

Demand-side policy measures for environmental sustainability

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POLICY PERSPECTIVES

Demand-side policy measures for environmental sustainability

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Executive Summary

Strategies that promote environmentally sustainable lifestyles and consumption patterns are urgently needed to reduce the environmental pressures of household consumption. Reducing the intensity of individual and household behaviours that negatively impact the environment is a key factor in tackling a myriad of environmental issues including climate change, natural resource management, land-use change and pollution. Despite this potential for improvements, shifts in household consumption patterns have been slow to materialise. Understanding and overcoming the barriers to behaviour change must therefore remain a policy priority.

This policy paper addresses demand-side policy measures to improve environmental sustainability. It outlines the potential of such measures and presents relevant findings from the cross-country OECD Survey on Environmental Policies and Individual Behaviour Change (EPIC) on the main barriers that households face in adopting sustainable behaviours. It also sheds light on how policies can help reduce identified barriers. Lastly, it provides several examples of existing policy measures with positive impacts on household behaviours.

Taken together, analyses of the data from the OECD EPIC Survey point to policy considerations in the areas of energy use, transport, waste practices and food consumption:

ENERGY USE

- **Mitigate structural barriers to improved energy efficiency.** Reducing differences in the incentives and information available to renters and landlords should improve access to low-emissions energy technologies in residential rental markets.
- **Provide sufficient and targeted financial incentives for the installation of low-emissions technologies.** Subsidies, tax credits and low interest loans can assist low- and middle-income households with cost-related constraints.
- **Improve access to information on energy use and conservation.** Educating households about potential cost savings of energy conservation, providing information on how households can save energy and offering feedback about energy use can improve households' decision-making.

TRANSPORT

- **Complement taxes or other charges on car use with investments in affordable public transport and better walking and cycling infrastructure.** Policies aiming to reduce private car travel will need to overcome structural barriers, notably historically heavy investments in infrastructure that have led to car-centred land-use. The revenues raised from disincentives for private car use can support measures such as improving public transport systems. To the extent that such measures enjoy widespread public support, revenue recycling can also serve to improve the public acceptability of price-based measures.

- **Implement policies to facilitate electrification.** Providing convenient access to EV charging at homes, workplaces and other parking locations could significantly increase willingness to purchase electric vehicles.

WASTE PRACTICES

- **Provide better recycling services to reduce waste.** Recycling collection services serve a critical role in providing households with a low-cost and convenient option for diverting discarded material from mixed waste streams. Recycling collection services are also associated with greater engagement in waste prevention behaviours.
- **Expand charging schemes for mixed waste disposal and improve the awareness of these schemes.** Charging schemes are associated with increased recycling volumes and amplify the effectiveness of recycling collection services in reducing mixed waste. Waste charging schemes are also associated with greater waste prevention behaviours.
- **Provide better information on what to recycle and how.** Results indicate that a lack of knowledge (e.g. regarding where to recycle batteries, and how to avoid food waste) may be a barrier to some households in better waste management.

FOOD CONSUMPTION

- **Improve the affordability, availability, nutrition and taste of sustainable options.** These characteristics are universally important priorities for consumers when making food purchases. Improving the relative affordability of sustainable options while increasing the price of less sustainable options (to better reflect the social cost of their environmental impacts) may help modify shopping habits.
- **Provide more information on the benefits of sustainable alternatives.** Results indicate that environmental awareness and concern play a role in some food choices. Therefore, the provision of information via labelling schemes to increase knowledge about the environmental impacts of food production and reduce potential misconceptions about the cost or quality of sustainable options could facilitate dietary shifts.
- **Leverage high levels of support for food-system policies.** Many types of food system policies enjoy widespread public support, which should encourage policymakers to implement them and to use them to increase the palatability of less popular measures. For example, measures with low levels of support, such as taxes or fees on certain foods, could be pursued in conjunction with complementary measures that increase the appeal of sustainable choices (e.g. using tax revenue to improve their affordability or taste).

1 Introduction

Context

Environmental pressures from household consumption are significant. The two fundamental drivers of society's increasing environmental footprint are population growth and rising disposable incomes. In 2021, the annual population growth was 0.8% (UN, 2024^[1]) while the 5-year average economic growth in the 2017-2021 period was 2.6% (OECD, 2024^[2]). Without greater policy effort, therefore, environmental impacts are likely to intensify over the coming years along with continued growth in populations and disposable incomes.

Strategies that promote environmentally sustainable lifestyles and consumption patterns are urgently needed to reduce these pressures. Analysis by the Intergovernmental Panel on Climate Change (IPCC) shows that changes in households' daily choices (demand-side strategies) have the potential to reduce greenhouse gas (GHG) emissions by 40-70% across some sectors (IPCC, 2022^[3]). The IEA estimates that behaviour change can reduce global energy demand by 10% in 2050 (IEA, 2021^[4]). Reducing the intensity of individual and household behaviours that negatively impact the environment is also a key factor in tackling many other environmental issues, including natural resource management, land-use change and pollution. It can also improve the basic constituents of well-being, such as economic stability, health and nutrition (IPCC, 2022^[3]). Despite this potential for improvements that would benefit the climate, environment and at the same time save money for households and businesses, actual change has been slow to materialise.

This paper presents recent evidence regarding the potential for behavioural changes and investments in low carbon technologies at the household level to improve environmental quality. The paper also highlights barriers that households face in making more sustainable choices and provides several examples of existing policies that can address the identified barriers. It notably builds on research by the OECD using cross-country survey data on households' environmental attitudes and behaviours that was published in 2023. Complementarily, it summarises key insights from three forthcoming thematic reports on energy, transport and waste that were endorsed for declassification in early 2024 by OECD's Working Party on Integrating Environmental and Economic Policies.

Box 1.1. Environmental and social pressures arising from material consumption, energy and services

World total residential **energy** consumption grew at an annual rate of 1.15%, and residential electricity consumption at an annual rate of 1.4% in 2018-2019 (IEA, 2021^[5]). Global CO₂ emissions from the residential sector increased by 3.7% between 2010 and 2019 (OECD, 2022^[6]). In OECD countries, CO₂ emissions from the residential sector increased by 1.6% between 2015 and 2019 despite overall emissions declining by 2.8% over the same period (OECD, 2022^[6]).

Transport-related activities account for over 20% of annual emissions worldwide, and for 30% in OECD countries (IEA, 2018^[7]). Transportation also has implications for natural resource use. Global demand for EV batteries is projected to increase from around 340 GWh today to more than 3500 GWh by 2030, with attendant increases in the demand for raw materials used to build them, such as cobalt, lithium and nickel (IEA, 2022^[8]). Local air pollution is also a significant externality associated with transport activities in urban areas; the per capita welfare cost of air pollution in OECD countries was estimated to be USD 1 280 in 2015 (OECD, 2016^[9]).

In terms of material consumption and disposal, high-income countries generate around one third of the world's **waste** despite accounting for only 16% of its population (Kaza et al., 2018^[10]). Overall, plastics use continues to grow at rates of 0.5% to 6.6% per year, with higher rates in India and China and lower rates in Europe and the United States (OECD, 2022^[11]; OECD, 2022^[12]). The use of metals also continues to increase, even in per capita terms, among OECD countries (OECD, 2022^[13]).

Food systems rely on high environmental quality for their productivity. However, they are also responsible for substantial environmental degradation, as they use 70% of global water withdrawals and are the primary driver of biodiversity loss worldwide (Willett et al., 2019^[14]; OECD, 2021^[15]). Food production systems produce about one third of global anthropogenic GHG emissions while agriculture alone accounts for 17% (Crippa et al., 2021^[16]).

The potential for change

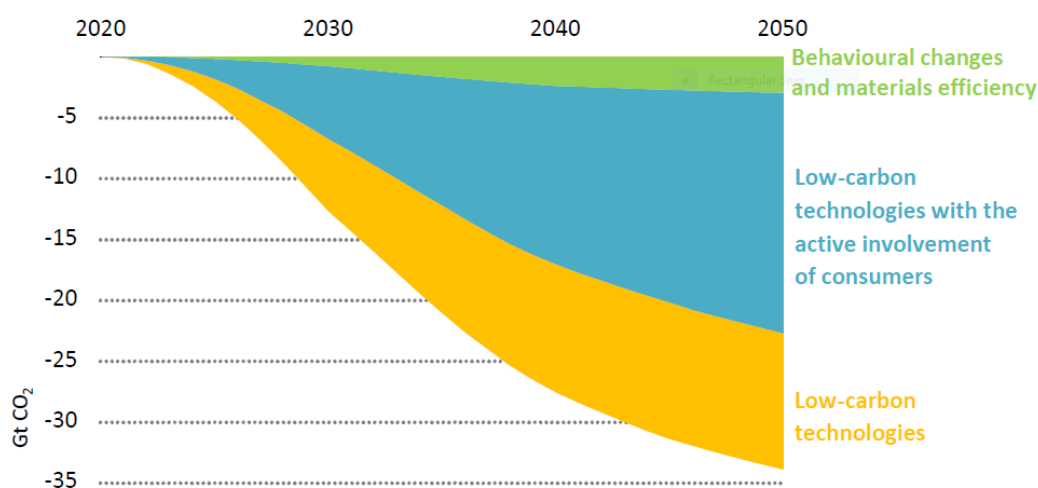
In the face of continued population growth and disposable income, shifts in behaviour and technological solutions that reduce resource needs and limit the environmental impacts of economic activity have an important role to play in advancing sustainability. To be successful, strategies to shift to more sustainable consumption patterns (e.g. from private cars to public transport, walking or cycling) and to reduce the environmental impact of existing consumption patterns (e.g. using more efficient household appliances) require supporting technologies and infrastructure (Creutzig et al., 2021^[17]). Technology change (e.g. widespread proliferation of smart devices and internet of things) can also facilitate step changes in consumption patterns (e.g. energy efficiency and energy demand management). While technological advancements are needed, these alone will not enable the world to meet its climate objectives.

