

ABSTRACT

Underinsurance in cyclone and flood environments: a case study in Cairns, Queensland

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Introduction

In Australia, the issue of insurance is of interest to both academics and the public especially as premiums rise across the country. For academics, recent focus has been on why people underinsure to reduce premiums or otherwise opt out of insurance altogether (Booth & Williams 2012, Booth & Tranter 2017, Eriksen & Gill 2010). This increases their financial vulnerability and highlights a growing problem in Australia of people who are exposed to property loss with no safety net in place (Booth & Harwood 2016). Much public discussion has been about the uptake of insurance in disaster-prone areas, particularly for bushfires and cyclones. Events such as the Canberra bushfires of 2003 showed that underinsurance and non-insurance needs to be addressed as part of a household's disaster preparation (Latham, McCourt & Larkin 2010). In the aftermath of the fires, it was estimated that 27–87 per cent of properties were underinsured, which reduced 'rebuilding costs' by 10 per cent (Latham, McCourt & Larkin 2010, p.17). Underinsurance meant people affected by the fires could not rebuild or re-establish themselves as quickly or as completely as they otherwise might. Across Australia, it is estimated that '7% of properties' and a further '28% of contents' are underinsured (Schuster 2013, p.136).

The cost of insurance continues to increase particularly in northern Australia (Treasury 2015, Australian Government Actuary 2014, Booth & Williams 2012). Premiums in north Queensland increased around 80 per cent between 2005 and 2013 (Australian Government Actuary 2014) due to cyclone and flood events and the presence of infrastructure and populations exposed to natural hazards. These increases are out of proportion in comparison to the rest of Australia where, in the same period, premiums for people living in Brisbane increased by 45 per cent and Sydney and Melbourne increased approximately 12 per cent (Australian Government Actuary 2014).

As noted, much of this rise can be attributed to major cyclone events such as Cyclone Larry (2005), Cyclone Yasi (2011) and Cyclone Debbie (2017). Northern Queensland was also hit by ex-Tropical Cyclone Nora in 2018 that caused coastal flooding from Cairns down to Mackay. Factored into the increases in premiums is the requirement for insurers to build a sufficient pool of money to negate future losses based on probability.

This article examines findings from a 2018 project in Cairns, Far North Queensland, on insurance and risk perception. Using a mixed-methods approach, the study explored how people regard insurance, if at all, and how they use it to reduce their risk of financial loss following a disaster event. Results suggest that while most home owners hold insurance, renters are less likely to have contents insurance leaving them financially vulnerable if losing their property. Cost of insurance is considered one barrier to taking out insurance, however, other issues such as risk perception, self-efficacy and trust in insurers are issues for both home owners and renters. The paper furthers knowledge of underinsurance in disaster-prone areas and provides vital information for understanding motivation to withdraw from insurance.

Research in Australian southern states that are prone to bushfire shows that insurance is negotiated differently and, at times, trust in the institution of insurance can be quite low (Booth & Harwood 2016, Eriksen & Gill 2010). Research into flood mitigation suggests that this lack of trust is problematic for purchasing insurance as the benefit of receiving insurance support following an event needs to outweigh the cost of the initial outlay of premiums (Poussin, Botzen & Aerts 2014). In addition, Booth and Williams (2012, p.40) suggest that 'low income earners' may be unable to purchase insurance for their property and belongings. When examining disaster preparedness and mitigation, attention to who can and who cannot participate in insurance needs to be included as a focus.

This paper details the results of a study conducted in Cairns, Far North Queensland, looking at three themes. First, people who rent are less likely to take out insurance for their belongings. Second, decisions not to take out insurance are not always related to cost but can relate to other issues like efficacy and risk perception. Finally, trust in insurers and information flow has a role to play in underinsurance and non-insurance.

Method

This research used a mixed-methods approach of quantitative (surveys) and qualitative (interview) data (Creswell 2014). Research was conducted in Cairns, which has a population of 156,901 (ABS 2016a). For the quantitative survey, participants were recruited via letter drops in randomly selected streets across Cairns, leaflets distributed at community events and the Cairns Disaster Coordination Centre and promoted online through community groups. In total, 113 participants completed the survey answering questions about their insurance status, demographics and questions about their attitudes to insurance. This is a relatively small sample size and caution was applied to quantitative results. The research was approved by the James Cook University Ethics Committee (H6801).

