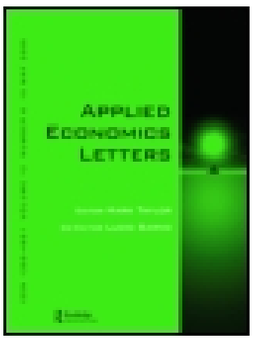

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ARTICLE

The Misaddressed Letter Experiment

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ABSTRACT
We design a new field experiment to test pro-social behaviour: will a household return a letter that has been incorrectly addressed? On average, we find that half of all letters were returned. Return rates do not vary significantly according to the gender, race or ethnicity of the fictitious addressee. However, return rates are higher in more affluent neighbourhoods.

KEYWORDS
Field experiments; discrimination; altruism

JEL CLASSIFICATION
J71; C93; D64

I. Designing a new experiment

Over recent decades, a plethora of economics studies into charitable giving, trustworthiness and the voluntary provision of public goods have debunked the notion that economics is merely the study of selfish behaviour. In a variety of settings, people have been shown to act altruistically towards strangers, refrain from cheating even when detection is impossible and assist community organizations without any prospect of reciprocal benefits.

A central challenge in this literature is to measure pro-social behaviour. Since antisocial behaviour carries a stigma, opinion surveys may produce biased estimates. In this environment, a field experiment may help researchers better quantify altruism in action.

We design and implement a new experiment: the Misaddressed Letter Experiment. In this experiment, we incorrectly mail 3000 letters to households that are randomly chosen from the telephone book. The letters bear fictional names, chosen to denote different ethnicities and genders. Households therefore are faced with a choice: either they can take the low-cost option of putting the letter in the trash or they can take the high-cost option of writing 'return to sender' on the envelope and mailing it back.

The closest previous experiment to the Misaddressed Letter Experiment is the 'Lost Letter' experiment (Milgram, Mann, and Harter 1965), in which a stamped addressed envelope is left in a public place (on the street, in a public telephone box or under a car's windscreen wiper), as though its owner had dropped it on the way to a mailbox.[1] The researcher then tests whether the finder posts the letter. Although our research was inspired by the Lost Letter approach, we believe that the Misaddressed Letter Experiment has two advantages over its predecessor. First, it is less artificial, since incorrectly addressed mail is far more common than unposted letters. Second, the Misaddressed Letter Experiment tests behaviour across a random sample of the population, while the Lost Letter experiment necessarily tests the behaviour of those who use busy public areas during the daytime. Third, the Misaddressed Letter Experiment can test particular characteristics of the recipient.

Our analysis is conducted in Australia, where two features of the postal system make it well suited to the Misaddressed Letter Experiment. First, misaddressed letters are typically delivered. Most Australian mailboxes do not display the name of the householder, and Australia Post will generally deliver a letter to an address regardless of the name

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The fieldwork for this study was conducted while the second-named author was an academic at the Australian National University. Susanne Schmidt provided outstanding research assistance. We take very seriously the ethical issues surrounding this research. Our experiment received approval from the Australian National University's Human Research Ethics Committee. Our thanks to Alison Booth and Elena Varganova for valuable feedback on an earlier draft.

[1]The Lost Letter experiment has since been used to test attitudes towards creationism (Bridges et al. 2002), same-sex marriage (Waugh, Plake, and Rienzi 2000) and abortion (Kunz and Fernquist 1989). Other Lost Letter studies have used posting rates as a measure of altruism (Holland, Silva, and Mace 2012) and explored whether posting rates vary when participants know that they are part of a research project (Fessler 2009). The Lost Letter experiment has also been extended to lost postcards (Bridges et al. 1997), lost emails (Stern and Faber 1997) and lost wallets (Helliwell and Wang 2011; Dolan, Laffan, and Kudrna 2015).

on the envelope. Second, Australia Post does not pick up outgoing letters from household mailboxes. Instead, letters must be posted at post offices or kerbside letterboxes. This is an advantage for us because it raises the cost of returning letters, relative to countries in which outgoing mail is collected from dwellings.

Recipients' addresses were chosen randomly from the telephone books for Australia's three largest cities: Sydney, Melbourne and Brisbane. All letters contained an invitation to a child's birthday party, with an email address for replies. We monitored this email address and coded the 10 emails sent to it as returned letters for the purposes of this exercise. Letters were sent in two waves (December 2007 and August 2008), and all estimates include an indicator variable to account for any change over time. Appendix Figure A1 shows examples of letters that were mailed out and returned. Of the 3000 letters that were mailed out, 1507 were returned. This 50% response rate is another attractive feature of the Misaddressed Letter Experiment, since it maximizes the possibility of identifying differences across subpopulations.

