The effect of providing monetary information on energy savings for household appliances: a field trial in Spain

María del Mar Solá[a], **Amaia de Ayala**[a, b*] and Ibon Galarraga [a, c]

[a] Basque Centre for Climate Change (BC3), 48940 Leioa, Spain.

[b] Department of Applied Economics I, University of the Basque Country (UPV/EHU), 48940 Leioa, Spain.

[c] Economics for Energy, Doutor Cadaval 2, 3E, 36202 Vigo, Spain

Email addresses: mar.sola@bc3research.org (M. M. Solá); amaya.deayala@ehu.eus (A. de Ayala); ibon.galarraga@bc3research.org (I. Galarraga)

**Potential presenter*

LONG ABSTRACT:

Increasing the adoption of energy-efficient technologies is one of the major challenges in the coming years if EU energy efficiency targets are to be met. Providing consumers with monetary information on energy savings from energy efficiency has been proposed in order to increase the purchase of energy-efficient appliances. However, some studies have shown discrepancies as to the effectiveness of this type of information.

This paper seeks to use behavioural economics to analyse the effectiveness of providing monetary information to consumers so as to promote the purchase of energy-efficient appliances in Spain. To that end, a field trial was carried out with 26 small retailers in Spain for three different appliances: washing machines, fridges and dishwashers. Lifetime energy savings information in the form of a monetary label was provided in addition to the existing energy efficiency label.

Three different treatments were tested. The first consisted of providing lifetime energy savings information via a monetary label. During this treatment, consumers had access to lifetime energy savings information only through the monetary label and sales staff were required not to give such information. The second treatment consisted of training sales staff to provide monetary information but not providing a monetary label, i.e. consumers received lifetime energy savings information only from sales staff. Finally, the two treatments were combined so that there was a monetary label and information was also given by sales staff.

The decision-making process for each appliance can differ. Different variables may be more important for different appliances (washing machines, fridges and dishwashers).

Our findings suggest that monetary labels presenting lifetime energy savings information may be effective in promoting the purchase of high energy-efficiency (A^{+++}) washing machines.

However, when the label is combined with information from sales staff it ceases to be effective. These results seem counterintuitive. Possible explanations may include "mental fatigue" on the part of sales staff in the last few months of the field trial. Sales staff may also have had little incentive to encourage people to purchase A^{+++} washing machines, as most of the machines available at most retailers were already A^{+++}. Different results were obtained for fridges: both Treatment 2 (information on energy savings given by sales staff) and Treatment 3 (information on energy savings given by a monetary label and by sales staff) were found to increase the probability of buying a high energy-efficiency (A^{+++}) fridge compared to the control group. Moreover, Treatment 2 (intervention of sales staff) seems to have been more effective than Treatment 3 (combination of intervention of sales staff and monetary label). This may also reflect the "mental fatigue" mentioned above. None of the treatments seems to have been effective in promoting the purchase of energy-efficient dishwashers. This is also a rather surprising result. Consumers might be expected to behave and make decisions similarly when purchasing washing machines and dishwashers, but that is not what our field experiment showed. One possible explanation is that washing machines can be considered as a primary appliance in households while dishwashers are not. In fact, during the field experiment three times as many washing machines were sold (1350) as dishwashers (421). Moreover, people seem to care more about the energy efficiency level of fridges because they are connected 24/7.

In all the appliances studied, the technical attributes for product size were found to be significant and increase the probability of buying a high energy-efficiency appliance. Heterogeneous effects were found in the interacted variables (e.g. treatment and price) depending on the product category. This may indicate that the effectiveness of the energy savings information combined with technical attributes could affect investment decisions differently depending on the product category.

As regards socio-economic factors, heterogeneous impacts were observed for age. This may indicate that decisions by consumers could change depending on their ages and on the appliance in question. One possible explanation may lie in socio-demographic factors in Spain: people aged between 30 and 45 may have families and other responsibilities that leave them with less disposable income to invest in energy efficiency. Income effects also differ for each product category, which could indicate that income is a determinant variable in decision making for washing machines and dishwashers.

Our findings suggest that providing lifetime energy savings information can be useful in promoting the purchase of high energy-efficient (A^{+++}) appliances in Spain, especially for washing machines and fridges. The results of this study indicate that monetary information could be

useful for particular appliances but not for all household appliances. To promote energy-efficient purchases, different monetary labels could be proposed for each appliance type, taking into account the peculiarities of each product category, consumer preferences and habits towards each one, the socio-economic profile of consumers, the country of implementation and the way in which monetary information is provided.

KEYWORDS: Energy efficiency, monetary label, household appliances, EU energy efficiency label, field trial