

Disasters and economic resilience: Income effects of the Black Saturday Bushfires on disaster-hit individuals

AFAC / 2018

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Business
Cooperative Research
Centres Programme

About us – project team



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About us – end users

STATE

DEPARTMENT

- | | |
|-----|---|
| CTH | <ul style="list-style-type: none">• Emergency Management Australia |
| QLD | <ul style="list-style-type: none">• Queensland Reconstruction Authority• Inspector General of Emergency Management QLD |
| SA | <ul style="list-style-type: none">• Department of Environment, Water and Natural Resources |
| VIC | <ul style="list-style-type: none">• Department of Environment, Land, Water and Planning• Inspector General of Emergency Management VIC |
| WA | <ul style="list-style-type: none">• Department of Fire and Emergency Services |

Victorian Black Saturday Bushfires 2009: \$7 billion loss

“The most devastating bushfires in
Australia’s history”

Deloitte Access Economics, 2016



The research need?

“It would be a mistake to treat Black Saturday as a ‘one-off’ event. With populations at the rural–urban interface growing and the impact of climate change, the risks associated with bushfire are likely to increase”

Victorian Bushfire Royal Commission Report, 2009

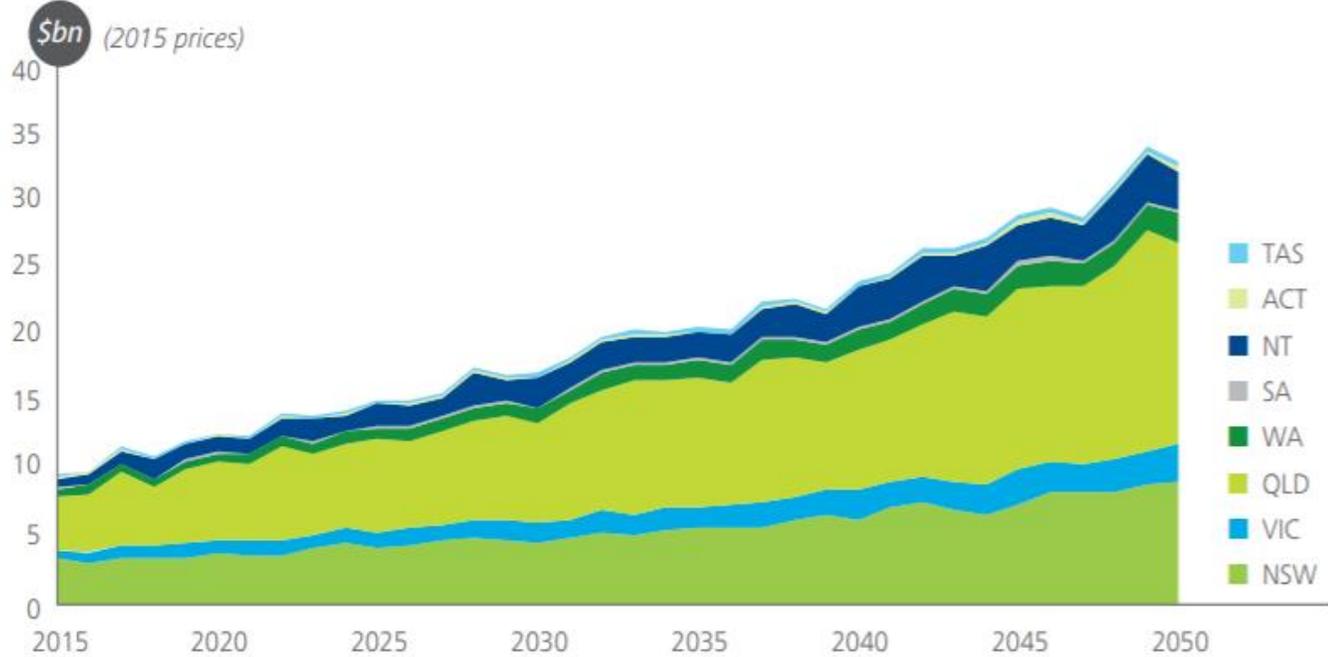


Disaster response

“It is crucial that funding and policies acknowledge the long-term social impacts of natural disasters.”