Critically, the effectiveness of new technologies depends on their uptake and use by households and society broadly, but behaviour change alone can also make a substantial contribution to reducing environmental impacts. The **avoid-shift-improve (ASI)** framework describes three types of behavioural changes for reducing environmental impacts (IPCC, 2022^[3]):

- *avoid* unnecessary consumption or environmentally harmful activity
- *shift* consumption or activity towards less environmentally harmful alternatives
- *improve* the environmental performance of the activity in question.

In the buildings sector, modelling suggests that avoidance strategies -- such as adjusting dwelling sizes to household size or improving the energy efficiency of homes -- could reduce greenhouse gas emissions by around 78% over the next 30 years. In the land transport sector, shifting towards the use of electric cars could account for much of the sector's emissions reduction potential, if this transition is combined with an electricity sector sourced entirely from sources with low or no emissions of greenhouse gases and pollutants. In the food sector, around 41% of emissions reductions could be achieved through avoid and shift behaviours alone, such as avoiding food waste and shifting to a more plant-based, vegetarian or vegan diets. In the manufactured goods sector, avoiding measures (e.g. sharing instead of buying new products) and improving behaviours (e.g. using recycled materials) could achieve emissions reductions of 41% (Creutzig et al., 2021^[17]). For example, Figure 1.1 shows the potential of behavioural change in the energy sector, indicating that approximately 60% of all projected emissions reductions in the IEA's Net Zero Emissions scenario will rely on either behaviour change alone or on technological changes that rely on behaviour change.

Figure 1.1. Role of behavioural change in emissions reductions in the energy sector by 2050 in the IEA Net Zero Emissions scenario



Source: IEA (2024^[18])

Important barriers remain to realising behaviour change, as evidenced by the lack of large scale changes in consumption patterns to date. The difficulty of changing certain types of behaviour is well established (van Valkengoed, Abrahamse and Steg, 2022^[19]). Individuals' motivations and capacities for change are influenced by numerous factors, including the socio-economic and technological systems that determine the resources, constraints and options available to consumers (Sorrell, 2015^[20]). Effectively inducing desired behavioural change requires a well-developed understanding of the determinants of household behaviours, including the role of institutions therein (van Valkengoed, Abrahamse and Steg, 2022^[19]; Blankenberg and Alhusen, 2019^[21]). This policy paper presents findings that contribute to a better understanding of these determinants in order to more fully leverage the potential of demand-side policy strategies to address environmental issues.

Demand-side policies should prioritise further reducing structural, financial, or psychological barriers to change. This paper leverages analyses of a cross-country OECD survey on environmental attitudes and behaviours in order to shed light on how policies can contribute to reducing these barriers.

2 Greening household behaviour: Empirical evidence and policy examples

Household investments in low carbon technologies, combined with a gradual shift towards more sustainable household choices has the potential to drastically reduce greenhouse gas emissions. Many countries have implemented policies aimed at supporting and accelerating this transition towards greener choices. This chapter provides examples of existing policies and draws on results from the OECD Survey on Environmental Policies and Individual Behaviour Change (EPIC). The survey explores the drivers of household decisions and how policies impact those decisions. The 2022 survey was implemented in nine countries: Belgium, Canada, France, Israel, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States. It gathers information on attitudes and behaviour related to energy use, transport, waste practices and food consumption.

Energy use

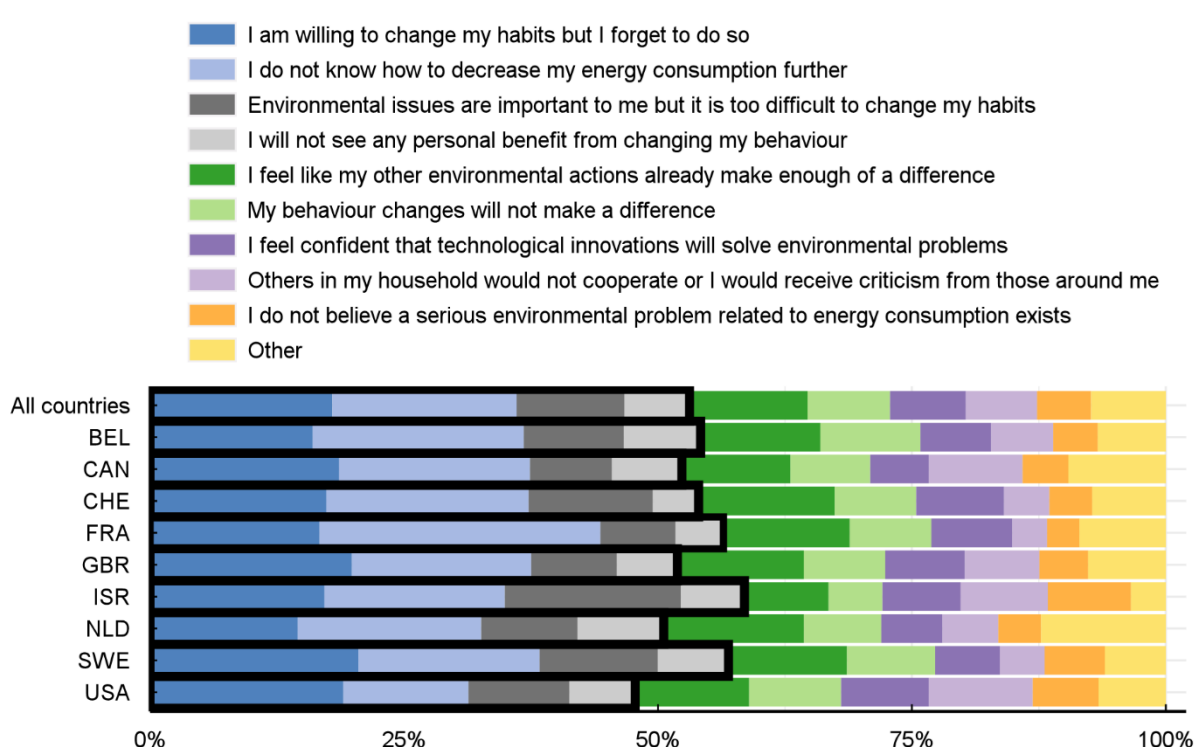
Convenience is an important determinant of energy conservation behaviour

Respondents tend to adopt energy conservation measures that do not require significant effort or changes in perceived comfort, even when doing so could reduce energy costs. Whereas 92% of respondents report often or always turning off the lights when leaving a room, far fewer (68%) often or always try to minimise their use of heating or cooling. Specifically, evidence suggests that habit and lack of knowledge could be holding back energy conservation actions (Figure 2.1). As shown in Figure 2.1, around half of the reasons cited for not engaging more in energy conservation include forgetfulness, a lack of awareness and difficulty in changing one's behaviour, all of which could be fairly easily addressed through low-cost measures such as sustainable default options like thermostat temperature settings, providing more information and enabling comparisons with other similar households.

Other reasons cited reflect attitudinal factors that can be difficult to change. Rather than relying on attitudinal change or persuasion, communications could focus on aligning messages with the types of information that people find credible, such as the cost savings from energy conservation.

Figure 2.1. Habit and lack of knowledge are holding back energy conservation actions

Proportion of the total number of times each reason was cited



Note: The segments of the bars outlined in black reflect the proportion of reasons cited that could be relatively easily targeted by public policies. This survey item asked respondents: “Your answers on the previous question indicate that you do not always try to reduce energy consumption in your household. Please help us understand the most important reasons why not: Please select all that apply.” The figure shows relative frequency of the response options for each country. This item was asked of those respondents who indicated that they did not always engage in at least one of the five energy conservation behaviours.

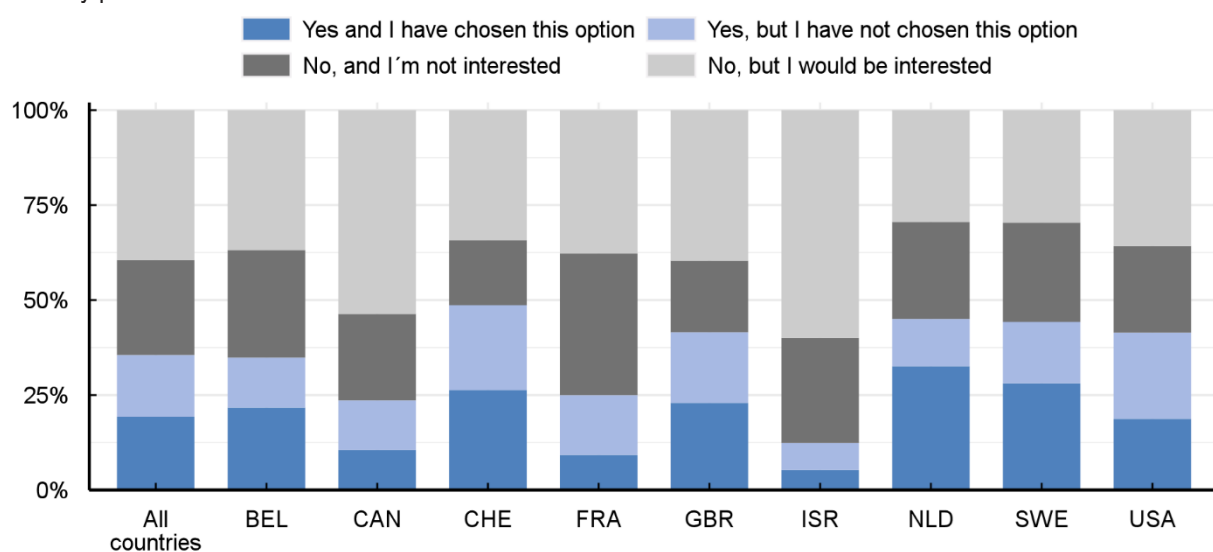
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

There appears to be substantial unmet demand for low-emissions electricity options

Survey findings also point to scope to increase the availability and uptake of low-emissions electricity options. For example, 39% of respondents report that their provider has not offered the option to use electricity generated from renewable energy sources, but that they would be interested in this option if it were available (Figure 2.2). Supply-side measures such as renewable energy mandates, could increase the availability of low-emissions options.

