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REGIONAL VARIATION IN MENTAL HEALTHCARE UTILISATION IN AUSTRALIA: EVIDENCE FROM MOVERS

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OVERVIEW: CONTRIBUTION & PREVIEW OF RESULTS

MOTIVATION: Persistent regional variation in mental healthcare

✓✓ if reflects patient need but

✗ ✗ if driven by supply may signal inefficiencies / inequities

CONTRIBUTION:

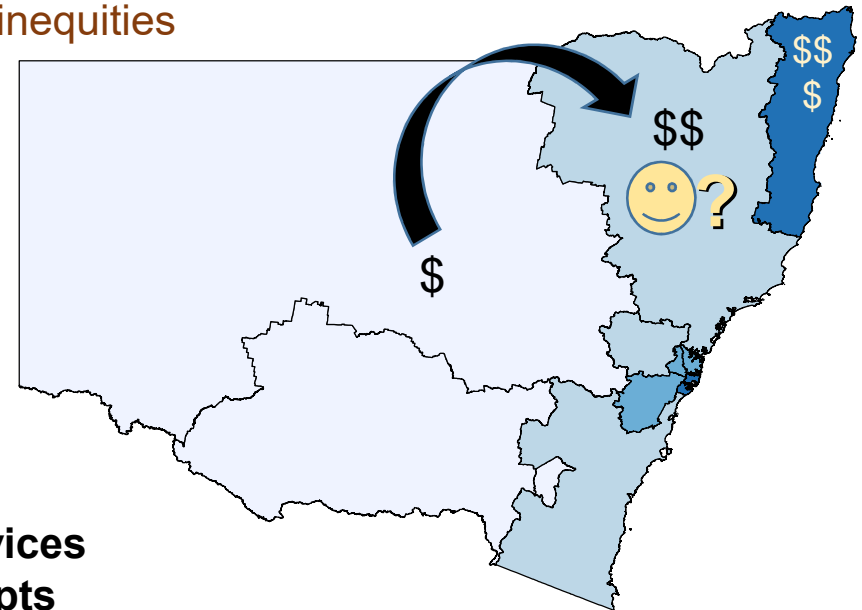
1. **What drives variation** in primary mental healthcare utilisation in Australia?
2. Controlling for demand, **higher utilisation = better mental health?**

PREVIEW OF RESULTS:

- Place explains
 - ~**70%** of variation in **mental health services**
 - ~**20%** of variation in **mental health scripts**
- Higher place-based utilisation associated lower self-harm hosp. and suicide

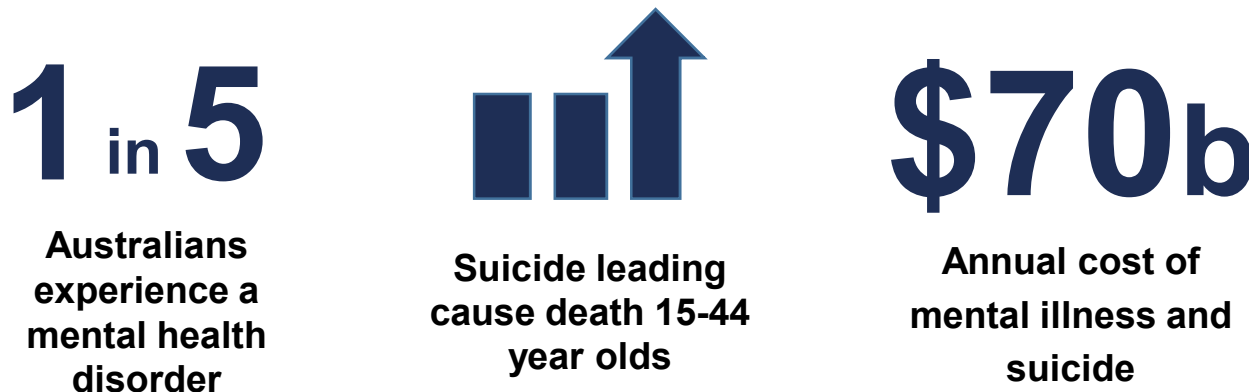
POLICY IMPLICATIONS:

- More \$\$\$ towards mental healthcare likely justified – scope to improve mental health via place-based supply interventions and telehealth

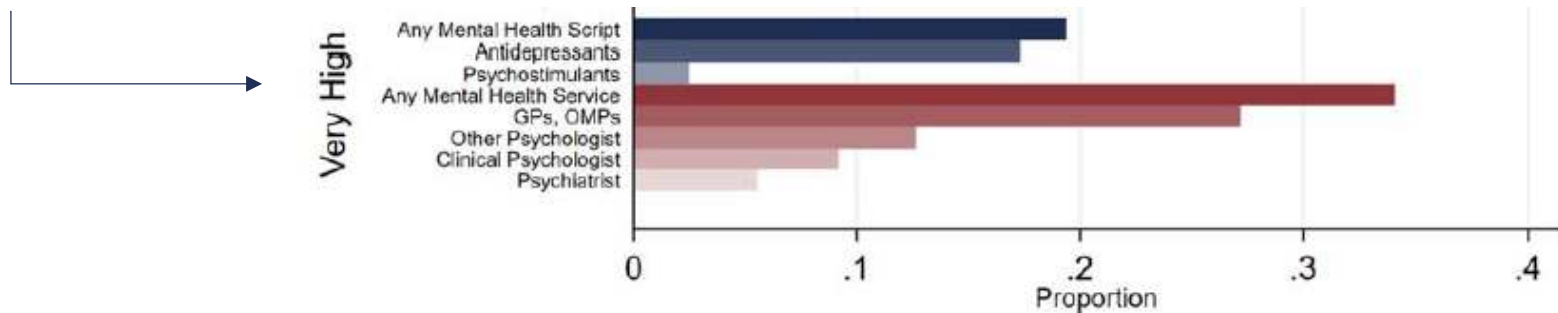


BACKGROUND: MOTIVATION

- Poor mental health leading cause of disease burden worldwide (Ferrari *et al.*, 2022)



