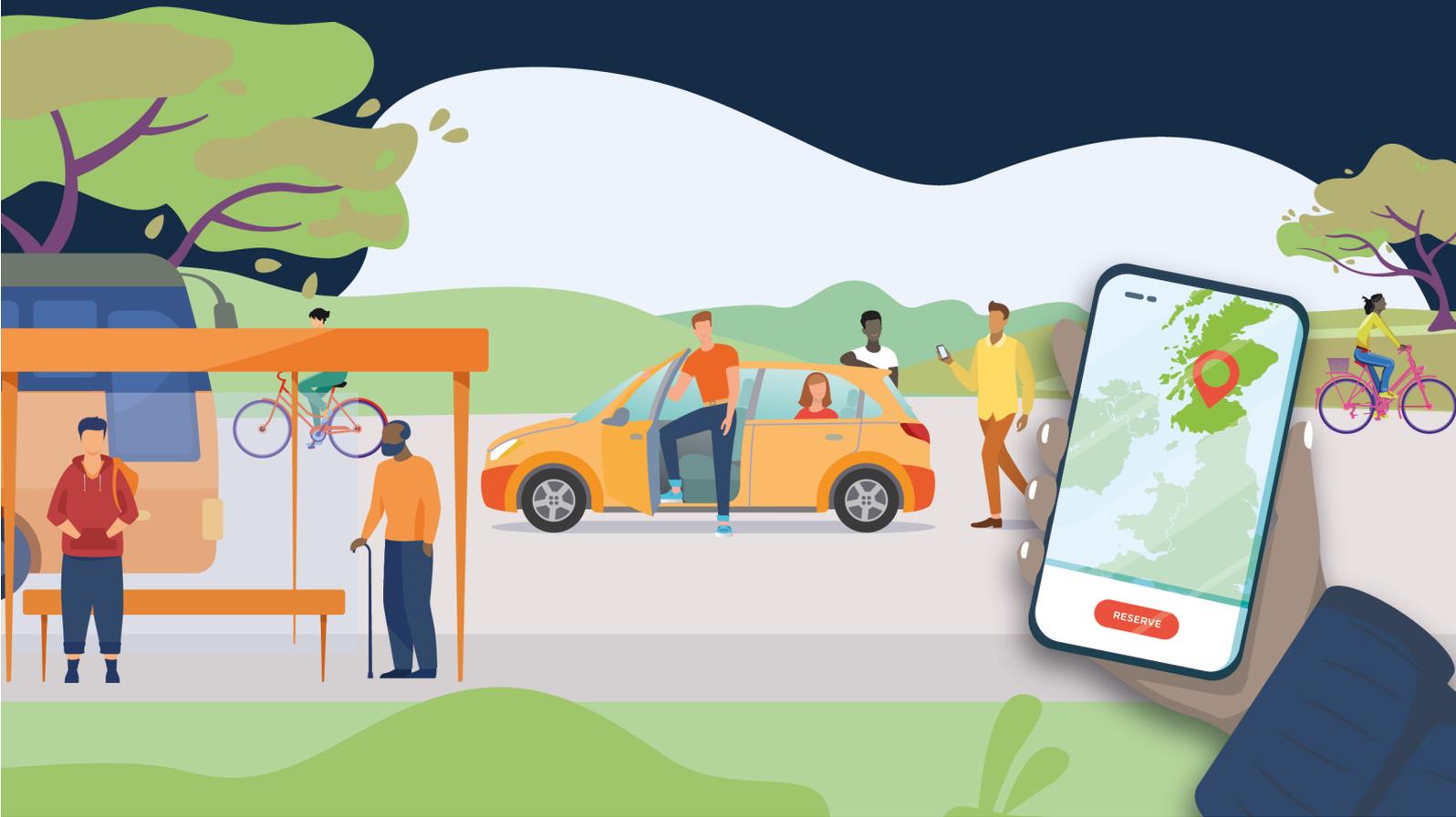


Car Club Annual Report Scotland 2020



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1 Foreword

The emergence of coronavirus has upended how we work, live and travel and has had a devastating impact on lives, communities and businesses.

The car club sector has not been immune to that. After the outbreak of the pandemic, customer demand fell dramatically as a result of the travel restrictions and concerns about transmission of the virus.

This is reflected in the findings of this research, which sought to gain a better understanding of travel patterns and the travel behaviours of car club members in Scotland throughout the pandemic. The survey was completed by 1,795 members across Scotland. When asked about reasons underlying their travel choices, 74% of respondents said that their choices were affected by Covid-19, with 33% saying they would choose the travel option which makes them feel safest in limiting their exposure to the virus.

Despite this car club membership in Scotland continued to grow last year. There are now over 30,000 car club members in Scotland – an increase of 21.5% since 2019. This has been driven by a 50% increase in private individual memberships, which has offset a decrease of 15% in corporate members.

At the height of the pandemic, car club operators in Scotland played a crucial role in keeping our key workers moving and keeping fleets operational for the NHS, local authorities and the emergency services. Free memberships and discounted bookings were offered to NHS staff and other key workers across to enable them to travel safely.

To address safety concerns and boost customer confidence, car club operators introduced enhanced cleaning regimes and the frequency of cleaning cycles were greatly increased, which added yet more operational pressure. However, providing customers with specific reassurances of cleaning practice approaches and safety has supported quicker recovery of the sector.

Setting aside the unique challenges of the past 12 months, car clubs are a vital weapon in the fight to achieve net zero greenhouse gas emissions, reduce congestion and improve air quality. The Scottish Government has set out bold actions to reduce emissions from surface transport, including a commitment to reduce car kilometres by 20%, and the phasing out of new petrol and diesel cars by 2030. Scotland's car clubs are central to this mission.

Our research consistently finds that car clubs lead to a reduction in private car ownership and use, as well as providing a much cleaner fleet than the UK average. This year's survey reveals that emissions from car club vehicles in Scotland are, on average, 37% lower than the average UK car, and 100% of car club cars are compliant with low emission zones. In addition, for each car club vehicle in Scotland, around 10 private cars are taken off the road. That's 5,150 vehicles taken off the road thanks to Scotland's 515 car club cars.

The backdrop of Covid-19 looms large over this year's report. While the analysis provides valuable insights on the impact of Covid-19 on car club member's travel behaviours, it should not be taken in isolation. The car club sector was growing strongly prior to the pandemic and we have every reason to believe that we will see a return to this growth once the tremendous challenges of 2020 have eased.

Lorna Finlayson

Scotland Director, CoMoUK

2 Executive Summary

2.1 Introduction

Since 2007, CoMoUK, formerly Carplus, has worked with car club operators to collect a range of data from car club members about their travel habits and use of car clubs, through an online survey sent to the members of car clubs. This report summarises the findings from the research, covering members perceptions, operator data and individual interviews to provide context on the latest trends in the industry. This report covers the period from November 2019 to October 2020¹. The survey of car club members was completed by 1,795 respondents, which is 15% of active members in Scotland.

2.2 Impact of Covid-19

The impact of Covid-19 and the restrictions in place to control its spread² dominate the context of the analysis presented in this report. Personal circumstances have changed for many people and restrictions on leisure and social gatherings have meant there is a very different backdrop to the report compared to previous years.

Operators have adapted their approaches in light of the pandemic. The frequency of cleaning cycles has been greatly increased by most operators, which has significantly impacted the booking availability in most locations. Providing specific reassurance of cleaning practice approaches and safety in promotional materials seems to have supported quicker recovery.

Operators reported that at the end of October 2020 there were 575 car club vehicles in Scotland. The number of cars (515) has increased from 488 in 2019 but is still below the figure of 544 reported in 2017/18. The number of vehicles reduced slightly between March and June, when restrictions to tackle Covid-19 were first in place but have since recovered to the levels seen at the start of the survey period.

As of 31 October 2020, there were 30,617 car club members in Scotland, as a result of a 21.5% rise in membership recorded since last year. This has been driven by a 50% increase in private individual memberships to 21,216, which has offset a decrease of 15% to 9,401 corporate members.

When asked about reasons underlying travel choices, 74% reported that their choices were affected by Covid-19, with 33% choosing that option which makes them feel safest in limiting their exposure to Covid-19.

2.3 Benefits of Car Clubs

Car clubs can provide a wide range of environmental and financial benefits for individuals and society. This report shows that they:

- Help tackle congestion, by reducing the total number of vehicles on the road. Many users reported disposing of or not purchasing a car, as a result of car club membership.
 - We estimate that each car club car in Scotland replaces 10.1 private cars³.

¹ The previous report prepared for CoMoUK was titled “2019/20 Car Club Annual Survey for Scotland” but actually covered the period from November 2018 to October 2019. To reduce confusion, this is referred to hereafter as the 2018/19 report.

² Hereafter we simply say “Covid-19” to refer to the impact both the pandemic and associated restrictions put in place.

³ The cars replaced per car club vehicle takes the sum of the net value of the change in car ownership (based on the question relating to change in number of vehicles per household) and the number of respondents who said they would have bought a car had the car club not been available. Then the figure is scaled up based on the number of survey response as a proportion of active members then divided by the number of car club cars in the region. The estimated number of vehicles replaced by each car club vehicle will vary significantly by location and over time. For example, it is likely that in areas with higher population density and good public transport provision more vehicles will be replaced, because it is easier for consumers to find alternatives to private car use for all journeys. Other factors include changes in the density of car club provision, changes to car club fees, and local restrictions such as a Low Emission Zone.

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- Users also reported using walking, cycling and public transport as well as car club vehicles.
- Reduce greenhouse gas (GHG) emissions which contribute to climate change.
 - The average Scottish car club car has CO₂ emissions which are 37% lower than the average car on the UK's roads. The average Scottish car club van has emissions which are 16% lower than the average van on the UK's roads⁴.
- Improve local air quality.
 - 100% of cars and van in Scottish car club fleets surveyed are Low Emission Zone (LEZ) compliant.
- Provide a safe means of transport.
 - Over two thirds of cars and vans are fewer than two years old. Vehicles are significantly newer than average UK cars and vans, both of which have an average age of 8.3 years.
 - 99% of the cars achieve either a 5 star or 4 star Euro NCAP rating.
- Provide access to low cost mobility, particularly where public transport and active travel is not suitable.
 - Key reasons for selecting car club for their last journey were carrying luggage/bulky items (18%), lack of any public transport option (either none or would have taken too long) (28% combined).

⁴ These figures are likely to underestimate the emissions savings because consumers are typically replacing older vehicles. However, the survey data does not support quantification of this additional impact.

3 Introduction

3.1 CoMoUK

CoMoUK is playing a leading role in the UK's transition to integrated mobility solutions designed for the public good. CoMoUK supports the development of shared modes including car clubs, bike share, car share, and emerging modes such as on-demand buses and scooter sharing. These services will enable mobility lifestyles which present an alternative to private car ownership. CoMoUK's objectives are achieved through advocacy, research and development. Research projects, such as this car club survey, provide valuable insights and data to support work with a range of stakeholders to ensure the growth of the shared mobility sector.

CoMoUK is committed to collecting data and insights to assess the impacts of car clubs and inform development of the sector in the UK. Since 2007, CoMoUK, formerly Carplus, has worked with car club operators to collect a range of data from car club members about their travel habits and use of car clubs, through an online survey sent to the members of car clubs. The research is undertaken by external experts for an independent view. This report summarises the findings from the research, covering members perceptions, operator data and interviews, to provide context on the latest trends in the industry.

This report has been prepared by Cenex, with survey design and analysis provided by Revolution9 Consulting.

3.2 2020 Report

This report focuses on the car club market in Scotland between November 2019 and October 2020⁵. It is part of a suite of reports covering similar themes across the UK, London, and England and Wales (excluding London). The report presents results from the member survey, car club operator data and a fleet analysis, alongside a qualitative study to add greater understanding to the data. All data in the report is from Scottish members and car club operations unless stated otherwise. The Scottish survey is funded by Transport Scotland.

The impact of Covid-19 and the restrictions in place to control its spread⁶ dominate the context of the analysis presented in this report. The ecosystem in which car clubs operate has changed significantly, so it is important to gauge how that has changed use cases and attitudes. Personal circumstances have changed for many people and restrictions on leisure and social gatherings have meant there is a very different backdrop to the report compared to previous years. Reflections are made on comparisons to previous years where a difference is seen, while some areas of the report focus more on changes since Covid-19 impacted how people travel.

⁵ The previous report prepared for CoMoUK was titled "2019/20 Car Club Annual Survey for Scotland" but actually covered the period from November 2018 to October 2019. To reduce confusion, this is referred to hereafter as the 2018/19 report.

⁶ Hereafter we simply say "Covid-19" to refer to the impact both the pandemic and associated restrictions put in place.

4 Methodology

The data for the study was collected in four parts:

- A members' survey collecting data on individual users, their use of the car club, perceptions of the impact of the service on their travel patterns and the effects of Covid-19 on usage.
- A car club operators' survey which gathered data on operational vehicle usage and trends pre and post first lockdown.
- A fleet survey which provides a profile of the car club vehicles.
- A qualitative study which included interviews with users to gain a more insight into their perceptions of the car club.

4.1 Members' Survey

A survey was circulated to members of the car clubs in Scotland, which was distributed by the car club operators and promoted on social media. The survey was live from 9 November 2020 to 21 December 2020. Prize draws for free driving credit and vouchers were offered as incentives for completing the survey. The survey was distributed by major national and community car club operators to their members.

By the end of the survey period, a total of 1,795 respondents had completed and returned the questionnaire in Scotland, which is 15% of active members.

Not all questions were mandatory, or applied to all respondents, so where figures are given as a percentage, these represent the proportion of those who answered the question.

4.2 Operators' Survey

Car club operators were requested to provide information about their membership base and utilisation patterns through an operators' survey. The major car club operators⁷ provided data covering the period from 1 November 2019 to 31 October 2020. This summarised the aggregate data for the membership base and their driving patterns, to identify usage profiles and any changes from either previous years or post-initial lockdown.

4.3 Fleet Data Analysis

Car club operators provided vehicle registration numbers (VRNs) for the vehicles deployed in the fleet between November 2019 and October 2020 (the analysis period). They also provided the date each vehicle joined the fleet and the date the vehicle left the fleet (if applicable). One operator also provided mileage for each vehicle during the analysis period and the location where each vehicle is usually deployed, although these two fields were optional. Where mileage was not provided, it was derived from the car club operator survey.

The databases from the Driver and Vehicle Licensing and Safety Agencies (DVLA and DVSA) were used along with VRNs to determine information such as make, model, registration year, fuel type, engine Euro standard, and measured CO₂ emissions provided by the manufacturer. The vehicle's safety performance in the European New Car Assessment Programme (NCAP) was established by matching the vehicle's DVLA make, model and year of registration to the NCAP database.

Please refer to the Appendix for more information about how fleet data was analysed.

4.4 Qualitative Study

In order to get a deeper understanding into the factors that influence car club utilisation, and the barriers to increased use, Cenex undertook interviews with a selection of consumers across the UK. The interviews aimed to provide insight into motivations behind modal shift, the triggers and barriers to use, the customer experience and how these are impacted by Covid-19. The interviews covered:

⁷ Community car clubs were invited to share data but unfortunately none responded. No reasons were given for the lack of response, but the most likely reason is the time and resource required to collate and submit data.

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- Experiences in using the vehicles (what works well, what does not), reasons behind travel choices and how access to car club vehicles impact these.
- How location, accessibility and other services affect the use of car clubs.
- How Covid-19 has affected use and attitude towards car clubs.

Interviewees were split into two groups:

- Two car club users: members of a car club who use it at least once a month.
- Two 'lapsed' users: people who have joined the car club but do not use it or have not used it for a long time.

The interview participants were recruited from a range of geographical locations. When completing the members' survey respondents were asked if they were interested in taking part in further research. 316 respondents said they were interested in taking part in further research.

5 Impact of Covid-19

This year the broader market context has changed dramatically with Covid-19 changing work and leisure behaviours. Varying levels of national and regional restrictions have been in place at different times throughout the research period.

5.1 Operator reflections on the impact of Covid-19

There is significant variation in the findings around the impact of Covid-19. Private membership has continued to increase across the whole year, offset by a reduction in use of corporate schemes.

Operators have adapted their approaches in light of the pandemic. The frequency of cleaning cycles has increased by most operators, which has slightly reduced the booking availability in some locations. Providing specific reassurance of cleaning practice approaches and safety in promotional materials seems to have supported quicker recovery. Operators had mixed views on the patterns of recovery, but more suburban locations seem to have recovered quickest, particularly compared to rural areas.

5.2 Changes in car club usage in Covid-19 pandemic

Since the start of the Covid-19 pandemic, usage of car clubs has decreased for 45% of respondents, with 31% stating it had stayed the same. Only 17% say that their usage has increased.

Since the Covid-19 pandemic, has your usage of car club vehicles....

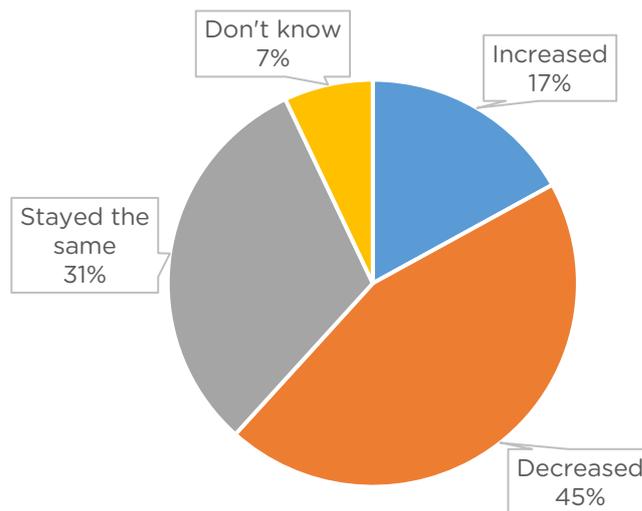


Figure 1 Change in usage of car club vehicles since the COVID-19 Pandemic

Respondents who identified as living in rural areas were more likely to have decreased their car club usage compared to inner-city users, who showed a greater variation of increasing, decreasing and staying the same.

Car Club Annual Survey for Scotland

Since the start of the COVID-19 Pandemic how has your car club useage changed?

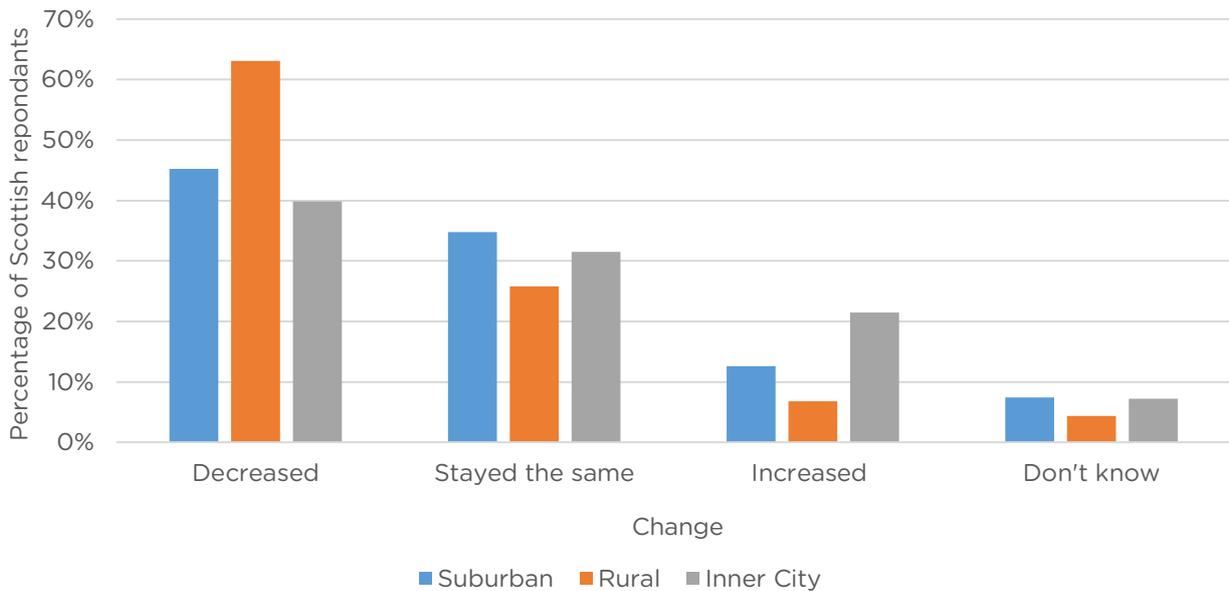


Figure 2 Change in car club usage by location

Where Covid-19 resulted in an increase of car club usage, analysis identified eight key underlying reasons, in order from most to least frequently cited:

- Avoidance of public transport.
- Reduction in lift sharing.
- Financial changes caused by Covid-19.
- Increased need to access family members.
- Increased leisure time, with lockdown creating a desire to get out of the local neighbourhood.
- Moving to a new house meaning additional need for transporting large/bulky/heavy items.
- Sale of household/private car.
- Increased need for delivery/collection of large items/bigger grocery orders.

