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Australia 6 months after COVID-19 restrictions part 2: The impact of working from home

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ARTICLE INFO

Keywords:
COVID-19
Working from home
Australian experience
Employer and employee support
Implications on the performance of the transport network
Longitudinal data

ABSTRACT

This paper (Part 2 in the paper series), building on earlier studies examining the Australian response, extends on findings related to travel activity, commuting, and attitudes towards COVID-19 measures (Part 1 in the paper series). In this paper we focus in detail on the impact of, and experiences with, working from home (WFH), perhaps the largest of the positive unintended consequence of the pandemic, with respect to transport, and a key lens through which the changing patterns in travel activity and attitudes discussed in Part 1 need to be understood. We conclude that through the widespread adoption of WFH as a result of nationwide public health orders, there is evidence emerging that WFH is now seen as an appealing instrument of change by employees and employers, there is growing support to continue to support WFH into the future. This represents a significant potential contribution to the future management of the transport network, especially in larger metropolitan areas. We also discuss policy implications of this result and what the international community may take from the Australian experience.

1. Introduction

1.1. Literature review

Previous papers (Beck and Hensher 2020a, 2020b) have reviewed the transportation literature on the impact of telecommuting including Nilles (1973), Salomon and Salomon (1984), Mokhtarian (1991), Yen and Mahmassani (1997), thru to Nash and Churchill (2020). Common among these studies is the discussion that working from home may be an important instrumental lever in reducing commuting activity if widely adopted, albeit some conjecture of whether working from home is a complement or substitute for travel activity, but a general finding that telecommuting, or working from home continued to be a niche alternative in the work and commuting mix.

COVID-19 however, brought about rapid and widespread adoption of working from home (WFH) either as a function of an individual’s concern about their own risk of contraction or more typically in response to employer or regulatory measures that made the work from home choice binding for those that could. In Australia, a public health order was issued in all states and territories actively encouraging all businesses to, wherever reasonably practicable, allow staff to work from home. As highlighted in Beck and Hensher (2020a, 2020b), the adoption of WFH has been widespread and in the immediate to short-term aftermath of the first outbreak in Australia, largely positive. This experience has also been extreme in other jurisdictions that have taken a relatively less forceful approach than Australia; for example it has been found that in May 2020, 35.2 percent of the US workforce worked entirely from home, with 71.7 percent of workers that could work from home effectively doing so (Bick et al., 2020).

In examining the changing nature of work, with reference to WFH, as a result of COVID-19 many people have found experiences and attitudes to be favourable. For example, De Haas et al. (2020) found that in the Netherlands, 44% of workers started to or increased the number of hours working from home and 30% have more remote meetings and while 90% of people who reduced their outdoor activities are not expecting to continue to do so in the future, 27% of home-workers expect to work from home more often moving forward. Meta-analysis of global social media data between 15th March and 15th April 2020 found that the emotions associated with most of the tweets were of trust and anticipation indicating that this concept is being welcomed by the people (Dubey and Tripathi 2020). Lai et al. (2020) argue that work-from-home routines can boost both performance efficiency and individual well-being, outlining various ways in which home design might need to be rethought to facilitate more flexible space in the home to accommodate

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https://doi.org/10.1016/j.tranpol.2021.06.005

