

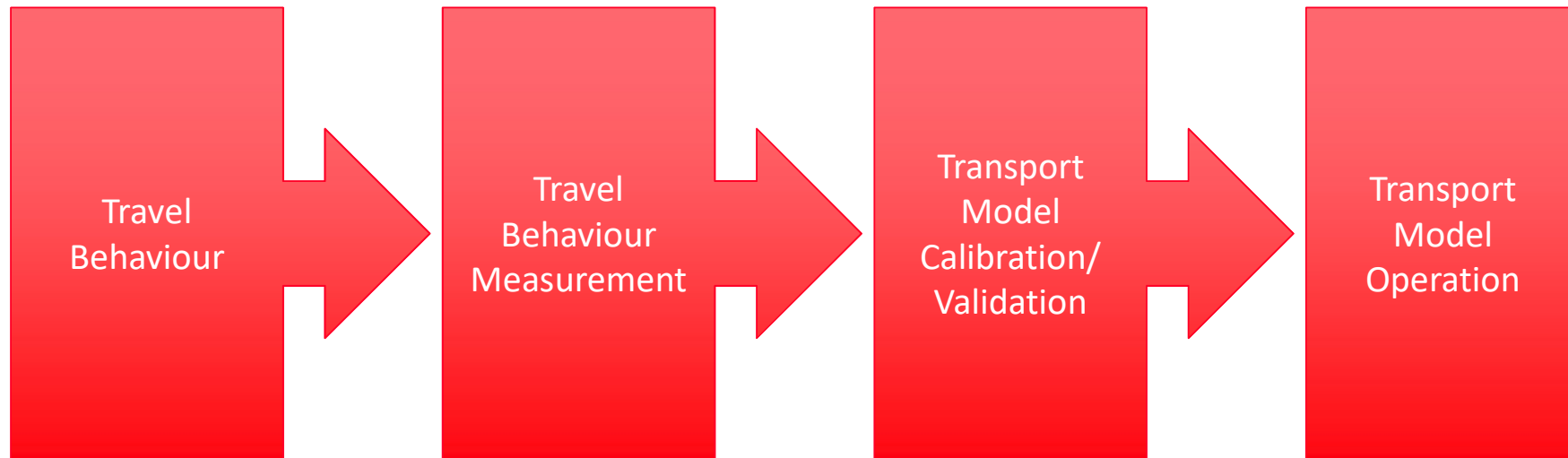
COVID: Opportunities and challenges for modelling – a southern hemisphere perspective

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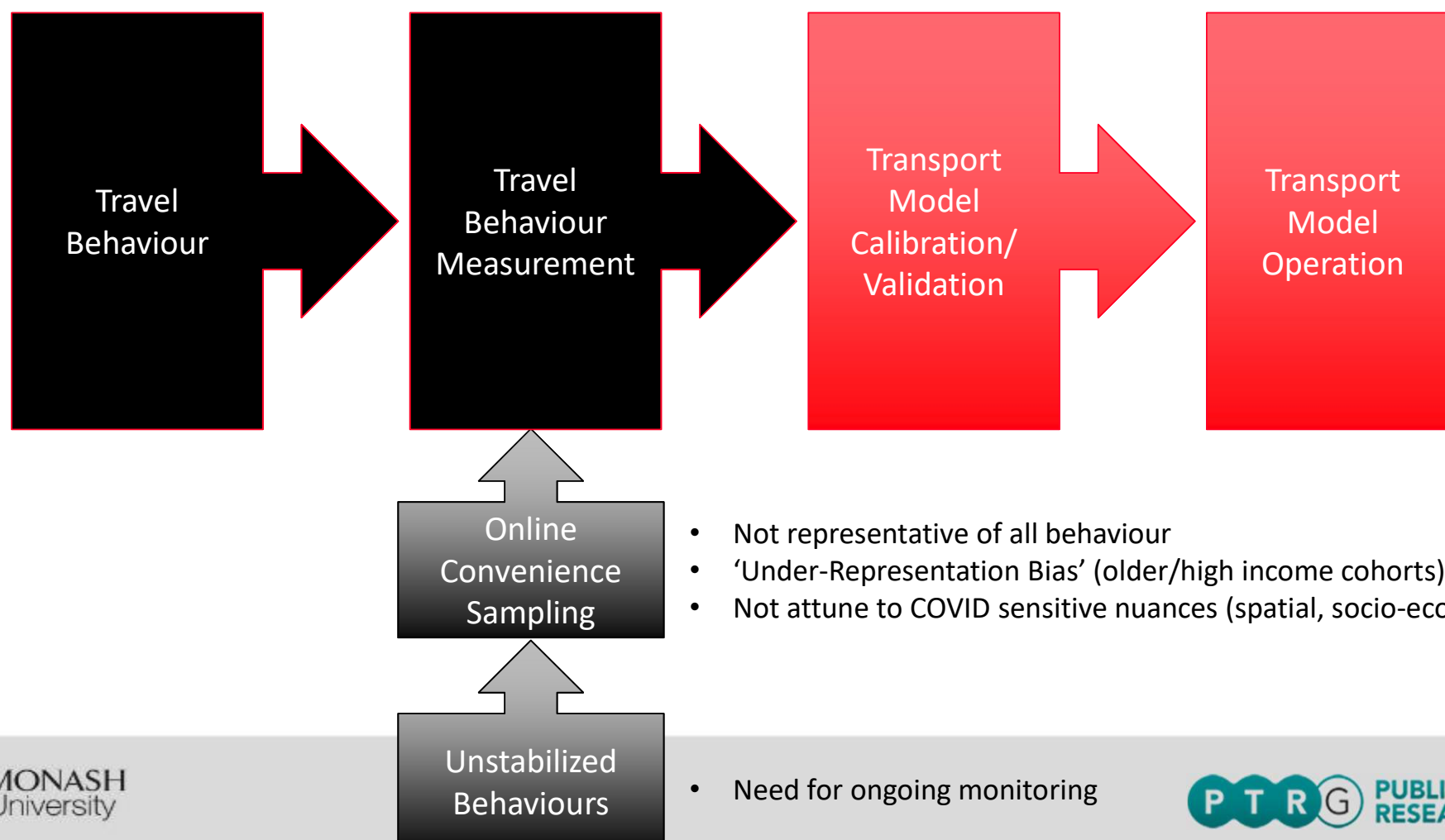
The Transport Modelling process is the same with and without COVID...