Figure 2.2. Reported unmet demand for renewably generated grid electricity

Percentage of respondents reporting being offered electricity generated by renewable energy sources by their electricity provider



Note: This survey item asked respondents "Have any of the following been proposed to you by your electricity provider?" Response options included "Yes and I have chosen this option," "Yes, but I have not chosen this option," "No and I'm not interested" and "No, but I would be interested."

Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

Feasibility and affordability are barriers to the adoption of low-emissions energy technologies

Installation of low-emissions energy technologies varies across equipment types. Installation rates are high for low-energy lightbulbs (87%), energy-efficient appliances (66%) and energy-efficient windows (58%). Findings suggest that even where installation is feasible, uptake remains lower for technologies with considerable installation requirements and costs, e.g. solar panels (29%), heat pumps (30%) and battery storage (27%). In particular, survey results point to two barriers in the uptake of low-emissions energy technologies.

The first barrier is feasibility constraints (e.g. the inability to install in apartment buildings or the need for landlord permission). Households that rent (vs. own) their primary residence and that live in an apartment (vs. a detached house) are much more likely to report that installing such technologies is not possible (Table 2.1). These results suggest that ownership status and residence type still appear to constitute significant barriers to the installation of low-emissions energy technologies, and that more concerted policy efforts are warranted to reduce these evident barriers. Such policies could reduce barriers for households that do not own their residence, for example, by addressing split-incentive problems between landlords and renters regarding energy efficiency investments (OECD, Forthcoming^[22]).

Table 2.1. Barriers to technology installation across households

Percentage of respondents reporting that installing a given technology is not possible

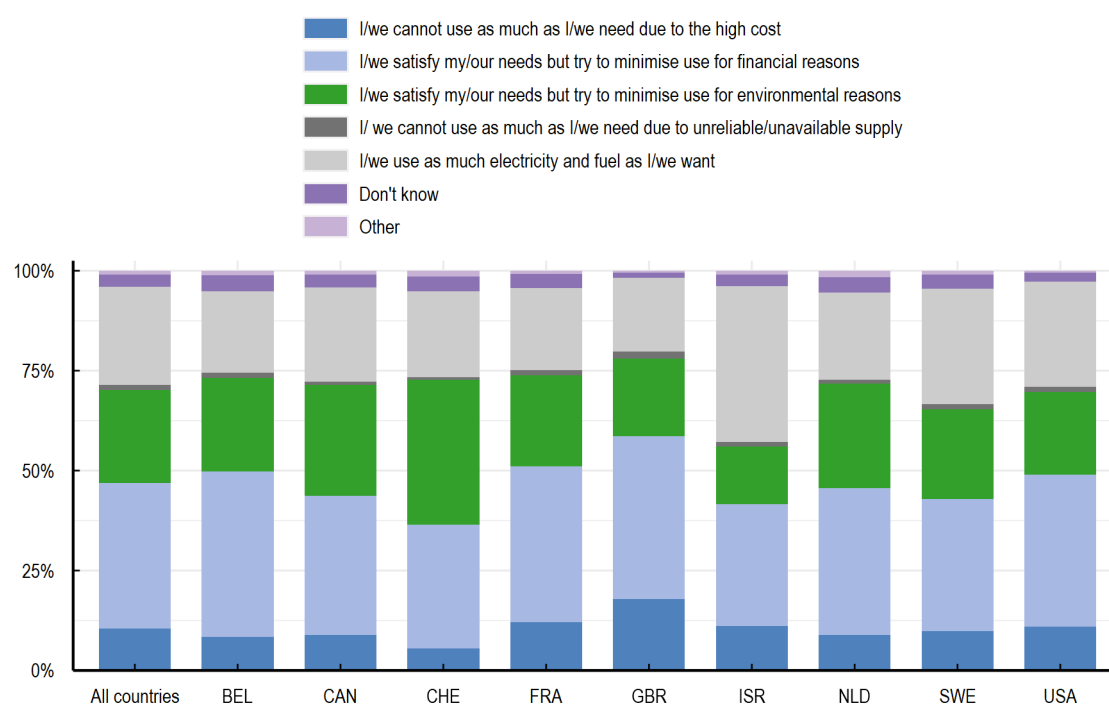
Technology	Ownership status		Residence type	
	Owner	Renter	House	Apartment
Highly energy efficient appliances	2%	24%	3%	19%
Energy-efficient windows	5%	37%	7%	29%
Thermal insulation	10%	49%	9%	43%
Solar PV	18%	59%	16%	56%
Solar water heating	17%	57%	17%	51%
Battery storage	12%	53%	14%	45%
Heat pump	17%	56%	17%	50%

Source: (OECD, Forthcoming^[22])

The second is affordability. With respect to energy use, affordability is the main reported barrier to installing low-emissions energy technologies among households living in detached homes. Additionally, although the majority of respondents report that they are able to satisfy their energy needs, 46% indicate that they minimise energy use for financial reasons (Figure 2.3) and 6-18% of households across countries indicate that they cannot use as much energy as they need due to the high cost.

Figure 2.3. Financial considerations are important in determining household energy use

Relative proportion of each response option



Note: This survey item asked respondents: "Thinking about your energy use at home, what statements best describe your household? Please select all that apply." The figure shows the relative frequency of response options for each country. "Needed consumption" refers to self-perceived levels of energy use that the respondent believes are necessary to achieve a minimum level of well-being.

Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

Policy examples to reduce energy use and emissions intensity

The results above point to three key areas of opportunity for accelerating the greening of the economy through policy measures to improve the sustainability of household energy choices, namely improving the convenience of energy conservation, encouraging the choice of green electricity from the grid and addressing barriers to household investments in low-emissions energy technologies. Demand side policies to address these barriers have been a priority among many countries and policies continue to evolve. While the provision of renewable electricity from the grid is primarily a supply-side issue, this section provides examples of existing approaches seeking to reduce barriers to energy conservation and investment in low-emissions energy technologies.

Information provision and voluntary action campaigns

An example of policy effort to make green behaviour more convenient is the CoolBiz Campaign in Japan, which encourages staff to reduce energy consumption from air conditioning by setting thermostats to 28°C in office buildings from May to September. The campaign also encourages office staff to adopt a more casual dress code during this period to increase comfort in warmer offices. Such behavioural policies are inexpensive and non-coercive, and can enjoy high levels of public support. The Japanese CoolBiz measure has become widely adopted, with an estimated 86% of workplaces participating in 2023 (Dooley and Ueno, 2023^[23]). The program is also understood to be effective, avoiding an estimated 1.4 million tonnes of CO₂ emissions in 2007 (The Japan Times, 2007^[24]). In France, the “All actions matter” campaign aimed to raise household awareness of best practices for reducing energy consumption in response to the energy crisis in 2022 (Ministères Écologie Énergie Territoires, 2022^[25]), using the slogan “lower, turn off, switch” to promote energy-saving habits. For example, the government called on households and businesses to lower heating to 19°C during the winter 2022, public swimming pools were required to lower the water temperature by 1°C, and public offices were required to turn off hot water in bathrooms. Although temperatures were mild over the winter season, energy savings resulting from these measures have been estimated at 10% (French Government, 2023^[26]). Policy efforts to increase the awareness of green electricity options are an important complement to the development of these options via supply-side policies.

Minimum energy efficiency standards in residential rental markets

Minimum energy efficiency standards in rental markets seek to improve renter access to energy-efficient housing and require that rented units meet minimum standards regarding their energy performance. The United Kingdom, for instance, implemented minimum energy efficiency standards for private rented properties in 2023, which requires landlords to obtain a UK Energy Performance Certificate (EPC) rating of E or better before they are able to grant or renew tenancy to new or existing renters (BEIS, 2023^[27]). In the same year, France implemented a similar regulation by prohibiting new rental contracts for accommodations with energy consumption above 450 kWh/m², and as of 2028, landlords will not be able to raise rents for existing tenants in accommodations that do not meet this criteria (French Government, 2023^[28]). As a result, this policy seeks to address the split-incentive problem, whereby landlords do not have an incentive to invest in energy efficiency improvements. Although the aforementioned policies are still at an early stage, they are expected to lead to improvements in the energy-efficiency of the housing stock, assuming effective enforcement (Sweney, 2023^[29]). Energy efficiency improvements also run the risk of rebound effects, whereby more energy is consumed due to a lower marginal cost of consumption. Such rebound effects can be mitigated by ensuring that energy efficiency standards are accompanied by accurate price signals.

The implementation of minimum energy efficiency standards in rental markets should also include a consideration of the relative impacts of this measure on renters and landlords. Although such standards can increase the availability of energy-efficient housing for renters, they can also affect housing affordability

to the extent that energy efficiency investments that landlords make are reflected in higher rents (Fuerst, Haddad and Adan, 2020^[30]). On the other hand, coupling energy efficiency standards with policies limiting the increase of housing prices – e.g. the rental price cap implemented in Paris (Ville de Paris, 2023^[31]) – may also limit the motivation and ability of landlords to undertake such investments (Adan and Fuerst, 2015^[32]). Policymakers should take such considerations into account when implementing minimum energy efficiency standards in housing markets in order to balance the interests of renters and landlords.