Received 2 June 2021; Accepted 7 June 2021

Available online 10 June 2021

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future changed behaviour. While working from home has been widely adopted, some have noted that increased amounts of WFH has the potential for negative health outcomes (De Vos 2020); for example, it has been found that for those who were formally using public transport, an additional 21 min of extra activity per day would be needed to offset lost physical activity associated with walking to and from interchanges (Laverty et al., 2020). In a pre-pandemic study Ozbilen et al. (2021) find that all else being equal, respondents with higher durations of telework tend to spend less time on auto and transit, however those with higher durations of online shopping spend more time walking and bicycling. Increased work from home might result in a similar stronger update of walking and cycling. The COVID-19 pandemic has also resulted in loneliness, particularly among younger people and those with mental health symptoms (Groarke et al., 2020), and the workplace is often an environment where people can interact socially. The impact of COVID-19 may also be unbalanced across gender. Craig and Churchill (2020) find that women shouldered most of the extra unpaid workload, and while the childcare duty gap narrowed, the relative gap in housework remained, with ultimately the dissatisfaction with balance of paid and unpaid work rising markedly and from a much higher base for women. It has also been found that mothers have scaled back their work hours to a far greater extent than fathers (Landivar et al., 2020). Additionally, not all jobs are those that can be completed from home. Baker (2020) states that in the U.S. the majority of workers employed in occupations that cannot be done at home, put 108.4 million individuals at increased risk from adverse health outcomes related to working during a public health emergency. There are also potential changes that might arise from future uptakes in working from home rather than a central place of work. Given that individuals are attracted to work environments that mirror their own beliefs and values (Kristof-Brown and Guay, 2011), working from the home might lead to an increased incongruence between the self and place of work. Working out of the home has also meant a redefining of work and family roles, thus making it more difficult than ever to maintain adequate work-family-life dynamics (Guirge and Bohns, 2020). The rise of working from home may also create job-market segmentation which allocates workers to “good jobs” and “bad jobs” and thus further occupational segmentation and inequality (Kramer and Kramer 2020). Trust and management style also play a significant role in worker wellbeing and effectiveness (Grant et al., 2013), in particular managers who cannot “see” their direct reports sometimes struggle to trust that their employees are indeed working. When such doubts creep in, managers can start to develop an unreasonable expectation that those team members be available at all times, ultimately disrupting their work-home balance and causing more job stress (Parker et al., 2020).

In aggregate, the uptake of working from home among those who are able to do so has been significant and likely a disruptive event with longer term implications for where work is completed. Perhaps more importantly, as the impact of the pandemic continues, it has been found that working from home is very effective in reducing infection risk (Fadinger and Schymik 2020), and there is support for the continuation of work from home policies (to reduce public transport use) and strategies that mitigate the risk associated with re-opening of social venues as a result of the second wave of infection witnessed in Victoria (Scott et al., 2020).

1.2. Scope and structure of this paper

In this paper, part two of the analysis of Wave 3 data, we present an overview of the findings on working from home; perhaps one of the most positive unintended consequences of the COVID-19 pandemic. Working from home has been an instrumental part in restricting the movement of people and the wider spread movement of the disease and has been widely adopted within Australia over what is now an extended period of time. We examine the extent to which working from home has prevailed over multiple waves of data collection, how experiences with and attitudes towards working from home have evolved, and how flexible work may also facilitate reduced travel in the peak through greater ability to peak spread when the choice is made to actually commute. We extract policy implications for both the short-term and long-term facilitation of work from home and discuss how it might influence transport policy into the future. The paper is structured as follows: section three provides an overview of the sample collected for Wave 3; section four discusses the results of overarching analysis; section five provides a discussion of the results and the potential policy implications that arise from the result found herein; and section five discusses limitations together with the conclusion.

2. Sample description

2.1. Brief overview

This third wave of the ongoing COVID-19 Travel Survey was in field from the 4th of August to the 10th of October 2020. In total, the Wave 3 data analysed herein is comprised of 956 respondents from all states and territories in Australia. The online survey company PureProfile was used to sample respondents, and the survey was available across Australia in order to examine the widespread impact of COVID-19. A summary of the Wave 3 sample is provided in Table 1. While Wave 1 was collected in March 2020 to ensure as complete a replication of Australian socio-demographics as possible, the focus of Wave 2 (in May 2020) and Wave 3 was to create a valuable time-series panel data set (typically rare in transportation research), as such quotas were not introduced on those completing the survey, other than ensuring representation from all states and territories. The impact of COVID-19 is, however, sufficiently widespread that no demographic can escape the disruption caused.

2.2. A note on analysis methods

When exploring socio-demographic differences, categories consistent with previous published research were used, specifically gender, three age groups (younger (18–34, n = 288); middle-age (35–54, n = 359); older (55 or older, n = 309)), three personal income groups (lower income ($40,000 or less, n = 328); middle income ($40,001 to $80,000, n = 307) and high income (more than $80,000, n = 235)), metropolitan versus regional location (n = 499 and 423 respectively), and lastly Victoria versus the rest of Australia (during which time n = 229 Victorians were in lockdown during July through to November 2020 and the remaining 727 from elsewhere were largely free to move within their state).

