3 Household behaviour and transport

Our transport activity is currently responsible for about a quarter of global greenhouse gas emissions, and has a wide range of other environmental, health and social costs. This chapter analyses households' transport choices, based on their responses to the 2022 OECD Survey on Environmental Policies and Individual Behaviour Change (EPIC). It explores patterns in households' use of public transport, individual modes of transport, and air travel. It also assesses the factors that will enable households to make more sustainable mobility choices, providing implications for policymakers.

Key findings

- **Shifting households away from conventional car use is challenging, in rural and urban areas alike.** While reliance on cars is higher in rural areas, car use is still significant even in urban areas where it accounts for 50% of commuter travel. The proportion of urban commuters that use a private car is greatest in the United States (65%), Canada (56%) and Israel (56%). Across the nine countries surveyed, 75% of households report that at least one household member uses a conventional car on a regular basis. Conventional car use does not vary significantly by level of environmental concern, indicating the extent of households' dependence on private cars, as well as the constraints and inconveniences associated with changing this behaviour.
- **Making it easier and cheaper for households to use public transport can help to reduce car dependency and the environmental impacts of transport activity, particularly in urban areas.** Overall, 54% of regular car users indicate that improved public transport would encourage them to drive less. In particular, they would like to see more frequent services, better network coverage and lower fares. For those households that do not use a car, public transport availability is an important reason.
- **A widespread transition to electric cars will be key for decarbonising the transport sector, but more charging infrastructure is needed to encourage uptake.** More than 80% of potential car buyers plan to buy a car that runs at least partially on fossil fuels. Overall, 33% of households report that there are no charging stations for electric cars within three kilometres of their home, ranging from 22% in the Netherlands to 43% in France. Communicating existing infrastructure coverage as well as planned developments, and their time frame, could boost public awareness and help households consider future electric vehicle purchases.
- **Taxes and other charges to discourage car use could be more acceptable if complemented by investments in public transport.** Measures to improve public transport systems enjoy widespread support in all countries, ranging from 72% in the United States to 84% in Israel. Households also indicate general support for subsidies for low-emission or efficient cars, setting stricter fuel efficiency standards for new cars and providing more detailed environmental labels. In contrast, roughly one-third of households overall express strong disagreement with deterrent measures, such as a fee per kilometre driven (32%), increased parking fees (31%) and a tax on carbon emissions (18%). It seems possible that opposition to taxes and other charges could therefore be mitigated by investing the revenues generated in improving public transport systems, as well as in walking and cycling infrastructure. Alternative measures (e.g. increasing the affordability of electric cars and the capacity for at-home charging) will be required in rural contexts that are not suitable for the development of public transport services.

3.1. Introduction

Transport is indispensable for accessibility and the exchange of goods, but generates a wide range of environmental, health and social costs. The transport sector is responsible for about one-fourth of global greenhouse gas (GHG) emissions. The amount of carbon dioxide (CO_2) emitted by the sector is particularly difficult to reduce, as private car ownership rates are increasing and internal combustion engine cars may continue to be used for some time (ITF, 2021[1]). Apart from emissions, transport activities generate negative externalities in the form of local air pollution, noise, accidents and congestion. The societal costs of air pollution increase in areas with high congestion, which also tend to be densely populated. Passenger and freight transport activities gave rise to more than 50% of global nitrogen oxide emissions (NO_X), 30% of carbon monoxide (CO), 20% of volatile organic compounds (VOCs) and 15% of sulphur dioxide (SO_2) in 2015 (IEA, 2016[2]). The annual per capita welfare cost of air pollution in OECD countries was estimated at USD 1 280 in 2015, a number projected to increase to USD 1 650 in 2060[1] (OECD, 2016[3]). Congestion is also responsible for losses in time and fuel that translate into significant costs (Goodwin, 2004[4]).

Analysis by the Intergovernmental Panel on Climate Change (IPCC) indicates that demand-side strategies can reduce up to 67% of GHG emissions in the land transport sector (IPCC, 2022[5]). Urban planning can reduce vehicle kilometres travelled by, for example, reallocating road and parking space to public transit or bike lanes, thereby saving fuel and reducing emissions (ITF, 2021[6]). Technology adoption also plays an important role. Banning conventional internal combustion engine cars and instituting electric car targets could reduce the transport sector's GHG emissions by 30-70% (IPCC, 2022[5]). At the individual level, living car-free and avoiding long-haul flights will have the largest impact on emissions reductions. Shifts to public transport or battery electric vehicles also provide substantial mitigation potential (IPCC, 2022[5]). In cities, reduced conventional car use and more active mobility will also improve outdoor air quality (Creutzig et al., 2022[7]).

Effective transport decarbonisation policies are needed for a more sustainable future for the sector. In particular, they should promote reductions in unnecessary travel, shifting to less polluting transport modes, improving energy efficiency and scaling up the use of electric cars and low-carbon fuels (ITF, 2021[1]).[2] These changes will help to minimise overall transport demand, reduce the use of motorised vehicles and reduce the emissions intensity of the average passenger kilometre travelled.

Shifts in behaviour can occur at different time scales (Weis et al., 2010[8]). Some changes can be made immediately and at a relatively low monetary cost, such as switching to a different mode of transport for a given trip, say biking rather than using a car. However, the personal costs of such changes (e.g. inconvenience) can be high (Gardner and Rebar, 2019[9]). Changes can also occur over the medium term, such as the decision to purchase a car powered by fossil fuels or alternative fuels. Long-run changes in behaviour, such as concerning where to live and how far to commute, tend to have considerable financial significance for individuals, as well as an impact on the environmental footprint of transport activity (OECD, 2018[10]; OECD, 2021[11]).

Behavioural change is critical to these shifts in the transport sector. The success of policies designed to reduce the environmental impact of transport activities relies on understanding the choices that determine households' travel patterns and modes of transport. Car-dependency presents a particular challenge and will require large-scale transformative policies to shift households to sustainable travel modes and reduce travel demand (OECD, 2022[12]). Policy objectives should notably include:

- Massively increasing the availability and accessibility of public transport and soft mobility will require policymakers to understand respondents' preferences for attributes such as accessibility and convenience (ITF, 2021[1]; ITF, 2017[13]). This will aid policymakers in providing sufficient quality of service and designing relevant cost-effective incentive mechanisms for public transit systems.

- Mainstreaming alternative fuel vehicles – such as battery electric, plug-in hybrid electric and hydrogen fuel cell vehicles – will depend on how potential adopters respond to the relative attributes of these options (e.g. purchase price and running costs) compared with conventional cars. There is therefore a need to better understand consumer preferences and socio-economic conditions, and their role in the demand for alternative fuel vehicles. In the long term, supply-side regulations, such as a ban on the sale of new conventional cars, will condition consumer choice in important ways (EPRS, 2022[14]).

This chapter provides an overview of the data gathered in the third round of the OECD Survey on Environmental Policies and Individual Behaviour Change (EPIC) on household mobility patterns.[3] It explores in particular households':

- use of public transport and long-distance travel
- use of conventional and electric cars
- support for sustainable transport policies.

For each of these areas, the chapter uses representative country samples to analyse differences in respondents' behaviours and attitudes across relevant variables such as income level, residence type and location, ownership status and level of environmental concern.

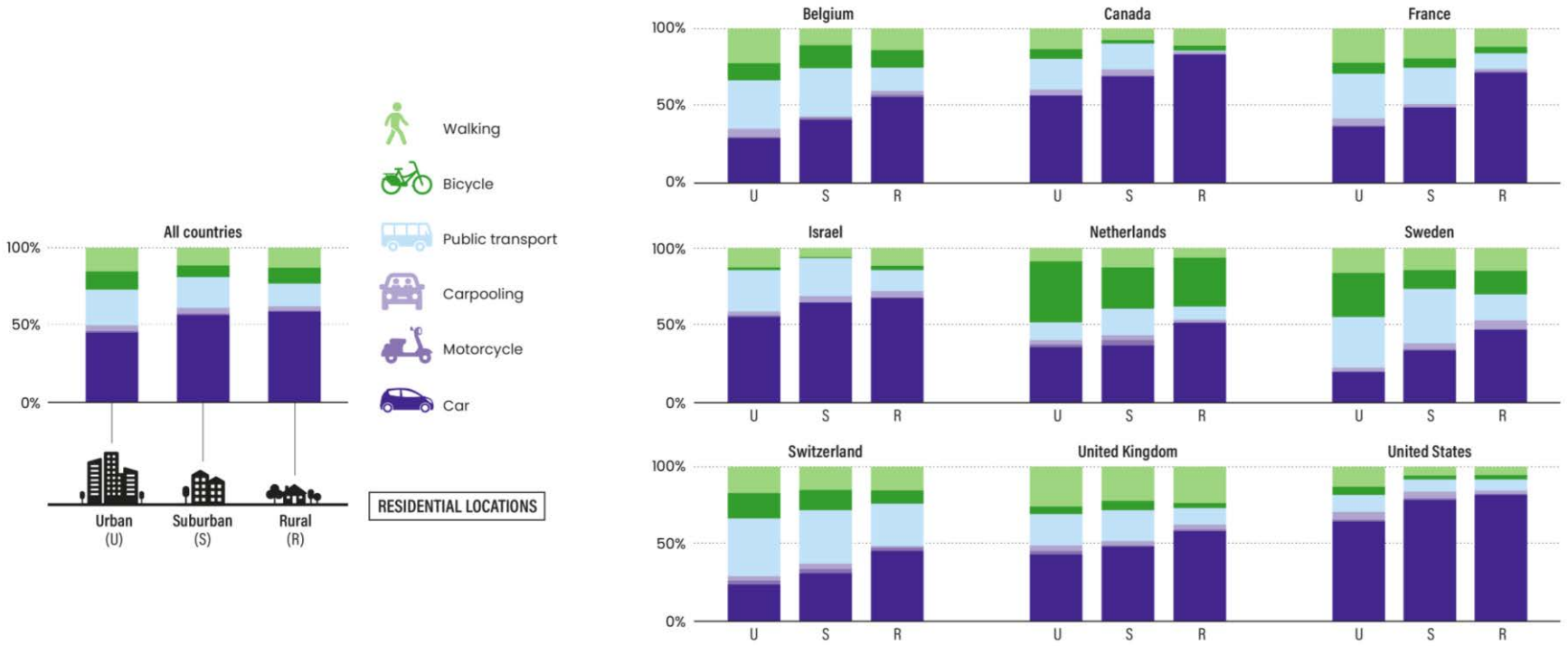
3.2. Household use of public transport and long-distance travel

