Strategic Self-Ignorance Negates the Effect of Risk Information

By LINDA THUNSTRÖM, JONAS NORDSTRÖM, KLAAS VAN 'T VELD, JASON F. SHOGREN AND MARIAH EHMKE*

Abstract

We examine if strategic self-ignorance — deliberate use of ignorance about risks as an excuse to overengage in risky behavior — negates the effects of public provision of risk information. In an experiment on Copenhagen adults, we allow subjects to choose whether to learn the calorie content of a meal before consuming it, and measure their subsequent calorie intake. We find strong evidence of strategic self-ignorance. Almost 46 percent of subjects willfully ignored calorie information, and self-selected ignorance meant they consumed significantly more than corresponding control group subjects that were provided the information. The high calorie consumption of subjects who chose to ignore information raised the average calorie consumption of all subjects (i.e. over both self-ignorant and self-informed) to the extent that calorie information provision was highly inefficient at reducing risky consumption. On average, our subjects who were presented with the option to learn/ignore information consumed the same number of calories as if they were provided no information.

* Thunström: Department of Economics and Finance, University of Wyoming, 1000 E. University Ave. Laramie, WY 82071 (e-mail: lthunstr@uwyo.edu); Nordström: Department of Food and Resource Economics, University of Copenhagen, Rolighedsvej 25, Frederiksberg C 1958, Denmark and AgriFood Economics Centre, Scheelevägen 15 D, Lund 22007, Sweden (e-mail: jno@ifro.ku.dk); van 't Veld: Department of Economics and Finance, University of Wyoming, 1000 E. University Ave. Laramie, WY 82071 (e-mail: klaas@uwyo.edu). Shogren: Department of Economics and Finance, University of Wyoming, 1000 E. University Ave. Laramie, WY 82071 (e-mail: jramses@uwyo.edu); Ehmke: Department of Agricultural and Applied Economics, University of Wyoming, 1000 E. University Ave. Laramie, WY 82071 (e-mail: mehmke@uwyo.edu). We thank Sigrid Denver and Sidsel Kjems for excellent research assistance. Institutional Review Board approval was not obtained for this study, since the type of

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"*Sometimes not seeing things can be a blessing.*" ~ August Strindberg

I. Introduction

Many people are torn between immediate desires (eating chocolate cake, smoking cigarettes, engaging in risky sex, slacking off work) and the desire to sustain longer-term goals (staying slim and healthy, getting a promotion). In Thunström et al. (2015) we present evidence that there is a (short-run) way of having your cake and eating it too: self-selected ignorance of future risks. By choosing to ignore risks of immediate pleasurable activities, people allow themselves to over-engage in risky consumption — a behavior we call "strategic self-ignorance." In an experiment performed on Stockholm adults involving consumption of ready meals, we found that 58 percent of subjects ignored costless calorie information, and appeared to use ignorance as an excuse to consume more.

The finding of strategic self-ignorance raises an important policy question — could strategic self-ignorance negate the effect of policies aimed at steering people away from risky behavior through information provision? This paper presents data from an experiment run on Copenhagen adults in the late spring of 2015, designed to address this question. We also examine the prevalence of strategic self-ignorance and its drivers, including social pressure[1], time preferences, risk preferences, and self-assessed self-control.

First, our findings indicate that strategic self-ignorance is a robust phenomenon: 46 percent of Copenhagen subjects chose to ignore the calorie content of ready meals and they used their ignorance strategically — they overconsumed under self-selected ignorance. Second, we find that subjects are more likely to choose ignorance, the more present-biased they are and the lower their self-control. Third, and most importantly, we find that strategic self-ignorance makes risk information provision largely ineffective: offering subjects optional information — i.e.,

[1] In the Stockholm experiment, subjects could observe others' decisions; the Copenhagen subjects decided in isolation.

information they can choose to ignore — has no effect on their average consumption behavior compared to not giving them information.

II. Literature

Our analysis of strategic self-ignorance relates to two strands of literature that examine information avoidance.

First, empirical studies show that people may choose ignorance of the impact their actions have on others, thereby allowing themselves to be more self-serving. The literature examining this phenomenon (e.g., Dana et al., 2007; Conrads and Irlenbusch, 2013; Grossman, 2015) refers to it as "strategic ignorance."

Second, theoretical studies show that, if the independence axiom of classical expected-utility theory is relaxed, people may prefer to ignore information about future risks to themselves. Caplin and Leahy (2001) and Kőszegi (2003) show that people may prefer to ignore information if doing so reduces anxiety about future outcomes. Oster et al. (2013) show that people may prefer ignorance to maintain anticipatory utility caused by optimism bias, and find that data on testing for Huntington disease are consistent with their model's predictions.

