro-social behaviour yet display distrust toward their excluders. Findings in social psychology converge on similar conclusions, indicating that socially excluded individuals tend to avoid interactions with those who have ostracized them while exhibiting broader tendencies toward empathy and altruism (Maner et al., 2007; Vollhardt and Staub, 2011; Greenberg et al., 2018).

Differences in trustworthiness (i.e., the amount returned) by sexual orientation, on the other hand, remain statistically insignificant regardless of the treatment condition (Figure 4). This finding does not fully support our first two hypotheses, which suggest higher trustworthiness among sexual minorities. However, significant trusting behaviour combined with insignificant trustworthiness has been observed in some experimental economics and behavioural studies.

The absence of increased trustworthiness aligns with research indicating that reciprocity is less influenced by social cues and is more rigidly tied to strategic considerations or personal norms. Trustworthiness, therefore, appears to be less sensitive to social information than trust. While trustors may act altruistically based on perceived need, trustees' reciprocal behaviour is often driven by strategic concerns rather than empathy. Indeed, Cox (2004) finds that trustors contribute more when they perceive their counterpart as needy or deserving, supporting our result that knowledge of loneliness increases initial contributions. Conversely, trustees' reciprocation does not significantly change based on the trustors' behaviour or condition, likely because their decisions are influenced by incentives distinct from trust and reciprocity.

Similarly, Ashraf et al. (2006) examine whether trust is driven by altruism, expectations of reciprocity, or risk preferences, and whether trustworthiness is affected by received trust or other social preferences. Their findings indicate that trust is partially driven by beliefs about the counterpart's trustworthiness as well as by social preferences (i.e., a willingness to help the other player even when self-interest is not maximized). However, trustworthiness (reciprocity) does not significantly respond to variations in trust, meaning that even when trustors send more money, trustees do not systematically return more.

Finally, Ben-Ner et al. (2004) suggest that reciprocity does not increase linearly with the amount received but instead remains relatively stable, reinforcing the idea that reciprocity is not purely conditional on the trust received. Moreover, while trustors are sensitive to their counterpart's condition, trustees tend to act more independently, basing their reciprocity decisions on fixed internal fairness norms rather than external social signals.



Figure 4: Trustworthiness behaviour by sexual orientation and treatment, trust game.

**Note**: The outcome variable is normalized to allow comparability of regression coefficients across the settings. The reference category of sexual orientation are heterosexual people. Control variables include: age, gender, education, employments status, relationship status, household income quintiles, number of kids aged 0-5 and 6-15, rural versus urban, country fixed effects, expectation about counterpart's behaviour and comprehension controls. The method of estimation is OLS. Robust standard errors are clustered at the country of residence level. Number of observations: 11916 (5958 treated and 5958 untreated).

The differing behaviour of LGB+ individuals when interacting with a counterpart experiencing loneliness may be linked to the strength of their perceived connection. If trustors perceive themselves as emotionally, socially, or relationally close to the trustee, they may be more inclined to extend trust, anticipating reciprocity or a lower risk of dishonesty. Likewise, if trustees feel a strong connection to trustors, they may choose to return more coins as a demonstration of greater trustworthiness and unconditional kindness.

Following the trust game, players were asked to assess their perceived connection to their counterpart using different representations of Venn diagrams (see Figure 1). Table 4 presents results categorized into three levels of connection: no connection (circles not touching), low connection (small overlapping region), and high connection (large overlapping region). The difference in trusting behaviour between bisexual and heterosexual individuals is particularly pronounced among those who report a high perceived connection to their counterpart, whereas it is insignificant among those who report no perceived connection.

Moreover, in contrast to the overall findings, we observe that bisexual trustees return significantly more coins to lonely trustors than heterosexual trustees when they feel a strong connection to their counterpart. These findings suggest that the higher levels of trust and pro-sociality observed among bisexual individuals are, at least in part, associated with the degree of perceived connection to their lonely counterpart.