The Transport Model Development Process (Pre-Covid)



...the COVID modelling challenge is that we are using the wrong methods to measure travel behaviour; and that behaviours have not stabilised.

The Transport Model Development Process (Post-Covid)



We developed an online survey to measure POST-COVID travel behaviour with a representative sample to remove ‘under representation bias’ – Here is what we found about travel behaviour

Online Panel Survey Questionnaire – Areas Covered

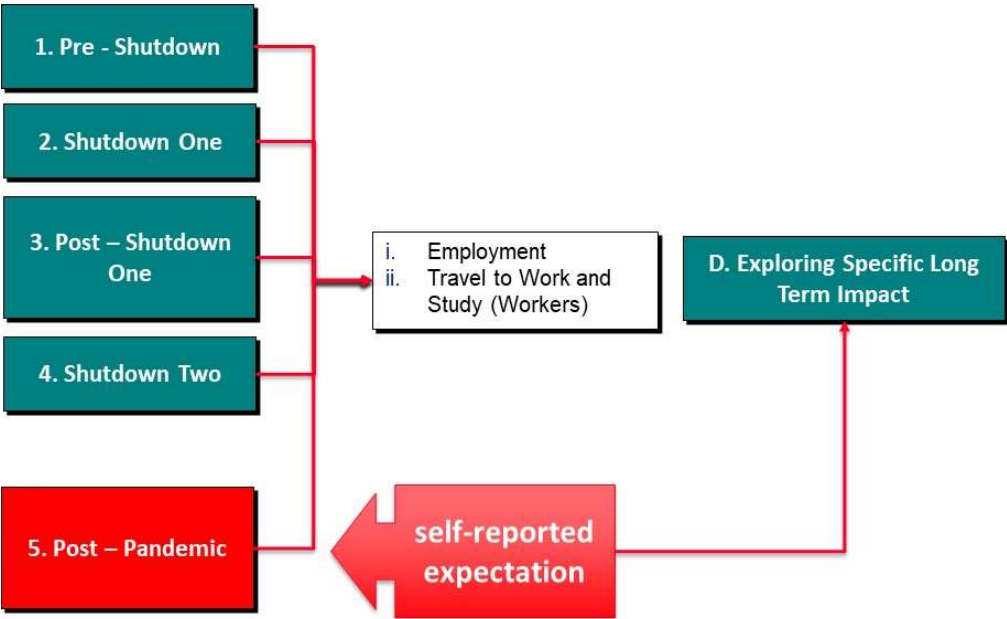
Sample Frame¹

INNER MELBOURNE (n=700)					
Age Group	Annual Personal Income , Before Tax				Total
	Nil Income	Less than	Between	More than	
	Target	Target	Target	Target	Total Target
18-29	53	96	83	16	248
30 - 44	12	43	86	79	220
45 and over	12	89	62	69	232
Total	77	228	231	164	700
MIDDLE MELBOURNE (n=700)					
Age Group	Annual Personal Income , Before Tax				Total
	Nil Income	Less than	Between	More than	
	Target	Target	Target	Target	Total Target
18-35	37	73	92	36	238
36-54	17	43	87	90	237
55 and over	18	107	64	37	226
Total	72	223	243	163	701
OUTER MELBOURNE (n=700)					
Age Group	Annual Personal Income , Before Tax				Total
	Nil Income	Less than	Between	More than	
	Target	Target	Target	Target	Total Target
18-35	26	87	97	24	234
36-53	15	64	101	56	236
54 and over	18	122	65	25	230
Total	59	273	263	105	700
GRAND TOTAL					
Age Group	Annual Person Income, Before Tax				Total
	Nil Income	INCOME 1	INCOME 2	INCOME 3	
	Target	Target	Target	Target	Total Target
AGE GROUP 1	116	256	272	76	720
AGE GROUP 2	44	150	274	225	693
AGE GROUP 3	48	318	191	131	688
Total	208	724	737	432	2101

Pre-Stratification Sampling

Sample Frame Targets under represented Cohorts; income and age

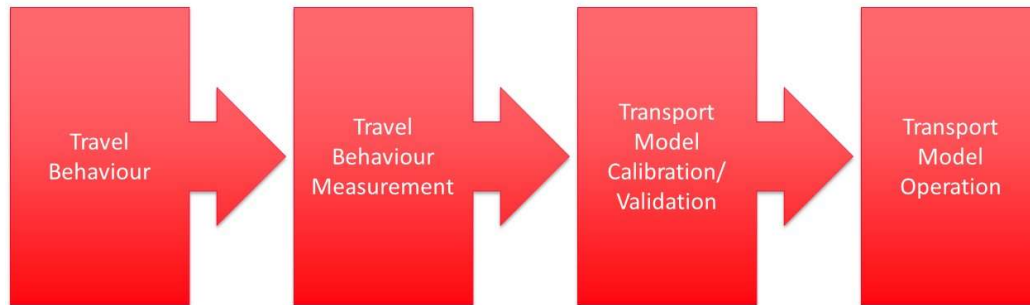
Questionnaire Approach



- Note:
- (1) Quotas in a sample aim to ensure representation of the community with respect to key/influential demographic and spatial criteria
 - (2) Statistical accuracy minimums are a sample of 600 to achieve a 95% confidence that any result is within 4% standard error.