- Despite effective treatment (Ludwig *et al.*, 2009; Campbell *et al.*, 2013), uptake is low (Butterworth *et al.*, 2021)

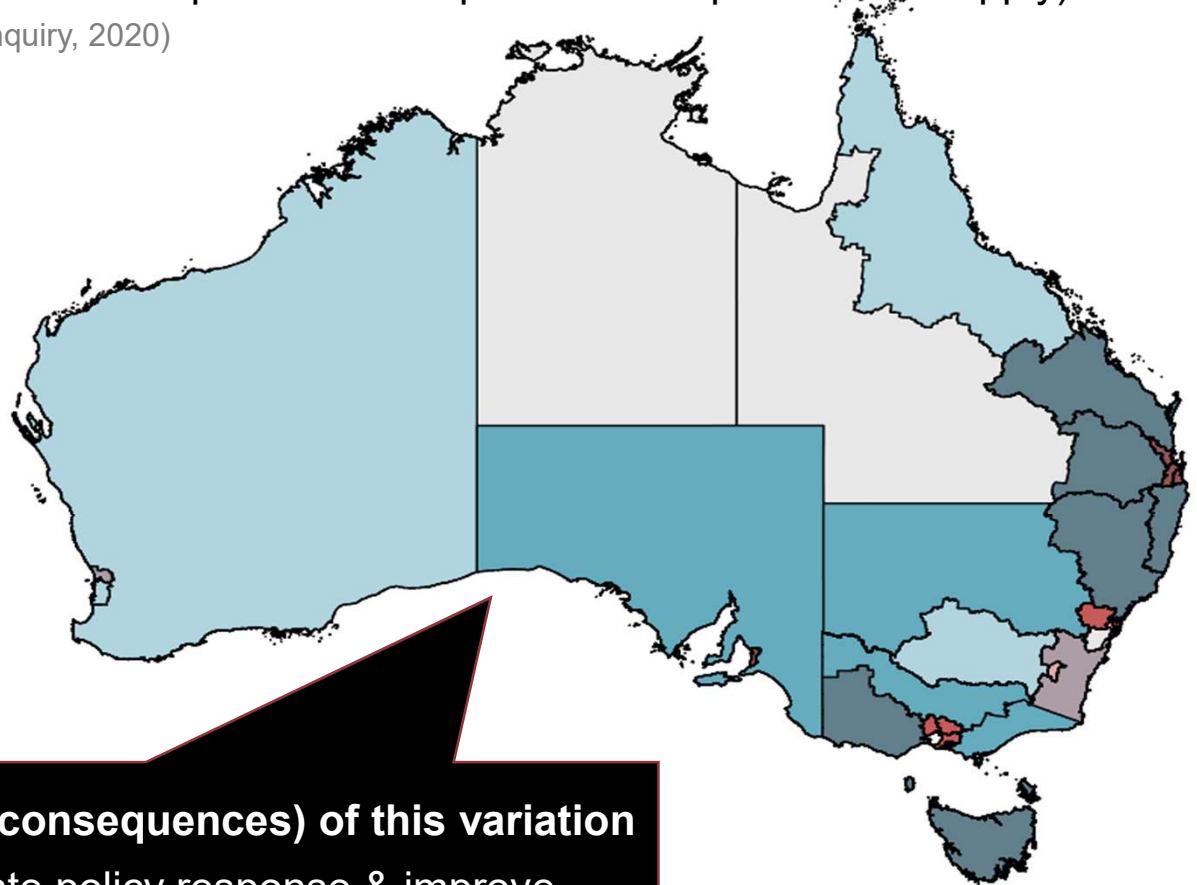
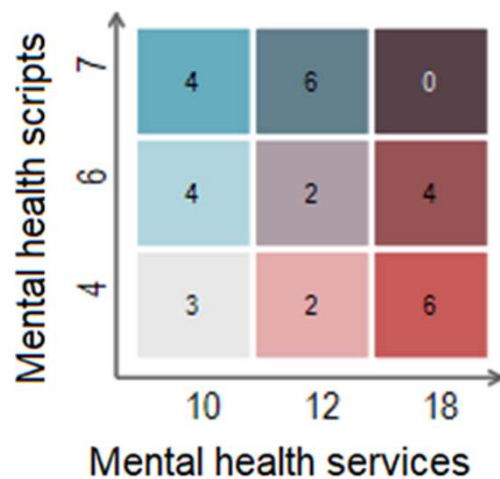


- & there is **substantial regional variation** in utilisation mental healthcare (Moscone and Knapp, 2005; Maconick *et al.*, 2021)
 - e.g. Outback QLD vs Melbourne City

