



Economics in disaster recovery:

Optimising post-disaster recovery interventions in Australia



Centre for Energy, the Environment
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Economics in disaster recovery:

Optimising post-disaster recovery interventions in Australia

Prof Mehmet Ulubasoglu

Department of Economics

Centre for Energy, the Environment and Natural Disasters

Deakin University

Bushfire and Natural Hazards CRC

Research



Overall Aims

- Estimate the economic impact of disasters on individuals' income
- Use our results to inform a sustainable disaster recovery model

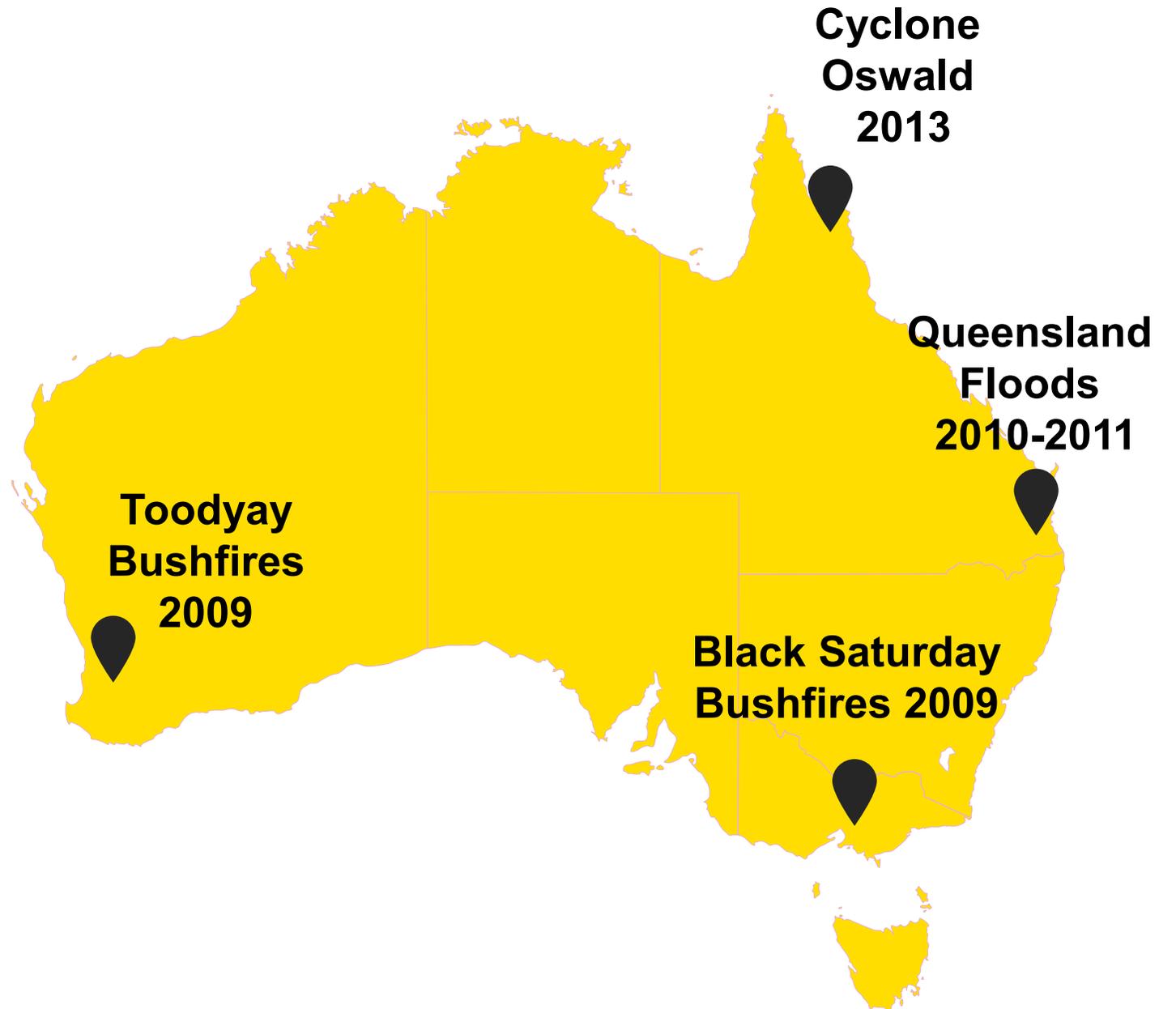
Case Studies

- Using ABS national census data, compute the impact on individuals' income within the few years following the hazards,
- If there was an effect, did it differ according to who they were (demographic attributes) and industries they worked in (sectors of employment)?

