Covid-19 Long Term Travel Impacts Study
EARLY FINDINGS

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Agenda

Lessons from Literature

Research Approach
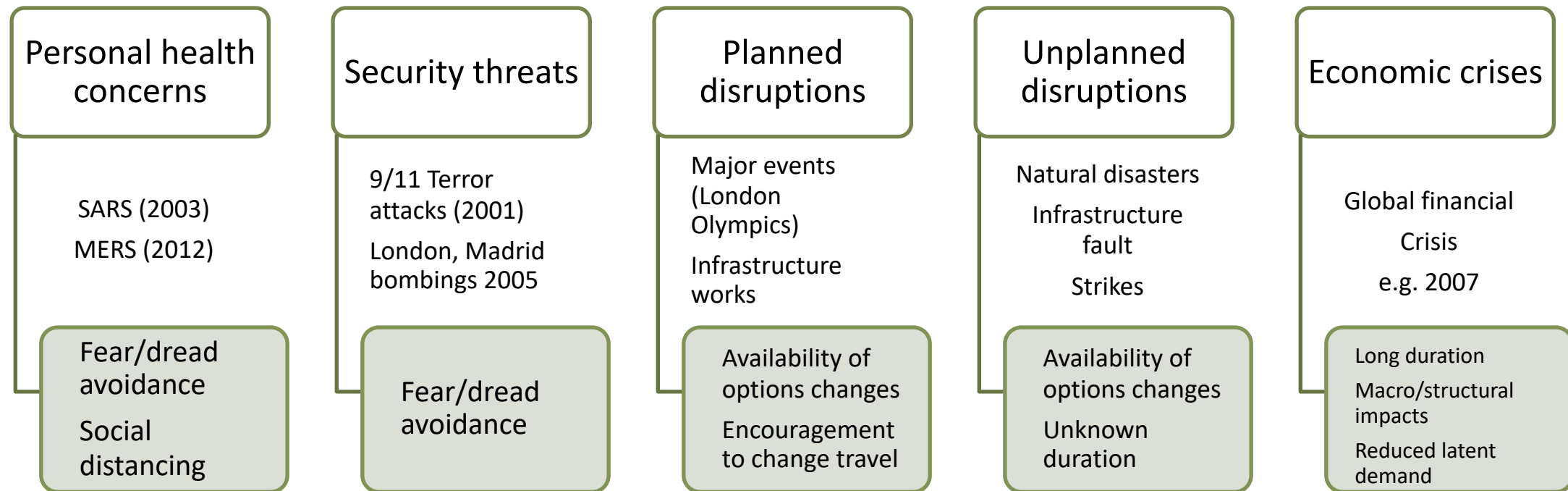
Interview Results

Macro/Meso Observations

Most travel behaviour [research] is habitual – but research has measured how DISRUPTIONS affect short and long term travel ; much of this is relevant to understanding Covid-19 Impacts

- Humans like routine! We ignore or undervalue alternatives that aren't habitual (Goodwin 1977).
- Disruptions cause a routine to be broken and alternatives to be discovered or re-evaluated more rationally
- When public transport is compromised, most riders shift to private car (Nguyen-Phuoc et al. 2018, Exel and Rietveld 2001)
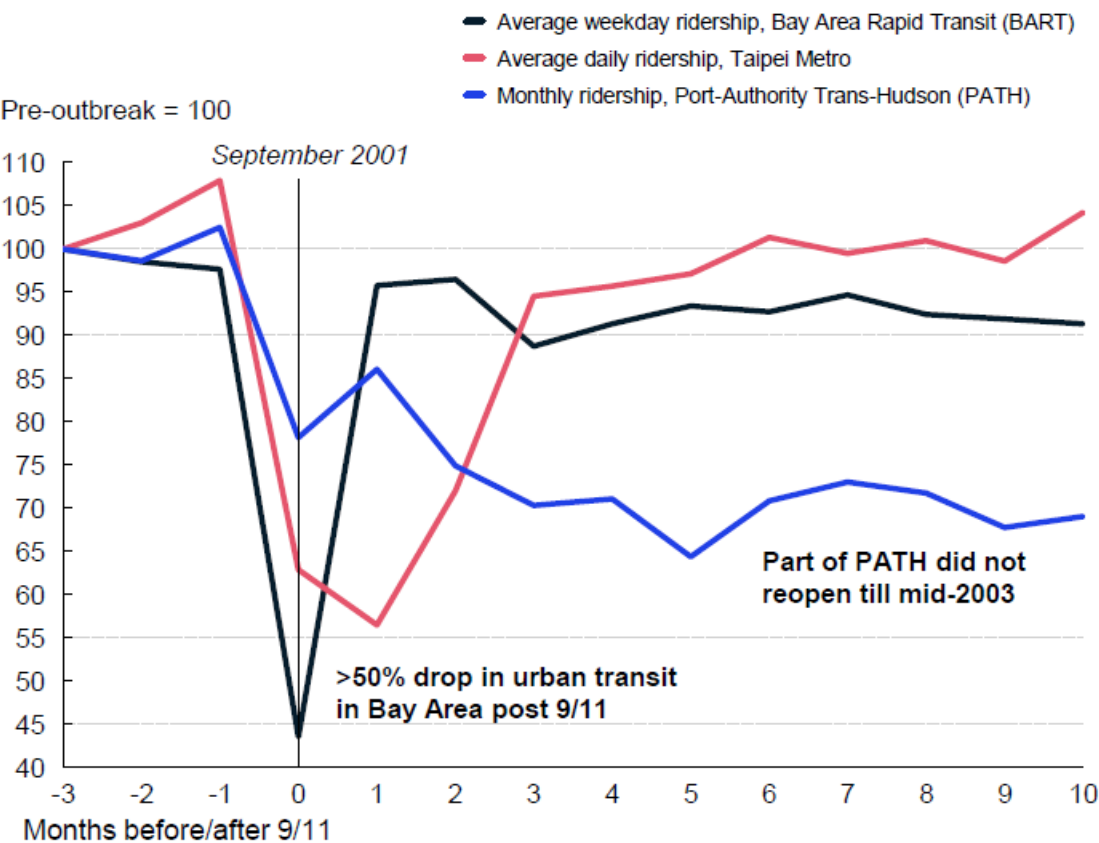
Disruptions Explored in Travel Behaviour Research