In our own model, presented in Thunström et al. (2015), ignorance reduces guilt from giving in to temptation. This leads to predictions that people with low self-control are prone to ignoring information, and that they will use ignorance as an excuse to overconsume harmful goods.

III. Experimental Design

We recruited 201 subjects from the general population in the Copenhagen area to participate in an hour-long experiment session at breakfast time. Participants were paid DKK 300 (around USD 43).

The Copenhagen experiment, like the Stockholm experiment, uses ready meals as the risky good. This is an excellent good for our purposes, since it is transparent in immediate pleasure (taste), but non-transparent in future harm (most people find it difficult to guess the calorie content of ready meals; see Burton et al., 2006). It thus provides scope for ignoring information about the harm.

All subjects were offered a choice between two breakfast meals: chicken with salad and pasta (490 calories), or roast beef with salad and quinoa (890 calories). Subjects were informed that one of the meals was high calorie and the other meal low calorie, and were told the specific calorie numbers, but not initially which meal was which.

The experiment was conducted in six steps:

Step 1. Subjects rated the expected taste of both meals (1=very bad, 5=very good).

Step 2. Subjects chose their preferred meal.

Step 3. The 96 subjects in the *treatment* group were given the opportunity to learn the meals' calorie content by choosing to open an envelope containing the information. If they did not want to know the calorie content of the meals, they opened another envelope that contained an empty sheet of paper. The 53 subjects in the *control informed* group were provided the calorie information both verbally and on paper. The 52 subjects in the *control uninformed* group were provided no calorie information.

Step 4. Subjects in the *treatment* and *control informed* groups were offered the opportunity to revise their meal choice. In addition, subjects in the *control informed* and *control uninformed* groups were asked if they would have avoided/taken calorie information had they had the opportunity to do so.

Step 5. Subjects finished their breakfast while answering questions that elicited time and risk preferences, self-control, nutritional knowledge, exercise and smoking habits, and socio-demographic variables.

Step 6. Subjects were weighed and measured, and their leftover food weighed to determine their calorie consumption.

IV. Strategic Self-Ignorance and Information Provision

[Insert Table 1 here.]

As shown in Table 1, 46 percent of the subjects in the *treatment* group chose to ignore the calorie information. The most straightforward way to determine if that ignorance was *strategic*, i.e., used as an excuse to overconsume calories, would be to compare these subjects' consumption

to that of *control informed* subjects who, had they been given that option, would have chosen ignorance as well. If we use the answers provided in step 4 of the experiment to perform such an analysis, we find strong evidence of strategic self-ignorance. However, the share of *control informed* subjects who claim they would have chosen ignorance (19%) is much lower than that of *treatment* subjects who actually chose ignorance (46%). A test of proportions strongly rejects the hypothesis of these being equal ($p = 0.001$), which raises concerns about hypothetical bias. We therefore instead compare calorie consumption of *treatment* and *control informed* subjects, regardless of their hypothetical information choice.

We focus on "beef lovers" — subjects who initially chose the high-calorie meal, and were therefore most likely to respond to the information by either reducing their consumption of the beef meal or switching to the lower-calorie chicken meal.

[Insert Figure 1 here.]

Figure 1 shows kernel density estimates of ultimate calorie consumption by beef lovers in all three experimental groups. It indicates a clear shift towards higher consumption when beef-loving subjects are allowed to ignore calorie information, compared to when they are given the information exogenously. This shift is confirmed by a Kolmogorov-Smirnov equality-of-distribution test, which strongly rejects the null of equality ($p = 0.011$). Similarly, a t test comparing average calorie consumption across the two groups — 585 for *treatment* group beef lovers vs. 458 for *control informed* ones — strongly rejects the null of equal means ($p = 0.022$).

[Insert figure 2 here.]

Figure 2 indicates, moreover, that self-ignorant *treatment* group subjects drive the rightward shift. This provides strong support for the presence of strategic self-ignorance, confirming our findings in the Stockholm experiment.

Figure 1 indicates also that providing risk information that subjects can choose to ignore has little impact on risk behavior: the distribution of calorie consumption for *treatment* group beef lovers is similar to that of beef lovers in the *control uninformed* group. This impression is confirmed by a Kolmogorov-Smirnov test, which fails to reject the null of equality ($p = 0.862$), as

well as by a *t* test of equal means (585 for *treatment* compared to 608 for *control uninformed*, $p = 0.619$).