BACKGROUND: MOTIVATION

Some variation anticipated but **some unwarranted** (inefficient use of resources or differences in availability of mental health providers – esp. Aus under provision & supply)

(Productivity Commission Mental Health Inquiry, 2020)



AIM: What are causes (and consequences) of this variation
→ Help provide appropriate policy response & improve mental health

MENTAL HEALTHCARE IN AUSTRALIA

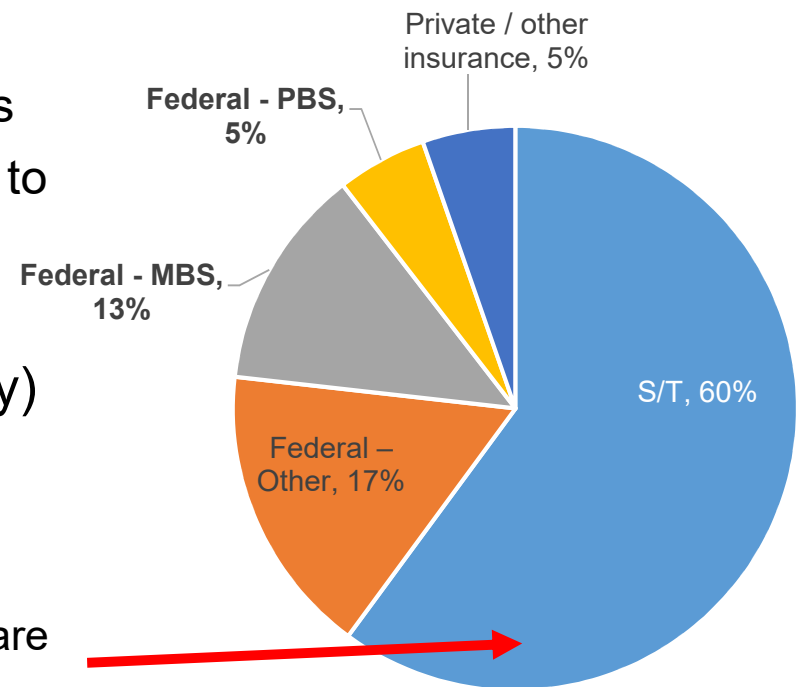
• Primary Mental Healthcare

- GPs, psychologists, psychiatrists are private
 - subsidised but choose their own location and out of pocket costs
- GPs refer to psychologists or psychiatrists
- Some health areas also pay psychiatrists to locate themselves in their areas

• Acute/Secondary (hospital and community)

- ED visits, inpatient expenditure, specialist and outpatient community MHS
 - e.g. residential mh care, Psychiatric assessment & planning units, extended care units, recovery units
- Excluded - Scope for future work with improvements in S/T data linkage

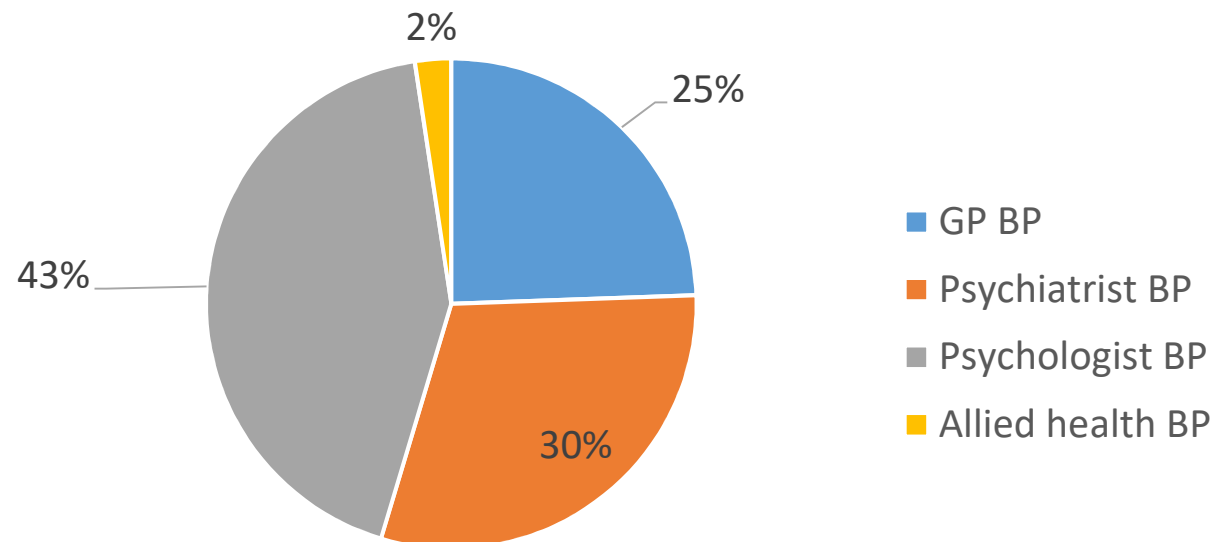
Expenditure on mental health in Australia (2019-20)



DATA: MADIP 2011 COHORT

- Data on **full 2011 Census population (21mill)** + various admin datasets
 - Restrict to those aged 15 and above at time of Census
- Utilisation (gov \$) for **mental health services (MHTPs) & mental health scripts** (2011 – 2019) – limited use of telehealth during this period

