



When Routines Break: Understanding the Resilience of Commuting Behaviour after a Mobility Shock

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Abstract

This paper explores what happens when everyday travel routines are disrupted, analysing longitudinal evidence on how commuting behaviour adapts and recovers after a mobility shock. Treating the Covid-19 pandemic as a natural experiment of large-scale behavioural disruption, the analysis of three travel-to-work modes across survey waves reveals a sharp yet temporary reconfiguration of commuting patterns: public transport use declined sharply, remote work expanded markedly, and private transport proved most stable mode. Transition matrices indicate that most behavioural shifts were short-lived, reflecting a return to pre-pandemic habits once restrictions were lifted. Interpreted through the lens of the *habit discontinuity* and *mobility biographies* frameworks, the findings suggest that while the pandemic temporarily disrupted mobility routines, it did not generate structural change. Policy implications highlight the need to sustain positive behavioural shifts such as remote work and active commuting and to restore confidence in public transport as part of the post-pandemic mobility transition.

Keywords: Travel behaviour; Mobility disruption; Remote work; Public transport.

1. Introduction

The Covid-19 pandemic profoundly altered everyday mobility worldwide, generating one of the most significant behavioural shocks in recent decades. Before this unprecedented disruption, a substantial body of research had already examined commuting as one of the most stable and routine dimensions of daily travel. Commuting

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behaviour is typically shaped by socio-demographic and contextual factors such as income, occupation, household composition, residential location, and transport accessibility. It also shows strong temporal persistence, reflecting the role of habitual decision-making and the constraints imposed by work schedules and spatial structures (Goodwin et al., 2019; Schwanen et al., 2001; Van Wee, 2016).

The sudden introduction of travel restrictions, social distancing rules, and the rapid spread of remote working reshaped how individuals commute and interact with transport systems. Early studies consistently reported a sharp decline in public transport use and a parallel rise in car dependency and, to a lesser extent, active mobility such as walking and cycling (Abdullah et al., 2020; Bucsky, 2020; ISFORT, 2021; Zhang, 2021; Myftiu et al., 2024). These transformations varied across countries and social groups, depending on the intensity of restrictions, perceived health risks, and socio-demographic characteristics including income, gender, and family composition (Harrington & Hadjiconstantinou, 2022; Kwok et al., 2020).

From a behavioural perspective, the pandemic represents a paradigmatic case of large-scale habit disruption (Walker et al., 2014; Verplanken et al., 2008). When external shocks interrupt the cues that trigger routine travel decisions, individuals are compelled to re-evaluate their choices, which may temporarily open opportunities for more sustainable practices. However, the durability of these behavioural shifts remains uncertain, as long-standing habits tend to re-emerge once contextual pressures subside (Verplanken et al., 1997). Understanding whether the pandemic produced temporary or structural effects on commuting is therefore crucial for both transport planning and environmental policy.

This study contributes to the growing literature on pandemic-related mobility changes by analysing the evolution of commuting behaviour in the United Kingdom between 2020 and 2021. Using data from the *Understanding Society COVID-19 Study*, the longitudinal extension of the UK Household Longitudinal Study (UKHLS), it investigates how the use of private transport, public transport, active modes, and remote working evolved across the different phases of the pandemic.

The analysis adopts a descriptive and exploratory approach rather than a causal one, relying on frequency distributions and transition matrices to trace the dynamics of travel-to-work behaviour through four key moments: June 2020, November 2020, March 2021, and September 2021. This longitudinal perspective makes it possible to observe both temporary adjustments and early signs of lasting behavioural change, offering empirical insight into how British workers adapted their mobility choices in response to an unprecedented societal shock.

2. Theoretical Background

Travel behaviour is generally characterised by a high degree of stability over time, reflecting the persistence of habits formed through repeated daily choices (Verplanken et al., 1997). Habits act as powerful cognitive shortcuts that reduce the mental effort of decision-making in familiar contexts. Once established, modal choices such as commuting by car or public transport tend to become automatic, resistant to change, and weakly influenced by rational evaluation or new information (Verplanken et al., 1994).