Why has it increased?

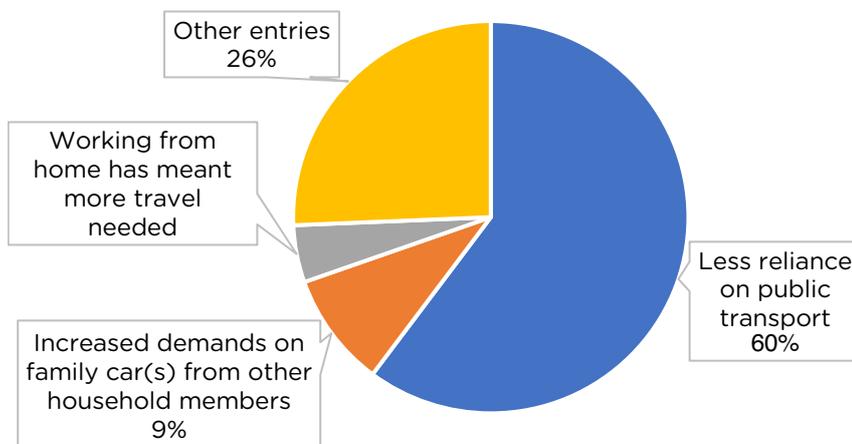


Figure 3 Reasons for change in car club usage during COVID-19

Where Covid-19 resulted in a decrease in car club usage, analysis identified eight key underlying

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reasons:

- Travel demands and opportunities reduced because of Covid-19.
- Sanitizing and cleaning requirements inconvenient.
- Increased time in between bookings reducing availability of cars.
- Worries about inadequate cleaning/sanitizing.
- Difficulties in booking plus fewer slots and cars, resulting in increased difficulties in finding a car available.
- Changes in personal circumstances.
- Cost.

5.3 Covid-19 impact on past travel choices

The research explored the impact of Covid-19 on travelling habits of car club members. In the last six months, nearly 60% of respondents have walked three times a week, and 25% have used a bicycle as frequently.

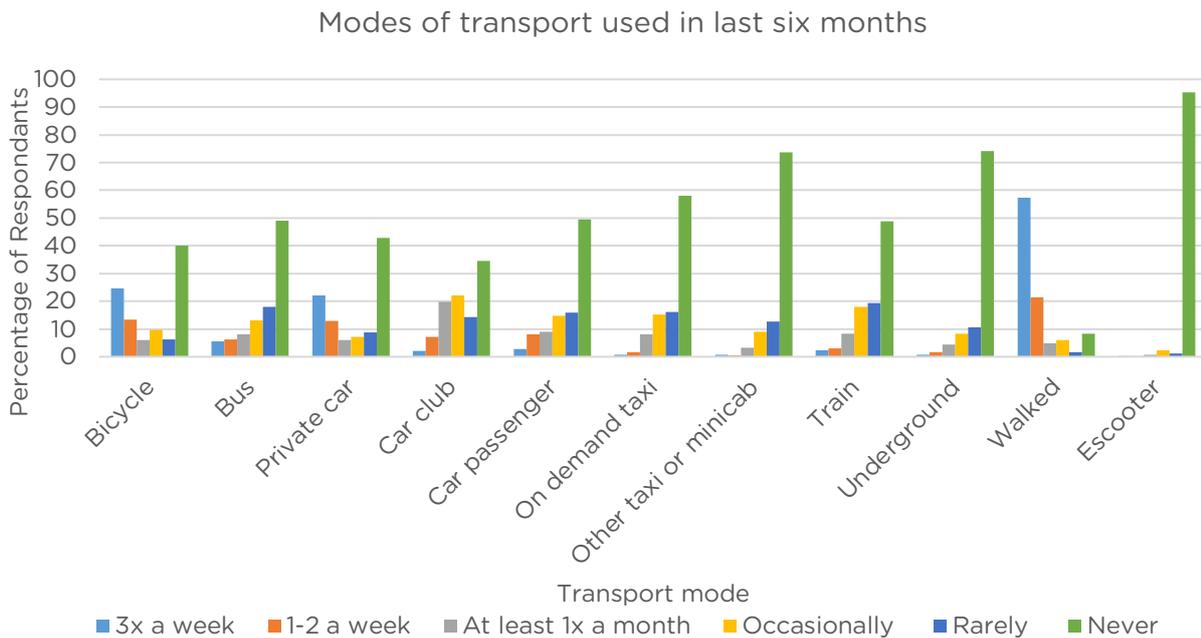


Figure 4 Modes of transport use in the last six months

When asked about reasons underlying travel choices, 74% reported that their choices were affected by Covid-19, with 33% choosing that option which makes them feel safest.

Will the Covid-19 pandemic impact how you make your travel choices?

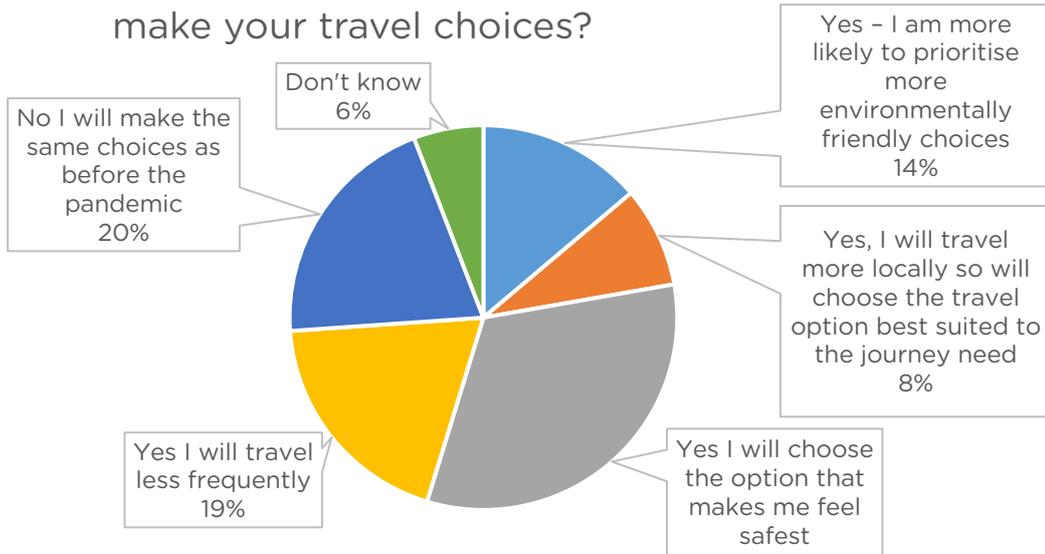


Figure 5 How COVID-19 will impact travel choices

5.4 Covid-19 impact on future transport choices

When asked to consider expected use of transport over the next 6-12 months, roughly half of respondents said that their usage would be likely to stay the same, although travel by bus, walking, and cycling are expected to increase (53% of respondents said that they aim to walk more in the next 12 months).

However even though some members reduced their usage of car club vehicles during the lockdown, a quarter of respondents expect their usage to increase in the next 6-12 months, and a further 44% expect their typical car club use to stay the same. Only 15% expect use to be less frequent.

Do you think the COVID-19 pandemic will impact on your usage of car club vehicles in the future?

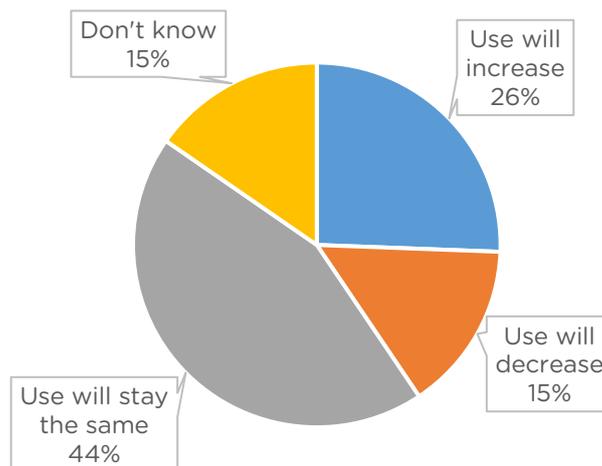


Figure 6 Impact of COVID-19 on the use of car clubs

5.5 Impact on Car Club Fleets

Trends in car club fleet size over the past year are described later in this report. The summary is that the number of car club vehicles reduced slightly between March and June, when restrictions

to tackle Covid-19 were first in place but have since recovered to the levels seen at the start of the survey period.

5.6 In-depth interviews: Impact of Covid-19

5.6.1 Concerns over safety and virus transmission

The majority of participants reported that they were happy to use car clubs and had no concerns over sharing the vehicles with others. This was the same for interviews that took place before and after the third lockdown was implemented across the UK in January 2021. Participants reported having some concerns at the beginning of the first lockdown, related to the lack of knowledge and understanding of how the virus spread. Some had increased cleaning the car themselves, many reported doing this at the beginning, but less so now. There was a mix of responses on what they expected from the car club company. The majority stated they do not expect the car to be cleaned after every booking. Only one interviewee reported having seen any correspondence from the car club on the cleaning of vehicles.

Interview participants were more concerned about using public transport in comparison to car clubs, as they felt less in control of the situation. Although they were happy with the measures being taken by public transport providers their concerns related to behaviour of other travellers. Although most of the interviewees reported using public transport, they stated they were trying to avoid it because they felt they should, rather than out of concern for safety.

5.6.2 Impact on travel and future transport choices

Interviewees reported travelling a lot less in general, but they were more likely to use the car club for the trips they were taking. The most frequent types of journeys for which a car club were used were shopping, moving large items/home decorating, caring for family and friends, and leisure/exercise.

Respondents were asked how they would have made the trip prior to Covid-19, and no differences were recorded in trip purpose or mode used. It is difficult to draw conclusions about how journeys patterns will change in the long term due to Covid-19. Most interviewees were uncertain about future effects, but those that live in large cities expect to be able to return to using public transport. The largest change is for those that expect to continue to work from home more and therefore use public transport less.

6 Members' Survey Results

This section presents the results of the survey of car club members in Scotland.

62% of respondents stated that they live in inner-city locations, 23% suburban, and 15% rural, suggesting the data presented here is a well-rounded report on car club use in Scotland.

6.1 Length of membership

Two thirds of respondents have been members for two years or less, with only 12% having been members for more than 5 years.

The proportion of members who joined within the last year is smaller than the 39% in 2019/20, with the proportion reduced by virtue of the larger overall membership base.

How long have you been a car club member?

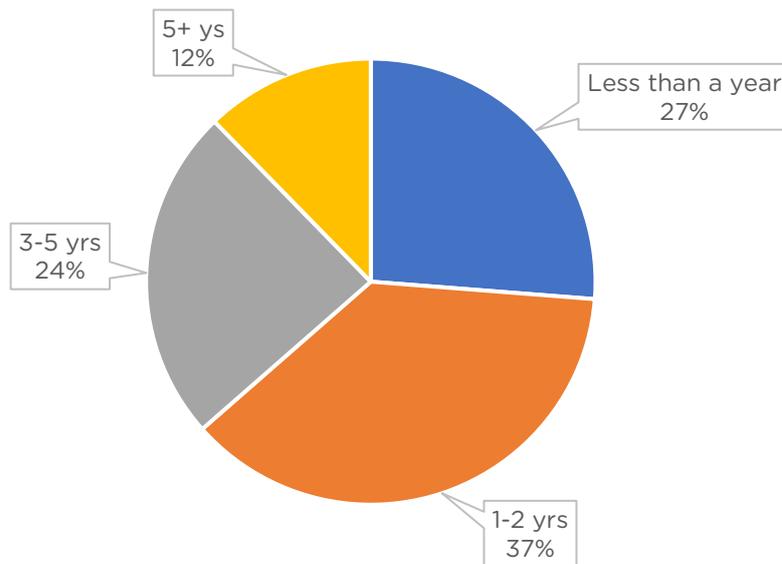


Figure 7 Length of membership

15% of respondents hold membership of more than one car club. Enterprise and Co-Wheels are the most widely used car club in Scotland. We also received a small number of responses from members of Moray Carshare and LEAP Car hire.

6.2 Factors affecting awareness of car clubs

Respondents were asked how they first became aware of car clubs. 29% said that they had seen a car club vehicle on the street while 22% cited word of mouth.

How did you first hear about the car club?

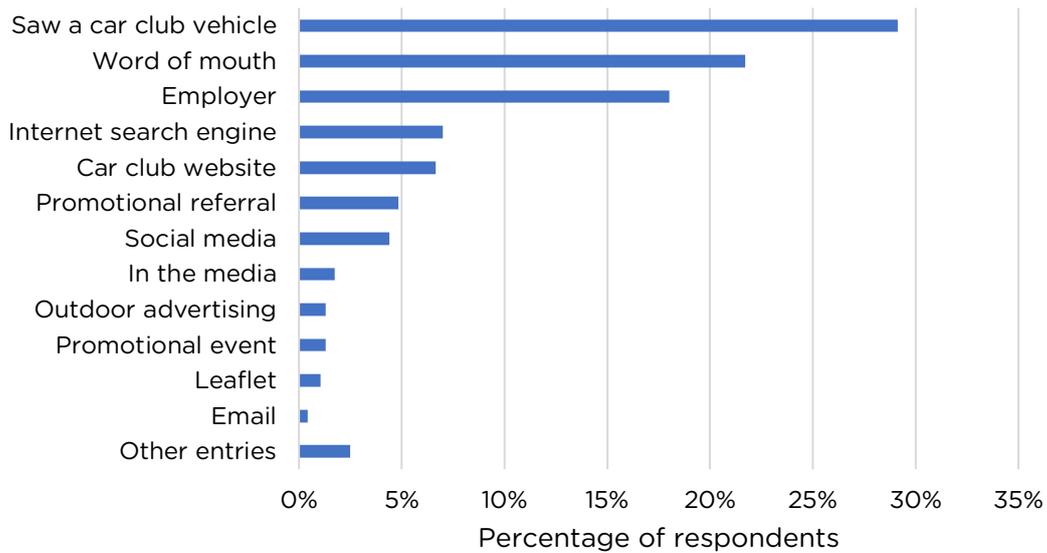


Figure 8 Factors affected awareness of car clubs.

6.3 Initial membership expectations

Respondents were then asked to identify their initial expectations for car club membership. 49% expected to make regular use of the membership reducing reliance on running a private vehicle. 5% had a one-off specific need - the majority of these were linked to moving to a new house although shopping or day trips were also identified.

Initial car club membership expectations

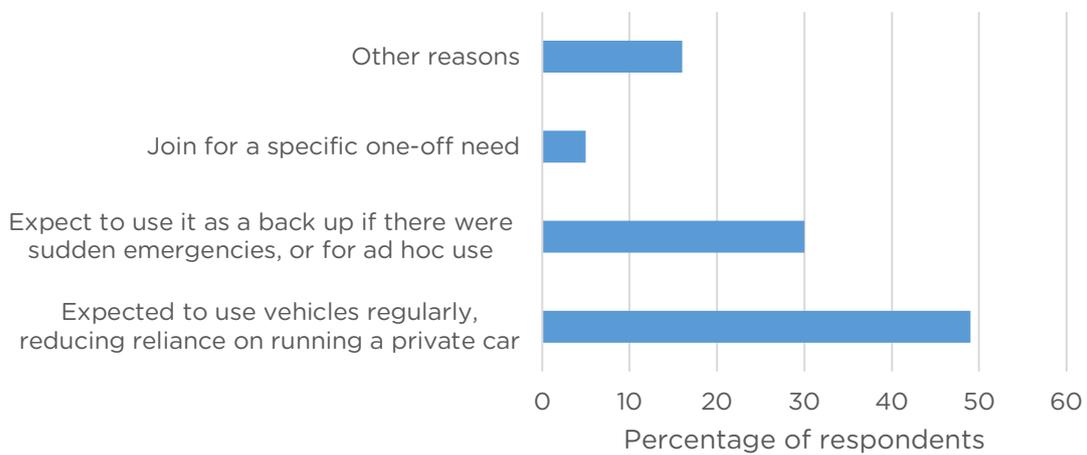


Figure 9 Initial expectations for car club membership

6.4 Reason for joining a car club

Respondents who answered a question about owning a car prior to joining a car club were split evenly between those who did not own a car prior to joining a car club (55%) and those who did own a car (45%).

Car ownership when joining the car club

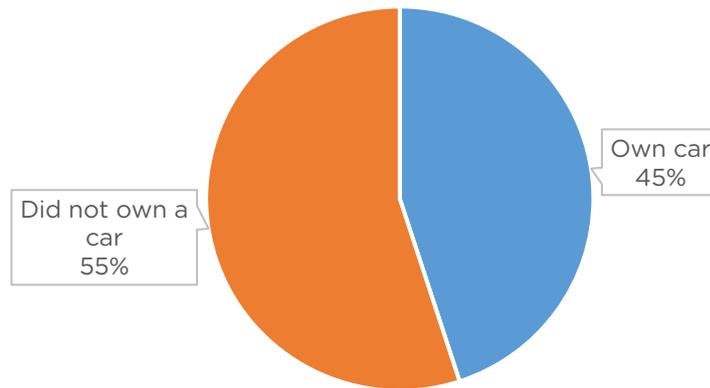


Figure 10 Car ownership on joining

6.4.1 Reasons for joining a car club – those who previously owned a car

Respondents were then asked to identify the specific reason(s) that prompted them to join the car club with responses split between those who owned a car prior to joining the car club and those who did not. For those who had previously owned a car, reasons identified in the survey are shown in the chart below. Of the 794 responses to this question, key issues were influence of employer, needing another car for additional flexibility, and joining a car club when the household car was sold/disposed of. This is mostly in line with previous years, though the influence of the employer joining seems to have increased in influence.

Those who had previously owned a car: what were your specific reasons for joining the car clubs?

