KPMG

Trends in Scottish bus patronage

A REPORT FOR THE CONFEDERATION OF PASSENGER TRANSPORT SCOTLAND

September 2024

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1
Executive summary

1 Executive summary

1.1 Introduction

This report presents the findings of an analysis examining trends in bus use in Scotland. The study identifies and quantifies the impact of bus fares, service quality, and broader economic and societal factors influencing bus patronage.

The Confederation of Passenger Transport Scotland (CPT) commissioned this research, conducted by KPMG between May and September 2024. This follows a similar KPMG study conducted in 2017 analysing changes in bus use in Scotland between 2011 and 2016.[1]

Figure 1: Annual bus journeys by calendar year

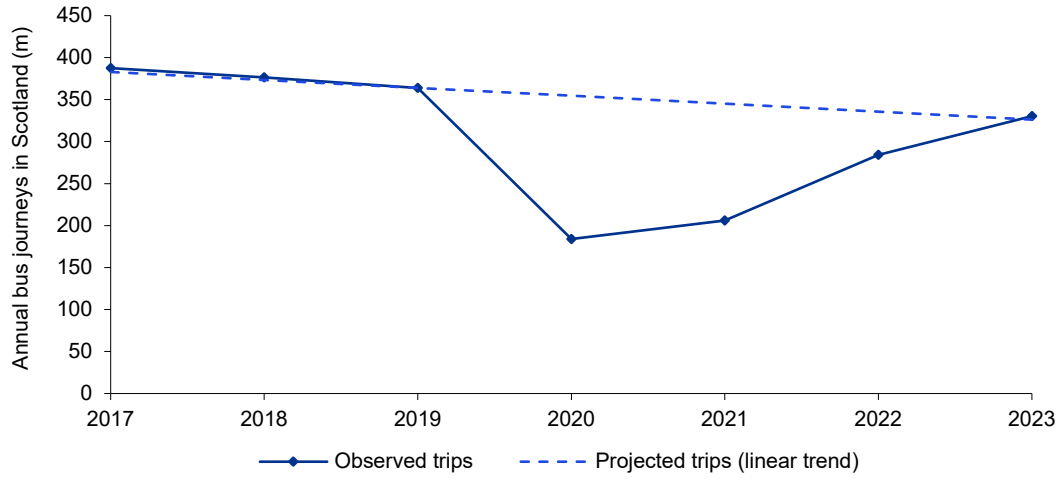
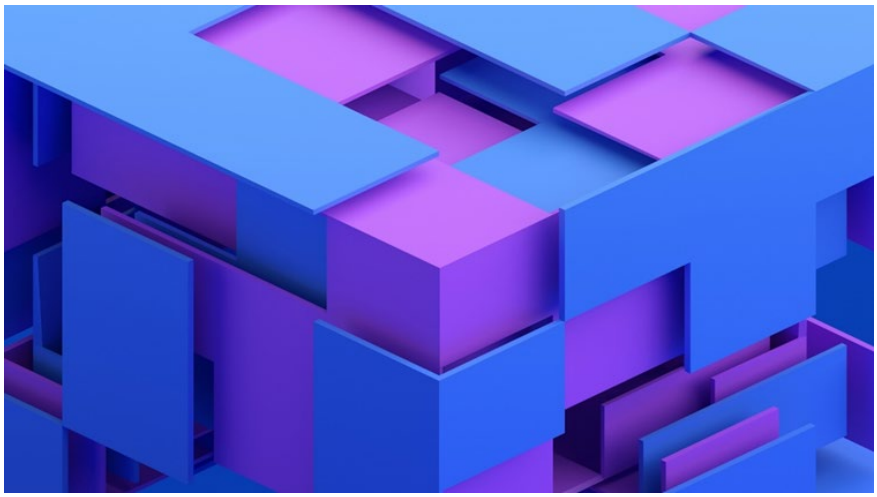


Figure 1 illustrates a pre-Covid decline in patronage. The Covid pandemic delivered a severe shock to the sector. Between 2019 and 2023, we observed a significant drop of 180 million trips in 2020, followed by a modest increase of 26 million journeys in 2021. However, a recovery began in 2022, with annual journeys increasing by 78 million and further by 46 million in 2023. Based on a simple trend analysis, 2023 patronage levels are where they would have been expected to be without the impact of Covid.



[1] Trends in Scottish bus patronage. KPMG report for the Confederation of Passenger Transport (Scotland). November 2017.

1.2 Drivers of demand

Figure 2 shows the impact of a range of factors on bus use, with separate estimates shown for the period before Covid (2017-2019) and the period 'during and after' Covid (2019-2023).

Figure 2: Influences on bus use

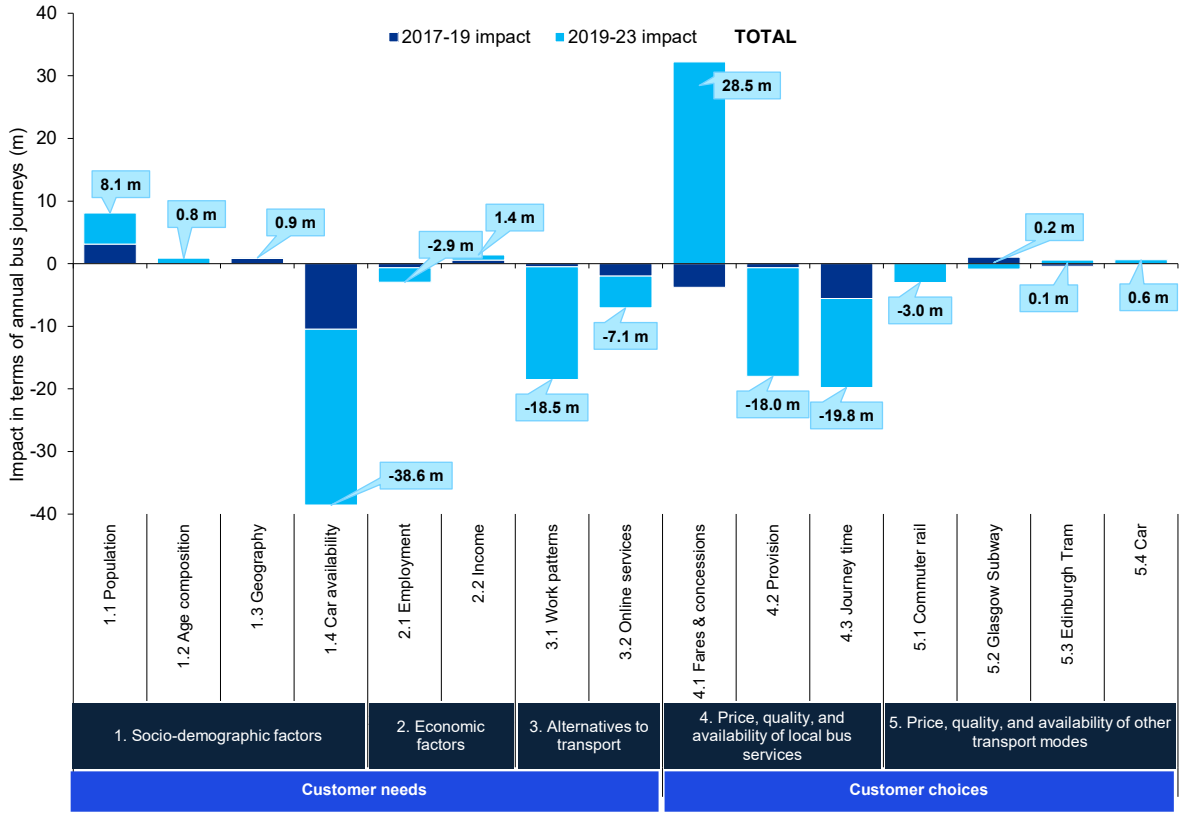


Figure 2 illustrates the impact of 15 demand drivers, grouped into five themes:

Theme 1: Socio-demographic Factors

Changing socio-demographics contributed to a 29 million fewer annual bus trips. While population growth generated 8.1 million additional trips, increased car ownership and driving licenses offset this increase. Competition from cars has historically been, and remains, the primary negative influence on bus use. In total, socio-demographic factors account for 43% of the decline.

Theme 2: Economic Factors

Changes in employment and household income had limited direct impacts on bus use, although they influenced household car ownership. Overall, we estimate that changing economic factors led to 1.5 million fewer annual bus trips, representing 2% of the total demand change.

Theme 3: Alternatives to Transport

Alternatives like remote work and online shopping contributed to 26 million fewer annual bus trips. While both factors had some pre-pandemic impact, their significant growth during the pandemic accounted for 38% of the overall trip reduction.

Theme 4: Price, Quality, and Availability of Local Bus Services

Changes in pricing, quality, and service availability resulted in 9 million fewer bus trips (14% of the total). This includes 18 million fewer trips due to reduced service kilometres and 20 million fewer trips due to increased journey times from highway congestion. These were partially offset by 29 million more trips due to reduced fares and expanded concessionary travel.

Theme 5: Other Transport Modes

Changes in other transport modes, primarily rail services, led to the abstraction of 2 million trips from bus (3% of the total).

It is important to note that there are other factors that influence demand outside of the five themes above, including the disruption due to Covid and continued recovery of the market from that period. These are discussed in Section 5.8.

1.3 Looking ahead

The bus sector in Scotland, and across Britain, faces significant challenges due to evolving transport needs and increasing competition from private vehicles. These trends are likely to continue reducing bus patronage, intensifying financial pressures on operators. To achieve long-term patronage growth, substantial changes are necessary. However, there are near-term and longer-term measures that can significantly enhance the customer proposition.

The analysis reported here shows only a small portion of demand drivers are within direct operator control. Even then, factors such as fares, service provision, and journey times are influenced by external conditions like operating costs, demand levels, and traffic congestion.

To increase bus use, operators and authorities can learn from successful local markets that have adopted proactive approaches. Strong partnerships between local authorities and operators, focusing on the economic, social, and environmental benefits of good bus services, can be instrumental.

Customer surveys consistently indicate a preference for convenience, reliability, and value. In the short term, traditional policy measures like infrastructure investment, parking management, and integrated land-use planning remain priorities. Greater industry coordination and joint initiatives, such as multi-modal ticketing, are essential, especially in urban areas where buses offer convenience, cost-effectiveness, and economic benefits.

Local bus services have a substantial economic and social impact. A recent KPMG report for CPT[2] highlights the sector's economic contribution to Scotland including:

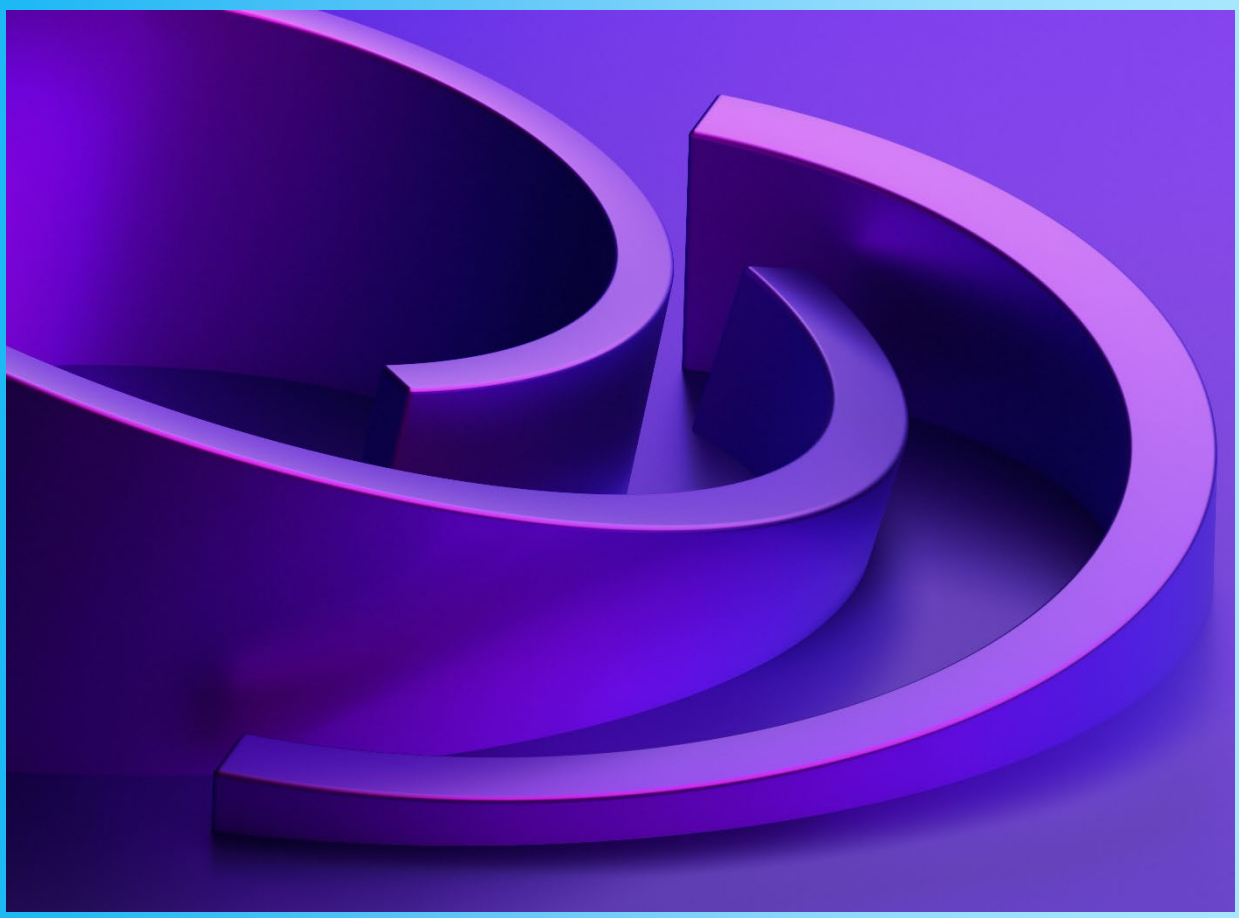
- Employment: Approximately 7,000 people are employed in the sector, generating £300 million in tax revenue, wages, and profits.
- Economic Benefits: Bus services in Scotland generate £1,385 million annually, including improved access to jobs, education, and healthcare, reduced congestion, and lower carbon emissions.
- Passenger Spending: Bus passengers contribute significantly to local economies, spending £2,960 million annually, including £570 million in additional high street spending.

Achieving a near-term transformation in bus patronage is unlikely through a single measure. A concerted effort is needed to reduce journey times, increase reliability, improve affordability, and leverage technology for enhanced customer information and engagement.

Stakeholders should explore ways for operators, technology firms, and local authorities to collaborate and address challenges. This includes fostering innovation, improving infrastructure asset management, and implementing supportive land-use and transport planning policies that align with Scotland's evolving economic and social needs.

[2] The economic impact of local bus services. KPMG report for the Confederation of Passenger Transport. September 2024

2 Introduction



2 Introduction

2.1 Study objectives

The objective of this study is to produce a detailed market analysis of the drivers of local bus patronage in Scotland, including identifying broader economic and societal changes that are impacting on bus use.

In developing an understanding of the relative importance of historical demand drivers and by considering how these drivers could change in the future, the analysis provides insights to inform policy-making and commercial decision-making.

The work was commissioned by The Confederation of Passenger Transport Scotland (CPT) and undertaken by KPMG LLP between May and September 2024. This follows a similar piece of work undertaken by KPMG in 2017 looking at changes in bus use in Scotland between 2011 and 2016.[3]

2.2 Scope of work

The scope of our work includes the following activities:

- Review of observable trends in bus use across geographical markets between 2017 and 2023 across Scotland.
- Identify and outline a list of potential demand drivers and appraise the relationships between potential demand drivers and passenger needs and choices.
- Specify an analytical framework to quantify the strength of the relationship between potential demand drivers and bus patronage and undertake statistical analysis of passenger choices and market trends to quantify the impact of potential demand drivers on bus patronage.