However, according to the *habit discontinuity hypothesis*, when contextual cues that trigger routine behaviour are disrupted, individuals are forced to reconsider their choices.

Walker, Thomas and Verplanken (2014) argue that disruptions - whether due to relocation, job change, or external shocks - can open a “window of opportunity” for adopting new travel modes. In this sense, the Covid-19 pandemic represents a paradigmatic case of *habit interruption*: sudden restrictions on movement, health-related concerns, and structural transformations in working practices collectively destabilised commuting routines.

Verplanken et al. (2008) emphasise that the strength of the habit determines its resistance to change: the stronger the habit, the greater the effort required to modify it. In the context of mobility, this implies that frequent car users are less likely to shift towards alternative modes unless the disruption is sufficiently intense or prolonged. Conversely, for individuals with weaker mobility habits such as those already exposed to multimodal commuting, the pandemic may have accelerated behavioural experimentation and temporary modal shifts.

Beyond individual-level psychology, broader structural factors shape how such behavioural changes unfold. The *mobility biographies approach* (Müggenburg et al., 2015; Schoenduwe et al., 2015) conceptualises travel behaviour as part of an evolving life course, shaped by interactions between personal trajectories and contextual changes.

According to this framework, external shocks like epidemics, economic crises, or major policy interventions can act as *turning points*, prompting long-term reconfigurations of mobility practices.

Recent research on pandemic-induced mobility restrictions (Espinoza et al., 2020; Myftiu, 2022) has shown that the effectiveness and persistence of behavioural changes depend on both individual adaptability and institutional responses. While temporary restrictions can rapidly alter mobility flows, sustained behavioural shifts often require complementary structural conditions, such as reliable active transport infrastructure, flexible work arrangements, and supportive urban planning.

Building on these theoretical perspectives, this study interprets the Covid-19 pandemic as a large-scale *natural experiment* in mobility behaviour. By analysing temporal transitions between transport modes before and after major pandemic phases, it explores whether disruptions in commuting patterns reflect temporary adjustments or emerging structural changes in the way people travel to work.

3. Data and Methodology

3.1 Data source

This study draws on data from the *Understanding Society COVID-19 Study*, an extension of the UK Household Longitudinal Study (UKHLS) conducted by the University of Essex, Institute for Social and Economic Research (University of Essex, 2021). The COVID-19 survey was designed to capture the short- and medium-term effects of the pandemic on individuals, families, and communities across the United Kingdom.

The data were collected through nine online waves between April 2020 and September 2021. The first wave was fielded in April 2020 (n = 17,761), followed by subsequent waves in May (n = 14,811), June (n = 14,123), July (n = 13,754), September (n = 12,876),

November (n = 12,035), December (n = 11,968), March 2021 (n = 12,680), and September 2021 (n = 12,818).

For the purposes of this research, only the June 2020, November 2020, March 2021, and September 2021 waves were selected, as these are the only waves that include detailed information on travel-to-work modes. Individuals who were unemployed throughout the entire period were excluded. In addition, a flag variable was used to retain only those respondents observed in at least two consecutive waves, allowing for the analysis of behavioural transitions over time.

3.2 Variables and classification

The study examines three main categories of travel-to-work modes, derived from self-reported information in the survey:

1. Private means – including car or motorcycle use;
2. Public means – including bus, train, or metro;
3. Active mobility – walking and cycling;

In addition to modal choice, several socio-demographic and contextual characteristics were considered to interpret the observed behavioural patterns: gender, age group, presence of children in the household, household income level, driving licence ownership, commuting time, and travel distance.

Respondents were matched across waves using their unique personal identifiers. Among non-travelling categories, “*Remote work*” refers to those who were working remotely throughout the reference period, “*Did not travel to place of work last week*” to employed individuals who did not commute during the reference week, while “*Worked zero hours*” identifies those employed but inactive due to furlough or leave. These groups were defined as mutually exclusive and treated separately in the transition matrices. For each transition pair, respondents were required to be employed in both adjacent waves to ensure longitudinal consistency without excluding temporary employment breaks. Missing and not employed/self-employed cases were retained as distinct categories but excluded from the transition analysis. Longitudinal survey weights were applied when computing modal shares to maintain representativeness across waves.