Personal health concerns	Security threats	Planned disruptions	Unplanned disruptions	Economic crises
SARS (2003) MERS (2012)	9/11 Terror attacks (2001) London, Madrid bombings 2005	Major events (London Olympics) Infrastructure works	Natural disasters Infrastructure fault Strikes	Global financial Crisis e.g. 2007
Fear/dread avoidance Social distancing	Fear/dread avoidance	Availability of options changes Encouragement to change travel	Availability of options changes Unknown duration	Long duration Macro/structural impacts Reduced latent demand

SARS/9-11 Safety shocks had big transit ridership impacts but recovery within 3-6 months of crisis start – no suggestion of residual long term fear impact (but these events were relatively short term)
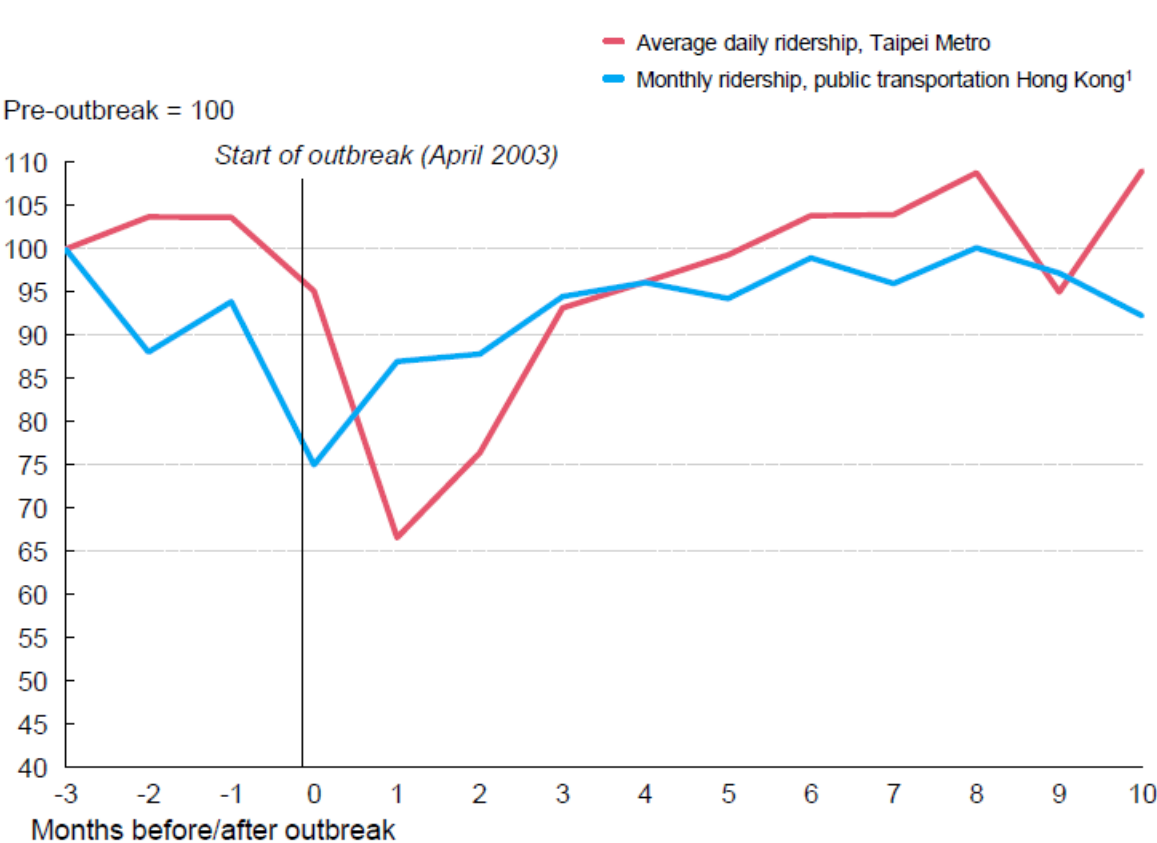
Impact of historical crises on urban transit ridership

