Actuaries Institute.

Report - August 2023

Home Insurance Affordability Update

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The Actuaries Institute acknowledges the traditional custodians of the lands and waters where we live and work, travel and trade. We pay our respect to the members of those communities, Elders past and present, and recognise and celebrate their continuing custodianship and culture.

About this Report

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1 Executive summary

There are now 12% of households experiencing home insurance affordability stress

Almost one year on from the publication of the Actuaries Institute's Green Paper *Home Insurance Affordability and Socioeconomic Equity in a Changing Climate*, home insurance affordability remains an ongoing and significant issue in Australia.

Affordability pressures have risen for almost all Australian households since the 2022 Green Paper, with increases in home insurance premiums (driven by both higher sum insureds and rate increases) not matched by household income growth. In particular, while the median increase in home insurance premiums over the last 12 months was 28%, the impacts were far greater for the highest risk properties, increasing by more than 50% for the 5% of households paying the highest premiums.

There are now 12% of households experiencing home insurance affordability stress (up from 10% in March 2022) where affordability stress is defined as paying more than four weeks of household gross income towards home insurance premiums. Overall, we estimate that 1.24 million Australian households face home insurance affordability stress compared to 1 million a year ago. The average Australian Actuaries Home Insurance Affordability (AAHIA)[1] Index amongst those stressed households is 8.8 weeks; this is seven times higher than the average AAHIA of 1.3 weeks for households that are not affordability-stressed and is an increase of 1.1 weeks from the previous index.

Another important change in the past year has been the phased introduction of the government-backed Cyclone Reinsurance Pool (Cyclone Pool), which provides insurance companies with reinsurance coverage for cyclone and cyclone-related flood risk. The objective of the Cyclone Pool is to improve the accessibility and affordability of insurance for households and small businesses in cyclone-prone areas. This Report models the expected impact from a market-wide adoption of the Cyclone Pool at 31 March 2023. At the time of writing, two insurers had entered the Cyclone Pool, more had entered on 1 July 2023 and the remainder are required to enter the Cyclone Pool by 31 December 2024.

We highlight the following key findings from this update:

1. There have been significant increases in the home insurance premiums observed across Australia over the 12 months to 31 March 2023. This is due to:
    a. Significant increases in the cost of rebuilding a home, from supply-chain shortages, disaster-related surges in demand, and general inflationary increases;
    b. Increases in natural peril premiums in response to large losses from the recent severe weather events; and
    c. Increases in reinsurance premiums which are passed through to consumers in retail premiums or reduced coverage.
2. Among affordability-stressed households, the exposure to natural perils, and especially to cyclone and flood, dominates the calculation of home insurance premiums payable. For cyclones, the cost of the risk does not have a clear relationship with income level, as the peril is geographically widespread. For flood, however, the cost of this risk is significant for affordability-stressed households. This suggests that, in general, low-income households are exposed to higher flood risk than their counterparts.
3. The implementation of the Cyclone Pool is expected to reduce total cyclone premiums across the Australian population[2] by $368 million (or by 26%), and total flood premiums by $228 million (or by 9%), noting the Cyclone Pool only covers cyclone-related flood risk.
4. The Cyclone Pool effectively targets the highest cyclone[3] and cyclone-related flood[4] risks. The Cyclone Pool was not intended to be means-tested, and so it does not differentiate between affordability-stressed and non-affordability-stressed households, particularly as cyclone risks are geographically widespread.

1. The AAHIA Index measures the ratio of the annual home insurance premium to the annual gross household income, expressed in weeks.
2. Australian population includes all current insured households, as well as households that currently do not have insurance cover because of price or value considerations. The actual insurance market would be smaller than our household population.
3. Cyclone here refers to losses arising from a weather system which causes wind or storm surges.
4. Cyclone-related flooding refers to losses arising from any fluvial flooding driven by a cyclonic weather system.

2. Introduction and scope

2 Introduction and scope

In 2022, the Actuaries Institute published a Green Paper titled *Home Insurance Affordability and Socioeconomic Equity in a Changing Climate* (the '2022 Green Paper'). Almost one year on, the home insurance affordability issues outlined in the 2022 Green Paper remain significant. In this Report, we examine the impact of recent weather events, high building cost inflation, higher insurer and reinsurer expenses, and shifts in the household income on affordability pressures across Australia.

