

Is There a Link Between Transport Inequality and Socioeconomic Outcomes in Bristol?

Bristol Transport Project | Empirical Mapping and Data Analysis Group (EMADG) |

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How do Bristol residents experience transport? Which wards are more likely to be affected by transport issues? Are these wards more likely to be affected by other socioeconomic issues? Does transport inequality affect active participation in the community? These are some of the questions the Empirical Mapping and Data Analysis Group (EMADG) have been exploring. We find that there are overlaps between transport challenges and socioeconomic inequalities.

We define *Transport Inequality* as the unequal access to transportation infrastructure, services, and opportunities that vary by socio-economic groups. There are different types of transport inequalities experienced: *transport poverty*, *transport desert*, and *transport exclusion or disadvantage* (see Table 1).

Table 1: Transport Challenges Affecting Bristol Wards

Type of Challenge	Definition	Areas Most Affected
Transport Poverty	Transport poverty refers to the inability of individuals to afford transport costs or the lack of affordable mobility options.	Southmead, Knowle West, St Paul's, Lockleaze, Filwood, Easton
Transport Desert	Transport Desert refer to areas where public transport infrastructure is physically missing or functionally absent.	Hartcliffe & Withywood, Lawrence Weston, Stockwood, Hengrove, Whitchurch Park, Avonmouth & Severnside
Transport Exclusion/Disadvantage	Transport disadvantage occurs when individuals are unable to access available transport services due to factors such as geographic isolation, unaffordable travel costs, limited frequency of services, or physical barriers.	Easton & Lawrence Hill, Bedminster, Barton Hill, Southmead, Hartcliffe & Withywood
Overlapping Issues (All Three)		Hartcliffe & Withywood, Lawrence Weston, Stockwood, Hengrove, Southmead

We identified the areas affected by transport challenges using (1) a review of the existing evidence on transport inequality in general and Bristol specifically using academic publications, policy reports, local blogs, and community-led initiatives; and (2) an analysis of the data using the Bristol Ward level data. From our analysis we identified additional areas of concern (see Figure 1).

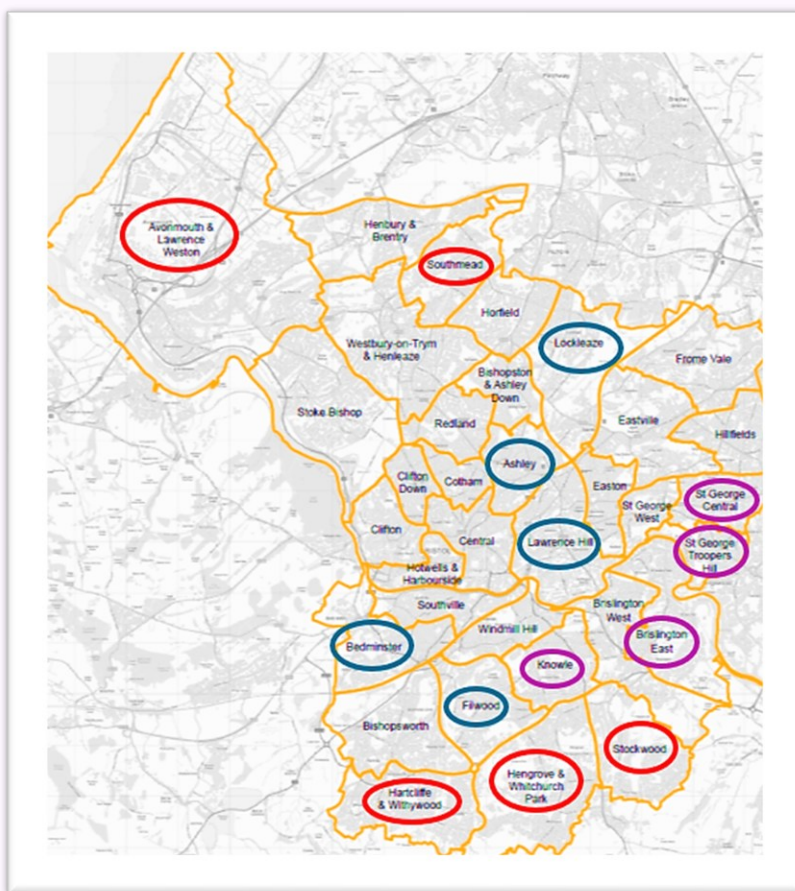


Figure 1: Transport Challenges Affecting Bristol Wards.

Note: Wards affected by all three challenges are circled in red, areas affected by at least 1 issue are circled in blue, and areas identified from the ward-level data analysis are circled in purple.

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Ward Socioeconomic Profiles

We focus next on the transport-challenged areas and examine their socioeconomic profile, particularly in terms of health and

well-being, financial stability, and education. We find that, compared with the Bristol average, residents in these wards report lower life satisfaction, face greater financial difficulties, and have higher levels of pupil absence.