Following the survey, 20 participants (9 males and 11 females) were interviewed. 'Occupations' of respondents included students, professionals, parents at home and retired people (Table 1). These semi-structured interviews examined issues including confidence in insurance companies and personal risk perceptions. Surveys were conducted face-to-face and via phone. Strauss's (1999)

Table 1: Selected information for survey participants.

| Participant number/ pseudonym | Occupation | Location | Age bracket | Tenure | Insurance level | Family status |
|----------------------------------|----------------|---------------------|-------------|--------|-------------------|----------------------------|
| P1 – Clarissa | Student | Nth Beach | 40–50 | Owner | Home/ Contents | Couple |
| P2 – Jeffrey | Professional | Northern Beaches | 60–70 | Owner | None | Couple |
| P3 – Matthew | Student | Northern Beaches | 60–70 | Owner | Home/ Contents | Couple |
| P4 – George | Student | Northern Beaches | 20–30 | Renter | None | Couple |
| P5 – Harry | Student | Northern Beaches | 30–40 | Owner | Home only | Couple |
| P6 – Harriet | Professional | Northern Beaches | 50–60 | Owner | Home/ Contents | Couple |
| P7 – Brendan | Student | Northern Beaches | 30–40 | Renter | None | Couple |
| P8 – Sally | Professional | Northern Beaches | 50–60 | Owner | Home/ Contents | Couple |
| P9 – Jordan | Professional | Northern Beaches | 50–60 | Owner | Home/ Contents | Couple |
| P10 – Gregory | Student | Northern Beaches | 20–30 | Renter | None | Couple children at home |
| P11 – Marissa | Parent at home | Northern Beaches | 20–30 | Renter | None | Couple children at home |
| P12 – June | Professional | Cairns west | 40–50 | Owner | Home/ Contents | Couple children at home |

| Participant number/ pseudonym | Occupation | Location | Age bracket | Tenure | Insurance level | Family status |
|----------------------------------|----------------|------------------|-------------|--------|-------------------|-------------------------|
| P13 – Bridget | Parent at home | Cairns west | 40–50 | Renter | Contents | Couple children at home |
| P14 – Olivia | Professional | Cairns west | 40–50 | Owner | Home/ Contents | Couple children at home |
| P15 – Kathryn | Professional | Northern Beaches | 30–40 | Renter | None | Single parent |
| P16 – Annalise | Self-employed | Cairns west | 50–60 | Owner | Home/ Contents | Couple |
| P17 – Audrey | Self-employed | Northern Beaches | 50–60 | Renter | None | Single |
| P18 – Celia | Professional | Northern Beaches | 50–60 | Owner | Home/ Contents | Couple |
| P19 – John | Retired | Northern Beaches | 60–70 | Owner | Home/ Contents | Couple |
| P20 – Roger | Labourer | Cairns west | 60–70 | Owner | Home/ Contents | Couple |

open coding for analysing data was used to organise data into themes.

Areas around Cairns include a diverse natural environment with mountains to the west and open ocean to the east. When overlaid with demographic data like income, areas like the Northern Beaches show higher income levels than Manunda and Manoora (Table 2). Yorkeys Knob and Machans Beach are on some of the most exposed coastline in Cairns. According to the *Social Indicators for Relative Socio-Economic Advantage and Disadvantage*, populations in these areas score a two out of five ranking for relative socio-economic disadvantage (ABS 2016b). In contrast, Kewarra Beach appears wealthy. This is possibly due to the higher property values of elevated areas opposed to lower areas nearer to the coast and perhaps more exposed to storms. When it comes to insurance, these income inequalities cannot be ignored as it demonstrates who can potentially outsource risk for their property and who cannot.

Findings

Theme 1: Renters and not insuring

A fundamental aim of this research was to investigate narratives within local media that householders do not insure or underinsure to reduce costs. The absence of contents insurance implies that people are self-insuring for possessions. Non-insurance refers to either home owners or renters not holding any form of insurance policy for their possessions or home structures (vehicles excluded). Survey results showed evidence of non-insuring particularly by renters (see Table 3). Home owners with mortgages and outright owners were more likely to have home and contents insurance, however, 16 per cent ($n=12$) appear to be underinsured. Understanding whether other respondents underinsured

was difficult to ascertain. Respondents were questioned on insurance value (e.g. how much the property and contents were insured for) however, no measure was used to ascertain underinsurance. Of significance, Table 3 shows that a considerable percentage of renters held no insurance at all (67 per cent ($n=26$)).