Financial incentives for investment in low-emissions energy technologies

Another type of policy measure to encourage more sustainable household energy use are various forms of financial assistance for the purchase and/or installation of low-emissions energy equipment. Support for home energy retrofits, for example, were included in green stimulus packages following the global financial crisis in many countries, including Germany, France, the United Kingdom, Korea and Canada. Ex-post evaluations of such policies are limited, but some evidence points to the possibility of rebound effects and therefore the potential need to combine investments in energy efficiency with measures such as dynamic data gathering on energy consumption to offset any such rebound effects on energy demand (Agrawala, Dussaux and Monti, 2020^[33]). More recently, the Greener Homes Grant in Canada, implemented in 2021, provides households with a range of financial incentives to undertake energy retrofits and expert consultations to improve energy efficiency (Natural Resources Canada, 2023^[34]). Since its inception, the Grant has facilitated the upgrade of more than 165,000 residences, resulting in an average annual energy savings of \$386 per household (Natural Resources Canada, 2024^[35]). Notably, approximately 82,000 heat pumps have been installed, with an anticipated additional 250,000 installations from pending applications. Similar measures are in place in other countries, such as the Social Housing Decarbonisation Fund and Home Upgrade Grant allocations in the United Kingdom (Department for Energy Security and Net Zero, The Rt Hon Grant Shapps MP and Lord Callanan, 2023^[36]) and the Property tax exemption for investing in low-emissions energy technologies in France (IEA, 2022^[37]). Other programs are designed to target energy-efficient appliances, such as the US Home Electrification and Appliance Rebates (HEAR) Program (Energy Star, 2024^[38]), the Chinese energy-saving household appliance subsidy policy (Nie et al., 2021^[39]) or the Japanese Eco-Point Program in 2010-2011 (Innovation for Sustainable Development Network, 2019^[40]). The Japanese government estimated a reduction in CO₂ emissions of about 2.7 million tons of CO₂/year due to the Eco-Point programme (Innovation for Sustainable Development Network, 2019^[40]).

While incentives such as subsidies for energy efficiency are broadly used and typically enjoy greater public support than taxes and fees (Maestre-Andrés, Drews and van den Bergh, 2019^[41]; Douenne and Fabre, 2020^[42]), the provision of subsidies can entail significant costs that may compromise their cost-effectiveness (e.g. Alberini, Gans and Towe, (2016^[43])). In addition, ex-post evaluations show that while financial support can be cost-effective (Risch, 2020^[44]), it can also lead to scenarios where the majority of recipients would have invested anyway, thus resulting in a small impact on household decisions but a greater impact on investment expenditures, which can jeopardise cost-effectiveness (Alberini and Bigano, 2015^[45]; Risch, 2020^[44]). This dynamic has also been observed in other domains, including housing benefits and subsidy programs for alternative-fuelled cars (Fack, 2006^[46]; Jiménez, Perdiguero and García, 2016^[47]). It is therefore important to perform both ex-ante and ex-post assessments of programs to ensure their continued cost-effectiveness. Moreover, as programs mature it may also be valuable to continue to incrementally improve these programs to ensure that they reach the households for whom the program would be effective at impacting their decisions (Risch, 2020^[44]).

Transportation

Car use remains high in urban areas

Shifting households away from conventional car use is challenging, in rural and urban areas alike. Across the nine countries surveyed, 75% of households report that at least one household member uses a conventional private car on a regular basis. Car use does not vary significantly by level of environmental concern, highlighting households' car dependence and the constraints associated with changing this behaviour.

When it comes to commuting, 59% of households in rural areas use a car. In urban areas, this share is still 45%, with an additional 1% using motorcycle and 4% carpooling. The proportion of urban commuters that use a private car is greatest in the United States (65%), Canada (56%) and Israel (56%). In the rest of the surveyed countries, an average of 35% of urban residents use a private car to commute.

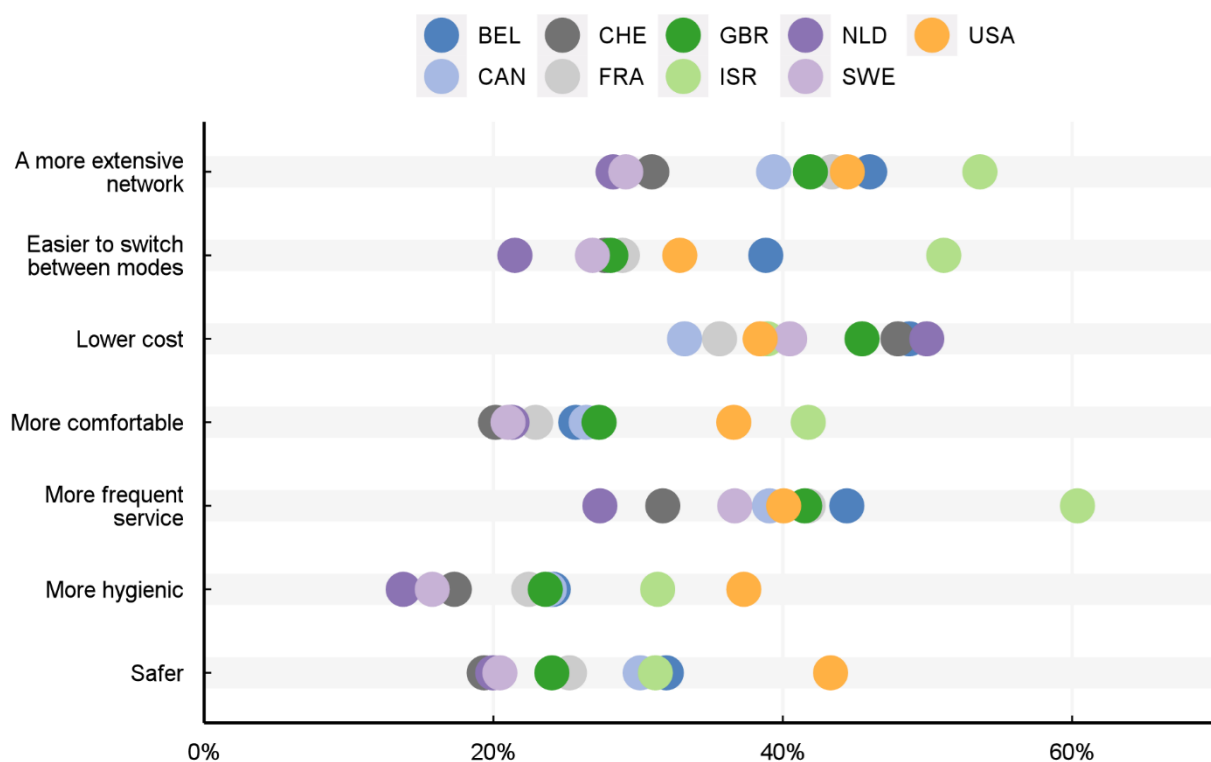
Although country contexts differ, some patterns in transport mode use can be observed across countries. For example, in most countries, low-income households report using public transport more regularly than high-income households. Overall, reported use of public transport is 10 percentage points higher among those who are concerned about the environment.

Improved public transport services could encourage many households to drive less

Making it easier and cheaper for households to use public transport will reduce car dependency and the environmental impacts of transport activity. Overall, 54% of regular car users indicate that improved public transport would encourage them to drive less (Figure 2.4). Specifically, they would like to see more frequent services, better network coverage and lower fares. Nearly one quarter of households (24%) report not using a car regularly. These respondents cite the availability of public transport (48%), proximity to essential facilities (42%) and high use costs (46%) as the main reasons for not using a car. Environmental concern was cited by only 19% of households as a main reason why they do not use a car. Other less expensive factors could also be important for shifting from car to public transit, such as the cleanliness and safety of the public transit experience, that do not necessitate investments in network expansion or rolling stock.

Figure 2.4. Measures that would encourage respondents to replace car use with public transport

Percentage of car users stating the improvements to public transport service that would be very important to encourage them to use a car less



Note: This survey item asked respondents: "You indicated that better public transport services would lead you to drive a car less. Which aspects of public transport would be most important in changing your driving habits?". Respondents rated the importance of each aspect on a 5-point scale from "not at all important" to "very important". Only respondents who indicated that their household regularly uses a car and who stated that better public transport services would lead them to drive a car less where asked this question.

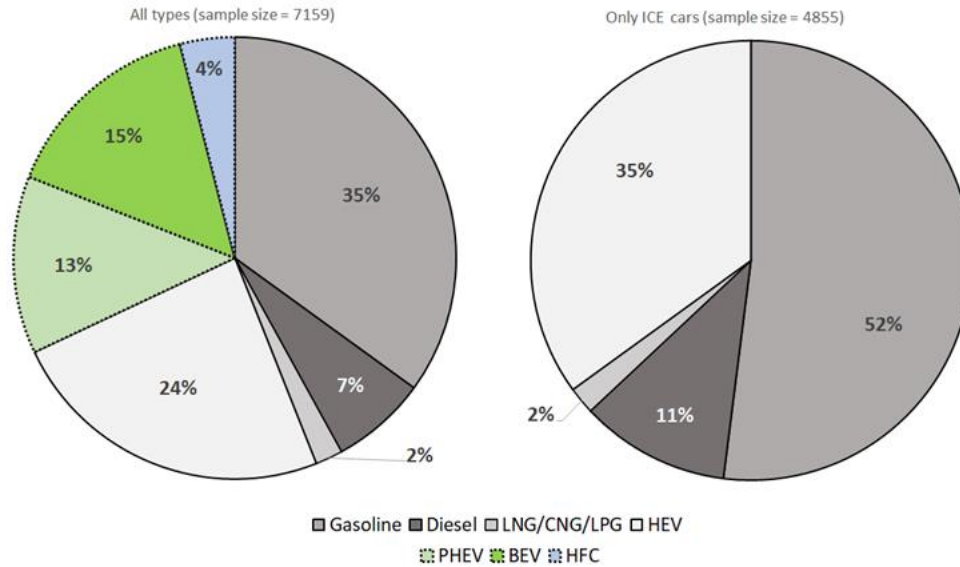
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

More than 80% of potential car buyers still intend to purchase a car that runs on fossil fuels

OECD analyses indicate that 81% of households would purchase a new car that runs at least partially on fossil fuels (Figure 2.5). The low proportion of households that intend to purchase fully electric vehicles could be due in part to the fact that households perceive a lack of charging options available.