Case Studies

Four case studies

- different type, severity and location of disasters
- end user-guided research design for each case study



The deadliest bushfires in Australian history:

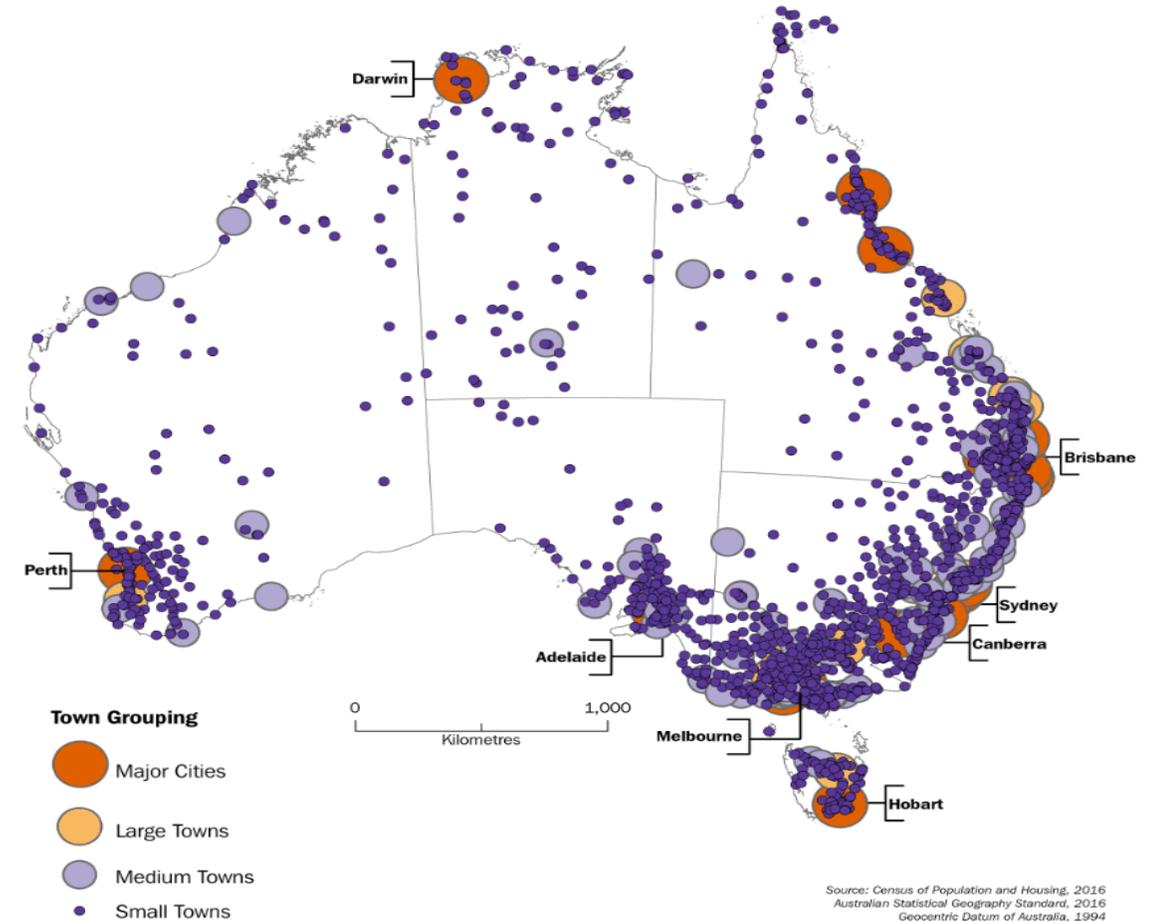
173 lives lost , 450K hectares burnt

Victoria Black Saturday Bushfires:2009

Disasters and Economic Resilience: The Effects of the Black Saturday Bushfires on Individual Income – A Case Study