3.2.1. Public transport

Although 50% of respondents living in urban areas across countries rely on public transport, walking and cycling when travelling to work, the remainder use conventional cars (45%), motorcycles (1%) or carpooling (4%). Significant differences in transport mode are observed across urban, suburban and rural areas (Figure 3.1).[4] Differences in mode use across residential areas appears most pronounced in France, where 71% of households in rural areas report using a car as their primary mode of commuting, compared to 49% and 37% in suburban and urban areas, respectively. Reported car use is highest in the United States, where 82% of households report using a car to commute in rural areas and 65% report using one in urban areas. Car use for commuting in suburban areas varies from 31% in Switzerland to 79% in the United States. Bicycle use is highest for urban, suburban and rural areas in the Netherlands (39%, 27% and 32%, respectively). The greatest proportion of respondents that report walking as a primary commuting mode was in the United Kingdom, where 25% of respondents in urban areas and 23% in rural areas report doing so.

Figure 3.1. Household use of conventional cars is high

Percentage of respondents using each mode as their primary mode of commuting



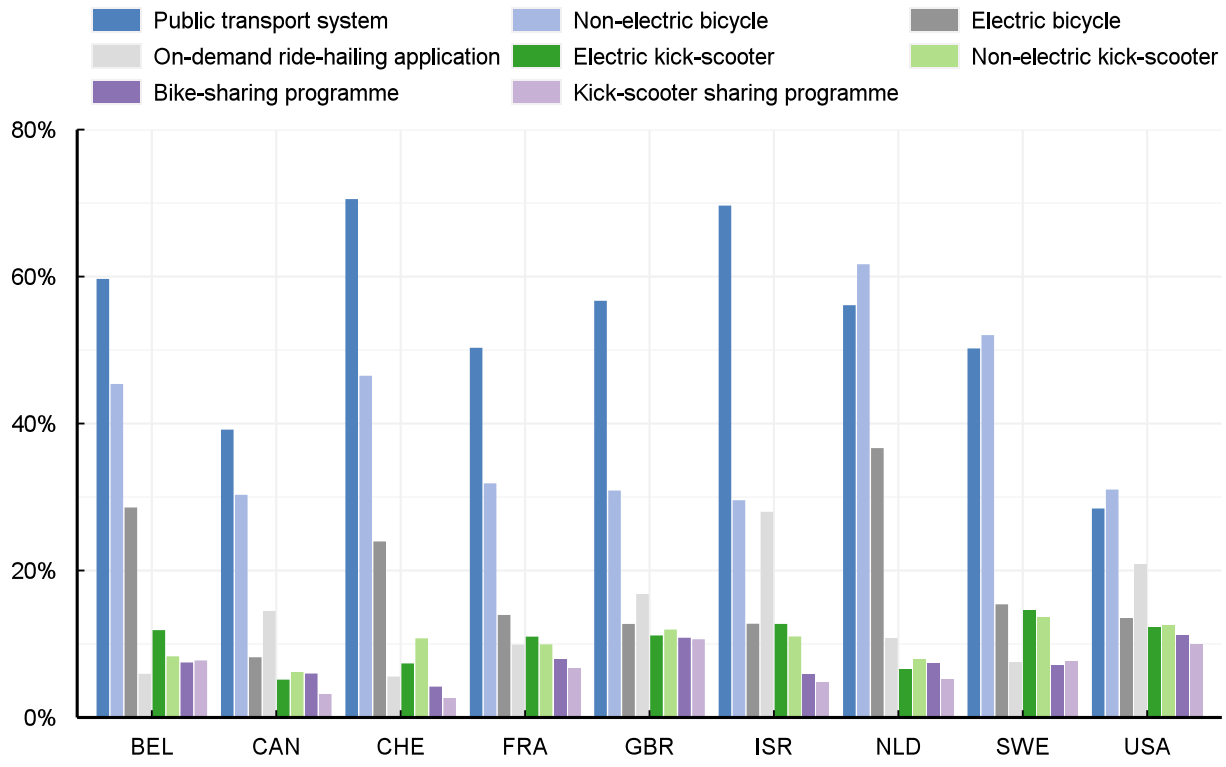
Note: This survey item asked respondents: "Thinking of your personal travel, how do you usually travel to each of the following activities? Please select your primary mode of transport". When respondents answered "not applicable" they were excluded. Sample sizes are the following: BEL: 603, CAN: 543, CHE: 732, FRA: 642, GBR: 555, ISR: 821, NLD: 647, SWE: 693, USA: 1044.
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/frmu6t

The use of public transport varies widely by country – from 71% of households in Switzerland to 28% in the United States (Figure 3.2). Despite this cross-country variation, several patterns in public transport use can be observed across the nine countries surveyed. In most countries, lower-income households more frequently report regular use of public transport than wealthier households. In Switzerland and the United States, however, higher-income households appear to use public transport more than lower-income households.[5] With the exception of Israel, reported use of public transport is 10% higher among those with high levels of environmental concern than those with low environmental concern.

Figure 3.2. Public transport is one of the most widely used forms of non-car transport

Percentage of households regularly using different modes of transport



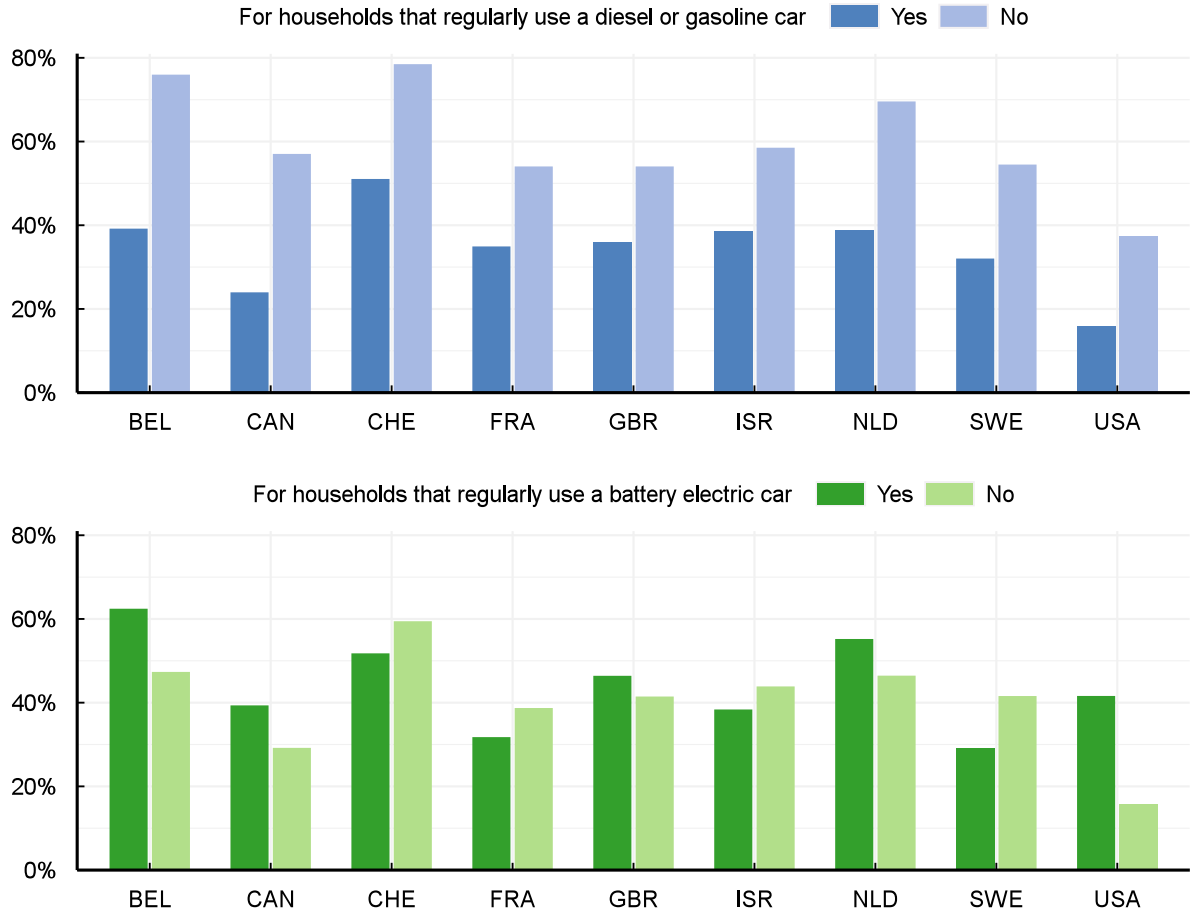
Note: This survey item asked respondents: "Does your household regularly use any of the following (including company-provided) equipment?" For each type of equipment, respondents selected "Yes, I do", "Yes, someone else in the household does", "Neither of these" or "Don't know". The last two response options are exclusive. The figure shows the percentage of respondents indicating that they or someone else in the household use the mode of transport.
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/1qjukb

The survey data further indicate that households that are regular users of conventional cars are less likely to use public transport than households that own electric vehicles (Figure 3.3). This finding could reflect the fact that households that use electric cars are also more likely to live in urban areas. On the other hand, it challenges findings postulating that early adopters of electric cars are predominantly located in suburban and rural areas (Plötz et al., 2014[15]).