	Tru	usting beha	viour	Trustw	orthiness b	ehaviour
	No conn.	Low conn.	High conn.	No conn.	Low conn.	High conn.
Lesbian/gay	-0.264	-0.056	-0.047	0.349	-0.016	-0.180
	(0.222)	(0.088)	(0.212)	(0.279)	(0.092)	(0.205)
Bisexual	-0.089	$0.114^{*}$	$0.346^{**}$	-0.050	-0.126	$0.169^{**}$
	(0.225)	(0.064)	(0.139)	(0.197)	(0.078)	(0.081)
Other SO	-0.081	$0.424^{***}$	0.146	0.339	0.030	-0.104
	(0.235)	(0.107)	(0.291)	(0.280)	(0.189)	(0.238)
Prefer not say	0.073	0.040	0.377**	0.170	-0.031	0.055
-	(0.174)	(0.095)	(0.153)	(0.210)	(0.113)	(0.141)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	945	3310	1802	858	2791	2309
R-squared	0.167	0.084	0.095	0.105	0.068	0.080

 Table 4: Trust and trustworthiness behaviour towards lonely counterpart, by degree of connection

Notes: Outcome variables are normalized to allow comparability of regression coefficients across the settings. The reference category of sexual orientation are heterosexual people. Control variables includes: age, gender, education, household income quintiles, number of kids aged 0-5 and 6-15 and rural versus urban. The method of estimation is OLS. Robust standard errors clustered at the country of residence level are reported in parenthesis. Significance levels: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.

#### 4.2 Robustness of the main results

In this section, we examine whether the higher amounts of coins sent by LGB+ trustors to a lonely counterpart can be attributed to factors other than greater trust or pro-social behaviour among sexual minorities. First, given that LGB+ individuals are more likely to experience loneliness than heterosexual individuals (Berlingieri and Kovacic, 2025), it is essential to rule out the possibility that their increased trust toward a lonely counterpart is fully explained by their own loneliness status.

Table 5 presents results on trust behaviour toward a lonely counterpart, stratified by the loneliness status of trustees. Columns (2) and (4) report significant coefficients for bisexual individuals with low levels of loneliness, as measured by both a direct question (not having felt lonely most or all of the time in the past four weeks) and the UCLA loneliness scale (0–3 versus 4–6). A similar pattern is observed among individuals with other sexual orientations. Conversely, coefficients are statistically insignificant for bisexual trustors and trustors with other sexual orientations who report feeling lonely (Columns (1) and (3)). These findings suggest that the higher levels of trust exhibited by LGB+ individuals toward lonely counterparts are not driven by their own loneliness status, nor can they be attributed to in-group bias—that is, differential behaviour arising from a perceived sense of belonging to the same group.

While the differing behaviour of LGB+ trustors is not driven by their own loneliness status, the results of the previous section suggest that it may be partially explained by their stronger perceived connection to their counterpart. This could stem from a greater understanding of feelings of loneliness and the challenges associated with a disadvantaged condition. Lonely individuals are often subject to social stigma (Lau and Gruen, 1992), and their loneliness is frequently perceived as a condition that individuals can fully control and change (Barreto et al., 2022). Table 5 presents heterogeneous results based on whether respondents believe that loneliness is primarily due to factors and circumstances beyond an individual's control (no stigmatization) or whether they attribute some degree of personal responsibility to those experiencing loneliness (some stigmatization). Bisexual trustors and trustors with other sexual orientations behave differently from their heterosexual peers when they do not stigmatize loneliness, whereas differences are not statistically significant among those who attribute some level of stigma to lonely individuals. This finding provides some

