

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

Karina Saxby

Professor Tom Buchmueller

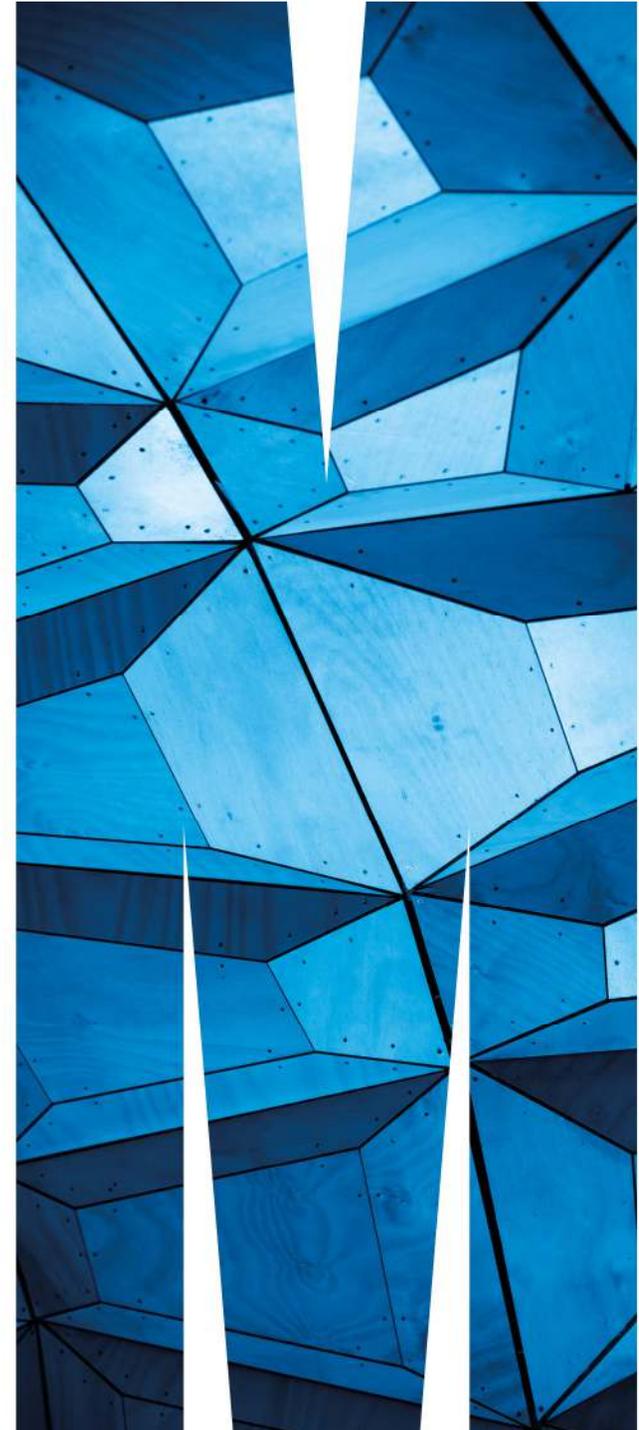
Associate Professor Sonja de New

Professor Dennis Petrie

(Centre for Health Economics, Monash University)

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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:

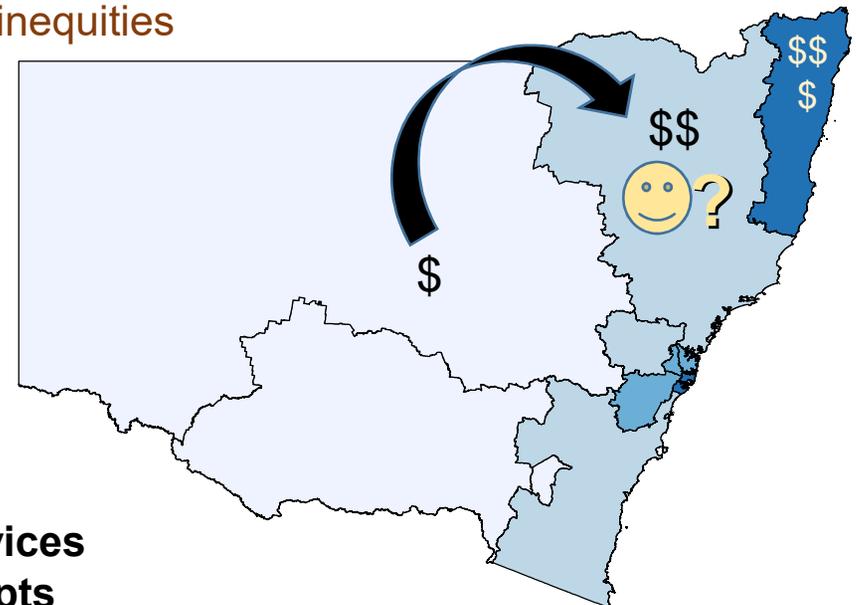
1. **What drives variation** in primary mental healthcare utilisation in Australia?
2. Controlling for demand, **higher utilisation = better mental health?**