Toodyay Bushfire:2009

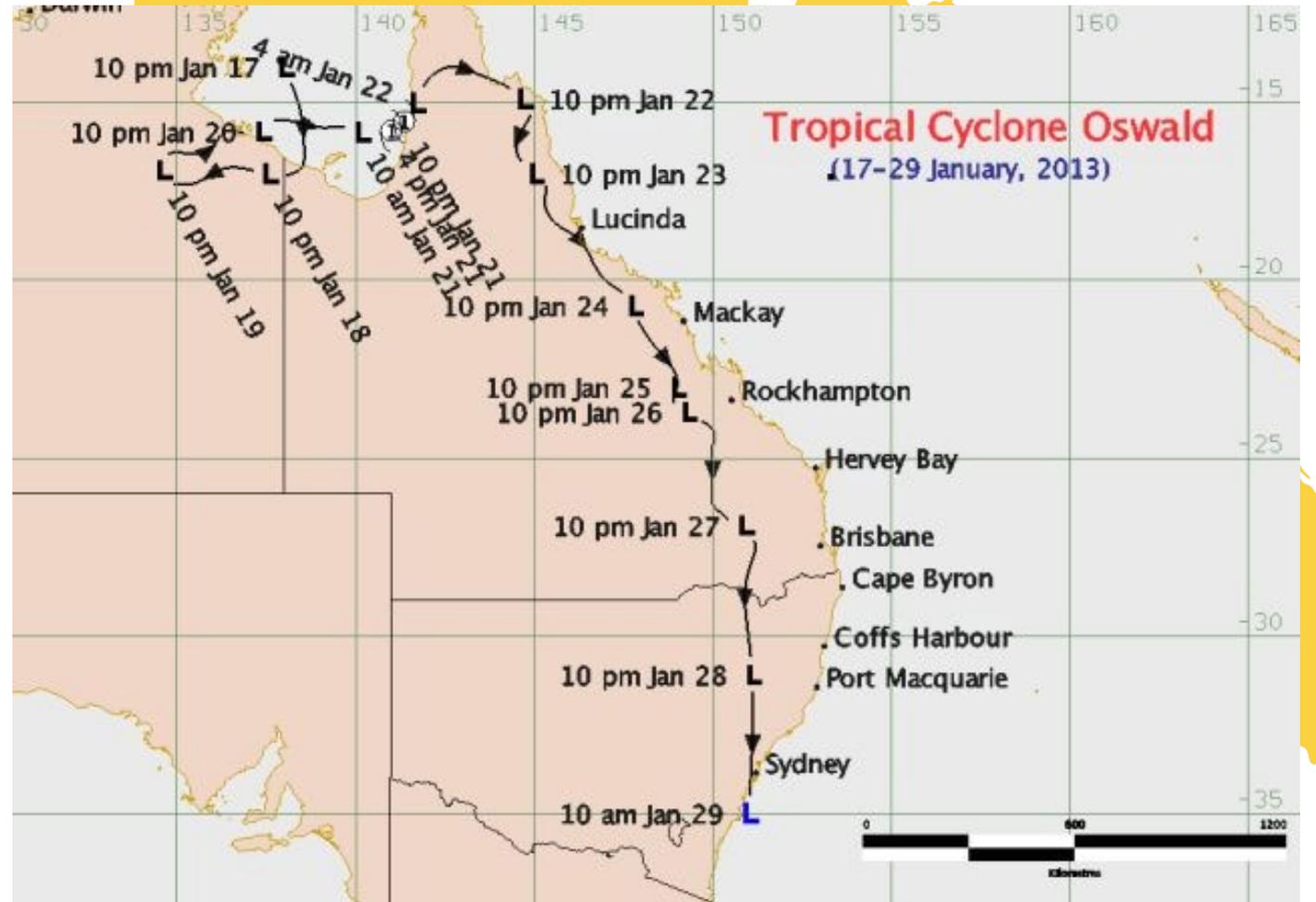
*Disasters and Economic Resilience in
Small Regional Communities: The Case
of Toodyay*



Small towns like Toodyay
form 9.7% of Australia's
population

Tropical Cyclone Oswald 2013

Disasters and Economic Resilience: The Income Effects of Cyclone *Oswald* (2013) on **Small Business Owners** – A Case Study of the Burnett River Catchment Area





4.46m

In Brisbane, the river peaked at 4.46m on 13 January, 2011 flooding more than 28,000 homes and leaving 100,000 without power