Effect of safety crises – 9/11

- Average weekday ridership, Bay Area Rapid Transit (BART)
- Average daily ridership, Taipei Metro
- Monthly ridership, Port-Authority Trans-Hudson (PATH)

Pre-outbreak = 100

September 2001

Part of PATH did not reopen till mid-2003

>50% drop in urban transit in Bay Area post 9/11

Months before/after 9/11

Effect of health crises – SARS 2003

- Average daily ridership, Taipei Metro
- Monthly ridership, public transportation Hong Kong[1]

Pre-outbreak = 100

Start of outbreak (April 2003)

Months before/after outbreak

1. Includes various modes of transportation, such as bus, rail, and ferry; does not include taxi

Source: Bay Area Rapid Transit, Taipei Metro, New York State Open Data (data.ny.gov), Hong Kong Census and Statistics Department

McKinsey & Company 8

Most evidence suggests medium/long term impact of disruption is quite small, affect only sub-groups of travellers or are short term

London Olympics: Only <u>6%</u> of survey respondents sustained a change made 2 months after the event — Parkes et al. 2016

SARS: PT ridership decline sensitive to reported cases; <u>**rebounded on average 28 days**</u> after each reported case — Wang 2014

Natural disaster: Mean time to return to normal work location/schedule after Hurricane Sandy landfall: <u>**10/ 7 days**</u> — Kontou et al 2017

Economic crisis: Transit ridership declined by 20% at the peak of unemployment in the US, <u>**two years after financial crash it recovered**</u> — McKinsey & Company 2020a

Infrastructure collapse: Traffic conditions <u>**took 5 weeks to equilibrate**</u> on streets surrounding the I-35W bridge in Minneapolis following its collapse as individuals settled in to alternate routing patterns — Zhu and Levinson 2010

Infrastructure schemes: Duration of disruption affects quantum of change: reduction in road traffic volumes for infrastructure schemes lasting more than 1 year was -26.3%, compared to -18% for schemes lasting less than 1 year — Cairns et al. 2002

Unplanned disruptions: Rate of change varies with disruption type and trip type — Marsden et al, 2020

> ...but, evidence of **long-term** impacts is limited
>
> Studies of disruption typically analyse change during an event ('shutdown') or in the weeks and months following ('restrictions easing').

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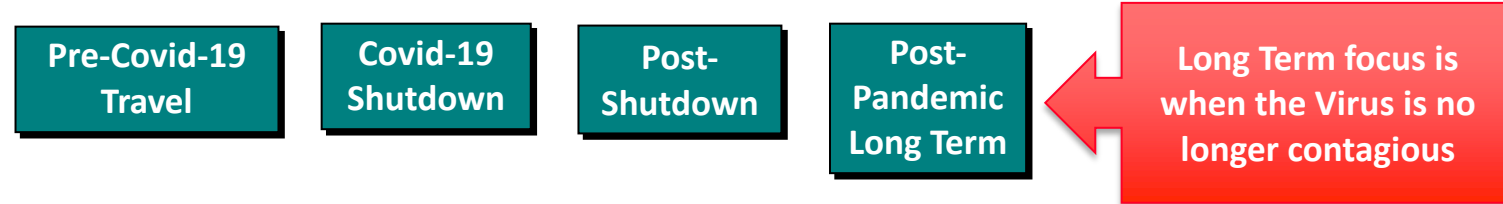# Lessons from Literature

# Research Approach

Interview Results

Macro/Meso Observations

Next Steps

| Pre-Covid-19 Travel | Covid-19 Shutdown | Post-Shutdown | Post-Pandemic Long Term | Long Term focus is when the Virus is no longer contagious |

Impacts are explored at three levels; behavioural research focusses on the MICRO scale using surveys ; MACRO and MESO effects are explored using secondary evidence