Figure 3.3. Households with conventional cars use public transport less than those with electric cars

Percentage of respondents that report regularly using public transport



Note: This survey item asked respondents: "Does your household regularly use public transport?" For each type of equipment, respondents selected "Yes, I do", "Yes, someone else in the household does", "Neither of these" or "Don't know". The last two response options are exclusive. The figure shows the percentage of respondents indicating "Yes, I do". Respondents are grouped by their household's regular use of conventional or battery electric cars. These survey items asked respondents: "Do you or does anyone in your household regularly use any of the following (including company-provided equipment)? Please select all that apply."
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/g7z8h5

Regarding the potential to reduce car use, an average of 54% of regular car users indicate that improved public transport services would encourage them to use a car less (Table 3.1). This percentage is greatest in Israel (66%) and lowest in Canada and the United States (44% and 42%). Of these respondents, 35% live in urban areas.

Table 3.1. Better public transport would encourage 54% of car users to drive less

Percentage of respondents indicating that better public transport would encourage them to drive less

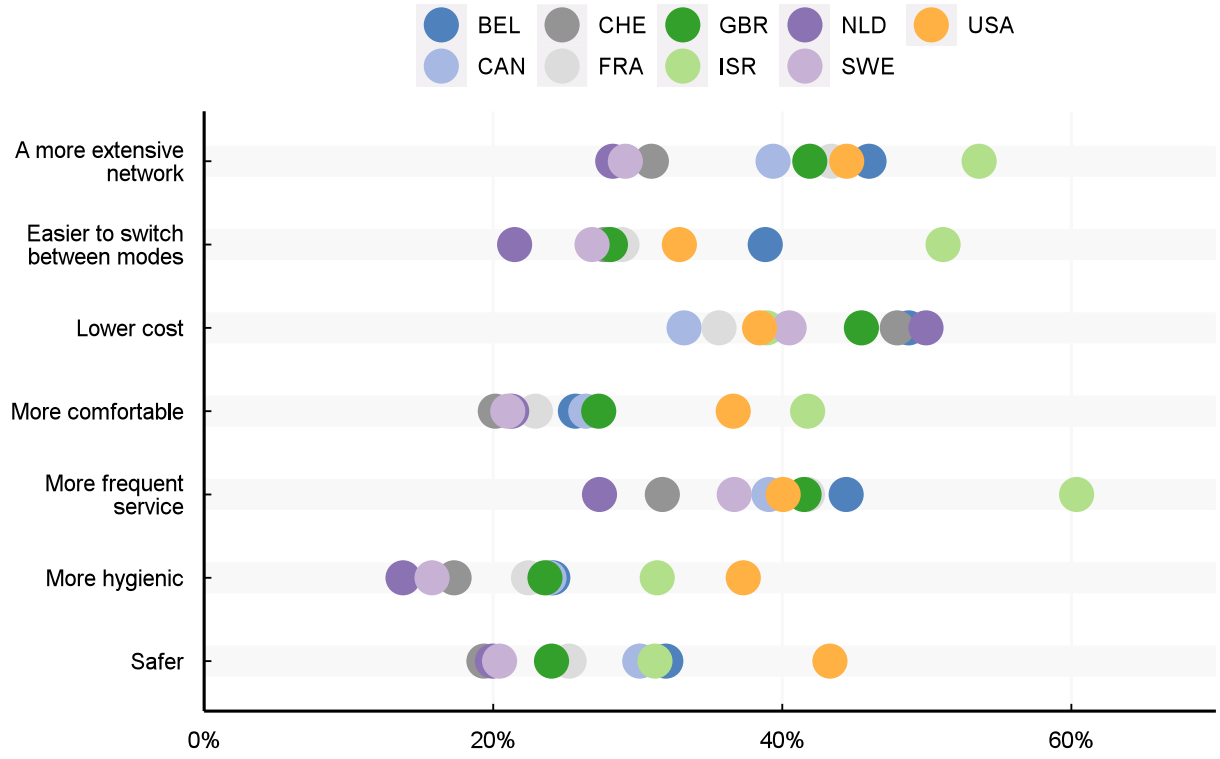
Country	Yes	Sample size
All countries	54%	7227
BEL	57%	737
CAN	44%	777
CHE	58%	707
FRA	65%	765
GBR	63%	670
ISR	66%	732
NLD	52%	736
SWE	54%	604
USA	42%	1499

Note: This survey item asked respondents: "Would better public transport services (e.g. more frequent, more accessible) lead you to use a car less?" The question was only asked of respondents who indicated that they used a car. Sample sizes are the following: BEL: 737, CAN: 777, CHE: 707, FRA: 765, GBR: 670, ISR: 732, NLD: 736, SWE: 604, USA: 1499.

Cheaper, more frequent and more extensive public transport networks are the most important improvements that respondents listed when asked what would encourage them to use their car less (Figure 3.4).[6] Overall, across the nine countries, 42% of respondents rate less expensive public transport as very important. This share is highest in Belgium and the Netherlands, at 49% and 50%, respectively. More frequent service is also cited as an important factor (41% overall) but appears particularly important for respondents in Israel (60%). Respondents in Israel also rate the ease of switching between different transport modes as more important than respondents in other countries. Improved hygiene and safety are less frequently considered important, except for respondents in the United States, who rated them of similar importance to other factors. Potential factors that could increase concern for safety in public transport trips include low ridership rates and infrequent service. It is important to note that some aspects of public transport may not be ranked among the most important because respondents are already satisfied with the current level of service. As a result, variation in responses may reflect variation in both service level provision as well as variation in individual preferences.

Figure 3.4. 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. Sample sizes are the following: BEL: 424, CAN: 339, CHE: 419, FRA: 490, GBR: 420, ISR: 484, NLD: 381, SWE: 318, USA: 611.
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/j2k1fx

3.2.2. Long distance travel

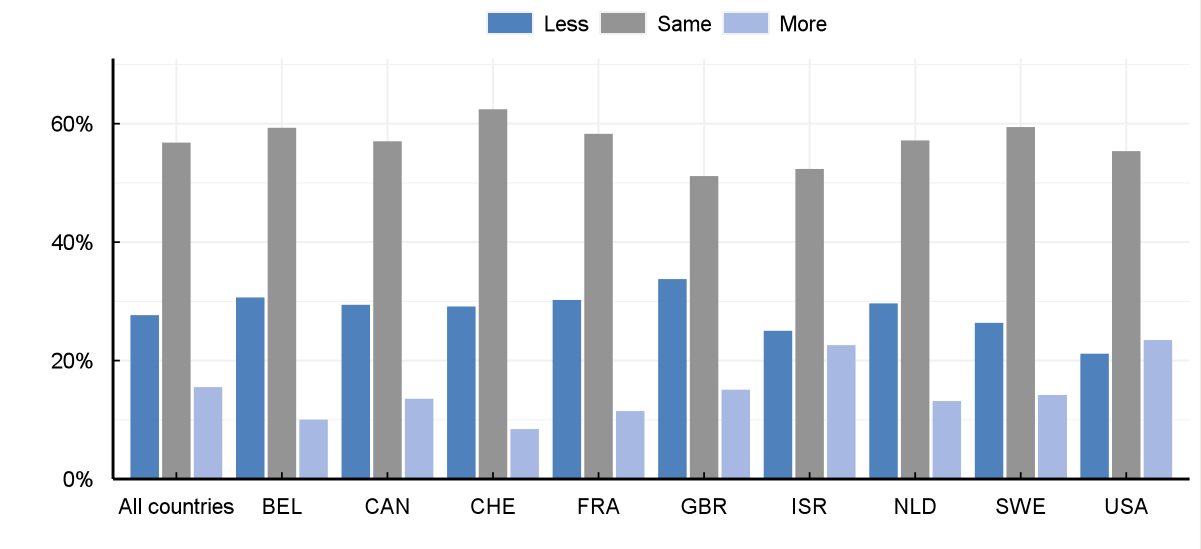
The modes used for long distance travel also vary across countries. On average, 37% of total annual long-distance trips are taken by car, 16% by rail, 15% by bus, and 11% by plane. Respondents in Israel, as well as those in European countries, report taking on average 1.75 to 2 long-distance train trips per year. The exception is Switzerland, where respondents indicate taking an average of 3.5 such trips per year. Fewer trips by rail – an average 0.5 and 0.9 trips per year – are reported in Canada (0.5 trips on average a year) and the United States (0.9). This reflects differences in capacity for high-speed passenger rail services in North America compared to Europe and Israel (IEA, 2019[16]). Across all countries, respondents take an average of 1 to 2.3 leisure-related long-distance trips by bus and 1 to 1.6 trips by plane every year. Box 3.1 Box 3.1 reports survey findings on the impact of the COVID-19 pandemic on air travel.

Box 3.1. Respondents expect to fly slightly less following the COVID-19 pandemic

Respondents were asked whether they expect to change the frequency of their air travel following the COVID-19 pandemic. Confirming current trends in the airline industry (ICAO, 2023[17]), 57% of respondents in all countries expect to make the same number of trips per year by plane after the COVID-19 pandemic as they did before (Figure 3.5). For the group of all countries except the United States, an average of 33% of respondents expect to make fewer trips, while 14% expect to take more trips. Findings are similar for short and long-distance flights.