There are four KEY new behaviours for POST-COVID modelling

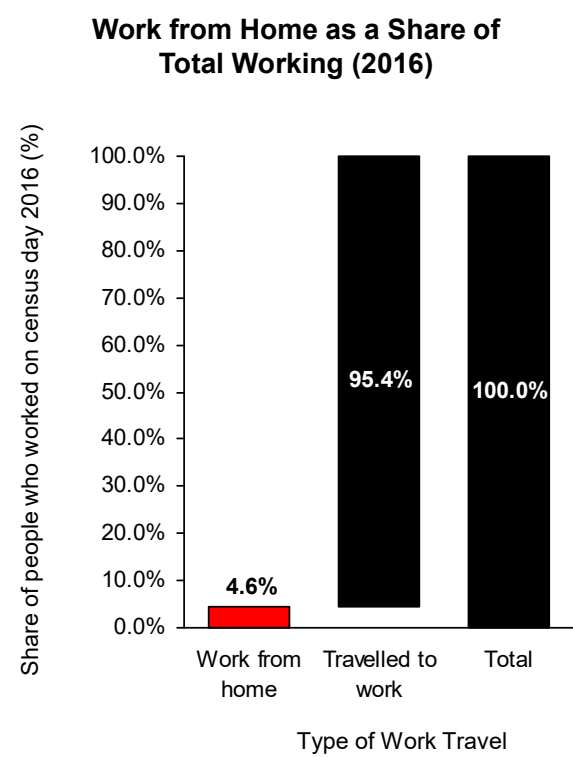
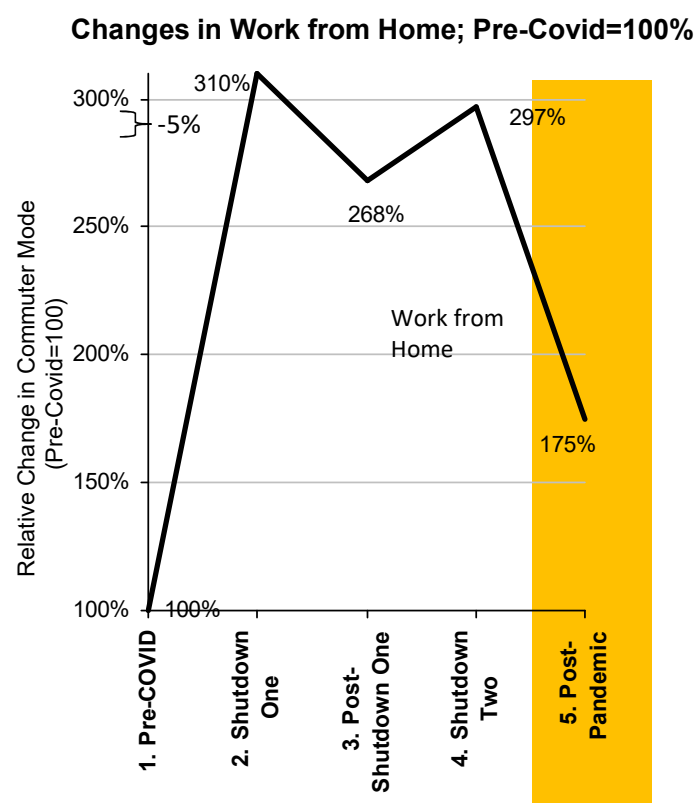
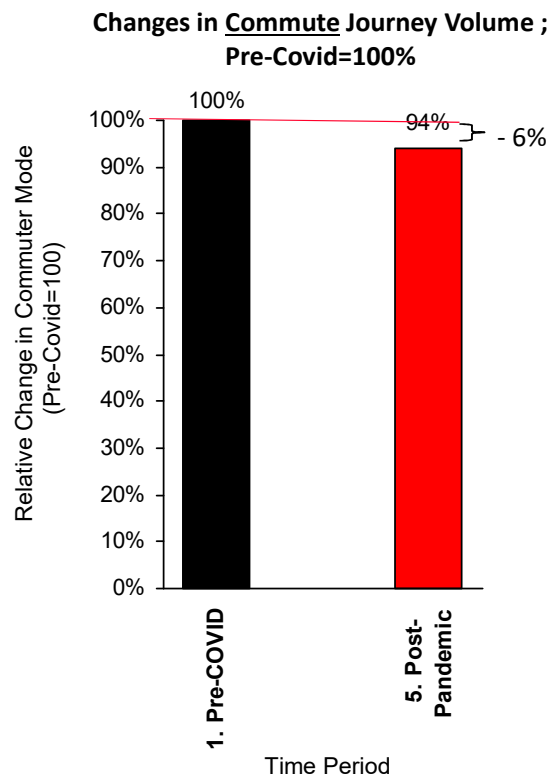
The Transport Model Development Process



