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David de Meza, Liza C. Fessner and Diane Reyniers
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Evidence That Waste Aversion Begets Insurance Aversion[1]

David de Meza[2] Liza C. Fessner Diane Reyniers

London School of Economics

Paying an insurance premium but not needing to claim is sometimes viewed as pouring money down the drain. Aversion to the perceived waste may lead to the rejection of fair insurance. Although policies paying rebates if no claim is made are not attractive to expected utility maximisers, this paper finds strong evidence they appeal to waste averters..

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"Waste is worse than loss" Thomas Edison

"If something happens and insurance pays, you feel you got your money's worth. But if nothing happens, you've been paying out all those premiums – don't you feel you've wasted your money? Well, I do." Annemarie Colbin, CEO, The Natural Gourmet Institute[3]

1. Introduction

Insurance is surely an exception to the maxim that it is desirable to get your money's worth. Nevertheless, for many people paying a premium but not suffering a loss amounts to pouring money down the drain.[4] This paper provides evidence that waste averters (for example, people who insist on a small portion in a restaurant, even if doing so does not reduce the bill) are reluctant to buy insurance.[5] This tendency can be alleviated by higher premium policies paying a rebate if no claim is made (cashback insurance).

Johnson, Hershey, Meszaros and Kunreuther (1993) report striking evidence consistent with this view. Of their subjects, 57% prefer a cashback policy that is strictly dominated by regular insurance. Their explanation involves loss aversion. Standard insurance entails two downside events; the premium and, potentially, the deductible. The convex value function of Prospect theory implies two small losses are worse than a single larger loss of the same aggregate amount. A cashback policy with zero deductible may therefore be chosen over regular insurance with a deductible. This explanation does not though account for our finding that 52% of respondents preferred cashback insurance over zero deductible regular insurance of equal actuarial value. [6]

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[3] http://www.foodandhealing.com/articles/article_weird_economics_healthcare.htm

[4] As Kunreuther et al. (1978) and Kunreuther and Pauly (2013) argue, it is common for people to regard insurance as an investment in which claims are the dividends. Not claiming is therefore a failed or wasted investment rather than a fortunate escape.

[5] There is a psychological literature on waste aversion. For example, Arkes and Blumer (1985) propose that waste aversion may be responsible for the sunk-cost fallacy.

[6] Insurance purchase can be reconciled with risk loving on the downside if loss probabilities are over weighted (see Krantz and Kunreuther (2007)). This though implies that a contract that overcompensates losses would be preferred to an actuarially equivalent no claim rebate. This seems

To investigate the role of waste aversion, we study how the choice of boiler insurance depends on a waste-aversion index constructed from questions unrelated to insurance. The methodology and data collection procedure is described first. Results are then analysed. Finally, brief conclusions are drawn.

2. Method

a) Questionnaire design

Subjects receive details of two insurance policies. One is based on the Npower Hometeam 50 contract. This gives a 50% rebate if no claim is made for the year. The other policy has no rebate. Both policies pay full repair or replacement costs.

Participants make hypothetical choices between regular insurance at £12 per month or cashback insurance at £x, with x decreasing from 24 in the first question to 12 in the last question. The premium for cash-back insurance in each question is set so that a risk-neutral expected income maximiser is indifferent if their chance of boiler breakdown equals 0, 0.1, 0.2, ..., 1 respectively. Risk-averse subjects with these claim probabilities would therefore strictly prefer regular insurance. Rational, attention-paying respondents select regular insurance in the first few questions and then switch to cash-back insurance by £12. Even if waste or loss aversion is present, there will be at most one switch point.

Following each choice between regular and cashback insurance, respondents are asked whether they prefer to be uninsured. Willingness to pay for cash-back insurance is therefore established along with whether regular insurance would be bought at a £12 premium if it was the only option available.