This Report provides an update to the Australian Actuaries Home Insurance Affordability (AAHIA) Index constructed in the 2022 Green Paper, which is defined as the ratio of the:

- Annual Home Insurance Premium for each residential property[5] in Australia, which includes home buildings and contents cover. The home insurance premium considers the natural hazards risk specific to the house location as well as the level of retail home insurance premiums across the Australian market, to the
- Annual Household Income Gross of Tax.

The AAHIA Index is expressed as the number of weeks of gross household income required to pay a home buildings and contents insurance premium. The higher the AAHIA, the more unaffordable the home insurance premium is. The 2023 AAHIA Index provides the following updates in respect of current insurance affordability, for:

- new Finity models for storm and flood risk;
- updated market rates for home insurance premiums; and
- updated household income data, and household income distributions from the 2016 Australian Bureau of Statistics (ABS) Census[6].

We also examine the impact of the Cyclone Pool on home insurance affordability for both flood and cyclone perils, based on publicly available information from the Australian Reinsurance Pool Corporation (ARPC).

This Report is a supplement to, and is intended to be read in conjunction with, the 2022 Green Paper.

The home insurance affordability issues outlined in the 2022 Green Paper remain significant.

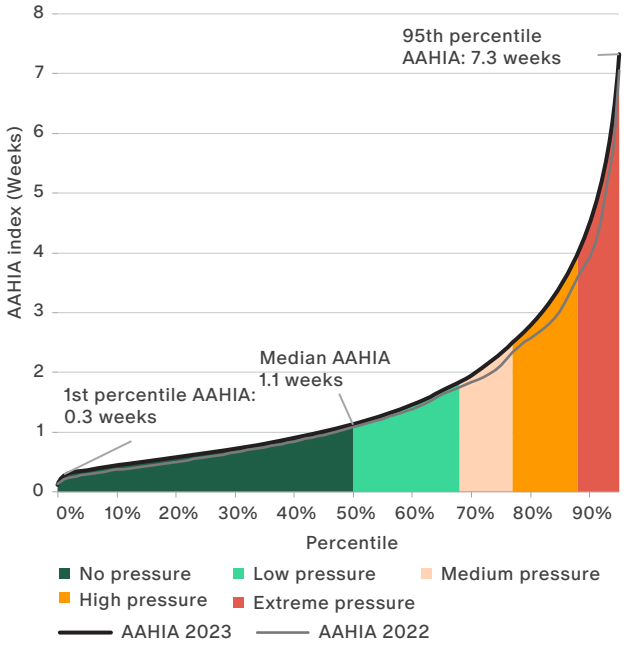
5. The AAHIA Index is calculated across each household in Australia, regardless of whether or not insurance is purchased for the house, and does not consider under-insurance. For rental or strata properties, we have assumed that the cost of any home insurance premium paid for by the landlord or the strata is effectively passed on to the household occupying the property. Further explanation of the methodology is provided in the 2022 Green Paper.
6. Note that while the 2021 Census information is available at the time of writing this Report, it is distorted by COVID-19 and government initiatives such as JobKeeper, and we therefore do not consider it representative of long-term income levels across Australia.

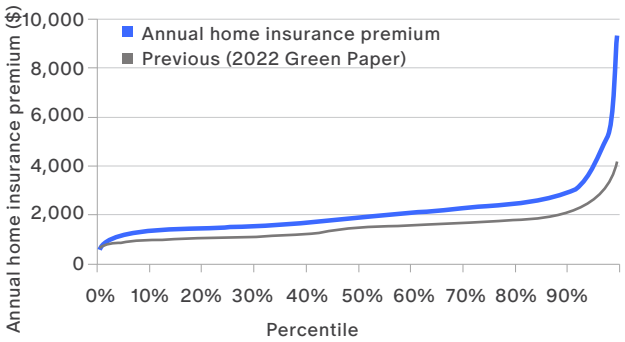
3. Australian Actuaries Home Insurance Affordability Index