The 'Monash' Framework - An Integrated Framework of Factors Influencing Travel Behavior Before, During and After the Covid-19 Crisis.
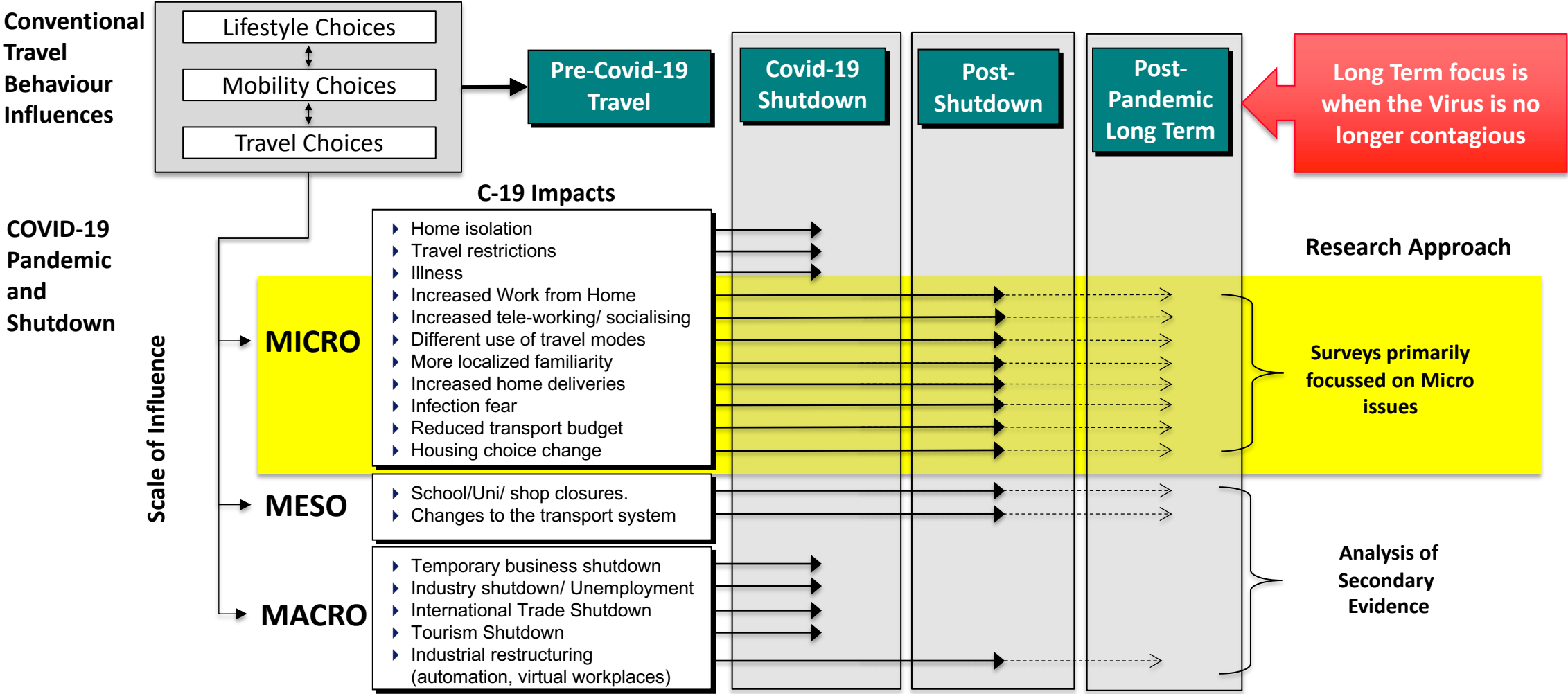
Note: This framework is developed by the research team from a review of previous research literature and also from a workshop with staff from the Victorian Department of Transport

The research will focus on how Macro/Meso and Micro Impacts create LONG TERM CHANGES in Travel Choices

Approach to Forecasting

	Condition for change	Travel behaviour response categories	
Micro	Fear/dread avoidance	Remode	Switch from public transport o active travel or car
	Social distancing imperative	Reduce	Work/socialise/conduct appointments from home
	Restrictions to movement	Relocate	Move trip destination: e.g. localisation of activity
	Reduced income	Reduce	Reduced ability to participate in activities
	No longer employed	Reduce	No need to travel to work
	Social influences	Renorm	Changing normative mobility and travel practices
Meso	Schools and businesses closed	Reduce	No trip "attractors"
	Food services take-away only	Reallocate	Increased food deliveries
	Social distancing imperative	Renorm	Reduced public transport capacity
	Advice to avoid travel	Reduce	Restricted movements
Macro	Unemployment	Reduce	Fewer work trips
	Reduced incomes	Reduce	Fewer entertainment/ leisure trips
	Business restructuring	Reallocate	Delivery-oriented businesses
	International travel ban	Reduce	Migration slow-down
	Tourism industry shut down	Reduce	Fewer tourism trips
	Institutional restructuring	Renorm	Adaptation and changes expectation around ability to work from home

Primary Survey Analysis (Micro)

Secondary Data Analysis (Meso, Macro)

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Lessons from Literature

Research Approach

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Online interviews explored personal experiences of Covid-19 on travel/activity and self reported expectations of long term impacts - for a sample frame designed to assure diversity/coverage

C-19 Travel Impacts – 1. Online Interview Survey – Shutdown Phase

- Objective:
  - provide qualitative detailed <u>narratives</u> of how <u>C-19 shutdown</u> has <u>impacted the lives</u> of respondents and to provide <u>inputs to long term forecasting</u> of impacts.

- Aims:
  a. Understand <u>personal experiences of C-19 Shutdown</u> on life, work and travel – notably differences between pre-shutdown and shutdown (in their words)
  b. Ask for respondents <u>personal views</u> on how life, work and travel might change in a <u>post-C-19 shutdown</u> – will anything have changed? (in their words)
  c. <u>Explore specific issues which might affect long term travel</u> with respondents (in their words)

- Approach
  - Targetted 18 interviews - 40 mins - online/by phone

Table 1 – Sample Frame – Online Interviews

Personal Income	Regions of Melbourne								
	Inner			Middle			Outer		
	Age			Age			Age		
	Low*	Medium	High	Low	Medium	High	Low	Medium	High
Low	1^2	-	1	1^2		1	1^2		1
Medium	1	1^2		1	1^2		1	1^2	
High		1	1^2		1	1^2		1	1^2

*No surveys are undertaken of anyone aged under 18
[2]Respondents who used Public Transport in Melbourne equal to and also more frequently than 1-2 days a week

Completed in March/April 2020

Interviews explore 4 issue sets – Pre-Shutdown , Shutdown, Post-Pandemic and Specific Issues which might affect long term travel (from the Monash framework)

DISCUSSION GUIDE – Areas for Questioning

A. Pre - Shutdown
i. Weekday activities
ii. What did you do (work, study, retired etc)
iii. How did you get around

B. Shutdown
i. [OPEN] How affected
ii. How affected activities
iii. How affected getting around

C. Post - Pandemic
i. [OPEN How do you expect what you do and how you get around will change when the virus has gone?
ii. How affected activities
iii. How affected getting around
iv. Will C-19 change getting around in future; why. how

D. Exploring Specific Long Term Impact Issues (The Monash Framework)

Working from Home
i. During shutdown - WFH? Doing More?
ii. Post Shutdown – how will this change number of times Why?