Deloitte Access 2010

Forecast total economic costs of natural disasters, per state



Source: Deloitte Access Economics analysis

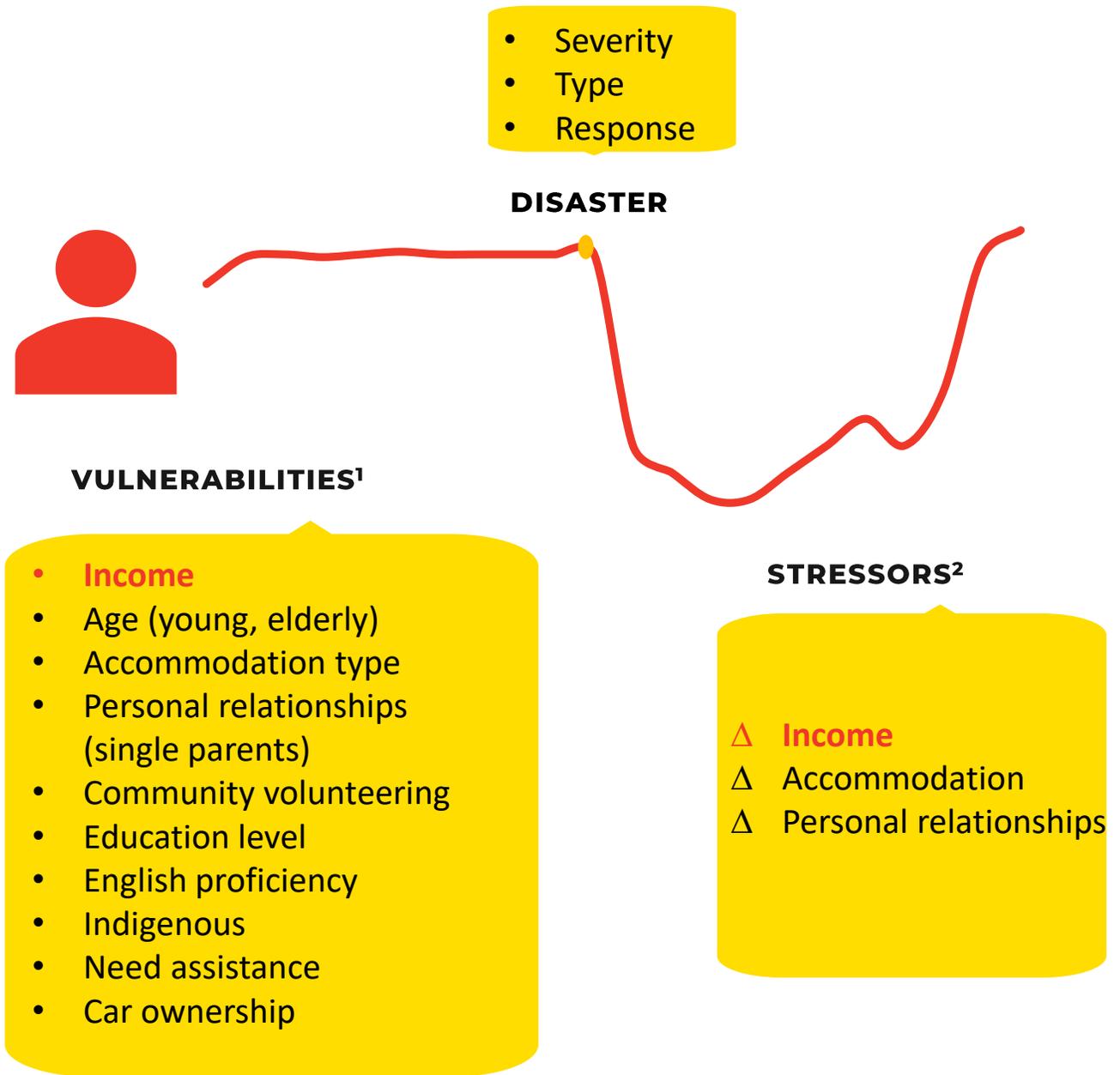
Disaster resilience

“Some characteristics are associated with an individual’s level of vulnerability before, during or after a disaster...a community which has low levels of vulnerability can be considered resilient”