Figure 3.5. Most respondents' plans to fly remain unaffected by the COVID-19 pandemic

Average percentages across short and long-distance trips



Note: This survey item asked respondents: "Compared to before the COVID-19 pandemic, how often do you expect to use planes for long trips (100 miles/200km or more one way) once the pandemic is well under control?" and "Compared to before the COVID-19 pandemic, how often do you expect to use the following modes of transport for short trips (less than 100 miles/200km one way) once the pandemic is well under control?".
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/pid87f

3.3. Households' use of conventional and electric cars

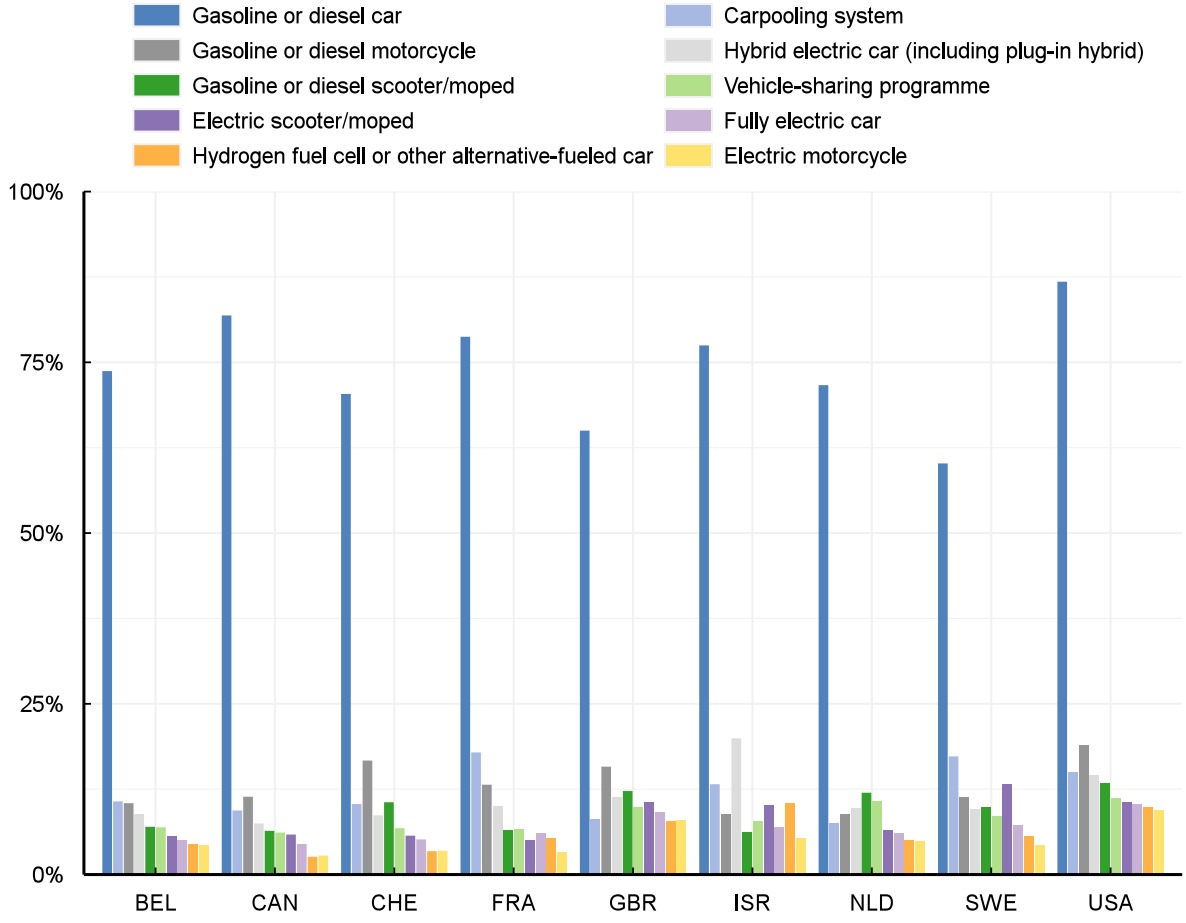
3.3.1. Conventional car use

Respondents report using a wide range of vehicle types (Figure 3.6), but the vast majority use a conventional motorised car or motorcycle, and more than 80% of potential car buyers still intend to purchase a car that runs at least in part on fossil fuels. On average 75% of households report that at least one household member uses a conventional car on a regular basis, ranging from 60% in Sweden to 87% in the United States. While not all respondents necessarily use these vehicles as their primary mode of transport or with the same intensity, these figures confirm that conventional cars remain a highly relevant

transport mode for most households. As such, while the electrification of the private vehicle fleet should deliver significant climate benefits, achieving this will require widespread household adoption of electric cars. On average, 7% of households report that at least one member of their household regularly uses a battery electric car, ranging from 4% in Canada to 10% in the United States.[7]

Figure 3.6. A conventional car is used regularly by 75% of households

Percentage of respondents indicating that they regularly use different types of cars



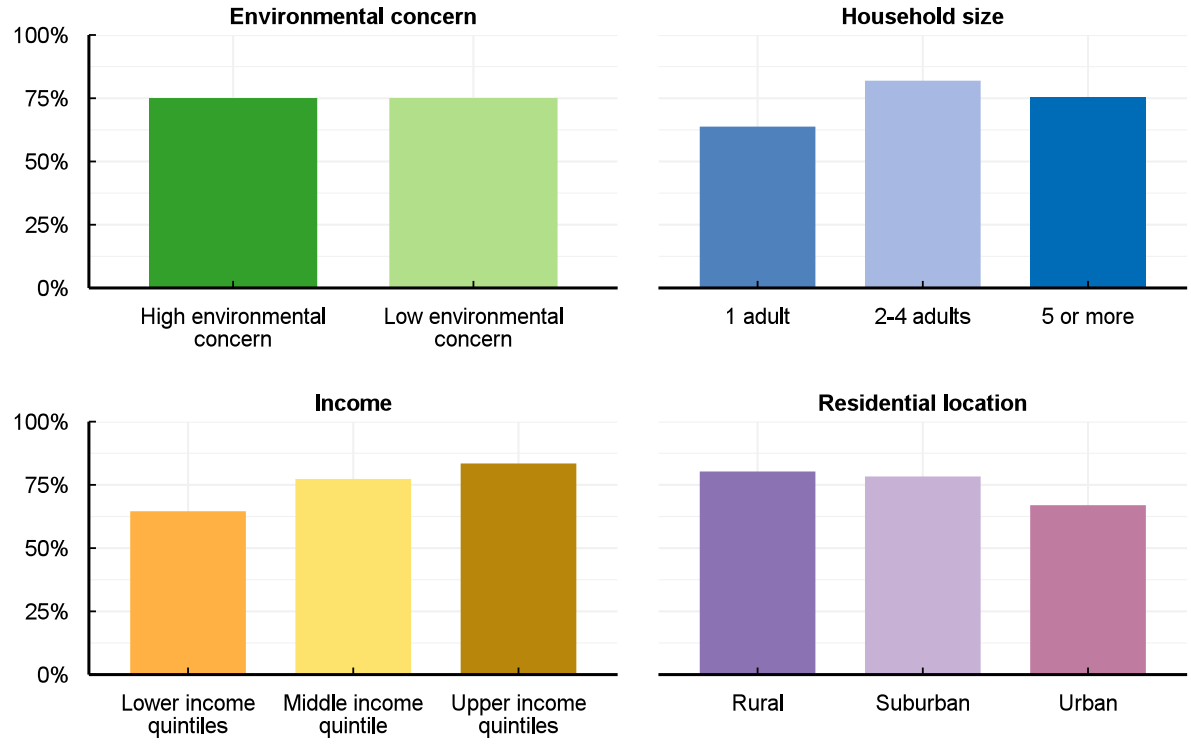
Note: This survey item asked respondents: "Do you or does anyone in your household regularly use any of the following (including company-provided equipment)? Please select all that apply."
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/ryef3v

Use of conventional cars appears higher for high-income households than for low-income households (Figure 3.7), which confirms existing empirical evidence. Single-adult households report less frequent use of a conventional car (an average of 64%) than households with between two and four adults (82%). Exceptions are the United States, Canada and Israel, where reported use increases slightly with the number of adults in the household. For the majority of countries, however, reported car use falls for households of five adults or more. Households with and without children do not report significantly different levels of conventional car use. In all countries, urban households report less car use than rural households.

Figure 3.7. Household income appears to be the strongest driver of conventional car use

Percentage of households regularly using a conventional car



Note: This survey item asked respondents: "Do you or does anyone in your household regularly use any of the following (including company-provided equipment)? Please select all that apply." Lower income quintiles refers to income quintiles 1 and 2, middle income quintile refers to income quintile 3 and upper income quintiles refers to income quintiles 4 and 5.
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/6dgfns

Some exceptions exist at the country level. In the United States, no differences in conventional car use are observed across income levels, and only small differences are observed across urban and rural areas. In Israel, only small differences are observed by residential location. Overall, across countries, despite its environmental impact, conventional car use does not vary significantly by level of environmental concern. The largest difference (7 percentage points) is observed in Switzerland.

These findings indicate the degree to which households rely on private cars for mobility needs, as well as the constraints and inconveniences associated with changing this behaviour. In urban areas, policies can seek to reduce conventional car use by improving the convenience of public transport options. In areas where there are fewer alternatives to car travel, policies can encourage a switch to electric cars by expanding charging infrastructure and improving their affordability.