2.3 Structure of this report

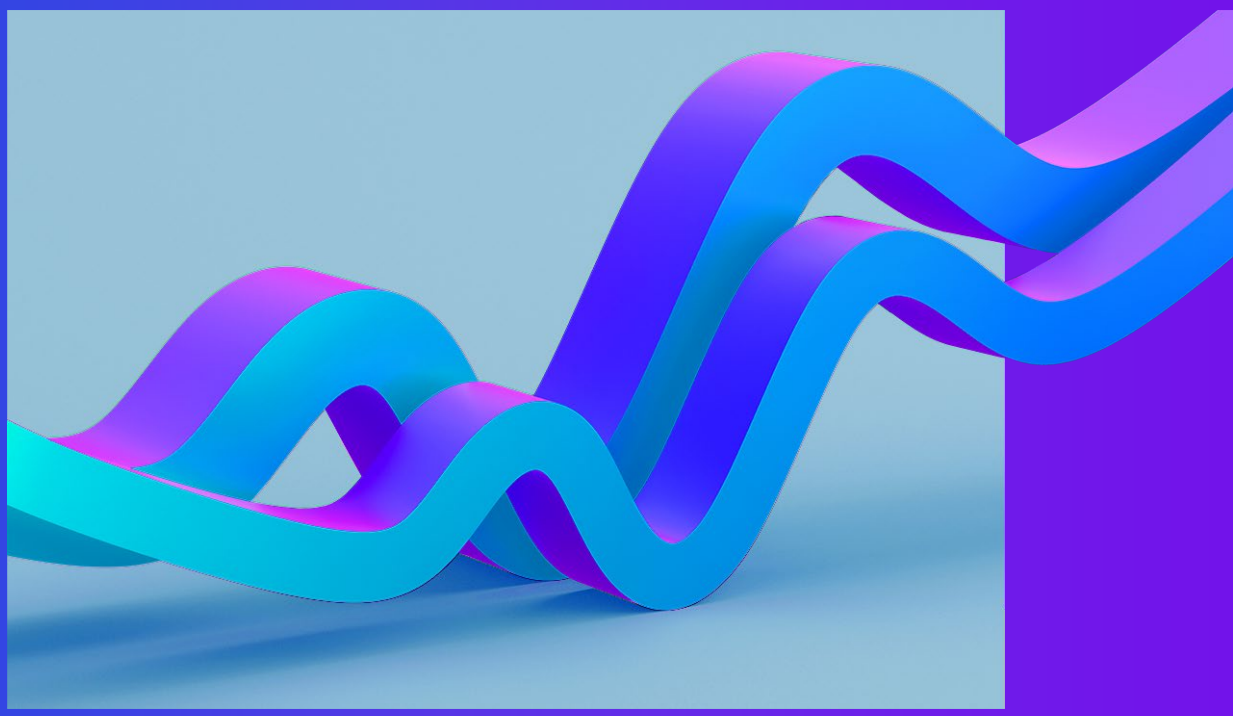
This report is structured as follows:

- **Section 3** provides the context for the work, highlighting trends in the use of local bus services in Scotland and across different markets, linking this to wider observed travel trends.
- **Section 4** describes market trends and disruptors as well as a framework to consider the relative importance of alternative drivers of demand.
- **Section 5** discusses each of the drivers of demand, grouped under themes to represent changing transport needs and choices and sets out the results of our analysis. Additionally, it provides a discussion of other potential drivers of demand.
- **Section 6** provides a comparison of the analysis presented here with that developed by KPMG for CPT in 2017.
- **Section 7** concludes with a discussion of the implications of the analysis.

Note on figures: For the purposes of this analysis and report we have used data from various sources, some of which are reported over a fiscal year (April to March) and other reported over a calendar year (January to December). We are undertaking all the work using calendar years as the time unit. As such, any data that was originally collected by fiscal year is converted to calendar years.

[3] Trends in Scottish bus patronage: Report to the Confederation of Passenger Transport (Scotland). November 2017.

3
Context



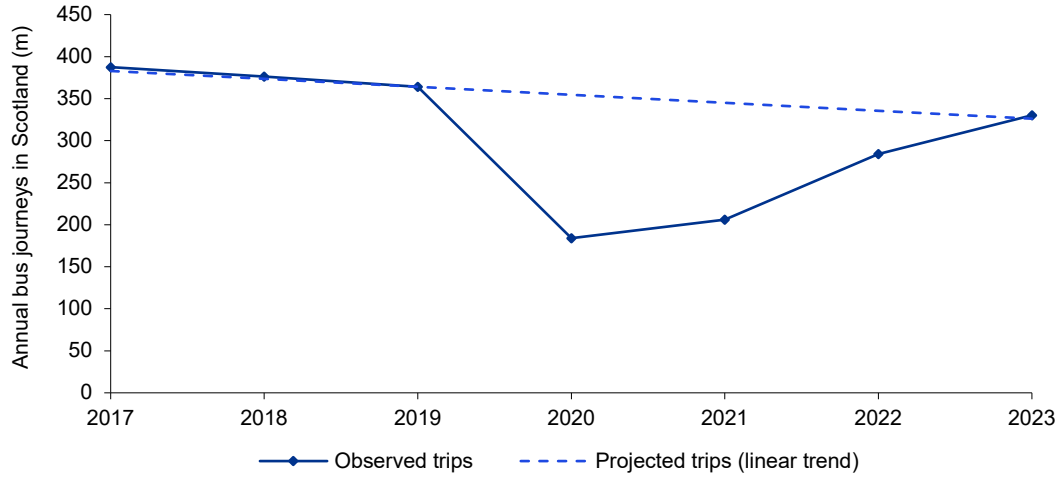
3 Context

3.1 General context

Over the six years that this study focuses on, the historical data shows a decline in bus patronage in Scotland. This section will explore and describe the decline, providing context for the analysis behind its causes, which is presented in subsequent sections. All data in this section is sourced from public releases, except some 2023 data, which is based on an estimate provided by Scottish bus operators.

Figure 3 shows a count of bus trips on local services in Scotland.

Figure 3: Local bus journeys in Scotland



We observe two major trends:

1 The period 2017-19, which can also be viewed as pre-Covid, shows a decline in patronage. Figure 3 also provides a long-term linear trend based on observations over a decade. Over the course of the 2 years, annual journeys dropped from 387 to 364 million, a drop of 23 million or 6%.

2 Covid brought a sudden and significant shock to the sector. Over the period 2019-23 we observe: first a large drop of 180 million trips in 2020, followed by an almost equally bad year in 2021 with an increase of just 26 million journeys, followed then by a recovery in 2022 with annual journeys going up by 78 million and a further 46 million in 2023.

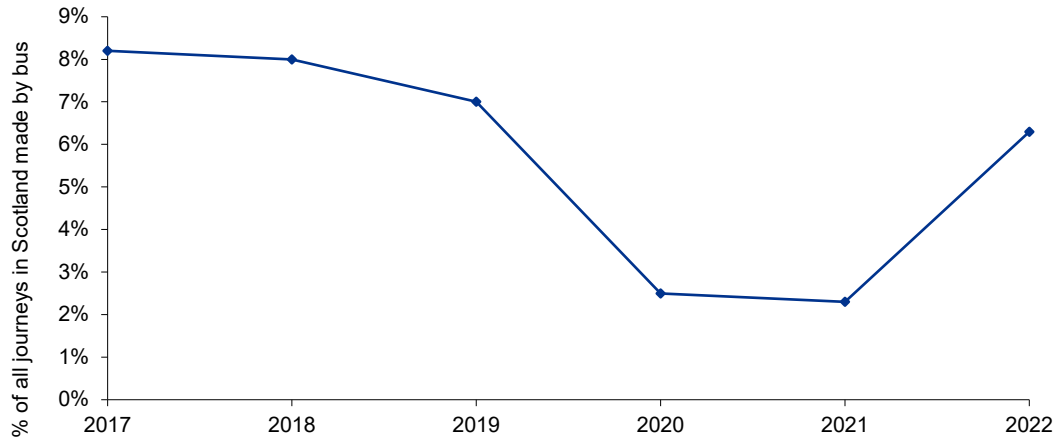
By 2023, annual journeys numbering 330 million were:

- 57 million or 15% below the 2017 level,
- 34 million or 9% below the 2019 level, and
- 4 million or 1% above where the count could have been if the long-term trend had been preserved (i.e., without Covid).

Based on this trend analysis, 2023 patronage levels are where they would have been expected to be without the impacts of Covid; it is too early to tell though whether this is a reversion to the long-term trend, or the beginning of a new trend.

The trend in the share of all trips made by bus is shown in Figure 4.

Figure 4: Bus modal share

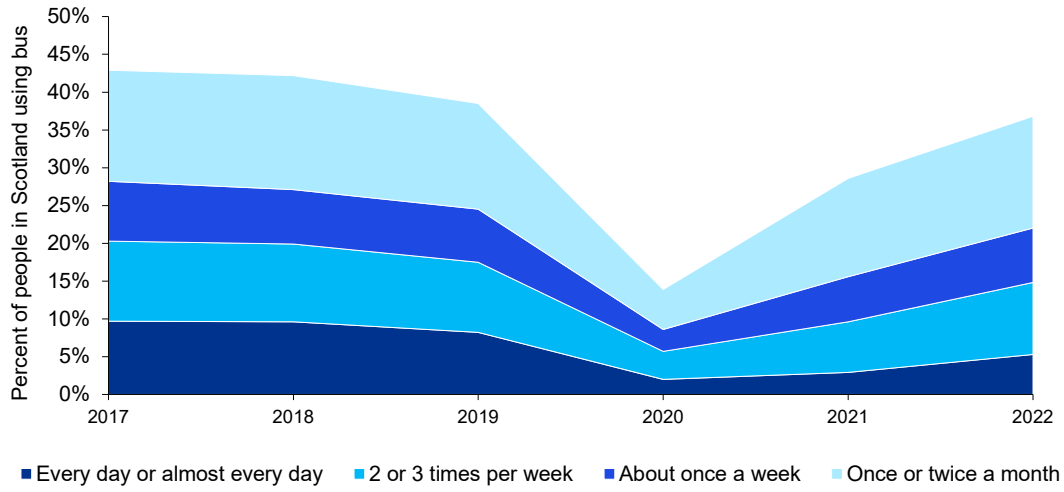


Over the period 2017-19, the share declined from 8.2% to 7.0%, in a similar fashion to the decline in total journeys.

Over the period of the pandemic, in 2020 and 2021, the share was very low, as people avoided the use of public transport. Post-pandemic we observe a recovery, with the share going up to 6.3% in 2022. This appears to be roughly back on the pre-pandemic trend.

Finally, a similar story arises from observing frequency of bus use, as shown in Figure 5.

Figure 5: Frequency of bus use[4]



3.2 Comparisons

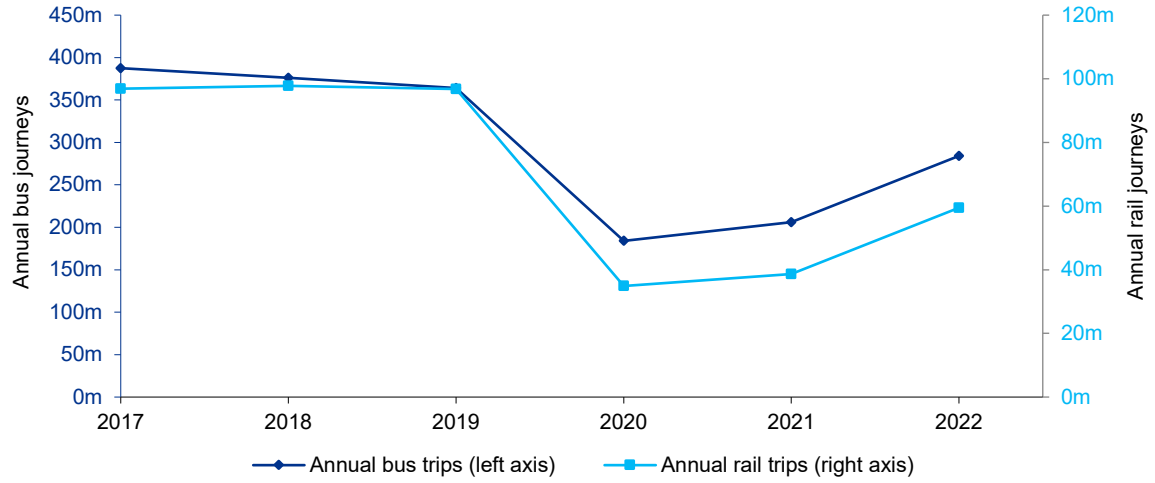
While the section above shows a stand-alone view of Scottish bus sector trends, it is also useful to compare trends against other sectors and geographies.

3.2.1 Comparing bus with rail in Scotland

Figure 6 below shows relative changes over time for patronage in the bus and rail sector in Scotland.

[4] Remainder to 100% have not used buses in past month.

Figure 6: Bus and rail journeys in Scotland

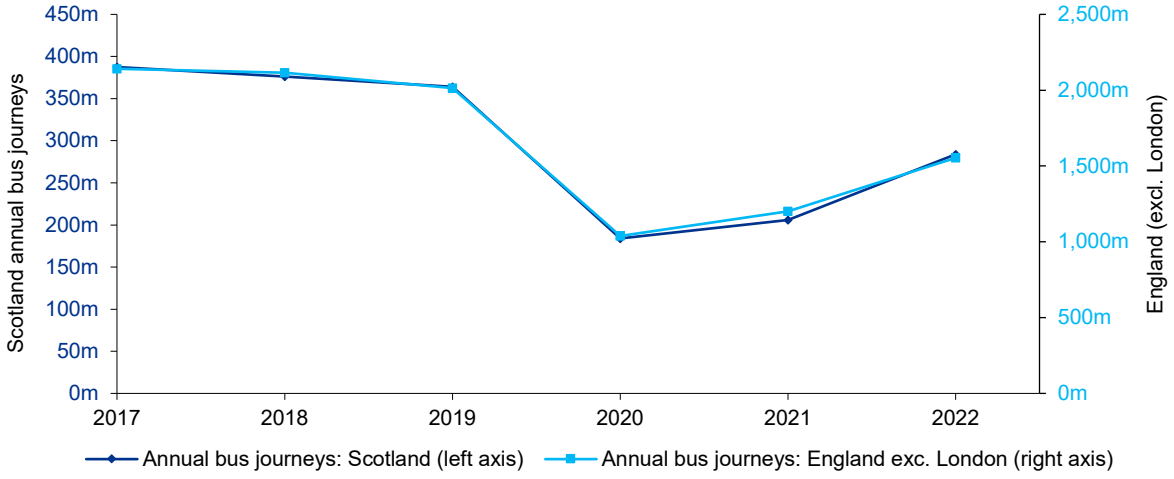


Pre-pandemic rail journeys did not exhibit the same declining trend as bus. When Covid hit, rail was affected more strongly, exhibiting a larger decline in patronage. The post-pandemic recovery also appears stronger for bus, which in 2022 was closer to 2019 levels than rail was.

3.2.2 Comparing bus in Scotland and England

Additionally, to understand whether the observed trends are specific to Scotland, we also compared bus patronage with that in England. We are excluding London to get a better like-for-like comparison.