	Loneline	ess (direct)	Loneline	ess (UCLA)	Stigmat	ization
	High	Low	High	Low	None	Some
$\rm Lesbian/gay$	-0.108	-0.051	$-0.214^{*}$	0.085	0.041	-0.196
	(0.214)	(0.102)	(0.106)	(0.134)	(0.124)	(0.133)
Bisexual	0.197	$0.137^{*}$	0.005	$0.318^{***}$	$0.225^{***}$	0.080
	(0.124)	(0.078)	(0.088)	(0.086)	(0.072)	(0.082)
Other SO	-0.322	0.286**	0.031	$0.373^{*}$	$0.357^{*}$	0.121
	(0.438)	(0.122)	(0.158)	(0.186)	(0.185)	(0.132)
Prefer not say	0.151	0.184***	0.190	0.198**	0.171	0.127
	(0.316)	(0.063)	(0.125)	(0.082)	(0.105)	(0.105)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	772	5285	2371	3561	2323	3501
R-squared	0.090	0.098	0.086	0.106	0.115	0.091

 Table 5: Trust behaviour versus lonely counterpart: heterogeneity by loneliness status and loneliness stigmatization

Notes: Outcome variables are normalized to allow comparability of regression coefficients across the settings. The reference category of sexual orientation are heterosexual people. Control variables includes: age, gender, education, household income quintiles, number of kids aged 0-5 and 6-15 and rural versus urban. The method of estimation is OLS. Robust standard errors clustered at the country of residence level are reported in parenthesis. Significance levels: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.

support for the notion that the distinct trust behaviour of LGB+ individuals is linked to a greater understanding of their counterpart's disadvantaged condition and a lower tendency to stigmatize loneliness.

Table 6 shows that the findings on trust behaviour toward a lonely counterpart remain robust after incorporating various controls. First, the coefficients from our main specification remain similar even when the basic set of controls is excluded from the model (column (1)). Moreover, as emphasised by Sapienza et al. (2013) and Schechter (2007), among others, trust behaviour in the trust game is influenced by several additional factors, such as risk aversion and expectations regarding the trustee's trustworthiness. According to these authors, for any given level of expectations, a more altruistic or less risk-averse sender will transfer a larger amount (Sapienza et al., 2013). In column (3), we include the expected amount returned by the trustee in our baseline model. However, the coefficients for sexual orientation remain largely stable even when expectations are excluded, suggesting no differential behaviour (see column (2)). The results also hold when accounting for the trustor's own loneliness status (column (4)), consistent with prior findings. Furthermore, trustor behaviour does not appear to be driven by individual-specific traits, such as domain-specific risk preferences (i.e., adventure, financial, and health risk-taking; column (5)) or long-term orientation (column (6)).

Furthermore, in columns (7) and (8), we account for two additional factors that may influence trust: the characteristics of individuals' social networks (Helliwell and Putnam, 2004; van der Horst and Coffé, 2012) and exposure to adverse conditions during childhood, such as emotional neglect, social isolation, or environmental instability (Reiter et al., 2023). The number of close friends and family members, as well as the frequency of contact with them, does not affect the results, despite the fact that sexual minorities are more likely to report having fewer close family members and/or friends, less frequent interactions, and a lack of someone to rely on in times of need (Berlingieri and Kovacic, 2025). Adverse childhood experiences, in contrast, decrease the coefficients of average amounts sent by sexual minorities. This may reflect the disproportionate impact of low-quality early relationships with parents or close relatives on trust among sexual minorities, or it may result from greater susceptibility to colouring or recall bias in this group.

In addition to the above evidence on the lack of significant effects of expectations on trustors' decisions, Table A.3 (in the Appendix) provides further support by regressing expectations on a comprehensive set of demographic and socio-economic controls, including different sexual minority categories. The results show no significant differences in return expectations by sexual orientation, suggesting that the observed differences in trusting behaviour are unlikely to be driven by strategic reasoning.

Finally, it is worth noting another interesting piece of evidence that complements the results from Figure 3 and Table 4, namely the significant difference in trust behaviour among individuals who prefer not to disclose their actual sexual orientation. This specific subset of individuals may feel particularly uncomfortable or unsafe revealing their identity, even in

anonymous online surveys, due to internalised negative beliefs and stigma. Indeed, the trust behaviour of those not disclosing their sexual orientation is even higher than that of bisexual individuals, though still lower than that observed among other sexual orientations.