It should be noted that all relevant working from home questions, the results of which are discussed herein, were examined for differences across these five socio-demographic characteristics outlined above. Depending on the nature of the data and the relevant hypotheses, a mix

| Table 1 | Overview of survey sample for wave 3. |
|---------|-------------------------------------|
| Female  | 58%                                 |
| Age     | 48.2 (σ – 16.2)                     |
| Personal Income | $62,551 (σ – $46,964) |
| Have children | 35%                                |
| Number of children | 1.8 (σ – 0.8)          |
| New South Wales | 31%                              |
| Australian Capital Territory | 1%                          |
| Victoria | 24%                               |
| Queensland | 22%                             |
| South Australia | 9%                           |
| Western Australia | 10%                     |
| Northern Territory | 1%                        |
| Tasmania  | 1%                                |
of t-testing, ANOVA, crosstabs, and correlations were used. Only differences in behaviours that are statistically significant are presented in the figures or discussed in the text. All testing conducted at the 5% level of significance and results can be provided upon request (given the volume of statistical testing done).

3. Results

3.1. Changes in work and work from home

As with many jurisdictions globally, COVID-19 has had a significant impact on the nature of work. Fig. 1 shows the changing way in which COVID-19 restrictions have impacted the availability of work (being stood down or having significantly reduced number of shifts). The small growth in neither the respondent nor someone known to them being impacted by measures indicates the small increases in economic activity that are occurring as restrictions are eased in many states given the sustained run of low community transmission. Older respondents are more likely to state that they or someone they know have not been affected, younger respondents and those on lower incomes are more likely to state that they have been impacted, while higher income respondents are more likely to state that they know someone who has been affected.

Whether or not respondents have been asked to work for reduced pay as businesses attempt to cope with decreased activity was also examined and is shown in Fig. 2. The results are relatively consistent over Wave 2 and Wave 3, with approximately two-thirds of respondents not having been asked to work for lower pay. Those in regional areas are more likely to state they have not been asked, as are older respondents or those on lower incomes. Those in metropolitan areas are more likely to have been asked, as are younger respondents.

Fig. 3 displays the distribution of days worked in a week (among those who were working prior to COVID-19), while the average number of days worked in Wave 3 (3.8) remains significantly below the average number worked prior to COVID-19 (4.5), we do see that for states outside of Victoria the number of days working is slowly reverting towards the pre-COVID level. Within Victoria though, the stringent restrictions on movement have resulted in the level of work (average number of days worked in Wave 3 for Victoria = 3.1) regressing back to that observed during Wave 1. The only broad socio-demographic different identifiable is that older respondents on average work less days per week in Wave 3, but also worked less days per week prior to COVID-19.

As was the case with the number of days worked, we see the number of days worked from home slowly diminishing over the waves as restrictions are eased. This is shown in Fig. 4. However, and excluding Victoria, we do see some stability in the number of respondents working zero days from home between Wave 3 at around 55% (compared to 71% prior to COVID-19), and the reduction in work from home being those working five days week from home, falling from 21% to 14%. In Victoria, unsurprising the level of work from home in Wave 3 again returns to the same levels seen in the immediate response to the pandemic in Wave 1. In aggregate, those in metropolitan regions, those who are in the middle age group, those on higher incomes, and males all report higher average number of days worked from home during Wave 3.

Fig. 5 shows the aggregate change in the volume of work for respondents relative to their level of employment prior to COVID-19. Outside of Victoria, just over half of respondents (57%) report that they are working the same number of days/hours as before the pandemic, almost a third (29%) are working less, and a small number (13%) are working more days or hours now than before COVID-19. Once again the differences in Victoria are stark, roughly the same number of respondents (44%) reporting less work, as the number who are working the same amount now relative to before COVID-19 (43%). Those on higher incomes are more likely to report that they are working more now, while older respondents as well as those on lower incomes are more likely to report they are working relatively less now compared to before.

We also sought to gain insight into the expectation that respondents might have about the level of employment in the immediate to short term (Fig. 6). While the majority of respondents in Victoria (67%) and the rest of Australia (81%) expect their level of employment to be the same in the next week, in Victoria around one-quarter of respondents (27%) expected to be working less days or hours, compared to 13% elsewhere. In the short-term over the next 3 months the dominant expectation is that the level of employment will remain unchanged, however rather than being positive there is on overall sense of pessimism with slightly more respondents (particularly in Victoria) expecting levels of employment to fall rather than increase, relative to the last week of work. Those on lower incomes are more likely to expect less work over the next week, and less work three months from now.