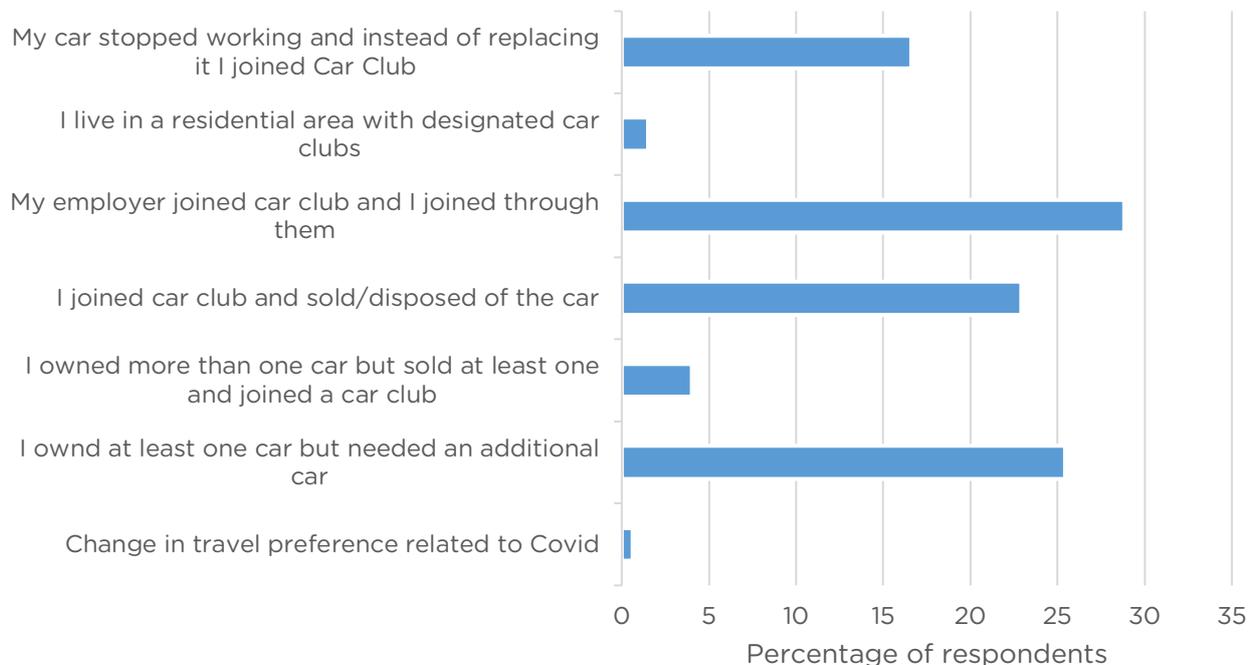


Figure 11 Reason for joining (already owned a car)

6.4.2 Reasons for joining a car club – those who previously had not owned a car

Of the 753 respondents who had not previously owned a car, 59% said that they joined the car club to get flexibility through access to a car. This is broadly in line with previous years.

Those who had not previously owned a car: what were your specific reasons for joining the car club?

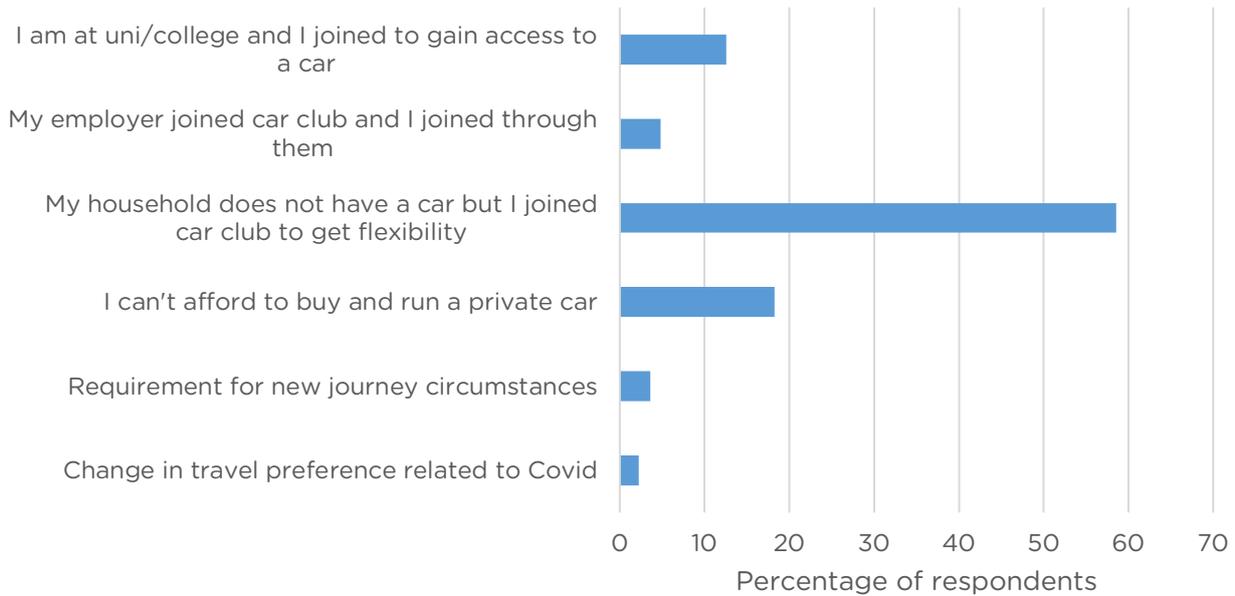


Figure 12 Reasons for joining (not owned a car)

6.5 Use of car clubs

Car club members use the vehicles regularly: 42% reported they had used the service in the last 30 days. This is lower than the 2019 survey, when the equivalent figure was 52%. Only 9% of members have not hired a vehicle at all.

When was your last car club journey?

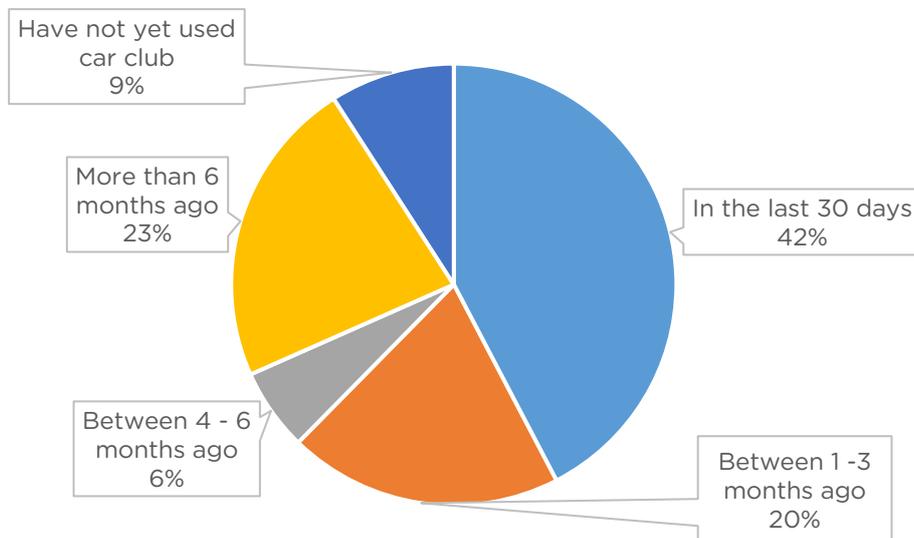


Figure 13 Last Journey

Regional differences were seen in the responses, with almost 50% of inner-city respondents using the vehicle in the last 30 days. However, among rural respondents, over 50% had not used the car for more than six months.

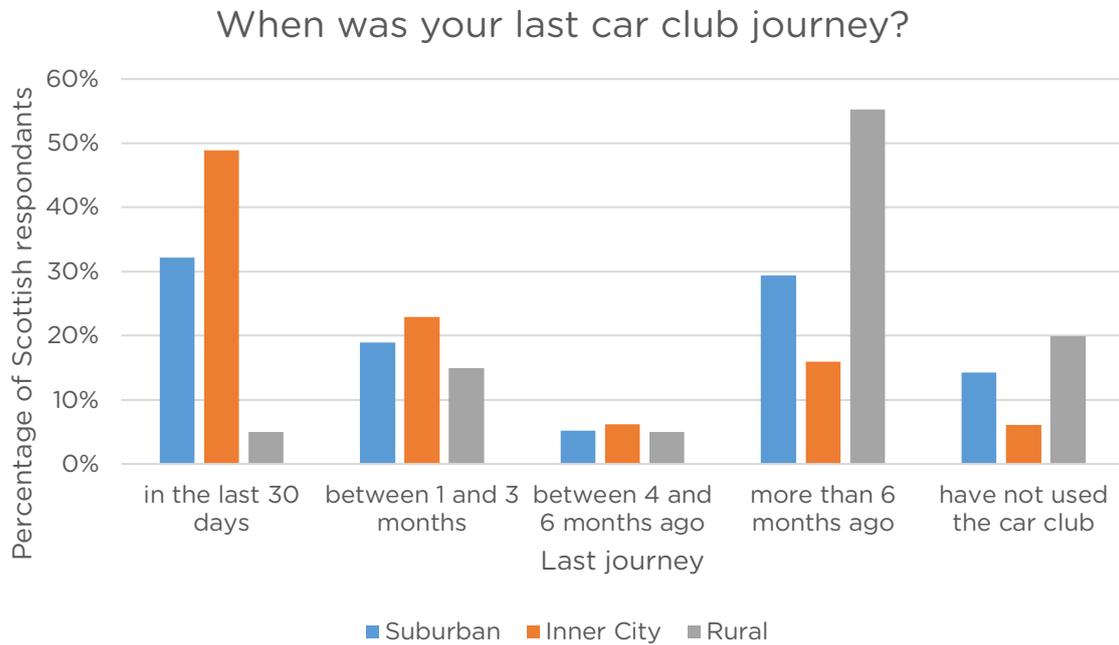


Figure 14 Last Journey by location

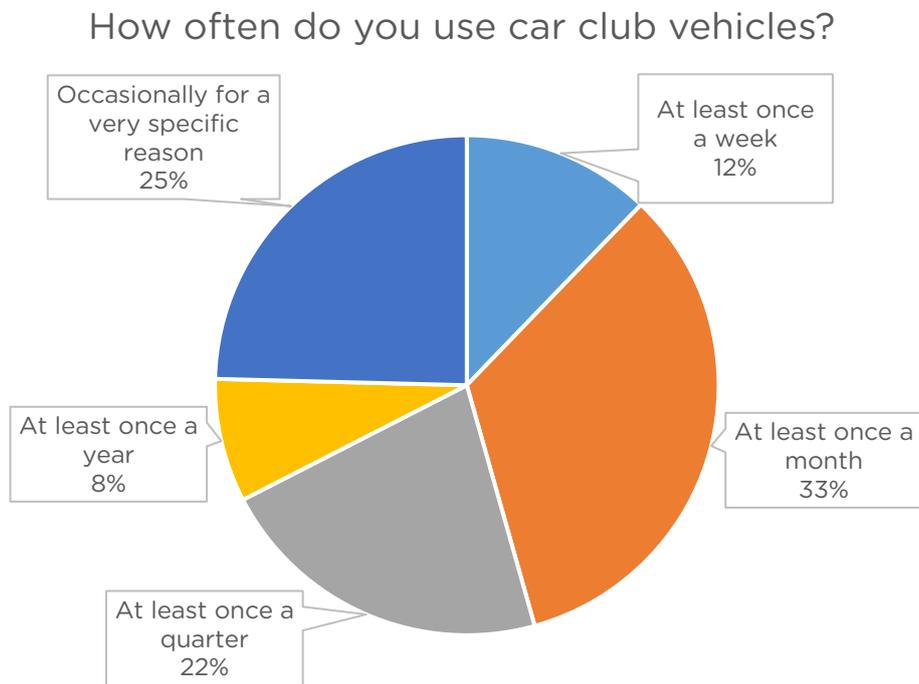


Figure 15 How often car clubs are used

Among respondents who have not used a vehicle in the last six months, Covid-19 has been a significant factor with 47% citing this as the reason for non use.

Reasons for not using a car club in the last six months

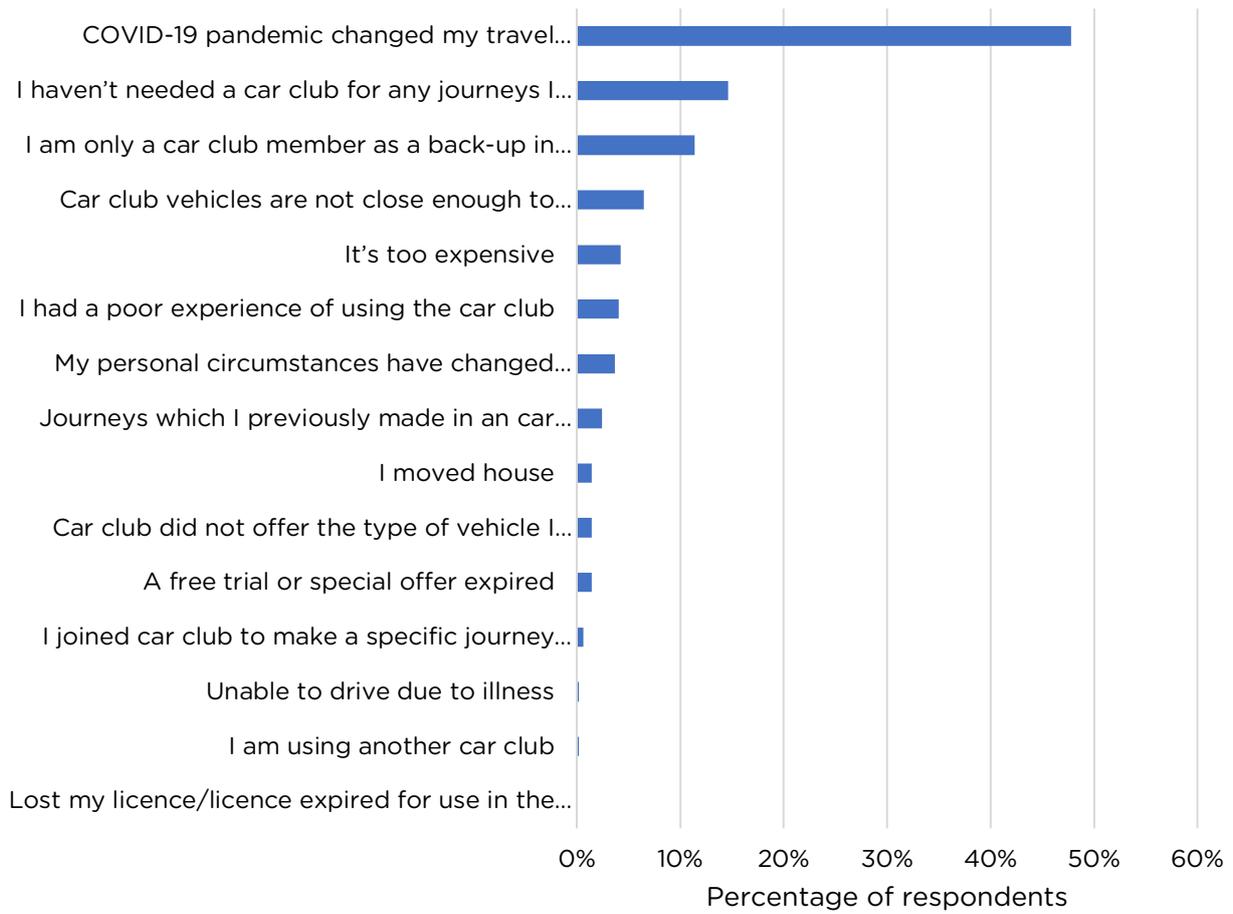


Figure 16 Reason for not using the car club

Reasons for not using a car club in the last six months other than COVID-19

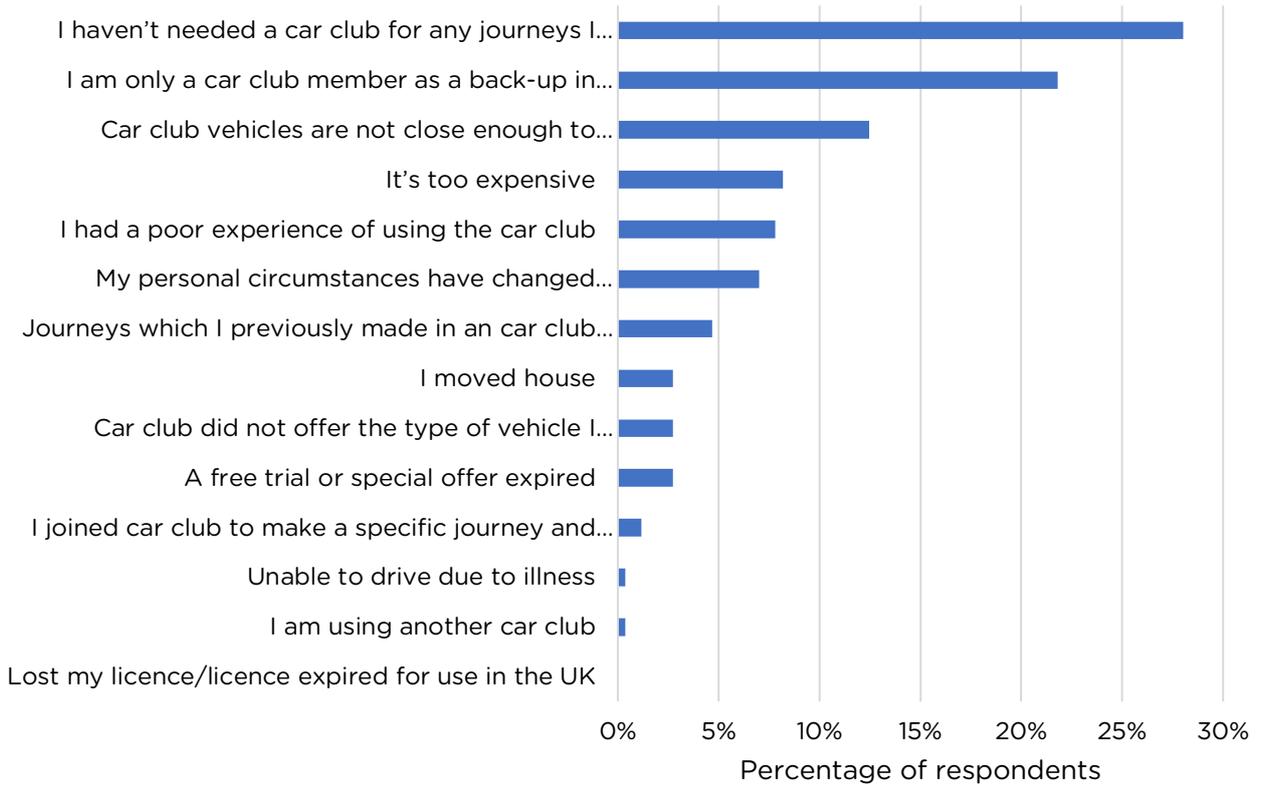


Figure 17 Reasons for not using car club (not inc. COVID-19)

6.6 Travel method to collect the car club vehicle

Convenience and proximity of the car are important to respondents as 75% of them walk or jog to pick up their car club vehicle.

How respondents travel to pick up their car club vehicle

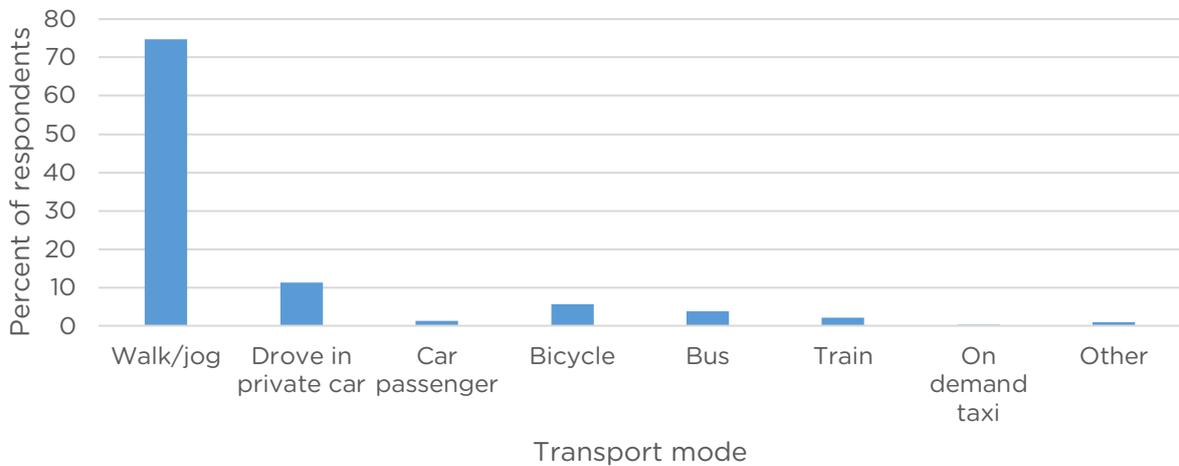


Figure 18 Travel to pick up car club vehicle

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There were variances across region type. Rural users were more likely to get a lift to the car club vehicle than suburban or inner-city members with fewer walking to the vehicle. As the chart below shows, some people drive (or are driven in) another car to pick up the car club vehicle. This could be people who are using the car club as a second car being dropped off, or users hiring a van or larger car if their own vehicle is not suitable for a particular trip.