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

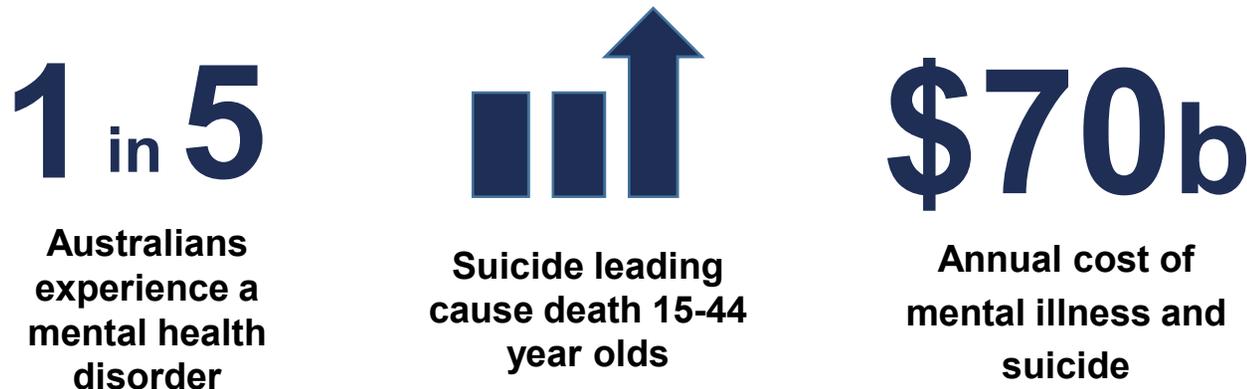
POLICY IMPLICATIONS:

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

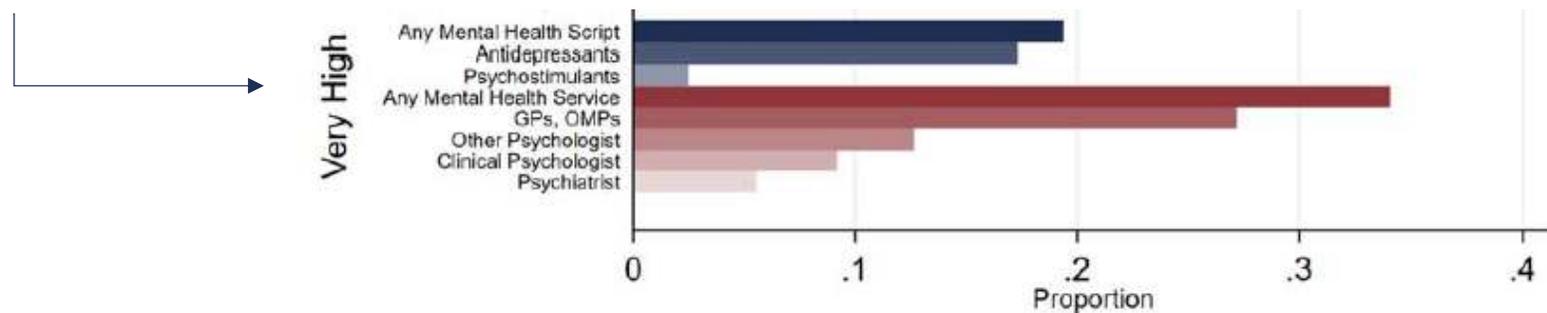


BACKGROUND: MOTIVATION

- 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)

