

Does a house today

KEEP THE DOCTOR AWAY?

THE IMPACT OF URBAN REGENERATION ON HEALTH OUTCOMES

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**NEW ZEALAND POLICY
RESEARCH INSTITUTE**
TE KĀHUI RANGAHAU MANA TAURITE

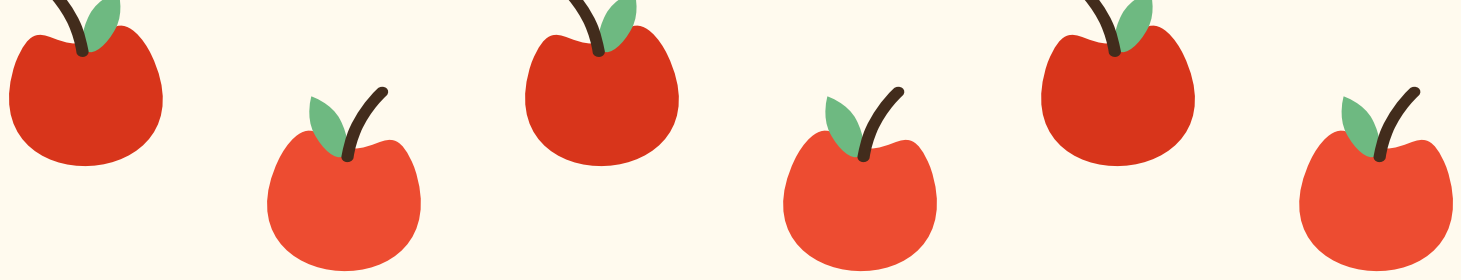


DISCLAIMER

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Stats NZ. For more information about the IDI please visit <https://www.stats.govt.nz/integrated-data/>.

The results are based in part on tax data supplied by Inland Revenue to Stats NZ under the Tax Administration Act 1994 for statistical purposes. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

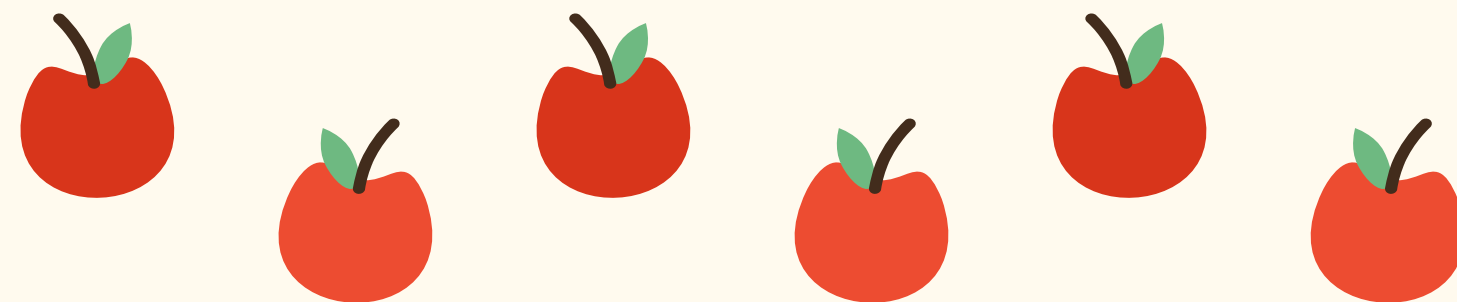





RESEARCH QUESTION



What are the short-run physical and mental health impacts of urban regeneration?



NZ FACES SUBSTANTIAL HOUSING CHALLENGES

Including persistent housing shortages, rising housing costs, poor quality stock and overcrowding issues.

Kāinga Ora is the government agency responsible for the provision of social housing and urban development in New Zealand. It is making significant investments towards increasing the housing supply and improving the quality of the existing housing stock in New Zealand.

\$1.4 BILLION

...of the Housing Acceleration Fund allocated to building homes in Auckland over the next ten years

\$2.3 BILLION

...invested by Kāinga Ora into building and upgrading new homes

10,000

...new homes have been built by Kāinga Ora since 2018, most of these being social housing

35,000

...new homes are expected to be built by Kāinga Ora in the next 15 years

KĀINGA ORA MEANS...

“WELLBEING THROUGH PLACES AND COMMUNITIES”

Housing intensification is the main policy tool used by Kāinga Ora to deliver its urban regeneration initiatives. Usually involves redeveloping a single dwelling into multi-unit dwellings such as apartments.

By developing or regenerating urban areas (“**urban regeneration**”) via housing intensification, there is the potential to improve health and wider social outcomes for individuals in affected communities.