The same finding applies also when comparing consumption of all subjects, i.e., beef and chicken lovers combined, see Figure 3: we cannot reject the null that average calorie consumption for the *treatment* group as a whole (495) equals that of the *control uninformed* group as a whole (532, $p = 0.327$), and a Kolmogorov-Smirnov test fails to reject the null of equal distributions ($p = 0.614$).

[Insert Figure 3 here.]

V. Exploring Drivers of Self-Ignorance

We estimate a Probit model on *treatment* group subjects to further explore the factors that determine the choice to be self-ignorant. To measure self-control, we use both an established measure from the psychology literature (developed by Tangney et al., 2004)[2] and an incentivized measure of time-inconsistent preferences (using the approach of Coller and Williams, 1999). We also use an incentivized measure of risk preferences (developed by Dave et al., 2010) and a measure of how tasty subjects expected their initial meal choice to be. For descriptive statistics of the variables included in the Probit model, see Table 2, and for estimation results, see Table 3.

[Insert Table 2 here.]

[Insert Table 3 here.]

As in the Stockholm experiment, and in line with the theory developed in Thunström et al. (2015), we find that self-control strongly affects self-ignorance. For the psychological measure, the estimated effect is non-monotonic, however. Evaluated at the mean of all other covariates, the predicted probability of choosing ignorance increases from 3% at the sample minimum self-control

[2] The measure elicits agreement with 13 items on a scale of 1-7. Items coded negatively (so that a high score indicates low self-control) were recoded positively, so that the final measure ranges from 13 (very low self-control) to 91 (very high self-control).

level (35) to 54% close to the sample mean (59), and then drops again to 3% at the sample max (84). We speculate that subjects at both self-control extremes may be more aware of self-control problems, including ignorance-driven over-indulgence, and are therefore more inclined to find out the calorie content.

Independently, lower self-control as measured by a one-unit increase in the time-inconsistency measure (the α coefficient in Prelec's (2004) discount factor $\exp\{-\beta t\}^{\alpha}$, with a sample s.d. of 1.46), increases the probability of choosing ignorance by eight percentage points. A higher preference for risk increases self-ignorance as well, but the effect is smaller and less significant.

Expected tastiness of subjects' preferred meal strongly reduces self-ignorance, perhaps by raising their general interest in the meal or their anticipation of eating a lot (which would make the meal's calorie content more important).

As in the Stockholm experiment, we find that women and people concerned with healthy eating are significantly less likely to choose self-ignorance.[3] However, we find that, in contrast to the Stockholm experiment, the number of hours/week that subjects report engaging in sports reduces their probability of choosing ignorance (although the estimate is only weakly significant). College education does not seem to impact self-ignorance. Nor do a number of other variables omitted from Table 3 — income, age, BMI, smoking, and health knowledge — even though these did appear to have significant explanatory power in the Stockholm experiment. In sum, while the Copenhagen experiment solidified our earlier findings about some determinants of self-ignorance, it raised question marks about others.[4]

VI. Conclusion

Strategic self-ignorance seems to be strongly prevalent: our findings from two experiments suggest that people use ignorance of future harm as an excuse to increase risky behavior. The

[3] Health concern is measured by subjects' level of agreement (from 1="totally disagree" to 7="fully agree") with the statement "I am very concerned about the food I eat being healthy."

[4] Since the analysis of determinants is still exploratory, we estimated a range of Probit models. The results on the self-control variables, expected taste, and gender were generally stable, but other results presented in Table 2 are more sensitive to model specification. For instance, if the sports variable is dropped from the model, health concern becomes strongly significant, and vice versa. It should be noted that bivariate correlations between all explanatory variables are low.

experiment presented in this paper shows that the increase in risky behavior caused by strategic self-ignorance is large — so large that risk-information provision may become entirely ineffective at changing average risk behavior. Concerning calories specifically, the results in this paper may help explain findings from field and natural experiments suggesting no, or limited, impact of calorie consumption from mandatory calorie labelling in restaurants (e.g. Elbel et al., 2011; Vadiveloo et al., 2011).

Our experiment is limited to calorie consumption only, and future research may want to examine the prevalence of strategic self-ignorance, and its effect on information provision, over other types of risky consumption.