1. **Commute Trip REDUCTIONS** - due to increased **WORK FROM HOME**
2. **MODE SHIFT** from Transit to Car Driving – due to **INFECTION FEAR**
3. **SPATIAL** Variations in the Above
4. **SOCIO-ECONOMIC** Variations in the Above

POST COVID total JTW travel declines by 6% - mainly due to increased WFH – the scale of shift is small (6%) because WFH is small as a share of work

1. Commute Trip REDUCTIONS - due to increased WORK FROM HOME

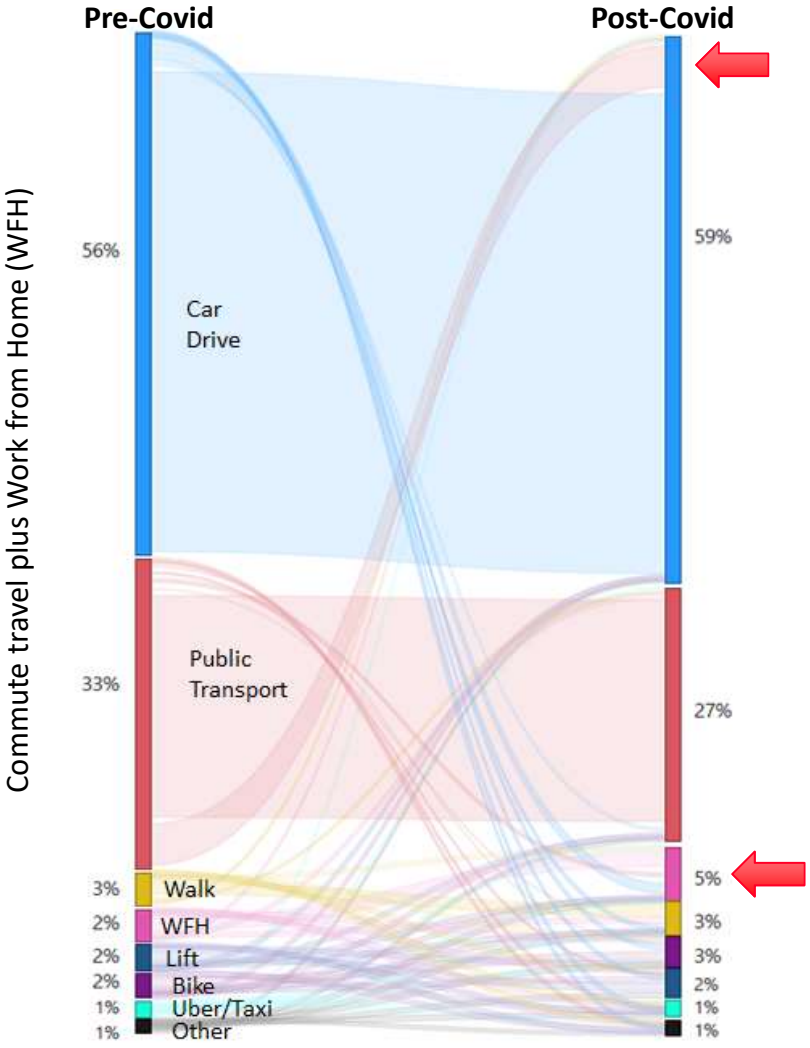


Note:
(1) Monash - August 2020 Online Panel –final sample - Self reported activity participation volume per week
(2) Weighted sample; representative of total Melbourne travel

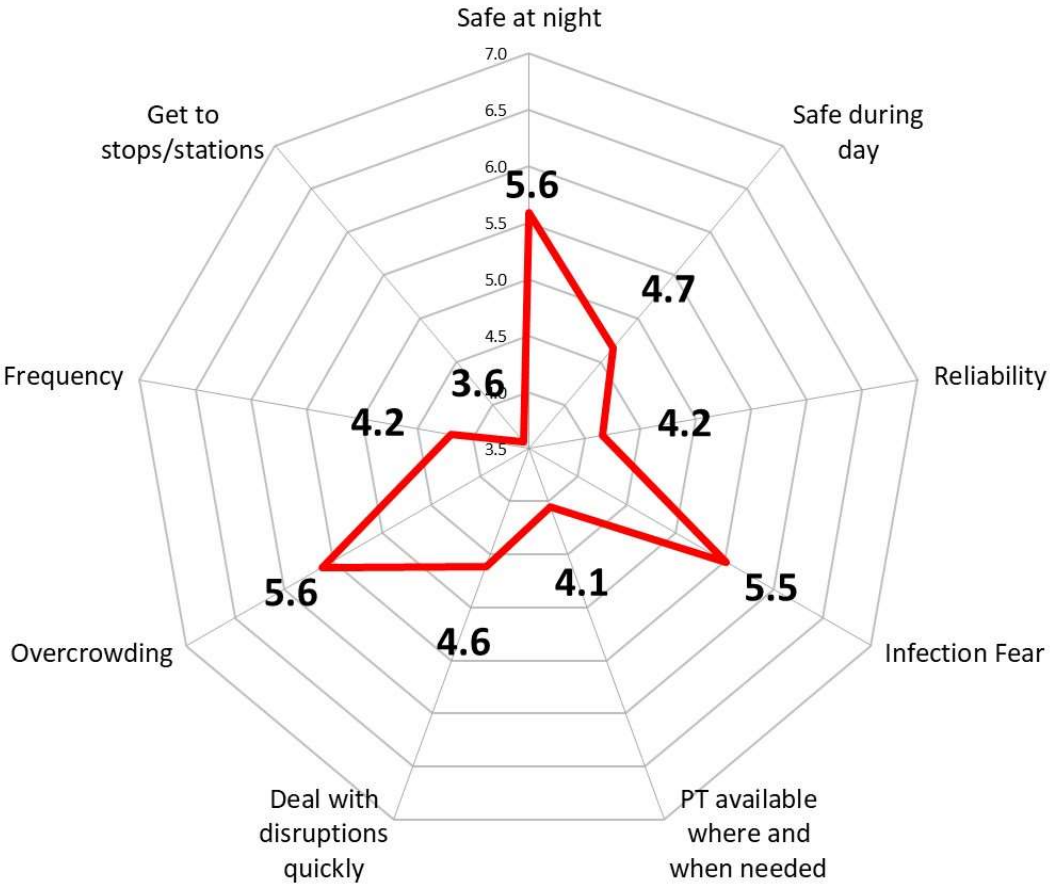
Source:: Australian Bureau of Statistics, 2016 Census Journey to Work