 Table 6: Trust behaviour of LGB+ individuals versus lonely counterpart, different specifications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lesbian/gay	-0.090	-0.065	-0.044	-0.046	-0.044	-0.049	-0.052	-0.056
	(0.114)	(0.109)	(0.104)	(0.102)	(0.102)	(0.106)	(0.104)	(0.103)
Bisexual	$0.165^{**}$	$0.139^{**}$	$0.146^{**}$	$0.142^{**}$	$0.144^{**}$	$0.143^{**}$	$0.148^{**}$	$0.124^{*}$
	(0.062)	(0.061)	(0.065)	(0.065)	(0.066)	(0.064)	(0.068)	(0.070)
Other SO	$0.266^{**}$	$0.221^{**}$	$0.226^{**}$	$0.227^{**}$	$0.222^{**}$	$0.216^{*}$	$0.264^{**}$	$0.209^{*}$
	(0.114)	(0.106)	(0.103)	(0.102)	(0.103)	(0.108)	(0.107)	(0.103)
Prefer not say	$0.198^{**}$	$0.177^{**}$	$0.176^{**}$	$0.177^{**}$	$0.172^{**}$	$0.188^{**}$	$0.195^{***}$	$0.180^{**}$
	(0.079)	(0.080)	(0.071)	(0.072)	(0.075)	(0.074)	(0.069)	(0.071)
Control variables	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Expectations	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Loneliness	No	No	No	Yes	No	No	No	No
Risk aversion	No	No	No	No	Yes	No	No	No
Impatience	No	No	No	No	No	Yes	No	No
Social network	No	No	No	No	No	No	Yes	No
Childhood exp.	No	Yes						
Country FE	Yes	Yes						
Observations	6057	6057	6057	6057	6057	6057	6057	6057
R-squared	0.003	0.034	0.088	0.089	0.092	0.091	0.095	0.090

**Notes**: Outcome variables are normalized to allow comparability of regression coefficients across the settings. The reference category of sexual orientation are heterosexual people. Control variables includes: age, gender, education, household income quintiles, number of kids aged 0-5 and 6-15, rural versus urban, country fixed effects, expectation about counterpart's behaviour and comprehension controls. The method of estimation is OLS. Robust standard errors clustered at the country of residence level are reported in parenthesis. Significance levels: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.

#### 4.3 Heterogeneity analysis

In this section, we examine whether the observed effects vary by gender and specific contextual factors, including the degree of protection of LGBTIQ+ rights in individuals' country of residence and the strength of societal social norms. Understanding these differential impacts is crucial for assessing the extent to which the social context in which individuals live, as well as the actual or perceived discrimination they face, may influence differences in trust and pro-social behaviour among sexual minorities.

Table 7 replicates the trust behaviour models reported in Figure 3, separately for males and females. The results indicate that the observed effects are primarily driven by bisexual women and individuals reporting another sexual orientation. Specifically, bisexual women contribute significantly more than heterosexual women when informed about their counterpart's emotional difficulties (loneliness). Meanwhile, women with other sexual orientations exhibit higher levels of trust than heterosexual women, regardless of the treatment condition.

	Fe	male	Ν	ſale
	Treated	Untreated	Treated	Untreated
Lesbian/gay	0.020	-0.051	-0.062	-0.110
	(0.149)	(0.132)	(0.122)	(0.111)
Bisexual	$0.176^{*}$	0.098	0.120	0.033
	(0.093)	(0.090)	(0.091)	(0.114)
Other SO	$0.296^{**}$	$0.365^{***}$	0.106	-0.071
	(0.125)	(0.116)	(0.256)	(0.307)
Prefer not say	0.144	-0.038	$0.223^{*}$	0.041
	(0.102)	(0.081)	(0.112)	(0.111)
Control variables	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	3140	3117	2896	2873
R-squared	0.090	0.078	0.104	0.117