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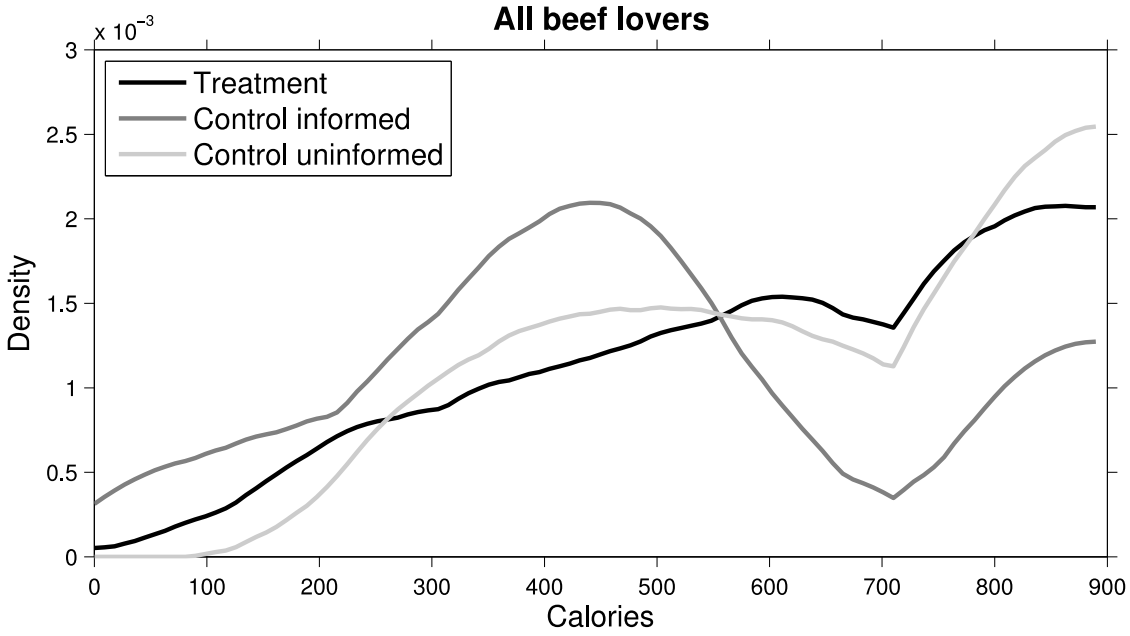