Figure 2.5. Fuel type of reported purchase intentions

Left panel displays purchase intentions for all vehicle types. Right panel displays purchase intentions among those intending to purchase an ICE vehicle

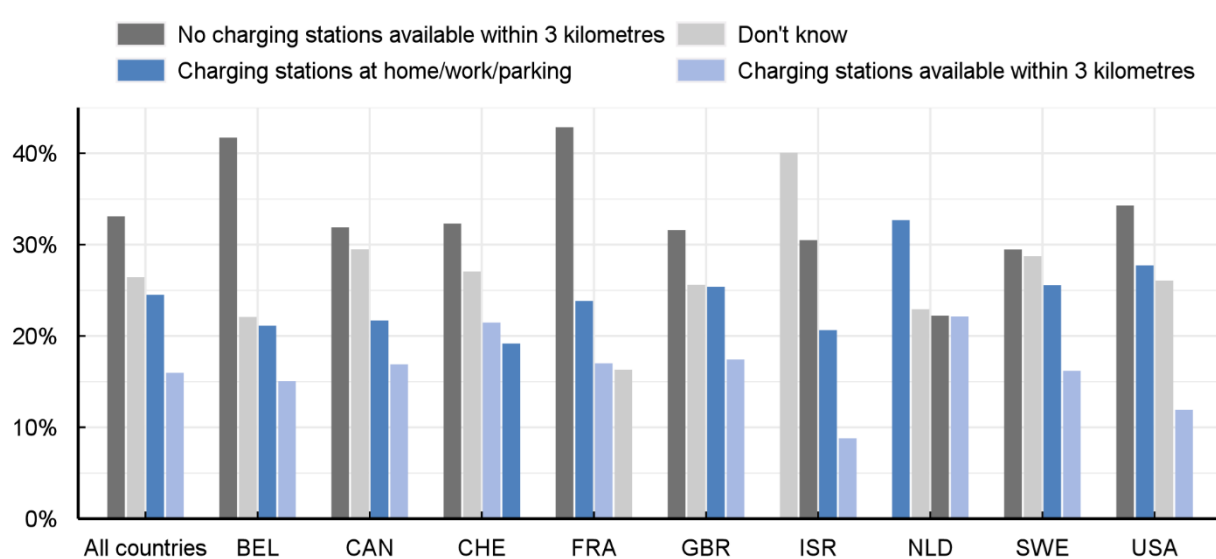


Note: The figure is based on the response to the question: "If you were to purchase or lease a new/used car, which fuel type would you be most interested in?". From 8695 respondents in the sample, both pies exclude 1496 respondents that do not know what their next vehicle fuel type is going to be, as well as 40 respondents that fail to state a fuel type that is included in the options. The left pie reflects the 7159 remaining observations. The dotted outer border line in the left panel indicates the subsample that is *not* retained in the analysis of this section. The excluded (from right pie) subsample contains 32% of the 7159 observations, i.e. 2304 respondents, who state that they would opt for a PHEV, a BEV or a HFC vehicle.

Source: (OECD, Forthcoming^[48])

A third of households report that there are no charging stations for electric cars within three kilometres of where they live, ranging from 22% in the Netherlands to 43% in France (Figure 2.6). This suggests that current policy efforts to increase the availability of charging stations for electric cars will be critical for enabling their widespread uptake. In addition, these results also suggest that timely information on charging options is critical since concerns about range and charging options tend to decline once the driver gains experience with all-electric driving (OECD, Forthcoming^[48]).

Figure 2.6. Reported availability of charging stations



Note: This survey item asked respondents: "Please select which statements best describe the availability of charging stations for electric cars near you." Respondents may: (i) select one or more of the responses "no stations available", "charging at home/work/parking" and "(stations available) within 3 kilometres", or (ii) indicate that they "don't know". Respondents who report that charging is available both "at home/work/parking" as well as "within 3 kilometres" are counted in the group "at home/work/parking."

Source: (OECD, 2023^[49])

An econometric assessment of the likelihood of vehicle purchases confirms that the availability of convenient charging is the most important non-price factor that would impact household willingness to choose a battery electric vehicle. Analysis indicates that, combined, the availability of electric vehicle charging at home and at the workplace increases the probability of choosing a battery electric vehicle by 16% (OECD, Forthcoming^[48]). Differences in the availability of public transport systems are likely to contribute to explaining this result. The analysis also suggests that policy design needs to account for strong inertia and status-quo effects. Households owning a BEV are twice as likely to opt for a BEV again in a subsequent purchase (OECD, Forthcoming^[48]).

Policy examples to encourage sustainable transport habits

The results above point to the need to reduce the environmental impacts of transport by encouraging households to shift away from private car travel, and to electrify such travel where alternative options are not feasible. Many countries have made efforts to develop feasible alternatives to private car travel and to electrify vehicle fleets. This section offers examples of such policies.

Expansion of public transport and infrastructure for walking, cycling and micromobility

Improvements in and the expansion of public transport and cycling infrastructure in recent years have enhanced available options for households. One example of investment in public transport infrastructure is the development of the rail network in China, which is now one of the longest and heavily used rail networks worldwide (Preston, 2023^[50]). Japan has achieved a significant shift away from private motorised transportation over the years. Tokyo, for example, has the busiest and most dense urban railway network worldwide, which services nearly 7 million passengers daily (Metro Ad Agency, 2024^[51]), and public transportation in Japanese megacities is considered reliable, convenient and affordable. As a result, 43% of total passenger-kilometres travelled in Japan (and 52% in Tokyo) in 2016 are undertaken via public transport (McKinsey, 2018^[52]). Alternatives to car use can also be made more feasible if they are made

more affordable. In France, for example, several cities fully subsidise local public transport, making it free to use (e.g. buses in the city of Annecy are free during peak periods of the year such as summer and winter holidays (Office de Tourisme du Lac d'Annecy, 2023^[53]). In Austria, the “Klimaticket” allows for almost unlimited public transport use across the country after paying a subscription fee (OECD IPAC, 2023^[54]). In summer 2022, Germany implemented a 9-euro-ticket scheme, allowing passengers to travel on local and regional public transport at a low price and thence alleviate households’ budget constraint during the energy crisis (O’Sullivan, 2022^[55]). Cities such as Amsterdam and Paris, among others, have developed dense cycling networks over the years in order to promote soft mobility for short-distance trips. The Netherlands has also invested in the development of “cycle superhighways” that connect cities in order to facilitate inter-city and medium- to long-distance trips. In Denmark, the “hour model” aims to reduce travel time between the four main cities in the country to one hour in order to promote a shift to rail travel for long-distance trips.

Evidence suggests that policies to promote alternatives to car use have been effective. For example in 2023, 27% of all journeys in the Netherlands were undertaken by bicycle (Dutch Government, 2024^[56]). Survey evidence suggests that 85% of Klimaticket subscribers in Austria, most of whom hold a driving license, have replaced car trips by public transport trips (OECD IPAC, 2023^[54]). Ex-post analysis revealed that 31% of German 9-euro-ticket buyers have used routes they would otherwise have used by car (Die Zeit, 2022^[57]). However, cost-effectiveness should also be a criteria against which such policies are evaluated. Developing local public transport infrastructure is pertinent in densely populated areas where costs can be recovered by a combination of appropriate pricing and sufficient ridership, but the development of public transport is likely to be less cost-efficient in areas characterised by low population density. Moreover, this cost is enhanced by the potential rebound effect of greater demand caused by low prices (Malmaeus et al., 2023^[58]). Ex-ante analyses should be undertaken to assess and ensure the cost-effectiveness of investments in alternatives to private car use.

Electrification of car travel

In areas where public transport development is not feasible, however, electrifying private car travel will be necessary in order to curb transport-related pollution (Ehrenberger et al., 2019^[59]; Gómez Vilchez and Jochem, 2020^[60]). A notable pioneer in this respect is Norway, where an ambitious policy package promoting electric vehicle uptake has contributed to 79.2% of new car sales being electric in 2022, and an expected 45% share of vehicles on the road being electric by 2030. The policy package contains various tax incentives to decrease the cost of electric vehicles, including exemption of registration tax, VAT and motor fuel taxes, a 50% reduction in road taxes, as well as preferential ferry and parking fees for EVs (Norwegian Electric Car Association, 2024^[61]). Similar incentives can be found around the globe. For example, the city of San José, California, has provided a number of incentives to purchase or lease electric vehicles, including grants to install at-home vehicle chargers. The San José Program has also expanded the city’s public charging station network, with a target of providing 25% of electric vehicle charging stations in low-income and disadvantaged communities (City of San José, 2022^[62]).

These types of policy packages have been effective in overcoming common concerns regarding electric vehicles, such as “range anxiety” (Liao, Molin and van Wee, 2017^[63]). However, policy makers should account for the potential positive rebound effects of electric vehicle adoption on driving distance and vehicle size and power, which may cause negative externalities such as congestion and increased non-exhaust emissions (Huwe and Gessner, 2020^[64]; OECD, 2020^[65]). In this regard, the promotion of electric vehicles should be considered a complementary policy measure to the development of alternatives to private car use in urban areas where such alternatives are feasible. In rural areas, electrification will be relatively more important strategy for reducing the environmental impacts of transportation. Subsidies for the purchase of electric vehicles may also be regressive insofar as they do not alleviate financial constraints of low-income households (Caulfield et al., 2022^[66]). To avoid potential distributional impacts, policy makers should consider tailoring subsidy provision to the capacity of receiving households to purchase or lease a vehicle

and complementing such subsidies with other cost-effective measures (Abotalebi, Scott and Ferguson, 2019^[67]; Gessaroli, 2022^[68]). Moreover, evidence from OECD survey finds that the effectiveness of purchase incentives such as tax credits for new vehicle may be declining as the market penetration of electric vehicles increase, which suggest that existing programs should be evaluated regularly to ensure their continued value and cost-effectiveness in reducing the environmental impacts of transport activity (OECD, Forthcoming^[48])

Waste practices

Households act to reduce waste by engaging in low-effort activities, but struggle to change their consumption habits

While engagement in some types of reduce and reuse behaviours is high, engagement in others is markedly lower. For example, 83% of households frequently use reusable shopping bags and over half report frequently repairing damaged items and buying products designed to be less environmentally harmful. Considerably fewer reduce waste by buying second-hand (37%) or renting or borrowing items (22%). Households already more concerned about the environment are more likely to reduce their consumption, suggesting that environmental concern can be leveraged in efforts to reduce waste generation, for example through targeted communication efforts.