First, we look at general satisfaction with life using data from the Bristol Quality of Life Survey (QoL) 2023. In Bristol overall, 66% of residents reported being satisfied with life (the Bristol average). Figure 2 shows that residents in nearly all transport-challenged wards - except Bedminster, Hengrove and Whitchurch Park, and Knowle - report lower life satisfaction compared with the Bristol average.

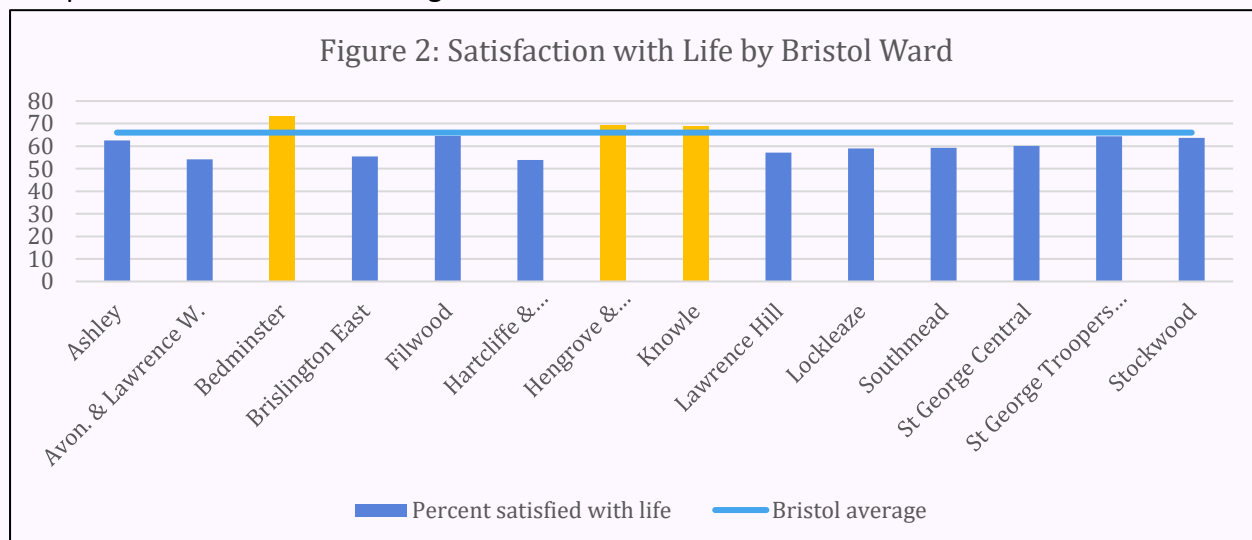


Figure 2: Satisfaction with Life by Bristol Ward. Source: Bristol Quality of Life Survey 2023

In Bristol in 2023, 10.4% of residents found it difficult to manage financially. For our selected Wards with transport challenges, we have 5 wards doing better than the Bristol average. This means that residents in the other 9 wards are finding it more difficult, as high as 25% in Hartcliffe and Withywood, 14.6 percentage points above the Bristol average. In terms of education, we use pupil absences to compare wards and find that pupil absences are higher in these wards excepting 6 (Figure 4).