 Table 7: Trust behaviour of LGB+ individuals: by gender

Table 8 divides the sample based on the Rainbow Index, which measures equality and non-discrimination laws, legal gender recognition, bodily integrity, protection from hatred and violence, and family rights of sexual minorities in individuals' country of residence.<sup>5</sup> We classify countries into two groups: those with low enforcement of LGBTIQ+ rights (Rainbow

**Notes**: Outcome variables are normalized to allow comparability of regression coefficients across the settings. The reference category of sexual orientation are heterosexual people. Control variables includes: age, gender, education, household income quintiles. The method of estimation is OLS. Robust standard errors bootstrapped and clustered at the country of residence level are reported in parenthesis. Significance levels: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.

<sup>&</sup>lt;sup>5</sup>The Rainbow Index evaluates laws and policies in 49 countries using 74 criteria across seven thematic categories: equality and non-discrimination, family, hate crime and hate speech, legal gender recognition, intersex bodily integrity, civil society space, and asylum. For more information, see https: //www.ilga-europe.org/report/rainbow-europe-2022/

Index scores below the median of 50) and those with high enforcement (Rainbow Index scores above the median). The results reveal a clear heterogeneous effect on the likelihood of increased trust. Bisexual individuals contribute significantly more in societies where the rights of sexual and gender minorities are less enforced. This finding supports Hypothesis 3, which predicts that the pro-social behaviour of sexual minorities is more pronounced in societies with weaker protections for sexual minority rights.

	Low pr	otection	High protection		
	Treated	Untreated	Treated	Untreated	
Lesbian/gay	0.031	0.041	-0.075	-0.134	
	(0.095)	(0.154)	(0.133)	(0.087)	
Bisexual	$0.256^{***}$	0.133	0.043	0.002	
	(0.078)	(0.083)	(0.094)	(0.069)	
Other SO	0.209	0.137	0.248	0.204	
	(0.135)	(0.187)	(0.178)	(0.120)	
Prefer not say	0.150	-0.097	$0.223^{**}$	0.158	
	(0.097)	(0.062)	(0.096)	(0.160)	
Control variables	Yes	Yes	Yes	Yes	
Country FE	Yes	Yes	Yes	Yes	
Observations	3215	3168	2842	2849	
R-squared	0.104	0.101	0.082	0.080	

**Table 8:** Trust behaviour of LGB+ individuals by rights protection in country

**Notes**: Outcome variables are normalized to allow comparability of regression coefficients across the settings. The reference category of sexual orientation are heterosexual people. Control variables includes: age, gender, education, household income quintiles. The method of estimation is OLS. Robust standard errors bootstrapped and clustered at the country of residence level are reported in parenthesis. Significance levels: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.

Finally, in Table 9, we examine whether trust behaviours vary based on another contextual factor: the degree of restraint in individuals' cultures of origin, as defined by Hofstede et al. (2010).<sup>6</sup> Restraint societies are characterized by strict social norms and prohibitions that limit individual freedom of choice, where the prevailing belief is that everyone should conform to established rules and norms governing socially acceptable behaviour. This cul-

<sup>&</sup>lt;sup>6</sup>The authors develop a six-dimensional model of national culture and analyse how these values relate to individual behaviour. The six-dimension data matrix is available at https://geerthofstede.com/ research-and-vsm/dimension-data-matrix/. For further details, see Hofstede et al. (2010).

tural dimension, also referred to as "life-control," captures the extent to which individuals perceive themselves as having full autonomy over their lives (Minkov, 2009; Hofstede et al., 2010). As shown by Berlingieri and Kovacic (2025), individuals from more restrained societies are, on average, less likely to openly declare their sexual orientation, as these cultures tend to be more resistant to homosexuality (Janssen and Scheepers, 2019; Whitley, 2001; Adamczyk, 2017).

