

1 **Absence of intergroup discrimination in a naturalistic helping task**

2

3 **Abstract**

4 Theory suggests that individuals are more willing to sustain personal costs to benefit in-
5 group members compared to outgroup members. Real-world tests of parochial attitudes
6 have lagged behind decision-making tasks in controlled settings. We thus explored the
7 validity of the in-group favouritism argument through a naturalistic helping task that
8 entailed picking up ‘lost letters’ and posting them back to the addressee. The field
9 experiment was conducted in rural Australia and the in-group/out-group distinction was
10 established by varying the location of the receiver of the letter. We did not find any
11 evidence of an in-group bias in this spontaneous helping task. The only variable that
12 significantly affected the likelihood of a letter being returned was socioeconomic
13 prosperity of towns, a finding that corroborates our previous research in an urban
14 environment (Grueter et al. 2016; Westlake et al. 2019). The lack of intergroup
15 discrimination can be explained with the material security hypothesis (Hruschka and
16 Henrich 2013) according to which the existence of institutions (public services, global
17 markets, social safety nets) that ensure material security and safe interaction with
18 strangers lessens the need for investments in local community members to meet
19 people’s basic needs.

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21 **Key words:** in-group favouritism; parochial altruism; prosociality; lost letter; material
22 security hypothesis

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28 **Introduction**

29 In-group favouritism, the tendency to more favourably treat members of one's own
30 group than those in other groups, is a well-documented phenomenon in human societies
31 (Brewer and Campbell 1976; Chen and Li 2009; Choi and Bowles 2007; Goette et al.
32 2006; Hewstone et al. 2002; Romano et al. 2017; Tajfel et al. 1971). In-group
33 preferences can emerge with respect to a variety of groupings such as race and ethnicity
34 (Nosek et al. 2002; Whitt and Wilson 2007), religion (Sosis and Ruffle 2003), political
35 affiliation (Rand et al. 2008) and national identification (Mummendey et al. 2001). In-
36 group favouritism is central to human sociality but its prevalence and precise
37 manifestation can vary cross-culturally (Hruschka and Henrich 2013; see also Romano
38 et al. 2017). A number of explanations for such in-group bias have been provided. One
39 centres around the assumption that elevated in-group solidarity or prosociality confers a
40 group advantage in a situation of intergroup conflict (Bowles et al. 2003; Boyd and
41 Richerson 1990; Choi and Bowles 2007; García and van den Bergh 2011). Another
42 explanation focuses on the benefits individuals incur from helping an in-group member
43 in situations where members of demarcated groups frequently interact with one another;
44 one key benefit is maintaining a positive reputation which increases the likelihood of
45 positive reciprocity from in-group members (Kiyonari et al. 2000; Yamagishi et al.
46 1999;; see also Palmer 1991; but see Romano et al. 2017).

47 The application of field experiments (couched in an evolutionary framework)
48 has lagged behind decision-making tasks in lab settings in documenting cooperative
49 biases towards in-group members (for a meta-analysis see (Balliet et al. 2014).In this
50 study, we aimed to unravel whether in-group favouritism is operational at the level of

51 geographic locales. Research has shown that place identity can result from social
52 comparisons and is correlated with demarcation of neighbourhoods (Lalli 1986) and
53 higher evaluations of quality of residents' own neighbourhood (in-group) (Bernardo and
54 Palma-Oliveira 2016). Assuming that people exhibit such place identity with their town
55 of residence, we set out to test if this concept fosters in-group favouritism. We explored
56 the validity of the in-group favouritism argument through a naturalistic helping task that
57 entailed picking up 'lost letters' and posting them back to the addressee (Milgram et al.
58 1965). The in-group/out-group distinction in this experiment was established by varying
59 the location of the receiver of the letter.

