



- Household consumption patterns and behaviour have a profound effect on stocks of natural resources and the quality of the environment. As a consequence, governments have introduced a wide variety of measures to encourage people to take environmental impacts into account in their purchases and practices. Recent initiatives include the phasing out of incandescent light bulbs, the introduction of energy performance labels for homes, and the provision of tax incentives to purchase alternative-fuelled vehicles.
- As governments promote strategies to encourage more environmentally sustainable consumption patterns, this new OECD survey of households offers insight into what really works and what factors affect people's behaviour. The study focuses on five areas: households' water use, energy use, personal transport choices, organic food consumption, and waste generation and recycling.
- This publication presents the main results arising from the analysis of the survey responses, as well as the policy implications of these findings. It is based on responses from over 10 000 households in ten OECD countries: Australia, Canada, the Czech Republic, France, Italy, Korea, Mexico, the Netherlands, Norway and Sweden.

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## *Providing the right economic incentive is key*

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The findings confirm the importance of providing the right incentive to spur behavioural change. The survey shows that price-based incentives encourage energy and water savings. For instance, households charged for their consumption on a volumetric basis consume approximately 20% less water than those who are not charged. In addition, they are more likely to install water-efficient equipment at home. Similarly, charging households for the mixed waste that they generate increases recycling volumes. Finally, higher fuel costs are found to reduce car ownership and use, confirming results from previous studies.

Moreover, the evidence indicates that the effect of pricing consumption on a volumetric basis is partially informational – providing a signal to households about consumption levels. Indeed, survey responses indicate a lack of knowledge among respondents about their actual water and electricity consumption levels if their consumption is not metered at the household level. The mere fact of metering and introducing a price on the use of environment-related resources has an effect on people’s decision making, even if the price is very low. This suggests that recent campaigns to provide information to consumers by installing smart meters that display accurate real-time information on energy use in the home will affect household decisions to some extent even at low prices.

In general the results suggest that introducing price-based measures and changing relative prices (for electricity, water, fuel or waste disposal services) is necessary if emissions are to be reduced and natural resources to be conserved.

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## *Information and education play a significant complementary role*

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In addition to the significant role played by price-based measures, the survey findings indicate that “softer” instruments, based on the provision of information to consumers and on public education, can have a substantial complementary role to induce changes on the demand side. The results obtained indicate that the role of soft policy measures is more significant than earlier assessments of policy instruments have found.

The study pays particular attention to the role of environmental awareness and households’ concern for the environment, and the impacts these have on decision making. Respondents who express a particular concern for the environment relative to other issues, are more likely to adopt practices and make investments which reduce environmental impacts. For example, environmental awareness is a main driver for water-saving behaviours and reduces the likelihood of owning a car. Concern for the environment also influences demand for energy-efficient appliances and renewable energy, as well as the intensity of waste recycling and decisions to consume organic food. In some cases, the effects may be indirect. For instance, results indicate that concern for solid waste generation has a negative impact on the likelihood of drinking bottled water.

This indicates that an important task for governments may be to bolster information campaigns in order to raise people’s environmental awareness and induce behavioural change. Increased awareness of the environmental impacts of consumption choices may also increase the political acceptability of policies, facilitating their implementation. Once in place, enforcement costs may also be reduced since the policies are more likely to be seen as justified by households.

In addition to the impact of respondents’ awareness and concern for environmental issues, this work emphasises the role of people’s social and environmental norms more generally. Policies can have an effect on norms, for instance on how we see the environmental good which is to be protected by the government measures. This is illustrated in the case of households’ willingness to pay for a recycling programme. The results indicate that intrinsic motivations such as a sense of civic duty play a significant role in explaining our recycling efforts. As such, policy makers need to take into account the effect of different policy measures on individuals’ underlying norms. Further work on the relationship between norms, policy instruments, and household decision making could be usefully carried out.

Even if consumers are concerned about the environmental impacts of their purchase decisions and have strong pro-environmental norms, they may not have access to the information required to behave accordingly. The findings also stress the usefulness of providing information on product characteristics to consumers so that they can make informed decisions. Eco-labels need to be clear and comprehensible to work and, as such, measures that encourage ease of identification and understanding of eco-labels are likely to be more effective. Trust in the information provided (and the source of such information) is also central to their effectiveness.

Moreover, labels prove to be particularly effective if they identify both “public” and “private” benefits. People are more likely to respond to eco-labels if the environmental benefits co-exist with more direct personal benefits for the consumer, such as reduced energy bills resulting from energy-saving behaviour. The personal health benefits which many respondents associate with the consumption of organic food is another example. Eco-labels could exploit the potential for such private benefits to a larger extent, particularly since people’s willingness-to-pay for improved environmental quality is often limited.