DELWP Report¹, 2016

“It was not just the fire event itself that affected people. Experiencing major life stressors after the bushfire impacted on ongoing mental health

Beyond Bushfires Report², 2016





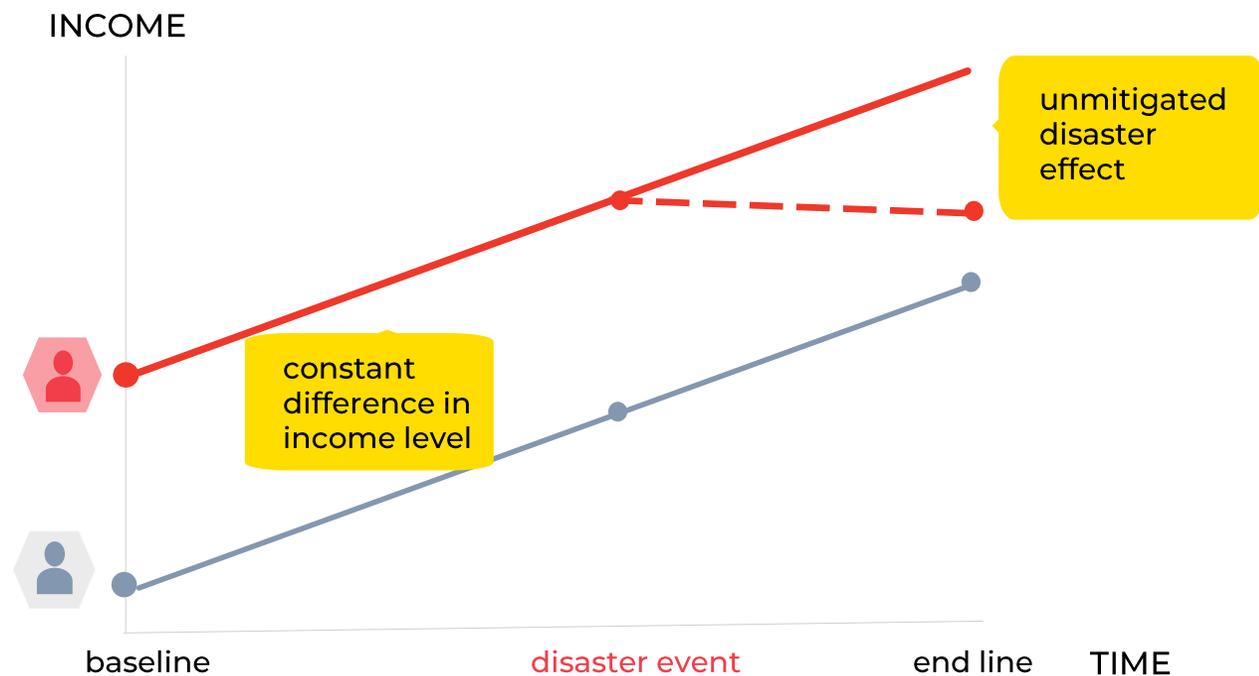
**Research
questions**

1. What is the impact of the VIC Black Saturday Bushfires on individuals' income?
 2. What are the vulnerable groups that are particularly hit by the disaster?
 3. How – if at all – did government monetary assistance contribute to returning individual income to its pre-disaster trajectory?
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Methodology