3.3.2. Electric car use

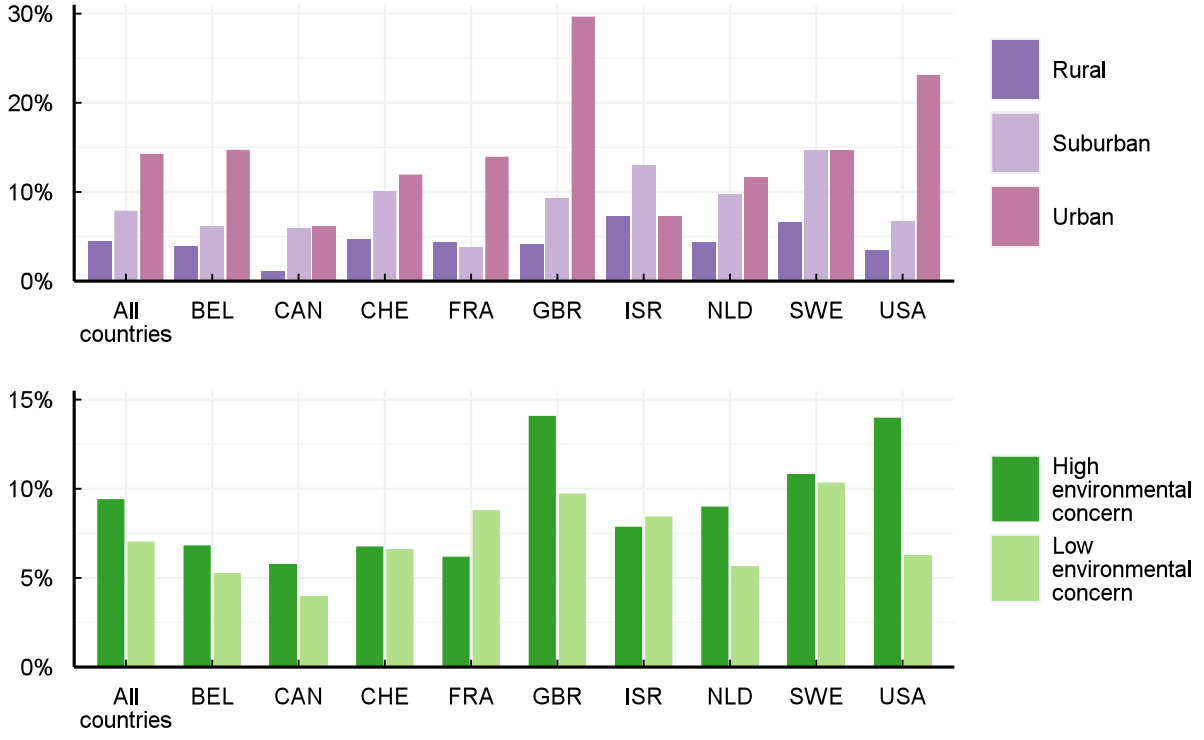
While public transport users appear to be more environmentally concerned than non-users in all countries, this is less the case for electric car users (Figure 3.8).[8] Overall, those who are environmentally concerned report only slightly higher electric car use (9%) than those who are not environmentally concerned (7%). However, this pattern is not consistent across countries. Environmental concern is most strongly associated with electric car use in the United States, the United Kingdom and the Netherlands, where there are differences of 4 to 8 percentage points across these groups. In contrast, little difference is observed in

Switzerland, Israel and Sweden. In France, a greater percentage of those with lower environmental concern (9%) report regularly using an electric car than those with higher environmental concern (6%). A higher proportion of respondents (14%) report using electric cars in urban areas than in suburban and rural areas (8% and 4%, respectively).

A positive association between electric car use and income is apparent in Canada and the United States, confirming existing evidence (Sovacool et al., 2019[18]). However, this association is not observed in other countries. In fact, households in lower-income quintiles in Switzerland, France, Israel, the Netherlands and Sweden report greater electric car use than households in higher-income quintiles. This result could reflect households that regularly use them as part of a car sharing system, rather than owning them (Münzel et al., 2020[19]). The survey observations could also reflect regional differences in costs between conventional and electric cars after government incentives have been taken into account (IEA, 2022[20]). Finally, among car users, men generally report greater household use of electric cars than women (11% and 6% respectively). This also confirms existing evidence, which suggests that men and women differ in their levels of car ownership and use, as well as in their preferences for vehicle characteristics (Sovacool et al., 2019[21]).

Figure 3.8. Urban residents and those concerned about the environment are more likely to report regular use of electric cars

Percentage of households that regularly use an electric car among car-using households



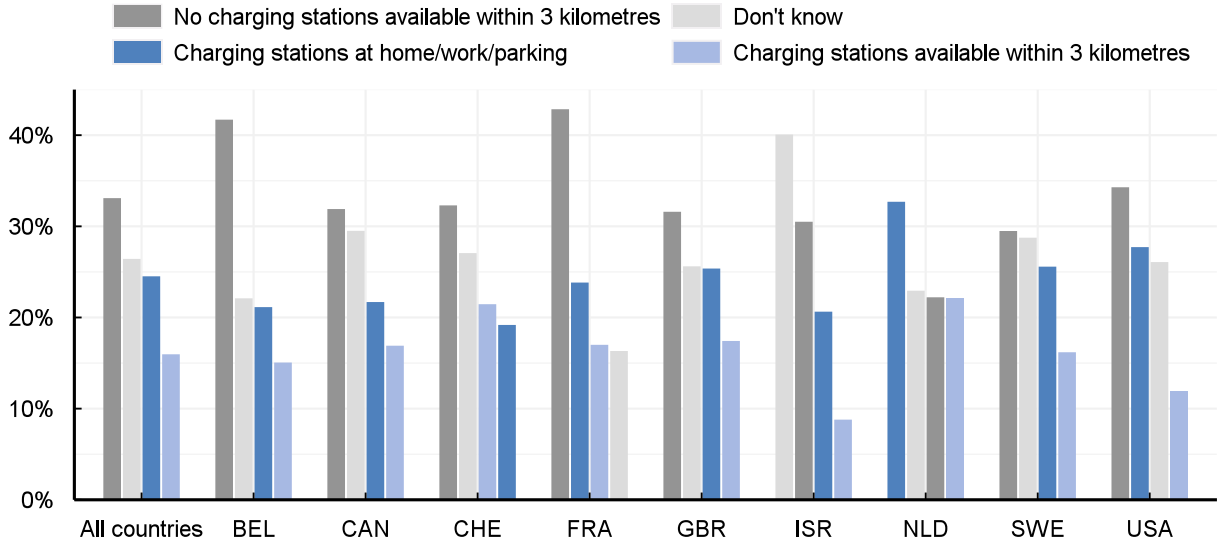
Note: This survey item asked respondents: "Do you or does anyone in your household regularly use a fully electric car?" The figure shows the percentage of respondents who answered "Yes".
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/675mtk

Overall, 33% of respondents report that there are no charging stations for electric cars within three kilometres (two miles) of their residence (Figure 3.9), with another 26% not knowing whether there are charging stations available or not (as high as 40% in Israel).[9] Availability of charging stations appears to be highest in the Netherlands, where 33% of respondents reported that there is a charging station available where they regularly park their car (at home, at work or in a parking location). The virtual absence of electric car users among those who have little access to charging stations confirms the importance of charging infrastructure in facilitating electric car use (Hardman et al., 2018[22]). Some evidence suggests that range anxiety and other concerns about electric car use largely dissipate when a vehicle owner makes the switch to an electric car (AAA, 2020[23]).

Figure 3.9. Access to charging is a significant concern

Percentage of respondents reporting the 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." While increasing the availability of charging infrastructure is currently a policy priority in many countries, these survey results reflect reported availability as of June/July 2022.
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