Breakdown gov. contribution (\$\$) by care type



DATA: DESCRIPTIVES

	Stayer (n=2,505,139)	Mover (n=2,617,174)
Age	47.00	36.40
<i>Educational attainment</i>		
Less than high school	0.42	0.33
High school	0.20	0.22
Professional	0.14	0.15
University or above	0.24	0.30
High household income	0.48	0.54
Core activity limitation	0.06	0.04
Employed	0.60	0.66
<i>Government costs per quarter</i>		
Mental healthcare services	10.57	12.66
Mental health scripts	4.14	3.22
Psych distress (K10 scores)	18.01	15.06

Movers:

→ Younger

→ More educated

→ Higher income

→ Less likely report disability

→ Higher use mental healthcare services & better mental health

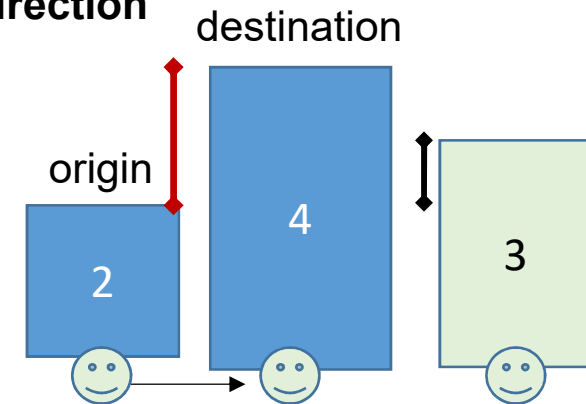
METHODS: PLACE BASED FIXED EFFECTS & EVENT STUDY

- Look at utilisation relative to move interact with '**delta**'

- scales changes in utilisation by magnitude & direction**

of move to know how much 'start to look like'
destination region (given your origin)

Visualise relative importance of place.

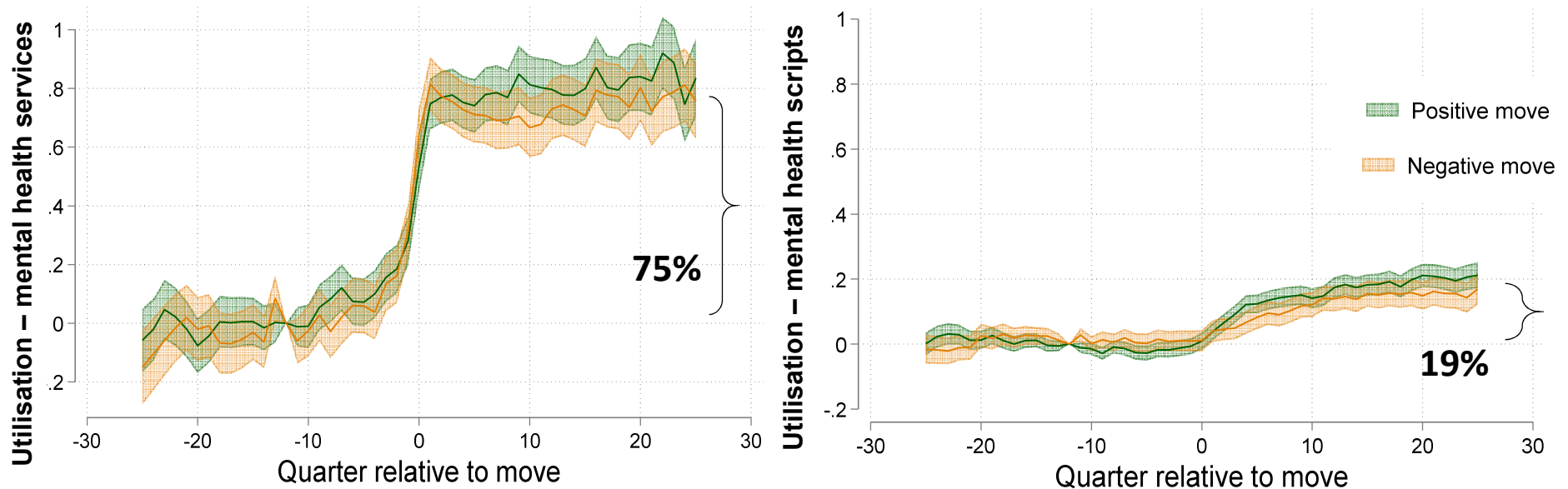


- Plot by move direction **high-low (negative move)** vs **low-high (positive move)**
 - test for selective migration**
 - treatment persistence** → underestimate place if previous supply affect current utilisation... esp. scripts!
 - High proportion remain long-term users (≥ 2 years) (Kjosavik et al., 2016; Malhi et al., 2022).
- Estimate place-based fixed effects removing parts that might not fully reflect 'place'

EVENT STUDIES

How utilisation changes relative to your delta ('dest-origin'):

if differences driven entirely by place expect 100% change



- People start look like destination region before 'registered move'
- Endogenous mobility: no evidence selective moving
 - Health shocks – similar pretreatment trends among positive/negative movers
- Persistence, esp. antidepressant treatment
- **Moves not associated with high use places.....**