60 To our knowledge, only four previous studies made explicit use of the lost letter
61 technique to examine the prevalence of group biases in prosociality. Silva and Mace
62 (2014) found evidence for the existence of in-group favouritism in Northern Ireland;
63 people were more likely to return an in-group letter (letter addressed to an organisation
64 representing the neighbourhood's majority religious group) than an out-group letter
65 (letter addressed to an organisation representing the neighbourhood's minority group).
66 (Koopmans and Veit 2014) examined the effects of religion and ethnicity on letter
67 return rates but failed to find evidence of in-group favouritism when comparing return
68 rates for letters from Turkish or Muslim organizations and from German and Christian
69 organizations. (Bridges and Clark 2000) found no difference in return rate between in-
70 county and out-county addressed letters. (Hellmann et al. 2015) showed that
71 discriminatory behaviour towards out-groups was only seen when the letter recipient
72 was a member of a stigmatized out-group, and that this effect was moderated by the
73 perceived competence of the respective member of the stigmatized out-group. Our study
74 also differs from previous lost letter studies in targeting a rural (as opposed to urban)
75 population (but see Bridges and Clark 2000).

76

77 **Methods**

78 *Data collection*

79 *Field experiment*

80 502 letters were distributed in 12 towns in Western Australia, exhibiting a range
81 of different population sizes (for a map, see SI). Table S1 details each town used, its
82 population size and the number of letters distributed in it. The median distance between
83 the towns and Perth is 213 km (minimum: 122 km; maximum: 2226 km). The towns are
84 not all connected by a major artery, as they lie in four different sections/directions. The
85 number of letters distributed per town was dependent on the town's size. The maximum
86 number of letters that could be distributed was dependent on the risk of residents
87 becoming suspicious of the experiment. We scaled the number of letters dropped
88 roughly per capita, with more letters dropped in fewer large towns and fewer letters
89 dropped in more small towns. This resulted in 252 letters being distributed across all
90 towns with a population size less than 5000 and 250 letters across all towns with a
91 population larger than 5000. Half of the letters distributed in each town were addressed
92 to a Perth address (the out-group address), and the other half were addressed to an in-
93 town address (the in-group address).

94 Towns were selected primarily based on the authors' knowledge of a resident of
95 that town who was willing to volunteer their address, and the authors' ability to travel to
96 the town. Towns with seasonal or 'fly in, fly out' work were excluded because of the
97 potential lack of community with the residential population constantly changing. The
98 population of many towns with seasonal work can double in the working season. This
99 may greatly alter the sense of community in the town because of the large number of
100 unfamiliar residents. Low residential stability may decrease an individual's trust of

101 others and their sense of community (Abascal and Baldassari 2015), circumstances that
102 are not conducive to the proliferation of parochial attitudes.

103 Letter drop technique was designed to control for encounter rates, minimize the
104 mistake of the letter for garbage, and minimize the intervention of well-meaning
105 postmen. Letter distribution locations were selected to be far away enough from each
106 other so that the chance of one individual coming across multiple letters was extremely
107 low. Letter distribution locations were visually selected to be of roughly equal distance
108 from each other, to ensure an even spread across a town. Letter distribution locations
109 were limited exclusively to residential streets. Locations also excluded construction
110 sites, public transport stops, small businesses, schools and streets leading to public
111 parks or exercise walks; this was done in order to limit the likelihood of a non-resident
112 encountering the letter, and also to control for pedestrian foot traffic, ensuring that all
113 letters had roughly the same chance of an individual encountering it. Areas in which a
114 post box or post office was in sight were excluded as letter distribution locations to
115 ensure that the effort required to return the letter was relatively consistent across all
116 letter distribution locations. Letters were dropped exclusively on pedestrian pavements
117 or at the end of driveways near the road if there was no footpath in that particular street.
118 Letters were placed address-side up. Letters were surreptitiously distributed on Friday
119 evenings to avoid postmen encountering the letters on weekdays. All letters were
120 stamped and sealed. Envelopes contained a note to reduce suspicion in case they were
121 opened, and were coded so that their exact drop location could be identified.