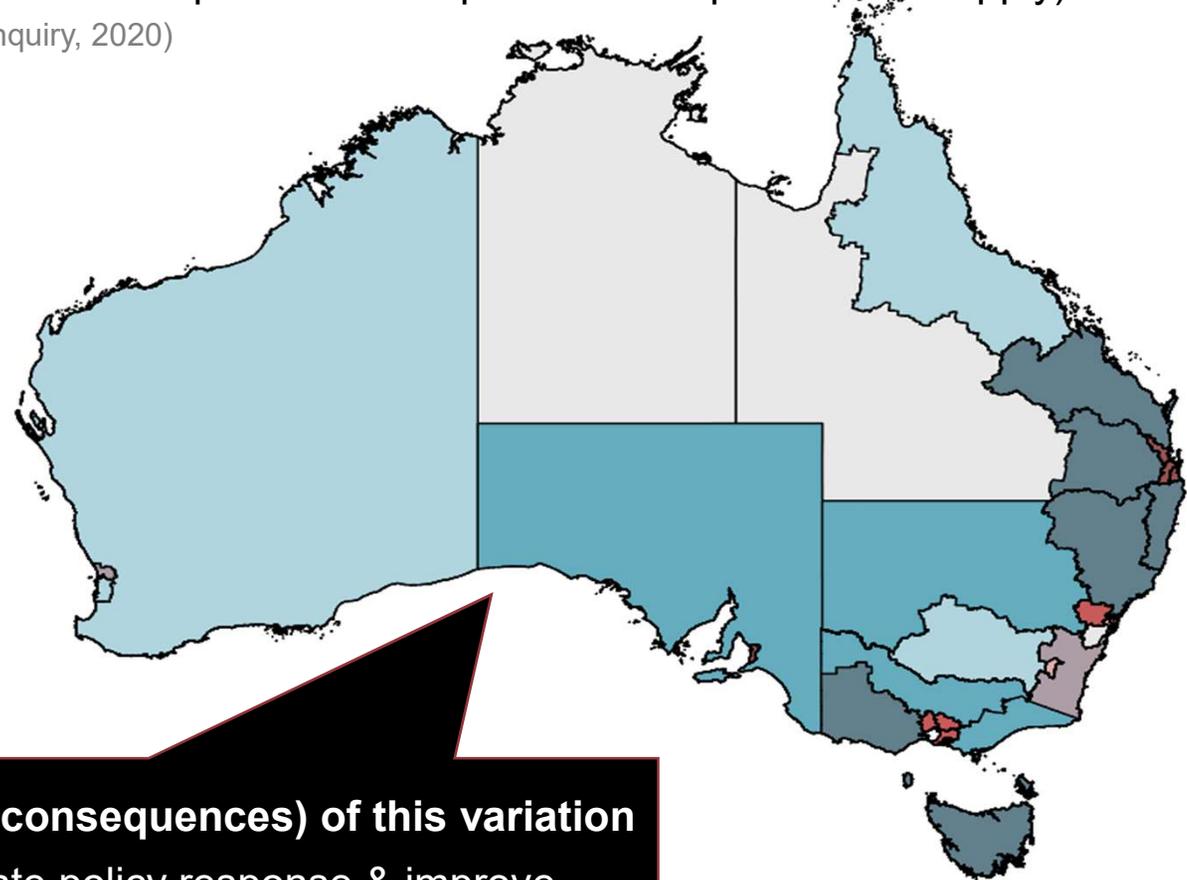


- & there is **substantial regional variation** in utilisation mental healthcare (Moscone and Knapp, 2005; Maconick *et al.*, 2021)
→ e.g. Outback QLD vs Melbourne City

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

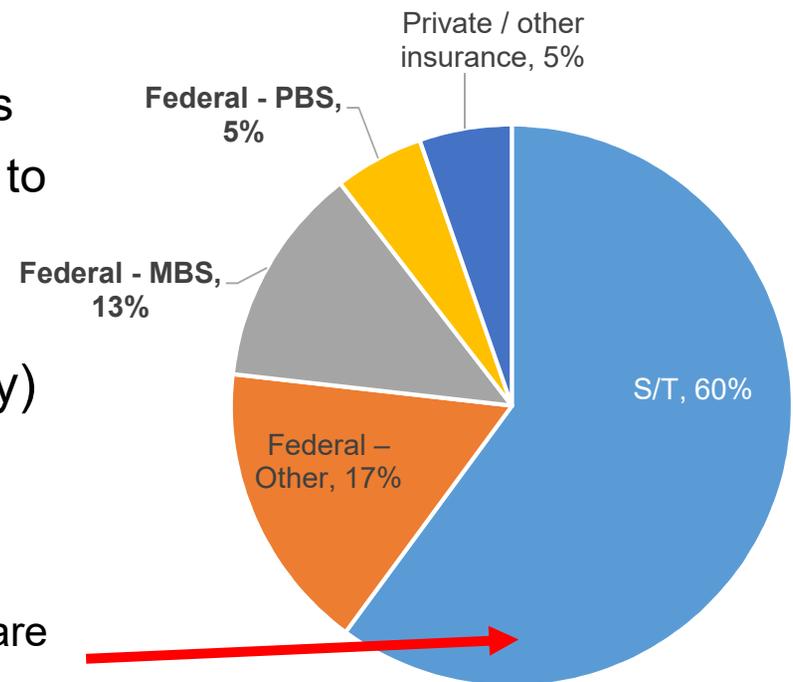
• Primary Mental Healthcare

- 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

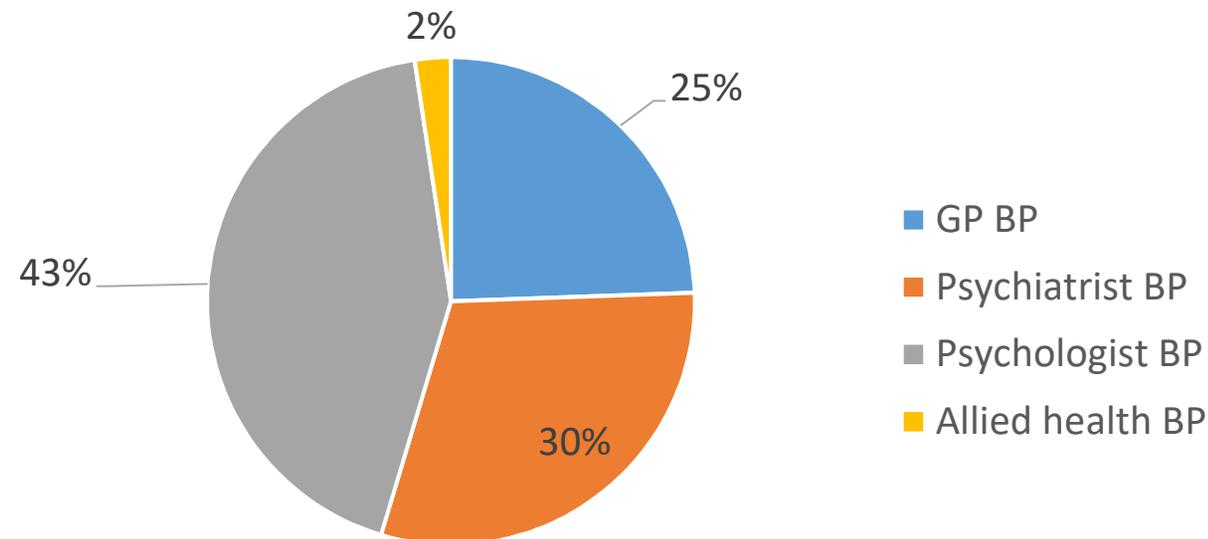
Expenditure on mental health in Australia (2019-20)