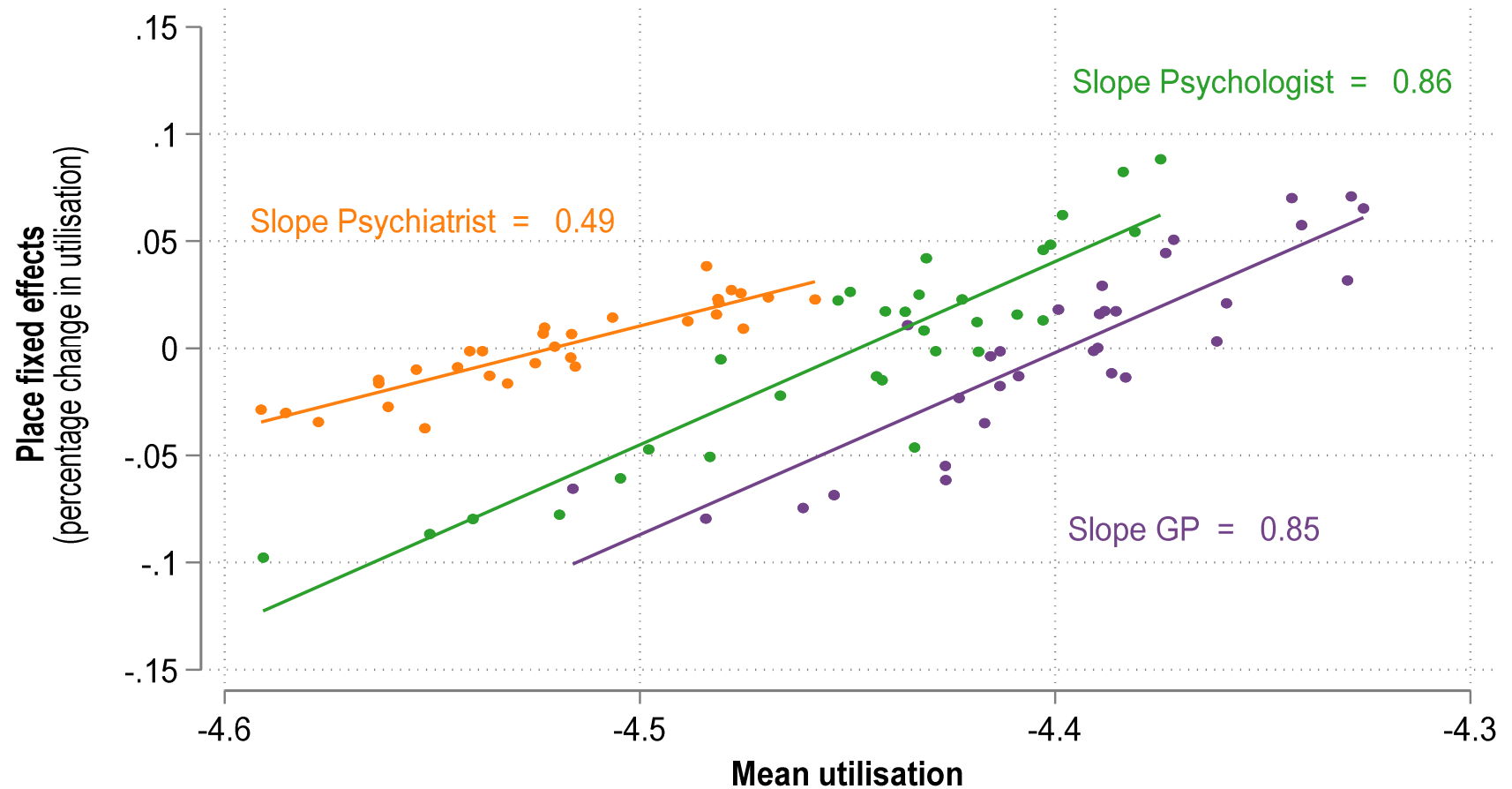
FIXED EFFECTS MODELS

Similar results

- ~70% of variation in **mental health services** due to place (\therefore 30% patient)
- ~20% of variation in **mental health scripts** due to place (\therefore 80% patient)



MENTAL HEALTHCARE FIXED EFFECTS BY CATEGORY OF CARE



• GP mental health services • Psychiatrist services • Psychologist services

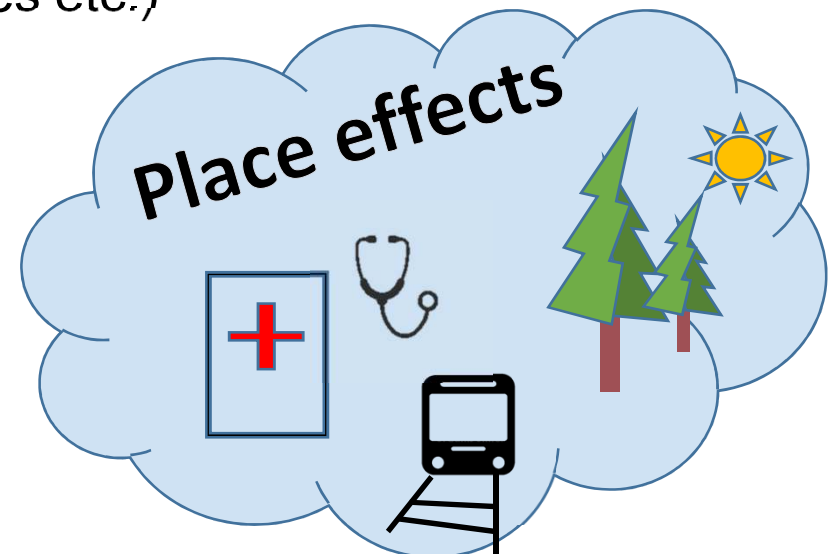
Fixed effects highly correlated – same factors driving limited demand across provider types (limited substitution)

HIGHER UTILISATION= BETTER MENTAL HEALTH?