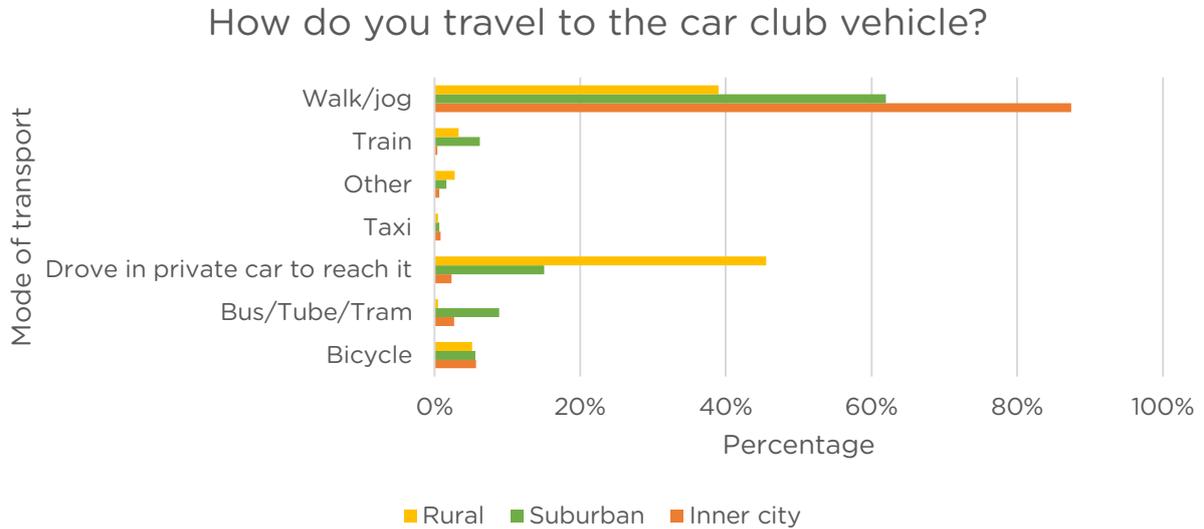


Figure 19 Travel to pick up car club vehicle by location

6.7 Car club journey snapshot

6.7.1 Journey purpose

Respondents were asked to reflect on the most recent car club journeys they had undertaken. They were initially asked to identify the purpose of their most recent journey: 27% cited leisure, 23% shopping and 19% personal business. Visiting friends dropped compared to last year, likely impacted by Covid-19.

What was the purpose of your last car club journey?

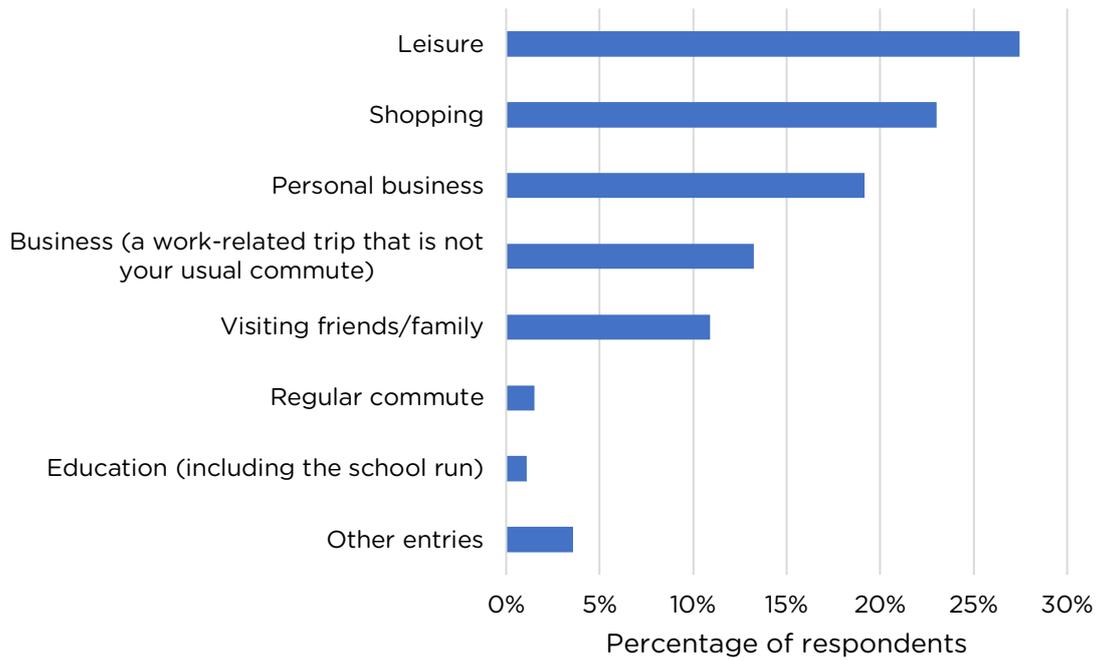


Figure 20 Journey purpose

6.7.2 Reasons for choosing a car club for the journey

Key reasons for selecting car club for their last journey were carrying luggage/bulky items (18%), lack of any public transport option (either none or would have taken too long) (28% combined).

Why did you choose a car club vehicle for your last journey?

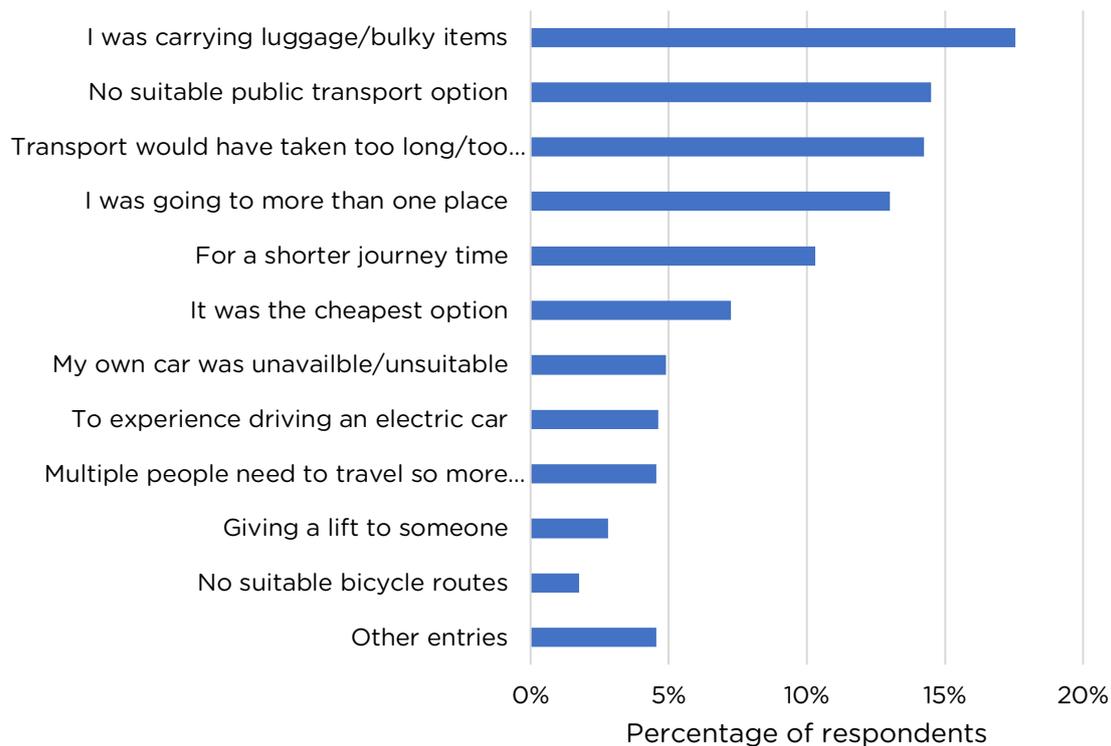


Figure 21 Reason for choosing car club for last journey

There was a variety of specific journey purposes reported in the interviews, most were related to trips that could not be taken (or would be too long) with public transport and the transportation of larger items. Some users reported planning and booking their journeys is that they would group together a number of trips all to be taken whilst they had the car, e.g. to visit family and then a DIY shop on the way home.

6.7.3 Travelling with children

Children are infrequently passengers with car club users: very few recent journeys had children as passengers, although 71% of journeys had one or more passengers.

Evidence from the user interviews support this. Children are a major barrier to whether someone feels that car club usage is feasible. Reasons given for why using car clubs with children is difficult included the hassle of taking and fitting a car seat, the complication of having to pick the car up from somewhere other than home, need for greater flexibility/spontaneity, and concern over the need to take more personal items in the car.

6.7.4 Alternatives to using a car club

Respondents were asked to consider the alternatives to using car club vehicles for their most recent journeys. Responses indicate that most frequently, the journey would not have been made (19%), in line with the previous survey. Privately rented (daily rental) vehicles and Uber totalled 21%, which is more than double the response in the last survey. Both these responses may be explained by concerns over using public transport during the pandemic.

If you had made this journey before joining the car club, what would have been the main mode of transport?

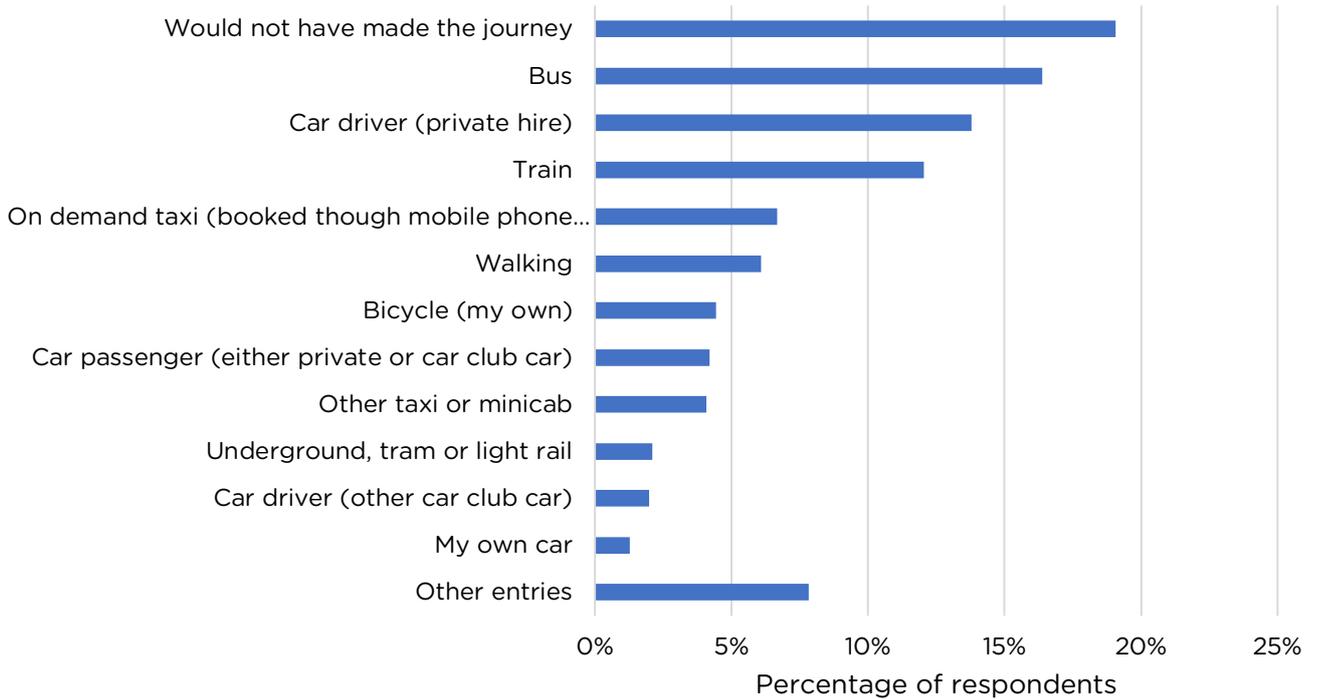


Figure 22 Alternative to car club use

6.7.5 Journey distance

For each of the last three journeys undertaken by respondents, over 50% were for total distances of 25 miles or less. Only 3% were for distances exceeding 251 miles. This is slightly different to the overall operator data showing an increase in longer journeys, though the data does not allow us to draw inferences as to the reason for the difference.

Table 1 Journey distance of last three journeys

Distance driven	% of respondents		
	Journey 1	Journey 2	Journey 3
Less than 10 miles	31	26	28
11-25 miles	24	27	26
26-50 miles	15	16	16
51-100 miles	16	16	15
101-250 miles	11	12	11
251+ miles	3	3	3
	100	100	100

6.7.6 Journey Duration

Figures for length of hire reflect these journey distances, with over 50% of all journeys being for four hours or less. Only 4 to 5 per cent of hires were for three days or more. This is in line with the median durations in the overall operator data.

Table 2 Length of hire for last three bookings

Hiring period	% of respondents		
	Journey 1	Journey 2	Journey 3
Less than 1 hour	10	9	11
2-4 hours	42	41	40
5-8 hours	27	29	27
Up to two days	17	17	17
3-7 days	4	4	5
	100	100	100

6.8 Levels of satisfaction with the car club

6.8.1 Different factors and level of importance

Respondents were asked how easy they had found joining the car club, booking and driving a vehicle. As the chart below shows, 80% found these processes to be very easy or quite easy; fewer than 2% found them very difficult.

Difficulty experienced when joining a car club, booking a car club vehicle and driving a car club vehicle

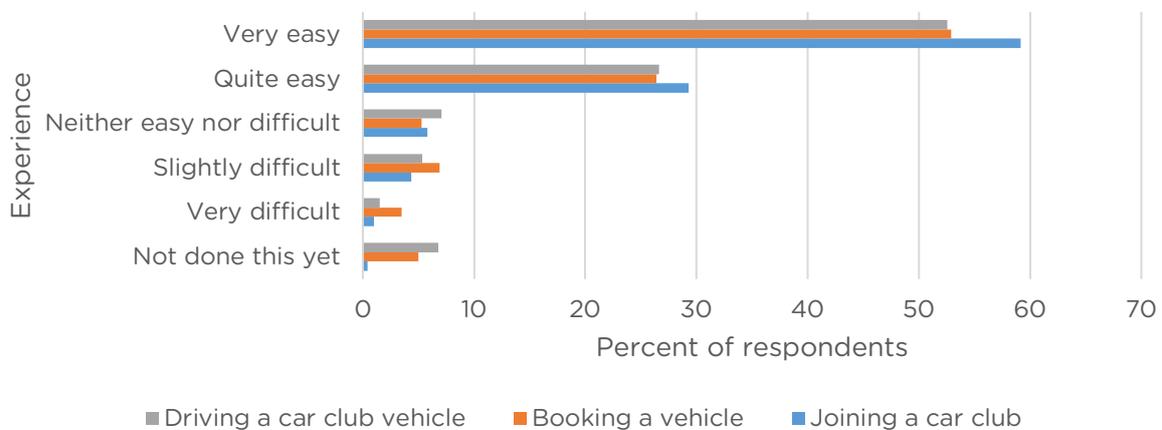


Figure 23 Experience when joining, booking and driving

6.8.2 Maximum acceptable travel time to a car club vehicle

Members want access to vehicles to be close and convenient: 50% want access to be within a 10-minute walk although 25% will accept a walk of up to 20 minutes. There is no significant difference in the data between rural and urban respondents.

How far members are prepared to walk to access a car club vehicle

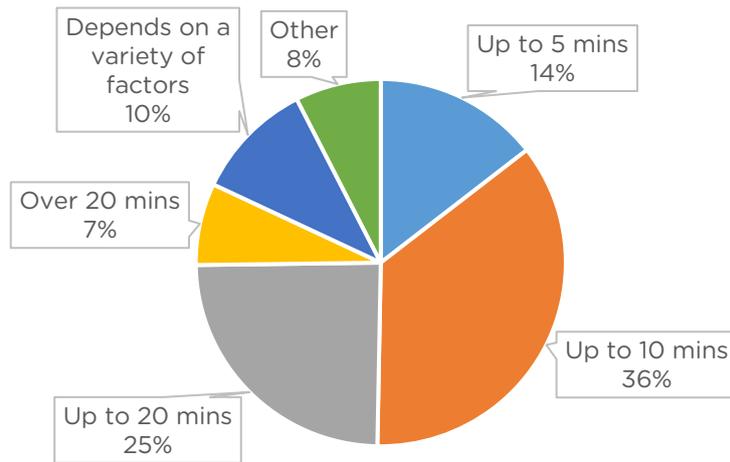


Figure 24 How far members are prepared to travel to vehicle

6.8.3 Satisfaction levels

Car club members reported that they were generally satisfied or very satisfied with facilities provided, as shown in the table below. The lowest satisfaction scores were for Covid-19 safety measures, choice of vehicles and availability of vehicles which in places seem to have impacted availability for bookings.

Table 3 Satisfaction with car club

	% of respondents who are satisfied/very satisfied with....
The cleanliness of the vehicles	79
The quality and maintenance condition of the vehicles	76
The proximity of Car Club vehicles to where you live	74
Customer service	74
Administration and backup	67
Information about the vehicles	67
Choice of vehicles	66
The availability of Car Club vehicles when you need them	65
COVID safety measures put in place	54

These overall levels of satisfaction are reflected in responses to the question, ‘Would you recommend car clubs to a friend?’ with 77% agreeing that they would.

6.8.4 Importance of service related factors

Respondents were asked to consider how essential they regard particular factors: with the exception of competitive pricing - only 46% in Scotland regarded this as essential.

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Table 4 Essential elements to car club service

	% of respondents who view these factors as essential
Vehicle available for collection close to home/work	64
Guaranteed maintenance of the vehicle	68
Effective customer support at all times	59
Competitive price in comparison to other clubs	46
Cleanliness of the vehicle	55
Guaranteed sanitisation of the vehicle between usages	48
Choice of different power sources (electric vs petrol vs diesel)	24
Choice of different size/power vehicles	22
Choice of different vehicle brands	10
Availability of child car seats	5

The most critical factors members are looking for is proximity of the vehicle for collection (64% said this was essential) with guaranteed maintenance seen as essential by 68%. Perhaps surprisingly, considering responses to other questions, guaranteed sanitisation was seen as essential by only 47% of respondents.

Would you recommend car club to a friend?

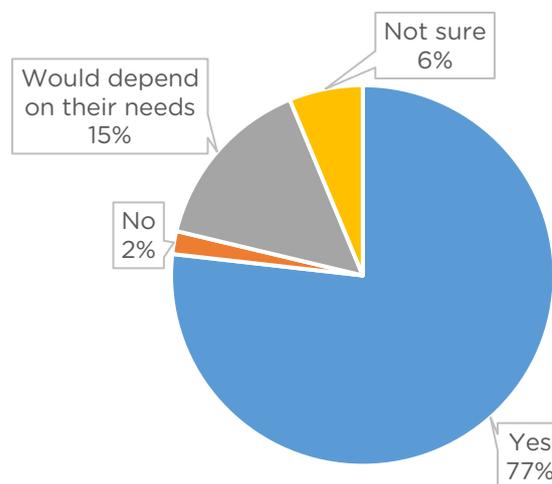


Figure 25 Recommend to a friend

The interviews found that size and type of car are important factors for car club members, particularly for those joining and using the car club for a specific reason (moving to a new house, moving a large object). Having vans and larger vehicles available on the fleet is important to provide that option when needed and helps to bring in new users, who may then go on to use the car club more regularly. There was a difference in preference for the size of car, those in the inner-city preferring smaller cars and those in suburban and more rural areas wanting a larger variety of

cars. For some, the opportunity to drive different cars and try out new technology is a big bonus of the car club, particularly among younger consumers.