With regards to the main mode respondents reported using to get to work, Fig. 7 shows a slight increase in private car driving as the reported main mode now compared to before COVID-19, along with a rise in walking. We see that the main public transport modes of train, bus and light-rail have all fallen. Older respondents are more likely to report the car as their main mode and younger respondents are relatively more likely to use the train as a main mode than other age groups. While there are large differences in what is nominated as the main mode in metropolitan and regional areas (for example public transport alternatives are more likely to be available and thus are seen to be more often nominated as the main mode in metropolitan areas), the proportional changes to each mode are very similar to the aggregate changes presented.

Fig. 8 presents insights into how stable employment levels and subsequent commuting behaviour might be, given respondent assessment of what their work might look like over the next several weeks relative to what it is now. The vast majority of respondents either agreed or strongly agreed that over the next several weeks, the days they work per week, how often they work from home, the way they travel to work and the number of times they travelled to work would remain very similar to the last week. Victorians agreed less, on average, that the way the travel to work and the number of times they did so would be similar coming up. Females agreed more strongly to all four statements. Those in metropolitan areas agreed significantly less to the travel modes and number of
trips to work being similar. Older people, on average, expressed higher agreement that the number of days worked, and subsequent travel modes and number of trips would remain unchanged.

Fig. 9 shows the level of concern that respondents have over the risk of COVID-19 at their place of work. On average there is mild concern about COVID-19 and the workplace, with concern being significantly higher on average in Victoria. Metropolitan respondents also report significantly higher average levels of concern. Concern about COVID-19 and the workplace also has a strong and significant positive correlation with concern about hygiene and public transport and concern about the number of people using public transport. There is also a significant positive correlation between concern and the number of days worked from home, but the correlation is weak ($r = 0.096$). Finally, those in sales, community and personal services, managers, and professionals all report significantly higher average concern about COVID-19 and the workplace than other occupations.

3.2. Number of days worked from home

Holding everything else constant, males, those in metropolitan areas, on higher incomes and in older age groups report significantly higher average number of days worked from home. In terms of differences across occupations, Fig. 10 shows that those who are employed in white collar professions report a higher average number of days worked from home compared to blue collar occupations or those who are in service delivery roles.

The size of the organisation (sole traders or firms with 1-4 employees, 5 to 19, 20 to 199, or workplaces with 200 or more employees) for which a respondent works plays no significant role in differences in the average number of days worked from home. Fig. 11 shows the distribution of the average number of days worked from home by industry. It should be noted that within an industry there are many occupations or roles that have lesser or greater ability to have work completed from home.

Fig. 12 shows the distribution of working from home over each day of the week, showing that from Monday to Friday approximately one-third of those working are currently doing so from home.

With regards to the policy within an organisation towards working from home, as shown in Fig. 13, 43% of respondents outside of Victoria are either directed or given the choice to work from home. This percentage is approximately the same as Wave 2 (39%), but down from the 57% observed in Wave 1. In Victoria, however, we once again see a result that mirrors that from Wave 1, with 44% being directed to work from home and 16% being given the choice. The differences are also significant between metropolitan and regional areas with 36% of regional employees in workplaces that have no plans to work from home (compared to 28%) and 24% in a role that cannot be undertaken from home (compared to 17%). Younger respondents are more likely to be in workplaces that offer the choice to work from home, males more likely to be directed.

Respondents also reported the change in work from home policy compared to before COVID-19, which is shown in Fig. 14. While there is no significant difference between Victoria and the rest of Australia with regards to the shift in work from home policy, metropolitan respondents are more likely to WFH more now than before compared to those in regional areas, and regional area employees more likely to be in a
workplace where working from home is not possible/allowed both before and after COVID-19. Higher income respondents are more likely to be able to work from home more now than before.