Respondents are also asked the following question:

Imagine you are offered full insurance at £300 per year. Alternatively, you can get insurance at £400 per year and get £200 back if you don't make a claim. Suppose

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unlikely to be the case. Another reconciliation is that the premium does not involve loss aversion, as in Sydnor (2010). Now overcompensation and a no claim rebate are equally preferred, which still seems implausible. Braun and Muermann (2004) explain low deductibles by means of regret aversion. This operates similarly to waste aversion, though the psychology is different.

your chance of making a claim is 50% so that ON AVERAGE you are equally well off financially under these two policies. Which would you choose?

This question spells out the financial calculation and specifies the exact loss probability.

To relate insurance purchase decisions to waste aversion we created a follow up survey administered a month later. It aims to capture the extent to which the respondent practices waste averting behaviour outside of the insurance context. Respondents indicate their level of agreement, from 1, low, to 5, high, with each of the following statements:

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a) "I walk out of a cinema when I am not really enjoying the film."

b) "I always finish reading a book I bought even if I am not enjoying it."

c) "If I get a present of perfume or after-shave that I don't really like, I still use it."

d) "I save dinner leftovers to eat later."

e) "I upgrade my mobile phone as soon as I can."

f) "It is better to buy a house than rent it since you own the house when you've paid off the mortgage."

g) "If I joined my local tennis club for an upfront £250 fixed fee which entitles me to play as much as I want without extra charge, I would go and play tennis as much as possible to make the most out of the fee I paid."

h) "I don't like buying fruit or vegetables on a 2 for 1 offer if I think I may waste some of the food."

i) "I always throw out food if it's past its use-by date even if it still looks and smells ok."

k) "I like the idea of extended warranties because if the gadget breaks down you haven't wasted your money."

Most of these questions are directly about avoiding waste. The idea behind e) is that a waste avoider would not be in a rush to replace a perfectly serviceable phone. Question f) reflects the common belief that the problem with renting is that it is wasteful because there is nothing to show for it at the end of the day-the mean score was 4.3! Answers were aggregated into a single waste-aversion index.

Risk attitudes were measured in two ways. Respondents were asked whether they would prefer £1000 or a coin toss paying £4000 for heads and nothing for tails. In addition, a five point Likert scale measured the extent of agreement with the following statement:

"I consider myself a risk-taker with respect to financial decisions".

Subjects also reported their estimated chance of boiler breakdown in the coming year.

Data collection

The questionnaires were administered by the German market research agency, 'ODC Services GmbH'. 325 British gas-boiler owners were recruited. Of these, 39 made inconsistent choices such as double switching. The follow-up survey only went to consistent subjects of whom 236 responded.

4. Findings

The variables used in the regressions are in Table 1 and the regressions reported in Table 2.

Variable name	Variable explanation
Age	Respondent's age
Cashback chosen when breakdown probability specified.	Dummy equal to 1 if a respondent chooses cashback over regular insurance with same expected cost when given the probability of loss.
Chance	Respondent's estimate of the probability of their boiler breaking down during the next 12 months.
Female	Dummy variable = 1 if the respondent is female
Risktaker	Dummy variable = 1 if a respondent chooses the coin toss rather than the sure amount and/or scores in the top two categories for financial risk taking
Income	Respondent's income
No A-Levels	Dummy equal to 1 if the respondent does not have A-Levels (an academic school-leaving qualification taken at 18)

Switch to cash-back	The highest cash-back premium for which a respondent prefers cash-back insurance to regular insurance
Switch too soon	Dummy equals 1 if the respondent switches to cash-back insurance too soon, given their estimate of the chance of a boiler breakdown
Waste aversion	Aggregate waste-aversion score.
Buy regular	Dummy equals 1 if buys regular insurance at £12 when the cashback premium is too high for that to be the preferred option.
Buy cash-back	Dummy equals 1 if a respondent buys cashback at £12.