The decision not to insure at all is potentially the result of increasing insurance costs. As such, a variable related to why people do not insure was included (Table 4). Only renters are represented in this section. Data shows that the most common answer was 'do not feel the need' (46 per cent ($n=12$)) with other options including affordability, lack of knowledge, lack of trust and self-insuring.

It is important to understand and explore why people who rent are less likely to insure their belongings. As demonstrated by Booth and Williams (2012, p.41), risk mitigation is 'a matter of personal choice for individuals, households and businesses'. Decisions around why people choose not to insure was the focus of the interviews conducted in this project.

Past research indicates that risk perception has impact on motivation to mitigate dangers (Grothmann & Reusswig 2006, Kanakis & McShane 2016). However, intervening in this is the concept of both self and response efficacy. Bandura (1982) defined self-efficacy as the confidence a person has in their ability to achieve successful outcomes in new or challenging situations. This type of efficacy has significant impact on personal responses to risk. People with high self-efficacy may disregard dangers due to a high degree of self-confidence that they will fare well in precarious situations. On the other hand, response efficacy indicates an individual's confidence that actions (e.g. insurance) will manage the threat or problem (Grothmann & Reusswig 2006). Additionally, if a cost-benefit analysis

Table 2: Selected median household incomes (per week) in the Northern Beaches and Cairns.

| Suburb | 2011 median income (4 per week) | 2016 median income (4 per week) | Percentage change over five years |
|----------------------------------|------------------------------------|------------------------------------|--------------------------------------|
| Palm Cove (Northern Beaches) | 1051 | 1280 | 17.42 |
| Clifton Beach (Northern Beaches) | 1284 | 1410 | 8.93 |
| Kewarra Beach (Northern Beaches) | 1389 | 1548 | 10.27 |
| Yorkeys Knob (Northern Beaches) | 938 | 1025 | 8.48 |
| Machans Beach (Northern Beaches) | 1167 | 1367 | 14.63 |
| Edge Hill (Cairns) | 1165 | 1396 | 16.55 |
| Manunda (Cairns) | 755 | 882 | 14.39 |
| Manoora (Cairns) | 802 | 894 | 10.29 |
| Mooroobool (Cairns) | 1162 | 1325 | 12.30 |
| Australia (Baseline) | 1234 | 1438 | 14.19 |

Source ABS 2011, 2016.

Table 3: Tenure types of participants and their insurance status.

| Tenure type | Home and contents insurance | Home insurance only (no contents) | Contents insurance only | No house or contents insurance at all | Total |
|--------------------------|-----------------------------|-----------------------------------|-------------------------|---------------------------------------|------------|
| Outright home owner | 27 | 3 | 2 | 0 | 32 |
| Home owner with mortgage | 35 | 6 | 1 | 0 | 42 |
| Renter | 0 | 0 | 13 | 26 | 39 |
| Total | 62 | 9 | 16 | 26 | 113 |

Table 4: Reasons given by renters for not insuring.

| Tenure type | Do not feel need | Cannot afford premiums | Can afford premiums but feel they are too high | Never insured contents or property before | Do not trust insurers | Do not know if need to insure | Self-insuring |
|-------------|------------------|------------------------|--|---|-----------------------|-------------------------------|---------------|
| Renters | 12 | 5 | 1 | 3 | 1 | 3 | 4 |

is conducted, insurance may be deemed unnecessary when cost is weighed up against what is potentially lost. Interviewees (mostly renters) felt that they had little to lose and therefore did not require property insurance.

Self-efficacy is shaped by past experiences (Bandura 1982). Several participants in the qualitative interviews demonstrated this in their responses. For instance, Kathryn, a single mother who lives in the Northern Beaches area, held no insurance at the time of interview and felt her family would be fine if a disaster struck.

When I left home we sold everything we owned and put our possessions in the car and we drove here and we started a new life [...] we'd do it again. It'd be difficult, but we don't live that materialistic life for it to be a big problem [...] yeah if a cyclone comes I do what I can do, whatever happens, happens.

(Kathryn)

While Kathryn admitted that cyclones are a threat, she negated this through a confidence that, like prior experiences, she could simply start again. Kathryn also demonstrated a cost-benefit analysis. Her possessions were not enough to warrant any insurance, despite having three children.