Econometric analysis of the EPIC Survey assesses the determinants of waste prevention behaviours.¹ Both a charging scheme and separation service levels are significantly associated with greater engagement in waste prevention behaviours. Medium and high levels of recycling separation services, without a charging scheme, are associated with approximately 11-16% higher waste prevention scores. The presence of a charging scheme increases this association to 18-26%, controlling for other factors.

Household engagement in recycling can be improved by making it more convenient

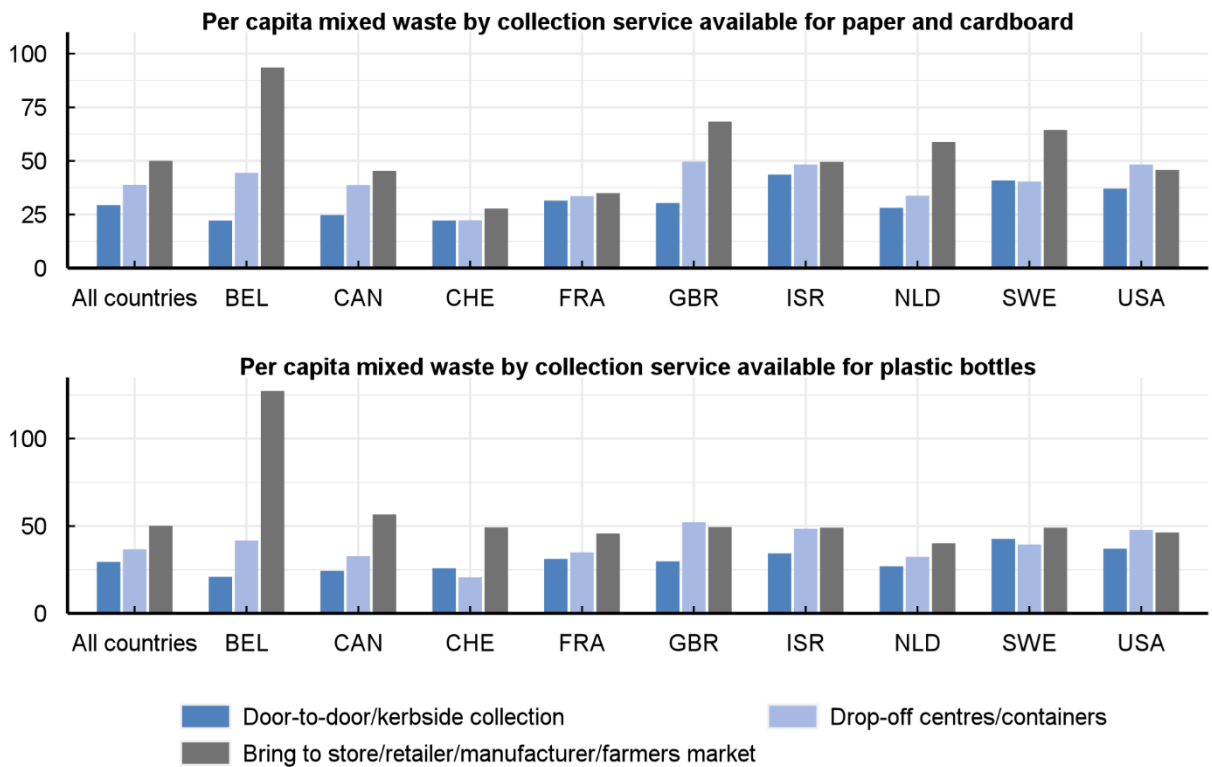
On average across materials, households report separating 56% of recyclable or compostable materials. While some households have a high level of engagement, others do not recycle at all. For example, while 27% report separating over 90% of their food waste for composting, 36% report separating less than 50%, and 19% report not separating food waste at all.

Having separation services available is associated with less reported mixed waste generation (Figure 2.7). Households with services that collect recyclable waste at residences, for example, produce 42% less mixed waste than those without such collection services. This share falls to 26% for households that take their recycling to drop-off centres.

¹ The outcome of interest is derived using survey responses regarding how frequently households practiced nine different waste prevention behaviours: buying paper with recycled content, buying products that are less environmentally harmful (e.g. cleaning products), using refillable containers for purchases, using reusable shopping bags, renting or borrowing items (e.g. home improvement tools) instead of buying them, making homemade products (e.g. beauty or cleaning products), buying second-hand items, buying high quality items that will last, and repairing damaged items instead of buying new ones. A waste prevention index is constructed that sums the Likert-scale responses across all nine behaviours, with responses coded as 0 = 'Never / Don't Know', 1 = 'Occasionally', 2 = 'Often', 3 = 'Always'. To facilitate interpretation of the regression results, the index is then divided by three, so that a one-unit change in the index can be interpreted as the difference between never and always engaging in one of the nine listed behaviours.

Figure 2.7. Convenient recycling services reduce mixed waste generation

Average mixed waste generated each week (litres per capita)



Note: This survey item asked respondents: "On average, how many of the following bags/bins of mixed waste (i.e. non-recyclable and non-compostable waste) does your household generate each week?". The graphs group respondents by their recycling service for paper and cardboard and for plastic bottles.

Source: (OECD, 2023^[49])

Further econometric analysis indicates that, after controlling for a variety of other factors, high-level recycling collection services are associated with a 15% reduction in mixed waste generation, relative to when no separation service is available (OECD, Forthcoming^[69]).² When recycling collection services are present, a charging scheme is associated with an additional 10% increase in the ratio between the percent of material recycled versus percent of material disposed for glass, plastic packaging and plastic containers, and an approximately 20% increase in this ratio for metal waste (OECD, Forthcoming^[69]).³ Given that almost one fifth (19%) of respondents report not being charged for waste disposal (OECD, 2023^[49]), increasing the provision of such services should be considered a policy priority where relevant.

Policy examples to reduce waste and increase recycling

The observations made with respect to household waste management indicate that convenience is a significant determining factor in household behaviour in this area. As a result, increasing the convenience

² Households are considered to have a "high level" of recycling collection service when they report having kerbside pickup services available for at least three (four for Israel) of the four considered recyclable materials considered in the survey (five for Israel, where cardboard is collected separately from other paper).

³ A charging scheme refers to a program that charges households for the mixed waste that they generate by weight, volume, or collection frequency.

of sorting and recycling options should facilitate a reduction in mixed waste disposed of in landfills, as well as mismanaged waste and waste leakage to the environment. Improving the convenience of recycling can be accomplished through measures to provide households access to recycling collection services and information about recycling practices.

Provision of recycling collection services

A key policy strategy to improve household waste management is providing households with recycling collection services. In a number of countries, for example, municipalities are required to provide composting facilities to inhabitants in order to increase the composting rates, such as South Korea (2013), Germany (2015) and France (2024). South Korea successfully managed to tackle excess trash generation through the separation and collection of over 90% of food waste (Lee et al., 2024^[70]). Other countries have sought to improve the accessibility of sorting facilities for textile products. For example, the EU's Extended Producer Responsibility (EPR) scheme induced several European countries such as France and the Netherlands to implement a general collection system for used textiles. France has commissioned the Re-fashion eco-organisation to orchestrate a centralised network of collection centres where households can conveniently dispose of their used textiles. Such a centralised system enables households to avoid having to bring back items to specific stores.

However, some evidence points to the possibility that recycling collection services can have a rebound effect on recyclable waste generation. In some instances, for example, composting has been associated with an increase in the amount of food waste generated, as consumers may feel that sorting their waste licenses them to generate more of it (OECD, Forthcoming^[71]; Castro et al., 2022^[72]; Qi and Roe, 2017^[73]). Evidence exists of a similar rebound effect in the textile industry, as the expansion of secondary markets for textiles may lower prices overall and lead to greater consumptions of both new and second-hand items (Zink and Geyer, 2017^[74]). Consequently, policies should consider coupling the provision of recycling collection services with incentives to sort and to reduce mixed waste generation. Information campaigns can be an effective and inexpensive way to do so – e.g. the EU ReSet the Trend initiative to “make fast fashion out of fashion”, which provides tips in how to apply the “reduce/reuse/recycle” in order to adopt a more sustainable approach to fashion (European Commission, 2023^[75]). Pricing policies such as Pay-as-you-throw (PAYT) programs can also incentivise household to reduce their waste production. For example, case studies of four municipalities in Japan (Shingu, Takayama and Oume and Nagoya) suggested that PAYT programs led to a reduction in residual waste generation by 20-30% (Sakai et al., 2008^[76]). Tailored PAYT programs or rebates on recyclable waste may therefore enable a simultaneous reduction of mixed waste and an increase in sorting.

Information campaigns to encourage sorting behaviour

One policy approach that has been taken in a number of countries has been to provide information to households on how to sort residential waste, as well as to raise awareness of existing sorting facilities. For example, Germany initiated a 'National Strategy to Reduce Food Waste' forum in 2020, which includes a 'Too Good for the Bin!' Initiative, offering consumers practical tips, leftover recipes, and engaging activities (German Federal Government, 2024^[77]). To increase consumer engagement, outstanding projects that demonstrate innovation and commitment in reducing food waste are periodically awarded the 'Too Good for the Bin!' prize. Information campaigns have shown to have a significant impact on household sorting behaviour without entailing too much cost for policy makers (Miller, Meindl and Caradine, 2016^[78]; Rosenthal and Linder, 2021^[79]). On the other hand, information campaigns should be complemented by measures facilitating sorting as they only have limited effect on their own, and structural barriers can generate a gap between households' intentions to sort and their actual capacity to do so (Gifford, 2011^[80]; Bosone, Chevrier and Zenasni, 2022^[81]).