Respondents were also asked to assess how well the work from home policy had been communicated to them. Respondents found that the policy had been communicated clearly.Victorians on average felt the policy was more clearly communicated than respondents in other parts of Australia, as did those in metropolitan regions. Males, older respondents, and those on higher incomes also found that the communication from their workplace was clearer.

3.3. The experiences of working from home

While acknowledging that working from home does not suit all people, the overall experience with working from home remains, on average, a positive one for employees. Indeed, despite the ongoing pandemic and the now significant period of time over which working from home has become widespread, there is very little change in attitude and experiences from that found in Wave 2; in fact the distribution of responses for each statement is statistically identical, as shown in Fig. 16.1

While respondents perhaps still need more equipment to work from home as well as they would like (males on average agreeing more strongly that they would like more equipment), the majority of respondents agree they have everything they need to work from home successfully and that they have the appropriate space to work from home (though agreement in the metropolitan regions is significantly less, and older respondents are more likely to agree that they have an appropriate space). Respondents agree that they are able to find a balance between work and unpaid work (more likely for older respondents

1 The two questions “I have everything I need to work from home successfully” and “I still require equipment to work from home as well as I would like” were introduced in Wave 3 to gain insight into whether respondents believed they could work from home well (Yes), and if there was room for further improvements (no).
and less for those in metropolitan areas), and can balance the time spent working and not working whilst doing so from home (older respondents also agree more strongly on average to this statement). As a result of the aggregate ability to manage work from home successfully, and the overall positive experience as a result, respondents also indicate that they would like to work from home more often in the future, would like more flexible work times and would also like to commute at less busy times in the future if it were possible. Interestingly for this study, females agree more strongly to these three statements.

We further examined the kind of space a respondent works from when doing so from home. 74% reported that they have their own room/space, while 26% stated that they shared a room/space. It should also be
noted that those respondents who have their own space agreed more strongly that they can balance their time between work and not working, between paid work and unpaid work (e.g. housework, childcare, yard work) and that they have everything they need to work from home successfully. However, there was no difference in how positive the overall experience has been nor whether a respondent would like to work from home more in the future. With regards to the expense of setting up an environment to be able to work from home, Fig. 17 shows that only 15% of respondents had everything they needed prior to COVID-19. In acquiring what was needed, 42% paid for it themselves. Older respondents are more likely to have paid for equipment themselves, with middle aged more likely to have expenses shared between themselves and their employer, and younger more likely to have paid for it but been reimbursed by their employer.

Respondents were also asked to assess their level of productivity when working from home (Fig. 18). The sample average of 3.2 (s = 1.1) indicates that in aggregate those working from home perceive little difference in productivity relative to before COVID-19. The relative perception remains virtually unchanged from Wave 2 and is not even different in Victoria compared to the rest of Australia. Interestingly, metropolitan residents report a lower average level of productivity compared to regional workers. Unlike in Wave 2, however, there are no longer differences in productivity based on age or income. It should also be noted that productivity does not vary based on whether a respondent works in their own space/room or shares space with another while working from home. The perspective of managers and employers was also explored (n = 106 in Wave 2 and 126 in Wave 3), and much like the assessment of a respondent’s own productivity, on average, managers/employers have found staff to be just as productive working from home as they were prior to COVID-19 and that evaluation has also remained unchanged from Wave 2 to Wave 3. While prior to COVID-19 many, especially employers and managers, might have been tempted to think that working from home resulted in employees working less, these results indicate that there has been no change in productivity despite the wholesale shift towards working from home.

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Fig. 14. Change in workplace policy toward work from home.

Fig. 15. Change in workplace policy toward work from home.

Fig. 16. Experiences with working from home.

Fig. 17. Who paid for equipment/technology required to work from home.

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3.4. Expectations of future working from home

Two-thirds of respondents (66%) indicated that they have had conversations around working from home (or staggering work hours). As shown in Fig. 19, among employees around half believe that their work cannot be done from home, while 31% believe that their employer would support working from home either as often as they would like or in some balance with working in the office. Younger respondents are more likely to state that their work cannot be done from home, while older individuals are more likely to believe a balance between work from home and the office would be likely, and those on higher incomes are more likely to state their employer would support working from home as often as they would like. The difference between metropolitan and regional areas is quite pronounced, with 38% of metropolitan respondents stating that their employer will support work from home as often as they would like or some balance between home and the office, compared to 23% in the regions.