Tele-Video Conferencing
i. During shutdown - Involved for work, study social? Doing More?
ii. Post Shutdown – how will this change number of times Why?

Travel Modes
i. During shutdown changed how get around ? Doing More?
ii. Post Shutdown – how will this change getting around, How? Why?

D. Exploring Specific Long Term Impact Issues CONTINUED

Local Travel
i. During shutdown – activities more local? What? How do you get around?
ii. Post Shutdown – will you do more local activities - Why?

Home Deliveries
i. During shutdown – had more? What? Why?
ii. Replaced out of home travel?
iii. Post Shutdown – how will this change deliveries - Why?

Residual Public Transport Fear
i. [OPEN] After shutdown – will you use PT? Why?
ii. When infection risk gone – will you have concerns about infection on PT in future? How will this affect PT use? Why?

Impact of Lower Income
i. After shutdown – will income be less? Why?
ii. How will this affect going to activities?
iii. How will this affect how you get around?

Car Ownership
i. After shutdown – will the C-19 Crisis affect how you own and use a car? How? Why?

Residential Housing/Location
i. After shutdown – will the C-19 Crisis affect where you want to live? Where? Why?

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Post-Pandemic; EVERY respondent said they would do activities and travel the same way they did Pre-Pandemic

C. Post - Pandemic

How do you expect what you do and how you get around will change when the virus has gone?

Go back to normal

No get back to normal

Will drift back into same as we used to

I'll travel by public transport again

Not much change

Go back to normal

Go back to normal

Just go back to normal

It will all be the same; don't expect to change anything

Will soon go back to how it was

Expect it will go back to normal

Go back to how it was before the virus came about

Note: Yellow boxes report specific answers from a respondent in their own words

Post-Pandemic; EVERYONE using public transport Pre-Pandemic said they would use public transport Post-Pandemic; Infection concerns remain BUT don't influence expected travel

D. Exploring Specific Long Term Impact Issues

Post Pandemic will you use public transport?

Yes

Yes

Yes no problem with it

Yes will use public transport

Yes I would

Im not scared to use public transport ; I use trams even now

Yes

See no reason why not; yes

Yes I have no choice

D. Exploring Specific Long Term Impact Issues

Post Pandemic will you have concerns about infection on public transport?

Majority – No concern – some noted concern

No more than usual; we have the annual flu concern but not a problem

A little apprehensive but no not real concerns; have to have a bit of confidence when things go back; ill be careful; get a flu shot

As long as risk has gone ill be ok

Note: Yellow boxes report specific answers from a respondent in their own words

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# Lessons from Literature

Research Approach

Interview Results

Macro/Meso Observations

Observations provide Macro and Meso Long Term (Post Pandemic) Impact estimates based on analysis of demographic, migration, economic and transport secondary data
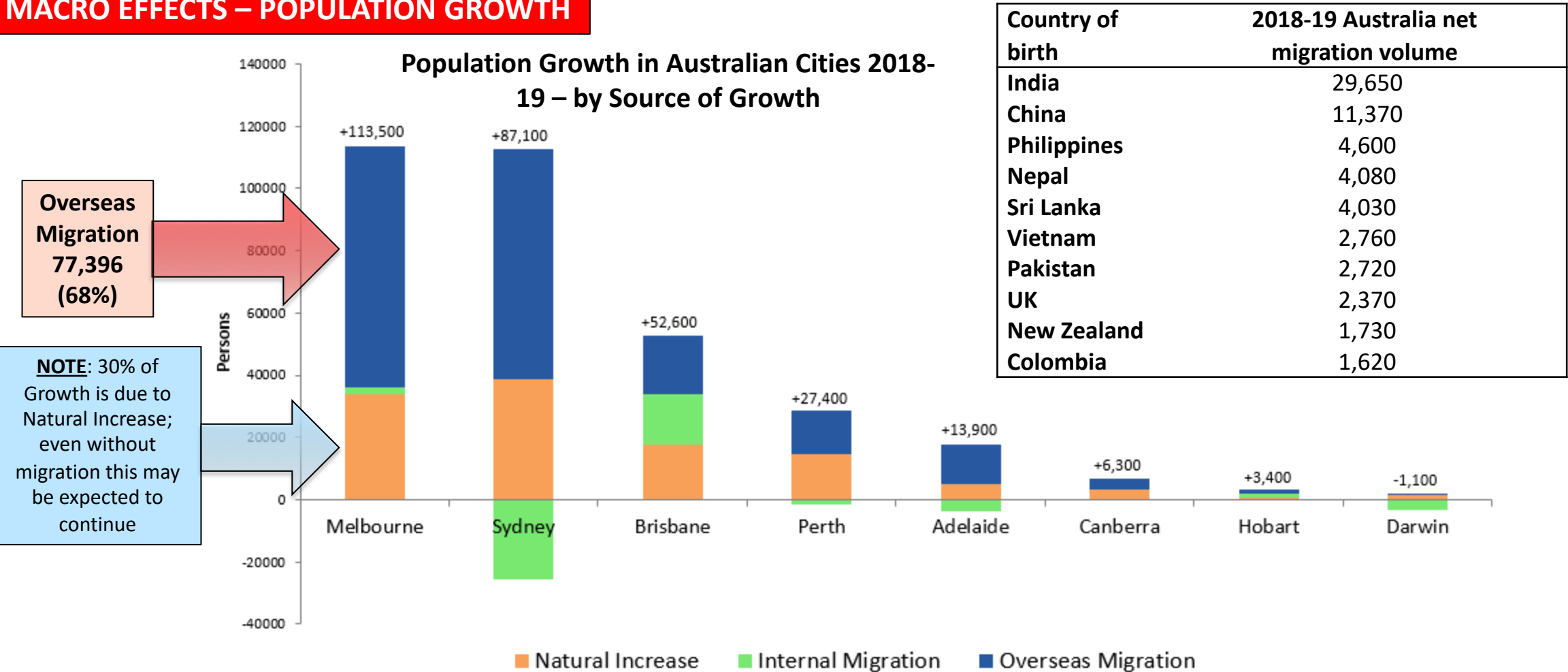