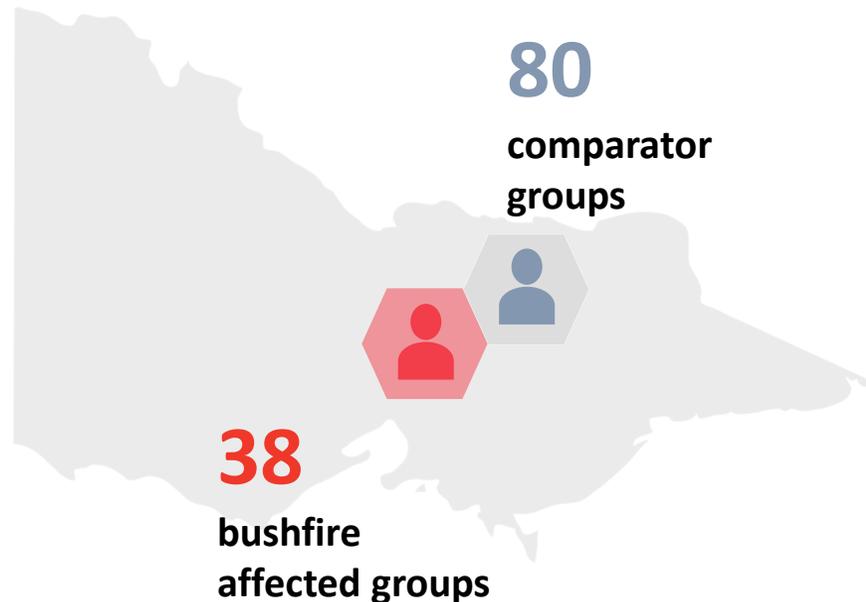
Difference in difference modelling

- Natural Experiment Design
- Ethical, replicable and feasible
- Modest assumptions
- Works well with available data



Individual data

ABS SA2 Groupings



ABS Census Longitudinal Dataset (2006,2011,2016)

Income attributes

- income
- employment status
- employment type
- employment sector
- working hours

Vulnerabilities

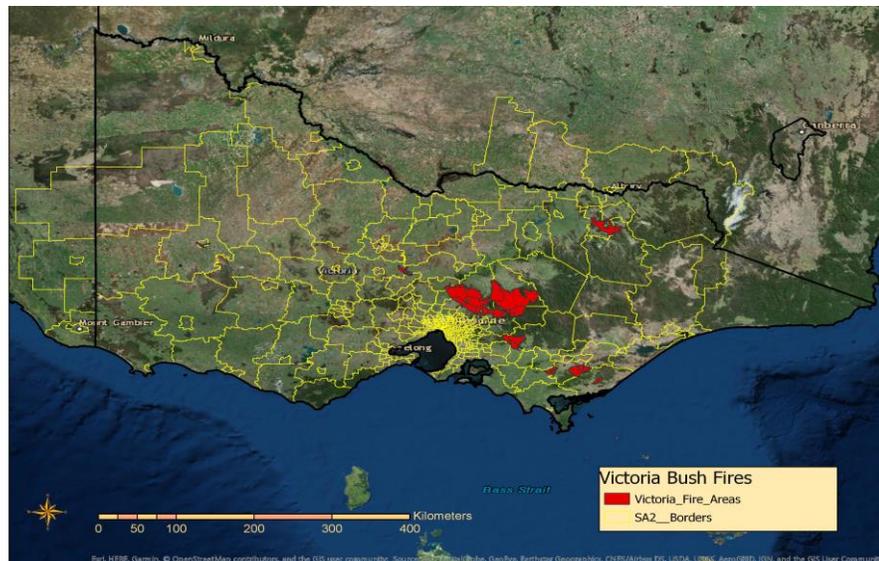
- Gender
- Age
- Marital status
- Children
- Education level
- Home ownership
- Post-disaster migration status