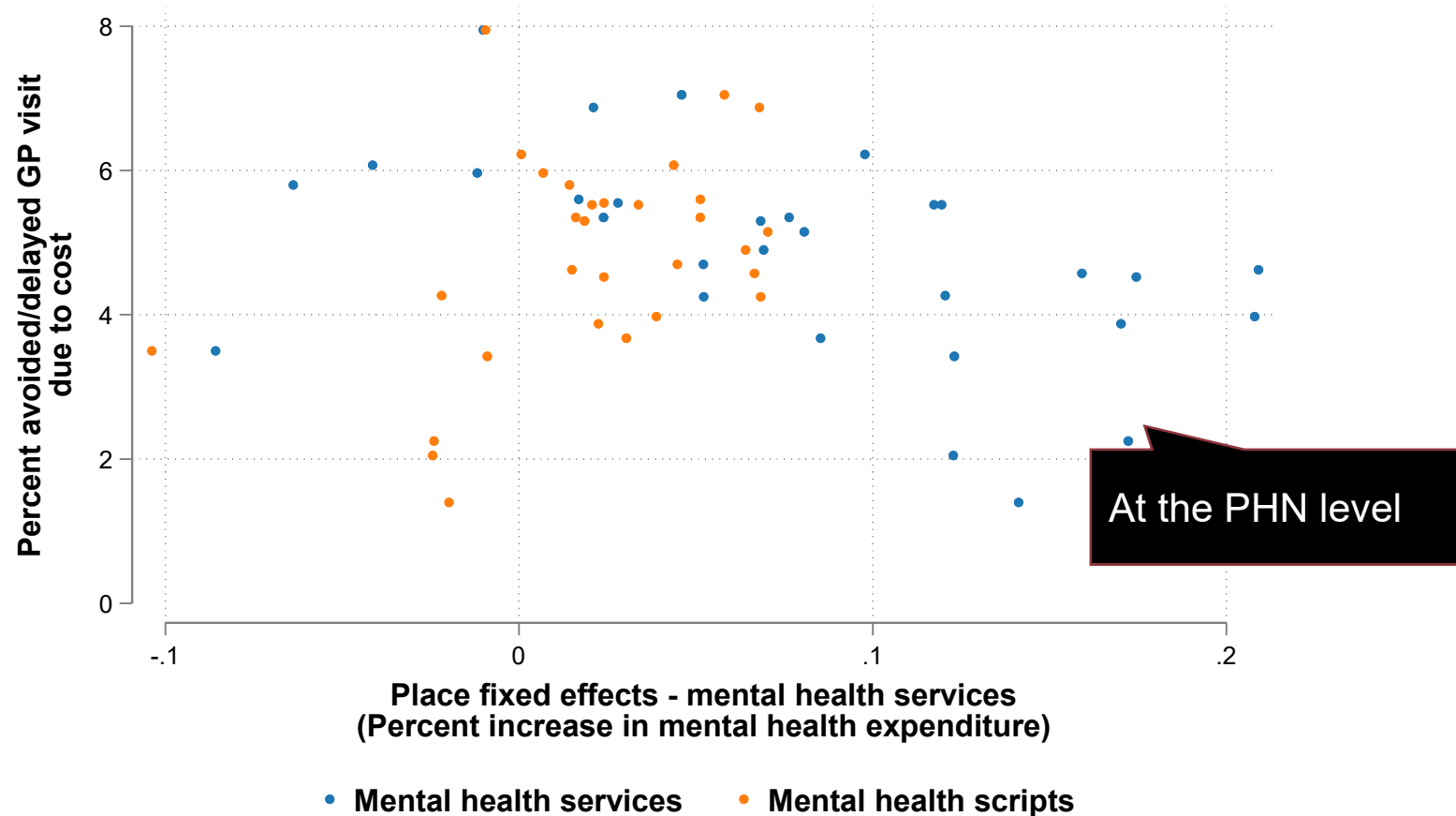
- We have identified place fixed effects that effectively control for demand (need, preferences, resources etc.)

Do regions with higher 'place based utilisation' achieve better mental health outcomes?

- Could go either way
☹️ → → high utilisation
- If higher FE associated with more supply and improved mental health outcomes suggests aspect of place based utilisation reflecting supply (rather than place-based need/demand) & **higher spending in low FE regions may be justified**

