PRESENTATION OVERVIEW

1. OBJECTIVES OF THE PROJECT
2. QUEENSLAND FLOODS 2010-11: INDIVIDUAL LEVEL ANALYSIS
3. NDRRA DETERMINATION 2017: HOW DOES IT GO WITH THE EVIDENCE?
4. NDRRA DETERMINATION 2017: IS THERE A POTENTIAL TO DO BETTER?
5. THE WAY FORWARD
1. OBJECTIVES OF THE PROJECT
OBJECTIVES OF THE PROJECT

To identify those who are in need for disaster assistance:
- Vulnerable Economic Sectors
- Vulnerable Firms
- Needy Individuals

To inform recovery and relief funding arrangements so that better decisions can be made for minimizing negative effects of disasters
- Develop a ‘Policy Briefing Note’ to support AGD

To facilitate effective decision-making within the context of the relevant policy documents
- Natural Disaster Relief and Recovery Arrangements (NDRRA)
2. THE QUEENSLAND FLOODS 2010-11: INDIVIDUAL LEVEL ANALYSIS
In Brisbane, the river peaked at 4.46m on 13 January, 2011, flooding more than 28,000 homes and leaving 100,000 without power.
OUR APPROACH TO DISASTER IMPACT ASSESSMENT
CIRCULAR FLOW DIAGRAM OF THE ECONOMY

- No economic impact assessment of individuals
- What happened to individuals’ incomes?

A CCIQ longitudinal survey based on 200 Queensland businesses only
Strategy to Estimate The Economic Effects of Natural Disasters

1. Estimating the impacts of Queensland Floods 2010-11:
   • Economic Impacts:
     ▪ Individual Level
     ▪ Firm Level
   • Impact Heterogeneities:
     ▪ Income Distribution
     ▪ Level of Disaster Severity
     ▪ Gender and Age
     ▪ Employment Type: Wage Employees Vs. Self-Employees
DATA AND MEASUREMENT
THE DATA

+ DATA ON ECONOMIC INDICATORS:
  Australian Census Longitudinal Dataset, 2006 and 2011.
  Conducted in August 2006 and August 2011, respectively.

+ DATA ON FLOOD SEVERITY
  Brisbane and SE QLD flood map: Dec 2010 - Jan 2011
  Bureau of Meteorology (BoM), Govt. of Australia
Australian Census Longitudinal Dataset (ACDL), 2006 and 2011:

- Random 5% sample of persons enumerated on Census Nights, 8 August 2006 and 9 August 2011
- Two censuses linked by the ABS to generate a longitudinal dataset
- Anonymised
- 514 Statistical Area-2 units in Queensland.
QUEENSLAND FLOODS IN 2010-11

SA2
Flood Severity

The QLD floods map: Dec 2010 - Jan 2011
1. 22% Queenslanders were affected in the 2010-11 Flood

2. The average flood-water height in the flooded areas was 1.83 metres

3. 52% in our census dataset is female

4. Between 2006 and 2011, 32% migrated between affected and unaffected areas

5. Between 2006 and 2011, out of all Queenslanders:
   - 2% transitioned from the employed to unemployed
   - 2% transitioned from the unemployed to employed
   - 7% transitioned from the fully employed to part-time employed
   - 9% transitioned from the part-time employed to fully employed
DESCRIPTIVE STATISTICS...

Types of Employment

- SELF-EMPLOYED
- WAGE EMPLOYEES
- PART-TIME EMPLOYEES
- FULL-TIME EMPLOYEES
- AVERAGE WORKING HOURS

Non-flooded
Flooded
DESCRIPTIVE STATISTICS

Sectoral Decomposition of Employment, QLD (%)

- Agriculture, Forestry & Fishing
- Mining
- Manufacturing
- Electricity, Gas, Water & Waste Services
- Construction
- Wholesale Trade
- Retail Trade
- Accommodation & Food Services
- Transport, Postal & Warehousing
- Information Media & Telecommunications
- Financial & Insurance Services
- Rental, Hiring & Real Estate Services
- Professional, Scientific & Technical Services
- Administrative & Support Services
- Public Administration & Safety
- Education & Training
- Health Care & Social Assistance
- Arts & Recreation Services
- Other Services

Red bars represent non-flooded sectors, while black bars represent flooded sectors.
### Sectors that experienced NO income difference:
- Agriculture, Forestry and Fishing
- Mining
- Manufacturing
- Electricity, Gas, Water and Waste Services
- Construction
- Wholesale Trade
- Retail Trade
- Information Media and Telecommunications
- Financial and Insurance Services
- Professional, Scientific and Technical Services
- Administrative and Support Services
- Public Administration and Safety
- Education and Training
- Health Care and Social Assistance
- Arts and Recreation Services
- Other Services

### IMPACT ASSESSMENT
FINDINGS:
SECTOR-SPECIFIC INCOME CHANGES

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Change in Annual Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodation and Food Services</td>
<td>-20 %</td>
</tr>
<tr>
<td>Transport, Postal and warehouse</td>
<td>+5.5 %</td>
</tr>
<tr>
<td>Rental, Hiring and Real Estate Services</td>
<td>+12.8 %</td>
</tr>
</tbody>
</table>
1. **WORKING HOURS:** People choose to work for more hours following floods and such tendency is stronger in the high-income group;

2. **GENDER:** We find no gender differences (male vs female) in terms of the income effect;

3. **INCOME DISTRIBUTION:** The middle-income group experienced slightly positive income effect (approx. 1 %)

4. **FLOOD SEVERITY:** People who are affected by moderate level of flood-water height (i.e., 1.17-2.60 Metres) experienced an income rise of around 8 %

5. **EMPLOYMENT TYPE:** Self-employed individuals in incorporated businesses gained around 7 % more income following floods, but those in unincorporated business experienced no change.