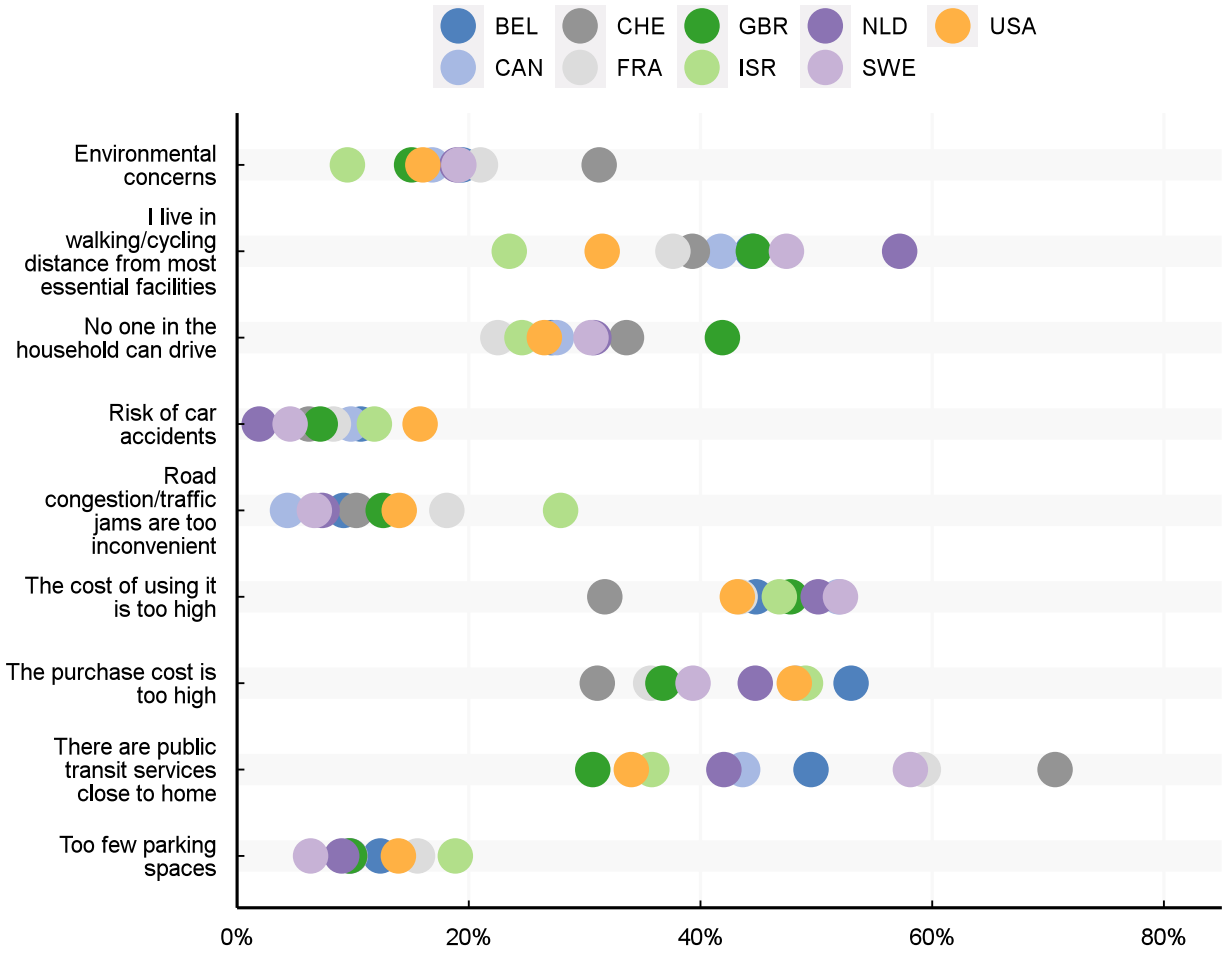
StatLink https://stat.link/op5cun

3.3.3. Reasons for not using a car

Overall, 24% of respondents reported that their household does not use a conventional car regularly. Of these, 48% cited the proximity of public transport as the main reason for not driving (ranging from 31% in the United Kingdom to 71% in Switzerland). Meanwhile, 46% (ranging from 32% in Switzerland to 52% in Sweden and Canada) ranked high running costs as an important reason (Figure 3.10). Having basic amenities within walking or cycling distance was important for 42% of respondents across countries, and up to 57% in the Netherlands. High purchase costs featured among the top reasons for 42% of this sample. Personal convenience rather than environmental concern appears to be an important driver of transport behaviour, with the latter cited by only 19% of the sample.

Figure 3.10. High costs and accessible public transport are an important reason why households do not use a car

Percentage of non-car users that cite reasons as important



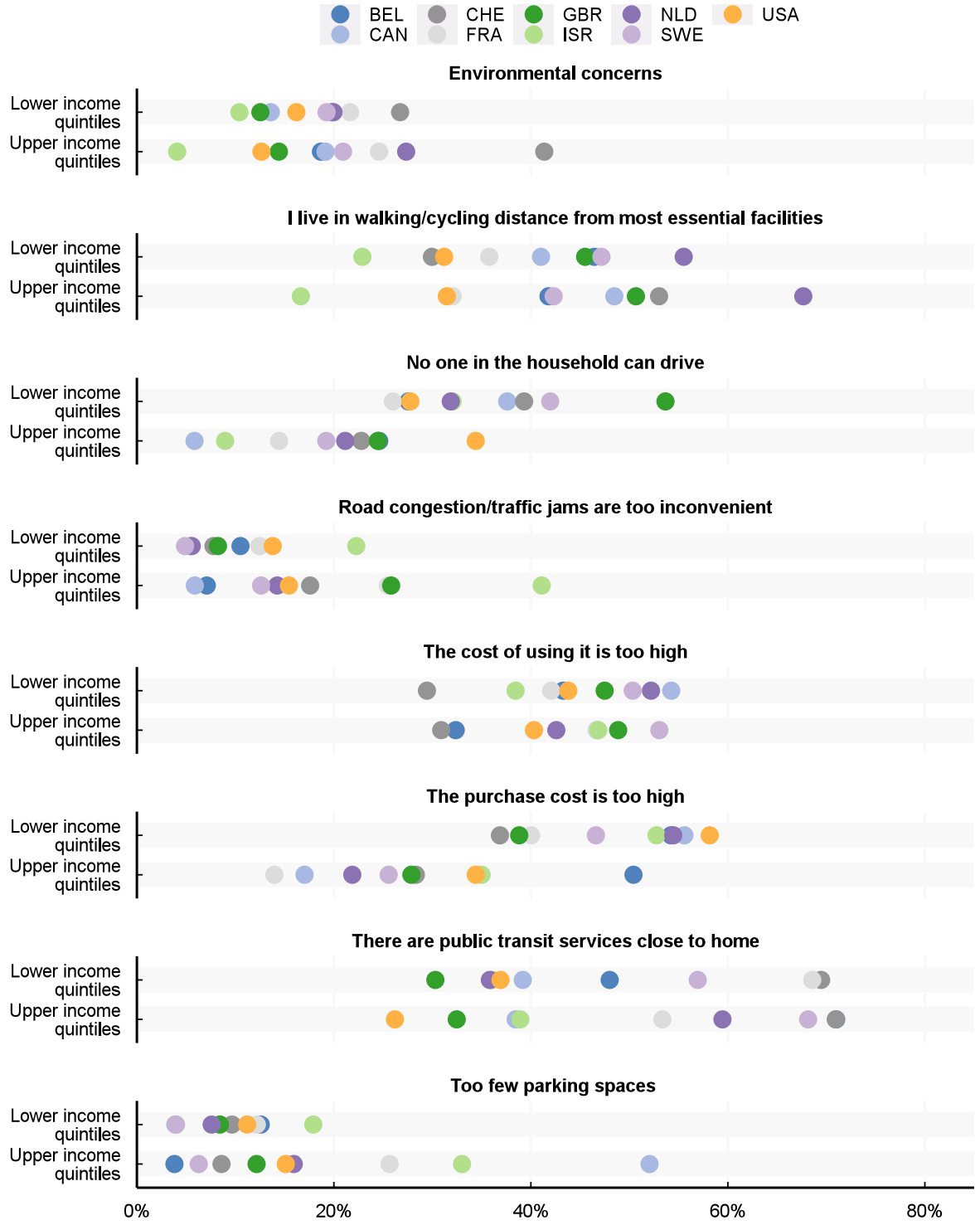
Note: This survey item asked respondents: "Please rank up to three top reasons from 1 (most important) to 3 (third most important) why your household does not use a car." For each country, only the three most frequently chosen measures are displayed. Only respondents who indicated that their household does not use a car were asked this question. Sample sizes are the following: BEL: 138, CAN: 98, CHE: 177, FRA: 112, GBR: 219, ISR: 136, NLD: 146, SWE: 246, USA: 116.
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/zxpnh2

Figure 3.11 examines if the reasons for not using a car differ between high and low-income households. Across countries, the availability of public transport and high running costs are important reasons for not using a car in both high and low-income households. Respondents in high-income households are more likely to cite living close to essential amenities,[10] while purchase costs are more frequently cited by households in the lower-income quintiles. In the United States, the top income quintiles report a lack of licensed drivers the most often across countries. Environmental concerns are cited most by high-income households in Switzerland as a reason for not using a car.

Figure 3.11. High and low-income households report different reasons for not using a car

Percentage of respondents ranking a reason among their top three most important reasons to not use a car



Note: This survey item asked respondents: "Please rank up to three top reasons from 1 (most important) to 3 (third most important) why your household does not use a car." The figure shows the percentage of respondents ranking a reason among their top three. Only respondents who indicated that their household does not use a car were asked this question. Sample sizes are the following: BEL: 138, CAN: 98, CHE: 177, FRA: 112, GBR: 219, ISR: 136, NLD: 146, SWE: 246, USA: 116.

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

StatLink https://stat.link/4rbifw

3.4. Support for transport policies

When asked what policies respondents would support to reduce the environmental impacts of cars, the majority (77%) listed improved public transport (Figure 3.12). This high level of support cuts across income levels, levels of environmental concern and residential location (Figure 3.13). Even among those expressing no trust in the national government, 75% support or strongly support policies to improve public transport. Other policies for which respondents most frequently express support are promoting teleworking (60%), subsidies for low-emission or efficient cars (60%), stricter fuel efficiency standards for new cars (56%) and providing more detailed environmental labels for cars (51%). Given the need to electrify transport activity in areas where there are fewer alternatives to car travel, these findings suggest that public reception of measures to increase the uptake of electric cars is likely to be favourable.