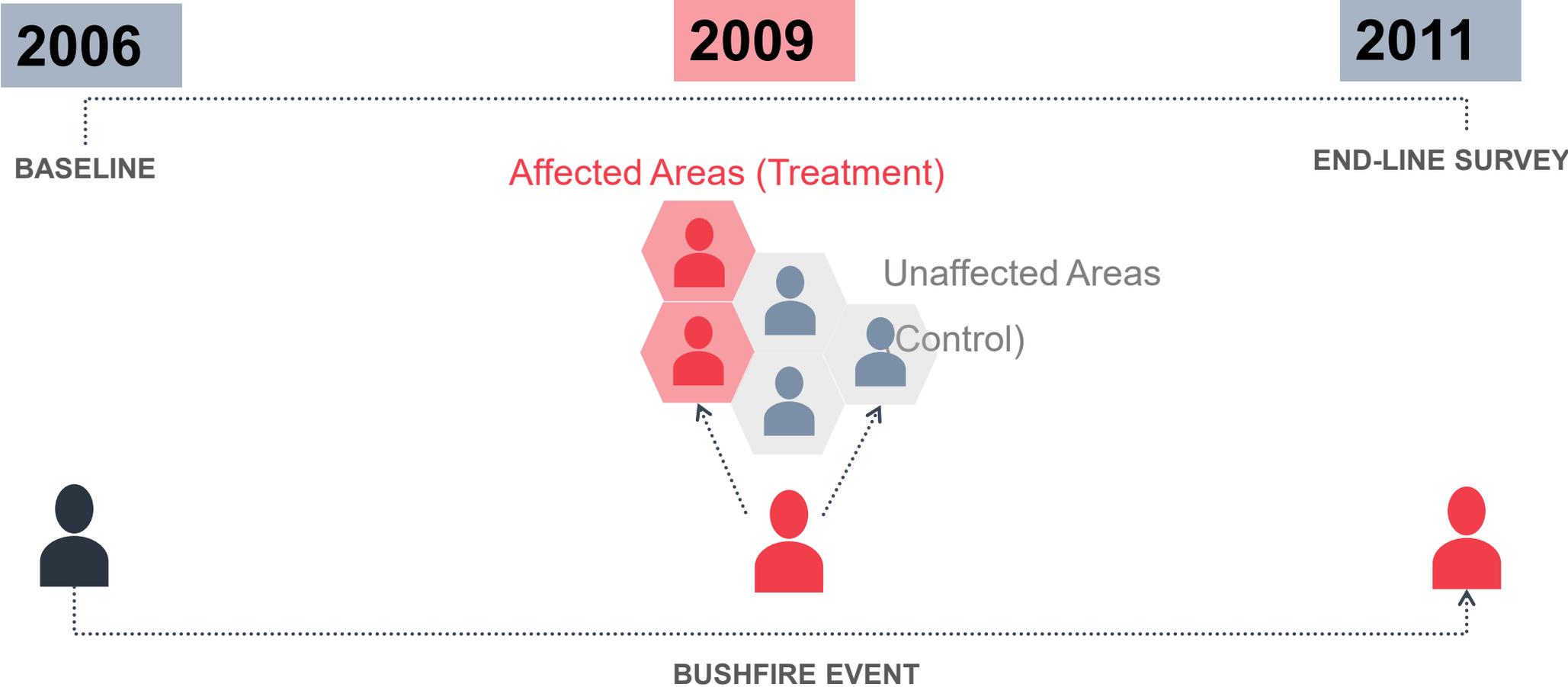
Queensland Floods

Dec 2010-Jan 2011

Disasters and Economic Resilience: The Effects of the Queensland Floods 2010-11 on Individual Income – A Case Study on the Brisbane River Catchment Area