105,230 obs

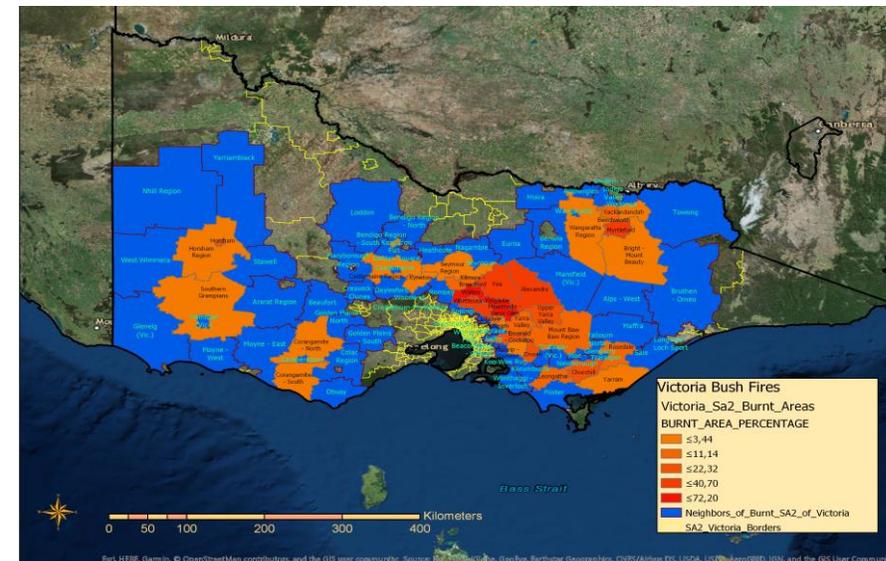
Disaster severity measure

Victorian Bushfire Royal Commission Report 2009

STEP 1: Disaster zone

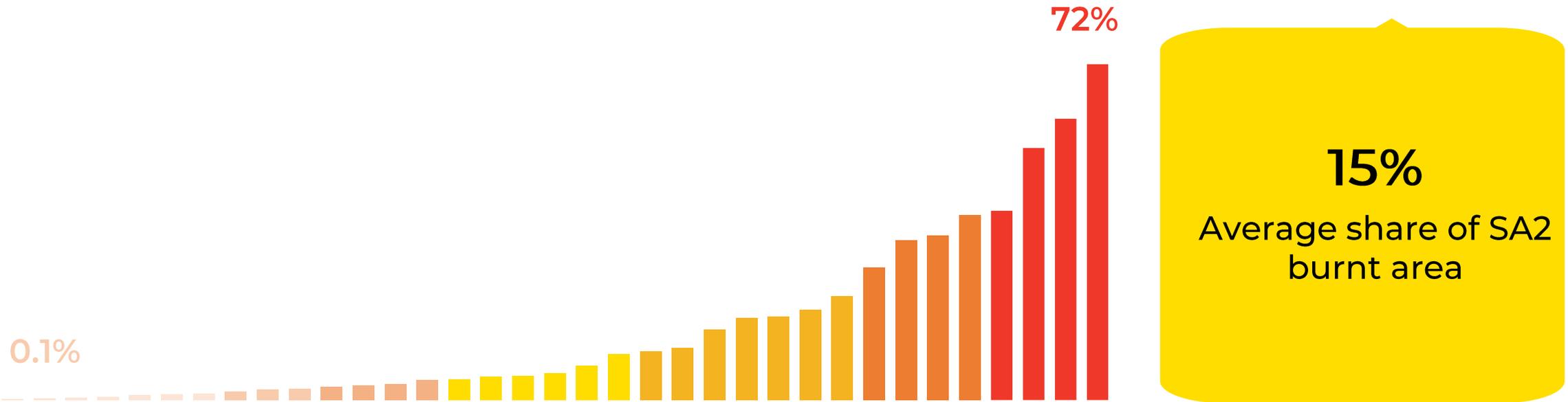


STEP 2: Disaster severity



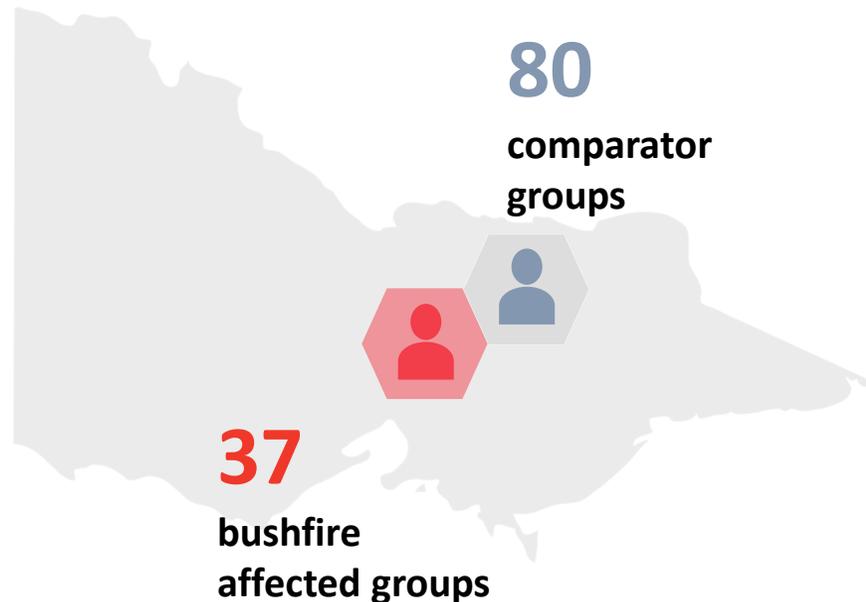


Disaster severity measure

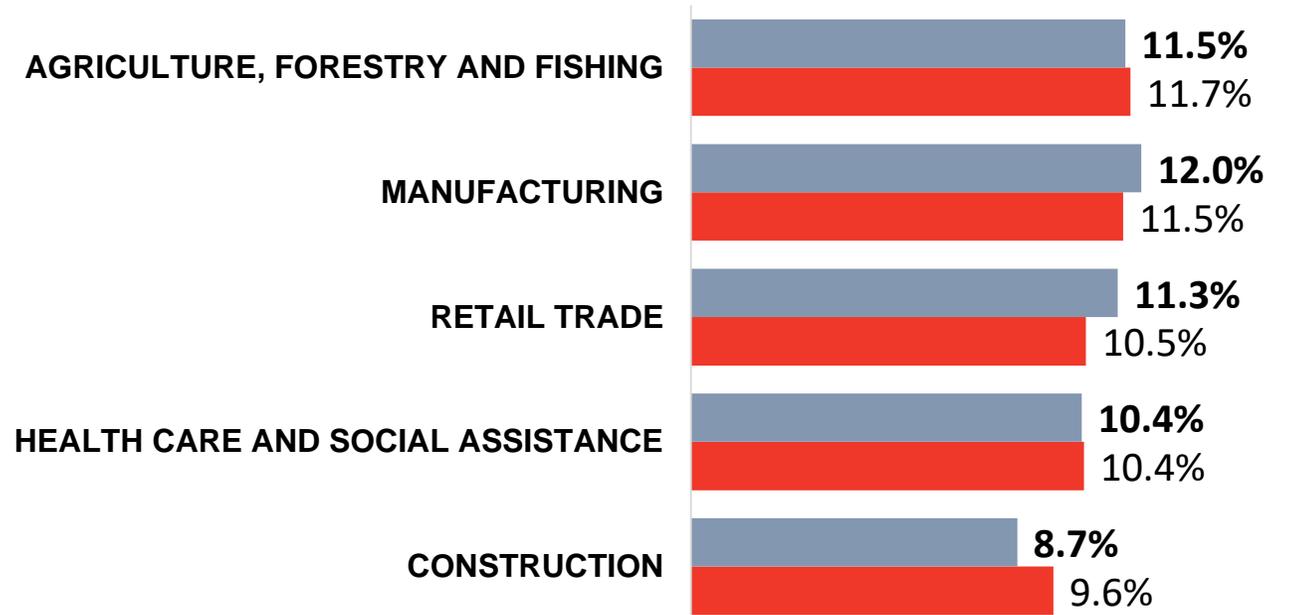