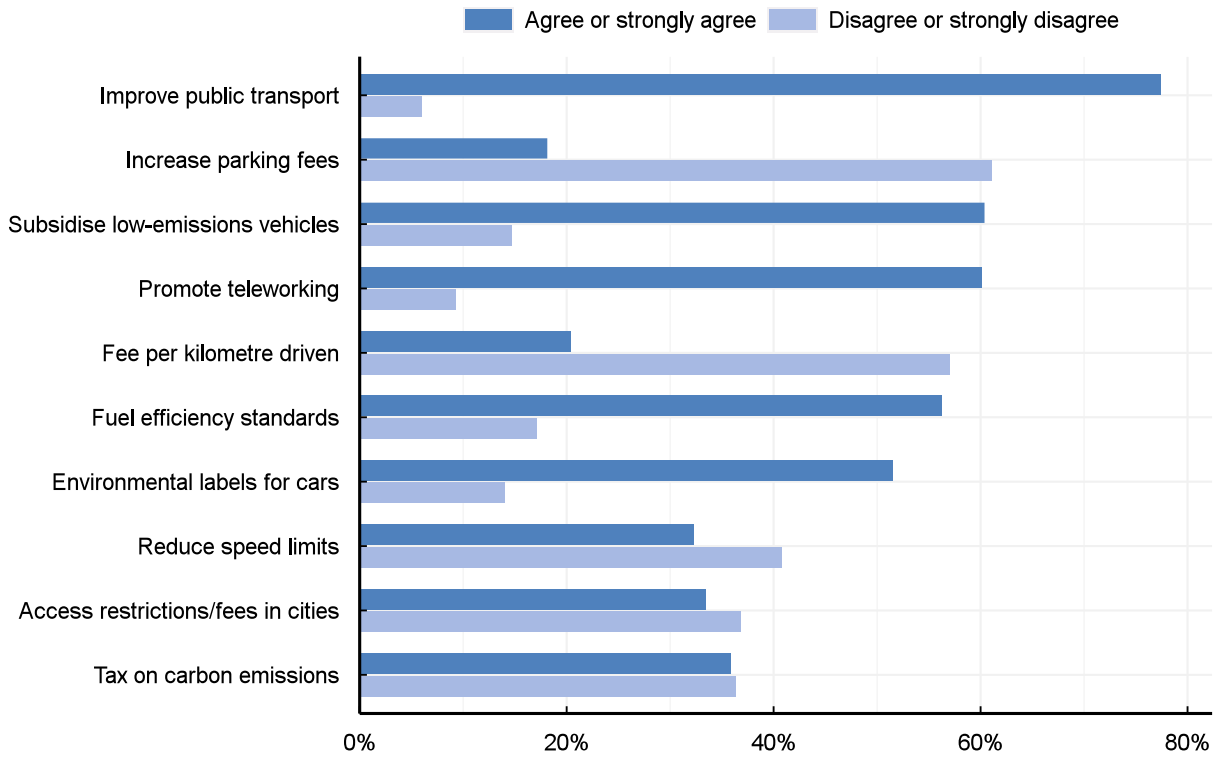
Respondents disagreed most with charging a fee per kilometre driven (57%) and increasing parking fees or reducing parking spaces (61%). Lower levels of support were also generally expressed for a tax on CO_2 emissions or inefficient cars (36%), fees to access city centres (33%), a fee per kilometre driven (20%) and parking fees (18%). However, there is considerable cross-country variation. In Canada, Israel, Sweden and Switzerland, the share of households that disagree with charging a fee per kilometre driven (66%) is significantly higher than in Belgium and the Netherlands (39%). Similarly, the share of households in Switzerland (51%) that disagree with reducing speed limits on the highways is higher than in the United States (37%) and almost twice the share in the United Kingdom (28%). The yellow vest protests in France due to increases in a fuel tax and the uprising in Chile following a hike in public transport prices illustrate the highly controversial nature of some transport policies.

Those with high environmental concern are more likely to support all the policies to reduce the environmental impact of car use (Figure 3.13). While this group's support is lower for some measures – such as a tax on carbon emissions and access restrictions to city centres – it is still twice as high as for those with low levels of environmental concern. Those expressing trust in the national government and those living in urban areas are also systematically more likely to support all types of policies to reduce car use. The unpopularity of measures that cost households money may in part be an artefact of respondents' high dependence on cars, including car users who are environmentally concerned. Overall, these findings suggest that complementary measures could increase support for these policies (e.g. earmarking revenues from tax-based measures for investing in improving public transport). In addition, certain population groups could be targeted for communication strategies to increase support.

In the 2011 EPIC survey, respondents also indicated a high level of support for investing in public transport, but even higher support for providing subsidies for low-emissions or efficient cars (OECD, 2013[24]). As such, it appears that reported public support for subsidies for low-emissions or fuel-efficient vehicles has waned somewhat over time. This could in part reflect falling costs of electric cars over this period (IEA, 2020[25]). However, support for public transport provision remains strong, whereas in both 2011 and 2022, tax-based measures received the least support.[11]

Figure 3.12. Improving public transport is the most popular policy measure to reduce the environmental impact of conventional cars

Percentage of respondents agreeing or disagreeing with policy measures

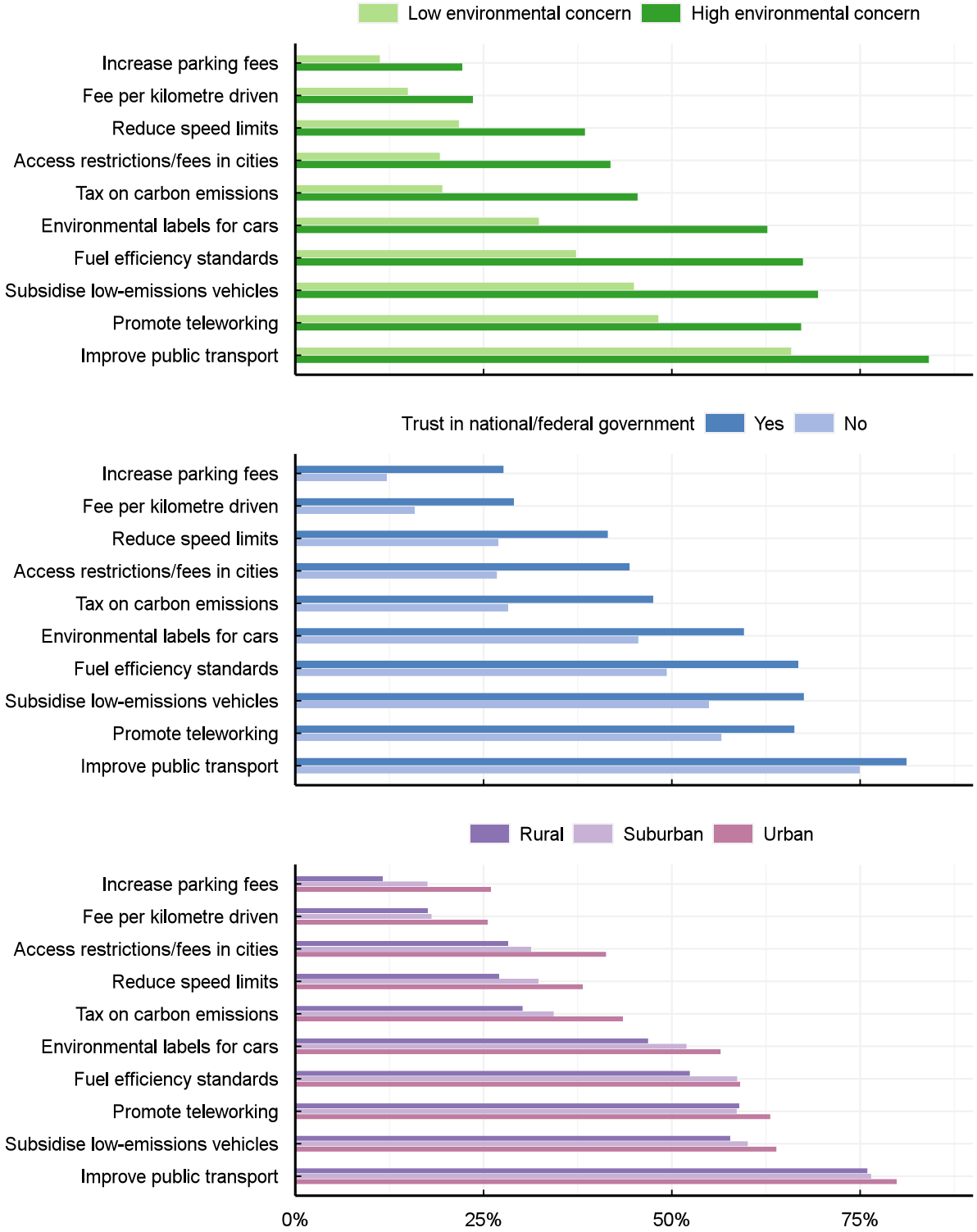


Note: This survey item asked respondents: "What do you think about the following actions governments can take to reduce environmental impacts from cars?". Respondents rated each policy measure on a 5-point scale from "strongly disagree" to "strongly agree".
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/e7j4us

Figure 3.13. Support for policies to reduce cars' environmental impact varies by environmental concern, trust in government and residential location

Percentage of respondents agreeing or strongly agreeing with policies



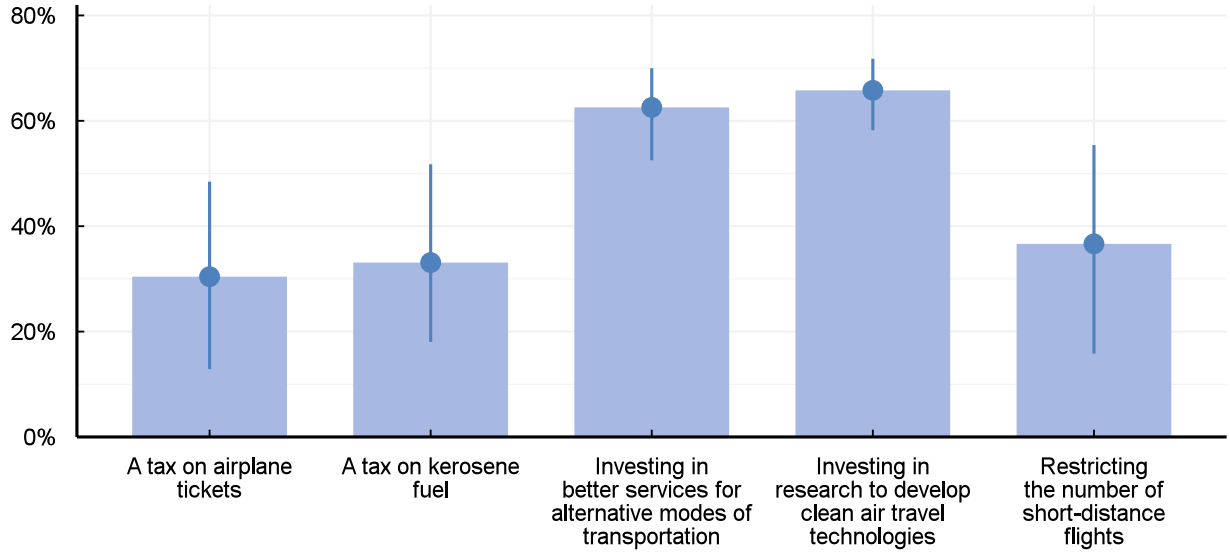
Note: This survey item asked respondents: "What do you think about the following actions governments can take to reduce environmental impacts from cars?". Respondents rated their agreement on a 5-point scale from "strongly disagree" to "strongly agree".
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/24gpsx

There are clear differences in respondents' support for the various policies to reduce the environmental impacts of air travel (Figure 3.14). Investing in research to develop clean air travel technologies received the greatest support (66%), closely followed by investing in better services for alternative modes of transportation (63%). Less overall support is expressed for regulatory measures such as a tax on airplane tickets, a tax on kerosene fuel or restricting the number of short-distance flights, although respondents in the Netherlands, Switzerland and Belgium are the most supportive of these measures. This contrasts with the particularly low levels of support in Canada, Israel and the United States.