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

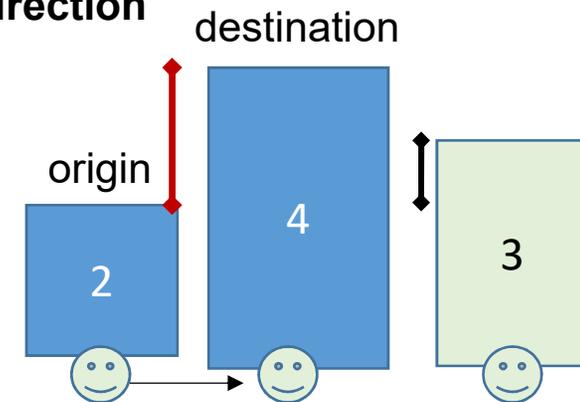
METHODS: PLACE BASED FIXED EFFECTS & EVENT STUDY

- 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)

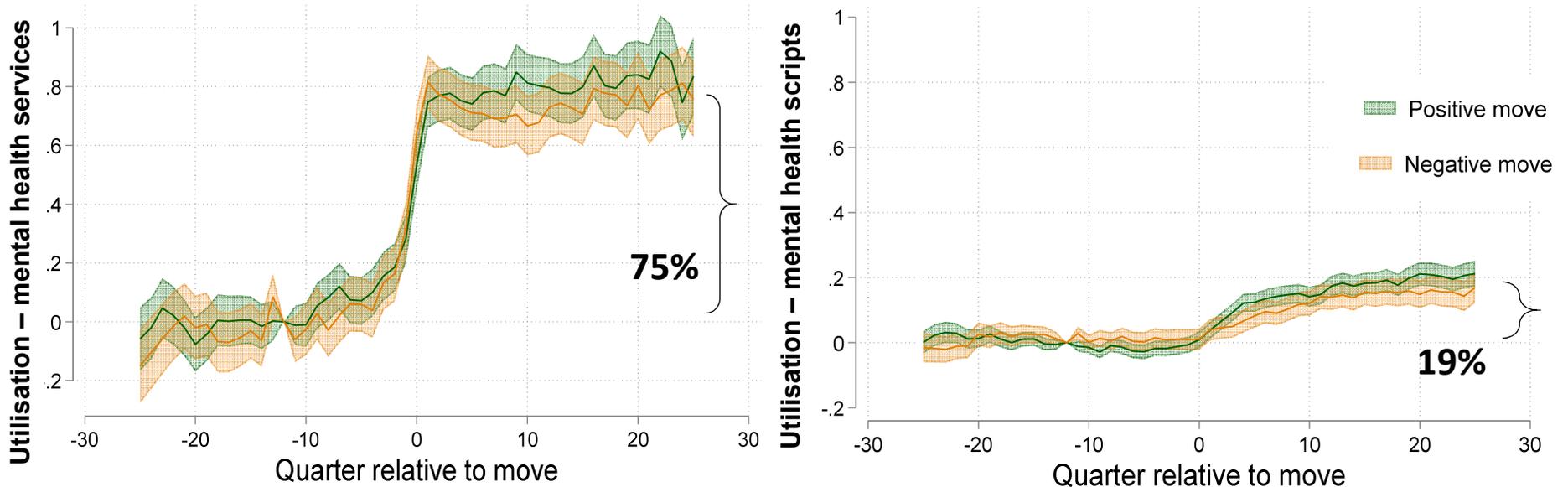
Visualise relative importance of place.