Figure 7: Bus journeys in Scotland and England

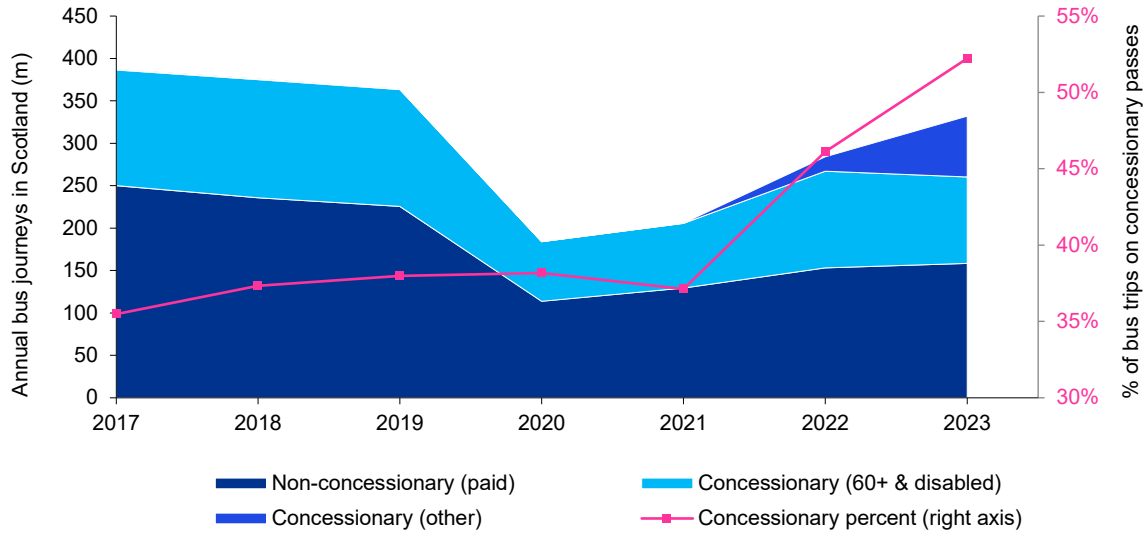


The observed trends appear very similar. This suggests that the issues facing the bus sector are not specific to Scotland.

3.2.3 Concessionary tickets

Finally, we compared bus use trends by ticket type: either journeys made on non-concessionary tickets, or journeys made using concessionary passes.

Figure 8: Annual bus journeys in Scotland by ticket type



Between 2017-19, journeys on non-concessionary tickets dropped by 10%. By comparison, concessionary trips rose by 0.5%. The Covid drop was similar in relative magnitude between the two ticket types, dropping by about half from the 2019 level, but in 2022 and 2023 the number of concessionary journeys increased (driven in part by a new under 22 free bus travel scheme). These relative trends also mean that the proportion of trips made using concessionary passes has increased over the years and, according to latest data, concessionary trips make up a little over half of total trips on Scottish local buses.

Prior to 2022, the bulk of the concessionary journeys were on the Older and Disabled Persons Scheme. A young persons' free bus travel scheme for under 22s was introduced in 2022.

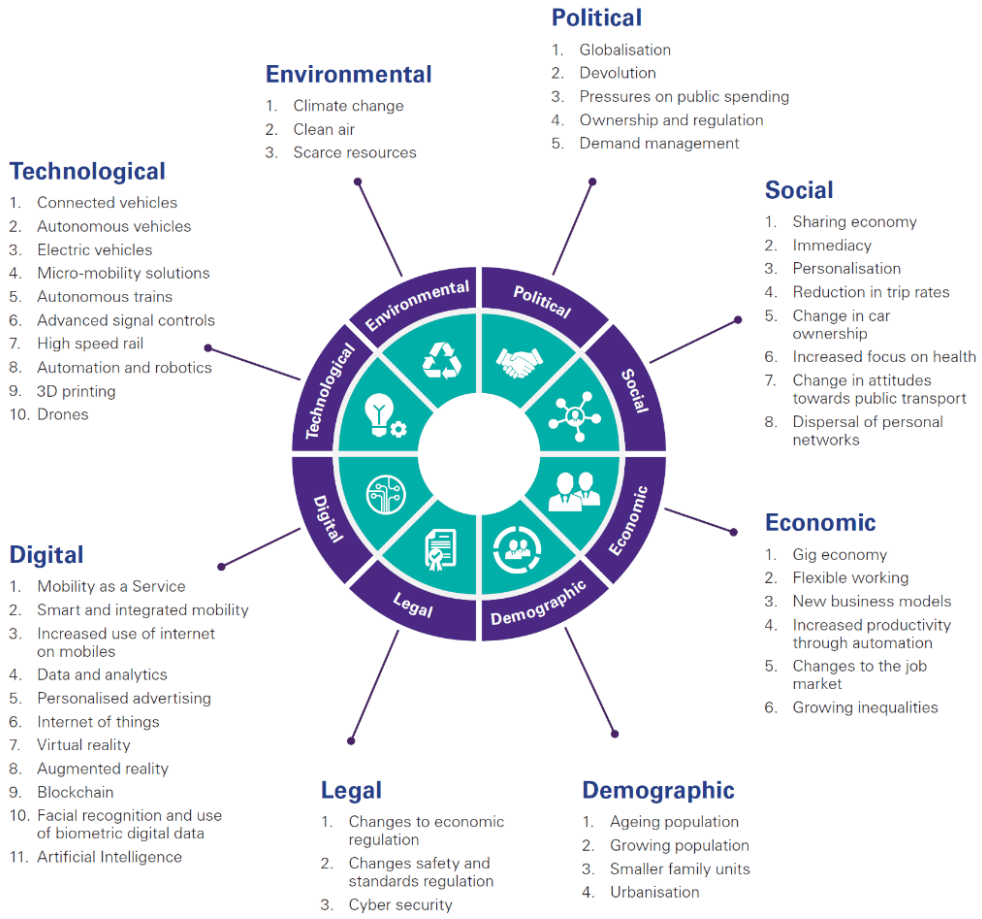
4
Analytical framework

4 Analytical framework

4.1 Market trends and disruptors

The bus sector functions as part of the wider environment and is thus affected by a multitude of market trends and disruptors. Some of these trends and disruptors impact on the need to travel, either positively or negatively, and some influence the price, quality, and availability of alternative transport modes. The long list of impacts in Figure 9 includes demand drivers that have historically impacted on local bus services together with those that have the potential to impact services in the near- and longer-term future. The list is structured under political, social, economic, demographic, legal, digital, technological, and environmental categories.

Figure 9: Market trends and disruptors



4.2 Transport needs and choices

Given the complexity and interaction between trends and disruptors it is difficult to consider each in isolation and therefore we think it is more appropriate to consider and group trends and disruptors in terms of their impact on market outcomes and in particular the potential impact on the demand for travel and passenger choice between modes. We have identified five key themes to reflect possible outcomes as follows. These themes can be considered as impacting on transport needs and transport choices, where transport needs reflect the underlying reasons to travel, i.e., to participate in various economic and social activities, and transport choices reflect the relative attractiveness of alternative modes of travel.

4.2.1 Analytical framework

The analysis is undertaken across demand drivers based on the classification between **passenger needs** and **passenger choices**. Within these, five themes are formulated which encompass different types of quantifiable demand drivers: socio-demographic factors, economic factors, alternatives to transport, along with the price, quality, availability of bus services and of other transport modes respectively.

Two types of models are used:

1 **Trip rate models**: These are based on determining how the amount of bus trips undertaken varies between groups of people (e.g., by employment status). Then, applying the change in composition of population across these groups and studying the change in total modelled trips allows us to understand the impact of external changes. Econometric techniques are used to disentangle effects that may overlap, the data set for which is the Scottish Household Survey (SHS).

2 **Elasticity models**: These are based on applying an elasticity to volumes of trips along with a change in a measure that normally affects bus patronage (e.g., fares). Elasticities are obtained from published research.

Table 1: Analytical framework

	Theme	Drivers	Variables	Modelling
Passenger needs	1 - Socio-demographic factors	1.1 Population	• Population	Elasticity
		1.2 Age composition	• Age groups	Trip rates
		1.3 Geography	• Local authority groups	Trip rates
		1.4 Car availability	• Car availability groups • Driving licence	Trip rates
	2 - Economic factors	2.1 Employment	• Economic activity groups	Trip rates
		2.2 Income	• Real income	Trip rates
	3 - Alternatives to transport	3.1 Work patterns	• Works from home in main job	Trip rates
		3.2 Online services	• Online retail percent	Elasticity
Passenger choices	4 - Price, quality, and availability of local bus services	4.1 Fares & concession	• Bus fares index	Elasticity
		4.2 Provision	• Bus vehicle km	Elasticity
		4.3 Journey time	• Bus journey time	Elasticity
	5 - Price, quality, and availability of other transport modes	5.1 Commuter rail	• Rail component of RPI • Scotrail vehicle km	Elasticity
		5.2 Glasgow Subway	• Vehicle km • Average yield	Elasticity
		5.3 Edinburgh Tram	• Vehicle km • Average yield	Elasticity
		5.4 Car	• Motoring component of RPI	Elasticity

With this framework we can obtain individual effects related to each of the formulated demand drivers. The calculated impacts are ***everything else equal***, i.e., what would be the change in trips if only this driver had changed and everything else remained unchanged. This allows us to attribute changes in patronage between the different drivers, but it is unlikely only one external factor would ever change at a time.

The trip rate analysis requires a series of long-term data, covering a period which returns relevant and robust statistical patterns. We therefore chose to use data going back to 2013.

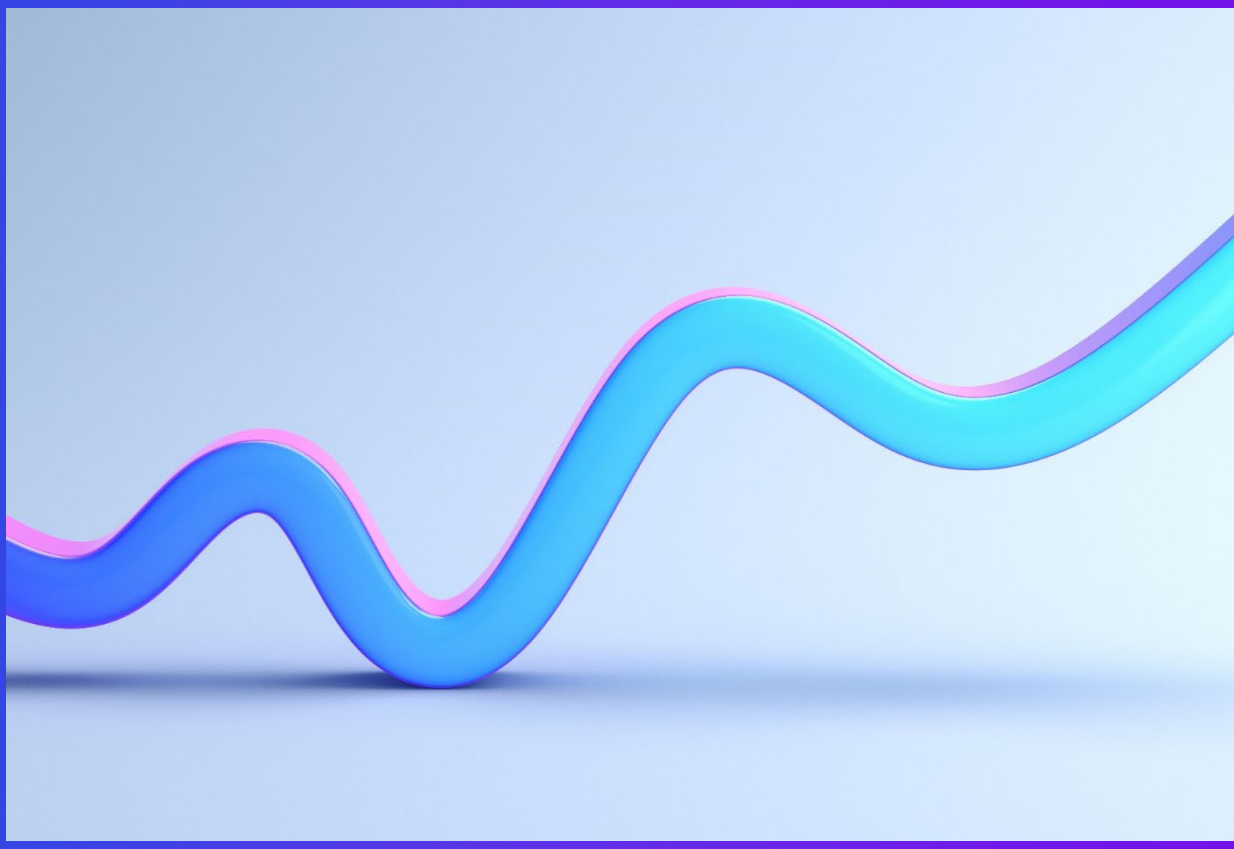
The analysis related to each demand driver is done in stages which reflect both our long-term analytical approach and the distinction between the trends visible pre-pandemic comparing to during and after the pandemic. All impacts are calculated relative to a 2013 baseline and explain the change in demand from 2013 to a given year by the change in drivers between 2013 and that year. As such, the impacts are calculated as follows:

- First:
  - 2013-17 impact calculated through the framework in Table 1.
  - 2013-19 impact calculated through the framework in Table 1.
  - 2013-23 impact calculated through the framework in Table 1.
- Second:
  - 2017-19 impact calculated as the difference between the 2013-17 and 2013-19 outputs.
  - 2019-23 impact calculated as the difference between the 2013-19 and 2013-23 outputs.
  - Total 2017-23 impact calculated as the sum of the previous two outputs.

Note on the analysis: The SHS travel diary, detailing the journeys undertaken by respondents, is only completed by individual aged 16 or older. We therefore undertake the analysis using external factors as experienced by these individuals but apply it to the full quantum of annual trips.

In terms of predictive performance, our model tends to do better over the long run. Originally calibrated to the 2013-19 period to reflect long-term changes in circumstances external to the sector without the one-time shock of Covid, the model prediction is very close to the observed data for the 2013-19 patronage change calculation. The period after 2019 is more complex, with Covid and subsequent recovery, cost-of-living crisis, introduction of new concessionary tickets, among other confounding factors. This means that passengers have more complex decision patterns, making their behaviour less conducive to modelling, particularly in times of transition between paradigms.

5
Drivers of change



5 Drivers of change

5.1 Introduction

This section will provide a discussion of the drivers of change behind the observed reduction in demand over the period of the study and present the findings of our analytical work. The contents of the section are as follows:

- A run-through of each of the quantifiable demand driver categories, as listed out in Table 1, each laid out in its own subsection. Each subsection in turn provides:
  - A discussion of the context, looking at the evolution of the demand drivers over the period of the study. While the 2017-19 period represents, in most cases, a short segment of a longer trend, pre-2017 trends were treated in detail in the 2017 report. Here we focus on changes observed since that year.
  - A presentation and discussion of the results of our analysis. Each subsection will contain a summary of the underlying statistical pattern that relates bus demand to the driver, the observed change in the driver, and the resulting impact obtained when applying the statistical pattern to the observed change in the driver.
- A discussion of other potential demand drivers which may affect demand, but which are likely to have a small impact, and which cannot be directly quantified.