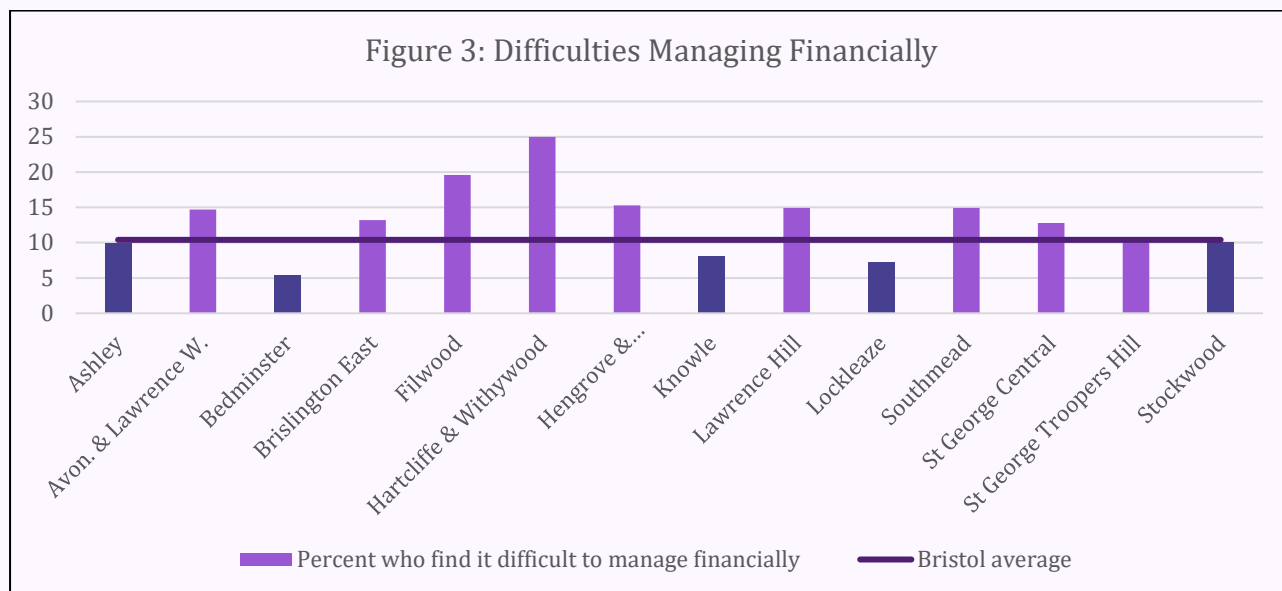


Figure 3: Difficulties Managing Financially by Bristol Ward. Source: Quality of Life Survey 2023.

Another key finding from the socioeconomic profile is that the five Wards facing all three transport challenges — Hartcliffe & Withywood, Lawrence Weston, Stockwood, Hengrove, and Southmead — generally have worse performance than the average for Bristol across the three areas. The exceptions being:

1. Residents in Hengrove reported being more satisfied with life than the average for Bristol.
2. Residents in Stockwood had less difficulty managing financially and had fewer pupil absences than the Bristol average.

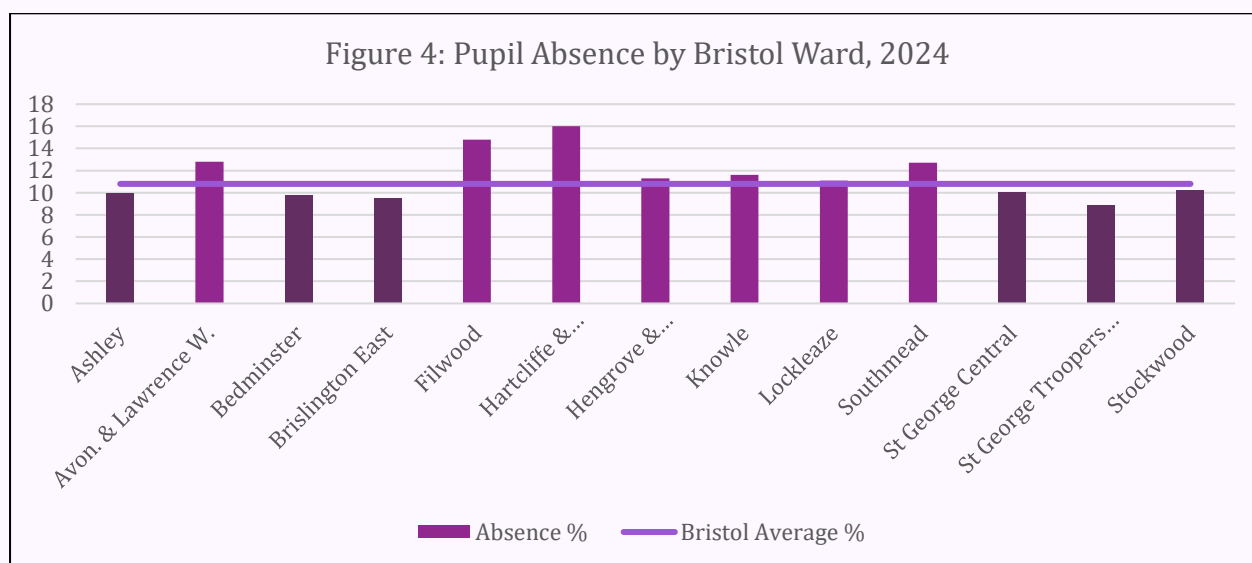


Figure 4: Pupil Absence by Bristol Ward 2024. Pupil absence is based on sessions missed (a session counts as half a day). The data here represents the school academic year 2023-24. Source: [Bristol Ward Profile Tools](#)

Ward-Wise Variation in Experience With Public Transport

Figure 5 captures ward-wise variation on how transport issues stop people from getting involved with the community. For the median ward Hengrove and Whitchurch, 12.6% people find that transport issues prevent them from community engagement.

Several wards which are relatively far from the city centre and lie above the median are colour-coded to signify them (for example Hartcliffe & Withywood, Brislington, Brislington West & East, Filwood, Lockleaze, Knowle, Bishopsworth, Hillfields, Hengrove & Whitchurch Park, Eastville).