3.3 Analytical strategy

Given the longitudinal nature of the dataset, the analysis adopts a descriptive transition approach aimed at tracking changes in travel-to-work modes across consecutive pandemic phases. The descriptive framework is structured around four reference periods reflecting the evolution of restrictions and social behaviour:

- Pre-pandemic baseline (March 2020)
- June 2020 – phase of tight restrictions and widespread health concerns;
- November 2020 – period of partial reopening and adaptation;
- March 2021 – lockdown combined with vaccination rollout;
- September 2021 – “Plan B” phase with partial return to normality.

For each period, the proportion of respondents using different modes was computed, allowing for the identification of major shifts in modal shares. To further explore behavioural persistence, transition matrices were constructed, comparing individual travel modes between adjacent waves. These matrices quantify the proportion of

commuters who remained in the same mode (stayers) and those who switched to another one (movers).

This descriptive longitudinal approach provides valuable insights into the stability and reversibility of modal choices in response to contextual shocks. While no econometric estimation is performed at this stage, the interpretation of these transition patterns, offers a nuanced understanding of how workers adapted their commuting behaviour throughout the pandemic.

4. Results

The descriptive evidence provides a clear picture of how commuting behaviour in the United Kingdom evolved during the Covid-19 pandemic. Before the pandemic, private means of transport, mainly cars and motorcycles, were already dominant, representing about 58 per cent of commuting trips, while public transport accounted for 11.42 per cent, active mobility for 10.18 per cent, and remote work for only 6.28 per cent. (Table 1). This distribution reflected a consolidated reliance on private vehicles and a relatively modest diffusion of remote work practices.

The first pandemic wave in June 2020 marked a dramatic shift in modal shares (Table 1). The proportion of public transport users fell sharply to just 1.85 per cent, indicating a strong avoidance of shared modes due to health concerns and mobility restrictions. At the same time, remote work surged to 29.21 per cent, becoming a widespread arrangement for many workers. Private means decreased to 31.67 per cent, while active mobility declined moderately to 5.88 per cent, reflecting the overall reduction in physical commuting.

In November 2020, during the second major lockdown, behavioural patterns appeared to consolidate (Table 1). Public transport reached 3.31 per cent of commuters, while remote work peaking at about 25 per cent. The share of private means rise up to 41 per cent. These trends confirm the substantial reorganisation of daily mobility routines under restrictive measures.

By March 2021, coinciding with renewed containment policies but also with the beginning of the vaccination rollout, car use account around 39 per cent. (Table 1). Public transport remained very low at 2.71 per cent, while remote work slightly increase to 27.16 per cent. The modest recovery of private mobility indicates that individuals gradually regained confidence in travelling for work, although many still relied on remote arrangements. In September 2021, during the so-called “Plan B” phase, public transport use partially rebounded to 5.79 per cent, active mobility increased to 8.21 per cent, and private means rose to 46.55 per cent. Remote work declined to about 17 per cent, signalling a progressive but incomplete return to pre-pandemic commuting patterns (Table 1).

Active mobility remained a minor but consistent component of commuting throughout the pandemic. Despite slight declines during the strictest lockdowns, it recovered quickly as restrictions were eased, pointing to a gradual normalization of local, short-distance mobility patterns (Table 1). Its resilience may also reflect the introduction of temporary cycling infrastructure and public campaigns encouraging safe outdoor travel in many UK cities.

Table 1: Travel commuting mode

Commute mode	Pre Covid19	June 2020	Nov. 2020	March 2021	Sept. 2021
	W-0	W-3	W-6	W-8	W-9
missing	2.80	3.22	0.57	1.01	1.62
not employed or self-emp.	10.83	8.61	10.14	11.05	9.28
drive myself by car	54.08	29.78	38.60	36.76	43.63
get a lift with someone from household	2.32	1.37	1.74	1.61	1.85
get a lift with someone outside the household	0.96	0.27	0.55	0.43	0.77
motorcycle/moped/scooter	0.39	0.25	0.23	0.18	0.30
taxi/minicab	0.26	0.19	0.24	0.25	0.29
bus/coach	4.18	1.03	1.60	1.32	2.19
train	4.86	0.51	1.17	0.95	2.47
underground/metro/tram	2.38	0.31	0.54	0.44	1.13
cycle	2.43	1.78	1.64	1.32	2.15
walk	7.75	4.10	4.93	4.46	6.06
other	0.48	0.17	0.19	0.18	0.28
Did not travel to my place of work last week	0.00	1.79	1.08	1.09	1.19
Remote work	6.28	29.21	24.96	27.16	17.20
Worked zero hours contract	0.00	14.28	7.84	8.12	4.06
Emp or Self-emp no commuting	0.00	3.13	3.98	3.67	5.53
Total	100.00	100.00	100.00	100.00	100.00