122 Out of the twelve rural towns included in the study, eight had a PO Box as the
123 within-town address, and four had a residential address. To ensure consistency within
124 each town, the out-group (Perth) letters were also addressed to either a PO Box or a
125 street address to match the in-town addressed letters. All Perth-addressed letters in

126 every town were addressed to G. Westwood, which was determined to be suitable for
127 the rural towns as none of the towns featured a Westwood household (White Pages
128 n.d.). The name used for the in-town letters varied from town to town depending on the
129 surnames of residents of the town. Names were checked using the residential White
130 Pages to ensure that no one by that name lived in the town; this was done to reduce the
131 likelihood of a resident passing on the letter to someone that they know by that name.
132 The actual name of the person lending their letterbox in each town was not used because
133 many people who lent their letterboxes were from well-known families in small towns
134 with known reputations that may have influenced an individual's decision to return a
135 letter.

136 Three weeks were allocated after posting and distributing the last group of
137 letters to allow 'participants' time to return them. All letters were collected from the
138 different return addresses at the conclusion of the experimental period. Each letter was
139 treated as a separate data point and was determined to have been either returned or not
140 returned. Information about each letter's distribution method and distribution location
141 was collated.

142

143 *Measures of socioeconomic status*

144 A concomitant study conducted in Perth revealed a strong positive effect of area-level
145 socioeconomic status on the percentage of letter returned (Westlake et al. 2019) which
146 prompted us to include socioeconomic status as a covariate in the statistical model (see
147 below). Socioeconomic status was measured using the Australian Bureau of Statistics'
148 (ABS) measure IRSAD (Index of Relative Socio-economic Advantage and
149 Disadvantage) (Australian Bureau of Statistics 2013; 2014). This measure consists of
150 two sub-measures: Index of Economic Resources (IER) and Index of Education and

151 Occupation (IEO). These measures were obtained for each suburb, and also smaller
152 areas within each suburb called statistical areas level 1 (SA1) (Australian Bureau of
153 Statistics 2011).

154

155 *Data analysis*

156 To address the effect of population size and group biases within rural towns, a
157 Generalized Linear Mixed Model (GLMM) with binomial error structure and logit link
158 function was conducted with the following fixed effects: in vs. out-group (whether a
159 letter was addressed to an in-town address or a Perth (out-group) address), population
160 size, IRSAD at the SA1 level, and post or letterbox (whether the address written on the
161 letter was a post office box or a street letterbox). PO Box or letterbox was included to
162 control for any effect that it may have on whether a letter would be returned or not (for
163 example, individuals may have favoured letters addressed to letterboxes over letters
164 addressed to PO Boxes). The number of post boxes in the town was not included due to
165 its high collinearity with town size. As an anti-pseudoreplication measure, the town
166 itself was included in the model as a random effect. GLMMs were computed with the
167 lme4 package (Bates et al. 2015) in the statistical software R (R Core Team 2014)
168 version 3.3.1.

169

170 *Ethics*

171 Ethics was granted by the University of Western Australia Human Research Ethics
172 Committee in accordance with the National Statement on Ethical Conduct in Human
173 Research (National Health and Medical Research Council 2015; reference number
174 RA/4/1/8257).

175

176 **Results**

177 Of the 502 letters dropped in rural towns, 224 (44.6%) were picked up by a passer-by
178 and posted to the address written on the envelope. Of these 224 letters, 113 had been
179 addressed to an out-group recipient and 111 to an in-group recipient (see also tables S1
180 and S2). Based on the results from the logistic GLMM, we were unable to reject the
181 hypothesis that the address of a letter (in-group [in-town] vs. out-group [Perth]) was not
182 a predictor of whether a letter was returned or not. IRSAD significantly positively
183 affected the probability of a letter being returned. We failed to find a significant effect
184 of population size of the town on the likelihood of a letter being returned. Additionally,
185 post or letterbox was not significant in the model, suggesting that the nature of the
186 address written on the letter (whether it was a PO Box or a residential letterbox) did not
187 affect the likelihood of a letter being returned. Many of the returned letters contained
188 hand-written notes on them such as "Hope this letter finds its way home" and "I found
189 this letter on the road but have posted it for the person", indicating that the sender
190 expressed prosocial intent.