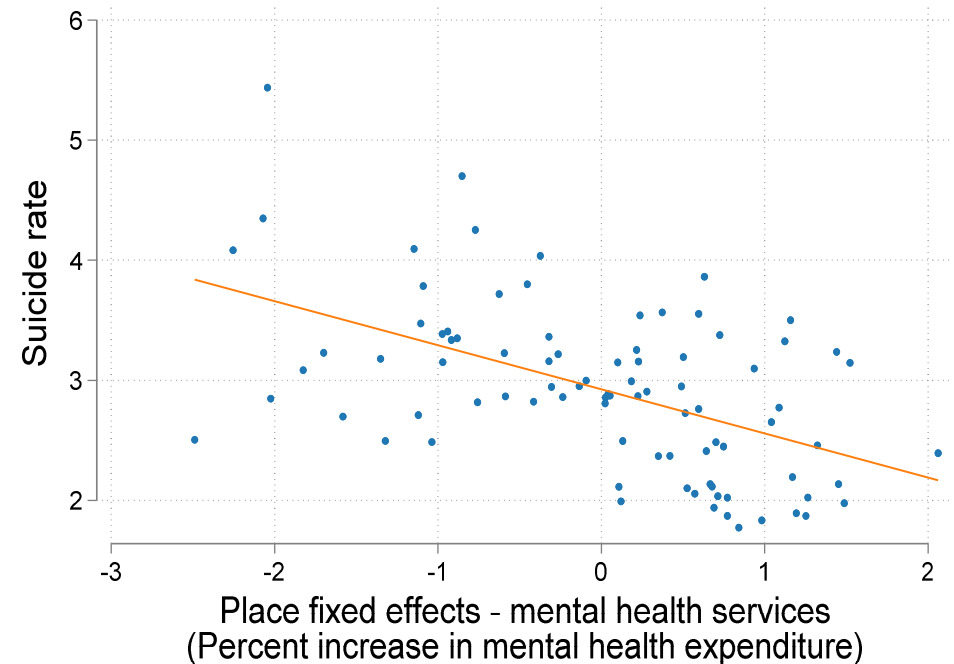
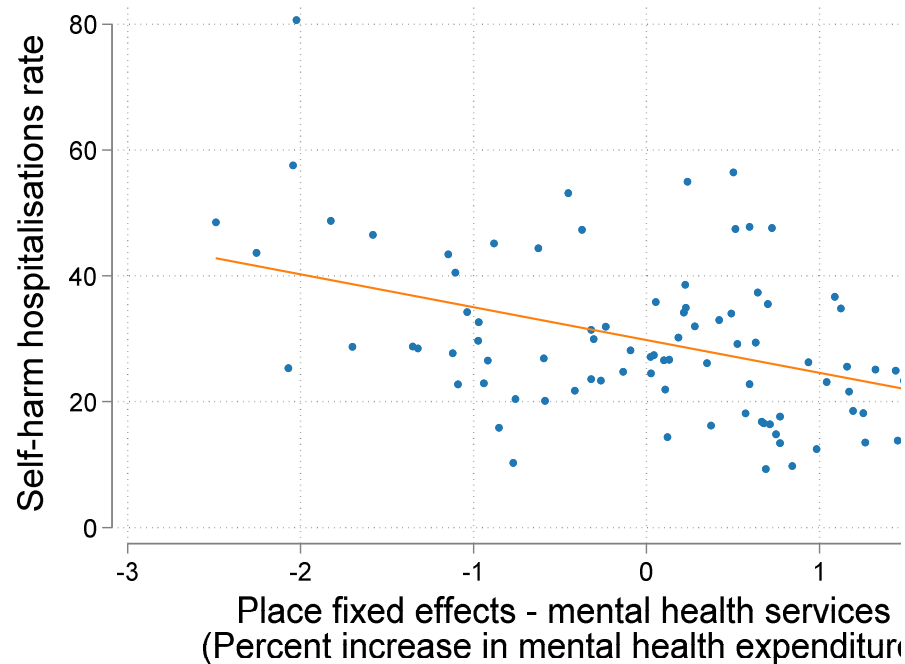


Is 'SUPPLY' ASSOCIATED WITH PLACE BASED UTILISATION?



Source: AIHW, 2023. 2016 Survey of Health Care: Data tables for Healthy Communities: Coordination of health care – experiences with GP care among patients aged 45 and over.
“Percentage of adults who did not see or delayed seeing a GP due to cost in the preceding 12 month”)

HIGHER PLACE FE \rightarrow BETTER MENTAL HEALTH OUTCOMES



- Higher place fixed effects for **mental health services assoc. with improved mental health outcomes** (also ED presentations, psychological distress)
- No plateauing