The 'Monash' Framework - An Integrated Framework of Factors Influencing Travel Behavior Before, During and After the Covid-19 Crisis.
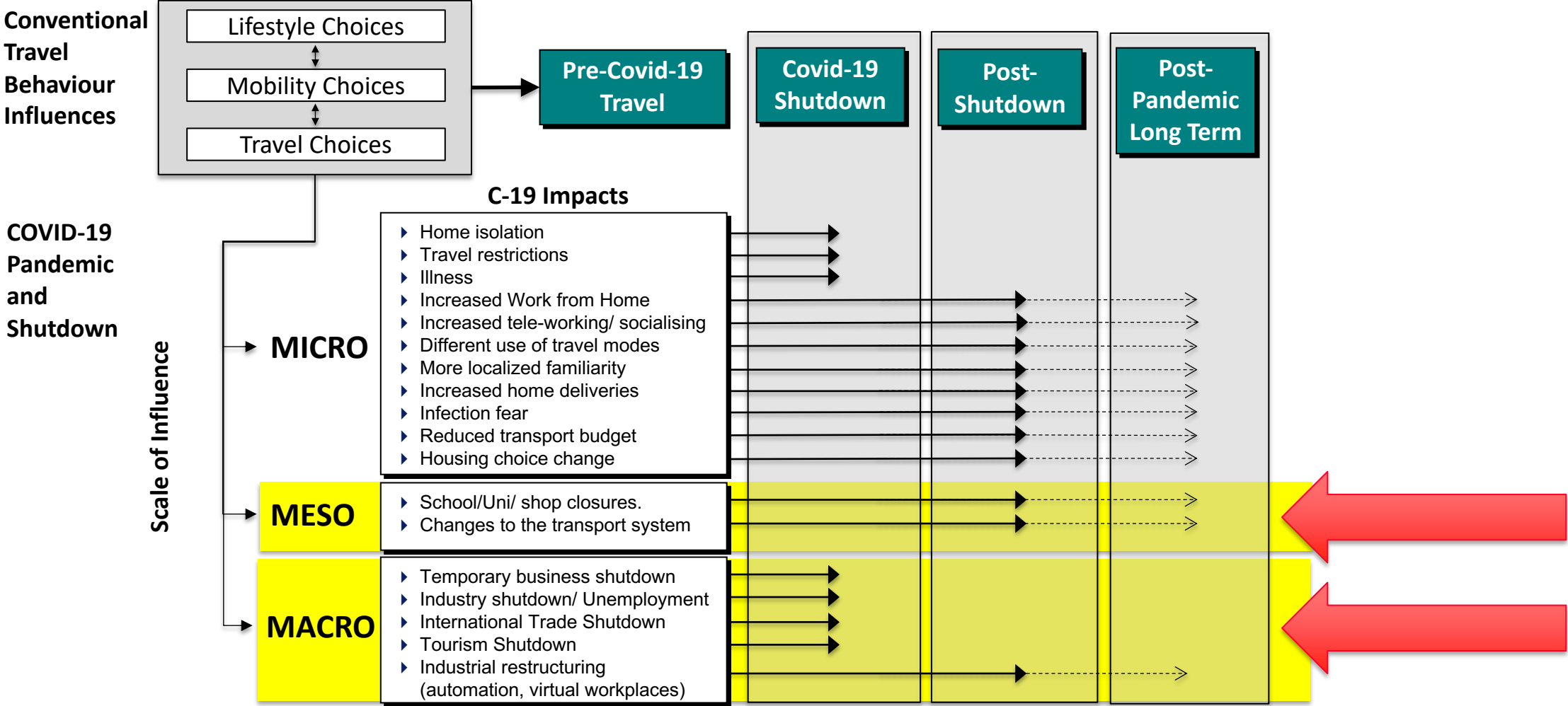
Note: This framework is developed by the research team from a review of previous research literature and also from a workshop with staff from the Victorian Department of Transport