6. **AGE:** People aged below 25 experienced no income change, while people aged 25 and above experienced 4 % income rise.

7. **SPILLOVER EFFECTS:** The spatial spillover effects are present but not strong.
IMPACT ASSESSMENT
FINDINGS: WHY POSITIVE/NO CHANGE OBSERVED IN INCOMES FOLLOWING THE FLOOD?
WHY POSITIVE/ NO CHANGE IN INCOMES?

Likely through “recovery interventions”

 allergic toRussian roulette

**ASSISTANCE MEASURES SOUGHT BY BUSINESSES AFTER THE NATURAL DISASTERS**

<table>
<thead>
<tr>
<th>Assistance Measure</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Deferral of tax liabilities (State and Federal Government)</td>
<td>32.8%</td>
</tr>
<tr>
<td>Up to $25,000 through the Special Disaster Assistance Grant (Small Business)</td>
<td>23.9%</td>
</tr>
<tr>
<td>Income and wage assistance</td>
<td>10.4%</td>
</tr>
<tr>
<td>Back to Business Workshops</td>
<td>7.5%</td>
</tr>
<tr>
<td>Assistance through Operation Clean Up</td>
<td>7.5%</td>
</tr>
<tr>
<td>Online Tools</td>
<td>6.0%</td>
</tr>
<tr>
<td>Premier’s Disaster Relief Appeal</td>
<td>4.5%</td>
</tr>
<tr>
<td>Flood and Cyclone Recovery Business Program</td>
<td>3.0%</td>
</tr>
<tr>
<td>Flood subsidies for primary producers</td>
<td>1.5%</td>
</tr>
<tr>
<td>Up to $650,000 (Exceptional Disaster Assistance Scheme - Medium Business)</td>
<td>1.5%</td>
</tr>
<tr>
<td>Low interest loan of up to $250,000 (Small Business)</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

Source: Six Months on Queensland’s Natural Disasters Survey – August 2011
3. NDRRA DETERMINATION: HOW DOES IT GO WITH EVIDENCE?
NDRRA: Our Finding

Spillover effects are economically not significant

“Applicants outside the affected geographical area who do not operate in the affected geographical area are not eligible, including those with a supply chain relationship to the affected geographical area.” (Source: NDRRA Determination 2017, pp. 6)
NDRRA: Our Finding

“Needy Individuals” must be addressed.

“An individual who is in urgent and genuine need of financial assistance.” (Source: NDRRA Determination 2017, pp. 7)

Policies related to disaster risk reduction (DRR) should not be generic, as one policy does not fit all; NDRRA determination does that through addressing “Needy Individuals”.
4. NDRRA DETERMINATION 2017: IS THERE A POTENTIAL TO DO BETTER?
Queenslanders experience positive income effects following the floods. Are we overdoing post-disaster interventions? Can we gain more efficacy in relief and recovery funding arrangements?

Our results show that the income effects of disaster turn out to be positive within the first six months. Queenslanders experienced positive income effects following the floods.

☑ Are we overdoing post-disaster interventions?

Can we gain more efficacy in relief and recovery funding arrangements?
NDRAA: Policy Implications

NDRRA currently addresses some economic sectors exclusively

- e.g., NDRRA Determination addresses “Primary Producers” and “Public Infrastructure” separately.

- Is there any room to address other economic sectors in NDRRA?
  - e.g., Accommodation and Food Services
NDRAA: Policy Implications

NDRRA Determination is tailored to address post-disaster interventions at two levels: Individuals and Firms.

Household level intervention remains open

Household level intervention will provide some new dimensions in NDRRA:

- Children
- Elderly
NDRAA: Policy Implications

The definition of “Needy Individuals” is generic:

“An individual who is in urgent and genuine need of financial assistance.” (NDRRA Determination 2017, pp. 7)

✔ Refining the definition of “Needy Individuals” may provide clearer policy direction
NDRAA: Policy Implications

Disaster-related Unemployment is not addressed

NDRRA Determination compensates loss of income based on the preceding financial year’s income. However, some individuals may have become unemployed due to disaster adversities.

☑️ Is there any way to assist those unemployed individuals owing to the disaster?
5. THE WAY FORWARD
6. THE WAY FORWARD

- How were business firms affected by the QLD flood 2010-11?
  - Profitability
  - Productivity
  - Large, medium and small-scale firms by No. of employees and market size
  - Firms targeted to domestic vs. overseas markets
  - Change in fixed vs. variable costs
THANK YOU