Project methodology

Difference-in-differences model



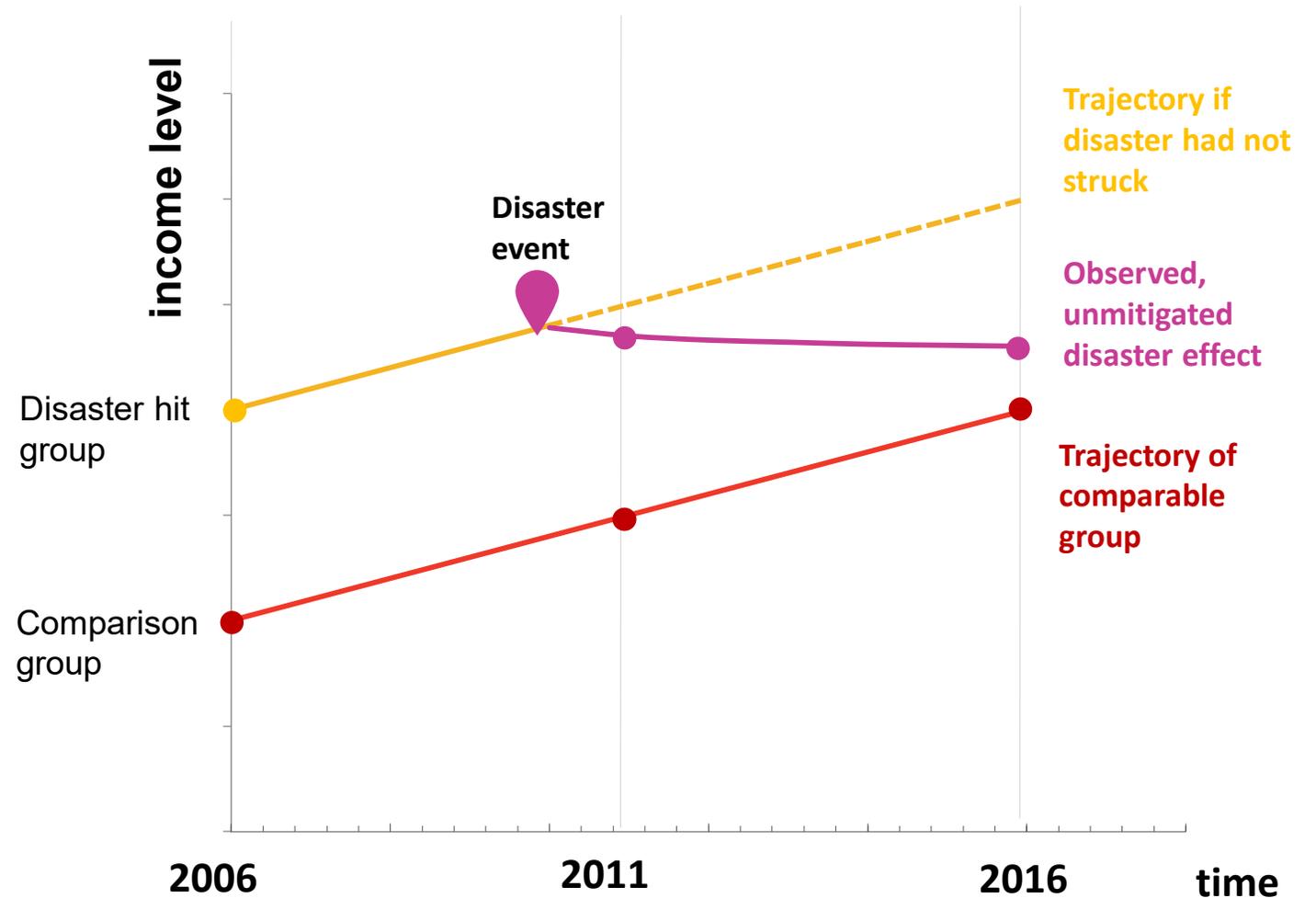
Method

Dataset

ABS Longitudinal 2006-2011-2016
Census dataset

Groups

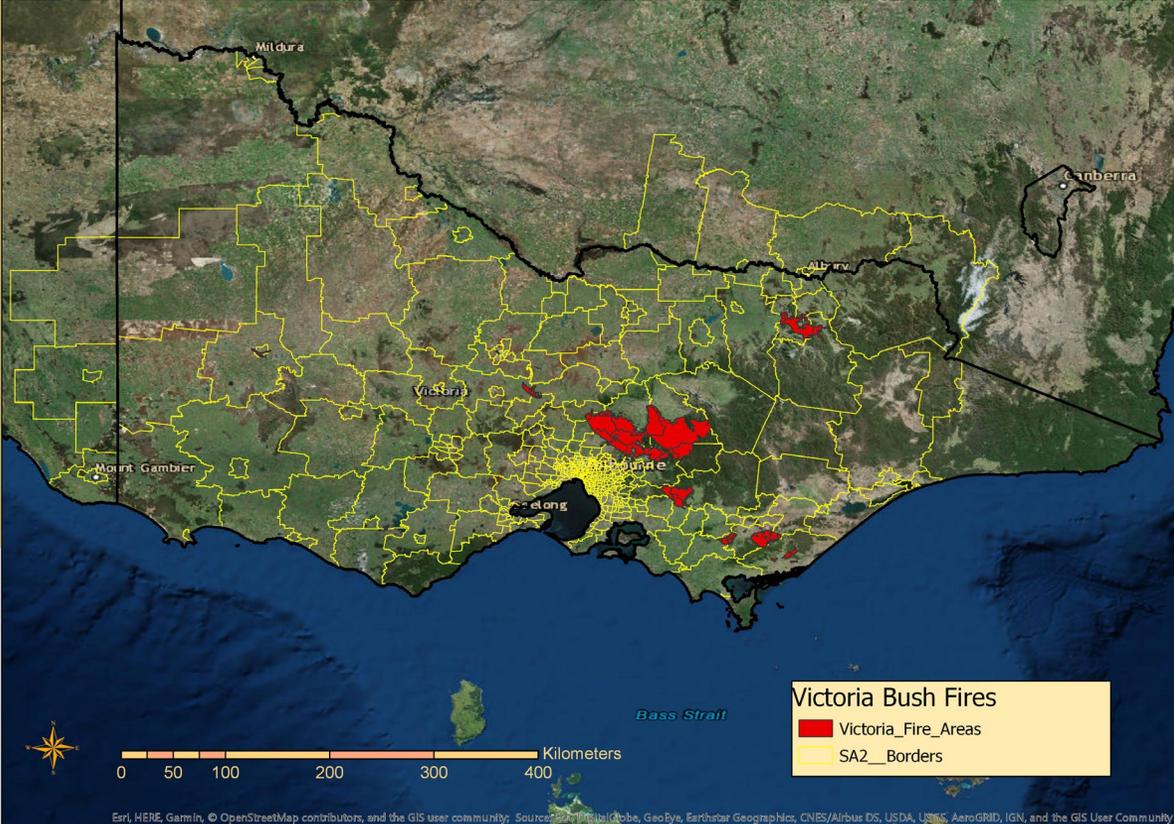
- Treatment group: Individuals in disaster-hit **Local Government Areas (LGAs)/Statistical Area -2s (SA2s)**
- Comparison group: Individuals in comparable LGAs/SA2s that were not hit by the disaster but share similar economic and topographic characteristics with disaster-hit LGAs/SA2s