Employers and managers were also asked how working from home would be supported in the future, as shown in Fig. 20. Comparing these results with those in Figure 41, it would seem that there is potentially a disconnect between employees and employers/managers, with the latter being more supportive of working from home than potentially expected. Additionally, we see a growth in the support for working from home overall from Wave 2 to Wave 3. Among those managers and employers sampled, 78% have input into work from home decisions entirely or through providing recommendations to the company, with only 22% having no authority in the matter.

Respondents were also asked to state if they would like to work from home for each of the days of the week they normally work. While 51% of respondents indicated they would not like to work from home at all (with regional locations, females, older respondents and those on lower incomes being more likely to provide this response), as shown in Fig. 21 the distribution of working from home is uniform over the days of the week (Mon-Fri). This is very similar to the pattern of working home over the week that we currently observe during Wave 3 (as shown previously in Fig. 12).

Respondents were also asked to state how supportive they think their employer would be for each of the days they would like to work from home. As can be seen in Fig. 22, employees generally feel that their employer would provide support or be extremely supportive of their desire to work from home for any given day of the week (Mon-Fri). Interestingly, Wednesday is the day where there is slightly less perceived support. For all days of the week respondents in metropolitan areas believed their employer to be significantly more supportive, and those on lower incomes felt their employer would be significantly less supportive of working from home on any day Monday thru Friday.

In terms of the actual number of days that an employee would like to work from home, Fig. 23 shows this distribution and contrasts it against the number of days that an employer or manager feels is appropriate for a member of staff to work from home. The average number of days an employee would like to work from home has fallen slightly from an average of 1.9 in Wave 2 ($\sigma = 1.9$) to 1.7 in Wave 3 ($\sigma = 2.1$). While the average number of days an employer or manager feels is appropriate is higher than what employees in the sample have expressed, it has also decreased from 2.6 ($\sigma = 1.8$) in Wave 2 to 2.4 ($\sigma = 1.8$) in Wave 3.
Employees in metropolitan areas, females, older respondents and those on middle and high incomes all express significantly higher average number of days they would like to work from home in the future.

3.5. Staggering of work hours (peak spreading)

A series of questions introduced in Wave 3 explored the propensity for workers to stagger the times that they work, as a strategy to reduce capacity in peak times in light of capacity constraints brought about by the requirement for social distancing; true of both the office, public transport, and even to create space on the road. Fig. 24 shows how willing a respondent is to stagger their work hours to help with congestion and capacity constraints due to COVID-19: 40% of respondents in regional areas cannot stagger their work hours, compared to 28% in metropolitan regions who state they cannot. Conversely, those from metropolitan areas are more likely to be happy to stagger their work hours (27% compared to 18%), which is important as metro areas are more likely to have capacity concerns. Females are more likely to be in employment where hours cannot be staggered, and males more likely to state that they do not want to stagger their work hours. Younger respondents are more likely to be happy to stagger their work hours, and lower income to be in roles where hours cannot be staggered, or where they are staggered already.

Preferences of commuters were also explored, to determine what policy would be most preferable if respondents were forced to stagger their working hours (Fig. 25). Around half would prefer a new set of starting and finishing times that could remain unchanged until restrictions end. There is also a preference that if forced, they would like to leave for work earlier than is currently the case. For those who expressed a preference to leave for work earlier, on average that would be 45 min earlier than is currently the case ($\sigma = 39$) and those who prefer a later departure than normal would prefer to do so 46 min later ($\sigma = 39$). Unsurprisingly, both distributions of departure times are bimodal around 30 and 60 min.

Given the relationship between the ability to stagger work hours and the previously discussed finding that employees would like more flexible working hours in the future and would also like to be able to commute at less busy times if possible, the survey also explored the likelihood that employee would stagger work hours, as well as the position of employers and managers with regards to staggering; the results summarised in Fig. 26. The majority of employees believe that hours cannot be staggered or will not be staggered (total of 62%); however just less than half of managers or employers believe this to be the case (46%). Again, it would seem that there is a potential mismatch between the support that employees expect from their workplace, versus that which might be given by managers or employers (even accounting for the fact that the employers/managers in this sample are not the managers or employers of the employees sampled).