However, other wards relatively close to the city centre are also above median. Similar issues prevail here stopping people from getting involved with the community. Some of these wards also happen to have poor socio-economic outcomes compared to other areas in Bristol as seen in Figures 2-4.

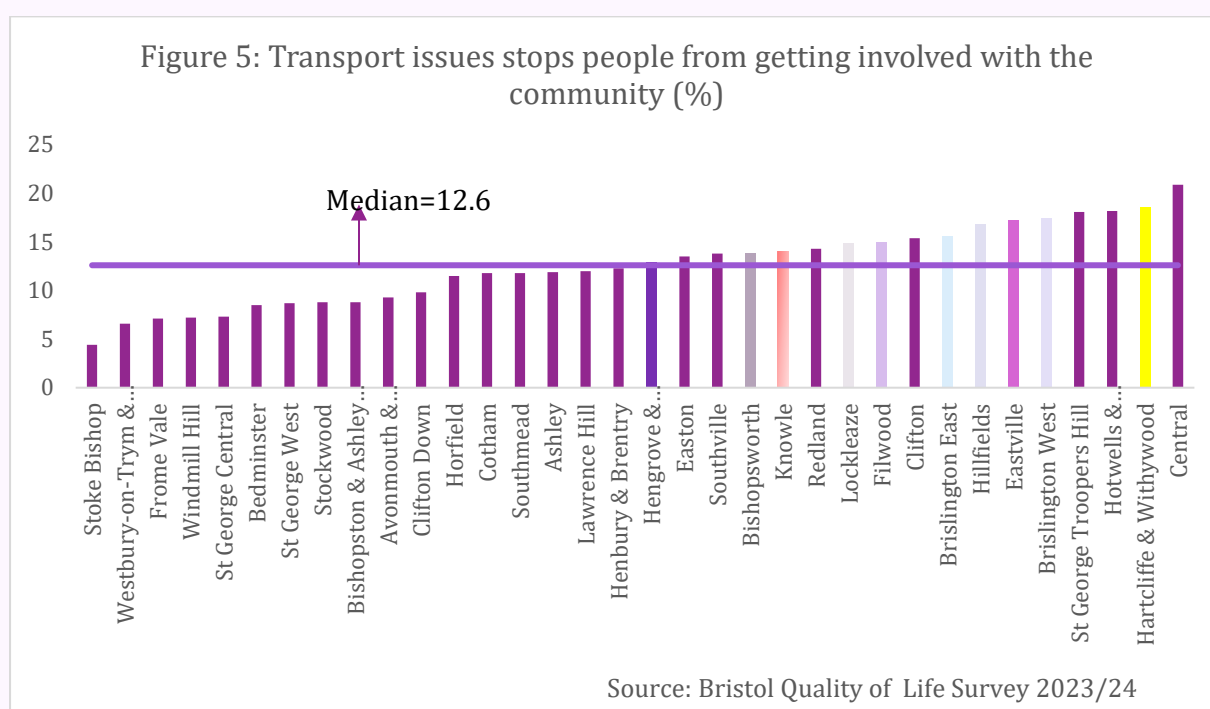
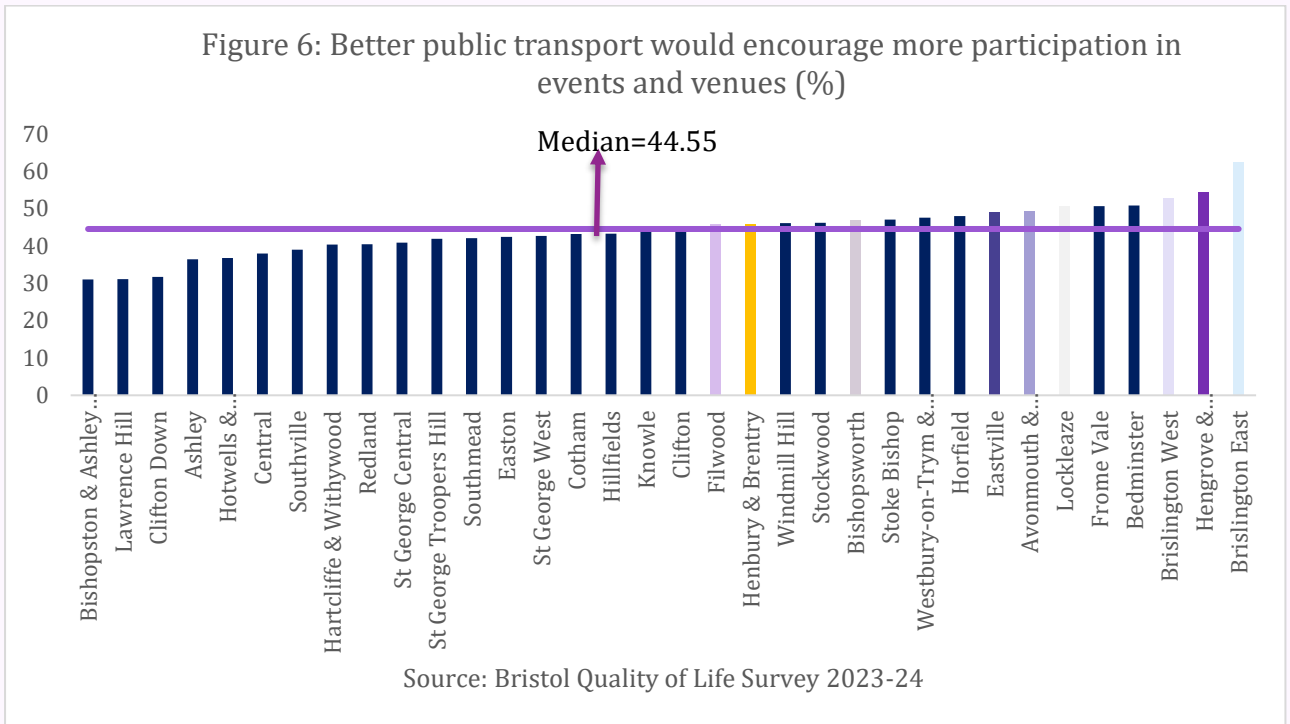