Remote work, instead, represented the most transformative element in the commuting landscape. The increase from 6 to 29 per cent of workers operating from home during winter 2020–2021 illustrates the depth of this behavioural shock. Although the share later declined, it remained three times higher than before the pandemic, indicating that hybrid work has become a stable component of post-pandemic mobility (Table 1).

For analytical consistency, the transition matrix reports the three aggregated commuting categories used throughout the analysis plus the one related to the non-travelling category: *Private means* include respondents commuting by car or motorcycle, either as drivers or passengers. *Public means* combine users of bus, train, underground or tram or metro. *Active mobility* covers walking and cycling, and *Remote work* refers to those who reported working entirely from home during the reference week. These aggregations ensure comparability across waves, while minor discrepancies with the detailed percentages in Table 1 reflect rounding and the inclusion of secondary modes such as car passengers or motorcycle users.

Across the entire observation period, private transport proved to be the most stable and resilient option, while public transport was the least stable and least attractive (Table 2 and). The sharp fall in its use during the early stages of the pandemic was only partially compensated by later recovery (Table A1 - A3 in appendix). Transition matrices across consecutive waves confirm that private transport users were the most persistent group, while public transport users displayed the highest switching rates, mostly moving towards private means or remote work (Table 2). The transition from public to private modes was particularly pronounced between the pre-pandemic wave (W0) and the first lockdown in

June 2020 (W3) but weakened over time, suggesting that these behavioural adjustments were largely temporary (Table 2 and Table A1 in appendix).

Table 2: Transition matrix between pre-pandemic (W0) and June 2020 (W3)

Group (W0)	Private means	Public means	Active mobility	Remote work
Private means	63.37	0.18	2.61	33.07
Public means	12.66	17.97	4.30	63.29
Active mobility	13.02	2.22	48.96	32.99
Remote work	10.93	0.23	2.33	84.42

Note: Rows represent the commuting mode before the pandemic (W0), and columns represent the mode during the first lockdown (W3). Percentages within each row indicate the share of individuals transitioning from one mode to another. Bold values on the diagonal indicate persistence in the same mode, while off-diagonal values capture modal shifts.

Additional transition matrices reported in Appendix A1–A3 confirm these dynamics across subsequent waves. Between June and November 2020 (W3→W6), modal stability remained high for private and active mobility, while public transport showed limited persistence and frequent shifts towards remote work (Table A1 in appendix). Movements from November 2020 to March 2021 (W6→W8) reveal similar patterns, with public transport users continuing to switch away from shared modes and remote workers exhibiting the highest continuity (Table A2 in appendix). Finally, transitions between March and September 2021 (W8→W9) indicate a gradual normalisation of commuting patterns: private and active mobility stabilised, public transport recovered only marginally, and remote work became more fluid as workplace attendance partially resumed (Table A3 in appendix).

Sociodemographic characteristics further explain the heterogeneity of these patterns. Men were more likely than women to rely on private vehicles and to remote work after the first waves, reflecting gendered differences in occupations and commuting flexibility. Individuals with children, initially more reliant on private means, progressively shifted towards remote work as family responsibilities and home-schooling intensified. Income differences also played a role: before the pandemic, higher-income workers were predominant among private users and remote workers, but from late 2020 lower-income individuals increased their reliance on private transport, while higher-income groups consolidated remote working practices (Appendix A4 – A6).