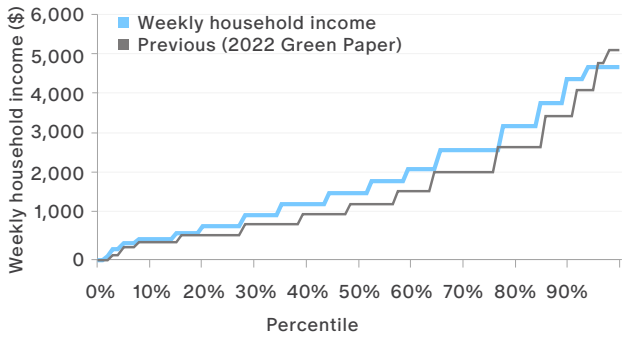
3. Australian Actuaries Home Insurance Affordability Index

Figure 3.1 shows how annual home insurance premium, annual household income and the AAHIA Index vary by percentiles, as well as a comparison with the 2022 AAHIA Index.

Figure 3.1 – Australian Actuaries Home Insurance Affordability Index by AAHIA percentile







The AAHIA Index varies from 0.3 weeks for households with the most affordable insurance to in excess of 7.3 weeks for the 5% of households with the most unaffordable insurance. The 2023 AAHIA is higher at every percentile compared to the 2022 Index, with the increases in home insurance premiums (driven by both sum insured indexation and premium rate increases) not matched by household income growth. In particular, the increases in home insurance premiums are greatest for the highest risk properties, increasing by more than 50% over the last 12 months for the 5% of households paying the highest premiums. The median AAHIA has increased slightly from 1.09 weeks in the 2022 Green Paper to 1.12 weeks in 2023. The increase at the 90th percentile is greater, with an AAHIA of 4.4 weeks compared to 4.0 weeks previously.

The analysis in this Report focuses on the drivers of affordability stress for households paying home insurance premiums of more than 4 weeks[7] of income ('affordability-stressed households'). The proportion of households in Australia considered to be affordability-stressed increased from 10% in 2022 to 12% in 2023. While no information is available on whether these stressed households purchase adequate home insurance, this population is at risk of being either uninsured or under-insured. The estimated home insurance premium for the 12% of Australian households which face extreme affordability stress is $3.6 billion, representing a potentially significant protection gap for the market in the context of the total home buildings and content insurance market (including taxes) being $14.8 billion at March 2023 (APRA, 2023).

7. The AAHIA thresholds (in weeks) are unchanged from the 2022 Green Paper.

Figure 3.1 – Distribution of Households by AAHIA Pressure Band

Pressure Band	AAHIA (Weeks)	% of households		Affordability group
		2022 Green Paper	2023 Update	
No Pressure	0 to 1.1	50%	49%	Non-affordability-stressed
Low Pressure	1.1 to 1.8	20%	19%	Non-affordability-stressed
Medium Pressure	1.8 to 2.5	10%	9%	Non-affordability-stressed
High Pressure	2.5 to 4	10%	11%	Non-affordability-stressed
Extreme Pressure	4+	10%	12%	Affordability-stressed

The mean (average) AAHIA for households that are affordability-stressed is 8.8 weeks; this is 7 times higher than the mean AAHIA of 1.3 weeks for households that are not affordability-stressed.

The following sections discuss the components of the 2023 AAHIA Index.

3.1 Home insurance premiums

The home insurance premiums used in the construction of the AAHIA Index represent a ***technical*** view of the retail premiums across Australia for the coming 12 months. This differs from the actual premiums paid by customers for a range of reasons, including:

- The AAHIA Index assumes that all households purchase insurance. In reality, as demonstrated in the Index, there are households where home insurance premiums are unaffordable – due to high exposure to natural perils, low income or both. Non-insurance is also driven by a lack of perceived value for money, with consumers unwilling to pay the level of insurance premium. Some households may also choose to exclude flood cover from their home insurance cover in order to reduce their premium.
- Building cost inflation has increased significantly over recent years. In order to reduce premiums, homeowners may have purchased policies with a sum insured which does not fully reflect increases in building costs (i.e., they are under-insured).
- While we have calibrated the level of the premiums to a market-representative portfolio of new business policies, the actual premiums will differ. Actual premiums may differ due to changes in consumer preferences (e.g., by type or level of coverage or choice of excess) and/or changes in insurers' product offerings (e.g., for decisions around target markets and customer retention).

Table 3.2 shows the components of the home insurance premiums by state as at 31 March 2023.