Figure 6 captures the ward-wise variation in residents' views on whether better public transport would encourage more participation in events and venues respectively.

The data shows that several wards which lie above the Median ward (like Brislington East, Brislington West, Hengrove & Whitchurch Park, Lockleaze, Bishopsworth, Eastville) are relatively far from the city centre and tend to be transport deprived.

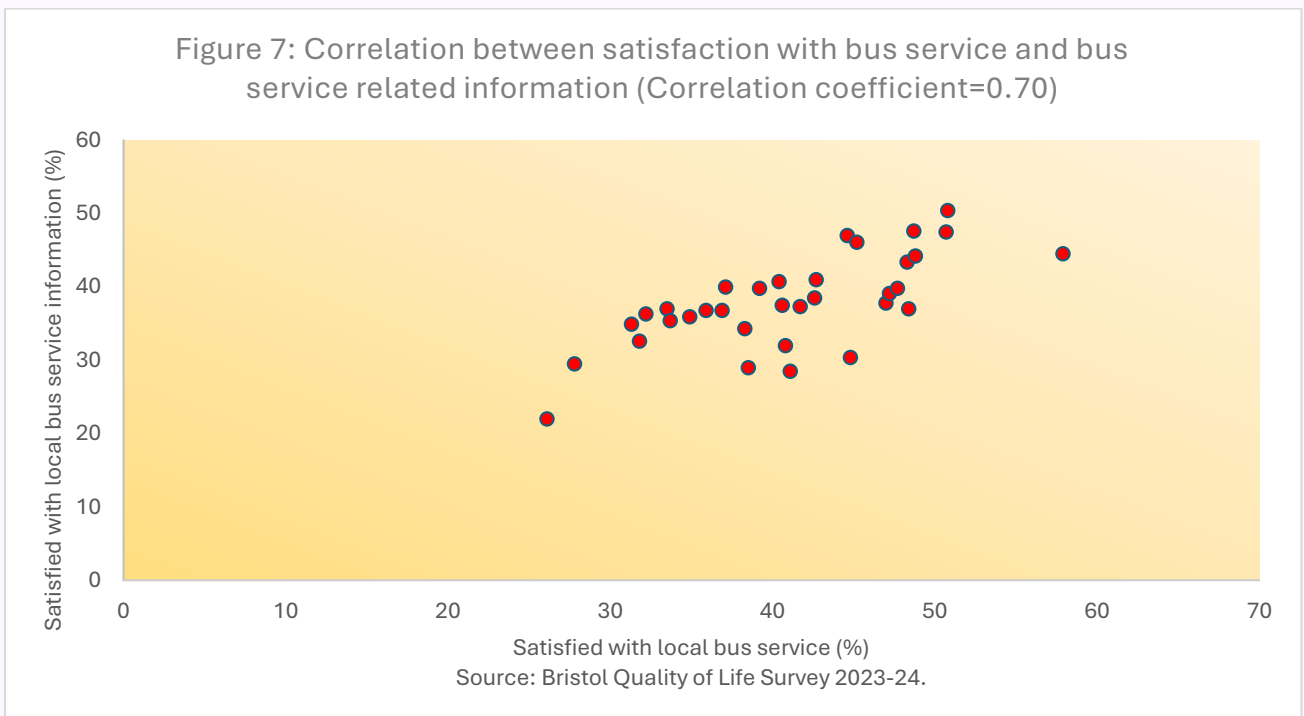
We see that transport issues that act as a barrier for people to engage with public life are more prevalent in some areas than others. We also observe that where people tend to be satisfied with public transport they also are satisfied with the information shared on public transport as seen in Figure 7.



