

# PRE-DISASTER MULTI-HAZARD DAMAGE AND ECONOMIC LOSS ESTIMATION MODEL



Mehmet Ulubasoglu<sup>1</sup>, Abbas Rajabifard<sup>2</sup>

<sup>1</sup> Department of Economics, Deakin University, VIC <sup>2</sup> Department of Infrastructure Engineering, The University of Melbourne, VIC

## RESEARCH QUESTION

What is the impact of natural disasters on different economic sectors and the broader economy in *space* and *time*?

## RESEARCH OBJECTIVES

IDENTIFYING INCOME EFFECTS OF QLD FLOODS

TRANSLATING RESEARCH INTO PRODUCT

UTILISING RESEARCH PRODUCT

**To estimate the effects of floods on individuals' income by sector:**

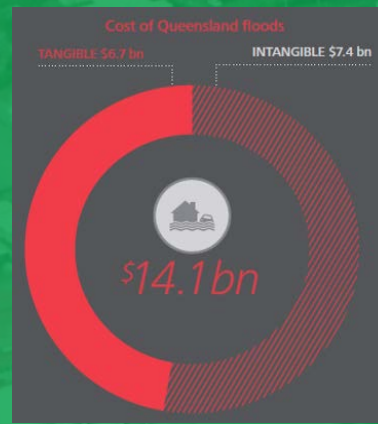
- Identify the economic sectors that are 'vulnerable' to natural disasters
- Identify the economic sectors that are 'beneficiaries' of natural disasters
- Identify the economic sectors that are 'unlikely to be affected' by natural disasters

**Develop a ranked list of the economic sectors that seek more attention for policy intervention to minimise potential negative effects of natural disasters**

**To guide budget allocation across economic sectors in pre-disaster mitigation phase**

## ECONOMIC DAMAGES

\$6.7 billion in damage (Deloitte Access Economics, 2016)



- ONE OF THE MOST DEVASTATING FLOODS IN AUSTRALIAN HISTORY
- IN BRISBANE, THE RIVER PEAKED AT 4.46M FLOODING MORE THAN 28,000 HOMES AND LEAVING 100,000 WITHOUT POWER

## RESEARCH UTILIZATION

Further development of the tool and its outputs to further explore its application to strategic assessment of impacts of natural disasters would be beneficial. There is potential to engage with end users of treasury and first minister agencies, as the outputs relate to broad economic impacts of natural disasters.

- Key finding from the End Users' Meeting, 5 Feb 2016, Canberra.

OUR APPROACH

Affected  
Unaffected- nearby  
Unaffected- distant



## PRELIMINARY FINDINGS: SECTOR SPECIFIC INCOME CHANGES

As a result of the 2010-2011 floods, a number of sectors was affected. Figure 1 shows the impact on employment in a number of sectors comparing flooded and non-flooded areas, and Figure 2 shows the positive and negative changes in income that resulted from the event.

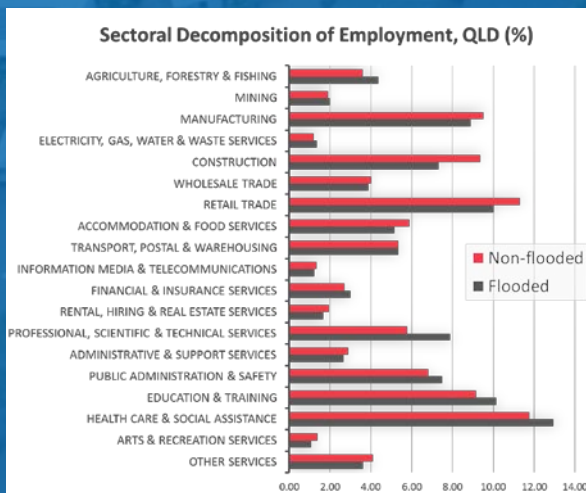


Figure 1: Sectoral Decomposition of Employment

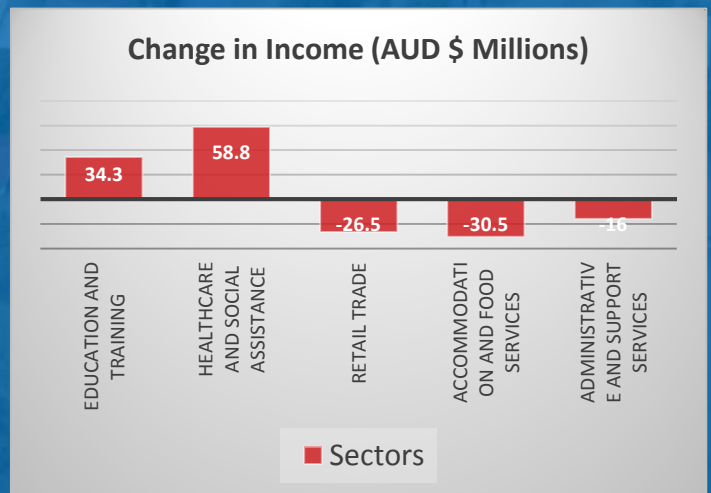


Figure 2: Positive and Negative Sectoral Change in Income