Figure 3.14. Support for policy measures to reduce the environmental impacts of flying is highest for investment in better alternatives and cleaner technologies

Percentage of respondents supporting or strongly supporting a policy: cross-country averages and range



Note: This survey item asked respondents: "To what extent would you support the following policies aiming to reduce environmental impacts from air travel?". Respondents rated their agreement with each of the policy measures on a 5-point scale from "I would be strongly against" to "I would strongly support". The dot represents the cross-country average, and the blue line shows the range of country-level support.
Source: OECD (2022), Environmental Policies and Individual Behaviour Change Survey.

StatLink https://stat.link/lm8xov

References

AAA (2020), *Owning an Electric Vehicle is the Cure for Most Consumer Concerns*, https://newsroom.aaa.com/2020/01/aaa-owning-an-electric-vehicle-is-the-cure-for-most-consumer-concerns/ (accessed on 27 April 2023). [23]

Boisjoly, G. et al. (2018), "Invest in the ride: A 14 year longitudinal analysis of the determinants of public transport ridership in 25 North American cities", *Transportation Research Part A: Policy and Practice*, Vol. 116, pp. 434-445, https://doi.org/10.1016/J.TRA.2018.07.005. [28]

Bongardt, D. et al. (2019), *Sustainable Urban Transport: Avoid-Shift-Improve (A-S-I)*, Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH, Eschborn, https://www.transformative-mobility.org/assets/publications/ASI_TUMI_SUTP_iNUA_No-9_April-2019.pdf (accessed on 16 June 2022). [26]

Burrows, M., C. Burd and B. Mckenzie (2021), *Commuting by Public Transportation in the United States: 2019*, United States Census Bureau, http://www.census.gov/programs-surveys/acs/methodology (accessed on 27 February 2023). [27]

Creutzig, F. et al. (2022), "Demand-side solutions to climate change mitigation consistent with high levels of well-being", *Yamina Saheb*, Vol. 20, https://doi.org/10.1038/s41558-021-01219-y. [7]

EPRS (2022), *CO2 Emission Standards for New Cars and Vans: 'Fit for 55' package*, European Parliamentary Research Service briefing, Brussels, https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/698920/EPRS_BRI(2022)698920_EN.pdf. [14]

Gardner, B. and A. Rebar (2019), "Habit formation and behavior change", *Oxford Research Encyclopedia of Psychology*, https://doi.org/10.1093/ACREFORE/9780190236557.013.129. [9]

Goodwin, P. (2004), *The Economic Costs of Road Traffic Congestion*, University College London (UCL), London, https://discovery.ucl.ac.uk/id/eprint/1259/. [4]

Hardman, S. et al. (2018), "A review of consumer preferences of and interactions with electric vehicle charging infrastructure", *Transportation Research Part D: Transport and Environment*, Vol. 62, pp. 508-523, https://doi.org/10.1016/J.TRD.2018.04.002. [22]

ICAO (2023), *Air traffic recovery is fast-approaching pre-pandemic levels*, International Civil Aviation Organization, Montreal, https://www.icao.int/Newsroom/Pages/Air-traffic-recovery-is-fastapproaching-prepandemic-levels.aspx (accessed on 6 February 2023). [17]

IEA (2022), *Global EV Outlook 2022: Securing supplies for an electric future*, OECD Publishing, Paris, https://doi.org/10.1787/c83f815c-en (accessed on 7 September 2022). [20]

IEA (2020), "Average price and driving range of BEVs, 2010-2019", *World Investment 2020*, https://www.iea.org/data-and-statistics/charts/average-price-and-driving-range-of-bevs-2010-2019 (accessed on 28 February 2023). [25]

IEA (2019), *The Future of Rail Opportunities for Energy and the Environment*, International Energy Agency, Paris, https://doi.org/10.1787/9789264312821-en. [16]

IEA (2016), *Energy and Air Pollution: World Energy Outlook Special Report*, International Energy Agency, Paris, https://www.iea.org/reports/energy-and-air-pollution. [2]

IPCC (2022), *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, https://doi.org/10.1017/9781009157926. [5]

ITF (2021), *ITF Transport Outlook 2021*, OECD Publishing, Paris, https://doi.org/10.1787/16826a30-en. [1]

ITF (2021), *Reversing Car Dependency: Summary and Conclusions*, ITF Roundtable Reports, No. 181, OECD Publishing, Paris, https://doi.org/10.1787/bebe3b6e-en. [6]

ITF (2017), *Economic Benefits of Improving Transport Accessibility*, International Transport Forum, https://doi.org/10.1787/9c73ac17-en (accessed on 28 February 2023). [13]

Münzel, K. et al. (2020), "Explaining carsharing supply across Western European cities", *International Journal of Sustainable Transportation*, Vol. 14/4, pp. 243-254, https://doi.org/10.1080/15568318.2018.1542756. [19]

OECD (2022), *Redesigning Ireland's Transport for Net Zero: Towards Systems that Work for People and the Planet*, OECD Publishing, Paris, https://doi.org/10.1787/b798a4c1-en. [12]

OECD (2021), *Reconciling housing and the environment*, OECD Publishing, Paris, https://doi.org/10.1787/b453b043-en. [11]

OECD (2018), *Rethinking Urban Sprawl: Moving Towards Sustainable Cities*, OECD Publishing, Paris, https://doi.org/10.1787/9789264189881-en. [10]

OECD (2016), *The Economic Consequences of Outdoor Air Pollution*, OECD Publishing, Paris, https://doi.org/10.1787/9789264257474-en. [3]

OECD (2013), *Greening Household Behaviour: Overview from the 2011 Survey*, OECD Studies on Environmental Policy and Household Behaviour, OECD Publishing, Paris, https://doi.org/10.1787/9789264181373-en. [24]

Plötz, P. et al. (2014), "Who will buy electric vehicles? Identifying early adopters in Germany", *Transportation Research Part A: Policy and Practice*, Vol. 67, pp. 96-109, https://doi.org/10.1016/j.tra.2014.06.006. [15]

Sovacool, B. et al. (2019), "Income, political affiliation, urbanism and geography in stated preferences for electric vehicles (EVs) and vehicle-to-grid (V2G) technologies in Northern Europe", *Journal of Transport Geography*, Vol. 78, pp. 214-229, https://doi.org/10.1016/J.JTRANGEO.2019.06.006. [18]

Sovacool, B. et al. (2019), "Are electric vehicles masculinized? Gender, identity, and environmental values in Nordic transport practices and vehicle-to-grid (V2G) preferences", *Transportation Research Part D: Transport and Environment*, Vol. 72, pp. 187-202, https://doi.org/10.1016/j.trd.2019.04.013. [21]

Weis, C. et al. (2010), *Models of mode choice and mobility tool ownership beyond 2008 fuel prices*, SAGE PublicationsSage CA: Los Angeles, CA, https://doi.org/10.3141/2157-11. [8]

Notes

[1] Values expresses in constant (2010) USD, purchasing power parity (PPP).

[2] Also known as the “avoid, shift, improve approach” (Bongardt et al., 2019[26]); see Box 1.1 in Chapter 1.

[3] See Annex B on the design and implementation of the EPIC survey and on the quality of the panel of respondents.

[4] Respondents were asked about their primary transport modes for work, leisure and childcare-related trips. Only responses from work-related trips are reported, as qualitative differences across trip purposes were not strikingly large, including at the country level.

[5] This effect may reflect large cities in the United States. In smaller cities across the country, public transport tends to be used primarily by lower-income households (Burrows, Burd and Mckenzie, 2021[27]).

[6] These findings confirm other research into what determines public transport use (Boisjoly et al., 2018[28]).

[7] Dividing the household-level electric car use values reported here by average household size (1.97 adults) yields figures that better approximate per capita use.

[8] Environmental concern is reported at the individual level; electric vehicle use is reported at the household level (i.e. if at least one member of the household regularly uses one).

[9] Although policies are currently in place in many countries to increase the availability of electric car charging infrastructure, these results reflect the circumstances in June/July 2022.

[10] This finding is not driven by differences in income across residential areas, as similar proportions of those living in urban, suburban, and rural areas are in the upper-income quintiles: 36%, 36% and 34%, respectively.

[11] The 2011 survey asked about “higher fuel taxes” and the 2022 survey asked about “a tax on carbon emissions or inefficient cars.”