	High r	estraint	Low r	restraint
	Treated	Untreated	Treated	Untreated
Lesbian/gay	-0.042	0.106	-0.042	-0.135
	(0.111)	(0.146)	(0.123)	(0.105)
Bisexual	$0.271^{***}$	0.127	0.063	0.011
	(0.084)	(0.094)	(0.085)	(0.074)
Other SO	0.107	0.199	$0.366^{**}$	0.129
	(0.134)	(0.247)	(0.168)	(0.099)
Prefer not say	0.165	-0.129	$0.187^{*}$	0.135
	(0.104)	(0.072)	(0.093)	(0.128)
Control variables	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	2844	2817	3213	3200
R-squared	0.114	0.098	0.077	0.087

**Table 9:** Trust behaviour of LGB+ individuals by degree of restraint (proxy for the strength of social norms) in country

As expected, bisexual trustors subject to stronger societal restrictions and discrimination (high restraint) exhibit significantly greater pro-social orientation compared to trustors from less conservative countries. This finding complements the evidence from Table 8, which suggests that lower levels of protection and higher discrimination may act as a driving force for pro-social behaviour, particularly toward disadvantaged individuals, such as those experiencing loneliness.

**Notes:** Outcome variables are normalized to allow comparability of regression coefficients across the settings. The reference category of sexual orientation are heterosexual people. Control variables includes: age, gender, education, household income quintiles. The method of estimation is OLS. Robust standard errors bootstrapped and clustered at the country of residence level are reported in parenthesis. Significance levels: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.

# 5 Discussion and conclusions

Our findings provide compelling evidence of relationship-specific prosocial behaviour among sexual minorities. The study demonstrates that bisexual individuals and those identifying with a sexual orientation other than heterosexual, lesbian, or gay exhibit greater trust towards a lonely counterpart compared to heterosexual individuals, though not toward an unknown counterpart. This result aligns with theories suggesting that marginalized groups may show increased prosocial behaviour toward other disadvantaged individuals.

An interesting finding is that this trust-enhancing effect is more pronounced in countries with lower levels of LGBTIQ+ rights protection and stricter social norms, which suggests that social context may play a critical role in shaping the prosocial behaviours of sexual minorities. In societies where sexual minorities face greater exclusion and discrimination, their inclination to trust other vulnerable individuals appears to be amplified. This may be driven by a sense of solidarity with other marginalized individuals or a broader awareness of social disadvantage and stigma.

Interestingly, while bisexual and other non-heterosexual individuals exhibit higher levels of trust towards lonely counterparts, the study does not find statistically significant differences in overall trustworthiness behaviour across sexual orientations. This may suggest that while sexual minorities may be more willing to extend trust to others in certain contexts, their willingness to reciprocate trust remains comparable to heterosexual individuals. The lack of increased trustworthiness highlights that increased trust in one domain does not necessarily translates to greater overall pro-sociality in all interpersonal interactions. However, the results offer some evidence that bisexual trustees return significantly more coins to lonely trustors than heterosexual trustees when they feel a strong connection to their counterpart, which suggest that the higher levels of trust and pro-sociality observed among bisexual individuals are, at least in part, associated with the degree of perceived connection to their lonely counterpart.

The study also provides insight into the mechanisms underlying this behaviour. The results indicate that the higher trusting behaviour of sexual minorities towards lonely individuals is not driven by expectations of return, differences in risk preferences, or their own loneliness status. Instead, it is linked to relational closeness and the stigmatization of loneliness. The effect is particularly pronounced among individuals who perceive a strong connection to their counterpart and among those who do not stigmatize loneliness, reinforcing the notion that empathy and perceived shared experience play a crucial role in these trust dynamics. Moreover, the study highlights important heterogeneities in trust behaviour. Bisexual women, in particular, display higher levels of trust towards lonely counterparts compared to heterosexual women, reinforcing previous research that suggests bisexual individuals experience unique forms of marginalization.