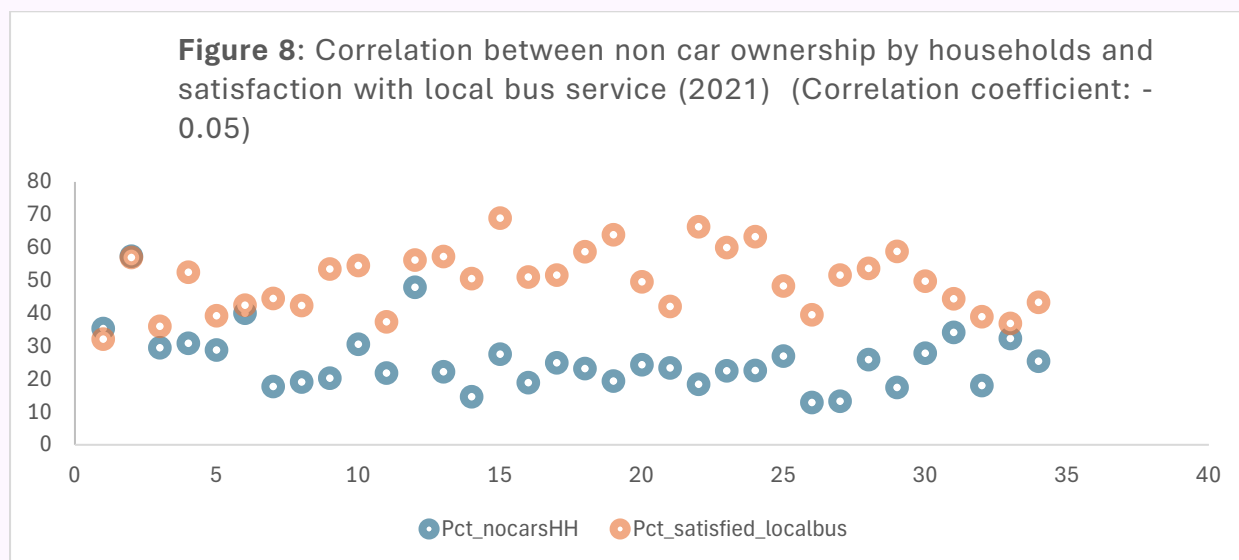
Using ward level data from the Census 2021 and Bristol Quality of Life Survey 2021, we show in Figures 8 and 9 how people who are non-car users (and therefore more reliant on public transport) experience public transport in Bristol.

We do not find any association between non-car ownership and satisfaction with local bus service (as shown in Figure 8). This could be because many non-car users need to be regular users of buses in Bristol.

However, the lack of reliable public transport could prevent non-car users from getting involved in the local community as we find a moderately positive correlation between the two variables in Figure 9.



The Bristol Quality of Life (QoL) Survey provides detailed annual measures of residents' lived experiences across Bristol, covering a wide range of indicators for all 34 city wards. For this analysis, we extracted all indicators under the Transport theme from the 2023/24 QoL Survey and compared ward-level statistics against the citywide average. To evaluate the overall transport performance of each ward, we generated a cumulative score by awarding one point whenever a ward outperformed the Bristol average on a given indicator. The full list of indicators used to calculate this score is presented in Table 2. Certain indicators were excluded from the analysis if it was not clear whether a value higher or lower than the average indicated better performance. Finally, we ranked all 34 wards by their total score, and wards with higher scores exhibited stronger-than-average performance across transport indicators.