DESPITE LARGE INVESTMENT, THERE IS LITTLE EVIDENCE ON THE IMPACT OF URBAN REGENERATION ON HEALTH IN NEW ZEALAND

DATA & METHOD

```
1 library(shiny)
2 library(plotly)
3
4 # Load the plotting script
5 source("plotting.R")
6
7 #-----
8 # Head
9 #-----
10 head <- tags$head(
11   includeHTML("google-analytics.html"),
12   tags$link(rel = "stylesheet", href = "https://fonts.googleapis.com/css?family=Montserrat:300,400,700&display=swap"),
13   tags$style(HTML("
14
15 .logo-top {
16   height: 100px; /* Adjust the height as needed */
17   width: auto;
18 }
19
20 .header {
21   background-color: white;
22   text-align: left;
23   width: 100%;
24   position: relative; /* Add position relative for positioning children */
25   top: 20px; /* Adjust top position as needed */
26   margin-bottom: 20px; /* Add margin bottom for spacing */
27
28
```

Environment History Connections Tutorial

R Global Environment

20 MIB

Values

barbie_light	"https://raw.githubusercontent.com/emhogg/barbie_r_st...
--------------	--

Files Plots Packages Help Viewer

New Folder New Blank File

C:\Users\em14841\AUT University

Name

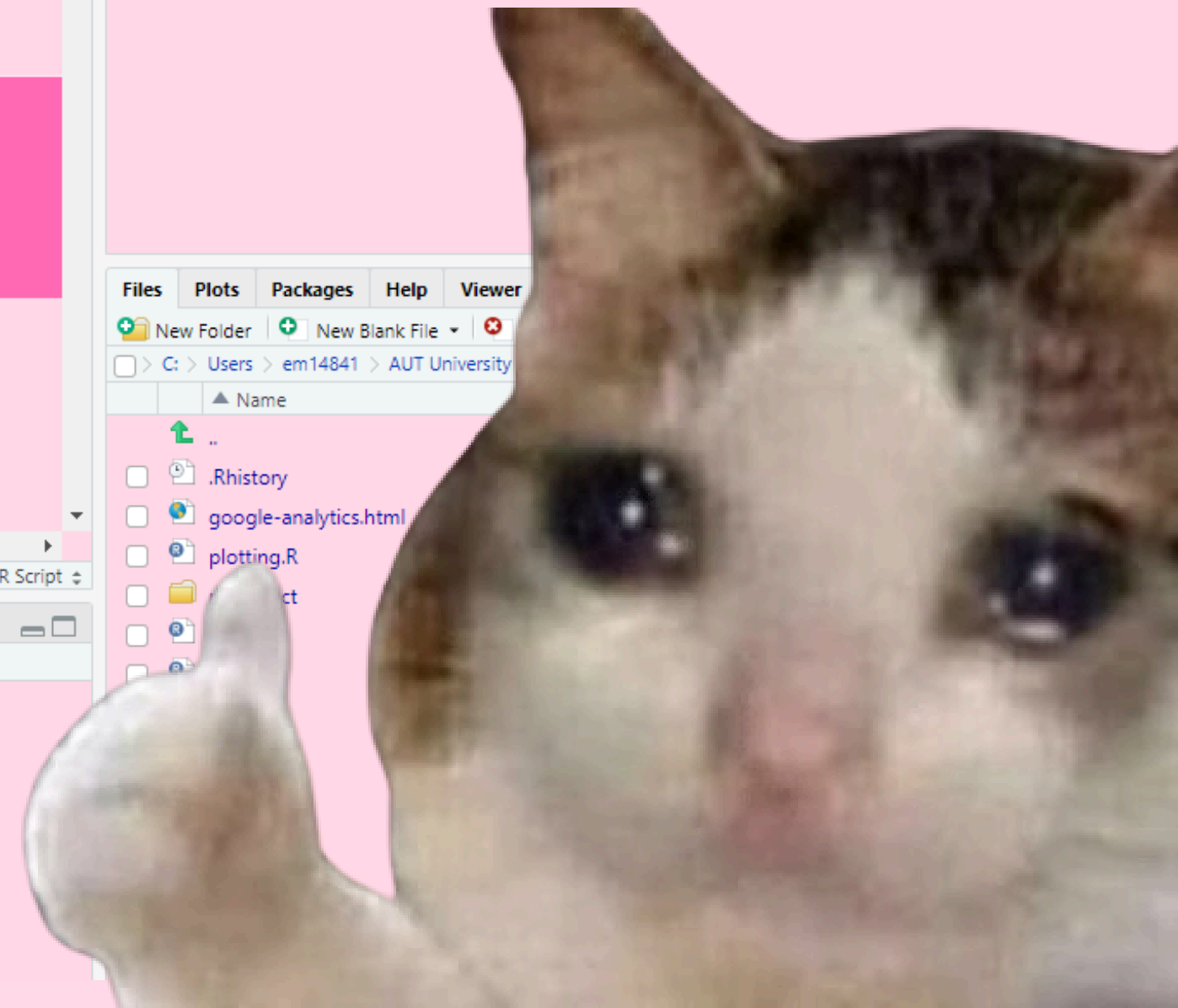
- ..
- .Rhistory
- google-analytics.html
- plotting.R
- ct