POST COVID JTW travel has a mode shift from transit to car-drive – this is caused by ‘residual infection fear’

2. MODE SHIFT from Transit to Car Driving – due to INFECTION FEAR

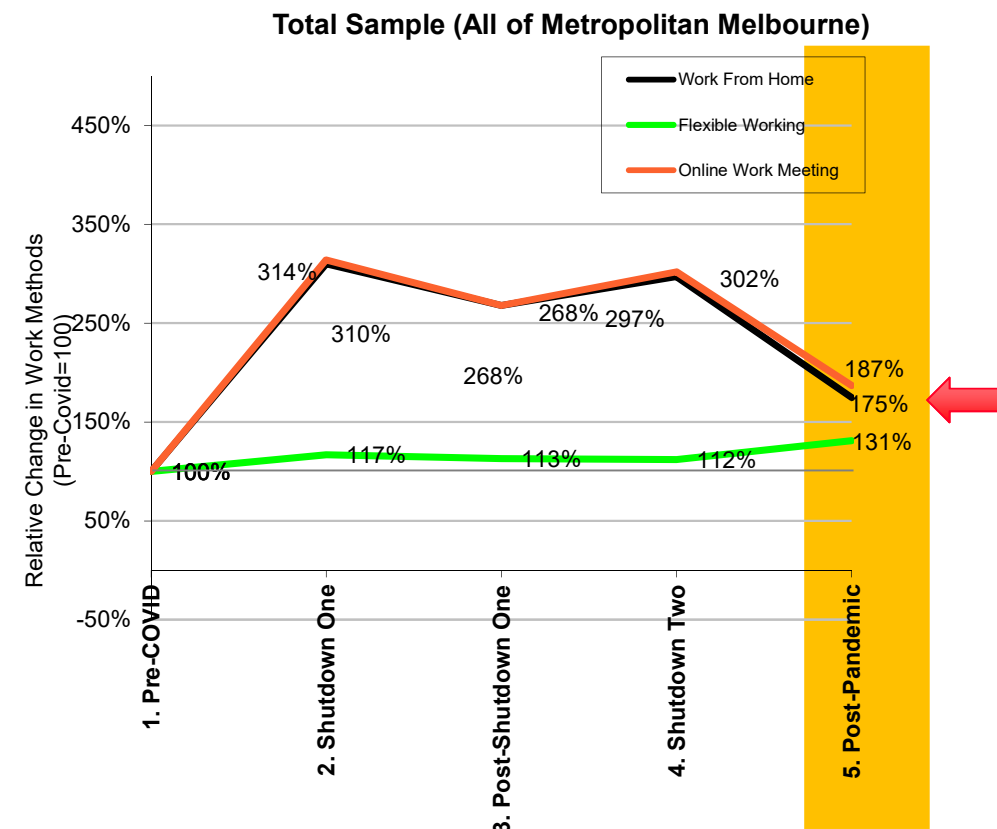
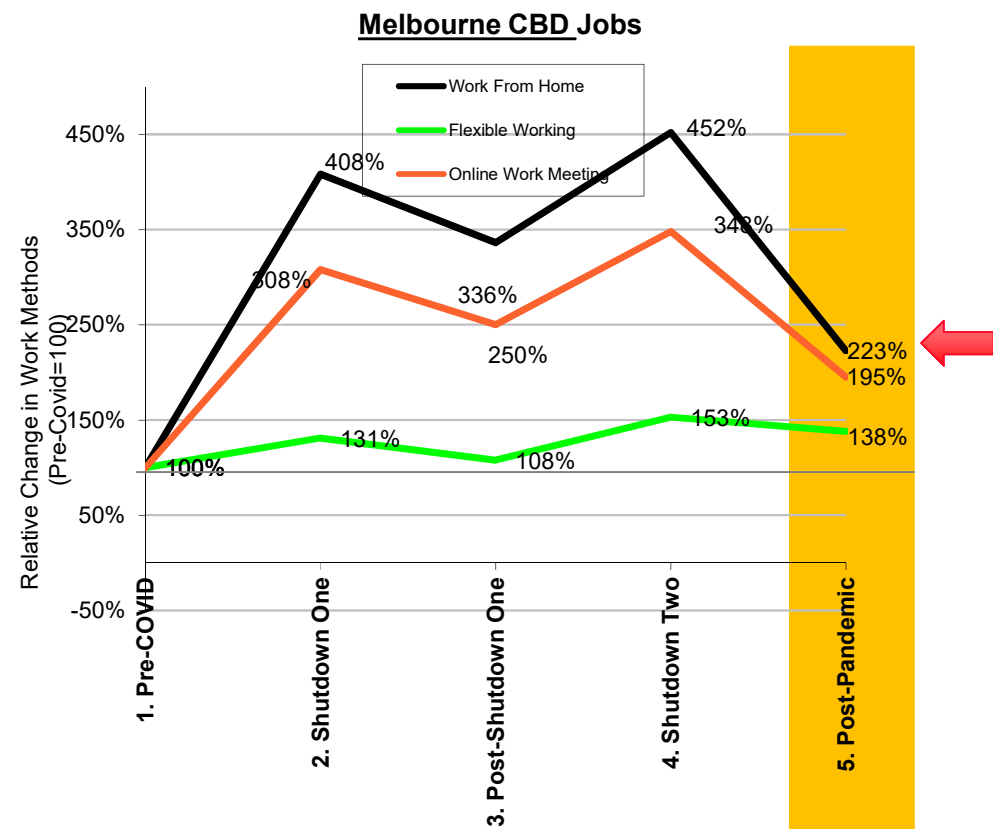