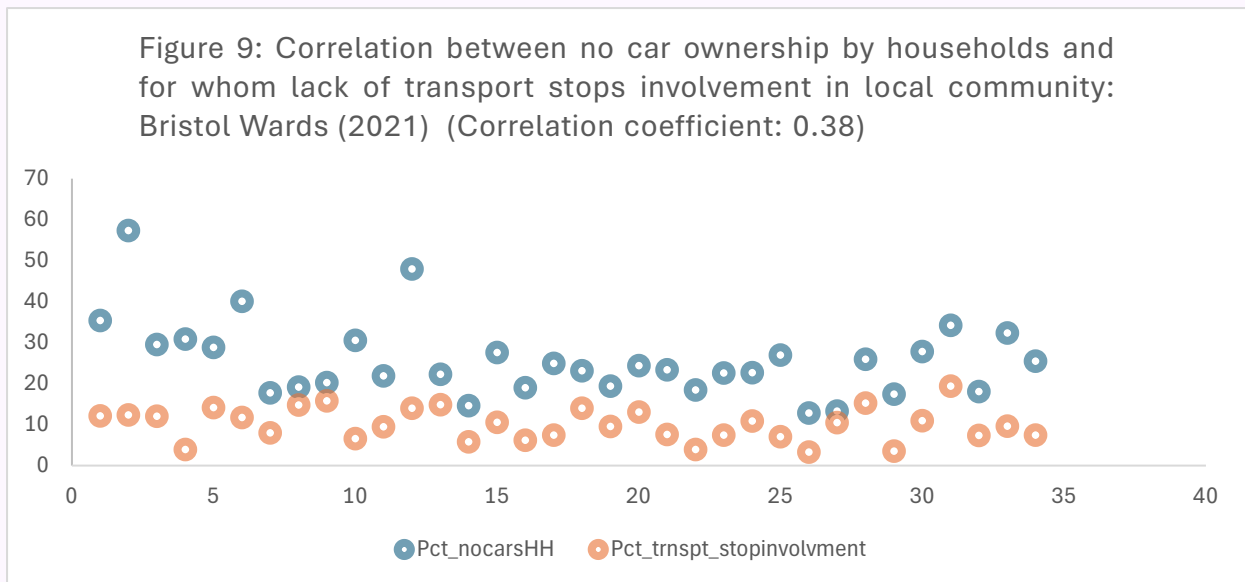
Source: Census 2021, Bristol Quality of Life Survey 2021

Mapping Ward-Level Heterogeneity Across Bristol

Using Datawrapper, we visualised the heterogeneity across wards on a Bristol city map, with lighter-coloured wards indicating lower cumulative scores.

The spatial patterns observed are generally consistent with areas of concern highlighted in previous literature. As shown in the left panel of Figure 10, wards such as Hartcliffe & Withywood, Hengrove & Whitchurch Park, and Stockwood tend to have poorer performance across transport indicators, which were previously found to have overlapping issues of transport poverty, transport desert, and transport exclusion.

To explore the relationship between ward-level transport performance and broader socioeconomic conditions, we also incorporated several indicators from non-transport themes in the 2023/24 Quality of Life Survey. These indicators, listed in Table 3, were selected based on their anticipated correlation with transport outcomes. Using the same methodology, we ranked all 34 wards by the number of non-transport indicators in which they performed above the city average. The resulting spatial heterogeneity is visualised in the right panel of Figure 10.



Source: Census 2021, Bristol Quality of Life Survey 2021

Despite the differing distributions of transport and non-transport scores, there is a clear pattern where several wards that perform poorly in transport also underperform in non-transport domains. Notable examples include Brislington East, Filwood, Hartcliffe & Withywood, and Hengrove & Whitchurch Park. This correspondence offers preliminary evidence - or at the very least, research motivation - for us to investigate how transport inequality may influence a range of socioeconomic outcomes.

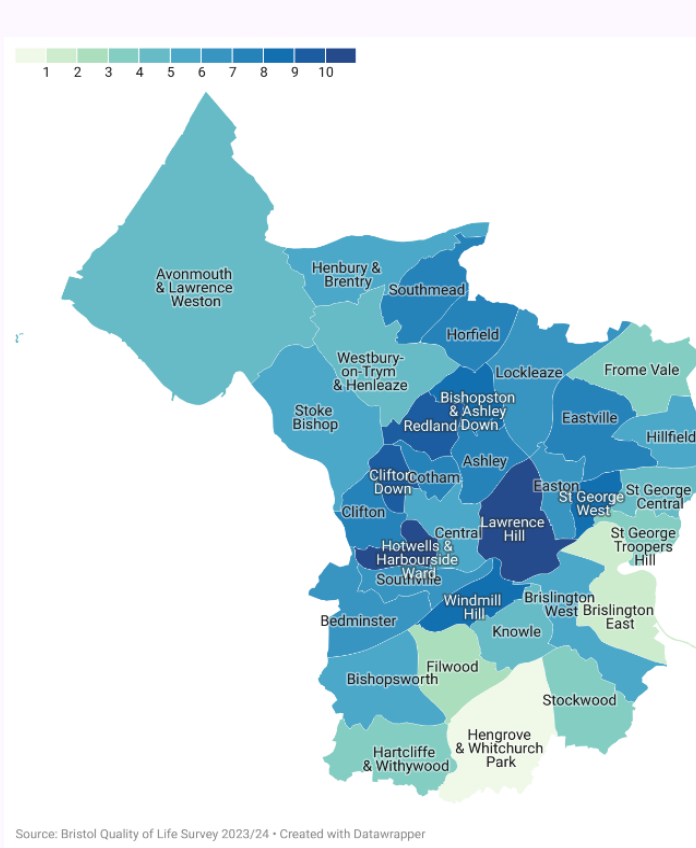
Table 2: Ward-level Transport Indicators in 2023/24 Quality of Life Survey