Taken together, the descriptive findings suggest that the pandemic produced a significant but largely temporary reconfiguration of commuting behaviour. The strong decline in public transport and the parallel expansion of remote work were not fully offset by a shift toward more sustainable travel modes. Instead, private transport remained dominant, indicating the persistence of pre-existing habits once restrictions were lifted. The next section discusses these results in light of behavioural theory and policy implications, focusing on whether the pandemic constituted a temporary disturbance or a true turning point in travel behaviour.

5. Discussion

The results presented above offer compelling evidence that the Covid-19 pandemic acted as a powerful but temporary disruption of commuting habits. Drawing on the theoretical framework of habit discontinuity, the findings illustrate how external shocks can interrupt established behavioural routines, prompting individuals to reconsider their mode choices. During the strict lockdowns, everyday cues that usually triggered automatic travel behaviour such as the time of departure, the route to work, or the use of public transport, were abruptly removed. As a consequence, people made deliberate and context-dependent decisions about how, or whether, to commute.

In line with Walker, Thomas and Verplanken (2014), this disruption opened a brief window of opportunity for behavioural experimentation. Many individuals were forced to shift away from public transport, and some explored alternative options such as cycling or walking. However, as Verplanken et al. (2008) emphasised, the persistence of new habits depends on their repetition in a stable context and on the perceived utility of the alternative. Once restrictions were lifted and the perceived health risk diminished, the reactivation of old routines, particularly car use, was immediate. The strength of established mobility habits and the convenience of private transport largely outweighed the temporary changes observed during the pandemic.

The findings also align with the mobility biographies approach (Müggenburg et al., 2015; Schoenduwe et al., 2015), which conceptualises mobility behaviour as embedded within the broader life course. The pandemic functioned as a collective life event, simultaneously affecting individual routines, family structures, and institutional arrangements. Yet, not all individuals experienced the same capacity to adapt. Those with flexible jobs, digital access, and private vehicles were better positioned to manage mobility disruption, while others, especially essential workers and low-income groups, faced greater constraints. The pandemic therefore not only altered aggregate mobility patterns but also revealed and reinforced existing inequalities in access to transport options.

The descriptive transitions observed in this study suggest that remote working represented the most significant and enduring transformation. The expansion of telework reduced the need for daily commuting and reshaped temporal and spatial mobility patterns. Nevertheless, the environmental benefits of this reduction may be partially offset by the persistence of private car use among those who continued to commute. The contraction in public transport use - driven by risk perception and service limitations - remains a major concern for sustainable mobility. Without targeted policy interventions, there is a risk that the pandemic will have long-lasting negative effects on the modal share of collective transport.

From a policy perspective, the results underline the need to capitalise on the lessons of the pandemic to promote long-term sustainable behaviour. The temporary increase in active mobility, for example, suggests that short-term infrastructure and communication measures can trigger behavioural change when accompanied by supportive conditions. Expanding safe cycling lanes, improving pedestrian environments, and maintaining flexible working schemes could help stabilise these practices beyond crisis contexts. Similarly, rebuilding trust in public transport requires visible improvements in hygiene standards, service reliability, and crowd management. These measures are essential to counteract the negative image of public transport that emerged during the pandemic and to restore its role as a cornerstone of sustainable urban mobility.

Finally, the pandemic experience demonstrates that large-scale disruptions, while traumatic, can also serve as catalysts for reflection and adaptation. Behavioural changes induced by crisis events are rarely permanent unless they are reinforced by structural and institutional support. As Espinoza et al. (2020) observed in their analysis of mobility restrictions, the effectiveness of such measures depends not only on their strictness but also on the availability of viable alternatives. In this sense, the post-pandemic transition represents a crucial moment for policymakers and researchers to understand how temporary behavioural shifts can be converted into durable transformations. Encouraging the retention of sustainable practices, such as remote work where feasible and active commuting for short distances, will require sustained investment, targeted incentives, and consistent communication strategies.

Overall, the discussion of the results suggests that the Covid-19 pandemic did not fundamentally transform commuting behaviour but rather revealed its fragility and potential for change. The temporary nature of modal shifts underscores the resilience of habitual patterns, yet it also highlights opportunities for policy intervention. Recognising mobility as a dynamic process shaped by life events, social norms, and contextual shocks provides valuable insight for designing adaptive and inclusive transport policies capable of fostering behavioural change beyond the boundaries of the pandemic.