4. Discussion and policy implications

While widespread significant increases in working from home has been one way to curb the movement of people and thus the spread of COVID-19, it has been a more viable option for some members of the community than others. For example, in addition to the findings in Wave 2 (Beck and Hensher 2020b), in Wave 3 we still find that males, those in metropolitan areas, on higher incomes and in older age groups report significantly higher average number of days worked from home. For those working from home, there exists gender inequality in remote work arrangements; for example studies have found that females spend significantly more time performing housework when they work from home than males, and also spend more time doing their jobs with children present (Lyttelton et al., 2020). There is also inequality in access to appropriate technology and space within the home to work successfully, and there are also consequences with regards to social isolation for some working solely from home. Additionally, we find that the impact on work itself is larger for those on lower incomes both in the present (availability of work in the last week) and also the availability of work in the short-term (next week and three months from now).

While working from home remains strong in all states, we do see a decrease from the highs observed during Wave 1 of data collection.
However, the experience in Victoria, where the rapidly growing outbreak leading to severe lockdown measures to battle the spread, saw a rise in working from home to similar levels during the early stages of the initial pandemic response in late March 2020. The Victorian experience serves to highlight that in the context of an ever-changing and unpredictable pandemic, the ability for business (and this employees) to be able to switch to working from home or rapidly increase the volume of work done from the house is a crucial component to organisational and economic resilience. Greater levels of working from home also enable public transport systems to significantly reduce crowding and creating a more viable transport option for those whose travel by public modes is to be encouraged. To that end, working from home should continue to be a part of the work mix even if the pandemic is thought to come under some level of control – as easing restrictions can increase rates of infection (Scott et al., 2020), even off low levels of community transmission.

Additionally, and as highlighted in Part 1 of this paper series, we have seen public transport use remain relatively suppressed, and concern about the hygiene and crowds on public transport remain relatively high compared to pre-COVID-19. While car use and thus congestion has been lower during the pandemic, and travel times significantly improved for all road users (including those unable to work from home benefitting from the improvement), the benefits associated with reduced travel demand could quickly erode should Australians en masse prefer to travel by private car as they also return to work. We have already seen that motor vehicle use is rebounding more strongly than all other modes, and while there is no expectation that working from home would or should continue at levels seen during the peak periods when responding forcefully to COVID-19, even a marginal increase in working from home will effectively create more capacity in transport supply, subject to any continuing requirements for social distancing that may result in a capacity shortage.

Thus, as a society we have a choice to make: we can continue to return to pre-COVID levels of car use (or even greater use), which will result in congestion that is worse than before COVID-19; or adopt a model where people are encouraged to work flexibly by either doing so at home or varying the times they commute for work, which have massive time and cost savings for society. The Australian context seems to suggest that the (effectively) nationwide mandate to allow staff to work from home has created the impetus needed for employees and perhaps more importantly employers, to see that working from home is an eminently viable option for many and work can be completed successfully and with minimal change to productivity. The desire for flexibility in choice has emerged as a major product of the pandemic. In the absence of a regulatory change that forces working from home to occur, transport authorities should work closely with industry (particularly in centres where white-collar employment is high) to create incentives for business to experiment with changes to working from home. The Australian experience seems to indicate that an extended experience will create positive outcomes, a greater uptake than historically the case, with the dividend of reducing strain on travel networks by a not insignificant amount. In our data; more than 50% of respondents feel some or all of their work can be done from home.

There is anecdotal evidence in Sydney that many large organisations...
are planning to make more extensive use of working from home than previously (for a variety of reasons including those discussed in Beck and Hensher 2020): financial advantages, risk management, the wellbeing of staff, and the increased attractiveness of employment offers due to more flexible work); the employers and managers in our sample are in general more supportive than the employees think they would be. The dividends to business of more flexible work are potentially large. Now is the time for transport policy makers to point to these potential organisation dividends and encourage organisations to have conversations internally about the role working from home might have moving forward. Our research indicates that when outlining why respondents would be needed in the office, the biggest needs are not for day-to-day work, but for reasons of building social connections, sense of team and community, solving more difficult or complex problems, and training. These are tasks that can still occur at a central location, and will not be eliminated in a world with increased work from home. This is especially the case for young staff who are in the early days of building networks where face to face contact is an important element.