- 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

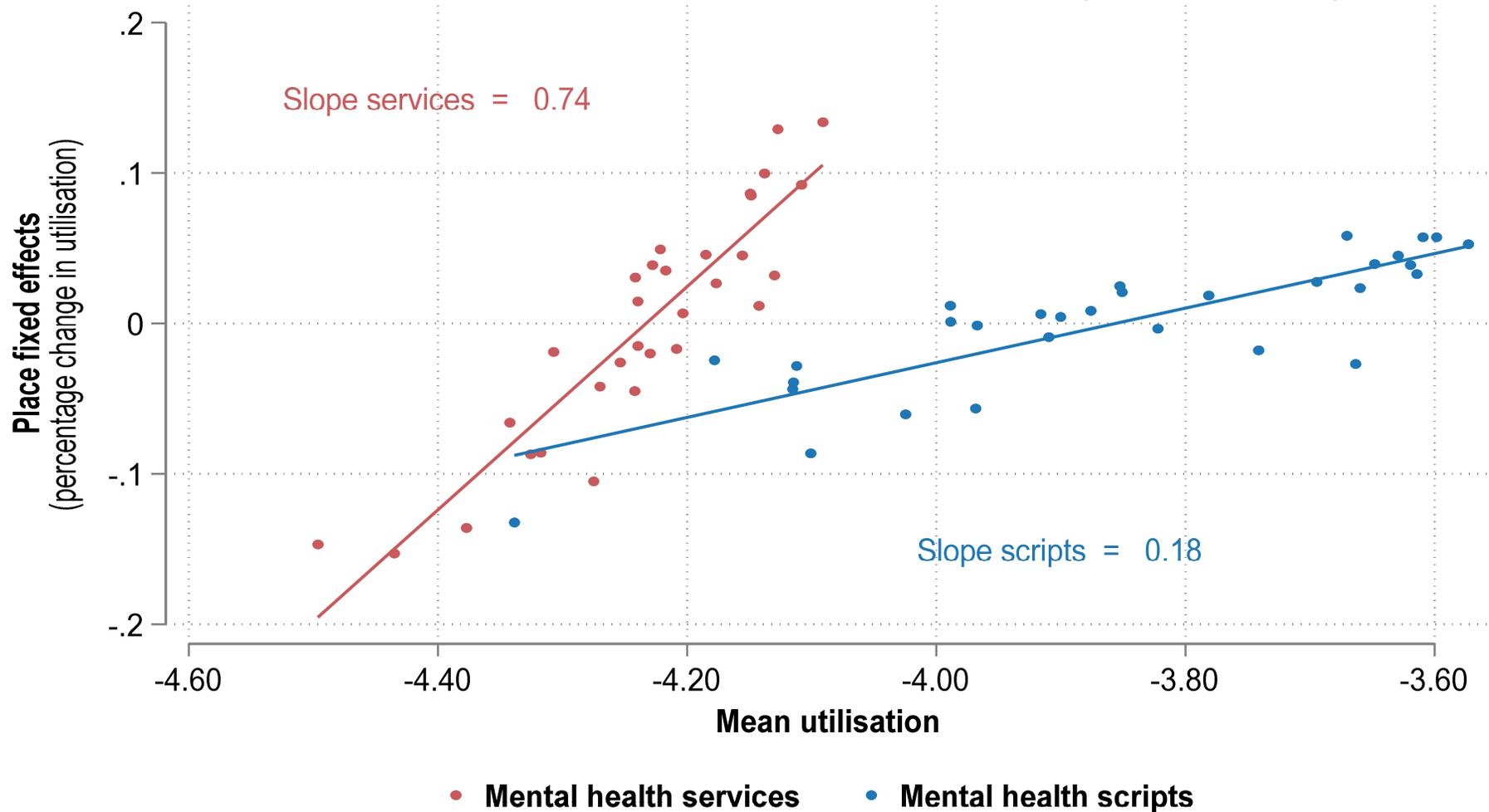


- People start look like destination region before 'registered move'
- Endogenous mobility: no evidence selective moving
 - Health shocks – similar pretreatment trends among positive/negative movers
- Persistence, esp. antidepressant treatment
- **Moves not associated with high use places.....**