Food consumption

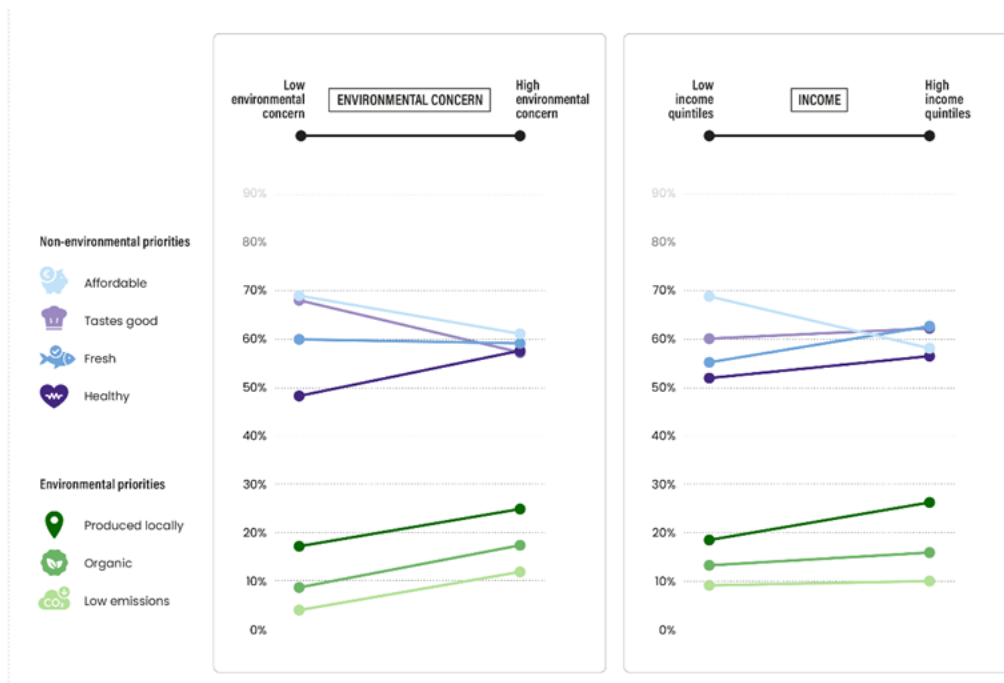
Households prioritise affordability, freshness, taste and nutritional value when making food purchases

When purchasing food, respondents generally prioritise affordability (64% of respondents), taste (61%), freshness (60%) and nutritional value (54%). Much smaller shares of the respondents, including those who are environmentally concerned, prioritised whether the food is produced locally (22%), organically (14%) or has a low carbon footprint (9%) in their decision-making. This suggests that appeals to environmental considerations alone may not be effective in motivating sustainable food choices. Complementary attention to the affordability, taste, and health benefits of food choices will be needed to influence purchasing behaviour.

Some differences in food purchasing behaviour are evident across groups of respondents. Although those with high environmental concern are more likely to prioritise a food product’s carbon footprint compared with those with low environmental concern, this priority is important for only a minority of respondents (12% vs. 4%, respectively). Overall, 69% of low-income households report that affordability is important to them when purchasing food, compared to 58% of high-income households. Environmental priorities (locally produced, organic and carbon footprint) are less important for low- and high-income households alike (Figure 2.8).

Figure 2.8. Environmental considerations are not high priorities when purchasing food

Percentage of respondents considering the factor important by environmental concern and income



Source: (OECD, 2023_[49])

Widespread consumption of meat means that shifting to more sustainable alternatives has the potential to yield large-scale benefits

Overall, 24% of respondents report eating meat several times a week. Across countries, higher incomes are associated with greater consumption of red meat. On average, 12% of respondents with high environmental concern report never eating red meat, which is similar to the proportion among those with low environmental concern (10%). In comparison, 28% of those with low environmental concern report eating red meat several times a week, compared to 22% of those with high environmental concern. The relatively small differences in dietary habits across different levels of environmental concern could suggest that there is limited public awareness about the environmental impacts of red meat production.

Less than one third of respondents (28%) indicate a willingness to substitute red meat for a lab-grown alternative, while 44% are not willing to do so, and the remainder are undecided. This willingness is lowest in France (20%) and highest in Israel (41%). In all countries, a considerably larger proportion of those who are highly concerned about the environment report being willing to try lab-grown meat (33%) than those who are less concerned (19%). Supply-side production standards and environmental labelling of meat alternatives will be important measures to increase consumer confidence in new, more sustainable food products.

However, analysis of the EPIC Survey data suggests that shifting household habits with respect to meat consumption will be a challenge. A large portion of households across countries (43%) report consuming red meat relatively frequently and exhibit a reluctance to changing this habit. Moreover, analysis has found that environmental concern among households has no impact on the frequency of red meat consumption.

Policy examples to shift household food consumption

To date, demand-side interventions to shift household food consumption have mostly focused on public health objectives rather than environmental objectives. As a consequence, examples of demand-side policy measures aiming to improve the sustainability of households' food-related choices are more limited than those targeting energy use, transport habits and waste practice. However, several countries have there exists some venues which allows to encourage sustainable households behaviours.

Labelling schemes for sustainable food products

Better information may help households to give greater consideration to the environmental impacts of the food products that they purchase. Organic labelling has already been in practice in a number of regions for some time (e.g. the EU organic logo (European Commission, 2024^[82]) or the USDA Organic Logo (USDA, 2024^[83]), and have been shown to have an effect on consumers' preferences for environment-friendly products (Larceneux, Benoit-Moreau and Renaudin, 2012^[84]). However, there has been recent interest in extending the scope to multidimensional sustainable food labels. For example, Japan launched an eco-labelling initiative for sustainable farming in 2024, which provides consumers with information on the greenhouse gas emissions reduction potential of rice and vegetable products. The label takes the form of a rating from 1 to 3, reflecting the magnitude of the reduction potential (The Japan Times, 2024^[61]). The European Union is discussing a similar food eco-label system to raise awareness about the environmental impacts of food (European Economic and Social Committee, 2022^[85]). Requiring such labels from food producers entails little expense from administration and can have a significant impact on consumer behaviour (Rondoni and Grasso, 2021^[86]). In light of evidence suggesting a low impact of nutrition labels (Giner, Rodriguez and Elasri, 2023^[87]), it will be important to test and develop well-designed labels in order to ensure their effectiveness.

Policy measures to shift consumption from meat to plant-based proteins

Policy efforts to promote more sustainable diets can notably focus on increasing the relative appeal of plant-based food items. One example of such a policy effort is the Danish Plant-based Action Plan, released in 2023, which includes a strategy to promote green protein consumption and a strategy for organic farming. Other policy measures include providing training to kitchen chefs to prepare plant-based meals, increasing plant-based food in school canteens, and allocating €168 million for plant-based startups. The Danish Government also initiated the Food Nation initiative, a non-profit public-private partnership aimed at showcasing Denmark's leadership in innovative, sustainable and effective food production and as a platform for international stakeholders seeking insights into Danish food solutions (Ministry of Food and Agriculture and Fisheries of Denmark, 2023^[88]). Such a roadmap contributes to making plant-based options more accessible and more appealing to consumers through education and training. In 2019, the French government also introduced some educational measures to limit meat consumption, such as requiring a minimum of one vegetarian meal per week in school canteens (French Ministry of Agriculture, 2018^[89]).

Some research has investigated more coercive measures to limit meat consumption, such as a tax on meat (Säll and Gren, 2015^[90]; Funke et al., 2021^[91]; Funke et al., 2022^[92]). Specifically, research has confirmed that meat is significantly underpriced when considering the social costs of climate change, biodiversity loss and diet-related health impacts associated with its consumption (Funke et al., 2021^[91]; Funke et al., 2022^[92]). According to Säll and Gren (2015^[90]), adequate meat and dairy taxes could decrease greenhouse gas, nitrogen and phosphorus emissions from the livestock sector by up to 12% in Sweden. The Danish government has recently announced that it was considering such a measure (Churm, 2023^[93]). While relatively uncommon in the food sector, one tax-based measure that does have precedent as applied to food products are taxes based on added sugar content. As of August 2019, soft drink taxes were implemented in 50 jurisdictions worldwide. Evidence suggests that product prices increased following the introduction of a tax (with a full or almost full pass-through to households in most cases) and a relative decrease in the sales of taxed beverages (Griffith et al., 2019^[94]). Other evidence based on a hypothetical experimental setting suggests that carbon taxation could significantly reduce the carbon footprint of food baskets (Panzone et al., 2021^[95]). As with other price-based measures of this type, however, a tax on meat has the potential to be regressive and is likely to face significant public opposition (Maestre-Andrés, Drews and van den Bergh, 2019^[41]; Douenne and Fabre, 2020^[42]). These challenges could be mitigated by combining taxes with complementary measures to reduce potential distributional impacts (Funke et al., 2022^[92]) or using the revenues to support policies that do enjoy widespread public approval.⁴ When considering such a measure, it would also be important to look to similar precedents in the food sector (e.g. sugar taxes) for insights regarding setting tax levels, implementing complementary measures and developing public messaging.

⁴ With the exception of taxes, all of the food-related policy measures addressed in the survey were supported by a majority of households across countries in the EPIC Survey.

3 Key takeaways: Demand side actions to achieve sustainable change

The results of the EPIC Survey indicate that, although households are making sustainable choices in some areas, more is needed. In all areas, respondents highlighted the importance of availability, affordability and convenience in driving household decisions. As a result, achieving deeper shifts in household consumption will notably depend on further improving the affordability, convenience and availability of sustainable options through a range of price-based, non-price-based and regulatory measures.