6. Conclusions

This paper has explored how the Covid-19 pandemic affected travel-to-work behaviour in the United Kingdom, drawing on longitudinal evidence from the Understanding Society COVID-19 Study. The analysis has shown that the pandemic represented an exceptional disruption of daily mobility, forcing individuals to rethink their commuting choices in response to unprecedented restrictions and perceived health risks. The descriptive findings reveal that while some changes were immediate and profound, most notably the collapse of public transport use and the sharp rise in remote working, these adjustments were largely temporary. Once restrictions eased, traditional commuting habits, particularly the reliance on private vehicles, quickly re-emerged.

From a behavioural perspective, the evidence supports the theoretical assumptions of the habit discontinuity hypothesis: when habitual cues are interrupted, individuals tend to make more deliberate decisions about travel, but the durability of these changes depends on the persistence of contextual factors. In the case of the pandemic, the gradual return to pre-existing routines illustrates the strength of mobility habits and the limited capacity of short-term disruptions to generate lasting transformations. At the same time, the pandemic offered a rare glimpse into the potential for reconfiguring everyday mobility when structural conditions, such as teleworking arrangements or improved local infrastructure, facilitate alternative behaviours.

The results also highlight the unequal capacity of social groups to adapt to mobility disruption. Higher-income workers, those with flexible occupations, and households with access to private vehicles were better positioned to adjust, either by working remotely or by substituting public transport with private means. In contrast, those with limited resources or rigid job structures faced stronger constraints, reinforcing pre-existing inequalities in accessibility and transport options. Understanding these asymmetries is essential for designing inclusive mobility policies that ensure equitable access to sustainable alternatives.

Although this study is based on descriptive analysis, it offers valuable insights into the dynamic processes underlying behavioural change. The use of longitudinal data makes it possible to track transitions across waves and identify the degree of persistence or reversibility of modal choices, an aspect often overlooked in cross-sectional research. Future research could expand this approach by incorporating econometric modelling to formally test the determinants of behavioural transitions and by extending the analysis to post-2022 data, when new hybrid work patterns and travel norms may have consolidated.

Such follow-up analysis could empirically test the habit discontinuity hypothesis by modelling the probability of mode switching and the persistence of commuting choices through longitudinal econometric techniques. This would allow identifying which socio-demographic groups and contextual conditions facilitate lasting behavioural change. From a policy perspective, these insights could inform strategies aimed at sustaining the positive adjustments observed during the pandemic, such as remote working and active commuting, while mitigating the rebound in private car use. The findings call for proactive strategies to transform temporary adjustments into lasting improvements.

Strengthening the infrastructure for active mobility, maintaining flexible working arrangements, and rebuilding confidence in public transport are key steps toward more sustainable and resilient commuting systems. The pandemic revealed both the vulnerability and adaptability of human mobility; leveraging this experience may help societies to redesign transport systems that are not only efficient and safe, but also more environmentally sustainable and socially inclusive.

In conclusion, the Covid-19 pandemic did not permanently alter commuting behaviour, but it demonstrated that even deeply entrenched habits can be temporarily disrupted. Recognising and institutionalising the conditions that made these shifts possible represents the real challenge for post-pandemic mobility policy and for the broader transition toward sustainable urban transport.

6.1 Limitations

Although the Understanding Society COVID-19 Study provides an exceptional opportunity to analyse behavioural changes over time, it has some limitations. The online nature of data collection may have underrepresented groups with limited digital access. Moreover, self-reported measures of commuting mode and frequency may introduce recall or social desirability biases. Finally, as this study focuses on descriptive evidence, causal relationships between restrictions, individual characteristics, and mobility choices cannot be inferred.

Nevertheless, the richness and longitudinal design of the dataset allow for an in-depth exploration of the dynamic interplay between mobility disruption, remote work, and modal reconfiguration during a unique historical period.