6.8.5 Impact of pickup/collection approaches

The process for picking up and returning the vehicle would seem to be less critical than availability for use. However, the table below shows that Scottish respondents would appear to be more likely to regard pick up/collection options as ‘Desirable’ rather than ‘Essential’.

Table 5 Impact of collection approaches

% of respondents who consider these options to be.....	Pick up and drop off in the same ‘car club only’ bay	Pick up and drop off in the same neighbourhood	Pick up and drop off in different streets (one-way trips)
Essential	30 (27)	26(27)	20(29)
Desirable	37(29)	45(35)	43(32)
One to be considered	14(13)	17(13)	23(15)

6.8.6 Factors causing dissatisfaction with car club

Generally, levels of satisfaction among car club members are very high. A small number of respondents identified factors causing dissatisfaction in this qualitative question in the survey. The key themes were:

- Problems with dirt, cleanliness and sanitization.
- Problems with booking.
- Problems with accessing the car.
- Customer service.
- Technical problems.
- Issues related to charging.
- Unjustified accusations of damaging the car or traffic offences.

6.8.7 Customer experience from interviews

Echoing the members survey, availability and distance were the key concerns, some participants stated that the locations were more important than the time of the journey and that this should be better reflected in the booking process.

In general, all users interviewed were positive about their experiences with using the car club. Some reported instances of accidents or other problems; however, nearly all were happy with how they had been resolved. There appeared to be a lack of understanding on some of the rules for customers, nearly all interviewees were unaware of any cleaning pledges.

There were some examples of how the structure of car club membership and payments do not necessarily help those on low incomes. The uncertainty of what the final cost would be was a concern and they wished to have the ability to preload their account, so that funds were available when the journey needed to be taken. Linking with other travel passes would be beneficial, particularly for those members in large cities who used many forms of public and shared transport.

6.9 Car Ownership and Disposal

6.9.1 Car ownership prior to joining a car club

Prior to joining a car club 45%⁸ of users did not own a car, with 39% having one household car. Only 17% had two or more cars in the household.

⁸ The results of an earlier question showed that 55% of respondents reported not owning a car. This apparent discrepancy is likely to be the result of the distinction between whether the respondent owns a car or has access to a household car.

How many cars did your household own before joining car club?

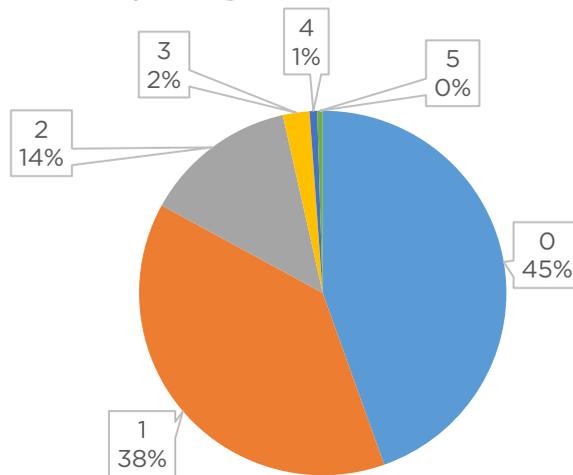


Figure 26 Householder car before joining

For 70% of users, joining a car club had not resulted in any change in car ownership. 22% had one car fewer than when they joined a car club.

We estimate that each car club vehicle in Scotland replaces 10.1⁹ private cars. The estimated total number of cars removed from the road is 5,177¹⁰. The cars replaced per car club vehicle takes the sum of the net value of the change in car ownership (based on the question relating to change in number of vehicles per household) and the number of respondents who said they would have bought a car had the car club not been available. Then the figure is scaled up based on the number of survey response as a proportion of active members (11,766¹¹) then divided by the number of car club cars in the region.

The estimated number of vehicles replaced by each car club vehicle will vary significantly by location and over time. For example, it is likely that in areas with higher population density and good public transport provision more vehicles will be replaced, because it is easier for consumers to find alternatives to private car use for all journeys. Other factors include changes in the density of car club provision, changes to car club fees, and local restrictions such as a Low Emission Zone.

When respondents were asked whether membership had prompted disposal of a vehicle, 37% said no and 20% said yes (the remaining 43% did not own a car).

⁹ Rounded from 10.052 to one decimal place.

¹⁰ 10.052 multiplied by 515 cars.

¹¹ Active members is defined as those who have hired at least once in the year.

As a result of car club membership have you sold or otherwise disposed of, and not replaced, a car?

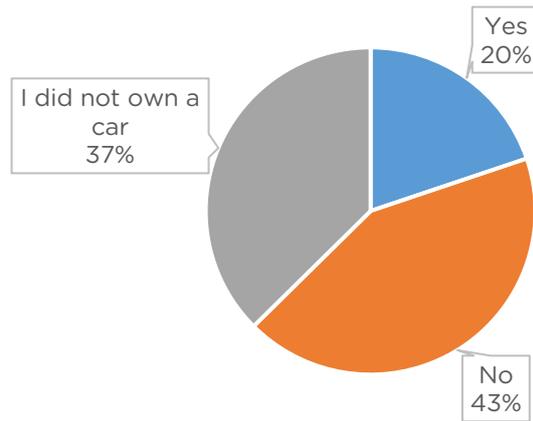
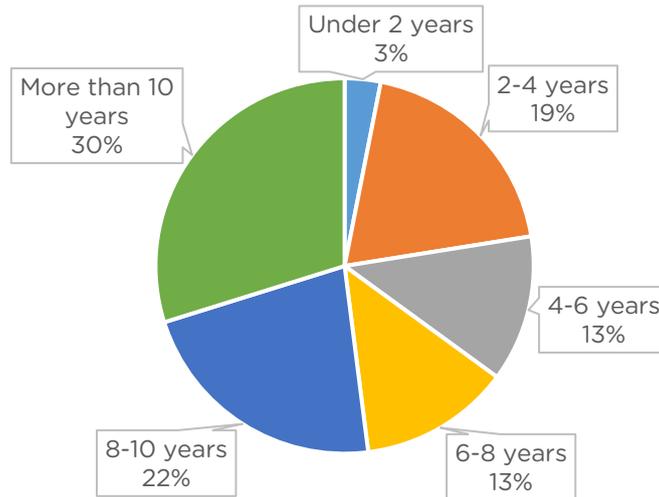


Figure 27 Sold, disposed and not replace car due to car club

Those that disposed of a car were asked about the age of this vehicle and, as the figures (below) show, 30% of cars disposed of were at least ten years old.

How old was the car you sold/disposed of?



F

Figure 28 Age of car disposed of

6.9.2 Average mileage of vehicle prior to disposal

In the 12 months prior to disposing of the car, 43% had driven fewer than 5,000 miles, 40% had driven between 5,001-10,000 miles. Only 6% had driven more than 15,000 miles.

How many miles did you drive in that car in the last 12 months before you sold/disposed of it?

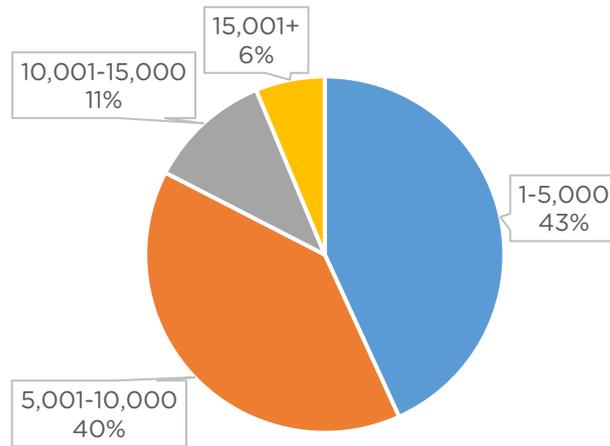


Figure 29 Miles driven prior to disposal of car

6.9.3 Factors influencing the decision to dispose of a car

Among those who did dispose of a car, availability of the car club was the primary factor cited (23% of respondents). The cost of keeping the car on the road (22%) and low usage (21%) were other notable reasons. Contrary to the earlier question (which was answered by all respondents), the responses suggest the car club was an important factor for more respondents in their decision. This is higher than previous years.

What were the main factors in the decision to sell/dispose of your car and not replace it?

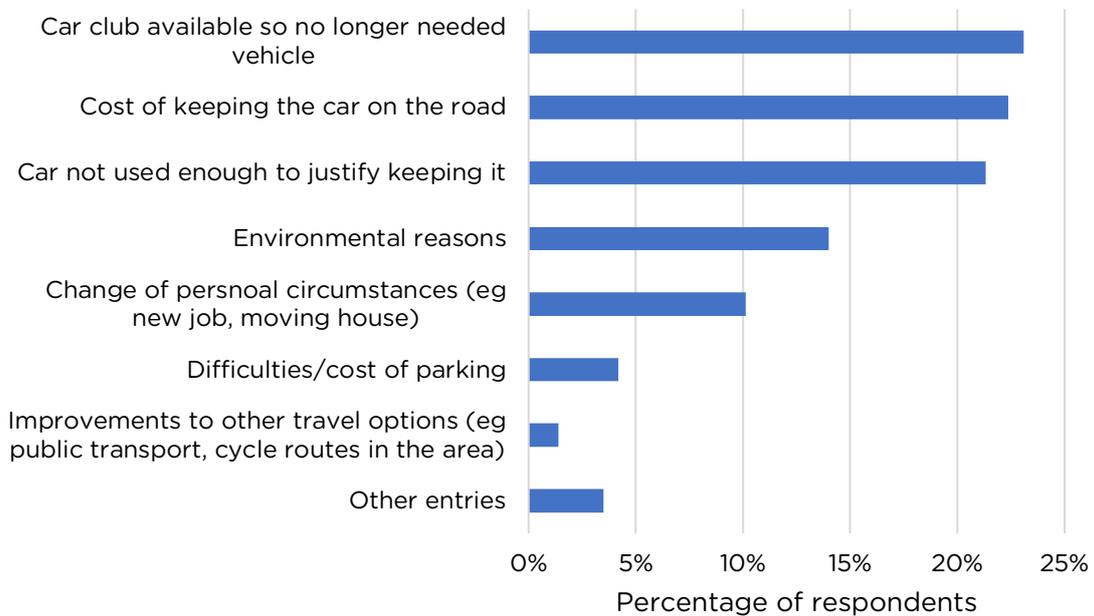


Figure 30 Main factors to disposal/not replacing

6.9.4 Factors which encourage disposal of a car

Respondents were asked to identify what factors, if any, might encourage selling or disposing of a car: lower car club vehicle prices (17%), wider availability of vehicles (14%), and a better range of transport options (11%) were noted as the primary drivers to encourage disposal of a car.

What would encourage you to sell/dispose of your car and not replace them?

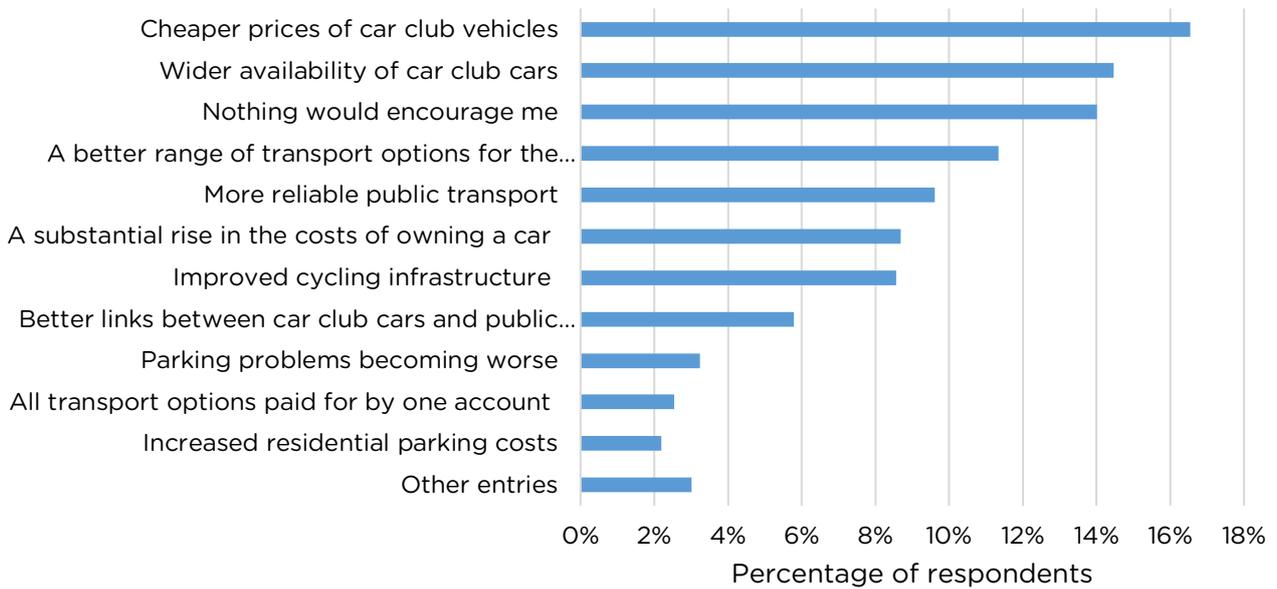


Figure 31 What would encourage disposal

6.9.5 Future car ownership

Car club membership has an impact on likely car purchasing; 25% of respondents said that they would definitely have bought a private/additional car if they had not had car club membership.

If you had not joined a car club would you have bought a private/additional car?

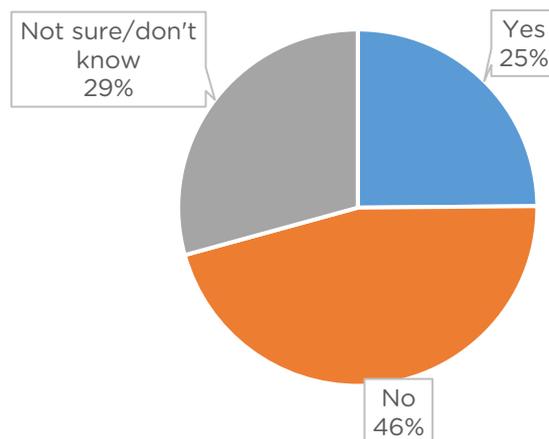


Figure 32 Car purchase if not for car club

Thinking about future plans it would seem that car club membership affects possible purchases – 49% say it is less likely that they will buy a car/additional car in the next few years as a result of car club membership.

Do you think that joining a car club has made it more or less likely that your household will buy a car/additional car in the next few years?

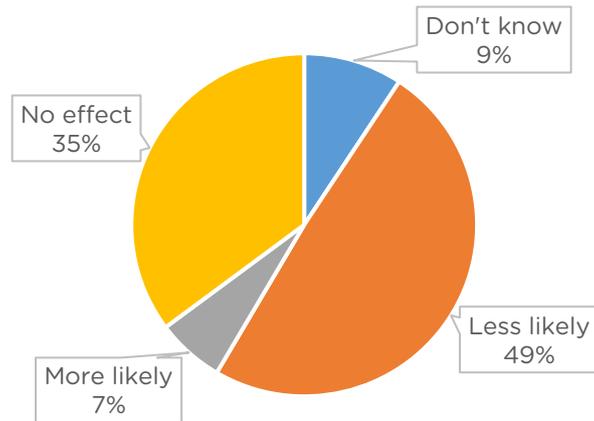


Figure 33 Likelihood they will purchase a vehicle

The majority (73%) respondents do not think car club membership will directly affect their decision to dispose of a car in the next few years, though 11% regard it as having a higher likelihood based on their car club membership.

Do you think that joining the car club will make it more or less likely that you will sell/dispose of a car in the next few years?

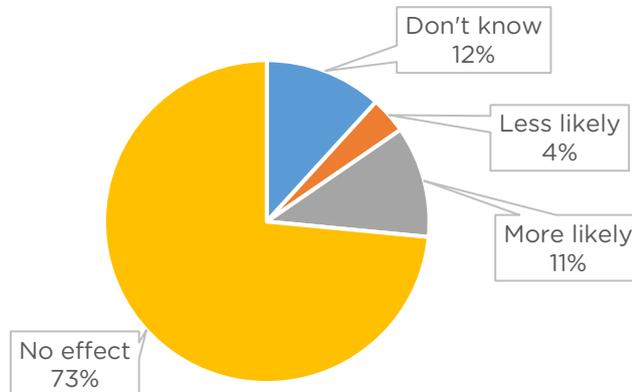


Figure 34 Likelihood they will sell/dispose of a vehicle

6.10 Qualitative insights: car ownership and modal shift

The close link between car club usage and other modes of transport is key. None of the regular or lapsed users interviewed used car clubs as their main form of transport. Most users will commute using public transport or active travel and use car clubs as a supplementary form of transport for shopping, trips out of the city or that require too many changes on public transport.

The regular users that were interviewed all stated that prior to joining a car club they rarely used their own vehicle and travelled mostly by public transport. Car clubs can often be a helpful factor in making the decision to dispose of a car, and for some make it more likely to push intention to action. Most said that the journeys they took with a car club did not replace active travel or public transport; instead, they replaced car trips or allowed them to take journeys that would not otherwise have been possible. The member survey corresponds with this, with 19% saying that

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their last car club journey would have taken place using a car (either privately owned or rented/borrowed from elsewhere) if there was not a car club¹².

Table 6 Car club replacement

Percentage of the journey that would have been active transport	8%
Percentage of the journey that would have been mass transport	29%
Percentage of journeys that would have been in a car (self-driven or driven by someone else)	44%
Percentage of journeys that would not have happened	19%

Environmental considerations played little role in any of the interviewees' decisions on how to travel. There is some evidence to suggest it may influence longer-term decision making (such as purchasing of an EV) but the impact is less than other factors such as ease of use, availability, and cost.

Good public transport access and use is needed in order for the disposal of a car to be possible. It is unlikely that all journeys would be replaced by a car club. Interviewees described feeling capable using multiple types of transport before disposing of their car and joining the car club. It is crucial that individuals feel confident and capable in using public transport for them not replace their car and switch to car club usage.

Evidence from the interviews suggests that for car club membership to make sense there must be a car club operating with at least one car available nearby. Responses from the survey show acceptable distance to the car can vary depending on location, although it must be a comparable distance to other transport options. Most interviewees and survey respondents reported being aware of a car club because they saw vehicles on the streets, rather than through marketing or communications.

Interviewees all reported cost savings against car ownership (some as high as £1,000 in a year). The cost of car ownership and the savings available by using a car club are most likely to influence decision making when vehicle purchase is being considered, rather than for drivers who already own a vehicle

Instead of cost, the perceived 'hassle' of car ownership is a much larger factor in why people decide to give up their vehicle. Parking was reported as a particularly crucial factor in inner-city areas. One of the perceived benefits of using car clubs was no longer having to worry about parking regulations and permits.

6.11 Electric vehicles

59% of all respondents reported having used an electric vehicle (EV), an increase from 52% in the 2019 survey. This is significantly higher than the proportion of car club fleets which are EVs - one explanation may be that members are deliberately selecting an EV when other options are available, this could also be explained by survey respondents considering hybrid vehicles when answering the question. Analysis of questions provided below suggest that may be the case.

¹² Figures in the table below are for the whole UK.