Specifically, policies should seek to remove barriers to action and create incentives to encourage uptake. Implementing price-based measures that make sustainable choices relatively more affordable than less sustainable choices will be an important component of overall approaches to shift to more sustainable lifestyles. Analysis of the EPIC Survey data indicates that, controlling for other factors, cost appears to be a consistently significant consideration that households take into account when making decisions in all areas. Table 3.1 summarises the results from several econometric models used to explore the determinants of household behaviour with respect to a range of environmentally relevant choices addressed in the EPIC Survey.

Table 3.1. The importance of cost in household decisions

Results from analysis of determinants of household choices in OECD EPIC thematic reports

Thematic area	Household choice	Finding
Energy	Conserving energy	Being in the highest income level is associated with a 2-4% decrease in the likelihood of often or always engaging in various energy conservation behaviours
	Investing in low-emissions energy technologies	Being in the highest income level is associated with a 3-6% decrease in the likelihood of installing a range of low-emissions energy technologies ⁵
Transport	Using a private vehicle	Being in higher income groups is associated with a 3-12% increase in the probability of having access to a private vehicle
Waste	Reducing waste ⁶	The presence of a waste charging scheme increases the effectiveness of various separation services from 11-16% to 18-26%

Source: (OECD, Forthcoming^[22]; OECD, Forthcoming^[48]; OECD, Forthcoming^[69])

As part of the EPIC Survey, discrete choice experiments were also included to examine consumer behaviour with respect to household choices in each thematic area, notably to better understand household preferences regarding the choice of electricity provider, car purchases and sustainable packaging. Econometric analyses of these choice experiments indicate that price is a significant determinant of

⁵ Technologies include energy-efficient appliances, energy-efficient windows, thermal insulation and solar PV.

⁶ Further details regarding how waste prevention is measured are provided in Section 2.

choices made in all areas, with consumers exhibiting a preference for less expensive options (OECD, Forthcoming^[22]; OECD, Forthcoming^[48]; OECD, Forthcoming^[69]). For example, a 1% increase in the price of electricity reduces the likelihood of choosing an electricity provider by 5% (OECD, Forthcoming^[22]). Likewise, a 10% increase in the purchase price of a battery electric vehicle leads to a 5-7% decrease in the likelihood that households will purchase one (OECD, Forthcoming^[48]). While such findings are consistent with economic theory and the empirical evidence, the high importance of price across thematic areas indicates that it is one of the key factors that households take into account when making environmentally relevant purchasing decisions.

Removing barriers to action will also entail shifts in incentives such that sustainable choices align with choices that are also convenient. This is especially true for household choices surrounding transport and food consumption, for which environmental concern appears to be less important than cost and habit-related factors. In addition to the importance of improving the convenience and affordability of sustainable options, another key bottleneck to sustainable behaviour appears to be associated with their availability and feasibility. Renewably generated electricity or charging stations for electric vehicles, for example, could be made more available, and the feasibility of installing solar panels for tenants or for those living in apartment buildings could be improved.

The evidence also suggests that policymakers may be able to leverage existing public support for some types of policies to advance environmental policy agendas. Respondents systematically express less support for taxes and fees than for subsidies and supply-side regulations or information-based policies. Policy complementarity is an important consideration, as households' acceptance of and ability to respond to tax-based measures depends on the alternatives available to changing their behaviour. In addition to providing sustainable alternatives, complementary policies to taxes and fees can recycle the revenues raised (e.g. to fund improvements in public transport).

Taken together, analyses of the data from the OECD EPIC Survey point to a number of policy considerations for governments regarding how to effectively encourage more sustainable choices in the areas of energy use, transport, waste practices and food consumption:

ENERGY USE

- **Mitigate structural barriers to improved energy efficiency.** Reducing differences in the incentives and information available to renters and landlords should improve access to low-emissions energy technologies in residential rental markets.
- **Provide sufficient and targeted financial incentives for the installation of low-emissions technologies.** Subsidies, tax credits and low interest loans can assist low- and middle-income households with cost-related constraints.
- **Improve access to information on energy use and conservation.** Educating households about potential cost savings of energy conservation, providing information on how households can save energy and offering feedback about energy use can improve households' decision-making.

TRANSPORT

- **Complement taxes or other charges on car use with investments in affordable public transport and better walking and cycling infrastructure.** Policies aiming to reduce private car travel will need to overcome structural barriers, notably historically heavy investments in infrastructure that have led to car-centred land-use. The revenues raised from disincentives for private car use can support measures such as improving public transport systems. To the extent that such measures enjoy widespread public support, revenue recycling can also serve to improve the public acceptability of price-based measures.

- **Implement policies to facilitate electrification.** Providing convenient access to EV charging at homes, workplaces and other parking locations could significantly increase willingness to purchase electric vehicles.

WASTE PRACTICES

- **Provide better recycling services to reduce waste.** Recycling collection services serve a critical role in providing households with a low-cost and convenient option for diverting discarded material from mixed waste streams. Recycling collection services are also associated with greater engagement in waste prevention behaviours.
- **Expand charging schemes for mixed waste disposal and improve the awareness of these schemes.** Charging schemes are associated with increased recycling volumes and amplify the effectiveness of recycling collection services in reducing mixed waste. Waste charging schemes are also associated with greater waste prevention behaviours.
- **Provide better information on what to recycle and how.** Results indicate that a lack of knowledge (e.g. regarding where to recycle batteries, and how to avoid food waste) may be a barrier to some households in better waste management.

FOOD CONSUMPTION

- **Improve the affordability, availability, nutrition and taste of sustainable options.** These characteristics are universally important priorities for consumers when making food purchases. Improving the relative affordability of sustainable options while increasing the price of less sustainable options (to better reflect the social cost of their environmental impacts) may help modify shopping habits.
- **Provide more information on the benefits of sustainable alternatives.** Results indicate that environmental awareness and concern play a role in some food choices. Therefore, the provision of information via labelling schemes to increase knowledge about the environmental impacts of food production and reduce potential misconceptions about the cost or quality of sustainable options could facilitate dietary shifts.
- **Leverage high levels of support for food-system policies.** Many types of food system policies enjoy widespread public support, which should encourage policymakers to implement them and to use them to increase the palatability of less popular measures. For example, measures with low levels of support, such as taxes or fees on certain foods, could be pursued in conjunction with complementary measures that increase the appeal of sustainable choices (e.g. using tax revenue to improve their affordability or taste).

The policy examples provided in Section 2 provide examples of demand-side measures that have been used to support households in making more sustainable choices across the G7 and beyond. In some cases, the examples provided are already widely implemented (e.g. improving cycling infrastructure and providing financial incentives for energy efficiency investments), indicating the existence of a considerable amount of evidence available across country contexts and therefore scope for the broader application and scaling up of these measures in a relatively straightforward manner. Continual ex-post evaluations of such measures are needed in order to ensure their continued relevance and cost-effectiveness, and to further improve their design to ensure they reach the households with the greatest needs and largest remaining potential for change. For policy measures with less precedent (e.g. price-based measures to reduce the consumption of less sustainable food options), ex-ante evaluations will be particularly important.

In all cases, an assessment of the cost effectiveness of potential policies is necessary when prioritising demand-side policy measures. Importantly, decisions with respect to food, transport, waste and energy

use are characterised by different sets of administrative, institutional and infrastructural conditions, as well as social, cognitive and preference-related factors. As a result, evidence suggests that the behaviour changes with the greatest impacts can differ across countries (IPCC, 2022^[3]). Findings indicate, for example, that shifting to plant-based diets has the greatest climate mitigation potential in upper-middle income countries, while reducing commuting distances can yield the greatest impact in lower-middle income countries (Akenji et al., 2021^[96]).

While numerous demand-side policy measures are already in place, policy monitoring suggests that additional measures targeting behaviour change are needed to meet environmental goals (e.g. IEA (2023^[97])). A primary challenge for policymakers is how to prioritise target behaviours, notably those that deliver the greatest environmental impacts, are the easiest to implement or are most cost-effective. Based on the global approach to climate change mitigation used by the international community (IPCC, 2022^[98]; World Bank, 2023^[99]), effectively addressing large scale environmental challenges characterised by tipping points will require target-driven action that minimises total long run abatement costs rather than near term marginal abatement costs only. This implies targeting not only lower cost and easy-to-achieve behavioural changes, but also those that, while they may be relatively more difficult to change, have the potential for large and cost-effective impacts over the long term.

High documented levels of support for many policies (OECD, 2023^[49]) should encourage policymakers to consider implementing more demand-side measures in all areas. To the extent that demand-side measures are most effective when they have public support (IPCC, 2022^[3]), attention to evidence regarding existing public support and the drivers of this support can be useful in guiding the development and messaging surrounding demand-side policy measures. Considering findings that environmental concern is a consistent predictor of behaviours such as energy use and waste practices, broader efforts to improve environmental awareness can also be considered as a policy approach that could be expected to foster greater engagement in sustainable consumption.

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Demand-side policy measures for environmental sustainability

The consumption of products, services and transportation has significant environmental consequences and account for the majority of global greenhouse gas emissions. Meanwhile, demand-side policy measures have the potential to reduce the environmental footprint of these activities by up to 40-70%. This Policy Paper draws on the OECD's recent household survey on environmental policy and behavioural change to provide insights and policy recommendations for specific measures that can encourage more sustainable household consumption of energy, transport and food as well as more sustainable waste practices. The report was prepared in support of Japan's 2023 G7 presidency.

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OECD (2023), *How Green is Household Behaviour?: Sustainable Choices in a Time of Interlocking Crises*, OECD Studies on Environmental Policy and Household Behaviour, OECD Publishing, Paris, <https://doi.org/10.1787/2b5bb663-en>.

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