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Appendix A

Table A1: Transition matrix between June 2022 (W3) and November 2020 (W6)

Group (W3)	Private means	Public means	Active mobility	Remote work
Private means	93.23	1.52	1.62	3.58
Public means	6.02	85.71	4.51	3.76
Active mobility	19.79	3.34	74.04	2.83
Remote work	18.64	1.90	2.47	76.99

Note: The transition patterns between June and November 2020 reflect the tightening of restrictions during the second national lockdown. Stability in private transport remains high, while public transport still shows limited recovery. Active mobility exhibits moderate persistence, consistent with continued distancing rules, whereas remote work remains a stable alternative for many workers.

Table A2: Transition matrix between November 2020 (W6) and March 2021(W8)

Group (W6)	Private means	Public means	Active mobility	Remote work
Private means	90.14	0.68	1.27	7.71
Public means	10.10	74.24	3.03	12.63
Active mobility	10.42	1.82	82.55	4.95
Remote work	6.32	0.63	0.57	92.36

Note: Movements between groups from November 2020 to March 2021 largely mirror the gradual easing of restrictions and the early rollout of the vaccination programme. Public transport stability slightly improves, while active mobility shows strong persistence. Remote work records the highest continuity, reflecting ongoing home-working guidance.

Table A3: Transition matrix between March 2021 (W8) and September 2021 (W9)

Group (W8)	Private means	Public means	Active mobility	Remote work
Private means	93.52	1.56	2.34	2.46
Public means	6.38	84.57	5.85	2.13
Active mobility	11.58	2.89	84.21	1.05
Remote work	26.27	8.21	4.78	60.35

Note: Transitions from March to September 2021 highlight increasing normalisation of travel routines as restrictions were lifted and the national recovery plan progressed. Private and active mobility remain highly stable, while remote work shows greater fluidity, consistent with the partial return to workplaces and the introduction of “Plan B” contingency measures.

Table A4: Descriptive shifts Pre Covid19 – June 2020

Variables	Pre Covid19 Wave 0				June 2020 Wave 3			
	Private means	Public means	Active mobility	WFH	Private means	Public means	Active mobility	WFH
Gender								
Male	64.43	13.69	10.86	6.73	45.12	2.25	7.33	41.16
Female	64.89	12.69	11.89	7.27	43.00	3.24	8.71	39.93
Age								
16-24	55.47	21.11	19.11	1.54	37.13	7.32	12.74	29.00
25-29	66.14	18.35	11.71	1.90	43.56	3.22	6.68	41.09
30-44	66.05	14.46	10.50	6.07	42.77	2.59	6.44	44.75
45-59	66.04	11.38	11.72	7.59	46.54	2.54	9.17	39.22
60+	62.04	9.17	8.58	12.53	40.64	2.34	7.31	39.77
HH Income								
Up to 130 p.m.	65.91	11.71	12.12	5.89	49.41	4.70	11.25	23.58
£1301 to £2200 p.m.	63.82	13.17	14.63	5.20	46.27	4.36	10.91	34.44
£2201 to £3500 p.m.	68.45	11.37	10.88	6.40	47.31	2.55	9.21	38.95
£3501 to £4800 p.m.	70.09	11.80	9.90	5.79	43.78	1.79	7.16	46.28
£4801 or more p.m.	58.21	17.53	9.89	10.32	35.96	2.21	4.21	55.95
HH Size								
1 p.	58.91	16.88	14.29	5.94	41.08	4.58	7.59	40.12
2 p.	65.35	12.36	10.01	8.29	43.53	2.75	6.92	42.48
3 p.	66.31	12.73	11.51	6.14	43.61	2.12	9.74	40.01
4 p.	66.32	12.13	11.27	6.81	45.59	2.35	8.29	40.47
5 p.	62.77	13.43	12.55	7.45	46.95	3.14	8.32	35.30
6 or more p.	61.36	16.61	13.22	5.76	39.39	4.55	10.61	36.36
Couple living								
No	60.45	19.19	14.80	2.75	41.54	5.28	9.53	36.15
Yes	68.29	12.06	10.57	6.34	44.73	1.91	7.63	42.05

