

# Behaviours to reduce plastic pollution: European citizens perspective

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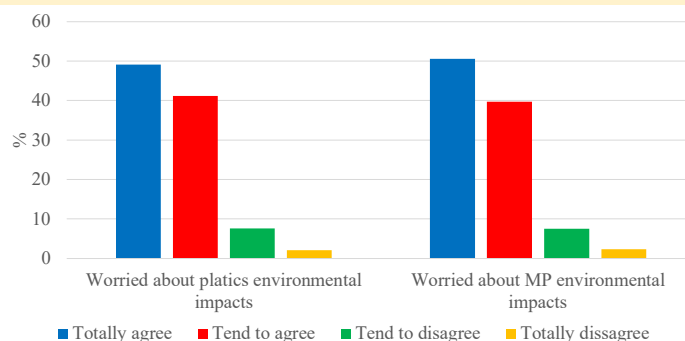
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**Introduction.** Plastic and microplastic (MP) pollution attracts research and policy attention due to its negative human health and environmental impacts. To challenge plastic and microplastic pollution, people's attitudes and behaviour regarding consumption of plastic goods and afterward proper waste management are of importance. European Strategy for Plastics in a Circular Economy (2018) highlights, that consumers play an important role in the transition to the circular economy regarding plastics by 2030. This study, referring to the Eurobarometer survey on environmental attitudes (2020), aims to analyse the self-reported actions related to reduction of plastic and microplastic pollution by Europeans and factors influencing those actions taken.

**Methods.** Analysis of attitudes and behaviour regarding plastic and MP pollution and factors behind is based on the Eurobarometer survey on environmental attitudes (2020). Study covers all EU member states, conducted between 6 and 19 December 2019 in the 28 European Union Member States, including the UK. In total 27,498 EU citizens from different social and demographic categories are interviewed, 27,083 are included into analysis. As self-stated pro environmental behaviour related to plastic use and handling 3 activities are selected: *Avoided buying over-packaged products, Avoided single-use plastic goods other than plastic bags (e.g., plastic cutlery, cups, plates) or bought reusable plastic products, Separated most of your waste for recycling.* Items of behaviour are measured using dichotomous approach (0 - no action, 1-action taken). Analysis is mainly based on descriptive statistics. Binary regression analysis was applied to reveal the influence of sociodemographic and concern variables for plastics pollution reduction behaviour (all three actions taken).

**Results.** Marine pollution is considered as important environmental issue by 36.4% Europeans. About half of respondents totally agree they are worried about plastic and MP pollution (Fig. 1). For some 52.4% Europeans protection of the environment is very important personally. Respondents indicate to avoid single use plastic products (except plastic bags) (43.8%) and overpacked products (28.4%), and most often Europeans separated waste (65.5%). However, all three actions were taken only by 15.2% of respondents. The most often those all three actions were taken in Luxemburg (33.3%), Germany (29.4%) and Sweden (28.1%) (Fig. 2).



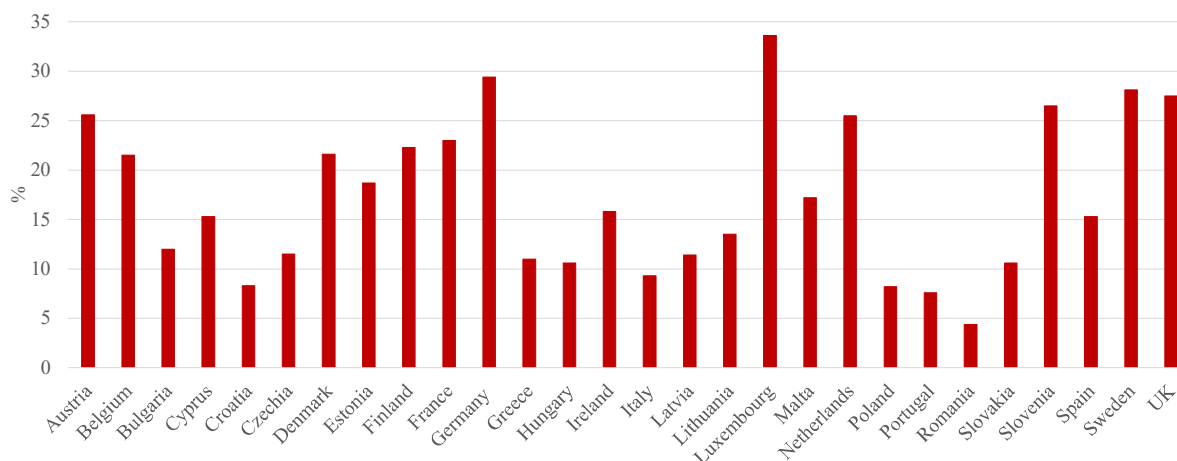
**Fig. 1. Distribution of answers regarding plastics and microplastics environmental impacts**

**Table 1. Binary regression results for all three actions taken related to plastic and microplastic pollution reduction (Ominus test<0.001)**

| Parameter/test                         | B coefficient | Std. error | Wald Square | Chi- Sig. |
|--|---------------|------------|-------------|-----------|
| Worried about plastic and MP pollution | -0.904        | 0.0419     | 465.94      | <0.001    |
| Environment/consumption interaction    | 0.214         | 0.0283     | 56.926      | <0.001    |
| Environmental protection               | -0.658        | 0.0406     | 262.953     | <0.001    |
| Type of community                      | 0.007         | 0.0239     | 0.083       | 0.773     |
| Gender [male]                          | -0.233        | 0.0377     | 38.233      | <0.001    |
| Age                                    | -0.034        | 0.0126     | 7.256       | 0.007     |
| Incomes                                | 0.413         | 0.0352     | 137.919     | <0.001    |
| Size of the household                  | 0.008         | 0.0194     | 0.167       | 0.683     |

Those with higher incomes, women, and younger as well as those understanding consumption/environment interrelationship tend to take all three actions to reduce plastic pollution ( $p < 0.05$ ) (Table 1). However, being worried about plastic and MP environmental impacts and considering environmental protection personally very important does not translate into all actions taken.

The most important in reducing plastic waste and littering for the Europeans appeared to be the role of industries and retailers, as well as product design (66.3%); extra charges for single use plastic products are acknowledged as very important measure only by 33.3% respondents.



**Fig. 2. Frequency of actions taken by respondents in the EU countries**

**Conclusions.** Avoiding overpacked products is the least popular action taken regarding plastic use and pollution reduction. All analysed behaviours related to the reduction of the plastic pollution are characteristic only to some 15% Europeans, majority of them conduct only one of the three analysed actions. Different factors behind pro-environmental behaviour suggest informational campaigns to be more targeted and specific, especially considering the role of social media as an emerging source of environmental information.