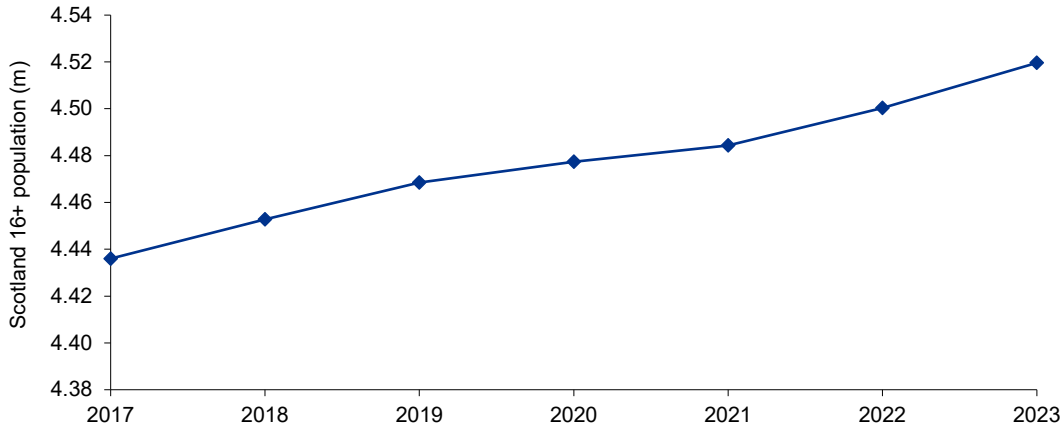
5.2: Theme 1. Socio- demographic factors

5.2.1 Population

Context

The Scottish population has been increasing steadily, at roughly 0.4% per year, with a brief exception during the Covid period, when population growth slowed down but did not stop. In total, the adult population of Scotland in 2023 was 84,000 above the 2017 count, or 2% higher.

Figure 10: Population



Analysis

Table 2: Population impact analysis

Statistical Patterns	Observed Data
All else equal, we expect bus trips to change **proportionally** with **population**.	The adult **population** in Scotland has seen the following change:

	2017	2019	2023
16+ population	4.44 m	4.47 m	4.52 m

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of **population** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 3.1 million more** annual bus trips.
- Over the period **2019-2023: 5.0 million more** annual bus trips.
- In total, over the period **2017-2023: 8.1 million more** annual bus trips.

In the absence of any other changes, we expect growth in population to be directly reflected as a proportional growth in bus demand. This refers to overall population; the impact of various subgroups experiencing different demographic patterns is explored under the other socio-demographic factors.

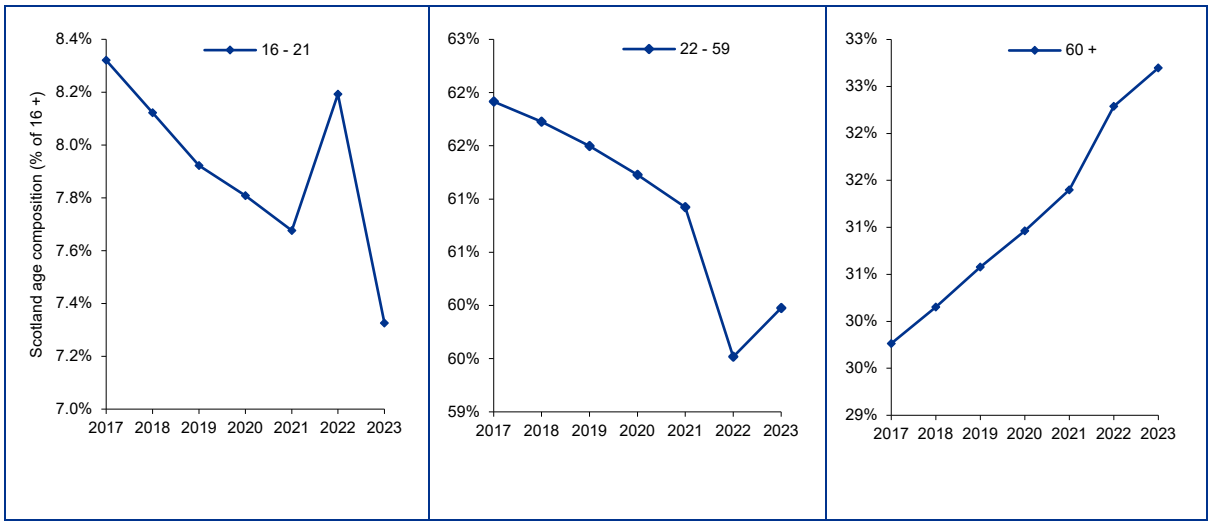
This driver exhibits a relatively large positive impact on demand – with a net six-year impact of 8.1 million journeys.

5.2.2 Age composition

Context

As people of different ages have different needs and opportunities for travelling, the distribution of the population between ages will have an impact on bus demand. For analytical purposes, we reduced the age distribution to a small number of age groups, settling finally on 16-21, 22-59, and 60 or older (shown in separate charts in Figure 11 so that small changes are visible).

Figure 11: Age composition



Analysis

Table 3: Age composition impact analysis

Statistical Patterns	Observed Data
All else equal, compared to individuals in the age range **22-59**: • Individuals in the age range **16-21** are expected to make **105% more** bus trips. • Individuals in the age range **60+** are expected to make **42% more** bus trips.	The adult population composition by **age range** has changed in the following ways:

	2017	2019	2023
16-21	8.3%	7.9%	7.3%
22-59	61.9%	61.5%	60.0%
60+	29.8%	30.6%	32.7%

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of **demographic structure** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 0.1 million fewer** annual bus trips.
- Over the period **2019-2023: 0.9 million more** annual bus trips.
- In total, over the period **2017-2023: 0.8 million more** annual bus trips.

Both the young (16-21) and old (60+) categories have greater trip rates than the reference category (22-59), with young people having the greatest rate. This is *all else equal* and does not include other effects such as young people having lower employment or less access to cars or being covered by concessionary schemes, which are captured under different variables.

We observe a drop in the share of young people, leading to a drop in trips, and a rise in the share of old people, leading to an increase (2023 shares are projected). The overall effect of the change in age composition will be the net effect of these two changes. Young people, all else equal, have a large trip rate and each young person individually has a great impact on demand, but the category is a small one. Conversely, older passengers have a smaller individual effect, but they are a significantly greater share of the population.

Over the 2017-19 period, the negative impact dominates, while over the 2019-23 period the positive impact dominates. The net effect is only an additional 0.8 million annual trips, therefore a very low impact.

5.2.3 Geography

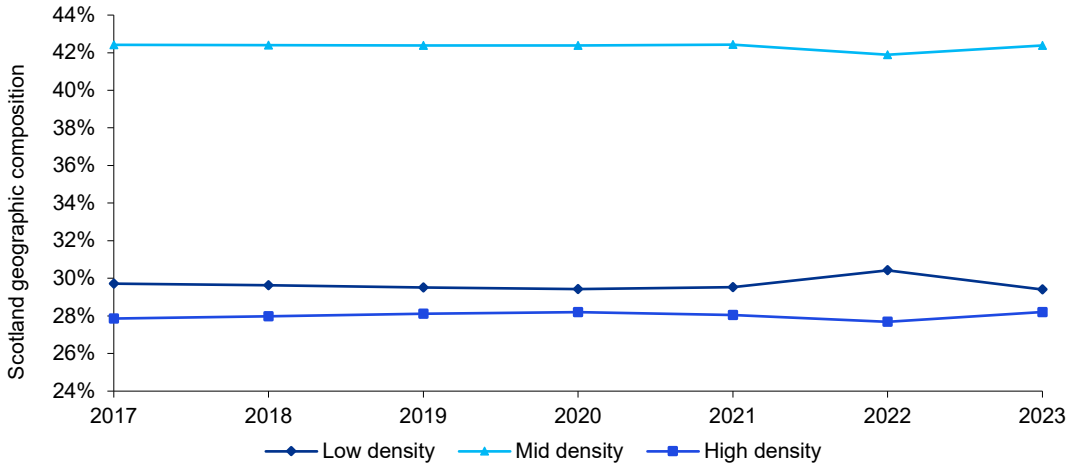
Context

To understand the impact of changes in the urban/rural geography of the country we have defined the following geographical categorisation for Scottish local authority areas:

- **High density:** Cities of Aberdeen, Dundee, Edinburgh, and Glasgow.
- **Mid density:** Local authority areas with population densities between 100 and 1000 people per square km.[5]
- **Low density:** Local authority areas with population densities below 100 people per square km.[6]

[5] Clackmannanshire, East Dunbartonshire, East Lothian, East Renfrewshire, Falkirk, Fife, Inverclyde, Midlothian, North Ayrshire, North Lanarkshire, Renfrewshire, South Lanarkshire, West Dunbartonshire, West Lothian.
[6] Aberdeenshire, Angus, Argyll and Bute, Dumfries and Galloway, East Ayrshire, Eileanan Siar, Highland, Moray, Orkney, Perth and Kinross, Scottish Borders, Shetland, South Ayrshire, Stirling.

Figure 12: Geographic distribution of population



The changes in geographical distribution of population have not been large, but (besides a small bump during Covid) there is a steady trend towards urbanisation. This is manifested in the slightly increasing share of population in high-density areas coupled with a slight drop in the share of low-density areas. 2023 shares are projected.

Analysis

Table 4: Geography impact analysis

Statistical Patterns	Observed Data
All else equal, compared to individuals who live in areas of **mid density**: • Individuals who live in areas of **high density** are expected to make **81% more** bus trips. • Individuals who live in areas of **low density** are expected to make **31% fewer** bus trips.	The adult population composition by **density-based areas** has changed in the following ways:

	2017	2019	2023
High density	27.9%	28.1%	28.2%
Mid density	42.4%	42.4%	42.4%
Low density	29.7%	29.5%	29.4%

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of **geography** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 0.8 million more** annual bus trips.
- Over the period **2019-2023: 0.1 million more** annual bus trips.
- In total, over the period **2017-2023: 0.9 million more** annual bus trips.

The statistical patterns tell us that, as a rule, demand for bus increases with population density. This may partly be a function of greater provision, but the impact of that is analysed separately in Section 5.5.2). External factors which make city dwellers more likely to use the bus include the need for parking making driving less desirable, origins (e.g., housing) and destinations (e.g., jobs, entertainment locations) clustering closely to public transport routes, and connections with other modes like rail and tram.

The observed urbanisation does indeed have a positive impact on demand – a total of 0.9 million – trips, but that is a small effect (expected, given the small changes in area type shares) and is concentrated almost entirely during the 2017-19 period.

5.2.4 Car availability

Context

Car is the primary mode of transport in Scotland and the availability of a car for use is a crucial factor in a person deciding whether to use public transport.

Car availability is a function of car ownership at the household level and a person's holding of a driving licence.

Figure 13: Household car availability

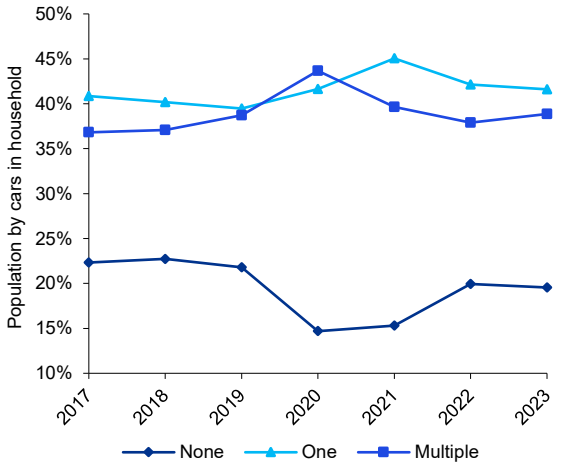
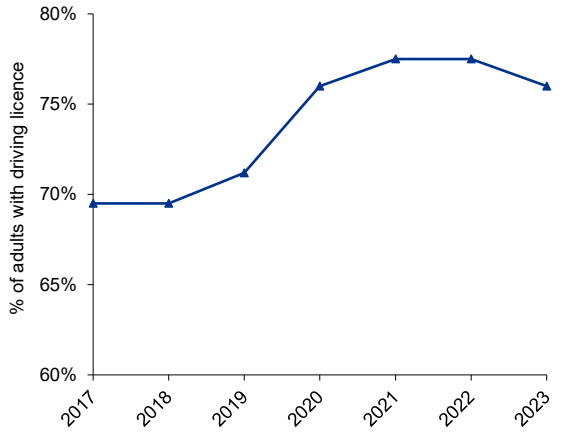


Figure 14: Driving licence distribution



We observe from the data that there have been clear trends towards greater car availability. Car availability at household level had been going up in 2017-19, with fewer people living in households without a car and more people living in households with multiple cars. (The data accounts for both the share of households and average household size by car ownership.) Simultaneously, the percentage of adults with a valid driving licence, already high, had been going up slowly but steadily. Covid then had a strong and immediate impact, with many households which did not previously have a car available getting one, and the proportion of adults with driving licences going up fast.

Post-pandemic there seems to be a reversal. In terms of household car ownership, we are back to something resembling the pre-pandemic trend. In terms of driving licences, it appears the drop is due to young people reaching eligibility age and not getting a licence, but also due to licences being allowed to lapse. That said, the validity time of a licence is 10 years, so people who got one specifically for the pandemic situation will continue to hold it until the early 2030s. Even if there are factors which push for a reversal of the driving licence patterns to the pre-pandemic trend, this reversal will be slow.

Analysis

Table 5: Car availability impact analysis

Statistical Patterns	Observed Data
All else equal, compared to individuals who live in households **without a car**: • Individuals who live in households with **one car** are expected to make **69% fewer** bus trips. • Individuals who live in households with **multiple cars** are expected to make **85% fewer** bus trips. All else equal, compared to individuals without a driving licence: • Individuals who **have a driving licence** are expected to make **52% fewer** bus trips.	The composition of population by household car ownership has changed in the following ways: 2017: No cars 22.3%; One car 40.9%; Multiple cars 36.8% 2019: No cars 21.8%; One car 39.5%; Multiple cars 38.7% 2023: No cars 19.5%; One car 41.6%; Multiple cars 38.9% The adult population composition by driving licence has changed in the following ways: 2017: No licence 30.5%; With licence 69.5% 2019: No licence 28.8%; With licence 71.2% 2023: No licence 24.0%; With licence 76.0%

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of **car ownership and driving licences** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 10.4 million fewer** annual bus trips.
- Over the period **2019-2023: 28.1 million fewer** annual bus trips.
- In total, over the period **2017-2023: 38.6 million fewer** annual bus trips.

The outputs of the statistical analysis show a very powerful effect of car availability on trip rates. Having a licence reduces someone's propensity to use the bus by half. Adding a car to a carless household reduces members' trip rates by 69%, and another car by a further 16 percentage points.

In addition, we observe the previously mentioned significant changes in car availability. This means we get an effect that is both strong and widely applicable. The quantified impact is thus extremely large. Car availability is by far the demand driver category with the greatest impact in our modelling, explaining 39 million fewer annual bus trips between 2017 and 2023.