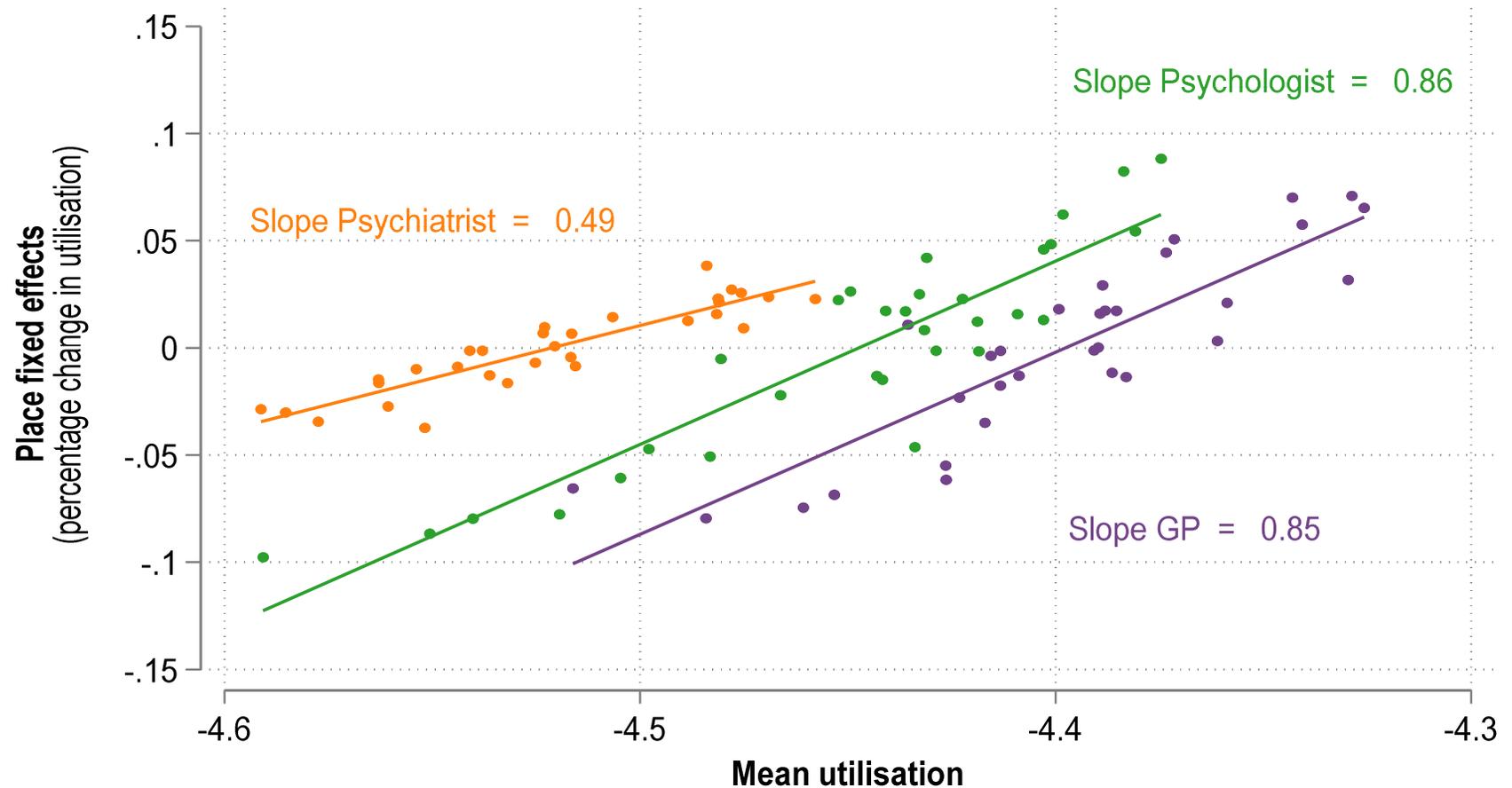
FIXED EFFECTS MODELS

Similar results

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



MENTAL HEALTHCARE FIXED EFFECTS BY CATEGORY OF CARE



• GP mental health services • Psychiatrist services • Psychologist services

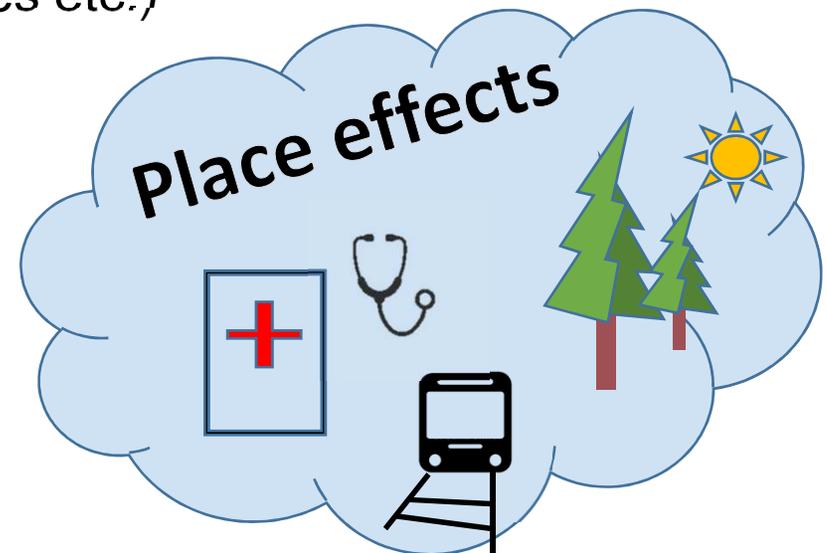
Fixed effects highly correlated – same factors driving limited demand across provider types (limited substitution)

HIGHER UTILISATION= BETTER MENTAL HEALTH?

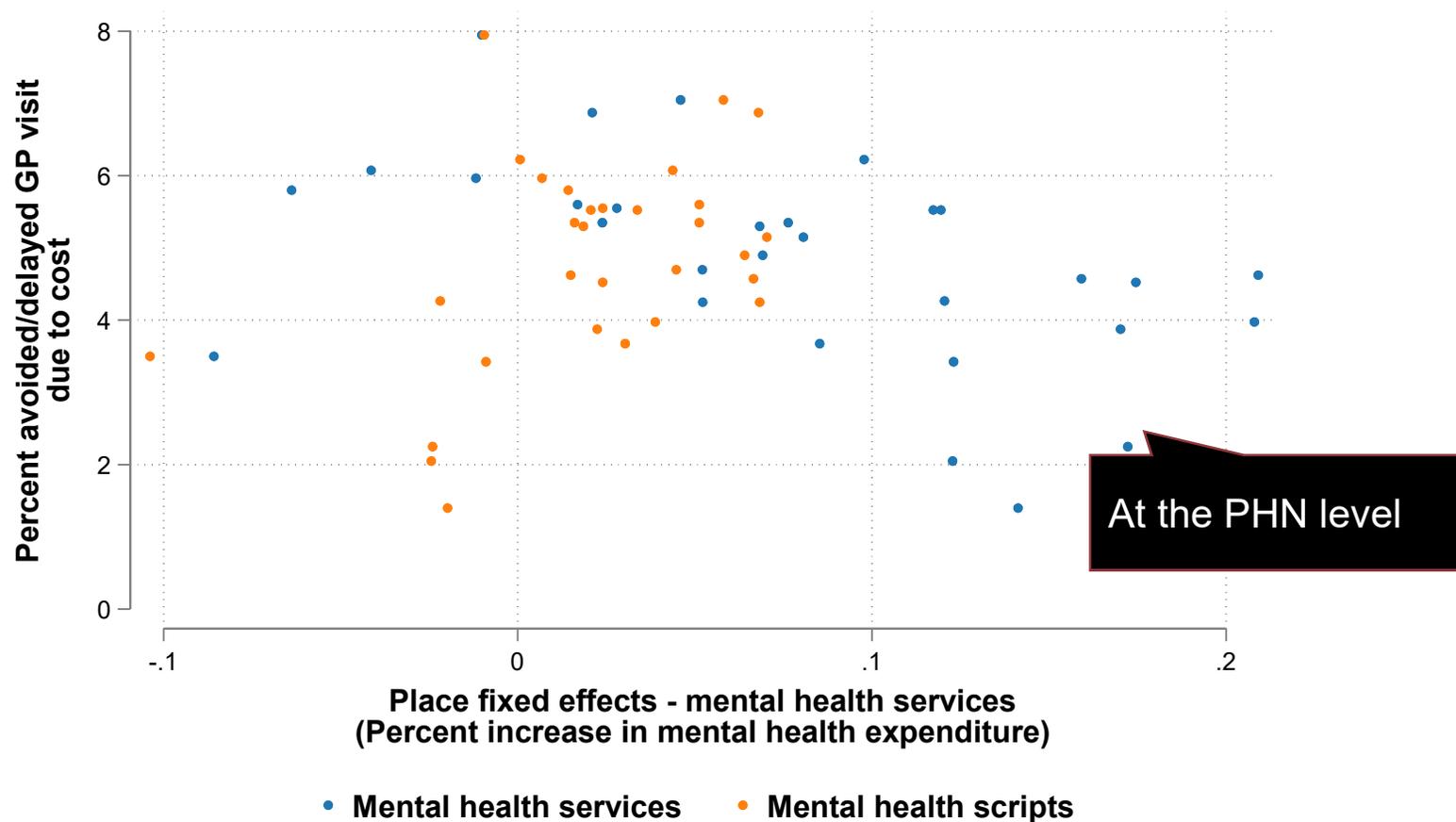
- We have identified place fixed effects that effectively control for demand (need, preferences, resources etc.)