II. What explains return rates?

We first analyse return rates by the name on the envelope. One-third of our letters bore traditionally Anglo-Saxon names, while the other two-thirds were addressed to names common to Indigenous Australians, Chinese Australians, Italian Australians and Middle Eastern Australians. Comparing return rates across these groups provides one measure of the extent of prejudice against these different racial and ethnic groups. To the extent that recipients feel an affinity with the intended recipient of the misaddressed letter, they may be more likely to expend effort to return it.

Table 1 shows the results of a probit regression in which the dependent variable is an indicator for whether the letter was returned, and the key independent variables are indicators for the race, ethnicity and gender of the addressee. Unsurprisingly – since names were randomly assigned – the results are substantively unchanged if other control variables are added to the model or if it is estimated using a logit or linear probability specification. We find that return rates are slightly higher for female, Indigenous and Anglo names; but none of these differences is statistically significant at conventional levels.

Table 1. Return to sender by sender characteristics.

Dependent variable is 1 if the letter is returned, 0 if not returned			
	[1]	[2]	[3]
Indigenous sender	0.034	0.034	
	[0.027]	[0.027]	
Chinese sender	−0.013		
	[0.027]		
Italian sender	−0.016		
	[0.027]		
Middle Eastern sender	−0.013		
	[0.027]		
Immigrant sender		−0.014	
		[0.020]	
Non-Anglo sender			−0.002
			[0.002]
Female	0.019	0.019	0.019
	[0.018]	[0.018]	[0.018]
Pseudo R^2	0.001	0.001	0.001
Observations	3000	3000	3000

Notes: Table shows marginal effects from a probit model. SEs in brackets. *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. All estimates include an indicator variable for the wave in which the letters were sent. 'Immigrant sender' is an indicator variable equal to 1 for sender names that are Chinese, Italian or Middle Eastern, and 0 otherwise. 'Non-Anglo sender' is an indicator variable equal to 1 for sender names that are Indigenous, Chinese, Italian, Middle Eastern, and 0 otherwise.

Next, we look at neighbourhood characteristics. Using taxation statistics, we estimate for each zipcode the average income that each taxpayer declares, before rebates and deductions. We also calculate for each zipcode the share of income given to tax-deductible causes. This was the best measure of social capital that we were able to obtain at a zipcode level. Note that charitable tax-deductions will not capture all philanthropy, but should be regarded as a proxy for the financial generosity of each neighbourhood.[2] The average income in our sample is $52,340, and the average donation rate is 0.7% (the correlation between the two variables is 0.6).

Table 2 shows the results of this regression. Without controlling for income, we find a positive relationship between philanthropy and the letter return rate, with a 1 percentage point increase in the donation rate (equivalent to a 2 SD increase) associated with a statistically significant 4 percentage point increase in letter return rates. In a separate specification, we find that high-income neighbourhoods are

[2]As an anonymous referee pointed out, we did not pre-specify our analysis, so it could be argued that we are guilty of p-hacking or inadvertently walking 'the garden of forking paths' (Gelman and Loken 2013). In our defence, we note that we chose these two independent variables (income and charitable donations) on the basis that we regard them as the best zipcode-level proxies for socio-economic status and social capital, respectively.

Table 2. Return to sender by recipient characteristics.

Dependent variable is 1 if the letter is returned, 0 if not returned			
	[1]	[2]	[3]
Charitable donation rate in recipient neighbourhood	4.304**		−1.157
	[2.122]		[2.747]
Log(average income) in recipient neighbourhood		0.134***	0.147***
		[0.037]	[0.048]
Pseudo R^2	0.001	0.004	0.004
Observations	3000	3000	3000

Notes: Table shows marginal effects from a probit model. SEs in brackets. *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively. All estimates include an indicator variable for the wave in which the letters were sent.

more likely to return letters, with a 10% increase in average income associated with a 1 percentage point increase in letter return rates. When we include both variables in the regression, the donation rate ceases to be statistically significant, while the relationship between income and return rates remains strongly significant and of a similar magnitude.