19:1 (Untitled) R Script

Console Terminal Background Jobs

Start Background Job

No background jobs are currently running



MEASURING URBAN REGENERATION

KĀINGA ORA HOUSING INTENSIFICATION DATA

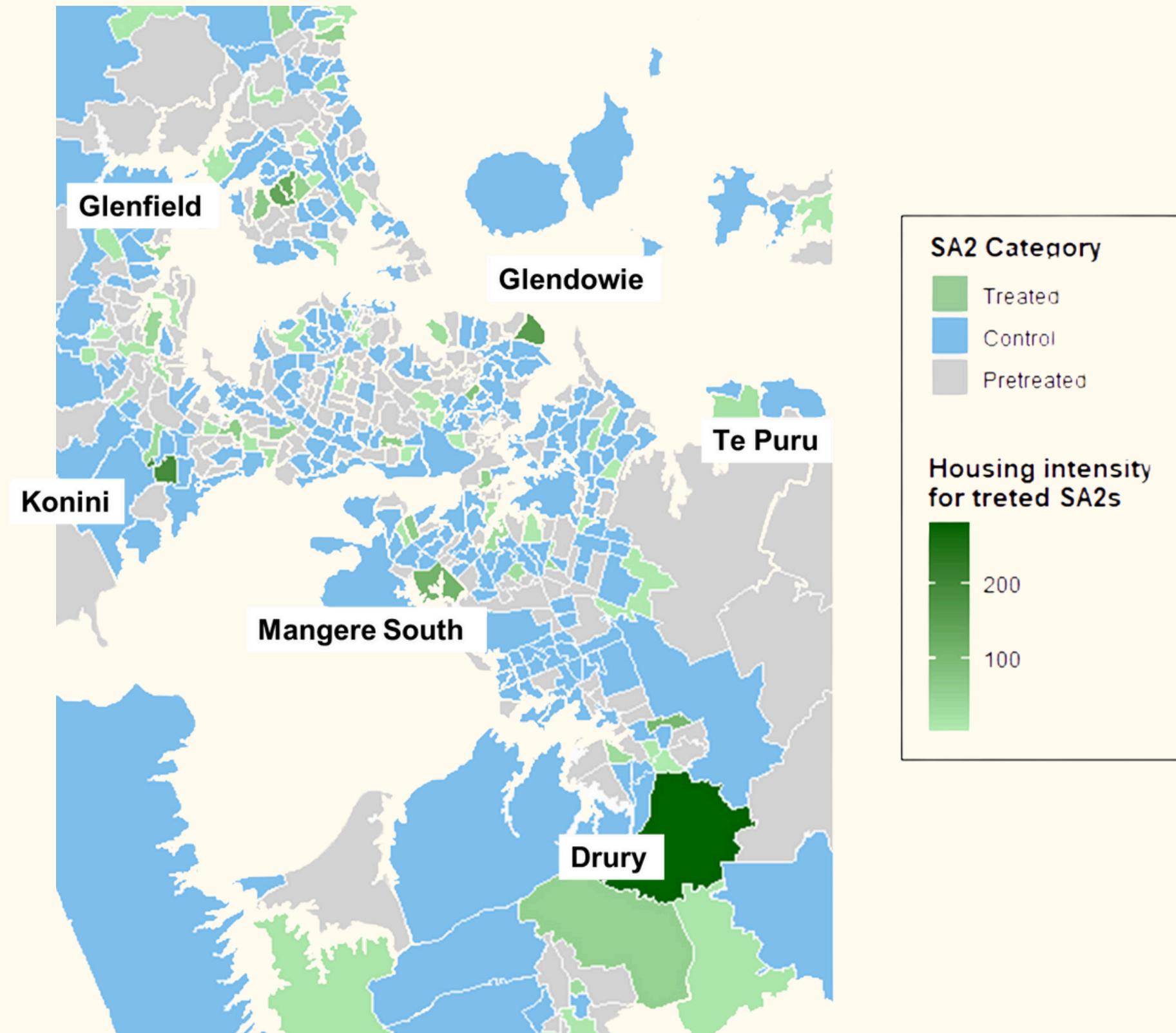
Monthly data from 2018 to 2021 showing current and future housing projects *

* Development is still ongoing at the time of analysis

Shows expected number of dwellings to be built, the location and when they are underway