	Transport Indicators	Polarity
1	% who think traffic congestion is a problem locally	Lower value is better
2	% for whom lack of transport options prevents them from leaving their home when they want to	Lower value is better
3	% satisfied with the local bus service	Higher value is better
4	% satisfied with information on local bus services	Higher value is better
5	% who cycle at least once a week	Higher value is better
6	% who drive to work	Lower value is better
7	% who take the bus to work	Higher value is better
8	% who cycle to work	Higher value is better
9	% who walk or wheel to work	Higher value is better
10	% who walk or cycle to work	Higher value is better
11	% who take the train to work	Higher value is better
12	% who ride an e-scooter to work	Higher value is better

Notes: The indicators were collected from 2023/24 Quality of Life Survey under the theme of Transport. Indicators were excluded from analysis if it was not clear whether a value higher or lower than the average indicated better performance.

Figure 10: Ward-Level Heterogeneity in Transport and Non-transport Indicators across Bristol

A: Count of Above-Average Transport Indicators



B: Count of Above-Average Non-Transport Indicators

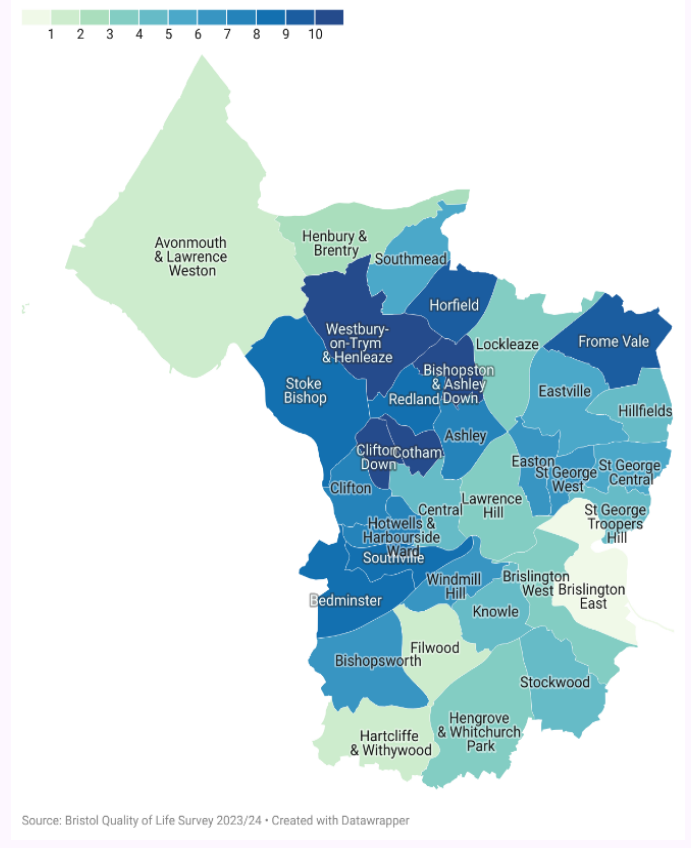


Table 3: Ward-level Non-transport Indicators in 2023/24 Quality of Life Survey

Non-transport Indicators	Polarity	Theme
1 % for whom transport issues stop them from getting involved in their community	Lower value is better	Community & Living
2 % satisfied with the way Bristol City Council runs things	Higher value is better	Council & Democracy
3 % dissatisfied with the way Bristol City Council runs things	Lower value is better	Council & Democracy
4 % for whom better public transport would encourage them to visit venues and events more often at night	Lower value is better	Culture & Leisure
5 % satisfied with the choice of shops and services in their local shopping area	Higher value is better	Economy

6	% who find it difficult to manage financially	Lower value is better	Economy
7	% above average mental wellbeing	Higher value is better	Health & Wellbeing
8	% poor mental wellbeing	Lower value is better	Health & Wellbeing
9	% in good health	Higher value is better	Health & Wellbeing
10	% low life satisfaction	Lower value is better	Health & Wellbeing
11		Higher value is better	Health & Wellbeing

Note: The indicators were collected from 2023/24 Quality of Life Survey under multiple non-transport themes.

In summary, we find that Bristol wards affected by transport challenges also perform worse in other socioeconomic areas. Residents in these wards report lower life satisfaction, face greater financial difficulties, and have higher levels of pupil absence, compared to the Bristol average. We find that transport issues that act as a barrier for people to engage with public life are more prevalent in some areas than others. Using data from the Bristol Quality of Life Survey 2023/24, we find a clear pattern where several wards that perform poorly in transport also underperform in non-transport domains. We see clear evidence on variation in quality of public transport in Bristol, its effects on people relying on public transport and how policy improvements in public transport can improve standards of living across a range of areas in Bristol.