Others in the sample felt little urgency to insure their property (mostly contents) despite having experienced cyclones previously. Among these interviews, many expressed confidence and little worry for cyclones. For example, George, a former tradesperson who lived in Cairns all his life, does not have insurance and felt little concern despite experiencing 'three or four' in his lifetime

Yeah they're just exciting, like there's a buzz about the place, like when it's happening. I've always been taught it'll be alright here; go to the small room in the house and sit it out.

(George)

George also argued that past cyclones brought his community together in 'social solidarity' in that 'before, during and after' he shared his home with others and had 'drinks' together. Demonstrated in his interview is both confidence in his ability to cope with the risk (self-efficacy) and confidence in his choice to not insure to mitigate the risk (response efficacy).

Very few respondents interviewed who did not insure (or underinsured) suggested that cost was a major reason despite survey data suggesting so. This requires further investigation especially in regional cities or townships vulnerable to natural disasters. As Booth and Tranter (2017, p.11) explain, the lack of insurance or underinsurance could be a 'signal' of widening inequality. In the survey sample, renters were mostly non-insured and represent some of the most financially poor in the Cairns community.

Theme 2: Place-based risks and threat

Where people lived in Cairns also played a role in shaping what participants identified as risks. To assess this, a likert scale was used. Participants who lived in the

Northern Beaches were compared with those who lived closer to Cairns using an independent samples t-test (Table 5). Northern Beaches respondents expressed more concern related to flooding and tidal surges than survey respondents who lived in suburbs nearer the city. Conversely, crime was a significant worry factor for respondents living in these core Cairns suburbs.

Even though flooding and tidal surges were a concern for participants from the Northern Beaches, the scores reflect only minor worry (2=a little worried). Crime on the other hand was a large concern for core suburb residents. Furthermore, climate change appeared as the largest worry for participants. This possibly relates to education background with 62 per cent (n=70) of the survey sample being tertiary graduates or higher.

Risk perception is shaped by both place identity and how dangers are understood. Wester-Herber (2004, p.114) argued that identity with place is 'valuable' and the 'time and energy that has been invested into the land that cannot easily be replaced or insured against'. While natural disasters pose a threat to lifestyles, these are weighed up against the positives of living in vulnerable places. Respondents in the interviews demonstrated this. While cyclones did worry participants, lifestyles, especially near the coast, were deemed important enough to warrant such risks. Several considered threats to their local natural amenity as more important to discuss than the threat of cyclones. For example, Harriet, a middle-aged professional who lived on the foreshore, complained about overdevelopment in her suburbs.

You're seeing these flat housing developments that have been going up in areas like Kewarra Beach and Trinity Beach that are perhaps carbon copies, you know I find them to be very soulless [...] This morning as I was going into Trinity Beach they were putting up a fence, so it's clear that all that land up towards Earl's Hill there is going to be developed. So it just hasn't stopped! I've never seen anything so dramatic.

(Harriet)

As a domestic migrant or 'seachanger' from a southern state, Harriet's concern is not unique (Osbaldiston 2012). People seeking natural beauty are often frustrated with encroaching development on their lifestyles.

Another major concern for the interviewees was crime, as noted in the survey data. Repeatedly, juvenile delinquency was cited as a major worry. Bridget, a young mother who had lived in Cairns for over a decade, expressed this concern. While she argued that 'natural disasters you accept, and you choose to live here knowing that', she complained that, 'crime (youth) is a bit of a blow-up recently and I don't think that's acceptable [...] I firmly place the blame on parents'. Property theft, especially of vehicles, frequently appeared in participant interviews. Interviewees expressed that the threat of crime represented a breakdown of social cohesion whereas, interestingly, cyclones had potential to bring communities together.

Theme 3: Trust in the insurance industry

Trust in institutions (e.g. governments, corporations, science) as well as personal trust of other people has been argued to be declining in recent times. However, Booth and Tranter (2017, p.10) suggest that 'those who generally trust others are more likely to have insurance'. This survey was designed to measure trust in insurers only. A likert scale on how confident participants were in their insurer to cover them in certain conditions was constructed (see Table 6).

The data shows that confidence in insurers to cover participants is low-to-medium across all conditions selected. Confidence was especially low for flooding events and much lower than theft or cyclone damage. This may reflect the media reports following the 2011 Brisbane floods about lack of insurance coverage where several insured people discovered that their insurer did not cover them for riverine inundation (van den Honert

& McAneny 2011). This could also indicate a wider community backlash against the insurance industry for rising costs of premiums (Treasury 2015).