191

192 **Table 1.** Results from a GLMM with letter return as the dependent variable and address
193 of a letter (in-town vs. out of town), population size, IRSAD (Index of Relative Socio-
194 economic Advantage and Disadvantage), and PO Box vs. Street (i.e. whether the in-
195 town and out of town addresses were PO Boxes or street addresses) as independent
196 variables. The words in parentheses are the levels for which the predictor was estimated.

197

Variables	Estimate	Standard Error	p
(Intercept)	-6.159	1.594	

Group bias (out-group)	0.093	0.195	0.635
Population size	-0.000	0.000	0.522
IRSAD	0.006	0.002	≤0.001
PO Box vs. Street (PO Box)	0.793	0.654	0.225

198

199

200 **Discussion**

201 Contrary to our expectation, this field experiment examining cooperativeness did not
 202 reveal the existence of an in-group bias in rural Western Australia¹. The fact that we
 203 had a priori excluded towns with seasonal or 'fly in, fly out' work (with presumably less
 204 community cohesion and parochialism) and still did not find parochial cooperation
 205 strengthens the results from this study. In line with our previous studies (Westlake et al.
 206 2019; Grueter et al. 2016) and work by others (e.g. Holland et al. 2012; Nettle 2015;
 207 Silva and Mace 2014), we show that area-level socioeconomic status was strongly
 208 associated with helping behaviour.

209 A number of reasons may be responsible for the lack of in-group solidarity in
 210 our study. First, the costs inherent in the altruistic act of posting a letter are relatively
 211 low, thus increasing the likelihood that people would not differentiate among groups
 212 and hence engage in unbiased helping behaviour. Second, building on social identity
 213 theory (Tajfel 1978) a certain level of in-group identification or sense of belonging to a

¹ It is possible that the group behaviours observed in this experiment are not entirely reflective of community attitudes on helping in-group or out-group members. Changing the address written on the letter is perhaps not a completely valid measure of willingness to help in-group members compared to out-group members. Individuals who encounter letters with out-of-town addresses will likely assume that they were dropped by someone who lives in the town (especially in isolated towns). Therefore, by returning an out-of-town letter, individuals may believe that they are still helping an in-group member (the individual who dropped it).

214 community or locale is needed for in group bias to materialize (Kelly 1993; Nighur and
215 Cinnirella 2007). Without conducting systematic interviews or administering surveys it
216 is unclear how strongly people identify themselves with their locale.

217 Third, anecdotally, none of the people whose addresses we used felt any
218 animosity towards Perth. The lack of an existing conflict among the groups/social
219 settings studied may have diminished the expression of parochial attitudes (cf. (Bauer et
220 al. 2014). One lost letter experiment conducted in an area rife with inter-group tensions
221 – Northern Ireland – (Silva and Mace 2014) found that conflict was associated with
222 reduced donations to out-group institutions and the return of out-group letters, but there
223 was no increase in in-group altruism.

224 A final possibility is that all-inclusive cooperative attitudes reflect the existence
225 of friendship/business ties which may not be confined to local group, or attempts at
226 keeping open channels of mutually beneficial exchange with strangers (Grueter and
227 White 2014; Schaub 2017). Pisor and Gurven (2016), for example, showed that
228 valuation of out-group strangers can be positive if there is potential for between-group
229 trade. In a similar vein, the results are consistent with the existential or material security
230 hypothesis which posits that people with access to institutions such as public services,
231 global markets and social safety nets tend to less parochial because they can meet their
232 basic needs through impartial interactions with strangers. People without such
233 institutions, on the other hand, must rely on local community members as an alternative
234 form of social insurance (Hruschka et al. 2014; Hruschka and Henrich 2013; Norris and
235 Inglehart 2011; but see Romano et al. 2017). The inhabitants of the towns included in
236 this experiment in rural Western Australia experience relatively high levels of resource
237 security and high-quality government services, which makes impartial investments in
238 regards to groups more likely. Comparative cross-cultural analyses are needed to

239 establish that material security obviates the need for in-group/out-group discrimination
240 in a *naturalistic* task using real-life measures of cooperative intent (for a behavioural
241 *experimental* approach addressing the effects of institutional quality and material
242 security on in-group favouritism, see (Hruschka et al. 2014)).

243

244 **References**

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247

248 **References**

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