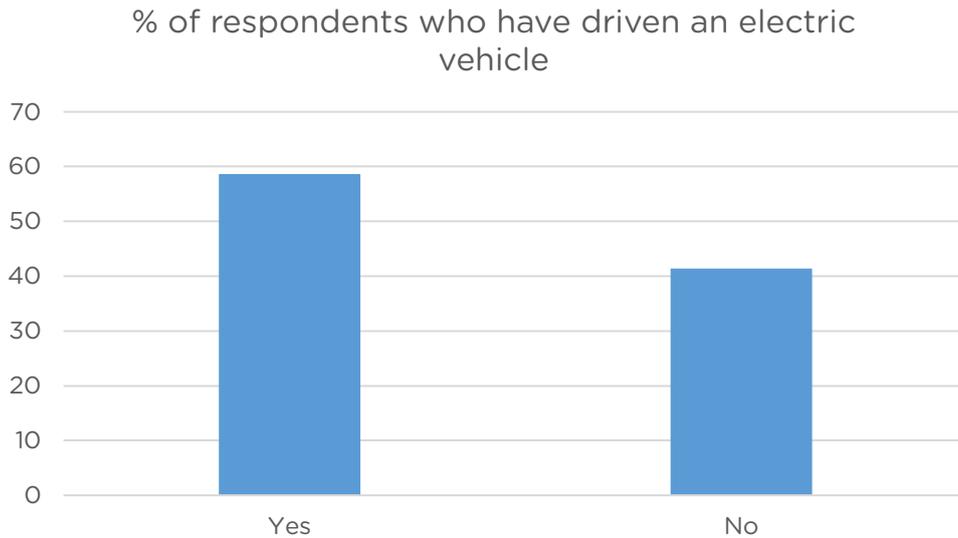


Figure 35 % driven an electric vehicle

6.11.1 Reasons for selecting an electric vehicle

Reasons for selecting EVs include curiosity and desire for an environmentally friendly vehicle (both cited by just over 20% of respondents). Those trying out of curiosity has dropped a little since 2018/9 (when 27% chose this response), likely as familiarity increases with the technology.

Why did you choose to use an electric car club vehicle?

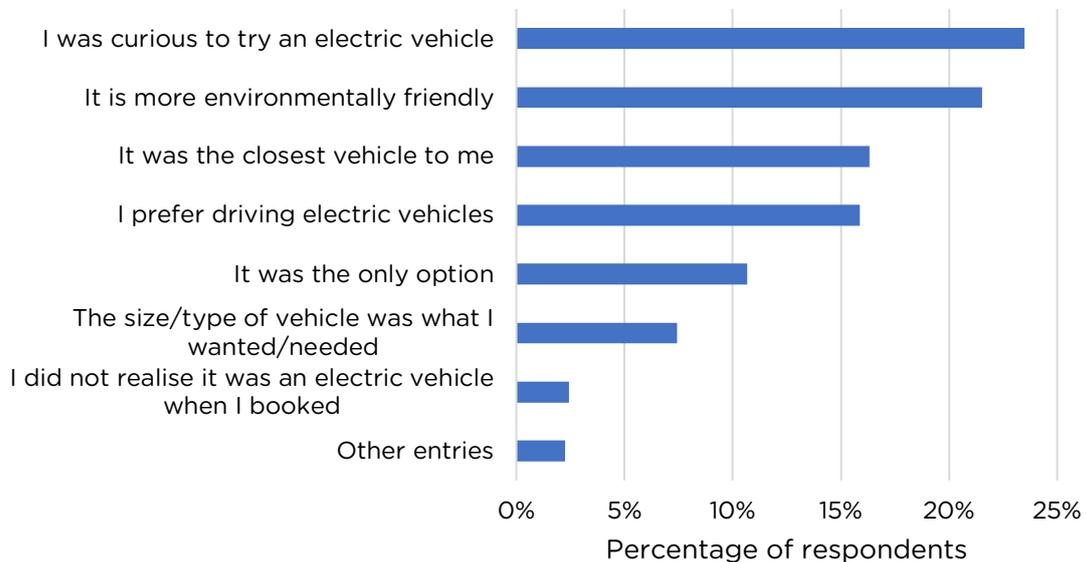


Figure 36 Reason for choosing an electric car

6.11.2 Satisfaction with electric vehicles

There was a high level of satisfaction with EVs – over 80% of respondents were satisfied with the experience, comfort, and performance of the vehicle. They were, however, less satisfied with their experience of using charging points (39%).

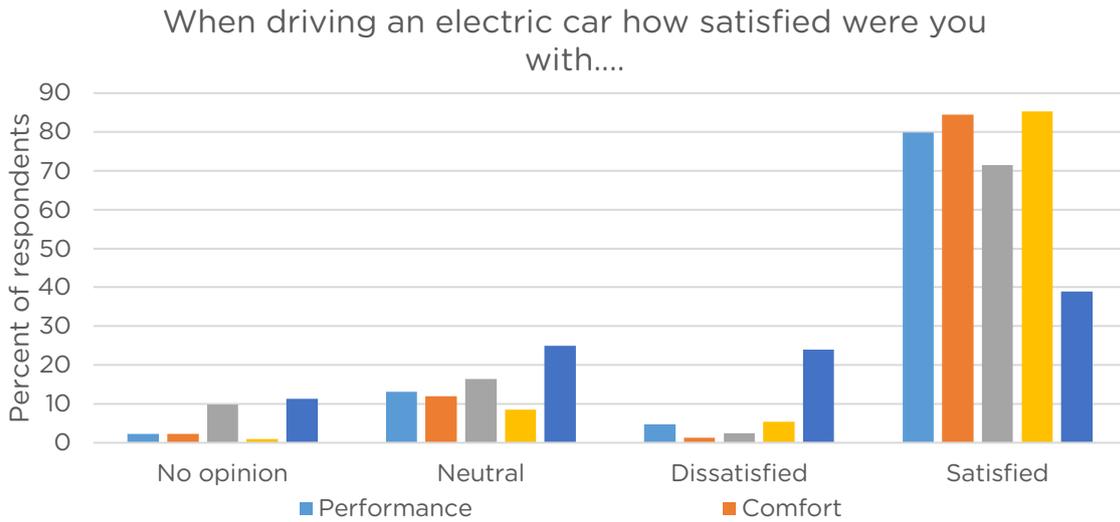


Figure 37 Satisfaction with electric car

Analysis of the small amount of qualitative data from the members’ survey showed that negative comments about EVs were focused almost entirely on issues relating to charging. There were problems with trying to utilise bookings when so many cars were left without being fully charged, plus concerns about the range that could be achieved on the charge available, and difficulties in finding charging points. Additionally, lack of instructions and difficulty in dealing with the cable also caused problems. Some felt that costs were excessive compared with traditional cars.

The car club members who were interviewed were all positive about the usage of EVs. Many wished to see more on the fleet and only one had concerns about range. However, of those that had used EVs the biggest problem was the experience of using a charging point. They felt more information could be provided on how to use them and often found them difficult to use.

6.12 Profile of survey respondents

Respondents are from throughout Scotland, although the highest proportion - 28% - are from Glasgow.

Table 7 Location of respondents

Aberdeen	15
Angus	2
Caithness	1
Dundee	3
Fife	3
East Lothian	11
Edinburgh	16
Glasgow	28
Midlothian	6
Moray	3
Renfrewshire	1
Others	11

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62% stated that they live in inner-city locations, 23% suburban, 15% rural.

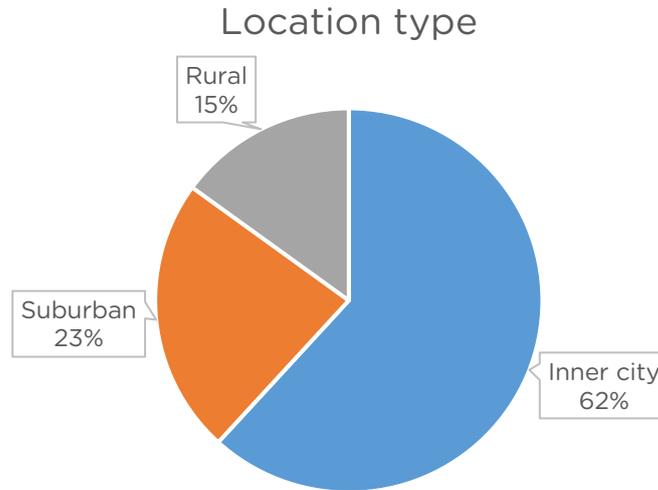


Figure 38 Location type

The most frequently reported household profile (36% of respondents) is couple. Singles account for 27%.

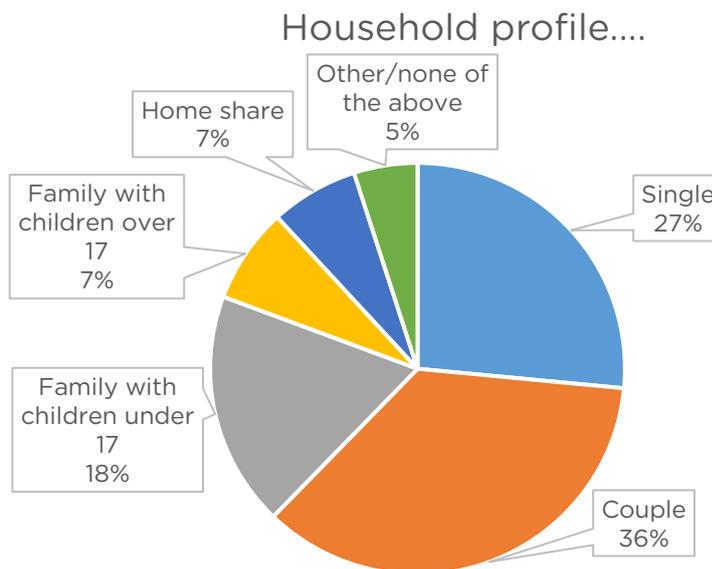


Figure 39 Household profile

Two thirds of respondents were male (60%) and one third (35%) female. With the overall membership statistics showing a higher proportion of male users, this indicates a representative split of the car club membership.

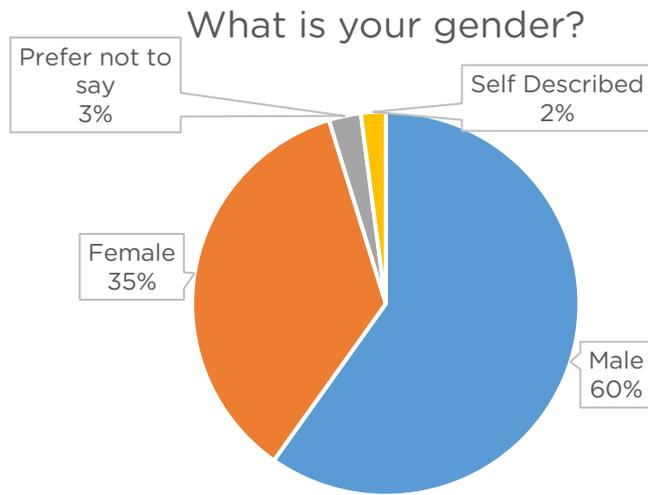


Figure 40 Gender of respondents

Nearly 50% of respondents are in two people households. This fits with the majority of respondents travelling alone or with one other adult for most of their journeys.

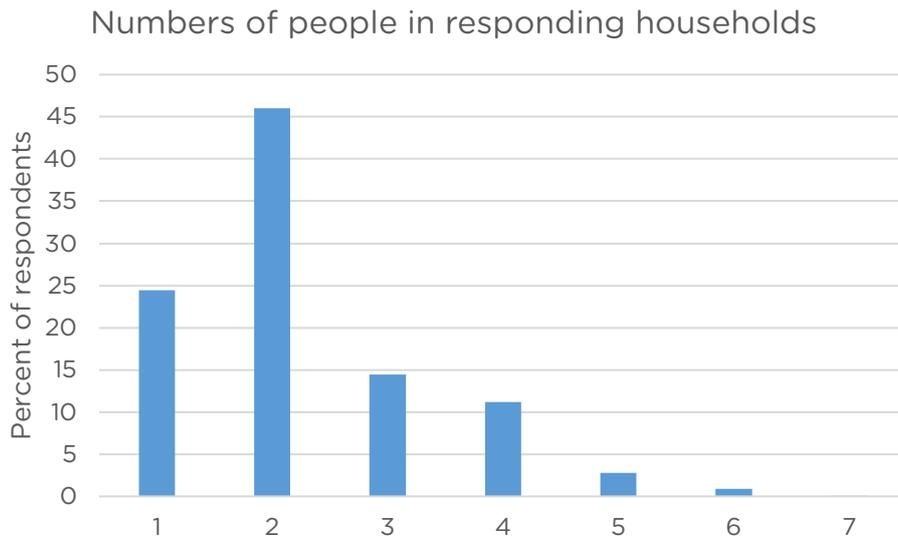


Figure 41 Number of people in household

83% pay personally for their car club membership and the remainder have this paid by their employers.

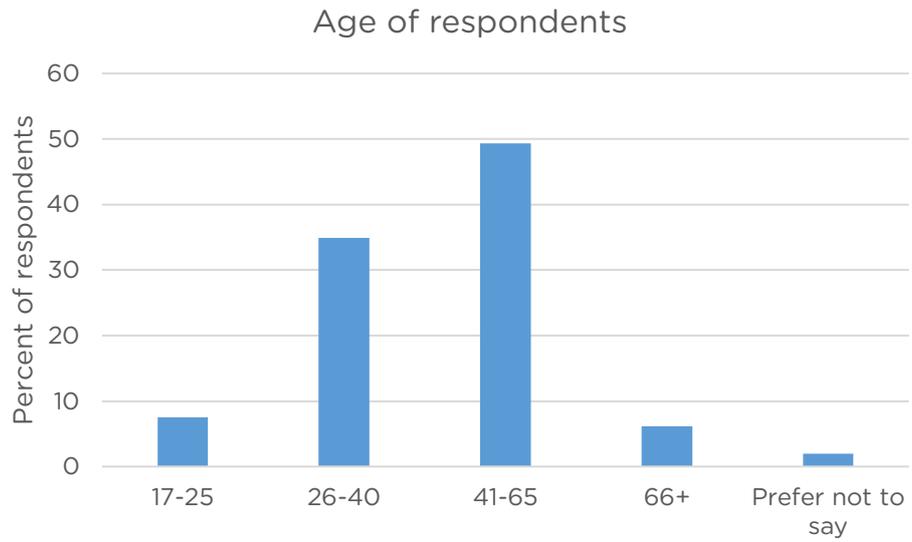


Figure 42 Age of respondents

50% of respondents are aged 41-65. This is broadly in line with the overall operator profile of memberships, suggesting we have a representative study.

7 Operators' Survey Results

This section presents the results of the survey of car club operators in Scotland.

7.1 Membership levels

There are now 30,617 car club members in Scotland, as a result of a 21.5% rise in membership recorded during the survey analysis period. There are 11,766 active members in Scotland, this is defined as members who have hire a car club vehicle at least once in the last year (the data collection period).

This has been driven by a 50% increase in private individual memberships to 21,216, which has offset a decrease of 15% to 9,401 corporate members.

7.2 Member ages

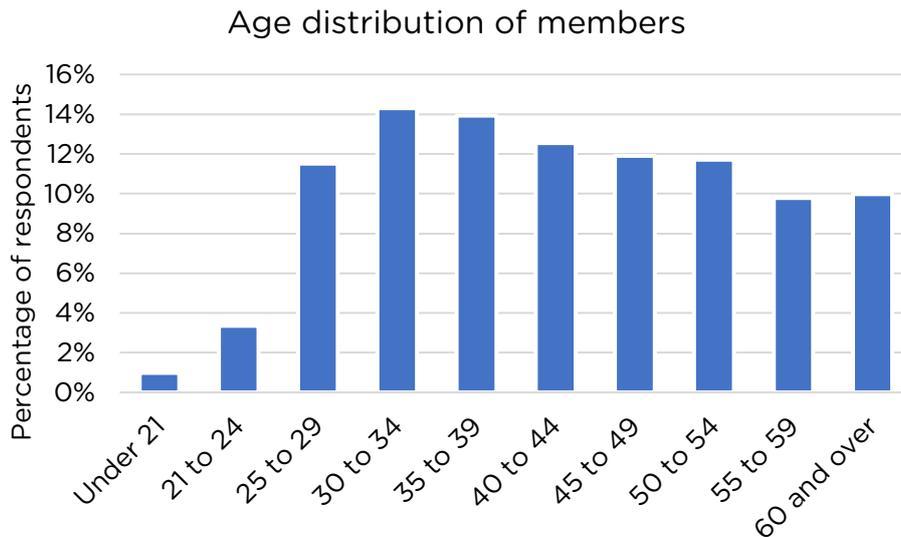


Figure 43 Ages of members

The car club operators' data shows that 53% of members were in the 25-44 range.

7.3 Average number of journeys per member

The car club operators reported that the mean average annual number of journeys per member in Scotland is six, though the median average is in the one to five hires band. This suggests that most users are using the vehicles for a specific journey requirement or limited need rather than a consistent usage on a weekly or monthly basis.

70% of members hired between 1-5 times. This is slightly higher than the previous year (which was 64%).

Average annual number of hires per member

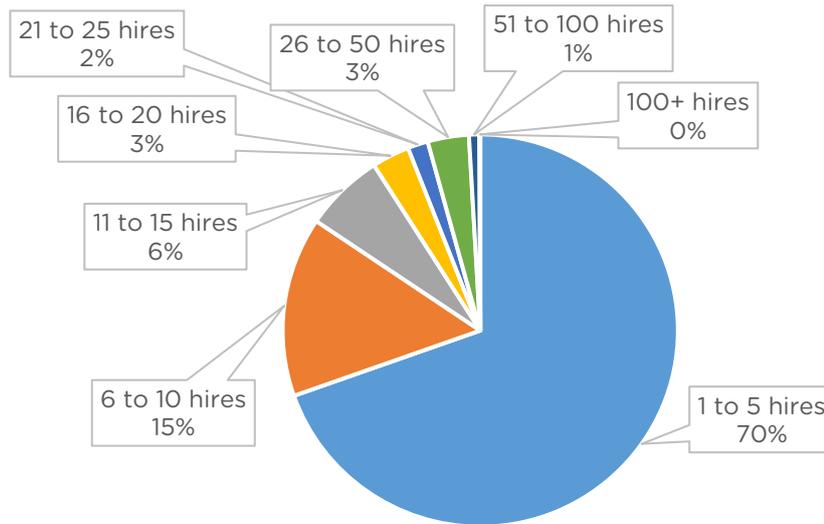


Figure 44 Average number of hires per member

7.4 Changing journey patterns

Overall distance per journey analysis shows that over the last year the 1-5 mile range is still the most prevalent use case, though the longer journey distances (26 miles plus) are now exceeding the 1-10 mile range.

Booking mileage distribution as percentage of total bookings

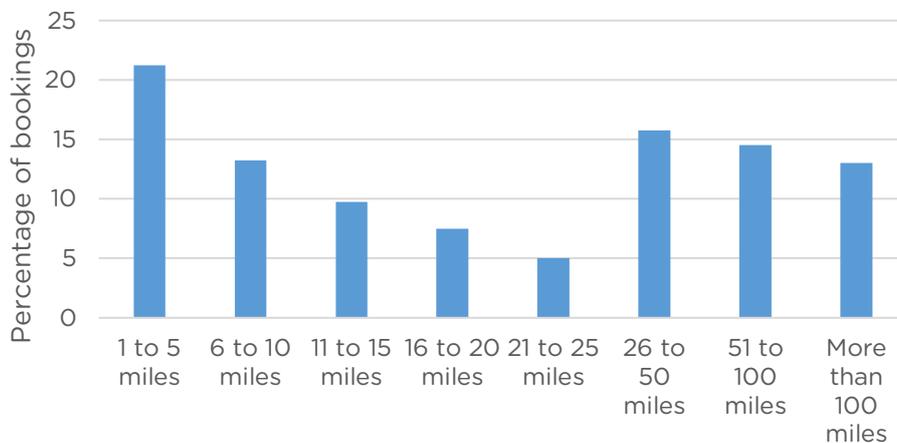


Figure 45 Booking mileage

Comparing distances before and after the first Covid-19 lockdown shows a greater proportion of longer journeys taken and reduction in the shorter journeys.