The qualitative interviews provided further insight. Participants spoke negatively about the insurance industry in areas of distrust through to corporate practices. While most home owners had no choice but to insure their properties (due to mortgage requirements), several participants complained of conflicts with their selected insurer over premium costs and a lack of information sharing. Specifically, respondents indicated they had received unsatisfactory reasons for rising premiums. One participant said she was told that 'recent environmental things' had contributed to her dramatically increased premium. When she pressed her insurer on what these were, she did not receive any further information. Others such as Olivia, a middle-aged professional who owned several properties, blamed the insurance industry for improper business practices.

Table 5: Responses to questions on worry with associated t-test results between the Northern Beaches and Cairns suburbs (Means (M), Standard Deviation (SD)).

| Variable | Northern Beaches | Cairns core suburbs | t-test results (df), <i>p</i> value |
|-----------------------------------|---|---------------------|--|
| | (1= not worried at all to 5= extremely worried) | | |
| Tropical cyclones | M=3.10, SD=1.323 | M=2.63, SD=1.030 | 1.951 (110),.054 |
| Flooding | M=2.76, SD=1.303 | M=2.20, SD=1.305 | 2.175 (109),.032* |
| Tidal surges (such as king tides) | M=2.72, SD=1.335 | M=1.90, SD=1.128 | 3.296 (110),.001** |
| Overdevelopment | M=2.82, SD=1.639 | M=2.50, SD=1.617 | .993 (110),.323 |
| Crime | M=2.81, SD=1.450 | M=3.63, SD=1.580 | -2.775 (110),.006* |
| Local economic conditions | M=3.13, SD=1.532 | M=3.05, SD=1.552 | .248 (110),.804 |
| Climate change | M=3.83, SD=1.818 | M=4.00, SD=1.617 | -.495 (108),.622 |

*- significant at *p*<.05; **-significant at *p*<.01

Table 6: Responses to questions on confidence in insurance companies for insured people on selected risks (Means (M), Standard Deviation (SD)).

| Variable | Number of respondents | Confidence in insurer (1= not confident to 6= extremely confident) |
|--------------------------------------|-----------------------|--|
| Fire | 87 | M=3.57, SD=1.537 |
| Flooding generally | 85 | M=2.92, SD=1.490 |
| Flooding via waterway (river, creek) | 86 | M=2.58, SD=1.499 |
| Flooding via ocean (storm surge) | 86 | M=2.36, SD=1.471 |
| Cyclone damage | 86 | M=3.35, SD=1.501 |
| Storm damage | 85 | M=3.20, SD=1.454 |
| Theft | 86 | M=3.51, SD=1.686 |
| Accidental damage | 86 | M=2.78, SD=1.690 |

My take on it [...] this is my instinct, is that, those significant events, south-east corner events, and again this is my perception of (insurers name) are massive claims load and (insurer) didn't manage their affairs properly to cover the costs and I become the victim of their bad business practices [...] they say to me on the phone 'the risk has increased' and my argument is, the risk has not increased.
 (Olivia)

The study also found that some renters who did not insure also expressed distrust of the insurance industry. This aligns with Booth and Tranter (2017, p.11) that lack of information is linked to underinsurance in Australia. Further research is recommended to confirm this.

Conclusion

This paper explores the question of insurance, risk perception and trust by people in disaster-prone areas around Cairns. There are limitations to the work that require further investigation especially on the role of efficacy and trust in the decision to insure property. Despite this, the paper has provided some clear themes for further research including that renters are less likely to insure property (contents) than home owners. Cost of insurance, trust in the industry and confidence in capacity to deal with challenging circumstances were all contributing factors to non-insurance. Renters also represent some of the poorest in the community of Cairns. More data, especially in low socioeconomic places, are required to understand this further.

This paper also presents evidence on place identity and trust as factors in underinsurance and non-insurance. Consistent and ongoing daily dangers such as crime impact on people's worries rather than natural disaster risks such as cyclones. There is also evidence in this research of distrust between people and the institution of insurance. The ability for insurers to justify their costs to consumers appropriately appeared as a significant concern to participants. As noted from the interview data, individuals will make their own judgements on issues like rising premium costs. The results of this study will need to be investigated further to take into account preparedness for large-scale natural disasters, assess local resilience and deepen discussions on adaptation for climate change along Australia's coastlines.

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