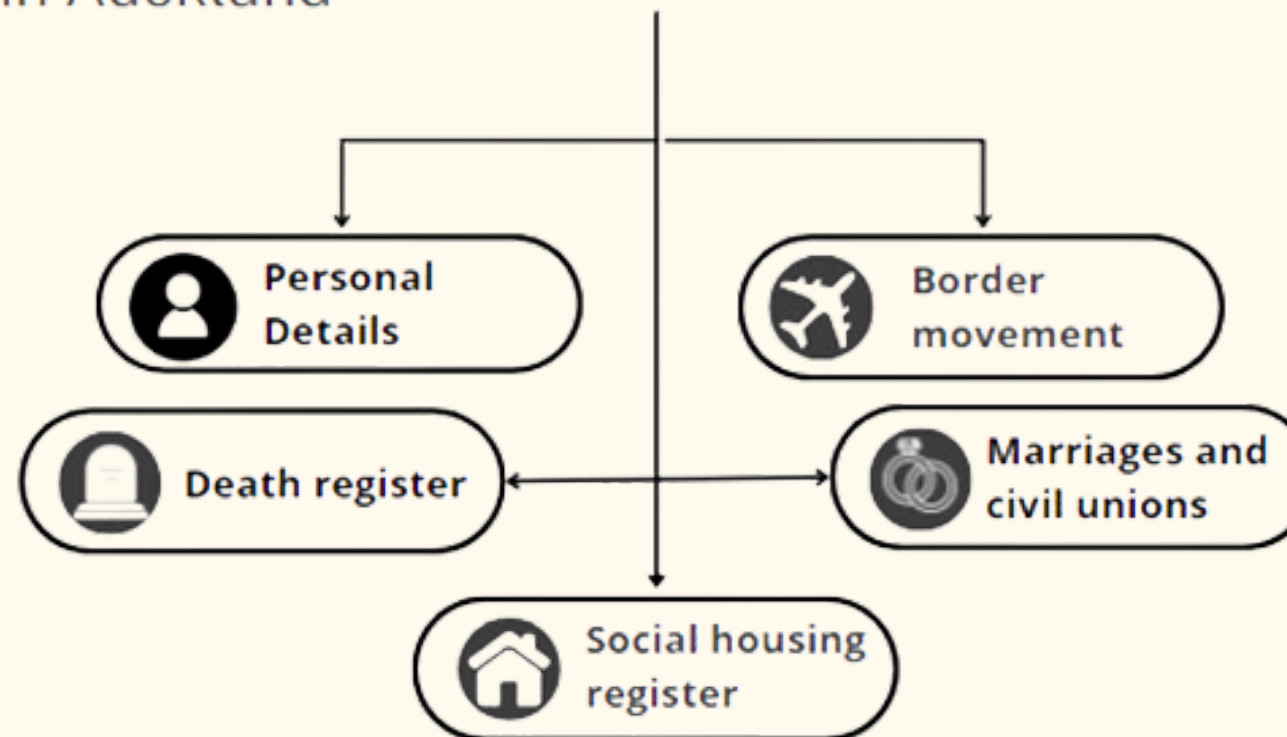
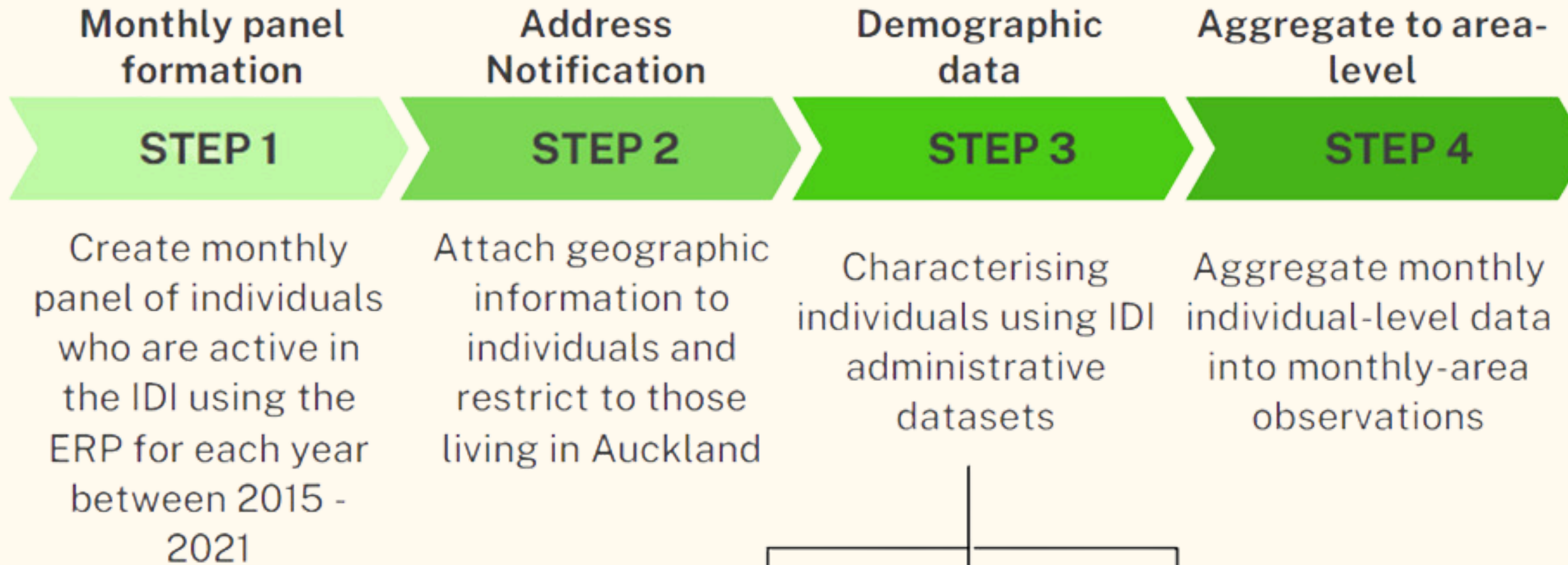
Geographic unit of analysis is SA2-level to reflect suburbs/neighbourhoods *