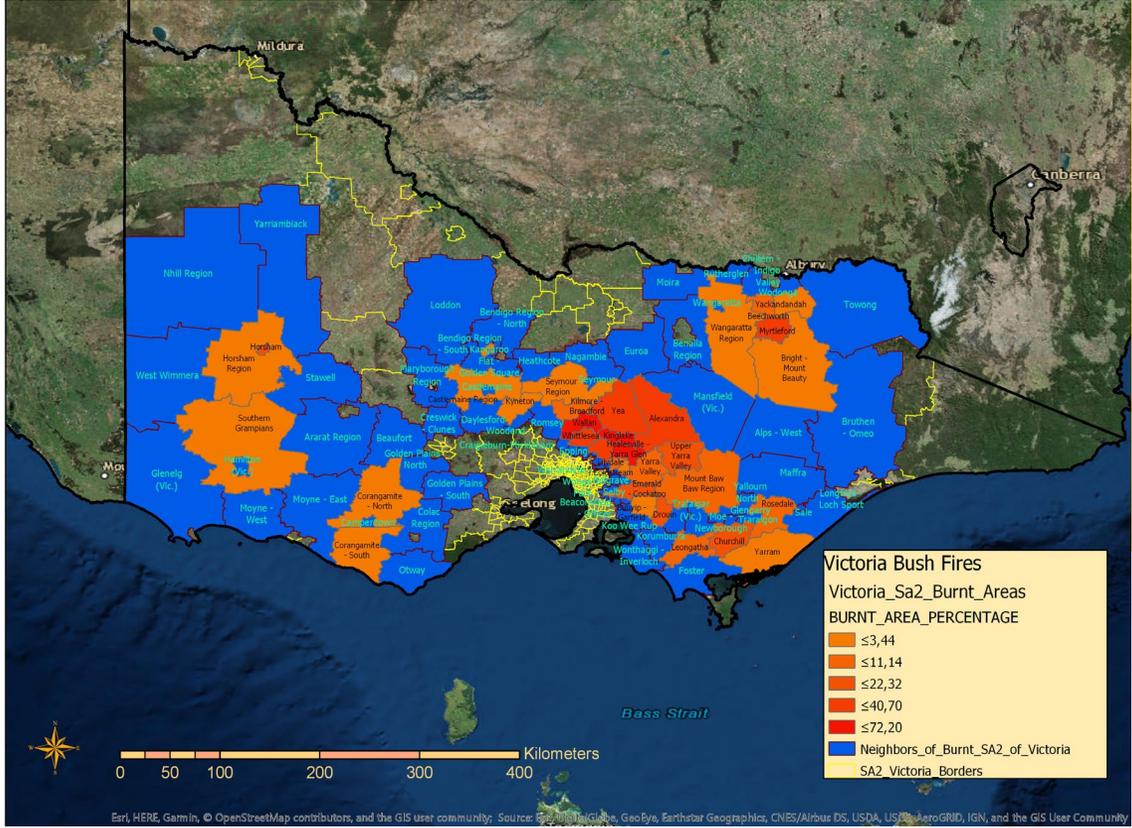
Case study: Black Saturday bushfires 2009

Treatment vs comparison groups

Step 1: Determine bushfire zones



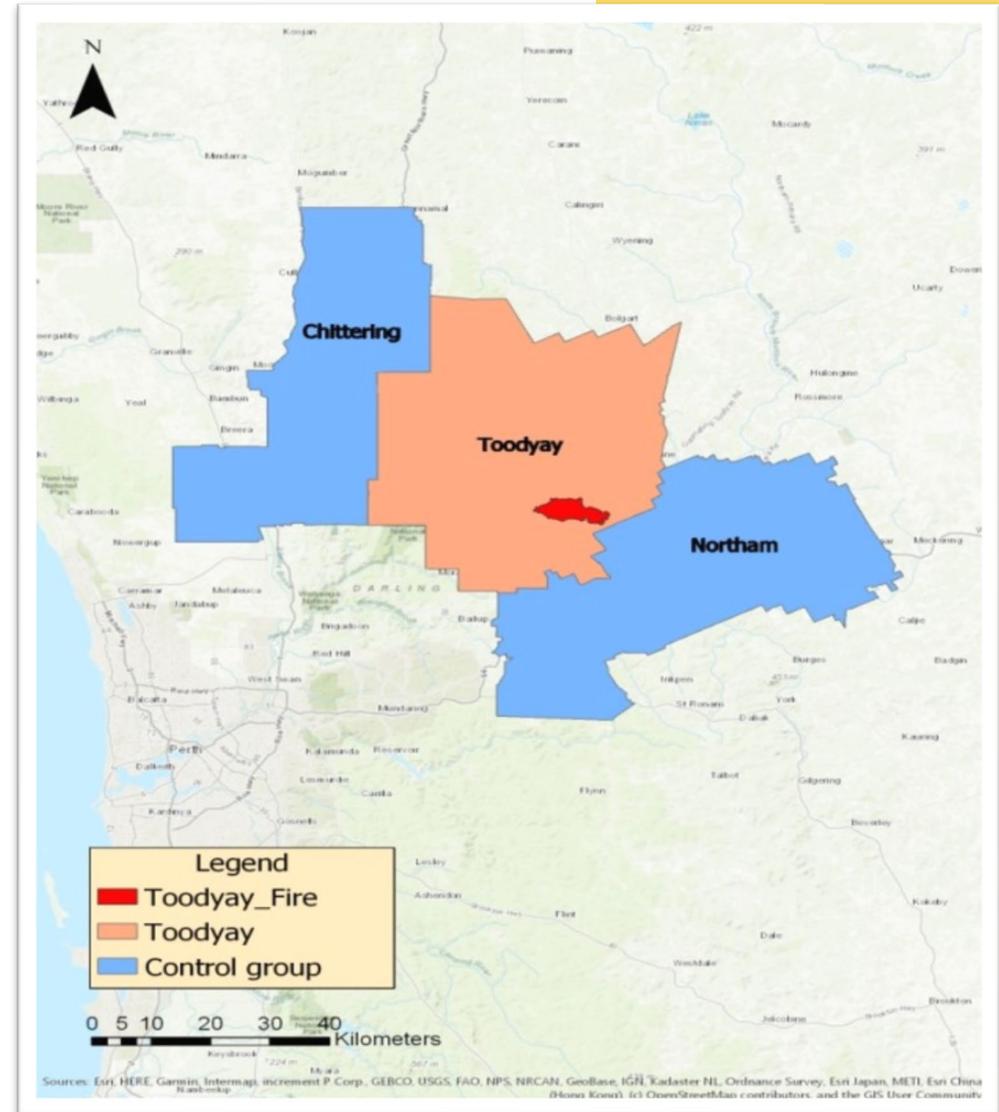
Step 2: Determine burnt SA2s & neighbouring SA2s