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### *Operating on the supply side to complement demand side measures*

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While encouraging household demand for environmental quality is through prices and information is key, the supply of environment-related public services to households can be an important complement. Measures such as collection services for recyclable materials, the provision of public transportation, or the characteristics of electricity supply, also clearly matter. Indeed, the results indicate demand-side measures tend to have a more significant effect on individual behaviour when implemented in combination with investments in environment-related services. For instance, the survey findings confirm that access to public transport has an impact on people’s car ownership and how many kilometres they drive. Furthermore, the presence and quality of collection services for recyclables is found to increase recycling participation and intensity, and recycling levels are highest when households have access to door-to-door collection services.

However, it is particularly important to bear in mind the costs associated with the provision of such infrastructure. For instance, people’s use of public transportation increases significantly if the nearest stop is within five minutes from their residence. Yet, increasing the density of public transport to such an extent can be exceedingly costly. In the area of waste, while a drop-off scheme may be less effective with respect to recycling rates than a door-to-door collection scheme, the latter is likely to be much more costly in terms of service provision.

The survey results indicate governments may have to rely particularly heavily upon supply side measures in areas where environment-friendly decisions tend to be only weakly driven by household demand. For instance, people do not appear to be willing to pay very much to use “green” energy, such as wind or solar, rather than conventional energy. This is in line with the findings of previous studies. Indeed, relatively few households are prepared to spend more than 5% above their current electricity bill to use green energy, and almost half of them are not willing to pay anything. Similarly, people do not want to pay a significant price premium to consume organic food products relative to conventional substitutes – generally less than 15%. Overall, 30% of respondents are not willing to spend anything extra for organic food.

This implies that underlying household demand for environmental quality is unlikely to be sufficient to reach ambitious policy objectives. Moreover, if there are significant political constraints on the introduction of measures which increase the price of environmentally-damaging behaviour and consumption sufficiently, supply-side measures will have a significant complementary role to play.

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### *Using a mix of instruments to spur behavioural change matters*

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The survey results provide useful insight on conditions under which it may be necessary to combine instruments in order to increase the efficiency and effectiveness of policies. The combined use of market-based instruments, information-based policies, and supply-side measures has been discussed above.

In addition, when implementing policy packages targeting household behavioural change, it is essential to keep in mind that households may adjust only after a significant time-lag. Taking into account this delayed responsiveness to price incentives is particularly important when addressing certain environmental concerns where consumption is affected by choices related to investment in capital goods (such as appliances or vehicles), and even by the location and characteristics of their residence. The short-term response may be limited until households adjust their stock of durables and lifestyles, and different measures may provide incentives at different decision points. Some measures (prices) may have a greater impact on use, while others (labels) may primarily affect investment decisions. This underlines how instruments can usefully complement each other.

In other cases, it can be efficient for policy makers to introduce complementary policy measures when market barriers and failures discourage particular types of investments which mitigate negative environmental impacts. For instance, the benefits of investing in insulation are likely to be much less for tenants than owner-occupiers. In rental

properties landlords will have few incentives to undertake such investments since these primarily benefit the tenant through lower energy bills. Similarly, tenants will have little incentives to invest in a property they do not own, particularly if they are not planning to occupy it for a long period of time. Government interventions in the rental market can alleviate such barriers, but must be designed with care.

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### *Recognising variation and targeting specific groups*

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The survey findings show significant variation in environmental behaviour and responsiveness to policy measures across different segments of the population. For instance, responsiveness to waste policies varies depending upon whether households live in rural or urban settings, as well as according to housing type. In many cases, such variation reflects differences in costs and preferences across segments of the population, and is not necessarily directly policy-relevant. In particular, the costs associated with the targeting of policies must be borne in mind when assessing the efficiency of targeting. In some cases, the benefits may not be sufficient to justify the additional cost.

However, the survey findings provided some useful insights in terms of the identification of the specific groups information and promotion campaigns should target. Demographic and socio-economic characteristics (age, education and others) can be used to define distinct segments of the population for which policies are likely to be most effective. For instance, information campaigns to modify personal transport choices will be most effective if they target those groups which have higher car use: men, the middle-aged, and those with higher incomes and education. Finally, this work underlines the significant complementary role that policies other than environmental can play, such as revenue redistribution measures addressing distributional issues or housing policy.

Moreover, many environmental policies are likely to have adverse distributional effects and the survey provides evidence in this regard, particularly with respect to residential water use. Low-income households are likely to be most adversely affected by increases in water charges as they spend proportionately more than twice as much on residential water use than high-income households. When introducing measures to address possible disparities between income groups, policymakers need to ensure that the economic efficiency and environmental effectiveness of the policy remains intact.

Analysis of environmental policy from the demand side is receiving increasing attention from governments, with issues such as the adoption of eco-innovations by households. A next round of the OECD Household Survey will be carried out in 2011 with the objective of identifying changes in people's attitudes and behaviour towards the environment, and also of examining ways to promote green growth and the development of a low-carbon economy.

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