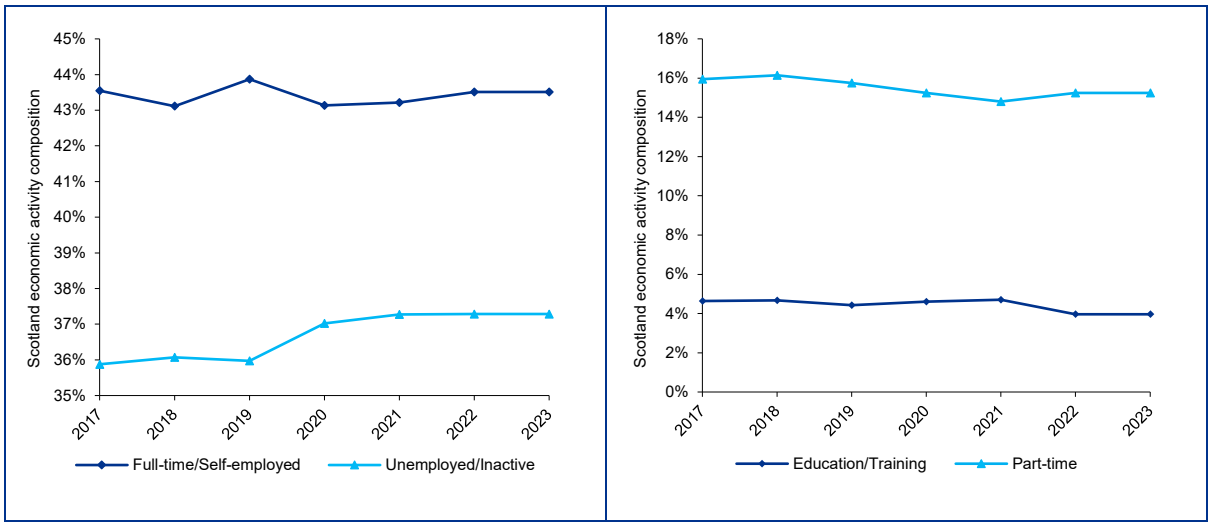
5.3: Theme 2. Economic factors

5.3.1 Economic activity

Context

The period of study has seen some changes in economic activity in Scotland. We have defined four categories which cover all adults: full-time employed or self-employed, part-time employed, in full time education or training, and unemployed or economically inactive, including retired. The double chart in Figure 15 shows the shares of these categories (the chart is split in two to make the changes in the smaller shares more easily visible).

Figure 15: Economic activity distribution



The key trend pre-Covid consisted of a slight increase in the share of working people. Covid then led to an increase in the unemployed/inactive category share while reducing the other shares.

Analysis

Table 6: Economic activity impact analysis

Statistical Patterns	Observed Data
All else equal, compared to individuals in **full-time employment or self-employed**: • Individuals in **education or training** are expected to make **30% more** bus trips. • Individuals in **part-time employment** are expected to make **14% more** bus trips. • Individuals in **unemployment or economic inactivity (including retirement)** are expected to make 14% fewer bus trips.	The adult population composition by **economic activity** has changed in the following ways:

	2017	2019	2023
Full-time / Self-employed	43.6%	43.9%	43.5%
Education / training	4.6%	4.4%	4.0%
Part-time	15.9%	15.7%	15.2%
Unemployed / inactive	35.9%	36.0%	37.3%

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of **economic activity** in terms of annual bus trips is expected to be:

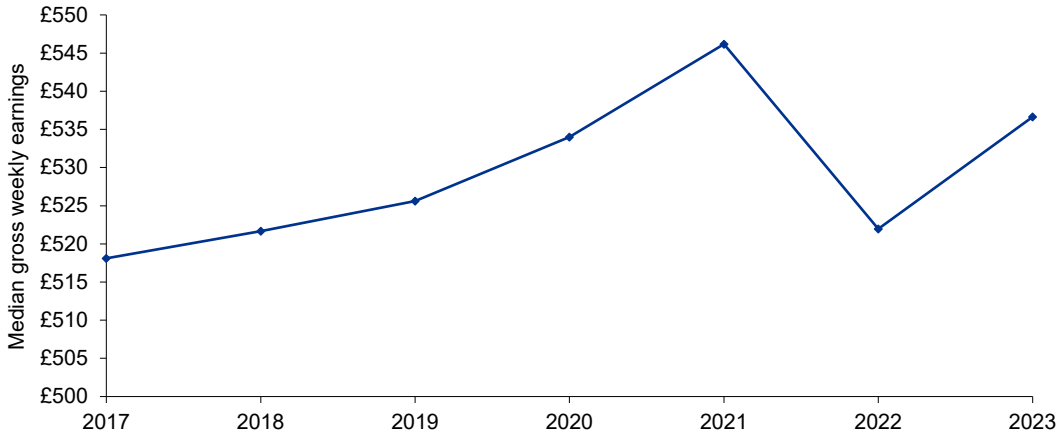
- Over the period **2017-2019: 0.6 million fewer** annual bus trips.
- Over the period **2019-2023: 2.3 million fewer** annual bus trips.
- In total, over the period **2017-2023: 2.9 million more** annual bus trips.

As the shares of the smaller categories are roughly stable or experiencing small changes, the key statistical pattern is that unemployed/economically inactive individuals have a lower trip rate than those in full time or self-employment. This is applied to the observed trends that show a shift from education and part-time employment to full-time/self-employed in 2017-19, followed by a shift towards unemployment/inactivity in 2019-23. The result is a negative demand impact of almost 3 million annual trips.

5.3.2 Income

Income in Scotland has increased over the period of study albeit not by much.

Figure 16: Income



In real terms, it grew very slowly in 2017-19. Over the Covid period it kept growing in nominal terms, but the high-inflation period of 2022-23 led to a reduction in real terms from the 2021 peak. In 2023, real income is 3.6% above the 2017 level.

Analysis

Table 7: Income impact analysis

Statistical Patterns	Observed Data
All else equal, a 1% increase in **income** in real terms leads to **0.1% more** expected bus trips.	The median gross **weekly earnings** in Scotland expressed in constant prices at 2013 levels has seen the following change:

	2017	2019	2023
Real earnings	£ 518	£ 526	£ 536

Impact On Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of **income** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 0.6 million more** annual bus trips.
- Over the period **2019-2023: 0.8 million more** annual bus trips.
- In total, over the period **2017-2023: 1.4 million more** annual bus trips.

The increase in income does indeed lead to a rise in demand in the modelling, but the impact is ultimately small. This is both due to the very low elasticity of demand with respect to income but also due to the small rise in average incomes over this time. The six-year impact of the change in incomes is of only 1.4 million annual bus journeys.

5.4: Theme 3. Alternatives to transport

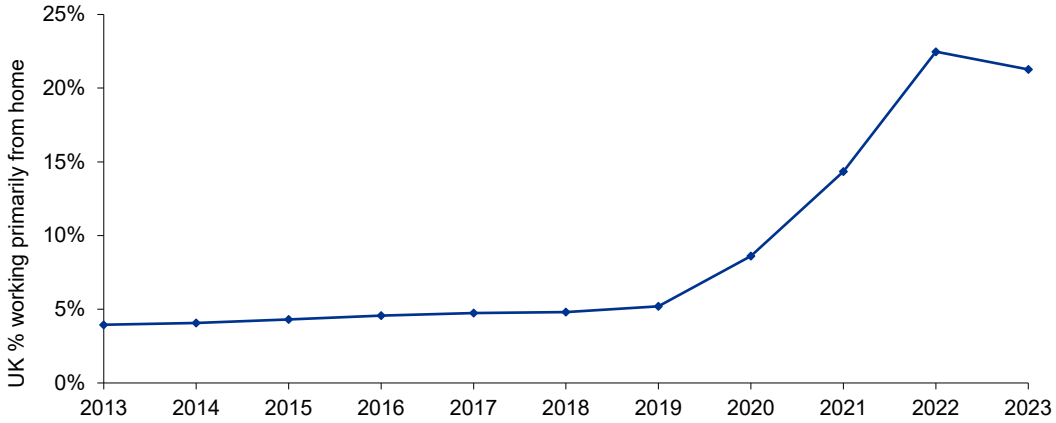
5.4.1 Work patterns

Context

One of the most significant phenomena to affect the transport sector in recent times has been the technological and cultural revolution that has allowed the proliferation of working from home.

In the absence of more detailed measures, we are using the proportion of workers who use their own home as their primary work location as a stand-in for all trends related to remote working.

Figure 17: Working from home



Analysis

Table 8: Work patterns impact analysis

Statistical Patterns	Observed Data
All else equal, compared to individuals who **do not work from home**: • Individuals who **work from home** are expected to make **49% fewer** bus trips.	The working population composition by **work pattern** has changed in the following ways:

	2017	2019	2023
Does not work from home	95.2%	94.8%	78.7%
Normally works from home	4.8%	5.2%	21.3%

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of **work patterns** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 0.5 million fewer** annual bus trips.
- Over the period **2019-2023: 18.0 million fewer** annual bus trips.
- In total, over the period **2017-2023: 19.4 million fewer** annual bus trips.

Individuals who work from home make about half as many bus trips as those who do not. This is primarily due to the reduction in commute trips, but also due to other trips that may be made as part of

multi-stop trips which involve the commute (e.g., home to work to leisure to home). It is also due to other factors which drive both the tendency to work from home and to make fewer trips, such as childcare responsibilities.

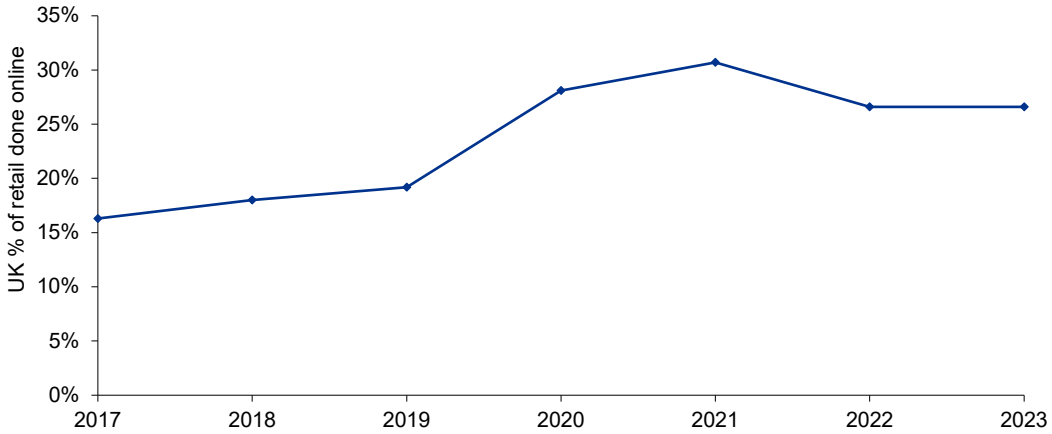
The impact of changing work patterns is large, at almost 20 million more trips per year, and the bulk of it came into effect in 2019-23.

5.4.2 Shopping patterns

Context

The other essential technological and cultural revolution of recent years is to do with online services, the most significant of which is online retail.

Figure 18: Online retail



The trend is similar to that of working from home, with the difference being that online retail was already significant pre-pandemic and was already growing fast, and the pandemic thus did not induce as drastic and sudden a change. Still, nationally 27% of personal retail by value was done online in 2023 compared to 16% in 2017.

Analysis

Table 9: Shopping patterns impact analysis

Statistical Patterns	Observed Data
We are using the following assumptions: • The total monetary value of retail purchases changes proportionally with the number of shopping trips. • **60%** of the items that are being purchased online would still be purchased offline requiring shopping trips.	The **percent of retail done online** in the UK has changed in the following ways: **2017** / **2019** / **2023** Online: 16% / 19% / 27% Offline: 84% / 81% / 73%

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of **shopping patterns** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 2.0 million fewer** annual bus trips.
- Over the period **2019-2023: 5.1 million fewer** annual bus trips.
- In total, over the period **2017-2023: 7.1 million fewer** annual bus trips.

The analysis is done based on limited data, without differentiation by e.g., product type, so requires some simplifying assumptions.

The result is a total of 7 million bus trips per year, all for the purposes of shopping, lost between 2017 and 2023 to online shopping.

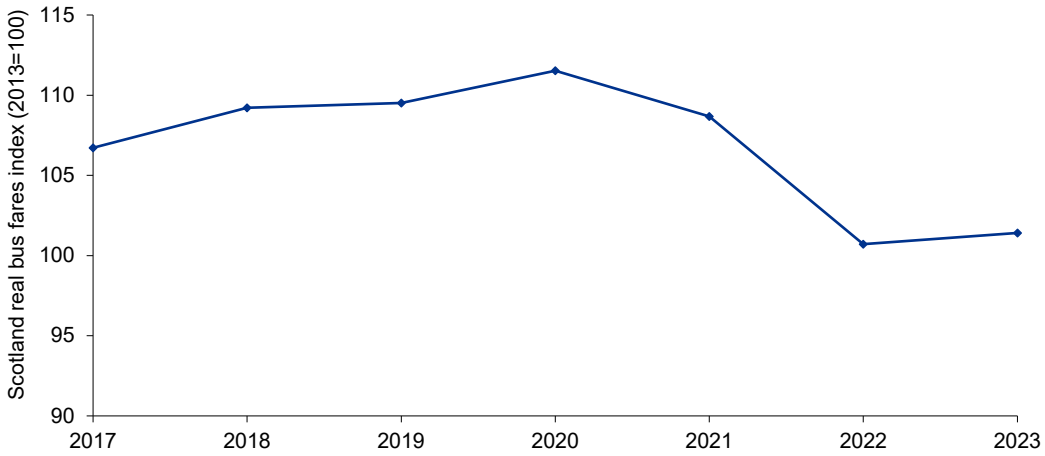
5.5: Theme 4. Price, quality, and availability of local bus services

5.5.1 Fares & concessionary travel

Context

One of the most important factors in someone's decision whether to purchase a product or service is the price. For measuring the changes in the price of local bus travel we are using the bus fares index, calculated specifically for Scotland and in real terms. This will account for changes in price across the sector and the country, as well as price effects of concessionary schemes.

Figure 19: Bus fares



In nominal terms, bus fares had been going up consistently pre-Covid, while during the pandemic they remained relatively static. In an era of small and constant inflation, this led to a growth of 1.6% per year up to 2020 in real terms (or 3% per year nominal), finally stopping in 2021. Fares increased again in 2023, as Covid-era price restrictions were lifted. The inflation crisis of 2022-23 is the cause behind the declining trend. We are not observing a decrease in fares in nominal terms, but a spike in inflation leading to a real drop. This effect is so pronounced that in 2023 local Scottish bus fares are, in real terms, below those in 2017.

Additionally, an entirely new scheme was introduced in 2022 providing travel to young people aged under 22. Based on operator data, over 40 million journeys were made in 2023 using this type of concession.

Analysis

Table 10: Bus price impact analysis

Statistical Patterns	Observed Data
All else equal, a 1% increase in **bus fares** in real terms leads to **0.6% fewer** expected bus trips. • This only applies to fare paying passengers, as concessionary pass holder travel for free and are unaffected by fare changes. New journeys are generated by the expansion of concessionary, which we estimate at 20 million.	The **bus fares index** for Scotland expressed in constant prices, using constant prices with 2013 as the base, has seen the following change: 2017: 107; 2019: 109.5; 2023: 101.4 The percentage of trips done by **fare-paying or concessionary passengers** has changed as follows: 2017: Paid trips 65%, Concessionary trips 35% 2019: Paid trips 62%, Concessionary trips 38% 2023[7]: Paid trips 48%, Concessionary trips 52%

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of **fares & concessionary travel** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 3.8 million fewer** annual bus trips.
- Over the period **2019-2023: 32.2 million more** annual bus trips.
- In total, over the period **2017-2023: 28.4 million more** annual bus trips.

The modelled impact of price changes is an inverted reflection of the change in real fares. The increasing trend pre-2019 leads to a drop of almost 4 million trips, while the drop post-2019 translates to an increase of 12 million. The net effect is a rise of over 8 million.

This modelling is done based on a generally accepted approach to modelling transport demand in the UK. It should be noted however that, prior to 2022, the UK had not experienced inflation of this magnitude for three decades, so the field has developed in conditions of low and stable inflation. It is unclear at this stage whether standard elasticities and applications are as suitable in a highly inflationary environment.

In the absence of a detailed study inquiring with passengers about their change in behaviour, the volume of entirely new trips generated by the newly introduced under-22 scheme (as opposed to trips that would have been done anyway on a paid ticket) must be estimated. Based on reviewing operator data and on our estimates, we assign 20 million new trips to the introduction of the scheme, all of which appear under the 2019-23 heading.