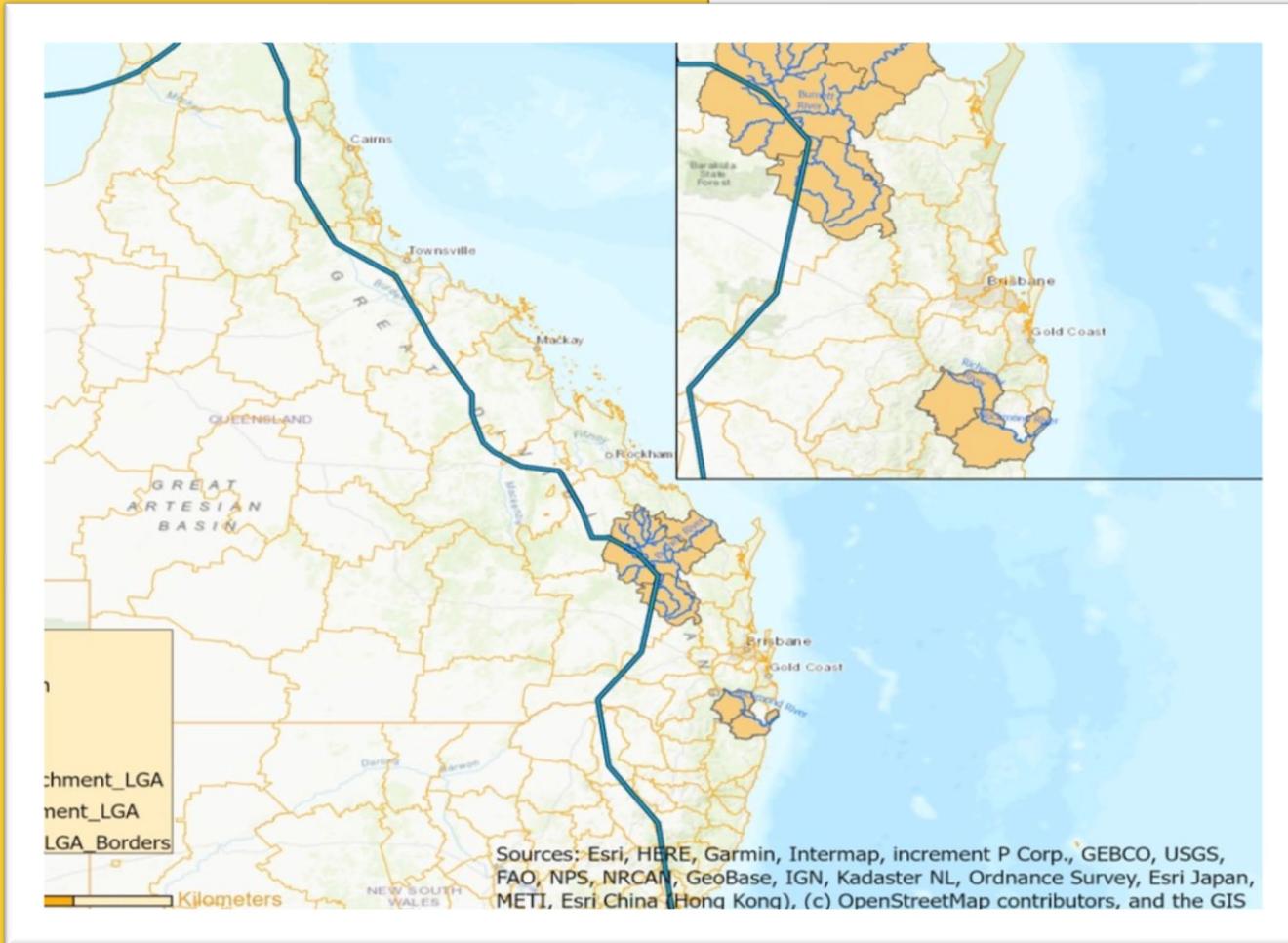


Case study: Toodyay Bushfires 2009

Treatment group: Toodyay SA2

Comparison group: Northam and Chittering
SA2s





Case study:

Tropical Cyclone *Oswald* 2013

Small business owners

Treatment group: 4 LGAs in Burnett
River catchment area (QLD)

Comparison group: 3 LGAs in Richmond
River catchment area (NSW)

