Economics in disaster recovery:
Optimising post-disaster recovery interventions in Australia
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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
Disasters and Economic Resilience in Small Regional Communities: The Case of Toodyay

Small towns like Toodyay form 9.7% of Australia’s population.
In Brisbane, the river peaked at 4.46m on 13 January, 2011 flooding more than 28,000 homes and leaving 100,000 without power.
Project methodology

Difference-in-differences model

- **2006**: BASELINE
- **2009**: Affected Areas (Treatment)
- **2011**: END-LINE SURVEY
- **BUSHFIRE EVENT**
- **Control**
- **Unaffected Areas**
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

Diagram:
- Income level over time
- Comparison group trajectory
- Disaster hit group trajectory
- Disaster event
- Trajectory if disaster had not struck
- Observed, unmitigated disaster effect
- Trajectory of comparable group
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
Over 20 years combined experience in economics of disasters, public policy, and economic analysis

Project team

**Project leader**
Prof. Mehmet Ulubasoglu

**Research fellow**
Dr Habib Rahman (2014-2017)

Ms Farah Beaini (2017-2019)

**Casual assistance**
Dr Yasin Kursat Onder
Dr Lan Anh Tong
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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)

Emergency Management Australia (Cth)
(Marcin Pius)
Thank you