[7] 2023 concessionary percent of trips is based on operator data.

Figure 20: Unit cost vs price comparison: full chart (left) and zoom-in (right)

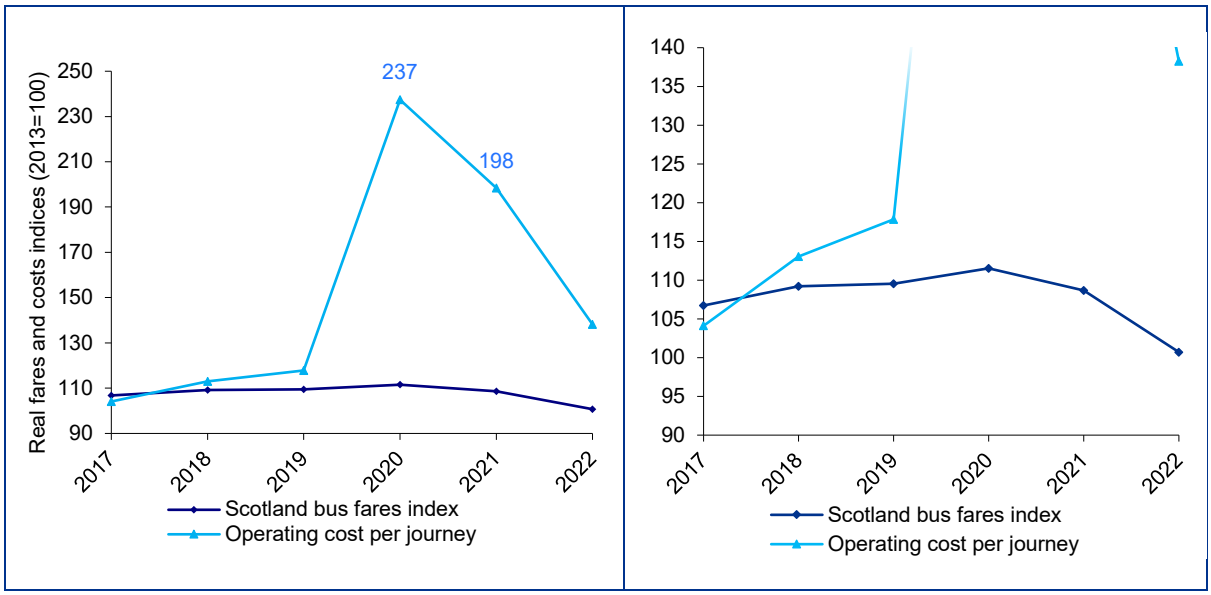


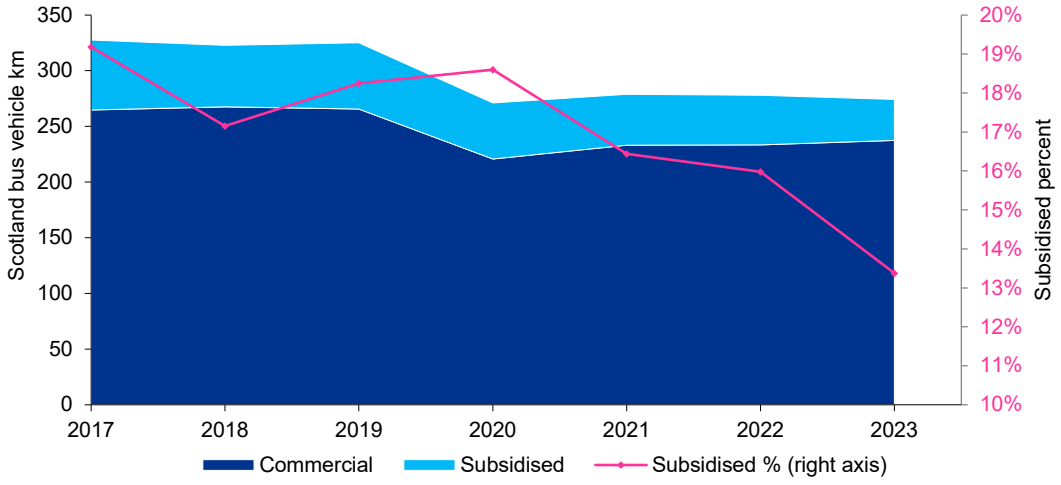
Figure 20 shows a comparison of the change in fares and operating costs of local bus services in Scotland. Over the period 2017-19, fares did indeed increase but less than operating costs did. During and after the pandemic, patronage plummeted leading to a spike in the cost per passenger, reaching more than double the 2017 level, which had not returned to normal by 2022. During the whole period of study, total industry costs changed very little, and the unit cost in Figure 20 is primarily driven by the denominator i.e., patronage.

5.5.2 Provision

Context

Bus patronage is dependent on bus provision. This means both having sufficient coverage geographically, but also sufficient frequency in places that are covered. The number of bus vehicle kilometres deals with both dimensions.

Figure 21: Bus vehicle km



In terms of total km, we observe a roughly stable number in 2017-19, followed by a significant drop in 2020. A small part of this decline was recovered in 2021, but the level of provision in 2023 is 16% lower than in 2019. (2023 figures are based on operator data.)

Part of the bus service provided is on subsidised routes, which would not be viable commercially and are sustained by governmental grants. The proportion of bus vehicle km on this type of route has been declining and, in 2023, 13% of vehicle km were on subsidised routes, compared to 19% in 2017.

Analysis

Table 11: Bus provision impact analysis

Statistical Patterns	Observed Data
All else equal, a 1% increase in **bus vehicle km** leads to **0.4% more** expected bus trips. .	The total **bus vehicle km** in Scotland has seen the following change:

	2017	2019	2023
Commercial bus vehicle km	265 m	266 m	237 m
Subsidised bus vehicle km	63 m	59 m	37 m

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of **bus provision** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 0.7 million fewer** annual bus trips.
- Over the period **2019-2023: 17.3 million fewer** annual bus trips.
- In total, over the period **2017-2023: 18.0 million fewer** annual bus trips.

The impact of changes in bus provision is primarily a function of the 2020 drop in vehicle km. The impact is 18 million annual trips, most which is registered in 2019-23.

While provision would appear to be a driver that is internal to the market, it is worth considering a constraint faced by an operator: given higher costs relative to fares (Figure 20), a fixed route, and congestion (section 5.5.3), the operator would be forced to reduce service frequency.

5.5.3 Journey time

Context

Bus journey times have been increasing in Scotland. This part of the analysis relies on data provided by operators. Changes in journey times are calculated on fixed routes.

While there is some variation, all the route data we have been provided with has exhibited an increase in journey times.

Analysis

Table 12: Bus journey times impact analysis

Statistical Patterns	Observed data
All else equal, a 1% increase in **bus journey time** leads to **0.6% fewer** expected bus trips.	Operators, via CPT, have provided us with data on the change in journey times for a series of fixed routes across a number of years. Based on our analysis of the figures we assume this rate of growth is constant at roughly • **1.2% per year** across **2017-19**, and • **1.6%** per year across **2019-23**.
Impact on Bus Trips	
Based on the statistical pattern and observed data, all else equal, the impact of bus journey times in terms of annual bus trips is expected to be: • Over the period **2017-2019: 5.6 million fewer** annual bus trips. • Over the period **2019-2023: 14.2 million fewer** annual bus trips. • In total, over the period **2017-2023: 19.8 million fewer** annual bus trips.	

The impact of bus journey time growth is very large – in net impact, at almost 20 million annual trips, it is only behind that of car availability.

The extent to which this factor is internal or external to the bus sector depends on the source of the delays. If they are caused by the way the service is provided, then it is an internal factor and operators should look to mitigate. If, however, the delays are due to traffic congestion or closed or diverted roads, then it becomes an external driver over which the sector has no control. In that case local governments can mitigate this through improved traffic management, bus priority measures etc.

5.6: Theme 5. Price, quality, and availability of other transport modes

5.6.1 Commuter rail

Context

In many places across Scotland, especially in urban and suburban areas, bus services compete directly with commuter rail. We expect therefore that bus patronage will depend on rail provision and rail price. For changes in rail provision, we use the vehicle km figure for Scotrail (other operators cover Scottish routes but are mostly long-distance and generally do not compete with local buses). For rail prices we use the ONS series of the rail fares component of RPI, which has the advantage that it takes account of all fare changes and concessionary travel, while accepting that it has the disadvantage of being calculated nationally with no Scottish subset of the figures.

Figure 22: Rail vehicle km

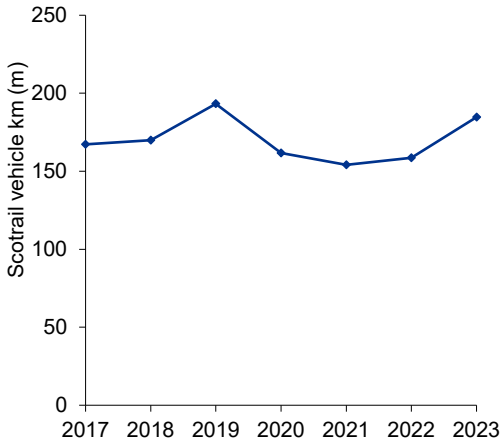
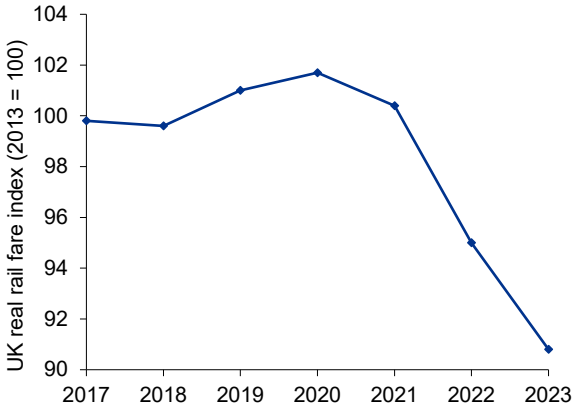


Figure 23: Rail price



In terms of provision, there was a growth of 17% between 2017-19. Provision was reduced during the Covid period, 20% down in 2022 from the 2019 peak – a higher drop than for buses (only 15%). However, the rail sector than saw a recovery in provision, and the 2023 figure is almost back at the 2019 level.

In terms of price, there was some fluctuation over the pre-pandemic period but without departing too far from the 2017 level. The high-inflation period of 2022-23 then led to a major reduction in real fares in this period (peak fares were also scrapped in October 2023). That means that, in real terms, rail fares in 2023 were 9% below what they were in 2017. The peak rail fares pilot is due to end on 27 September 2024.

Analysis

Table 13: Commuter rail sector impact analysis

Statistical Patterns	Observed Data
All else equal, a 1% increase in **rail vehicle km** leads to **0.2% more** expected rail trips. Of these, **6.25% are diverted** from bus. All else equal, a 1% increase in **rail price** in real terms is expected to lead to **0.07% more bus trips**. These parameters reflect the fact that only a fraction of bus users in Scotland have a feasible rail alternative.	Scotrail data shows the following evolution in **vehicle kilometres**: 2017: 167 m; 2019: 193 m; 2023: 185 m (Scotrail vehicle km) The **rail fares index** (2013 = 100) used by ONS in calculating inflation indices, shown below in real terms, has evolved as follows: 2017: 99.8; 2019: 101.0; 2023: 90.8 (Rail fares index)

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of changes to the **rail sector** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: a negligible change** annual bus trips.
- Over the period **2019-2023: 3.0 million fewer** annual bus trips.
- In total, over the period **2017-2023: 3.0 million fewer** annual bus trips.

The total effect of changes in the rail sector is of 3 million annual trips lost by buses to trains. This is almost entirely down to rail fares, with the impact of provision changes being negligible. While the calculations of impacts of fare changes is separate between the bus (subsection 5.5.1) and rail (this subsection) sectors, we can see the relative trend: bus fares increasing while rail fares at most increase slowly, in some cases dropping. This leads to a shift in demand from bus to rail.

5.6.2 Glasgow Subway

Context

In Glasgow, the Subway covers central locations where it competes with bus. Similar to the rail sector analysis, we use changes in provision and price (here calculated as average yield per journey).

Figure 24: Glasgow Subway vehicle km

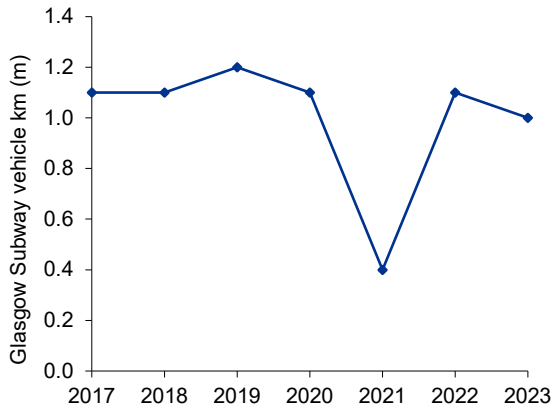
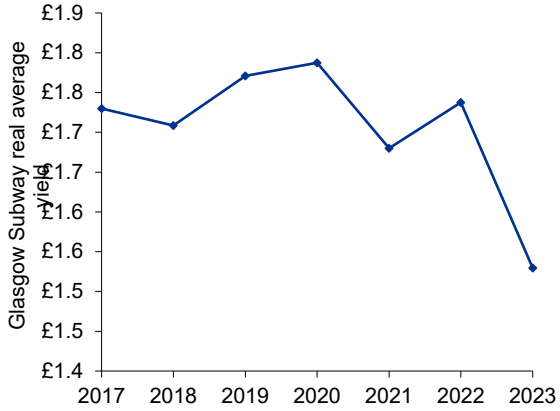


Figure 25: Glasgow Subway price



Provision, calculated in vehicle km, will only be a function of service frequency, as the route will not have changed. We observe some fluctuation outside of the pandemic, but also a major downward spike in 2021 far greater than either in the bus or rail sector. The network has not fully recovered, with provision in 2023 being 9% below the 2017 level.

Ticket prices saw an increase up to the pandemic period, followed by a similar drop in real terms, as that seen for other modes.

Analysis

Table 14: Glasgow Subway impact analysis

Statistical Patterns	Observed Data
All else equal, a 1% increase in **urban rail vehicle km** leads to **0.4% more** expected urban rail trips. Of these, **25% are diverted** from bus. All else equal, a 1% increase in **urban rail price** in real terms is expected to lead to **0.16% more bus trips**.	The following evolution has taken place in **vehicle kilometres** on Glasgow Subway: 2017: Glasgow Subway vehicle km 1.1 m; 2019: 1.2 m; 2023: 1.0 m The price of using Glasgow Subway measured in terms of **average yield per journey** has changed as follows: 2017: Glasgow Subway average fare £ 1.73; 2019: £ 1.77; 2023: £ 1.53

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of changes to **Glasgow Subway** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 1.0 million more** annual bus trips.
- Over the period **2019-2023: 0.8 million fewer** annual bus trips.
- In total, over the period **2017-2023: 0.2 million more** annual bus trips.

Given the reduction in provision and increase in prices, the Subway loses some trips to the bus sector. Given however the small coverage this number is not great, with only 0.2 million annual trips gained.