MACRO IMPACT POPULATION GROWTH -Pre-Covid Melbourne growth was driven by immigration (mainly from India, China etc) caused by the relative popularity of Australia as a place to work/live

MACRO EFFECTS – POPULATION GROWTH

Population Growth in Australian Cities 2018-19 – by Source of Growth

Country of birth	2018-19 Australia net migration volume
India	29,650
China	11,370
Philippines	4,600
Nepal	4,080
Sri Lanka	4,030
Vietnam	2,760
Pakistan	2,720
UK	2,370
New Zealand	1,730
Colombia	1,620

Overseas Migration 77,396 (68%)

NOTE: 30% of Growth is due to Natural Increase; even without migration this may be expected to continue

+113,500 Melbourne
+87,100 Sydney
+52,600 Brisbane
+27,400 Perth
+13,900 Adelaide
+6,300 Canberra
+3,400 Hobart
-1,100 Darwin

Legend: ■ Natural Increase ■ Internal Migration ■ Overseas Migration

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MACRO IMPACT EMPLOYMENT - Historical shocks have increased already declining unskilled work ; but shows a recovery in total employment in all cases – a decade recovery timeframe is likely

MACRO EFFECTS - EMPLOYMENT

Chart 6 Routine Jobs Declined Considerably in Past Three Recessions

Routine employment per capita (percent)
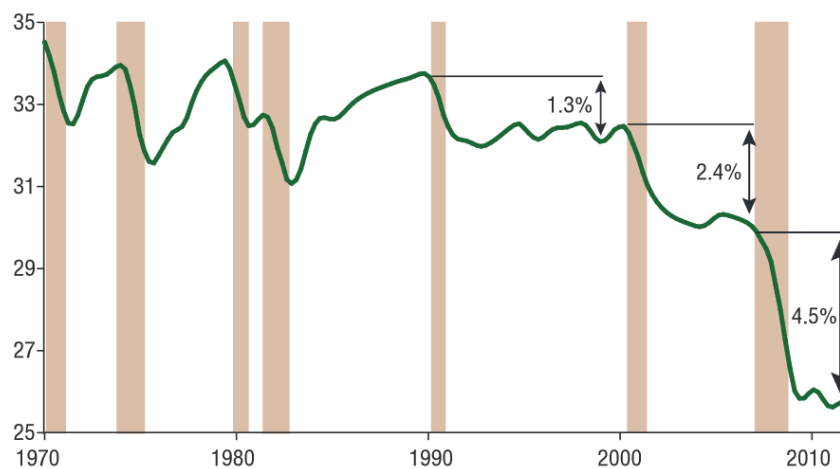
NOTE: Shaded bars indicate National Bureau of Economic Research dated recessions.

SOURCE: Adapted with permission from "The Trend Is the Cycle: Job Polarization and Jobless Recoveries," by Nir Jaimovich and Henry E. Siu, National Bureau of Economic Research, NBER Working Paper no. 18334, August 2012.

Figure 3.7: Even with JobKeeper, Australia may face the worst unemployment rate since the Great Depression
Unemployment rate since federation, with our three projected scenarios

Employment Recovers in All Cases

Notes: Data are annual prior to 1966; quarterly from 1966-78; and seasonally adjusted monthly data thereafter.
Sources: Butlin (1977), ABS (2007) and ABS (2020a).

Recent Evidence

Great Recession, 2007-2009
1990-1991 recession

A decade to full recovery

Years from the beginning of recovery

Unemployment rate, all: The Great Recession caused the unemployment rate to climb to near record-high levels in 2010. It is currently less than 4%, 1 percentage point less than in 2001.

http://www.dallasfed.org/assets/documents/research/eclett/2014/el1405.pdf
Source: Prof Simon Wilke Dean, Monash Faculty of Business and Economics

Source: Coates, B., Cowgill, M., Chen, T., and Mackey, W. (2020). *Shutdown: estimating the COVID-19 employment shock*. Grattan Institute.
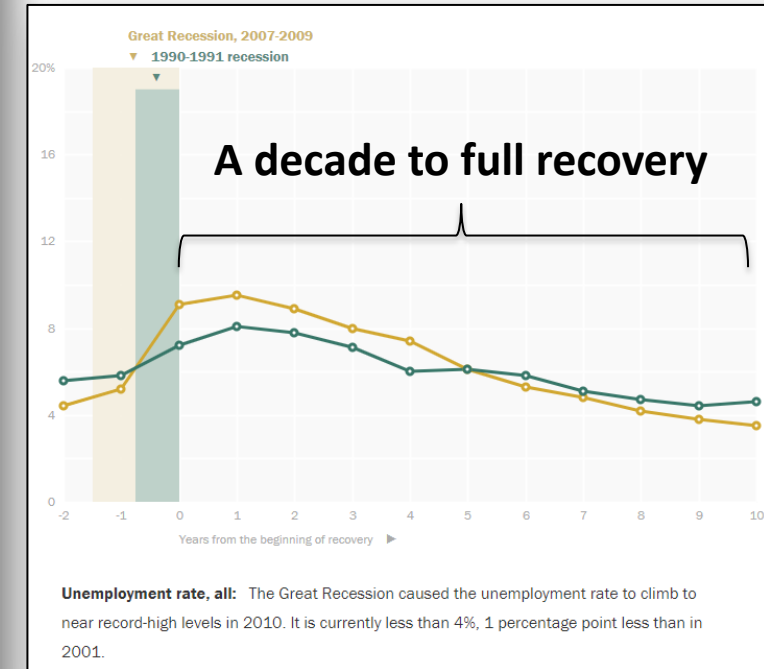
Source: RAKESH KOCHHAR AND JESSE BENNETT (2019) 'Two Recessions, Two Recoveries Compare the two longest episodes in U.S. history with our interactive' Pew Research Centre, Social and Demographic Trends Dec 31 2019.
https://www.pewsocialtrends.org/essay/two-recessions-two-recoveries/ last accessed May 2020