Table 3.2 – Home insurance premiums by state ($A)

	Estimated mean by state								Australia	
	NSW	VIC	QLD	SA	ACT	NT	TAS	WA	Mean	Median
Storm	396	156	339	76	254	239	149	290	278	255
Flood	192	76	251	99	25	146	70	86	149	0
Cyclone	6	0	269	0	0	1,701	0	157	86	0
Earthquake	41	50	14	50	72	47	20	48	39	42
Bushfire	56	21	36	16	10	20	76	43	38	0
Other insurer cost components[1]	1,155	1,064	1,620	824	1,534	447	1,003	878	1,168	1,077
Stamp Duty, Levies and GST[2]	754	287	503	235	189	546	277	315	475	353
Total premium	**2,600**	**1,654**	**3,032**	**1,300**	**2,084**	**3,145**	**1,594**	**1,817**	**2,234**	**1,894**
Stamp Duty	*9%*	*10%*	*9%*	*11%*	*0%*	*10%*	*10%*	*10%*		
Emergency Services Levy	*17.5%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*		

1. Non-natural perils losses (e.g. accidental damage), expenses, net cost of reinsurance, profit margin.
2. The Emergency Services Levy in NSW is passed on to the policyholder at the discretion of each insurer. For the purposes of estimating the home insurance premiums, we have assumed a 17.5% loading charged to all NSW policyholders.

3.2 Household income

Table 3.3 shows the average annual household income at 2023 by state used in the calculation of the AAHIA. The value used in the 2022 AAHIA Index is also shown for comparison.

Table 3.3 – Annual household income by state ($)

Mean annual household income									
	NSW	VIC	QLD	SA	ACT	NT	TAS	WA	AUS
2022	88,000	85,000	90,000	80,000	110,000	105,000	77,000	97,000	88,000
2023	108,000	103,000	102,000	90,000	134,000	131,000	84,000	112,000	105,000
Change	23%	21%	13%	13%	22%	25%	9%	15%	19%

The annual household income we have assumed is based on the distribution from the 2016 Census, which is inflated to 2023 values[8]. Note that while the 2021 Census information is available at the time of writing this Report, it is distorted by COVID-19 and government initiatives such as JobKeeper, and we therefore do not consider it representative of long-term income levels across Australia. In the 2022 Green Paper, the distribution of household income was based on the 2011 Census.

The assumed mean annual gross household income at 2023 is $105,000, which has increased by 19% from an average of $88,000 in the previous 2022 Green Paper.

- 15% of this increase in income is from higher than assumed wage inflation, resulting from an update of the household income data source. This is a change in the modelling to reflect that the growth in household income between the 2011 and 2016 Census was 4.1% p.a., compared to 1.5% p.a. assumed in the 2022 Green Paper (which was based on the observed indexation in the ABS Survey of Housing and Income between 2011 and 2016[9]). There are a number of reasons why the increase in the household income as measured from the Census differs from what is included in the ABS Survey, including:
  - The Census is based on the full Australian population, whereas the ABS Survey of Housing and Income is based on a much smaller sample of the Australian population (e.g., the 2015-16 survey sampled from almost 18,000 households).
  - There were significant structural changes across the economy over the decade to 2016, notably Australia's mining boom (Phillips, 2016), and high net overseas migration over this period (ABS, 2022b). The Census figures fully reflect these structural population changes; however, the ABS survey applies benchmark weights to survey responses, which may mask some of these effects.
  - Household income from the Census is provided as a band, and this analysis assumes the midpoint of the range, with the exception of the highest response level where we have adopted a weekly household income of $4,000. While this is consistent with the treatment in the previous Green Paper, we note that the distribution of the household income within each band may not be symmetrical.