* Also use SA1 to reflect more localised impacts



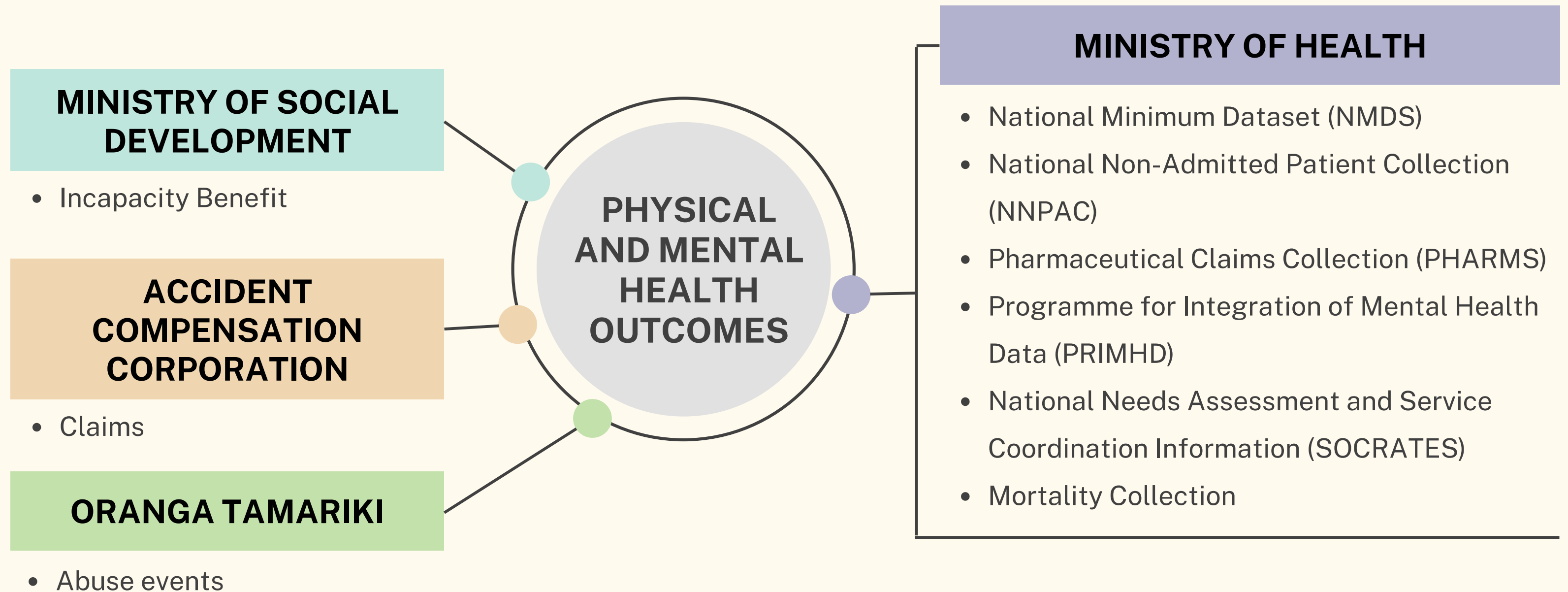
CREATING THE SAMPLE

POPULATION OF INTEREST



MEASURING HEALTH OUTCOMES

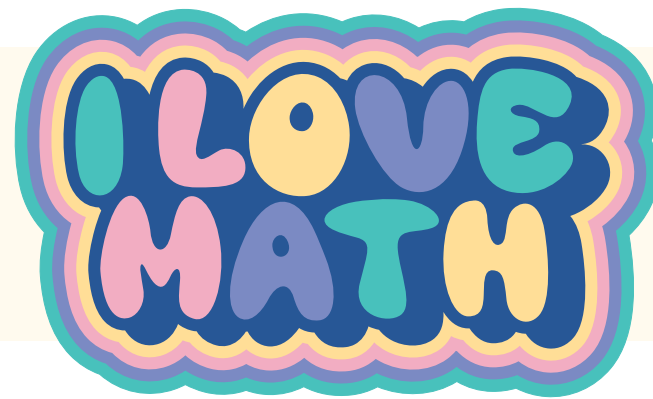
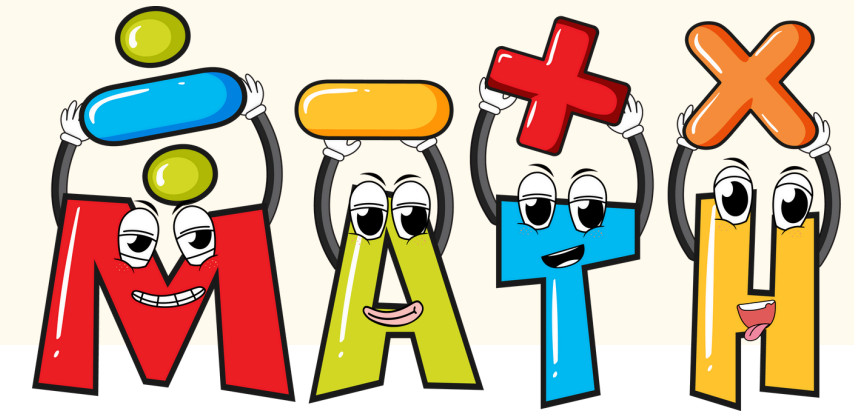
THE INTEGRATED DATA INFRASTRUCTURE



EMPIRICAL MODEL

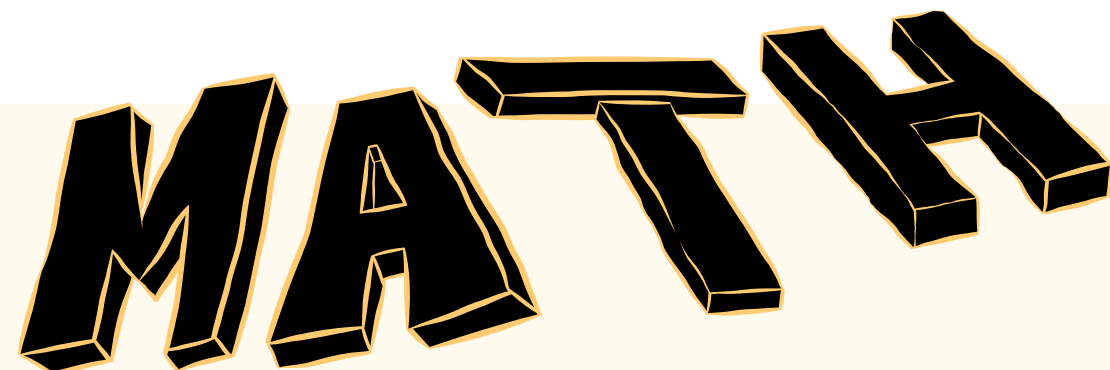
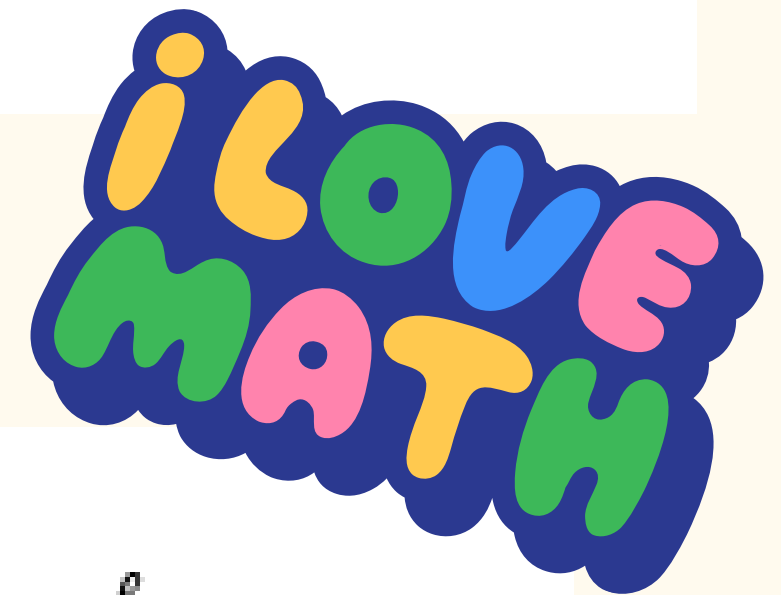
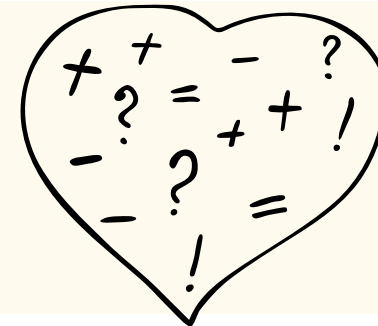
AREA- AND INDIVIDUAL- LEVEL ANALYSIS

$$Y_{it} = \alpha_i + \lambda_t + \sum_{e \in C} \sum_{\ell \neq -1} \delta_{e,\ell} (1\{E_i = e\} \cdot D_{i,t}^\ell) + X_{it}\Gamma + \varepsilon_{it}$$



$$\hat{v}_g = \frac{1}{|g|} \sum_{\ell \in g} \sum_e \widehat{\delta}_{e,\ell} \widehat{Pr}\{E_i = e \mid E_i \in [-\ell, T - \ell]\}$$

$$Y_{it} = \alpha_i + \lambda_t + \varepsilon_{it} \quad \text{s.t. } D_{i,t}^\ell = 0$$