Figure 1: Calorie consumption of beef lovers

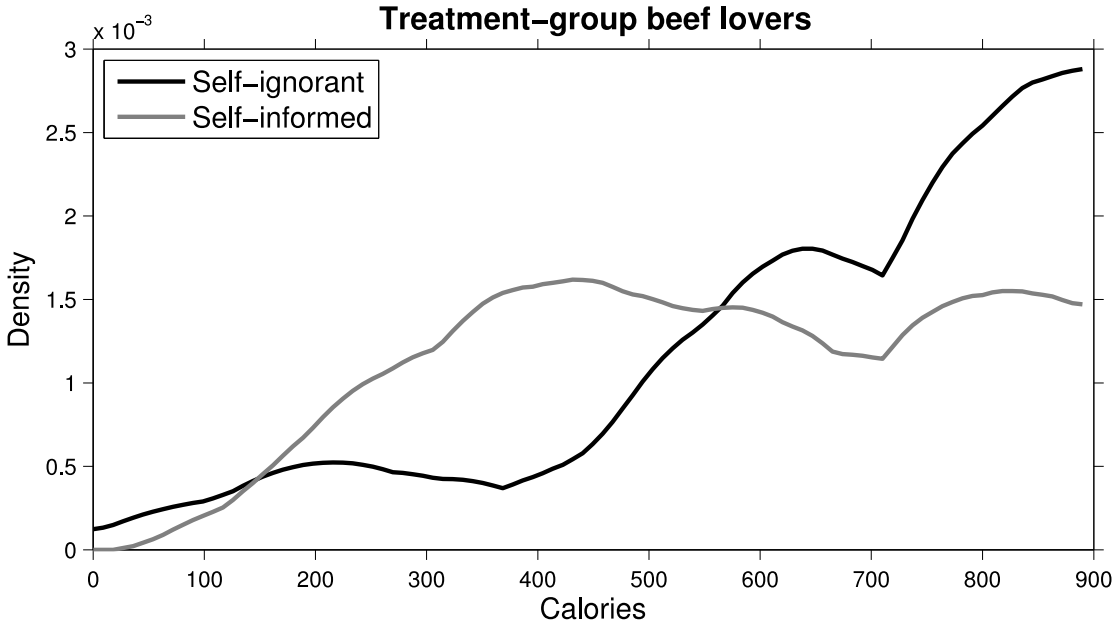

Figure 2: Calorie consumption of self-ignorant and self-informed beef lovers

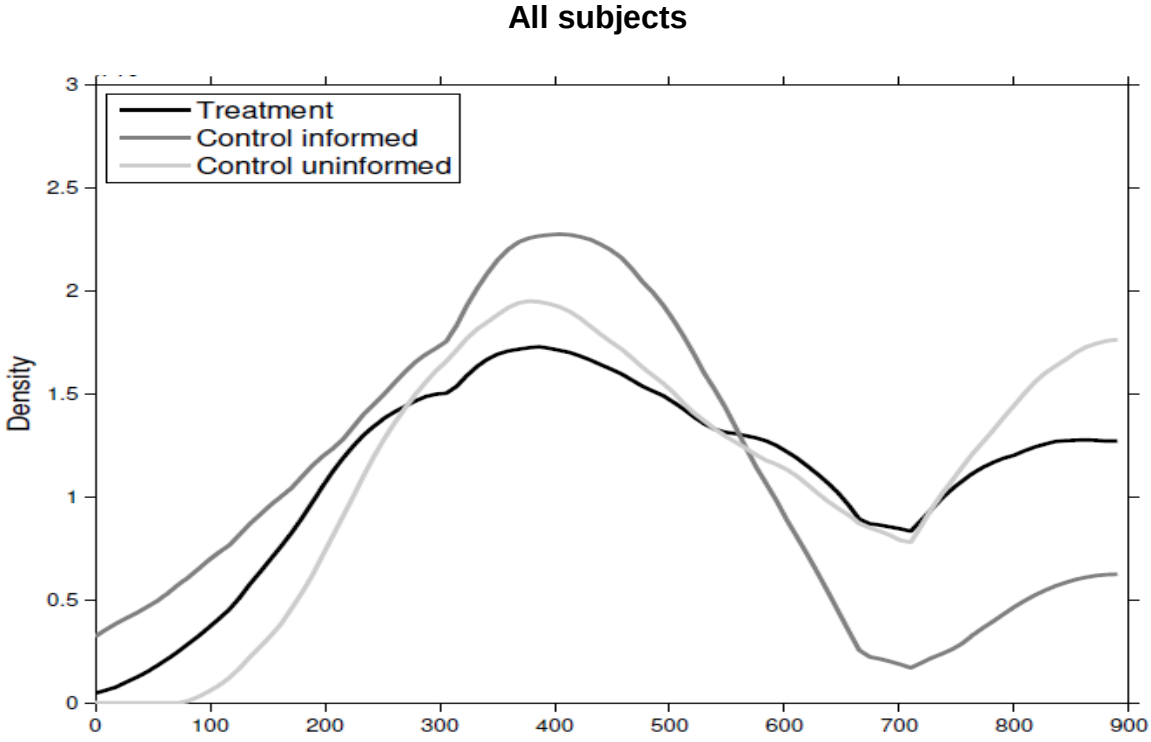

Figure 3: Calorie consumption of all treatment groups

Table 1: Average calorie consumption by different groups

Group	N	Ave. calorie consumption
All	201	480
Treatment	96	495
Self-ignorant	44 (46%)	501
Self-informed	52 (54%)	491
Control informed	53	400
Control	52	532
'Beef lovers'	121	565
Treatment	59	585
Self-ignorant	25 (42%)	642
Self-informed	34 (58%)	544
Control informed	26	458
Control	36	608

Table 2: Descriptive statistics

	Mean	S.D.	Min	Max
Self-control	58.359	10.131	34.96	83.50
Time inconsistency	0.744	1.457	-3.096	7.790
Risk preference	4.067	1.512	1	6
Expected taste	4.267	0.650	3	5
Female	0.478	0.502	0	1
Health concern	4.097	1.440	1	7
Sports	2.330	3.384	0	21
College education	0.611	0.490	0	1

Table 3: Determinants of self-ignorance

	Probit	$\partial \Pr(n)/\partial x$
Self-control	0.399**	0.00121
	(0.203)	(0.00434)
Self-control squared	-0.00338**	
	(0.00172)	
Time inconsistency	0.321**	0.0792***
	(0.131)	(0.0286)
Risk preference	0.201*	0.0496*
	(0.117)	(0.0272)
Expected taste	-0.815***	-0.201***
	(0.276)	(0.0580)
Female	-0.864**	-0.232**
	(0.348)	(0.0924)
Health concern	-0.258*	-0.0637*
	(0.141)	(0.0329)
Sports	-0.127*	-0.0313*
	(0.0695)	(0.0162)
College education	-0.533	-0.135
	(0.362)	(0.0915)
N	90	
pseudo R^2	0.36	

Notes: Entries in the first column show coefficient estimates. Entries in the second column show average marginal effects for continuous variables, and average discrete effects – i.e., $\Pr(n|y=1) - \Pr(n|y=0)$ for dummy variables. Standard errors are in parentheses. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.