Comparison groups

ABS SA2 GROUPINGS



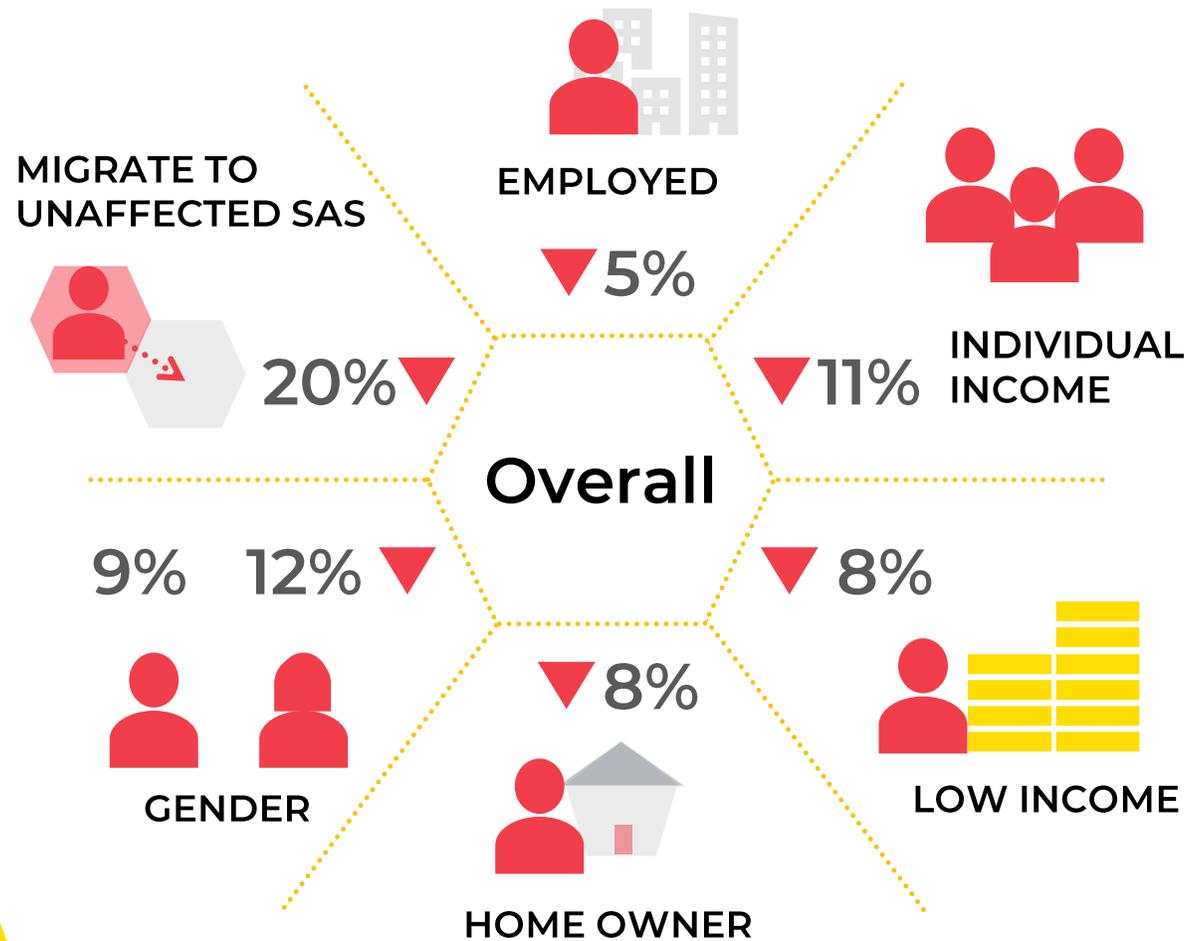
TOP 5 INDUSTRIES OF EMPLOYMENT (ABS, 2006)

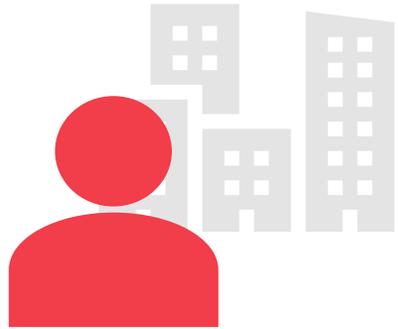


Findings



Individual income effects

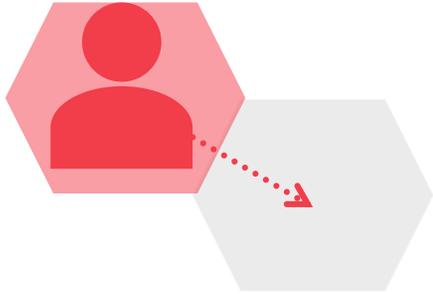




Individual income effects

INDUSTRY OF EMPLOYMENT	2006 RANK	INCOME CHANGE
Agriculture, forestry and fishing	1	▼ 21%
Manufacturing	2	▼ 7%
Retail trade	3	▼ 12%
Education and training	6	▼ 11%
Accommodation and food services	7	▼ 20%
Rental, hiring and real estate services	18	▲ 14%

MIGRATE TO UNAFFECTED SAS



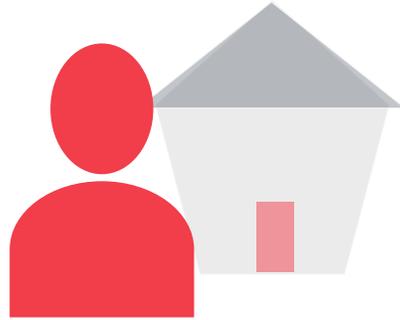
MIGRATION
(excl. comparator groups)