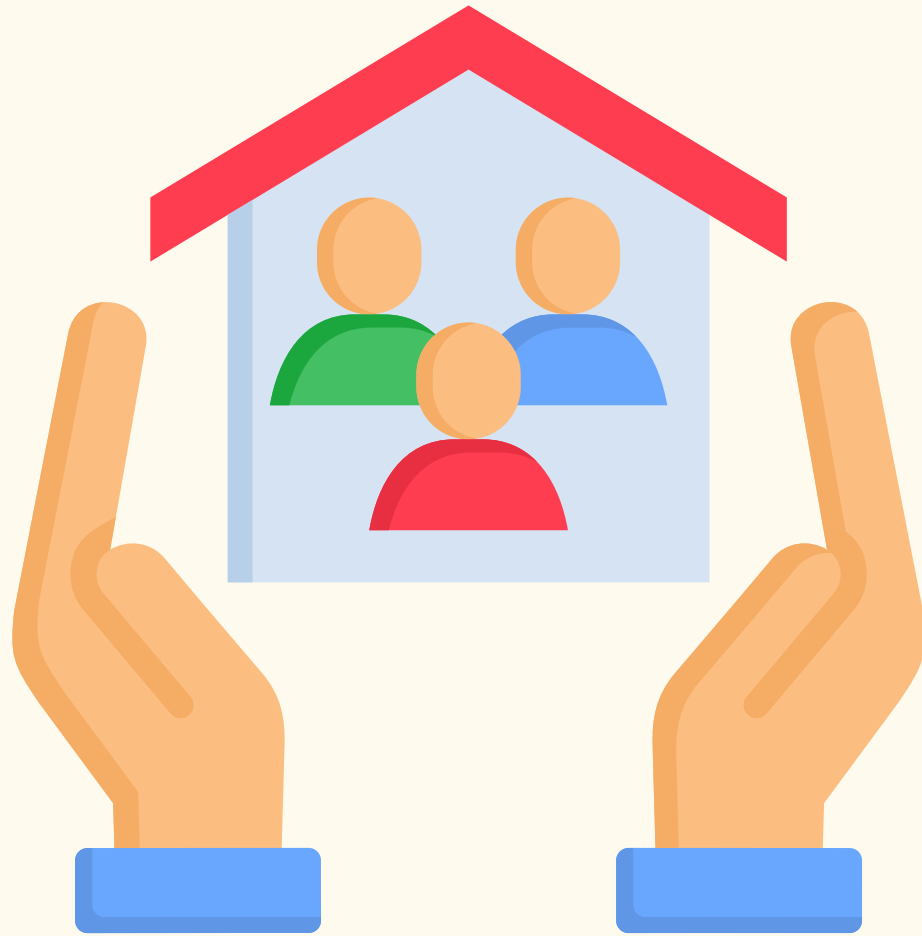
$$\tilde{Y}_{it} = Y_{it} - \tilde{\alpha}_i - \tilde{\lambda}_t \quad \text{s.t. } D_{i,t}^\ell = 0$$

URBAN REGENERATION INTENSITY

- Areas with high levels of urban regeneration have the greatest potential to improve health outcomes, compared to areas with lower levels of urban regeneration
- Treated SA2s where 50 or more dwellings are expected to be built are defined as 'high intensity' urban regeneration, and SA2s where less than 50 dwellings are expected to be built are defined as 'low intensity'
- There are 18 high intensity SA2s which make up 20% of all treated SA2s and the remaining 80% are low intensity SA2s.



SOCIAL HOUSING STATUS



- Most dwellings developed by Kāinga Ora-led urban regeneration are social housing
- It is likely social housing tenants moving into these developments who will be most impacted by urban regeneration
- Non-social housing residents they may benefit from urban regenerations initiatives such as having better neighbourhood amenities
- The analysis differentiates between social housing and non-social housing within the treated population.

HETEROGENEITY ANALYSIS – INDIVIDUAL LEVEL

LONG-TERM RESIDENTS



NEWCOMERS



LEAVERS





RESULTS

IMPACT OF URBAN REGENERATION ON...