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**

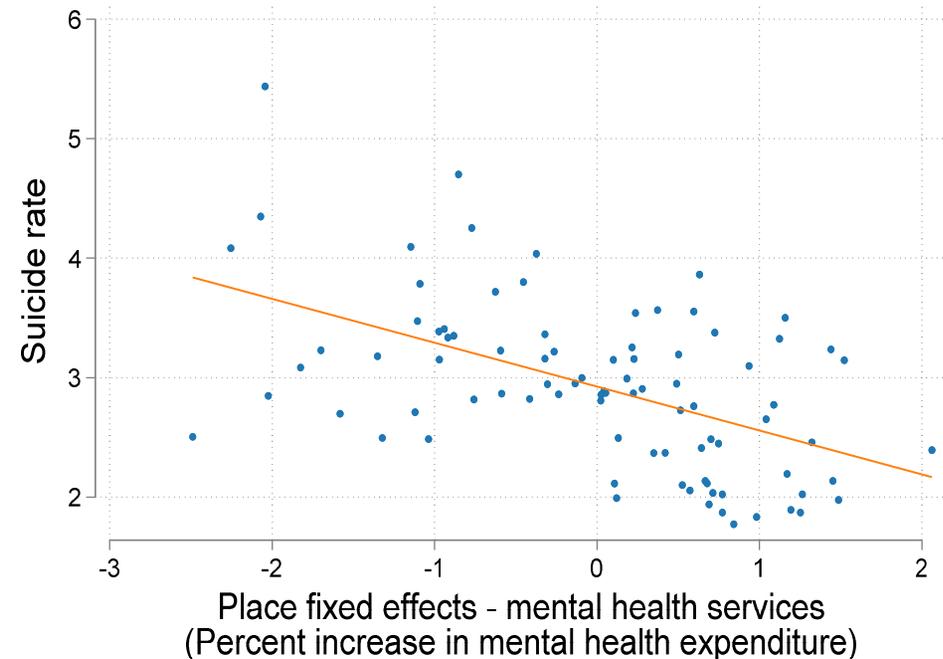
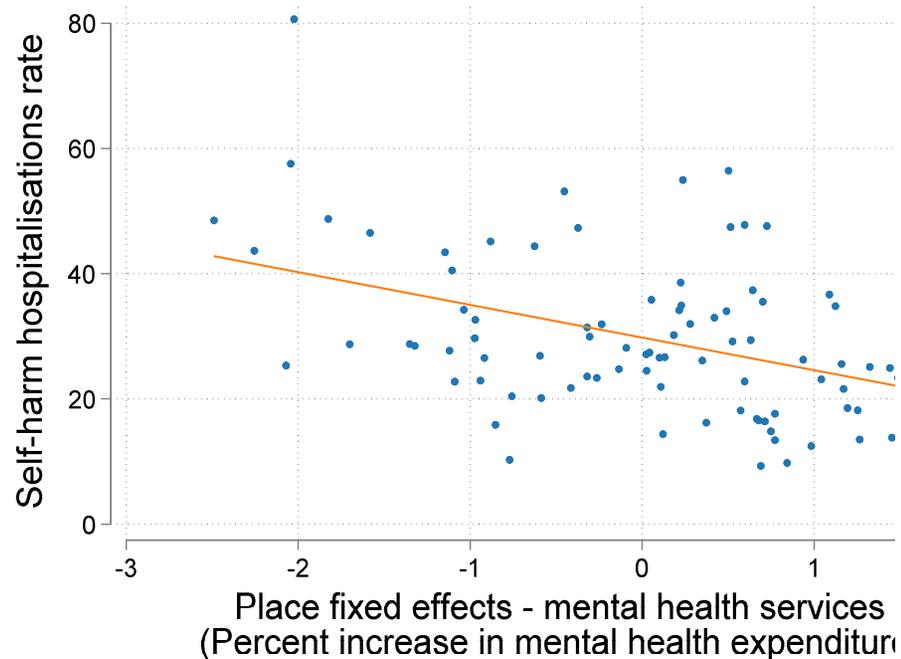


Is 'SUPPLY' ASSOCIATED WITH PLACE BASED UTILISATION?