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A more detailed discussion of these findings is presented on the RESEARCHING TRANSIT podcast released Monday 25th May

www.ptrg.info

Podcast
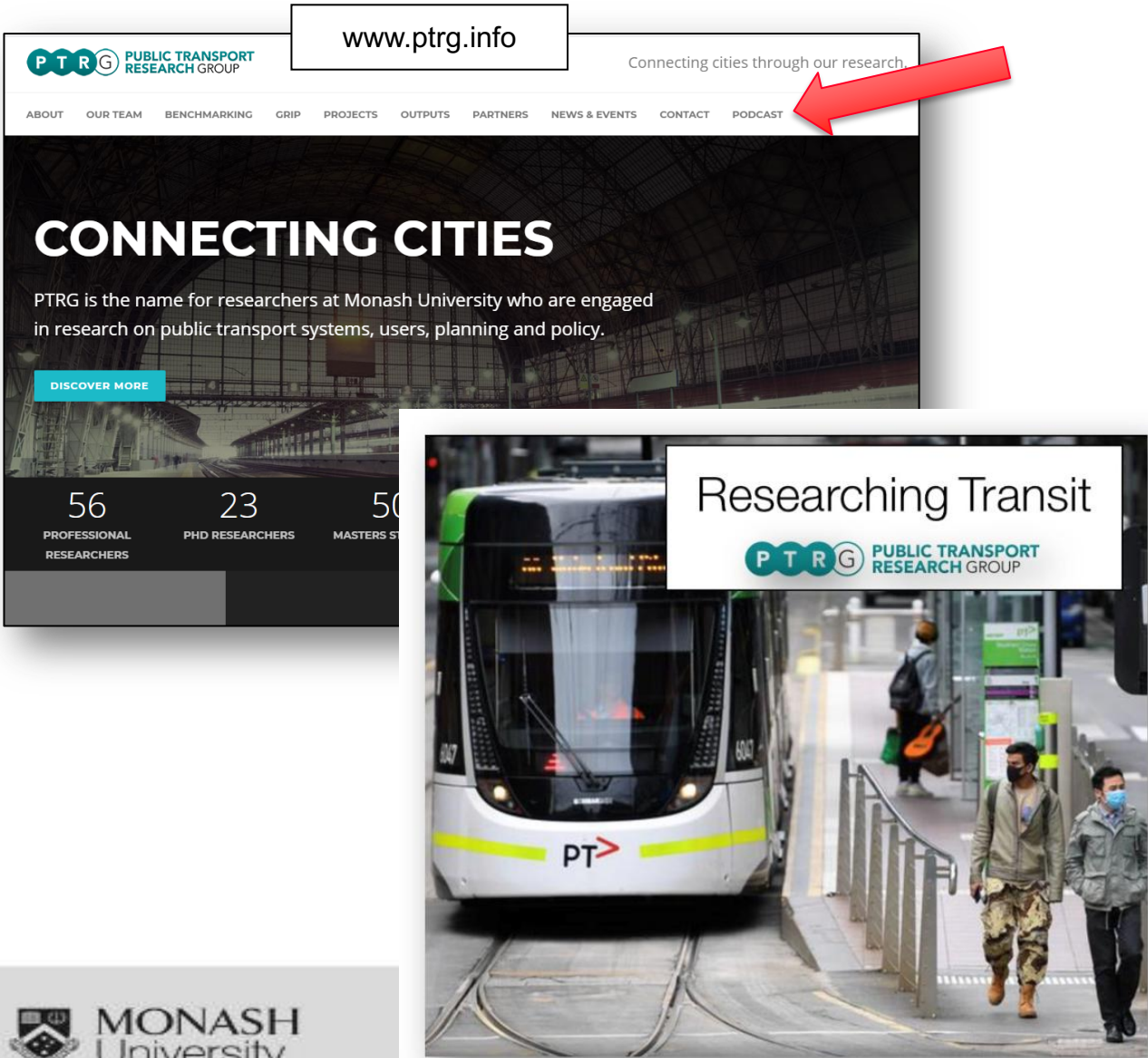
Long Term Impacts of Covid-19 on Travel

Released Monday 25th May