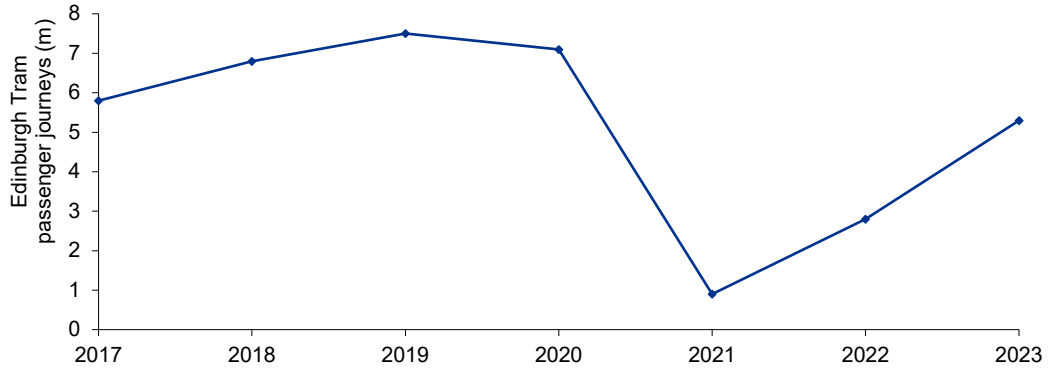
5.6.3 Edinburgh Tram

Context

The Edinburgh Tram is active on a crucial east-west artery crossing Edinburgh and serving many of its key locations, including tourist areas, retail hubs, business districts, new major residential developments, the city's main railway stations, and its airport. On this route it competes with buses and has been extended, with an extension doubling the line length completed in the summer of 2023.

Because our impact calculations are all relative to a 2013 baseline, and the Tram only opened in 2015, percentage changes in provision and price are irrelevant to the analysis. Instead, we observe patronage.

Figure 26: Edinburgh Tram passenger journeys



Analysis

Table 15: Edinburgh Tram impact analysis

Statistical Patterns	Observed Data
The Edinburgh Tram opened in 2015. Of the trips undertaken on it, we assume **25% are diverted** from bus.	The following evolution has taken place in **vehicle kilometres** on the Edinburgh Tram:

	2017	2019	2023
Edinburgh Tram annual trips	5.8 m	7.5 m	5.3 m

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of changes to **Edinburgh Tram** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: 0.4 million fewer** annual bus trips.
- Over the period **2019-2023: 0.5 million more** annual bus trips.
- In total, over the period **2017-2023: 0.1 million more** annual bus trips.

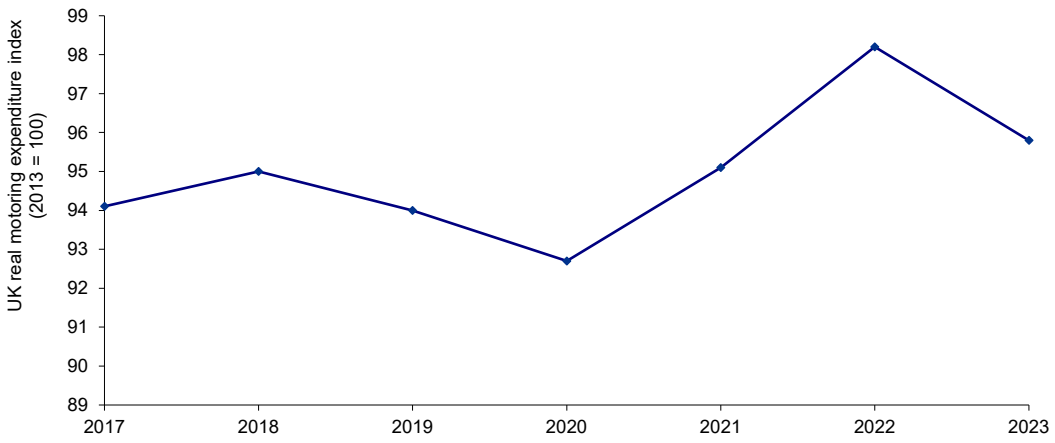
Because relative changes in external factors from the 2013 baseline are non-sensical in this case (as the 2013 baseline did not contain the Tram), we treat the Tram patronage itself as an external effect, and simply apply a diversion factor to it. We calculate thus that, over the pre-Covid part of the study period, trips were lost to the Tram, this was offset by the post-2019 period. This are both small effects, as it is only competition for the buses in a small area by national standards, and the net total is a negligible gain of only 0.1 million trips.

5.6.4 Car

Context

While the impacts of changes in car availability are already presented in subsection 5.2.4, it is also worth analysing the sectoral competition aspect. Even with a car available there will be cost factors which figure into the choice of whether to use it or not. For a measure of these costs, we use the motoring costs index from the ONS calculation of RPI. This includes fuel, taxes, insurance, maintenance, and replacement.

Figure 27: Motoring costs



Analysis

Table 16: Motoring costs impact analysis

Statistical Patterns	Observed Data
All else equal, a 1% increase in **motoring costs** in real terms is expected to lead to **0.08% more bus trips**.	The **motoring costs index** (2013 = 100) used by ONS in calculating inflation indices, shown below in real terms, has evolved as follows:

	2017	2019	2023
Motoring costs index	94.1	94.0	95.8

Impact on Bus Trips

Based on the statistical pattern and observed data, all else equal, the impact of changes to **car costs** in terms of annual bus trips is expected to be:

- Over the period **2017-2019: negligible change**.
- Over the period **2019-2023: 0.6 million more** annual bus trips.
- In total, over the period **2017-2023: 0.6 million more** annual bus trips.

While the difference in costs between using a car and using any kind of public transport is large in favour of the car, statistical evidence shows a very small cross-elasticity, meaning a low impact in terms of bus trips. The total effect is a gain of 0.6 million trips to bus from car, driven by a large increase in costs from 2020.

5.7 Total impact

Figure 28 below brings together all the quantified bus demand impacts. The period-specific impact for 2017-19 and 2019-23 are both displayed, while the labels provide and point to the net values over the full study period.

Figure 28: Influences on bus use

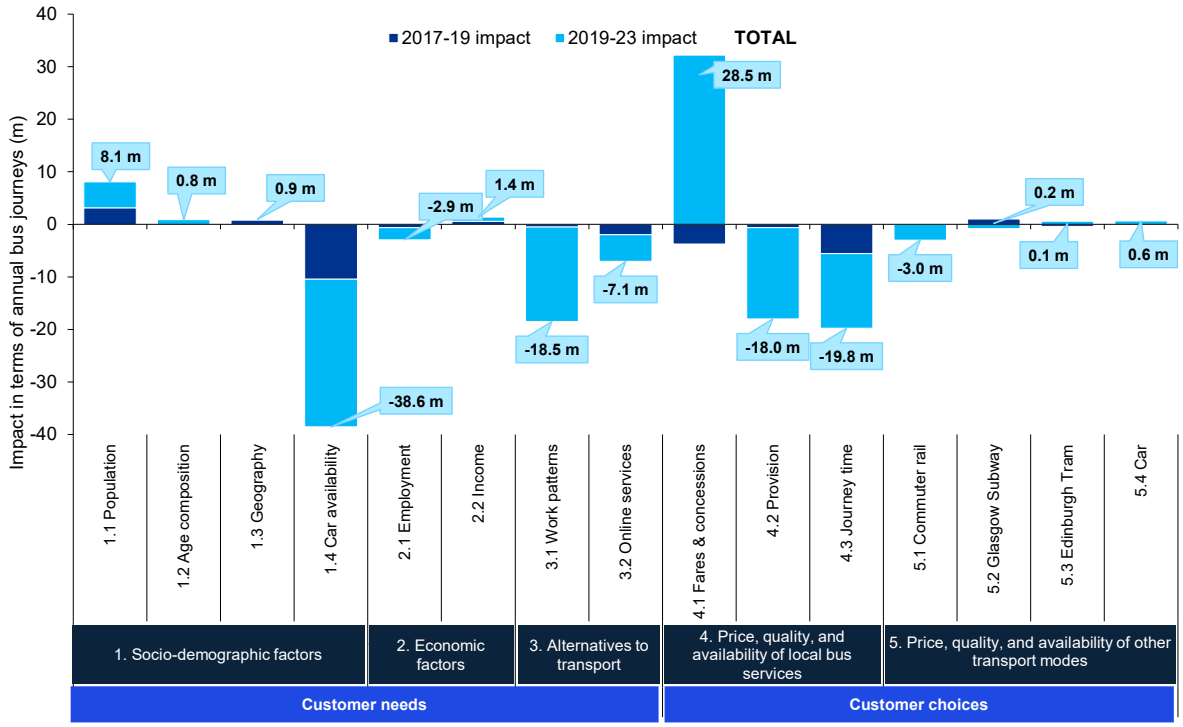


Figure 28 illustrates the impact of 15 demand drivers, grouped into five themes:

Theme 1: Socio-demographic Factors

Changing socio-demographics contributed to a 29 million decline in annual bus trips. While population growth generated 8.1 million additional trips, increased car ownership and driving licenses offset this increase. Competition from cars has historically been, and remains, the primary negative influence on bus use. In total, socio-demographic factors account for 43% of the decline.

Theme 2: Economic Factors

Changes in employment and household income had limited direct impacts on bus use, although they influenced household car ownership. Overall, we estimate that changing economic factors led to 1.5 million fewer annual bus trips, representing 2% of the total demand change.

Theme 3: Alternatives to Transport

Alternatives like remote work and online shopping contributed to 26 million fewer annual bus trips. While both factors had some pre-pandemic impact, their significant growth during the pandemic accounted for 38% of the overall trip reduction.

Theme 4: Price, Quality, and Availability of Local Bus Services

Changes in pricing, quality, and service availability resulted in 9 million fewer bus trips (14% of the total). This includes 18 million fewer trips due to reduced service kilometres and 20 million fewer trips due to increased journey times from highway congestion. These were partially offset by 29 million more trips due to reduced fares and expanded concessionary travel.

Theme 5: Other Transport Modes

Changes in other transport modes, primarily rail services, led to the abstraction of 2 million trips from bus (3% of the total).

Overall, the analysis shows that the greatest negative impact on bus journeys is that of car availability. Changes in work and shopping patterns, reductions in bus provision, growing bus journey times, and low rail fares are also significant contributors. Conversely, a growing population and a reduction in real bus fares combined with the expansion of free travel have had a large positive effect.

It is important to note that there are other factors that influence demand outside of the five themes above, including the disruption due to Covid and continued recovery of the market from that period. These are discussed below.

5.8 Other considerations

Outside of the numerical modelling exercise, other changes observed over this study period may have had some impact on bus use.

- **Urban geography changes**: A drive towards walkability and mixed-use developments in towns and cities could discourage the use of cars, moving people onto public transport. The shift may be more towards active modes if integration with public transport is not done well (e.g., bus stops too far away from pedestrian areas).
- **Technology**: Developments such as automation, cloud services, artificial intelligence replacing white collar work. Where these improve productivity and generate economic activity, they will also raise bus use; where they replace jobs and businesses, they reduce bus use.
- **Online services** (excluding retail): Online services replacing in-person education, entertainment, or personal services (e.g., banking, medical).
- **Online communication**: Reduction in the need for business travel from services like Teams or Zoom.
- **Travel patterns**: Transition away from regular two-way trips to more complex multi-stop journeys. Public transport, relying on fixed routes is inherently disadvantaged by more complex traveling, but this can be mitigated by improving coverage.

- **Quality**: Improvements in bus and station design and in travel experience. As fleets are being renewed and bus stops refurbished there is a general improvement in the passenger experience. Easy and accurate tracking of buses, covered stops, air conditioning in the vehicles all encourage patronage.
- **Driving experience**: Recent years have also seen improvements in car design and driving experience. As features that were previously seen as luxuries become basic features of the average car, people it is harder to convince people to stop driving in favour of taking the bus.
- **Safety and accessibility**: Both issues have become far more important to planning than they were in previous decades. For some segments of the population, catering to these needs is a crucial criterion in their choice of whether to use buses.
- **Climate change**: More erratic weather can discourage travel which includes any element of being outdoors and unsheltered (e.g., walking to the bus stop). This consideration has been less important over this study period than it will be in the future.
- **Health**: Increased focus on healthy lifestyles is encouraging people to pursue active modes, especially as opposed to driving. Buses capture some of that shift, as there is a limit to how far people will travel by active modes. It is also possible, however, that some people have shifted from bus to active modes.
- **Environmental policies**: As they are becoming ever more popular, they generally encourage people towards public transport. As with the health focus, however, they may take people off buses and into active modes.
- **Cultural shift**: There is a cultural shift in expectations towards personalised services. Public transport by its nature is the opposite of this and, as people get more used to service tailored to the individual and their needs, buses lose out.
- **Travel planning**: Proliferation of mobile phones and apps for travel planning make bus travel easier and more desirable.
- **Data**: Proliferation of data gathering and usage by agencies and operators helps with better planning and better responsiveness to passenger needs.

6
Comparison to 2017 analysis

6 Comparison to 2017 analysis

In 2017, KPMG undertook an analysis for CPT Scotland using a similar scope[8]. The current analysis does not seek to replicate the 2017 work for two main reasons:

1 The primary data source behind the previous analysis has been discontinued. We are currently relying on a mix of sources for Scotland-specific data, which do not necessarily map perfectly to what the previous data provided.

2 The current analysis, unlike the previous work, must account for Covid and its aftermath. This requires not only applying the analysis to the Covid and post-Covid period, but also to understand the trends leading up to the pandemic. We need to apply the analysis to sufficient years pre-Covid that we will inevitably overlap with the time scope of the 2017 work (up to March 2016).

The two pieces of work, while not directly related, may be viewed in conjunction as providing two points of view over the same subject. It should be noted that the demand drivers, even where similarly named, are not defined necessarily in the same way, so direct comparisons between the outputs by demand driver in the two analyses should be avoided. Table 17 provides a summary of differences in approach between the 2017 and current analysis.

Table 17: Differences in approach between 2017 and current analysis

	2017 analysis	Current analysis
Modelling	Econometric analysis	Mix between econometric analysis and direct elasticity applications
Time unit	Fiscal years	Calendar years
Time application	2011/12 – 2015/16	2017 – 2023 (with 2019 break)
Econometric analysis:		
Data source	National Travel Survey	Scottish Household Survey
Time coverage	2002 – 2016	2013 – 2019
Geographic coverage	Great Britain excl. London	Scotland
Application	By Scottish local authority and trip purpose	By survey respondent

Both sets of modelling explain a change in bus patronage that is very close to that observed. The distribution of the modelled change differs by theme and driver. Below we identify and compare similarities and differences in the results. While the post-2019 era is different from what came before, due to Covid, inflation etc., the 2017-19 results can be compared more easily with those of the 2017 analysis.

[8] *Trends in Scottish bus patronage: Report to the Confederation of Passenger Transport (Scotland)*. November 2017.

Table 18: Theme 1. Socio-demographic factors comparison

Analysis	Time	Annual trips impact
2017 analysis	2011/12 - 2015/16 total	-5.0 million
	Per year	-1.0 million
Current analysis	2017-19 total	-6.6 million
	Per year	-3.3 million
	2019-23 total	-22.2 million
	Per year	-5.6 million

In both cases population growth provided a significant push upward for modelled journeys, and it was the other drivers that overcame that effect to lead to an overall negative impact.

In the current analysis the negative figure is dominated by the large impact of car availability – itself a function of car ownership and driving licence holding. In the 2017 analysis, car ownership was the primary downward driver, but having less of a negative effect relative to population growth.

Table 19: Theme 2. Economic factors comparison

Analysis	Time	Annual trips impact
2017 analysis	2011/12 - 2015/16 total	-3.2 million
	Per year	-0.6 million
Current analysis	2017-19 total	Negligible
	Per year	Negligible
	2019-23 total	-1.5 million
	Per year	-0.4 million

The different treatment of economic factors leads to a situation in which, pre-Covid, the direction of the impact of this theme becomes negligible, as the negative impact calculated from an economic activity driver, modelled through trip rates of people in different economic activity categories, is cancelled out by the positive impact of an income driver, implemented as an elasticity of demand with respect to income.