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

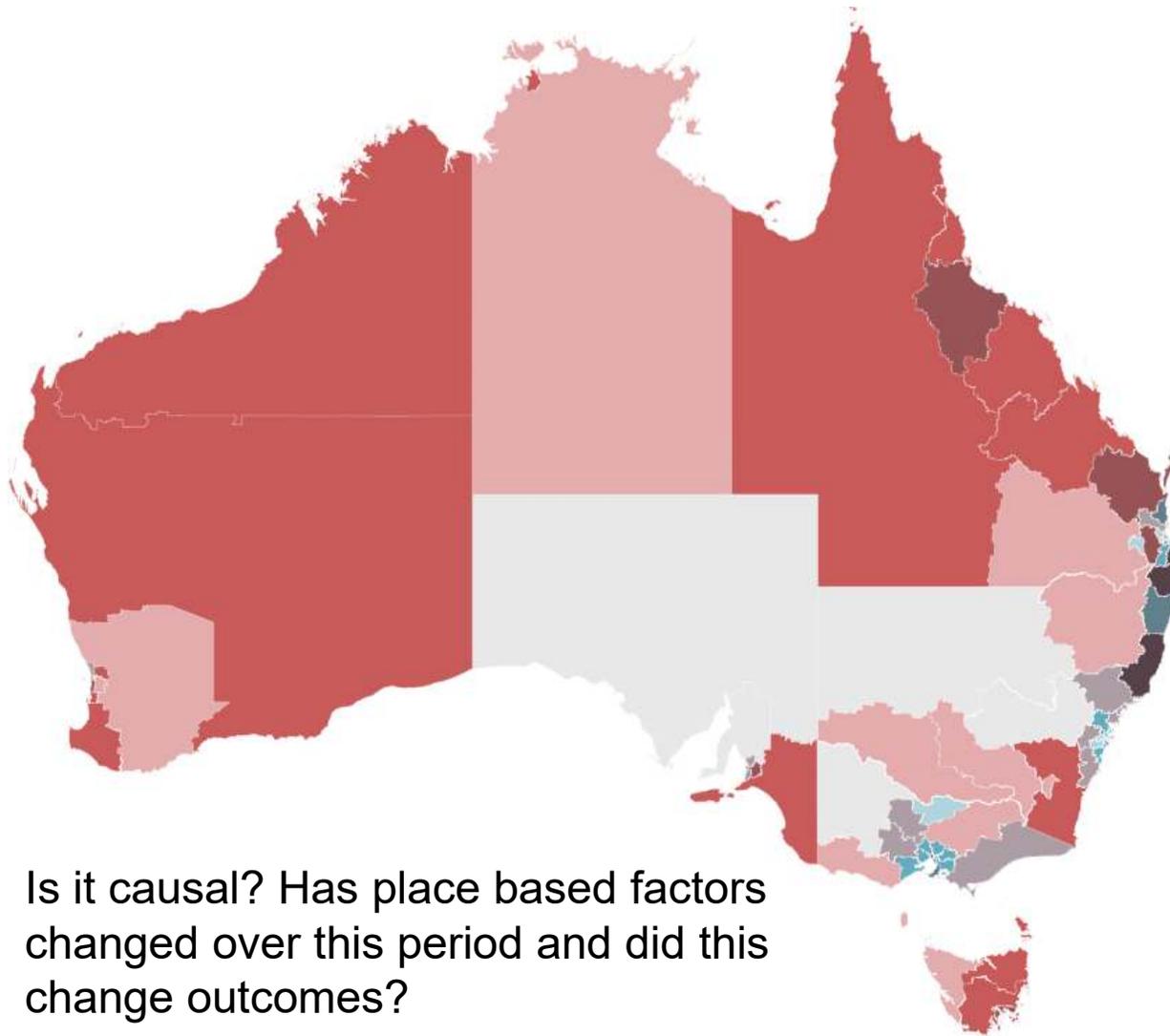
Table 4: Acute mental healthcare utilization and mental health outcomes

| | (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> |

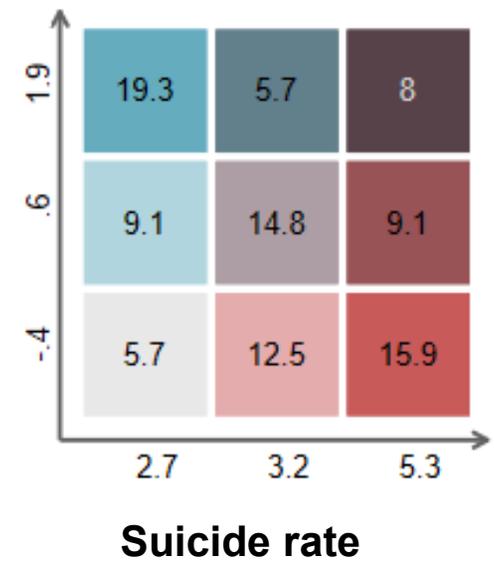
Other cause deaths only associated with patient demand for scripts

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?

Dennis.petrie@monash.edu

X [@DennisJPetrie](#)