

Impact of Hybrid Work on Rates of Trip Making Post COVID Pandemic

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Overview

During the COVID 19 pandemic working-from-home was adopted as a necessary public health measure across a range of sectors. In subsequent years there has been a large-scale retention of working-from-home or hybrid working patterns by individuals who would have previously worked on-site. As the impact of working-from-home and hybrid working patterns has been identified as one means of reducing the climate impact of travel by policy makers, it is important to evaluate the resulting change in trip making arising from this alteration in work locations.

In response to the trends seen during the pandemic, transport agencies and researchers in a number of countries attempted to estimate the long-term impact on trip rates of such practices while the pandemic was still ongoing. In Ireland, the National Transport Authority (2020) proposed an “alternative future demand scenario” that involved reductions of between 10% and 25% in trip rates for a variety of purposes (with the most marked reductions applying to white-collar work trips and tertiary education trips). Elsewhere, in the UK Steer (2021) examined the impact of five different scenarios on travel demand. In the scenarios where reduced trip rates were assumed, the scale of the reduction ranged from approximately 4% to 6% (depending on social group) for commuting, 5% to 10% for education, up to 10% for leisure/social and up to 7% for business. Other pandemic-era studies attempting to quantify the scale of such effects in the post-pandemic situation included those by Stantec (2021, Scotland), Currie et al (2021, Victoria, Australia), Barrero et al. (2021, United States), Kogus et al. (2022, Israel and Czechia) and Santos and Azhari (2022, England and Wales).

Following the end of the pandemic, actual evidence of such longer-term changes has begun to emerge, notably from various travel survey reports and analyses based on them. A prominent example from the UK is the analysis of National Travel Survey data by Transport Modelling Ltd (2024), which found that commuting trip rates declined by 17.1%, business by 42% and shopping and personal business by 17.5% between 2015 and 2022, whereas education and escort trip rates rose by 2.5% and leisure trips by 8.9%, for an overall 7.7% decline in trip rates (ibid., Table 1). Other UK examples include the Scottish Household Survey (Transport Scotland 2024) and the London Travel Demand Survey (Transport for London 2024), both of which found noticeable reductions in commuting and shopping trips.

In the United States, the National Household Travel Survey (Federal Highway Administration 2024, Table 4-5) observed that daily work trips per person declined from 0.59 to 0.42 (-28.8%) between 2017 and 2022, while “shopping and errands” trips fell from 1.30 to 0.80 (-38.5%), school and church trips from 0.37 to 0.26 (-29.7%), social and recreational trips from 0.93 to 0.67 (-28.0%) and other trips from 0.19 to 0.13 (-31.6 %). Overall trip rates declined from 3.37 to 2.28 (-32.3%).

Methods

To better understand the impact changes to working practices have had on travel patterns, a comparison of trip making was undertaken using two samples of roughly six thousand workers each from the 2017 and 2022 Irish National Household Travel Surveys, with specific emphasis being placed upon the examination of trip rates pertaining to individuals primarily engaged in employment. The study utilises the lens of trip rates (a standard input to strategic transport models), or average home-based trips per person per day, to examine such changes. Both descriptive statistics and negative binomial regression modelling are used to examine the differences in trip frequency by trip purpose and worker-type. To allow for a comparison between the respective survey years, analysis is confined to individuals who stated that their Principal Economic Status (PES) is either "Full Time Employed" or "Part Time Employed". It should be noted that the two respective iterations of the NHTS represent cross-sectional surveys, rather than panel data, so therefore while both are designed to be representative of the Irish population, the resulting datasets contain different individuals.

Results

Clear differences are identified between the two survey years, with respect to both trips to work, and non-work trips made by people whose PES is employed. Table 1 presents an overview of the overall levels of trip making for to-work trips for the two respective survey years. A considerable decline in to-work trips is observed between 2016 and 2022, with mean trip rates falling from 0.72 home-based to-work trips per weekday to just 0.53.

Table 1: Work Trip Rate by Year

	2016	2022
Diary Day Records	6,319	6,051
Mean To Work Trips	0.72	0.53
Low 95% CI	0.70	0.52
High 95% CI	0.73	0.55

Table 2 presents a breakdown of the results with respect to employment type, specifically showing that there has been a much more pronounced decrease in trip making by people in full time employment, when compared to part time workers. Similarly, the trip frequency reduction for white collar workers is greater than for blue collar ones, although this is smaller than the full time/part time difference.

Table 2: Work Trip Rate by Worker Type

	2016	2022
Full Time	0.75	0.55
Part Time	0.46	0.42
White Collar	0.71	0.52
Blue Collar	0.71	0.58

An analysis of trip making for non-work purposes by those in work shows a marked increase in the catch-all category "Other", increasing from 0.22 home-based trips per day in 2016 to 0.43 in 2022. This category includes non-food shopping, social, and leisure trips. This increase in trip making of roughly 0.2 trips per day mirrors the decrease seen in to-work trips

made over the same period presented in Table 1. When all trips made by workers (including to-work trips) are considered, a slight increase in trip making is actually observed between the 2016 and 2022 surveys. While it must be noted that the surveys are comprised of different individuals, given the large sample sizes and relative stability of trip making for food shopping, education, and visiting trips over this period, it appears that to-work trips have been replaced by trips for purposes such as non-food shopping, leisure, social activities etc., resulting in no decline in overall levels of travel activity.

Table 3: Non-Work Trips Rate for Workers

	2016	2022
Food Shopping	0.09	0.07
Education	0.01	0.02
Visiting	0.03	0.04
Other Trips	0.22	0.43
All Trips Combined	1.06	1.10

Finally, Table 4 provides a sample of trip rates estimated via a negative binomial regression model for the purposes of regional model re-basing. These results show both the variation in trip making across segments of workers, and also the non-uniform decreases between the respective years.

Table 4: Sample Trip Rates by Year

	2016	2022
Full-Time Male Rural White-Collar	0.77	0.62
Full-Time Male Rural Blue-Collar	0.80	0.65
Full-Time Male Urban White-Collar	0.80	0.57
Full-Time Male Urban Blue-Collar	0.83	0.60
Full-Time Female Rural White-Collar	0.68	0.57
Full-Time Female Rural Blue-Collar	0.70	0.60
Full-Time Female Urban White-Collar	0.70	0.53
Full-Time Female Urban Blue-Collar	0.73	0.55
Part-Time Male Rural White-Collar	0.50	0.49
Part-Time Male Rural Blue-Collar	0.52	0.51
Part-Time Male Urban White-Collar	0.51	0.45
Part-Time Male Urban Blue-Collar	0.53	0.47
Part-Time Female Rural White-Collar	0.44	0.45
Part-Time Female Rural Blue-Collar	0.45	0.47
Part-Time Female Urban White-Collar	0.45	0.41
Part-Time Female Urban Blue-Collar	0.47	0.43

Conclusions

This research set out to examine changes in trip making frequency for individuals who are primarily engaged in employment. Specifically, this research considers whether the impacts of reported increased levels of remote and hybrid-work are reflected in the trip rates calculated from the Irish NHTS. While to-work trip making is down across most worker types, the results suggest that reductions in trip making via working-from-home or hybrid work are unlikely to be a feasible means of reducing overall travel demand, when viewed from a trip demand perspective, due to increases in trip making for other purposes, although mode shift and trip kilometres reduction may still be achievable given the differing trip length and mode characteristics of various trip purposes.

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