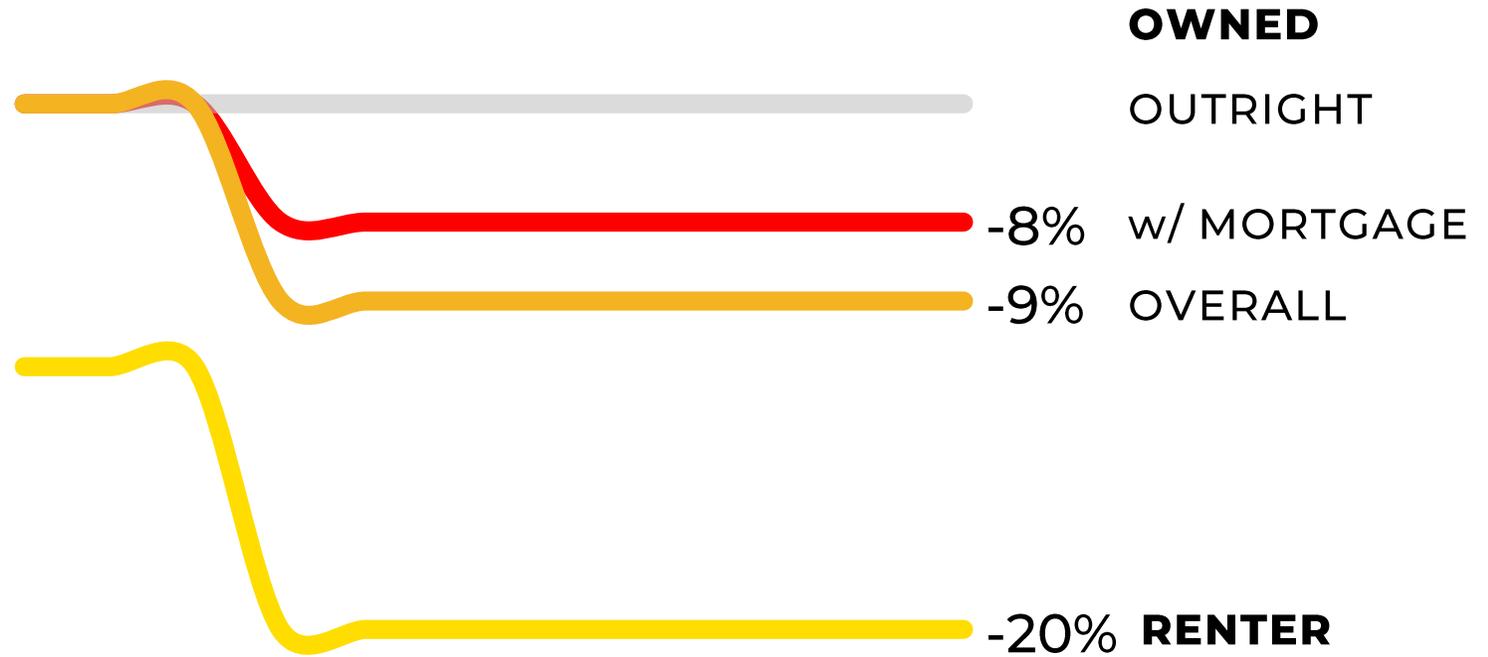
INCOME LOSS

**Individual
income effects**

HOME OWNERSHIP STATUS



Individual income effects



OWNED

OUTRIGHT

-8% w/ MORTGAGE

-9% OVERALL

-20% **RENTER**



Policy implications

“States are encouraged to provide same type and level of assistance to individuals who are affected by the same or similar eligible disasters.”

NDRRA Determination 2017

1. Significant negative effect on individual income (-11%)
2. Some groups are more adversely affected and may need more assistance in short term to prevent life stressors affecting longer term mental health
3. Communities' real recovery may be masked by most severely affected individuals' decision to migrate out
4. More questions raised than answered!
 1. Role of government assistance
 2. Decision to migrate
 3. Housing



Thank you

CENTRE OF ENERGY, THE ENVIRONMENT AND NATURAL DISASTERS

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