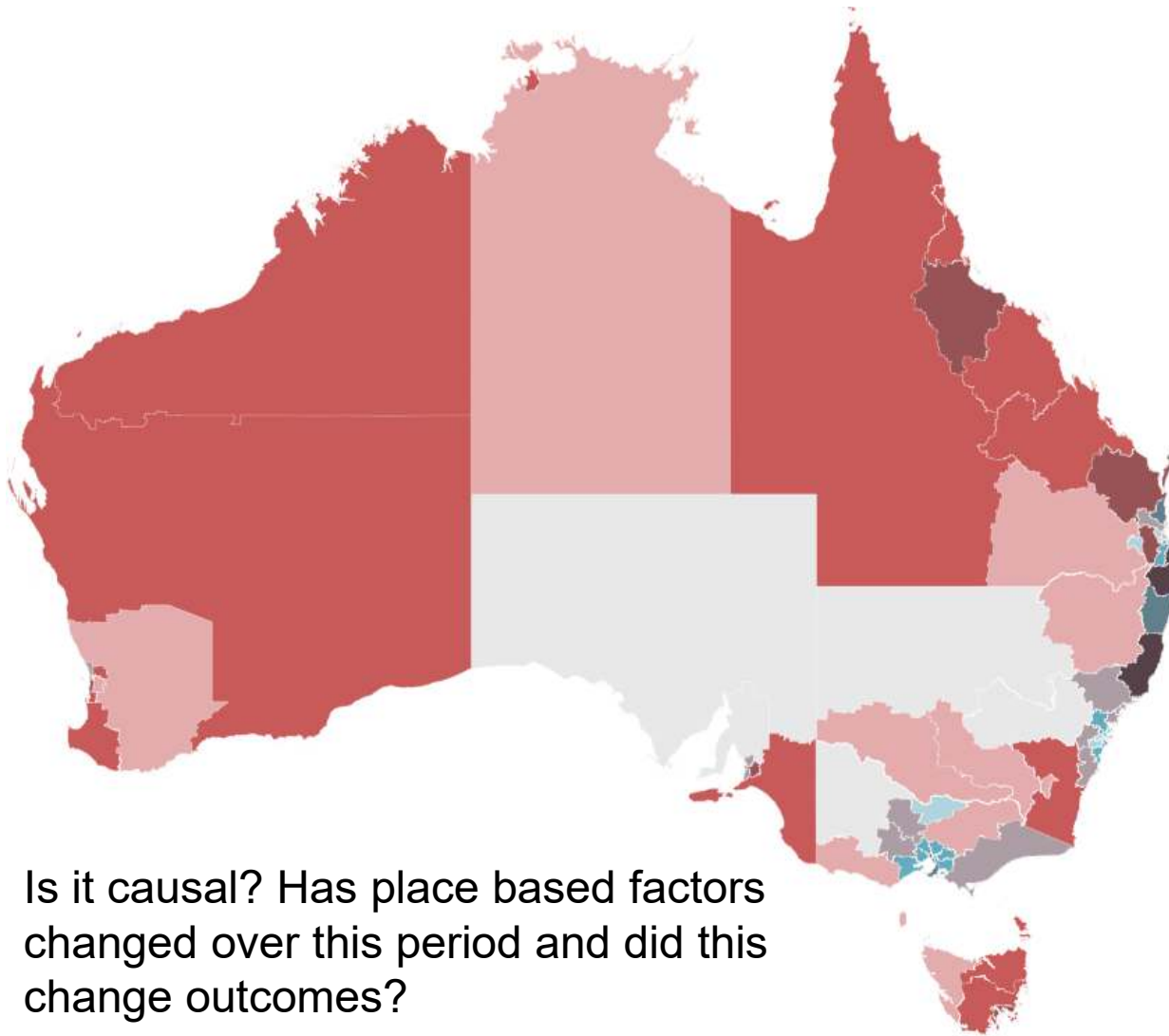
Table 4: Acute mental healthcare utilization and mental health outcomes

	(1) Mental health related ED presentations β [95% CI]	(2) Self-harm hospitalizations β [95% CI] Per 100,000 per quarter	(3) Suicides β [95% CI]
Place-based utilization:			
Mental health services	-0.0911* [-0.179, -0.00283]	-0.183** [-0.308, -0.0584]	-0.0984** [-0.161, -0.0356]
Mental health prescriptions	-0.183* [-0.343, -0.0237]	0.130 [-0.0609, 0.321]	0.0181 [-0.0866, 0.123]
Patient demand:			
Mental health services	0.0465 [-0.0522, 0.145]	-0.0199 [-0.160, 0.121]	-0.0355 [-0.0958, 0.0249]
Mental health prescriptions	0.237*** [0.126, 0.348]	0.0528 [-0.127, 0.232]	0.118* [0.0232, 0.213]
<i>Mean of outcome (untransformed)</i>	<i>112.61</i>	<i>124.16</i>	<i>1.27</i>

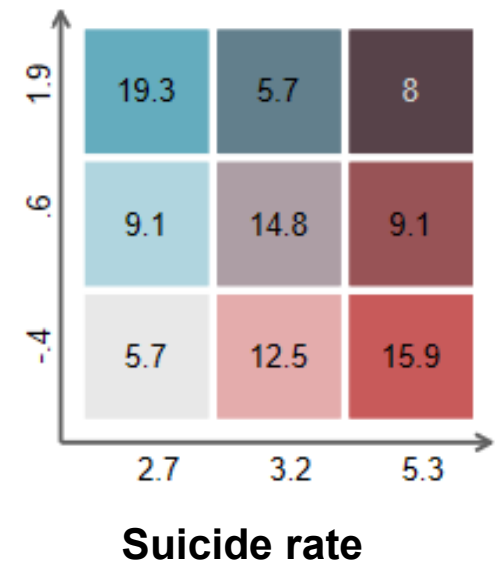
Other cause deaths only associated with patient demand for scripts

STILL POLICY RELEVANT!

- Where to target & how



Place-based utilisation -
Mental health services



Is it causal? Has place based factors changed over this period and did this change outcomes?

SUMMARY

- Variation in mental healthcare services driven by place
- Mental health scripts driven by patient demand
 - Scope to improve uptake / reduce variation using place-based interventions (targeting GP, psych supply) – telehealth?
- Regions with higher utilisation due to ‘place’ associated with improved mental health outcomes
 - No plateauing suggests **not inefficiencies, rather inadequate mental health primary care supply** across the board
- Indicates need for greater expenditure on primary mental healthcare to improve mental health outcomes in Australians

THANKYOU!

Feedback, questions?

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