Perceived Concerns About Public Transport – Performance Rating



Work from Home is MUCH more common for CBD workers; Post Pandemic WFH is expected to more than double (+123%) compared to pre-covid, much higher than for Melb as a whole (+75%)

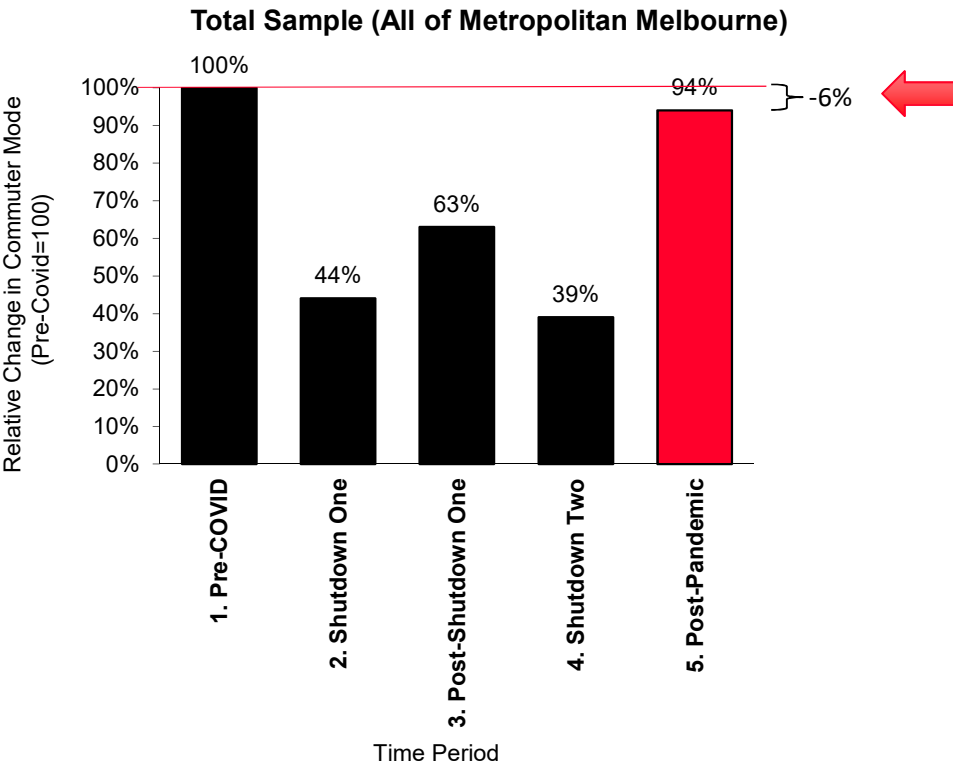
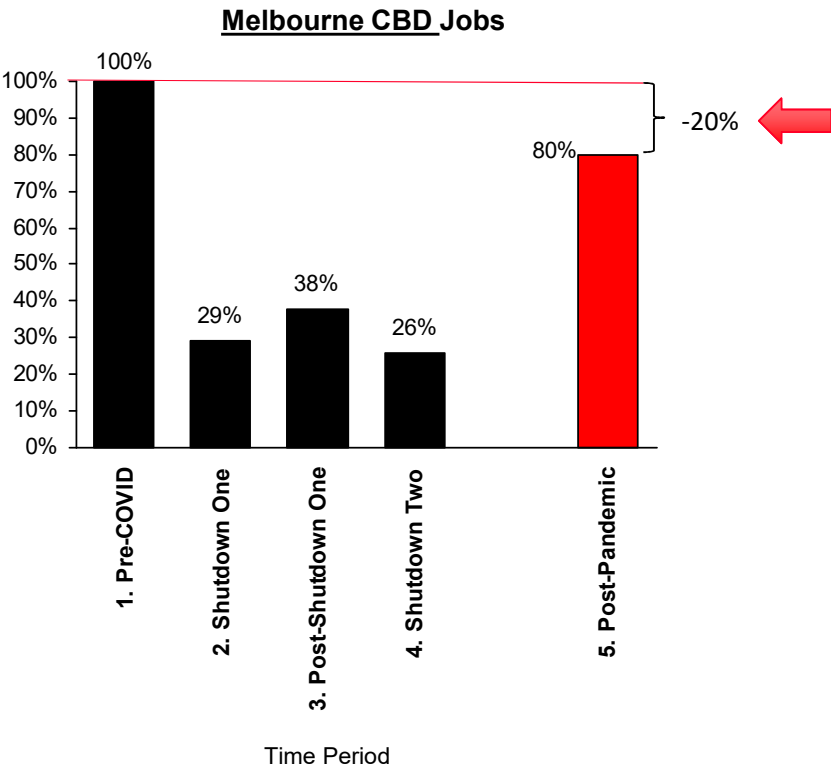
3. SPATIAL Variations in COVID Behaviours