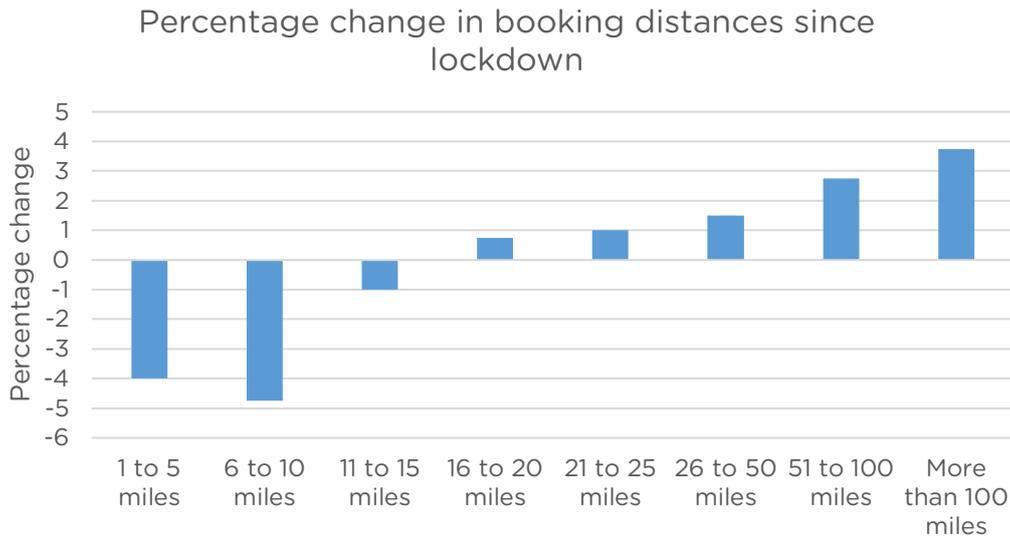


Figure 46 Percentage change in booking distances

The changes shown in the chart above are relatively small: Covid-19 has not significantly changed the types or distances of journeys.

The shift in distribution has pushed the mean average distances to 51 miles, though the median average shows a more representative value of 28 miles.

7.5 Booking durations and timings

The shift in booking patterns is also noticeable as an increase in average booking duration. The mean average duration is 12.5 hours, although the median of 5.2 hours offers a more representative view¹³.

As shown in the chart below, 32% of bookings start on weekends and 68% on weekdays.

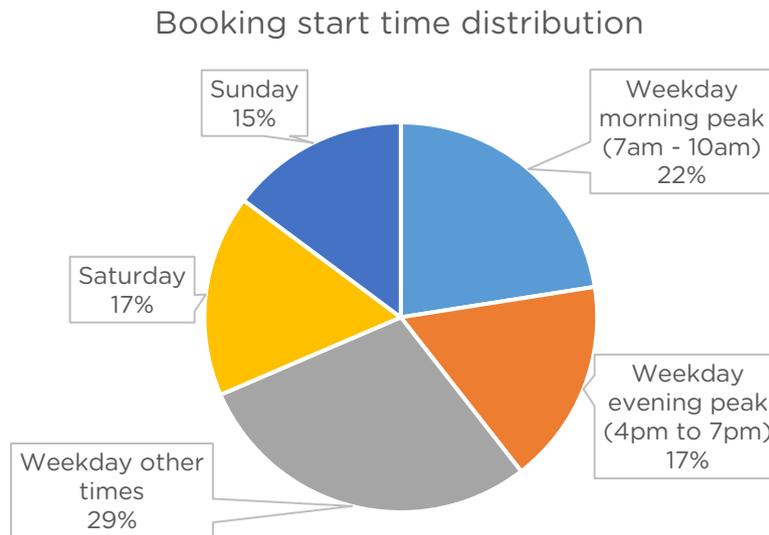


Figure 47 Booking start time

¹³ The mean average is impacted by smaller numbers outlier long bookings distorting the overall picture.

8 Fleet Data Analysis

This section presents our analysis of fleet data supplied by the car club operators. Note that no car clubs which operate only in rural areas supplied data and are therefore not represented in the results.

8.1 Number of Car Club vehicles

Operators reported that at the end of October 2020 there were 575 car club vehicles operating in Scotland. This is comprised of 515 cars and 60 light commercial vehicles (vans).

As shown in the chart below, the number of cars has increased from 488 in 2019, but is still below the figure of 544 reported in 2017/18. The number of vans has remained roughly constant since the last survey.

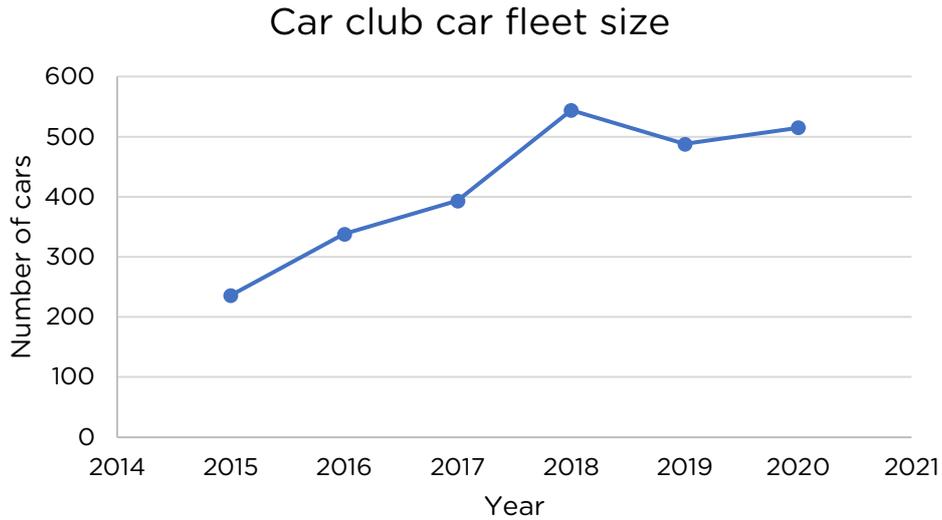


Figure 48 Car club fleet size

The chart below shows the variance in total vehicles in Scotland over the period in scope of this report (November 2019 to October 2020). It is based on dates provided by operators for when vehicles were added to and removed from the fleet. Note the y-axis of the chart does not start at zero.

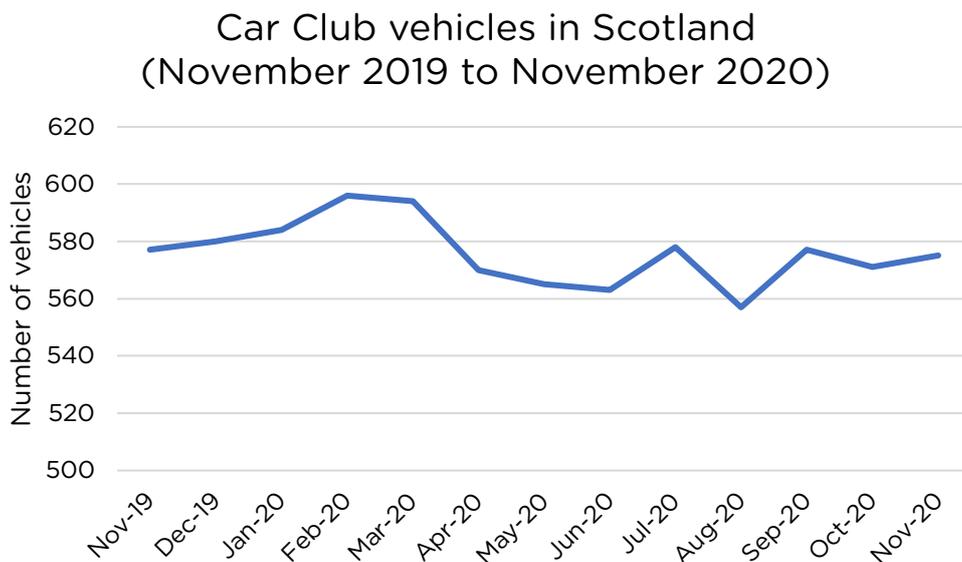


Figure 49 Car club fleet change

Car Club Annual Survey for Scotland

The number of car club vehicles reduced slightly between March and June, when restrictions to tackle Covid-19 were first in place, but have since recovered to the levels seen at the start of the survey period.

8.2 Vehicle Class and Segment

90% of the car club vehicles are cars and 10% of the vehicles are vans, as shown in the chart below. These proportions are in line with those reported in the previous survey (11% vans, 89% cars).

Vehicle numbers by class

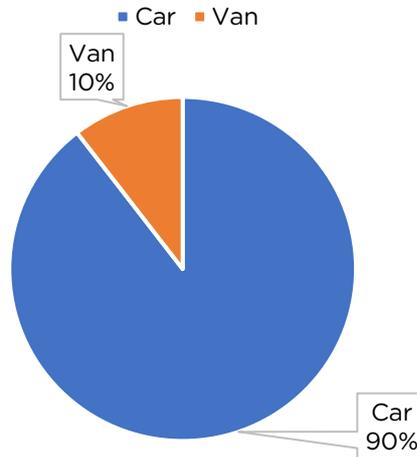


Figure 50 Vehicle number by class

Segmentation of the car fleet showed that 69% are small cars (e.g. Toyota Yaris, Vauxhall Corsa) and 30% are medium cars (e.g. Hyundai Ioniq, Nissan Leaf). This compares to the UK average¹⁴ of only 70% of cars being in these two segments. The full breakdown is shown in the chart below.

Car Fleet by Vehicle Segment

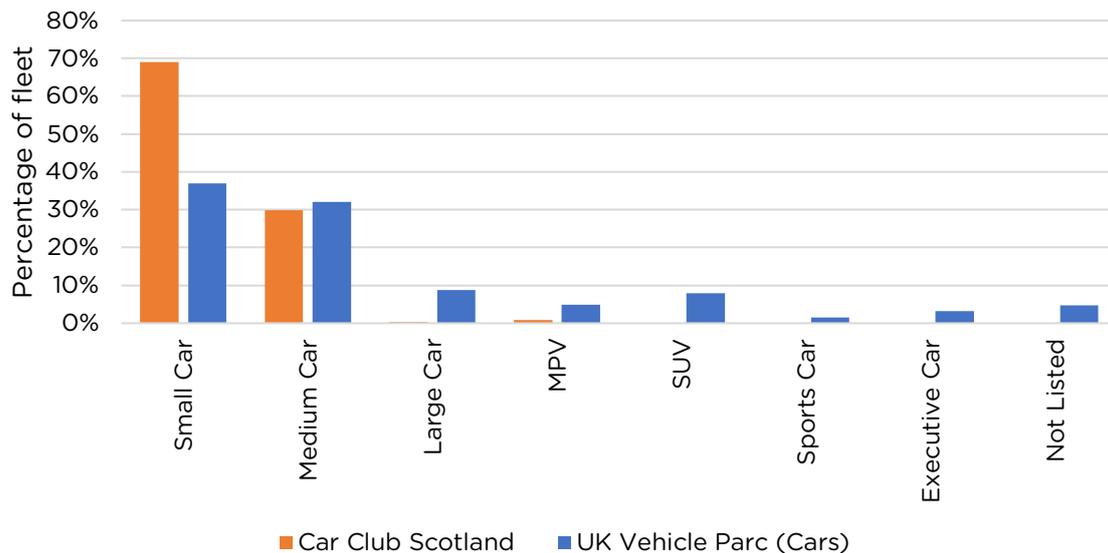


Figure 51 Car fleet by vehicle segment

¹⁴ We have used UK average figures for comparisons where Scotland-specific equivalents are not available.

Car Club Annual Survey for Scotland

Segmentation of the van fleet showed that 88% of the vans are medium vans (e.g. Volkswagen Transporter, Ford Transit Custom). By comparison, the UK van fleet is evenly split between small, medium, and large vans.

8.3 Total Mileage

The total distance covered by all car club vehicles in Scotland in 2019/20 was 2.5 million miles.

Total mileage has reduced by 40% since the 2019 survey, where the total distance was 4.2 million miles. This equates to a reduction of around 33% per member. However, this should be interpreted with caution; it is likely that the restrictions associated with Covid-19 in spring and summer 2020 significantly reduced demand during that period. The trend in vehicle numbers reported above and the findings of the members' survey reported earlier in this report suggest that demand is returning to pre-Covid-19 levels.

8.4 Fuel Type

The breakdown of the fleet by fuel type is shown in the charts below. The key points to note are:

- 40% of the car fleet is petrol powered.
- 41% are petrol hybrids.
- Over a sixth of the cars are pure EVs (18%). By comparison, less than 1% of cars in Scotland are pure EVs¹⁵.
- Since 2019 the total number of pure EVs in the car club fleet has increased by 27% (from 73 to 93) and the number of petrol hybrid cars has increased by 32% (from 151 to 211).
- The change in proportions of each type of car in the fleet has gone from 15% pure EV, 31% petrol hybrid and 48% petrol, to 18% pure EV, 41% petrol hybrid and 40% petrol.
- Almost all the vans are diesel powered: only 3% are pure EVs. This is still higher than the UK, where only 0.2% of vans are pure EVs¹⁶.

Car Fleet by Fuel Type

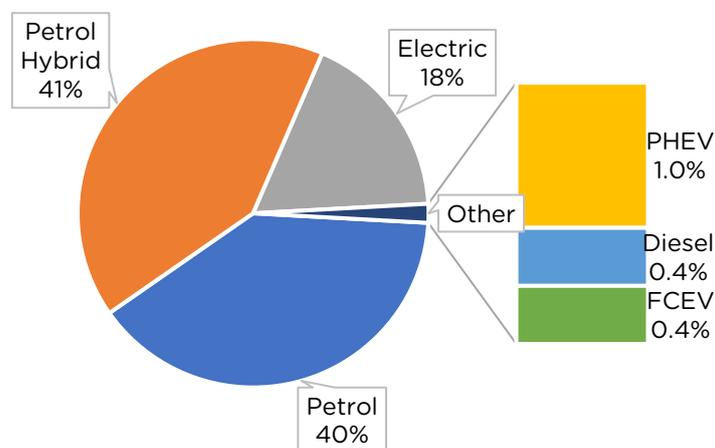


Figure 52 Car fleet by fuel type

¹⁵ Department for Transport, VEHO105 and VEHO132b.

¹⁶ Department for Transport, VEHO403

Van Fleet by Fuel Type

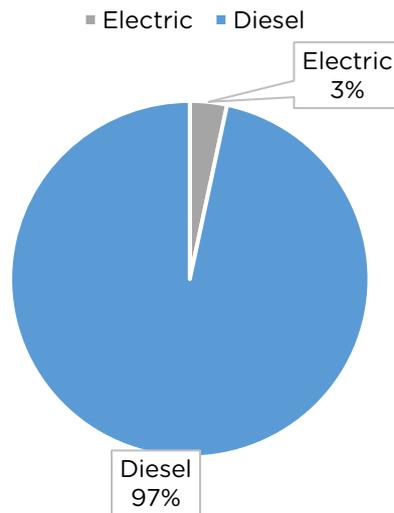


Figure 53 Van fleet by fuel type

8.5 Vehicle Age

The breakdown of the fleet by vehicle age is shown in the chart below. The key points to note are:

- Over two thirds of cars and vans are fewer than two years old.
- No cars and only 2% of the vans are aged five years or older.
- Car club cars have an average age of 1.4 years. Vans have an average age of 1.6 years.

Average vehicle age has reduced since the 2019 survey, where cars and vans were 2.3 and 1.9 years old on average, respectively. Vehicles are significantly newer than average UK cars and vans, both of which have an average age of 8.3 years^{17,18}.

Car and Van Fleet Age Distribution

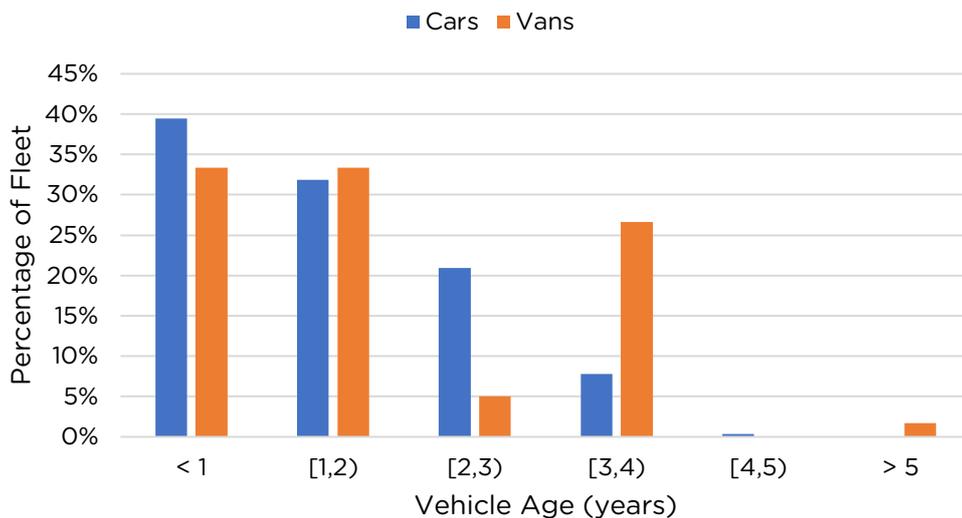


Figure 54 Car and van fleet age

¹⁷ Department for Transport, VEHO211

¹⁸ Department for Transport, VEHO411

8.6 Euro Standard

European Union emission regulations for new light duty vehicles, commonly known as Euro Standards, regulate tailpipe emissions including those associated with poor air quality (nitrogen oxides (NOx) and particulate matter). At the time of writing Euro 6 is the most stringent standard.

The breakdown of the fleet by Euro Standard is shown in the chart below. The key points to note are:

- 18% of the cars emit no tailpipe emissions as they are pure EVs.
- A further 82% of the cars are Euro 6 compliant; just two cars have Euro 5 petrol engines.
- All the vans are Euro 6 compliant diesels or pure EVs.

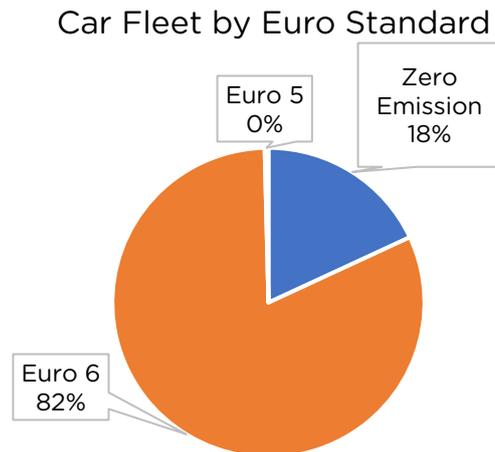


Figure 55 Car fleet by Euro standard

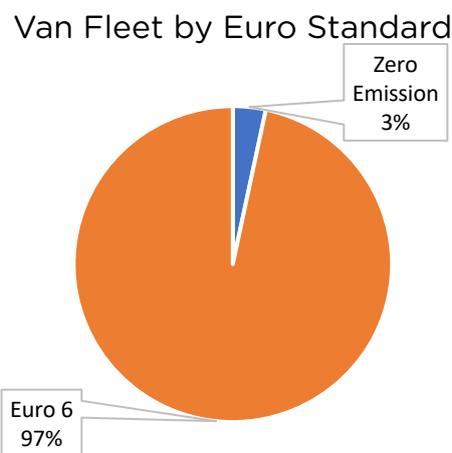


Figure 56 Van fleet by Euro standard

As a result, 100% of cars and vans are low emission zone (LEZ) compliant. This is an increase from 98% for cars and 87% for vans in 2019.