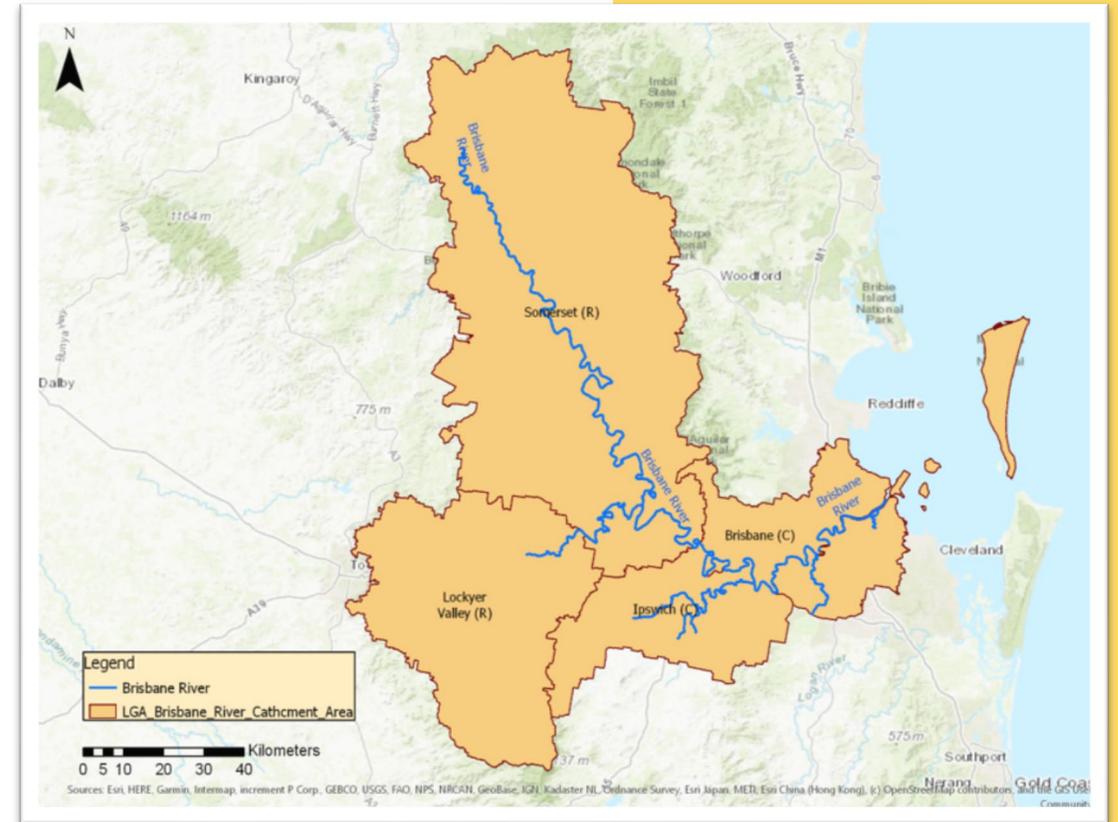
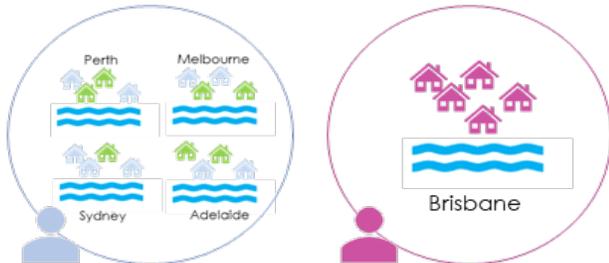
Case study: Queensland Floods

2010-11

Treatment group: 4 LGAs in Brisbane River catchment area (QLD)

Comparison group: 13 LGAs in Yarra River (VIC), 13 LGAs in Parramatta River (NSW), 24 LGAs in Swan River (WA) and 9 LGAs in Torrens River (SA) catchment areas

EBALANCE: Individuals with similar characteristics (income levels, education, etc) and residence areas (living along a riverbed)



Summary findings

4 case studies

- The extent of the economic impact of disasters on individuals' income depends on the type, intensity and location of the disaster
- 'economic smallness' is a point of vulnerability – clear insight
 - Low-income worker
 - Part-time employee
 - Small-business owner
- certain sectors are vulnerable
 - Agriculture
 - Accommodation and food services
- income divide becomes larger
 - Poor becomes poorer
 - Female workers tend to lose income
- time frame for recovery matters
 - Short vs medium vs long-term
- true cost of the disasters also includes income losses down the track



Project team

Over 20 years combined experience in economics of disasters, public policy, and economic analysis



Project leader

Prof. Mehmet Ulubasoglu



Research fellow

Dr Habib
Rahman (2014-
2017)



Research fellow

Ms Farah Beaini
(2017-2019)



Casual assistance

Dr Yasin Kursat Onder
Dr Lan Anh Tong
Dr Trang Tran

End Users

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**Department of Environment
and Water**
(Ed Pikusa, Lead End-User)



**Queensland
Reconstruction Authority**
(Mark Drew, Jane
Carey)



**Inspector General –
Emergency Management**
(Julie Hoy)



**Department of Fire and
Emergency Services**
(Tim McNaught)



Australian Government
Department of Home Affairs

**Emergency
Management Australia
(Cth)**
(Marcin Pius)

The background features a grey gradient with a central yellow horizontal band. Two stylized grey 3D human figures are positioned at the bottom, each holding a large red gear. The gear on the left is partially obscured by the yellow band. The gear on the right is also partially obscured. The overall theme is teamwork and industry.

Thank you