Note:
(1) Monash – August 2020 Online Panel Survey – final sample - Self reported activity participation volume per week (2) Weighted sample; representative of total Melbourne travel

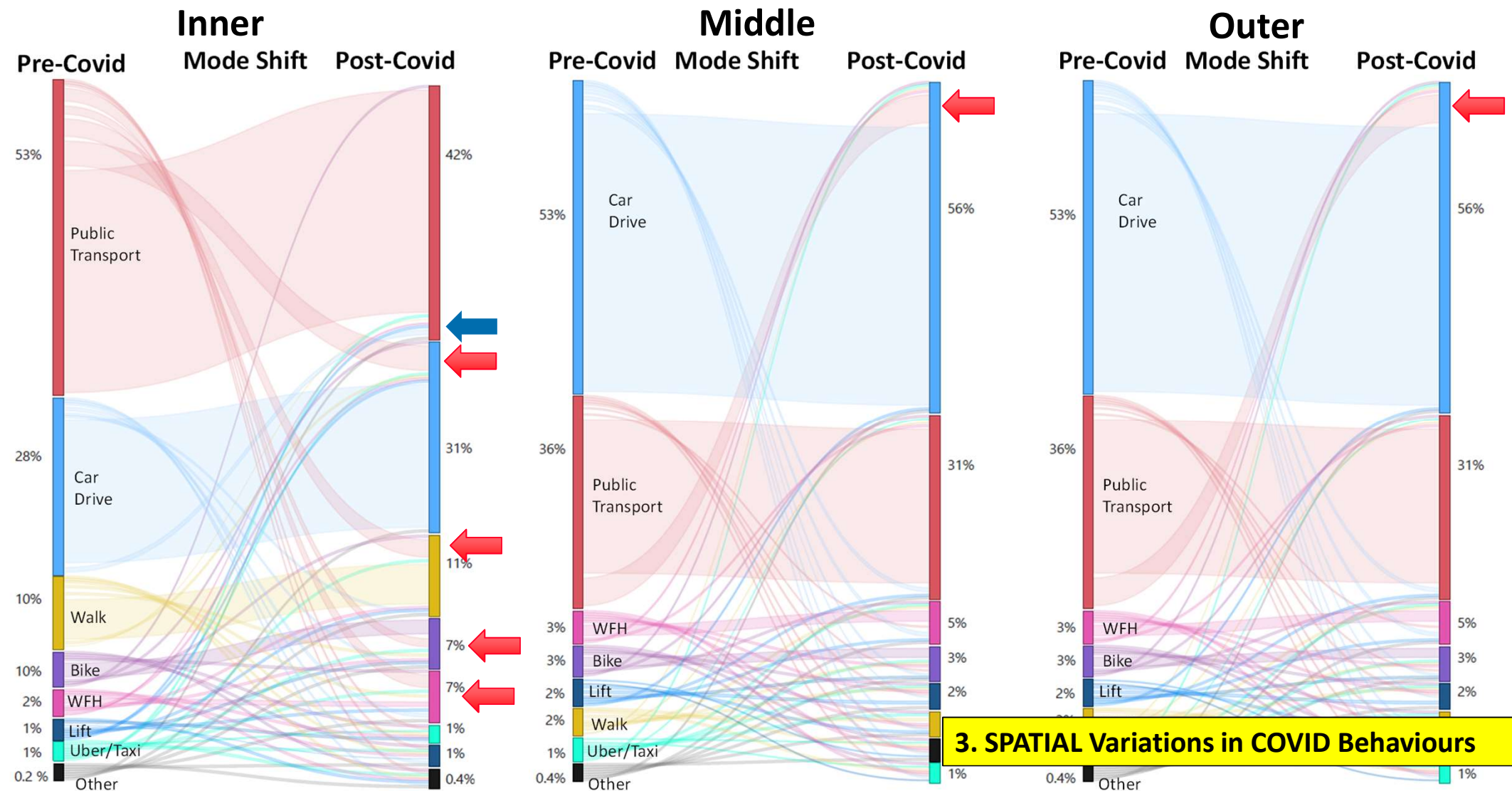
Respondents say CBD COMMUTE will reduce more than the rest of Melbourne; Post Pandemic a 20% decline in CBD COMMUTE is self estimated - much larger than for Melbourne as a whole (6%)

3. SPATIAL Variations in COVID Behaviours



Note:
(1) Monash - August 2020 Online Panel – final sample - Self reported CBD travel to work volume per week
(2) Weighted sample; representative of total Melbourne travel