Wave 3 was collected some six months after the initial outbreak in Australia, and it is admittedly still unclear as to what direction will ultimately be taken with regards to working from home, particularly in the context of the habitual nature of human behaviour. However, the duration and scope of the disruption caused by COVID-19 is unlike anything we have seen before and in the face of such a shock, there is potential for new habits and processes to have been developed over that six-month time period. Our results show that many respondents have made significant investments in technology and equipment to work from home and many agree that they have what they need to work from home successfully. It is likely that respondents will want to see a return on their investments. Our data also indicates that on the whole, working from home has been a positive experience for those that been able to do so, and if anything the attitudes towards working from home have become more positive from Wave 2 to Wave 3. Similarly, there is a strong desire for the ability to work from home to continue, and strong evidence from both employees and employers that productivity whilst working from home has been maintained.

For the benefits to be maximised, the incidence of working from home needs to be spread evenly over the working week. This is currently occurring and the future preferences for working from home expressed also indicated that no one day (Monday thru Friday) is preferred to any other when it comes to wanting to work from home. It is again important that transport authorities liaise with businesses, or provide communication around the importance of evenly apportioning working from home over the week in order to maximise system benefits, effectively flattening the peaks. Additionally, while some also argue that increased activity is needed in urban areas to stimulate economic activity, this argument ignores the redistributive effect that working from home has had on local small businesses and non-CBD economies.

While there has been much attention on working from home as a policy measure, staggering work hours is a complementary and perhaps under-discussed policy instrument. A large percentage of respondents are open to having their work hours staggered; and again if businesses are able to take a coordinated approach to staggering hours such that true peak-spreading can be achieved in the system (there could be a role for governments to play a coordinative function in this process), greater benefits will accrue. Perhaps in an expression of the desire for habit, if work hours were to be staggered, the majority prefer one change to their hours that they can adapt to, preferably leaving earlier for work than normal.

5. Conclusion

The impact of COVID-19 has been profound, and while the vast majority of the outcomes have been negative, there have been a number of unintended positive consequences. The natural experiment of COVID-19 has shown work from home to be a viable well-being option and has the potential to take a large amount of pressure off transport networks. While understanding that work from home is a more viable alternative for some than others, if those people who are able to work from home do so, then the benefits of their absence in the transport network will also be transferred to those that are not able to work from home via relatively less congested transport networks and thus better traffic flow and commute times. Additionally, we are finding that behaviour and attitudes within regards to working from home in Wave 3 are remarkable consistent with Wave 2 and the future working from home that respondents would like to engage in. This suggests that, with the support of employers and governments, we may be beginning to see glimpses of a ‘future equilibrium’ wherein on any given day, approximately 30% of those working may be doing so from home, a huge boon to the transport system. Moreover, the evidence that working from home is evenly distributed over the week, means that the ability to plan without peaks varying through the week enables some new thinking on transport priorities that include deferring investment where there is more capacity that thought pre-COVID-19, or alternative investment to support better working from home as a complement to transport expenditure. At no point have we argued that working from home should or will continue at the rates observed after Wave 1 or in Victoria during Wave 3, but rather an increased use of flexible work practices as a low public cost approach to reducing significant lost productivity that arises due to congestion. It is still demonstrably the largest transport lever to reducing travel demand on any given day, outside of road pricing reform which may be required should people continue to favour the car above all else. Change in thinking among managers and employers is already occurring and we should seize the momentum to create a flexible workplace that works better for employees and employers. Clearly more research, and research over a longer time horizon, is required to understand the role of working from home within different organisations, and the mix of processes and procedures that make working from home a more successful and long-term viable option. There are a growing number of studies that are delving more deeply into the relationship between specific work activity and the flexibility of where this work can be undertaken (including the remote or satellite office in lieu of the home location) (see Jacoby and Holland, 2019 and Mak and Kozlowski, 2019).

Acknowledgments

This research is part of iMOVE Cooperative Research Centre (CRC) research projects 1–031 and 1–034 with Transport and Main Roads, Queensland (TMR), Transport for News South Wales (TfNSW) and WA Department of Transport (WADot) on Working for Home and Implications for Revision of Metropolitan Strategic Transport Models.

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