While the findings contribute significantly to our understanding of trust behaviour among sexual minorities, several open questions remain. One limitation is that the study focuses on trust within a specific experimental context, which may not fully capture the complexities of trust and pro-sociality in real-world social interactions. Future research could explore how these behaviours manifest in everyday economic, social, and political settings. Moreover, future research could assess whether these prosocial behaviours change as social acceptance and legal protections for LGBTIQ+ individuals improve globally. Finally, further investigation is needed to determine the underlying psychological and social mechanisms that drive the observed behaviours. Experimental designs that incorporate qualitative measures of perceived discrimination, social identity, and in-group/out-group dynamics could help clarify why certain subgroups within the LGBTIQ+ community display heightened trust in specific contexts.

Overall, this study sheds light on the complex interplay between sexual orientation, social context, and trust behaviour. It provides robust evidence that sexual minorities, particularly bisexual individuals and those with other non-heterosexual orientations, exhibit greater prosocial behaviour towards lonely individuals. However, this behaviour may be context-dependent and driven by perceived relational closeness and a shared experience of social vulnerability.

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# A Appendix

	Heterosexual	${\rm Lesbian/gay}$	Bisexual	Other SO	Prefer not say
Lonely (direct)	0.118(0.002)	0.210(0.017)	0.223(0.014)	0.225(0.029)	0.122(0.015)
Risk-taking: Adventure	4.675(0.020)	5.237(0.125)	4.758(0.099)	5.078(0.214)	4.500(0.137)
Risk-taking: Financial	4.919(0.019)	5.424(0.116)	4.851(0.088)	5.127(0.195)	4.904(0.127)
Risk-taking: Health	4.706(0.019)	5.388(0.118)	4.945(0.091)	5.819(0.202)	4.932(0.132)
Long-term orientation	$6.455\ (0.016)$	6.797(0.102)	6.628(0.076)	$6.961 \ (0.161)$	6.207(0.118)

Table A.1: Loneliness and attitudes by sexual orientation

 Table A.2: Coins sent to trustee by sexual orientation and treatment

Sexual orientation	Untreated	Treated	Difference
Heterosexual	3.51	3.67	0.16
$\operatorname{Lesbian}/\operatorname{gay}$	3.45	3.54	0.09
Bisexual	3.61	3.92	0.31
Other SO	3.77	4.07	0.30
Prefer not say	3.51	3.97	0.46
Don't know	3.43	3.82	0.39
Total	3.52	3.69	0.17

	Tru	sting beha	viour	Trustw	orthiness	behaviour
	All	Treated	Untreated	All	Treated	Untreated
Lesbian/gay	-0.066	-0.109	-0.008	0.018	-0.017	0.064
	(0.060)	(0.081)	(0.095)	(0.074)	(0.096)	(0.098)
Bisexual	-0.015	-0.016	-0.015	0.064	0.063	0.064
	(0.046)	(0.074)	(0.062)	(0.050)	(0.070)	(0.060)
Other SO	-0.083	-0.019	-0.144	-0.073	-0.041	-0.098
	(0.103)	(0.139)	(0.185)	(0.102)	(0.158)	(0.152)
Prefer not say	0.008	0.051	-0.027	-0.018	-0.077	0.047
	(0.055)	(0.085)	(0.067)	(0.064)	(0.101)	(0.080)
Correct answer	0.089***	0.074***	0.105***	-0.001	0.004	-0.004
	(0.012)	(0.016)	(0.019)	(0.014)	(0.017)	(0.017)
Treatment dummy	Yes	No	No	Yes	No	No
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12504	6259	6245	12346	6161	6185
R-squared	0.018	0.018	0.026	0.008	0.014	0.010

**Table A.3:** Trust and trustworthiness behaviour of LGB+ individuals: expectations (counterpart)

Notes: Outcome variables are normalized to allow comparability of regression coefficients across the settings. The reference category of sexual orientation are heterosexual people. Control variables includes: age, gender, education, household income quintiles, number of kids aged 0-5 and 6-15 and rural versus urban. The method of estimation is OLS. Robust standard errors clustered at the country of residence level are reported in parenthesis. Significance levels: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.