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Does Information on Food Dating Influence Consumer In-store Purchasing Behavior?

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Introduction

Food loss and food waste occur at every level of the food supply chain. At the retail level, sub-optimal foods, defined as food products that are wasted even though they are fit for human consumption, contribute substantially to consumer-related food waste. One major source of sub-optimal foods results from consumers discarding edible and safe food that is beyond its “best before” date (Aschemann-Witzel et al. 2015). Best before dating, however, is not a purchase by or safety date, but is a date used by food manufacturers to indicate peak quality. Even after the date has passed, a product should be safe to consume, wholesome, and of good quality if handled properly (USDA-FSIS). The literature shows that consumers are mostly confused and uneducated on the meaning of different dating labels (Best before, Use by, Sell by), and consequently calls for consumer education as a potential action to tackle consumer-related food waste (Aschemann-Witzel et al. 2015, Van Boxtael et al. 2014, Newsome et al. 2014, NRDC 2012).

In this study, we use a non-hypothetical choice experiment to examine how consumer knowledge about food date labeling affects consumer food waste decisions and their willingness to pay for food. Moreover, we investigate how raising awareness about the environmental impacts of food waste affects purchasing behavior. We use results from a recent FAO report (FAO 2013) which assessed the extent of environmental damages including the carbon footprint, use of blue water, land use, and biodiversity effects worldwide resulting from producing food that is ultimately wasted. We also estimate consumer willingness to pay for food waste, which is the proportion of a food product that is wasted multiplied by the willingness to pay for the product (Wilson et al. 2015).

Data and Methods

Laboratory experiment participants completed a binding non-hypothetical choice experiment in which they chose whether to purchase presented food products. In each of 10 choice sets, a participant saw three food products made with blueberries and had the option to purchase one or none of the presented products. Some products had specified “best before” dates which might have been up to seven days before the experiment (“expired”) or up to fifteen days after the experiment (“unexpired”), and the expired items were available at discounted prices. One of the 10 choice sets was randomly selected for each participant to be binding. Participants also completed a survey to collect behavioral and other information, including the percentages of the

edible portions of various food types that they actually expect their households to consume.

The experiment contained two treatments and a control designed to isolate the effect of knowledge about food dating and knowledge about the environmental effects of food waste on food purchase decisions. In one treatment (ED), participants were educated about the meaning of expiration dates prior to the choice experiment – in particular that “best before” dates are not linked to food safety and that expired food is often still of high quality if kept properly. In another treatment (EE), participants were educated on food dating and also on the environmental impacts of food waste using information from the FAO (2013) report. In the control treatment, neither of these educational interventions were made.

Preliminary Results

We examine the results in a mixed logit model. We find that in the control treatment and the ED treatment in which participants received education only on the interpretation of food date labels, participants strongly prefer unexpired food to expired food. However, participants in the EE treatment providing education on the environmental impacts of food waste did not have a strong preference for unexpired food over food that is either 9 or 1 days expired. We find that willingness to pay for unexpired products is lower for those in the EE treatment than for those in the other treatments, and that participants in the EE treatment have significantly lower willingness to waste values than participants in the other treatments. For example, for products that will expire in 7 days, willingness to waste was 47-74% lower for those in the EE treatment than for those in the control treatment, and for products that will expire in 15 days, willingness to waste was 15-29% lower than for those in the control treatment. Willingness to waste values varied from \$0.59 to \$1.04 per unit for a suite of products in the control treatment, from \$0.57 to \$0.98 in the ED treatment, and from \$0.16 to 0.72 in the EE treatment. The mixed logit model also indicated that preferences across date labels were generally heterogeneous.

Conclusions

Overall, we find that educating consumers about the environmental impacts greatly reduces their willingness to waste food, and increases their willingness to consume food that is beyond its “best before” date. However, simply providing information on the interpretation of food date labels does not seem to reduce consumer willingness to waste or to mitigate the large decrease in probability of consumer

purchase of an expired food product. This indicates that if policy makers wish to reduce food waste, consumers need to be given a reason to do so, say, through public campaigns, that goes beyond the reduction of food waste in and of itself. In this study, we examined motivation to reduce food waste in order to reduce negative impacts on the environment. The long-term sustainability of this stimulus as well as other reasons that may induce consumers to reduce food waste might be examined in future studies. For example, consumers may be motivated to reduce food waste if they could clearly be shown the typical effect of food waste on the average consumer's food expenditures over a lifetime, or if food waste were linked to difficulties in distributing food to the hungry or poor.

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