Table 1: Variable definitions

Dependent Variable	(1) Waste Aversion	(2) Buy regular	(3) Buy cashback	(4) Switch to cashback	(5) Switch Too soon	(6) Specified-probability cashback
Waste aversion		-0.02***	-0.007	0.1**	0.01*	0.044***
		(0.317)	(0.005)	(0.045)	(0.005)	(0.006))
Risk Taker	0.58	-0.18**	0.006	1.3**	0.14**	0.14*
	(0.83)	(0.079)	(0.07)	(0.56)	(0.06)	(0.07)
Chance		0.47***	0.024 *	-0.84	0.87***	-0.077
		(0.15)	(0.12)	(1.03)	(0.12)	(0.14)
Income	-0.14	-0.01	-0.008	0.09	-0.12	-0.023
	(0.2)	(0.019)	(0.016)	(0.13)	(0.15)	(0.017)
No A-Levels	1.07	-0.043	-0.09	-0.16	0.035	0.12*
	(0.71)	(0.07)	(0.06)	(0.5)	(0.057)	(0.066)
Female	1.15	-0.006	-0.1*	-0.59	-.03	-0.1*
	(0.73)	(0.07)	(0.06)	(0.47)	(0.05)	(0.06)
Age	-0.02	0.004	0.006 **	-0.014	-0.002	0.002
	(0.03)	(0.003)	(0.002)	(0.02)	(0.002)	(0.003)
Constant	34.3***	0.99 ***	0.78***	13.2 ***	-0.19	-0.73 ***
	(1.92)	(0.28)	(0.24)	(2.02)	(0.23)	(0.26)
	n = 236	n = 236	n = 236	n = 236	n=236	n = 236
	R^2 adj. = 0.069	R^2 adj. = 0.1	R^2 adj. = 0.044	R^2 adj. = 0.05	R^2adj.=0.21	R^2 adj. = 0.23

Table 2: Regression results

Standard errors are in parentheses. *, **, *** indicate significant at the 10%, 5%, and 1% level.

The important implications of the numbered regressions are summarised below.

1) Determinants of waste aversion

Waste aversion is not significantly associated with the other variables indicating in particular that it does not proxy for risk preference.

2) Buy regular

Column (2) indicates that waste averters are significantly less likely to buy regular insurance. A one standard deviation increase in waste aversion lowers the purchase probability by 0.2. In addition, insurance is more attractive if boiler breakdown is likely. Risk aversion increases insurance demand.

3) Buy cashback

The aim is to see whether cashback insurance is less affected by waste aversion. To eliminate the effect of waste aversion on substitution between policies, the test is undertaken at cash-back premium £12, at which regular insurance is dominated. The waste-aversion coefficient is negative, as with regular insurance (eq.2), but it is no longer significant. Cash-back policies do seem to offset waste aversion.

4) Switch to cash-back

The dependent variable in column (4) is the cashback premium at which the two policies are equally preferred. Increasing waste aversion by one standard deviation increases the preference for cashback over regular full-cover insurance by 0.14, significant at the 5% level.

5) Switching too soon

25% of respondents prefer cash-back insurance at premiums that that lower their subjectively evaluated expected income. As cashback is riskier than regular insurance, these subjects violate expected utility theory. Waste averters are significantly more likely to do so (one standard deviation increase in waste aversion increasing the probability of switching too soon by 0.11). So are those with a high chance of boiler

breakdown. This probably reflects that breakdown probabilities are estimated imprecisely estimated and not fully taken into account when choices are made.

6) Specified-probability Cash-back

In column 6, the dependent variable is a dummy equal to one if the cash-back policy is chosen over regular insurance when the breakdown probability is specified and it is explicit that both options deliver equal expected returns. Relative to the switch-too-soon measure, the proportion of choices inconsistent with expected utility is much higher at 52%. A one standard deviation increase in waste aversion raises the probability of choosing cashback by 0.44. The cashback effect may be even higher here because precise knowledge of probabilities eliminates ambiguity, making the risky choice more acceptable, as found by Hogarth and Kunreuther (1995).

6. Conclusions

This paper finds that for some subjects, waste aversion resembles a tax on insurance. The anticipation that there will be nothing to show for premiums paid diminishes the attraction of insurance. Cashback insurance counteracts this effect. No-claims bonuses, though normally attributed to the incentive to combat asymmetric information, may also have merit as waste-aversion antidotes.

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