Table A4 – Cont: Descriptive shifts Pre Covid19 – June 2020

Variables	Pre Covid19 Wave 0				June 2020 Wave 3			
	Private means	Public means	Active mobility	WFH	Private means	Public means	Active mobility	WFH
Children								
No	63.23	13.80	11.81	7.06	44.22	3.17	8.12	39.13
Yes	67.87	11.69	10.64	7.01	43.22	2.18	8.19	42.92

Table A5: Descriptive shifts November 2020 – March 2021

Variables	November 2020 Wave 6				March 2021 Wave 8			
	Private means	Public means	Active mobility	WFH	Private means	Public means	Active mobility	WFH
Gender								
Male	53.16	4.07	7.35	34.19	51.49	3.65	6.55	36.87
Female	53.66	5.03	9.39	31.10	51.09	4.10	8.37	34.82
Age								
16-24	54.72	11.42	11.81	19.69	48.94	9.51	9.86	26.76
25-29	50.72	6.30	8.31	32.66	47.87	6.02	8.27	35.84
30-44	51.98	5.05	7.11	34.89	48.90	3.95	6.66	39.07
45-59	55.36	3.57	9.09	31.36	53.15	2.99	7.95	34.67
60+	51.24	4.45	8.61	34.42	51.89	3.98	7.27	35.21
HH Income								
Up to 130 p.m.	57.51	6.43	9.74	24.83	57.41	5.28	8.60	26.68
£1301 to £2200 p.m.	57.82	6.46	10.71	23.98	53.62	6.52	10.51	27.54
£2201 to £3500 p.m.	56.36	3.87	9.66	30.11	56.03	3.20	8.14	32.45
£3501 to £4800 p.m.	54.64	2.62	6.55	35.95	49.50	2.21	7.72	40.46
£4801 or more p.m.	43.24	4.35	5.88	45.76	40.80	3.19	4.68	50.31
HH Size								
1 p.	51.41	7.23	8.70	31.86	48.02	5.67	7.65	36.81
2 p.	52.06	4.56	8.53	34.21	50.96	3.64	7.61	36.94
3 p.	54.33	3.99	8.50	32.05	52.27	3.57	7.29	35.39
4 p.	55.12	3.52	8.83	31.71	53.77	3.43	6.66	34.79
5 p.	55.72	4.87	7.79	28.95	49.36	4.24	9.75	32.42
6 or more p.	53.79	7.58	7.58	28.79	44.77	5.23	11.63	34.30
Couple living								
No	52.38	7.97	9.94	28.17	49.38	7.16	8.69	32.53
Yes	53.82	3.37	8.01	34.01	51.91	2.72	7.18	36.87
Children								
No	53.05	5.04	8.90	31.91	51.58	4.26	7.82	34.86
Yes	54.20	3.77	7.80	33.47	50.54	3.21	7.12	37.39

Table A6: Descriptive shifts September 2021

Variables	September 2021 Wave 9			
	Private means	Public means	Active mobility	WFH
Gender				
Male	58.73	7.30	9.70	22.26
Female	57.94	7.82	10.70	20.94
Age				
16-24	51.45	17.34	15.32	10.12
25-29	51.29	11.01	14.99	20.61
30-44	58.39	7.34	9.23	23.05
45-59	60.19	6.48	10.36	21.73
60+	57.52	6.73	8.57	22.12
HH Income				
Up to 130 p.m.	59.76	8.95	57.41	5.28
£1301 to £2200 p.m.	60.20	8.19	53.62	6.52
£2201 to £3500 p.m.	62.45	6.18	56.03	3.20
£3501 to £4800 p.m.	60.29	5.42	49.50	2.21
£4801 or more p.m.	51.59	8.97	40.80	3.19
HH Size				
1 p.	54.26	10.29	10.40	22.14
2 p.	57.41	6.90	9.95	23.19
3 p.	59.37	6.99	10.98	21.19
4 p.	60.62	7.35	9.20	20.68
5 p.	61.07	6.97	12.30	15.98
6 or more p.	51.96	10.61	12.29	21.79
Couple living				
No	54.40	12.00	11.95	18.40
Yes	59.81	5.78	9.58	22.80
Children				
No	57.44	8.00	10.55	21.31
Yes	59.72	6.85	9.76	21.89