A higher letter return rate in affluent neighbourhoods could be driven by a number of factors. Richer households are more likely to have cars and jobs, reducing the cost of returning a misaddressed letter to a street postbox or through the office postal system. Low-income families may be dealing with more life challenges, making the return of an unwanted letter a lower priority.[3] Or it may be that the pro-social act of returning someone else's letter is a normal good. Unpacking these questions would require better data than we have at our disposal.

III. Some ideas for future Misaddressed Letter Experiments

Our first implementation of the return to sender experiment suggests to us that it is a potentially useful tool for studying pro-social behaviour – since it allows researchers to experimentally vary the characteristics of the assumed sender and look at how this interacts with the traits of the recipients. In some settings, the return to sender experiment may be incompatible with the way in which the local postal system operates. But Australia is not the only country where mail workers will deliver letters based only on the address and not the name on the envelope.

Future researchers might extend the Misaddressed Letter Experiment in a number of different ways. First, it might be possible to match onto the sample specific characteristics of the recipient household, for example, using publically available data on house prices or voting behaviour. Second, the envelope could be designed to give some clue as to its contents. For example, a window-faced envelope might reveal a cheque (implying a high value to the sender of returning the envelope), or the outside of the envelope could bear the markings of a controversial cause. Third, researchers might test for an association between return rates and neighbourhood characteristics that have been linked to social capital, such as sidewalks, parks or community centres.

Disclosure statement

No potential conflict of interest was reported by the authors.

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[3]Our results are substantively unaffected by adding zipcode-level controls for the share of people who were born overseas and the share of people who moved into the neighbourhood within the previous five years.

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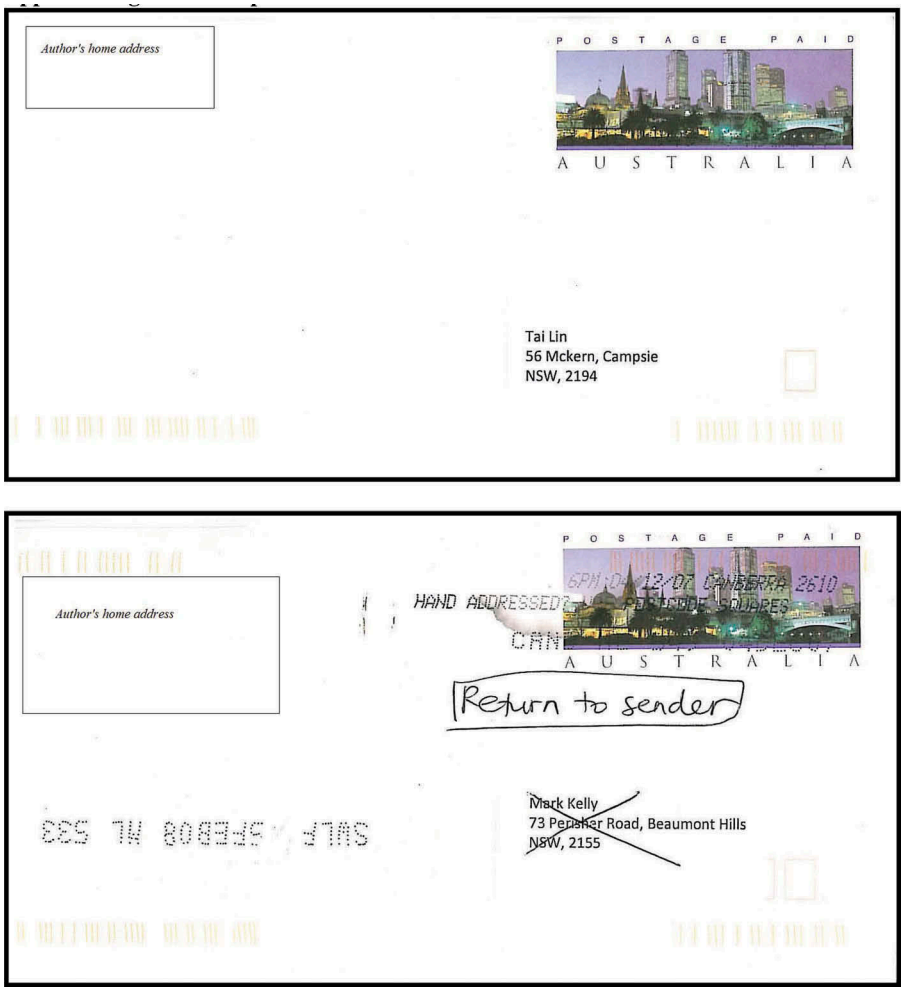

Figure A1. Sample letters sent and returned.