8.7 Euro NCAP Rating

Euro NCAP is a five-star safety rating system, against which all new vehicles must be tested.

The breakdown of the fleet by Euro NCP rating is shown in the chart below. The key point to note is that 99% of the cars achieve either a 5 star or 4 star rating.

Car Fleet by Euro NCAP Rating

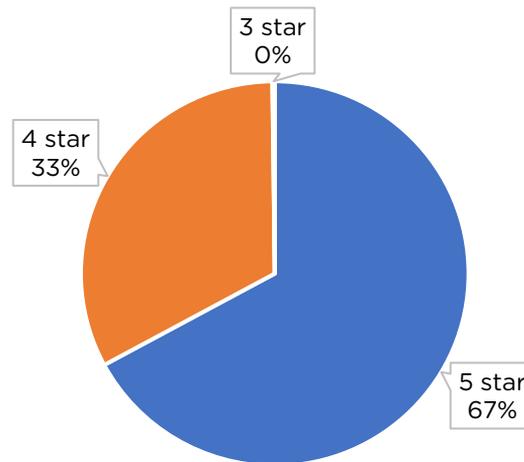


Figure 57 Car fleet by Euro NCAP rating

8.8 Greenhouse Gas Emissions

8.8.1 Intrinsic Emissions

The table compares the tailpipe emissions of car club vehicles in Scotland, car club vehicles in the UK, and the average UK vehicle. It shows that cars and vans in Scottish car clubs have significantly lower emissions than UK car clubs, due mainly to the relatively high proportion of pure EVs in the fleet.

- The average Scottish car club car has emissions which are 37% lower than the average car on the UK’s roads¹⁹.
- The average Scottish car club van has emissions which are 16% lower than the average van on the UK’s roads¹².

TTW gCO ₂ e/km	Scottish Car Club	UK Car Club ²⁰	Average UK vehicle	Scotland Car Club difference to average UK vehicle
Car	107.9	125.7	171.4	37%
Van	207.5	228.7	246.2	16%

Table 8 Tailpipe emissions of car club fleet

Vehicle Excise Duty (VED) first year rates vary according to the CO₂ emissions of the car. The distribution of vehicles across these bands is therefore a useful proxy for the emissions of a fleet.

¹⁹ This is the percentage difference between the average emissions of a car club vehicle and the emissions of an average UK car or van. Individual car club vehicle emissions were reported by the car club operators and the average calculated using the methodology detailed in the Appendix to this report. Average UK car/van emissions taken from UK Government greenhouse gas reporting conversion factors 2020, available at: <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020>.

²⁰ Whole of the UK car club fleet including Scotland.

Car Club Annual Survey for Scotland

The breakdown of Scottish car club cars²¹ and a comparison to all cars in the UK in 2019²² are shown in the chart below. The key points to note are:

- Scottish car clubs have significantly more pure EVs than the UK average, and far fewer highly emitting vehicles (>130 g/km CO₂). Over half the vehicles in the UK are in a VED band above 130 g/km CO₂.
- 21% of Scottish car club cars are ultra low emissions vehicles (ULEVs), which are defined as emitting less than 75 g CO₂/km, as opposed to just 1% of all vehicles on the road in the UK.

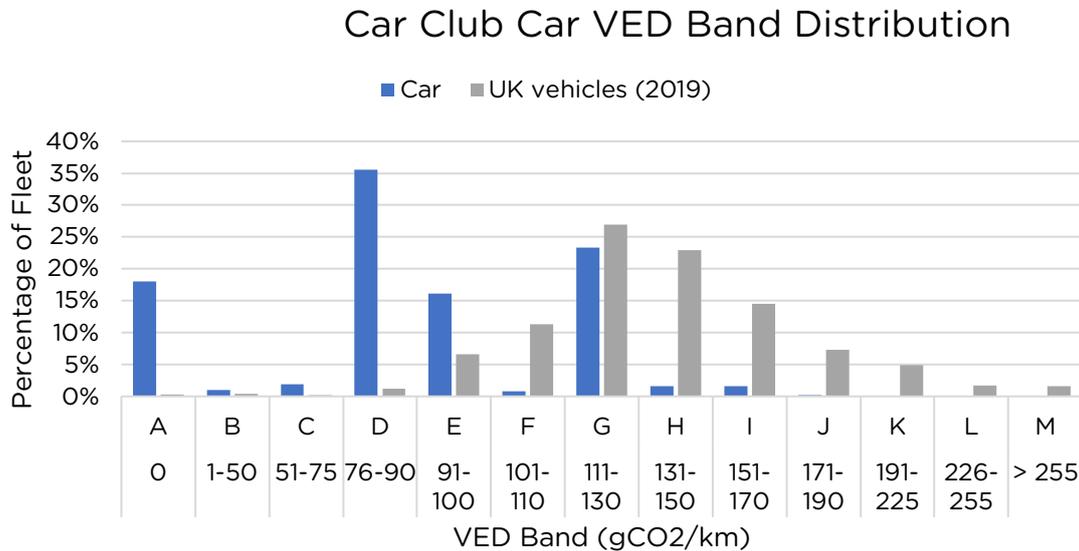


Figure 58 Car club VED band distribution

8.8.2 Total Emissions

Previous reports have taken varying approaches to reporting on greenhouse gas (GHG) emissions. We have estimated well-to-wheel (WTW) carbon dioxide equivalent (CO₂e) emissions, which is the standard that should be used for reporting purposes. WTW emissions include the emissions from producing, transporting, and combusting fuel and electricity.

- The WTW CO₂e emitted by the Scottish fleet is estimated to be 616 tonnes.
- Over the same distance, the average UK car and van would have emitted 885 tonnes WTW CO₂e.
- This represents a reduction of 30% or 269 tonnes CO₂e, assuming all car club journeys would otherwise have been undertaken by another vehicle²³.
- This saving is approximately the equivalent of removing 105 cars from the road for a year²⁴, or the lifetime CO₂e absorption of 600 trees.

²¹ VED for vans is not based on CO₂ emissions.

²² Department for Transport, VEH0206.

²³ This assumption is used to provide an indicate emissions saving. The members survey indicates that while 44% of journeys would either have been done by car or not at all, at least a quarter would have been done by public transport or active travel

²⁴ Numbers of cars removed from road calculated using average annual mileage for UK cars (7,400 miles/year from National Travel Survey 2019), reduction in emissions from driving more efficient car club vehicles, and average UK vehicle emissions from BEIS.

8.9 Air Pollutant Emissions

Poor air quality is the largest environmental risk to public health in the UK²⁵. The two largest components of urban air pollution are oxides of Nitrogen (NO_x) and Particulate Matter (PM). Real-world emissions of these pollutants from vehicles have been estimated using COPERT 5²⁶. COPERT outputs are not directly comparable with Euro Standard regulations, though the standards are incorporated in its assessment.

The breakdown of the fleet by estimated real-world pollutant emissions are shown in the charts below. The key points to note are:

- Scottish car club vehicles have average NO_x emissions of 0.03 g/km and 0.53 g/km for cars and vans respectively. These figures are 91% and 55% lower than the UK average (0.32 and 1.16 g/km)²⁷.
- PM emissions are also significantly lower than the UK average car and van, with car clubs achieving 74% and 91% reductions, respectively.

Car club vehicles have much lower air quality pollutant emissions than average UK vehicles for two reasons; there are far fewer diesel vehicles on the fleet and the vehicles are all much newer and so comply with the latest Euro standards.

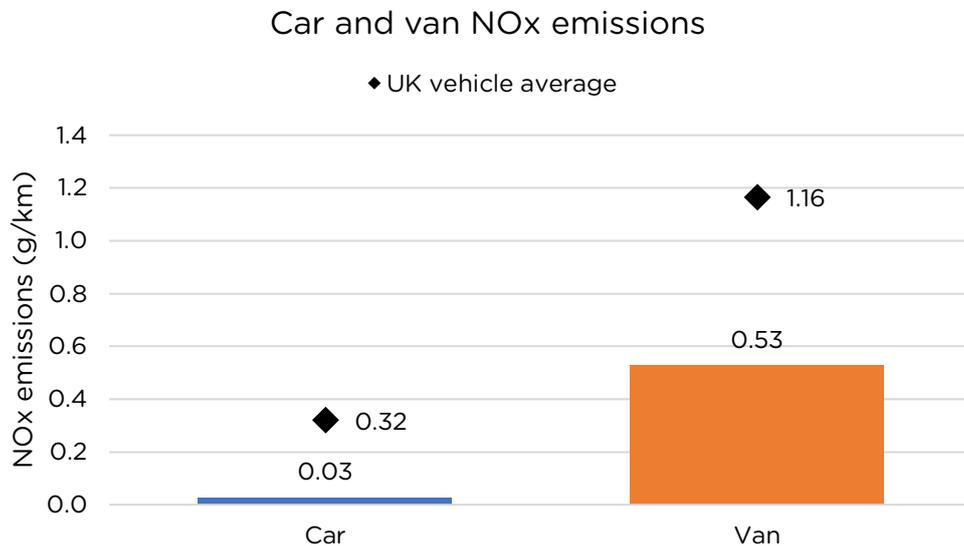


Figure 59 Car and van NO_x emissions

²⁵ PHE, <https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution>

²⁶ <https://copert.emisia.com/>

²⁷ NAEI, [Emission factors for transport - NAEI, UK \(beis.gov.uk\)](https://www.beis.gov.uk/emission-factors-for-transport)

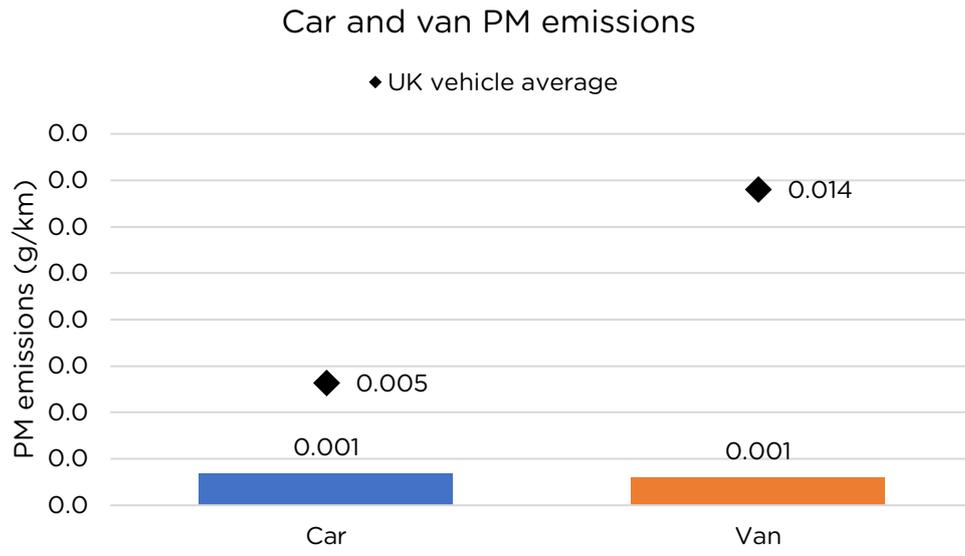


Figure 60 Car and van PM emissions

9 Case Study

9.1 Case Study: Liam, Edinburgh

Liam had been thinking about disposing of his car for a while, since paying for it was expensive and parking was a problem. He had moved to the centre of Edinburgh and no longer needed the car to get to work, being able to use public transport or the bike share scheme for most of his travel. After talking to a colleague who had been a member of the car club for a long time, he realised he could manage all his travel without owning his car. He was waiting until the resale value meant he would not be out of pocket and took the plunge in March 2020. He has no intention of replacing his car and is keen to remain free of car ownership.

His intention when joining was that he would use the car club about once a month/fortnight for large shopping trips and to visit his family who live 40 miles away outside of Edinburgh. He would be able to do this journey with public transport, but it would take a long time and they would need to pick him up from the station. He has a number of cars within five minutes' walk of where he lives, the longest he has had to walk for a vehicle was 20 minutes. Normally Liam books the car for a full day as this provides better value for money and he can complete a number of journeys.

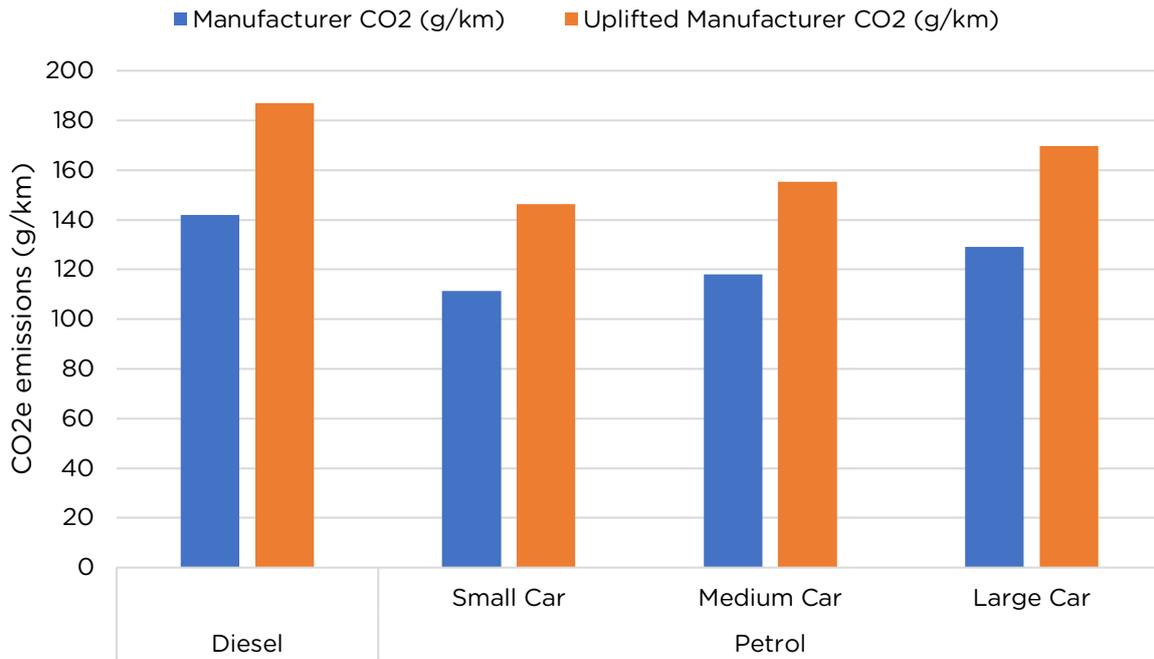
Because of the Covid-19 restrictions he used the vehicles less than his initial intention – partly due to the fact was that he was not allowed to visit friends and family and partly because it was more difficult to find cars available. Finding cars nearby is important to Liam and he likes trying out different types of car, especially when travelling out of the city and he can enjoy the drive.

10 Appendix

10.1 Carbon Emissions

The measured carbon dioxide equivalent²⁸ (CO₂e) emissions provided by vehicle manufacturers were uplifted to account for the difference between the measured emissions and the real-world emissions. The uplift factor is based on the year of registration and is provided by the Department for Business, Energy and Industrial Strategy (BEIS)^{29,30}. The difference between the manufacturer’s CO₂e emission factors and the uplifted CO₂e emission factors are shown in the chart below.

Average CO₂ emissions for each fuel type (Car and LCV)

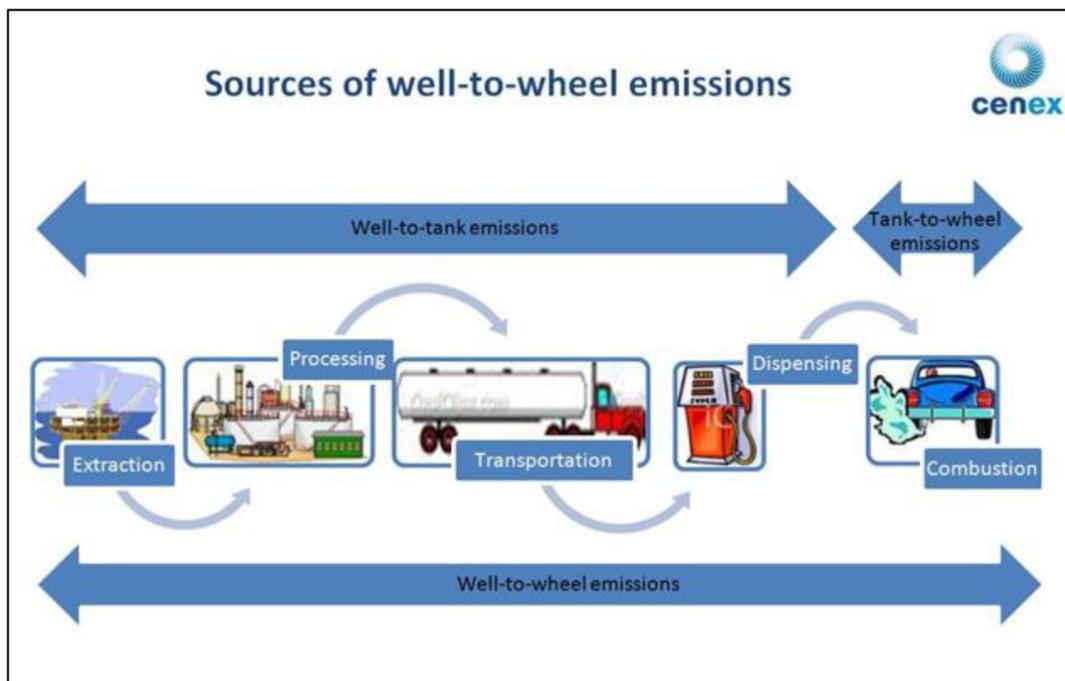


Both tailpipe and well-to-wheel (WTW) emissions are reported. Tailpipe emissions only consider the products from the combustion in the engine, while WTW emissions also account for, on top of the combustion, the extraction and processing of the fuel (or generation of electricity for electric vehicles) and its transportation/dispensing to the petrol station or chargepoint.

²⁸ CO₂e emissions is the equivalent amount of CO₂ in kg that accounts for all greenhouse gases emitted by vehicles: CO₂, methane and N₂O.

²⁹ BEIS, 2020 Government greenhouse gas conversion factors for company reporting: Methodology Paper for Conversion factors. [Greenhouse gas reporting: conversion factors 2020 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020)

³⁰ These uplifted emissions were compared against Cenex’s own independently measured emissions factors and good agreement was found. Cenex’s real world emissions are based on actual measurements and capture fuel type and vehicle segment but do not have the granularity of the manufacturer measured emissions that additionally account for different models and manufacture years. The uplifted emissions were used as they are provided for each specific make and model, hence providing more granularity than Cenex’s measurements (which are valid for generic vehicle types, e.g. small car).



10.2 Air Quality Emissions

Air quality emissions were calculated using the COPERT 5 tool³¹, which estimates the real-world air quality emissions of vehicles based on their size, fuel type and engine Euro Standard. The emissions given by the tool come from a database of test data held through the Joint Research Centre’s programme “European Research group for Mobile Emission Sources”. The emissions test data is typically derived from laboratory studies where vehicles are tested on a chassis dynamometer over different real-world drive cycles, but increasingly often from testing vehicles on the road using portable emission measurement systems (PEMS).

10.3 Low Emission Zone (LEZ) Compliance

Vehicles were deemed Low Emission Zone (LEZ) compliant if they met the following minimum emission standards:

- Euro 4 (or better) petrol or petrol hybrid engine.
- Euro 6 diesel engine.
- Zero tailpipe emission vehicle.

Many active and proposed zones in the UK require with these standards, for example the forthcoming Scottish LEZs.

³¹ <https://copert.emisia.com/>

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