EMERGENCY DEPARTMENT ADMISSIONS

- >> **No effect** of UR on ED admissions at the SA2 or SA1-level for the overall treated population and individual-level (long-term residents, newcomers, leavers)
- >> ED admissions significantly **decreased** for social housing (by 3.2 admissions) and non-social housing (by 0.9 admissions) in high urban regeneration SA2s compared to control SA2s
- >> Represents a **23% and 6% decrease** from average pre-treatment ED admissions
- >> Suggests improved access to, or quality of, primary healthcare services
- >> At the SA1-level, ED admissions significantly **increased by 5.8 admissions** for social housing residents in high UR SA1s
- >> Represents a **41% increase** in average pre-treatment ED admissions
- >> Suggests primary care infrastructure may not have kept pace with population growth in the short run, leading to more frequent ED visits



IMPACT OF URBAN REGENERATION ON...

CARDIOVASCULAR DISEASE (CVD) ADMISSIONS

- >> **No effect** of UR on CVD admissions at the SA2 or SA1-level for the overall treated population and individual-level (long-term residents, newcomers, leavers)
- >> CVD admissions significantly **decreased** for social housing (by 2.2 admissions) in high urban regeneration SA2s compared to control SA2s
- >> Represents a **68% decrease** from average pre-treatment CVD admissions
- >> Suggests neighbourhoods that are walkable, close to public transport, availability of parks and green spaces encourages exercise and physical activity, which can lead to better cardiovascular health



IMPACT OF URBAN REGENERATION ON...

RESPIRATORY ADMISSIONS

- >> **No effect** of UR on respiratory admissions at the SA2-level for the overall treated population and individual-level (long-term residents, newcomers, leavers)
- >> Respiratory admissions significantly **increased by 0.6** at the SA1-level for the overall treated population - **21% increase** from average pre-treatment respiratory admissions
- >> Respiratory admissions significantly **decreased** for social housing (by 3.2 admissions) in high urban regeneration SA2s compared to control SA2s
- >> Represents a **83% decrease** from average pre-treatment respiratory admissions
- >> Suggests construction of new, warmer homes and replacement of older homes that were damp and cold improves respiratory health



IMPACT OF URBAN REGENERATION ON...

MENTAL HEALTH UTILISATION

- >> **No effect** of UR on mental health utilisation at the SA2 or SA1-level for the overall treated population and individual-level (long-term residents, newcomers, leavers)
- >> Individual analysis was of interest to understand characteristics of **those who stay** in treated areas and **those who leave**
- >> Fear of antisocial behaviour from social housing tenants, increased crime rates and house and neighbourhood value decrease associated with social housing development >> **increased mental health burden?**
- >> **No significant difference** in mental health utilisation for long-term residents and leavers in treated versus control areas



IMPACT OF URBAN REGENERATION ON...

MENTAL HEALTH UTILISATION

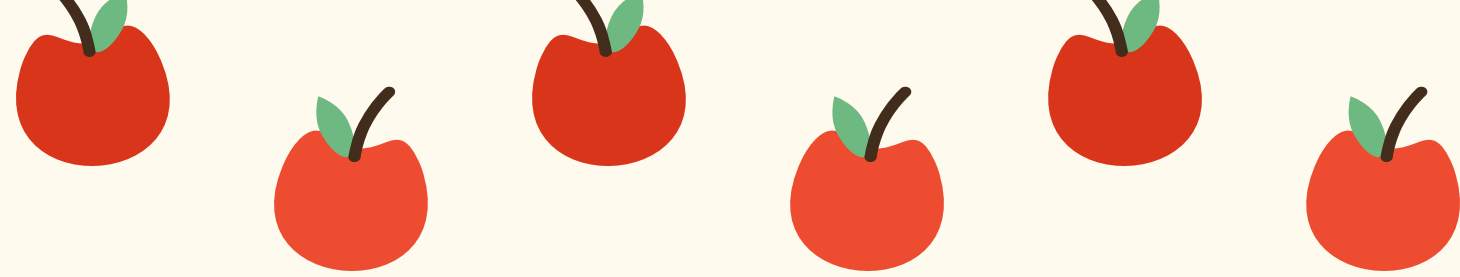
- >> Mental health utilisation **significantly increased** for social housing (by 8.6 utilisations) in high urban regeneration SA2s compared to control SA2s
- >> Represents an **11% increase** from average pre-treatment mental health utilisation
- >> Self-harm also **increased by 0.3 self-harm events - 56% increase** in average pre-treatment self-harm events
- >> Suggests ongoing development in high urban regeneration areas has **negative mental health impacts** for social housing residents
- >> In short run, residents may be at risk of displacement, lose community and support networks, face uncertainty and disruption from UR which can increase mental health burden
- >> No significant difference in mental health utilisation for non-social housing residents





SUMMARY

- Not much impact of urban regeneration on the overall treated population
- Social housing in high urban regeneration areas have improved in terms of physical health
- Possible drivers: newer, warmer homes, better local healthcare infrastructure and walkable and well connected neighbourhoods
- However, mental health utilisation significantly increased
- Short run impacts: displacement, disbanded communities, loss of local support networks, uncertainty, ongoing disruption from construction



Thank you!



QUESTIONS?