The 2017 approach also looked at employment categories, but also accounted for economic growth. In a major difference in approach, the previous analysis treated working from home as an economic factor.

Table 20: Theme 3. Alternatives to transport comparison

Analysis	Time	Annual trips impact
2017 analysis	2011/12 - 2015/16 total	-7.3 million
	Per year	-1.5 million
Current analysis	2017-19 total	-2.5 million
	Per year	-1.2 million
	2019-23 total	-23.1 million
	Per year	-5.8 million

Under the label of alternatives to transport, the 2017 analysis assigned a general category of online services. Under the new approach, the definition is narrowed somewhat, measuring specifically the impact of online retail – but crucially, the current approach also considers working from home an alternative transport (as it replaces the need for commute trips).

Table 21: Theme 4. Price, quality, and availability of local bus services comparison

Analysis	Time	Annual trips impact
2017 analysis	2011/12 - 2015/16 total	-7.9 million
	Per year	-1.6 million
Current analysis	2017-19 total	-10.0 million
	Per year	-5.0 million
	2019-23 total	-0.7 million
	Per year	-0.2 million

The previous Theme 4 analysis organised the demand drivers into bus fares, bus journey times, (both of which yielded negative impacts) and bus quality (positive impact).

Currently we are using bus prices and new concessionary travel, bus journey times, and bus provision. All are implemented via elasticities, and all have large impacts (price/concession over 2019-23 has a positive impact, all others negative).

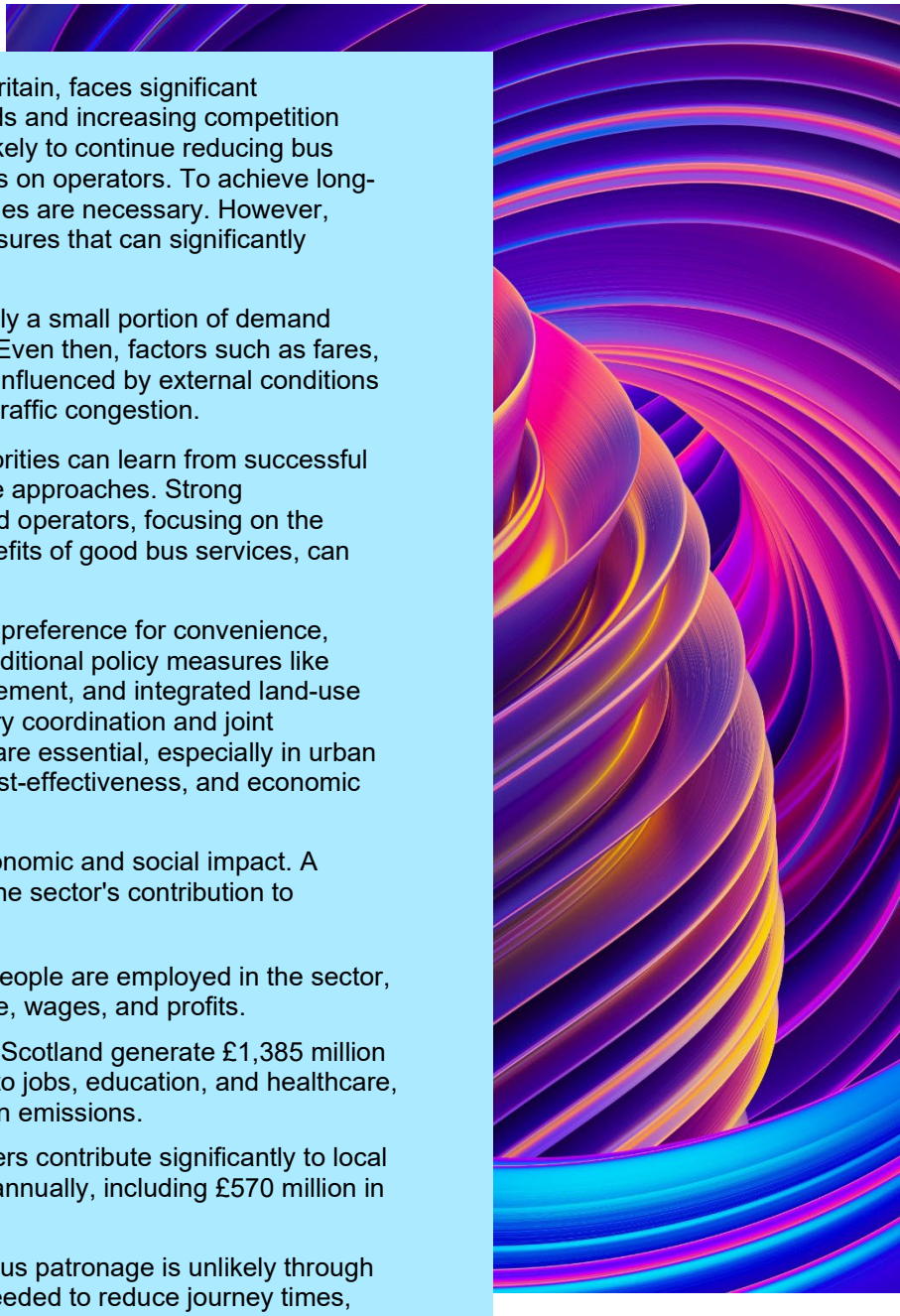
Table 22: Theme 5. Price, quality, and availability of other transport modes comparison

Analysis	Time	Annual trips impact
2017 analysis	2011/12 - 2015/16 total	-3.7 million
	Per year	-0.7 million
Current analysis	2017-19 total	+0.6 million
	Per year	+0.3 million
	2019-23 total	-2.7 million
	Per year	-0.9 million

In the 2017 analysis, for the purposes of Theme 5, other modes were rail, car, taxi, and cycling, with only car having any notable impact.

For the current analysis we are considering rail, metro and light rail, and car, with the main impact coming from rail fares post-pandemic.

7 Looking ahead



The bus sector in Scotland, and across Britain, faces significant challenges due to evolving transport needs and increasing competition from private vehicles. These trends are likely to continue reducing bus patronage, intensifying financial pressures on operators. To achieve long-term patronage growth, substantial changes are necessary. However, there are near-term and longer-term measures that can significantly enhance the customer proposition.

The analysis reported here shows that only a small portion of demand drivers are within direct operator control. Even then, factors such as fares, service provision, and journey times, are influenced by external conditions like operating costs, demand levels, and traffic congestion.

To increase bus use, operators and authorities can learn from successful local markets that have adopted proactive approaches. Strong partnerships between local authorities and operators, focusing on the economic, social, and environmental benefits of good bus services, can be instrumental.

Customer surveys consistently indicate a preference for convenience, reliability, and value. In the short term, traditional policy measures like infrastructure investment, parking management, and integrated land-use planning remain priorities. Greater industry coordination and joint initiatives, such as multi-modal ticketing, are essential, especially in urban areas where buses offer convenience, cost-effectiveness, and economic benefits.

Local bus services have a substantial economic and social impact. A recent KPMG report for CPT[9] highlights the sector's contribution to Scotland's economy including:

- **Employment**: Approximately 7,000 people are employed in the sector, generating £300 million in tax revenue, wages, and profits.
- **Economic Benefits**: Bus services in Scotland generate £1,385 million annually, including improved access to jobs, education, and healthcare, reduced congestion, and lower carbon emissions.
- **Passenger Spending**: Bus passengers contribute significantly to local economies, spending £2,960 million annually, including £570 million in additional high street spending.

Achieving a near-term transformation in bus patronage is unlikely through a single measure. A concerted effort is needed to reduce journey times, increase reliability, improve affordability, and leverage technology for enhanced customer information and engagement.

Stakeholders should explore ways for operators, technology firms, and local authorities to collaborate and address challenges. This includes fostering innovation, improving infrastructure asset management, and implementing supportive land-use and transport planning policies that align with Scotland's evolving economic and social needs.

[9] The economic impact of local bus services. KPMG report for the Confederation of Passenger Transport. September 2024

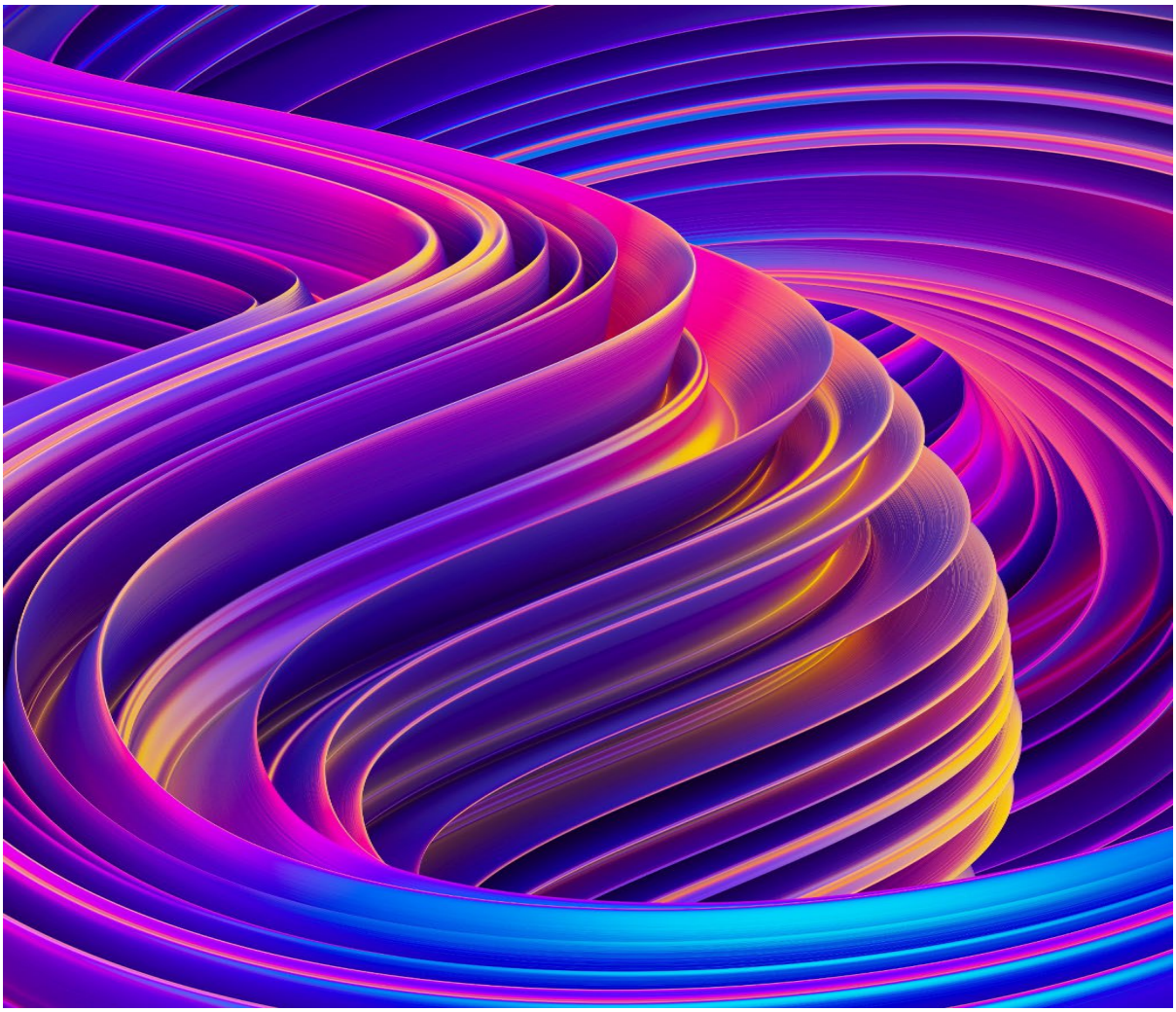
8
Appendix 1: Scope of services

8 Appendix 1: Scope of services

We have provided an update to analysis undertaken by KPMG for CPT in 2017, described in a report entitled: “Trends in Scottish Bus Patronage” published in November 2017. This consists of:

- Overview of recent trends in the use of local buses in Scotland.
- Market trends and disruptors that are affecting bus use in Scotland.
- Identification and analysis of endogenous and exogenous demand drivers.
- Modelling to quantify the impact that changes in demand drivers have had on bus use.
- Building a narrative around the findings of the analysis.

The approach to the analysis and the structure of the report is retained from the 2017 work, but some changes may be made to the selection of trends, disruptors, and demand drivers, due to data availability.



9
Appendix 2: Sources

9 Appendix 2: Sources

Note: All figures include some processing, and some include forward projection before being used in analysis. The tables below show the initial source.

Table 23: Figures

Figure	Source
Figure 1: Annual bus journeys by calendar year	Scottish Transport Statistics Operator data
Figure 2: Influences on bus use	KPMG analysis
Figure 3: Local bus journeys in Scotland	Scottish Transport Statistics Operator data
Figure 4: Bus modal share	Scottish Transport Statistics
Figure 5: Frequency of bus use	Scottish Transport Statistics
Figure 6: Bus and rail journeys in Scotland	Scottish Transport Statistics Office for Road and Rail
Figure 7: Bus journeys in Scotland and England	Scottish Transport Statistics Department for Transport Statistics
Figure 8: Annual bus journeys in Scotland by ticket type	Department for Transport Statistics Operator data
Figure 9: Market trends and disruptors	KPMG analysis
Figure 10: Population	Office for National Statistics
Figure 11: Age composition	Office for National Statistics
Figure 12: Geographic distribution of population	Office for National Statistics
Figure 13: Household car availability	Transport Scotland Statistics
Figure 14: Driving licence distribution	Scottish Transport Statistics
Figure 15: Economic activity distribution	Office for National Statistics
Figure 16: Income	Scottish Government Statistics
Figure 17: Working from home	Office for National Statistics
Figure 18: Online retail	Office for National Statistics
Figure 19: Bus fares	Department for Transport Statistics
Figure 20: Unit cost vs price comparison: full chart (left) and zoom-in (right)	Office for National Statistics
Figure 21: Bus vehicle km	Transport Scotland Statistics Operator data
Figure 22: Rail vehicle km	Office for Road and Rail
Figure 23: Rail price	Office for National Statistics
Figure 24: Glasgow Subway vehicle km	Department for Transport Statistics
Figure 25: Glasgow Subway price	Department for Transport Statistics
Figure 26: Edinburgh Tram passenger journeys	Department for Transport Statistics
Figure 27: Motoring costs	Office for National Statistics
Figure 28: Headline findings	KPMG analysis

Table 24: Statistical patterns behind drivers of change

Tables	Source
Table 3: Age composition impact analysis	KPMG analysis based on Scottish Household Survey
Table 4: Geography impact analysis	KPMG analysis based on Scottish Household Survey
Table 5: Car availability impact analysis	KPMG analysis based on Scottish Household Survey
Table 6: Economic activity impact analysis	KPMG analysis based on Scottish Household Survey
Table 7: Income impact analysis	KPMG analysis based on Scottish Household Survey
Table 8: Work patterns impact analysis	KPMG analysis based on Scottish Household Survey
Table 9: Shopping patterns impact analysis	KPMG analysis of published academic research
Table 10: Bus price impact analysis	KPMG analysis of published academic research
Table 11: Bus provision impact analysis	KPMG analysis of published academic research
Table 12: Bus journey times impact analysis	KPMG analysis of published academic research
Table 13: Commuter rail sector impact analysis	KPMG analysis of published academic research
Table 14: Glasgow Subway impact analysis	KPMG analysis of published academic research
Table 15: Edinburgh Tram impact analysis	KPMG analysis of published academic research
Table 16: Motoring costs impact analysis	KPMG analysis of published academic research

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