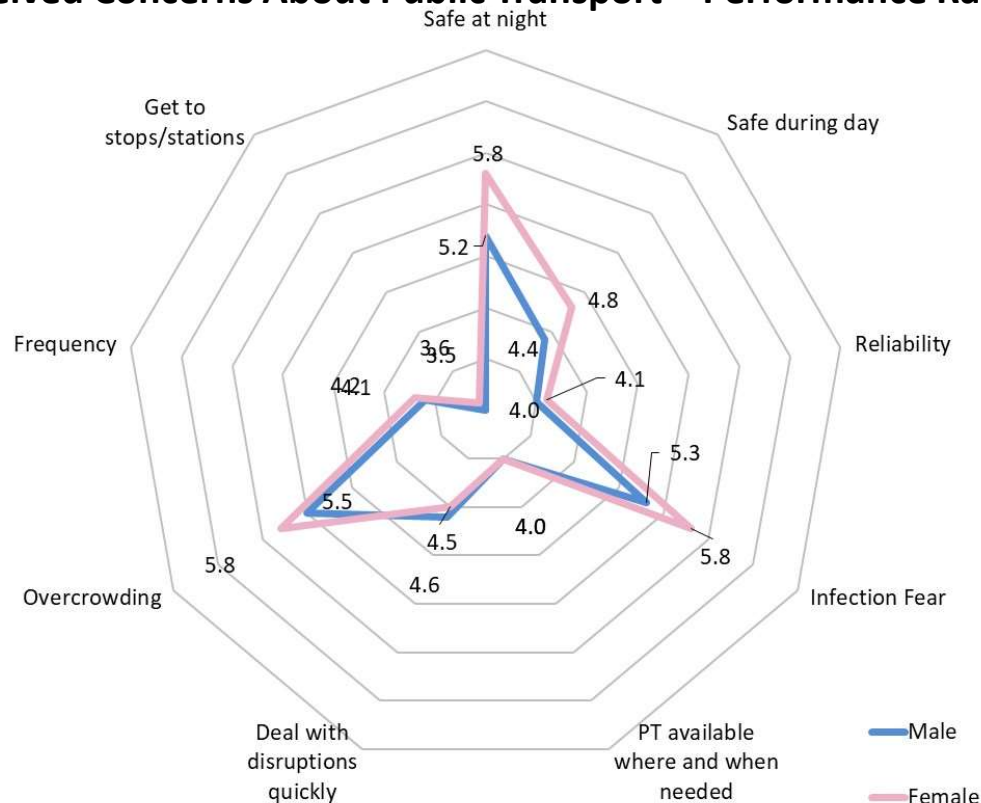
By Melbourne Region; there is a significantly different set of **MODE SHIFT** from Inner Area residents fro transit to car drive/walk and WFH; Middle/Outer shifts are much smaller



Infection Fear is Gender Biased. Work from Home shifts are larger for White Collar workers and High Income Groups

4. SOCIO-ECONOMIC Variations in COVID Behaviours

Perceived Concerns About Public Transport – Performance Rating



Socio-Economic Patterns of COVID Behavior Change

- ▶ Female respondents demonstrated slightly higher post pandemic commute reductions than male respondents
- ▶ Income was found to have significant variations in post pandemic commute volume (Kruskal Wallis Test, $H(7) = 48.328$, $P=0.000$).
 - In general higher income groups self-report significantly higher reductions in commuting post-pandemic compared to their commuting before COVID
 - income '\$1,870-\$3,200'; -22.6% and income '\$3,200 or more'; -23.9%.
 - Lower income groups (<\$1,870) between -0.36% and -3.5% for cohorts with larger samples).
- ▶ We also found a statistically significant difference in post pandemic commuter reductions for white collar workers (Mann Whitney U test, $U=62846$, $P=0.000$).
 - White collar workers had an average -12.5% reduction in commute volume after the pandemic while
 - other workers had an average of -2.8%.

Please reach out for more information



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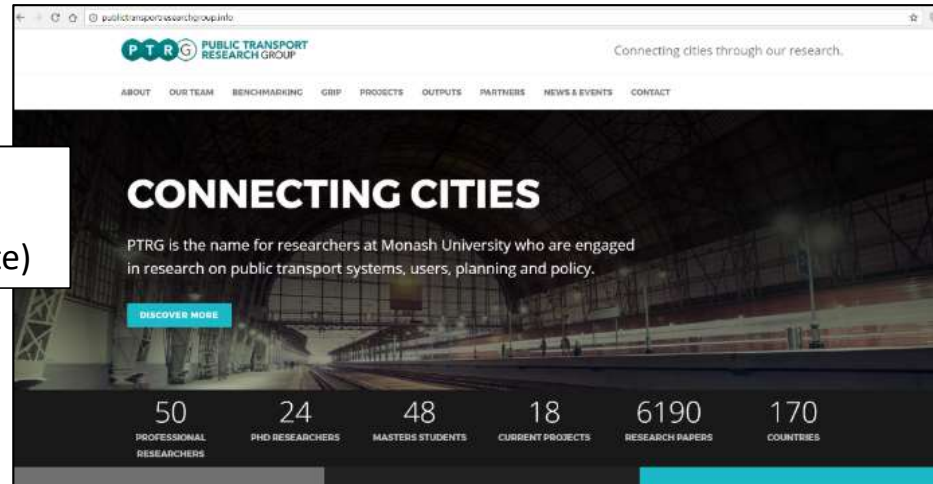
The Research Team



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W: ptrg.info

(project has a webpage on this site)



Researching Transit





RT5 – Long term impact of COVID-19 on Travel Behaviour