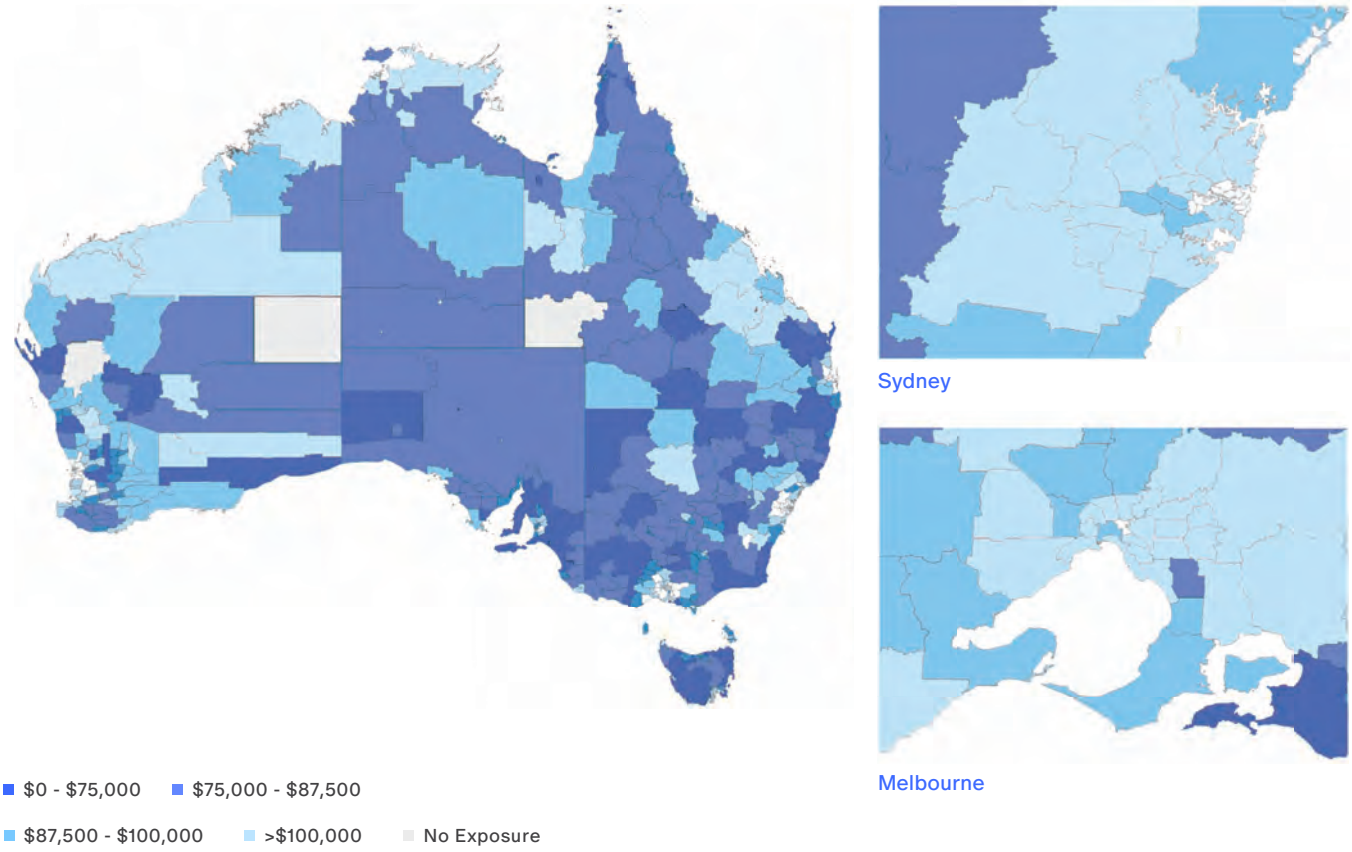
  The update to the 2016 Census improved our assessment of current home insurance affordability; however, it reflects updates to data rather than underlying changes in the affordability profile compared to the 2022 Green Paper.
- The remaining 4% increase is from actual increases in wage inflation over the 12 months to March 2023.

8 Indexation from the ABS Survey of Housing and Income from 2016 to 2020, after which the survey was discontinued (ABS, 2022a), and the ABS Wage Price Index (WPI) from 2020 to 2023 (ABS, 2023a).

9 Reasonableness checks were conducted against the ABS WPI which showed average inflation of 2.8% over this period. Comparisons were also made against the ABS Average Weekly Earnings (AWE) (ABS, 2023b), which suggested inflation of 2.8% (unadjusted), 2.2% (seasonally adjusted) and 1.2% (trend adjusted). However, the WPI and AWE measures only provide information on income changes for individuals. The indexation from the ABS Survey of Housing and Income was adopted as it provides information on household income changes by income quintile.

Figure 3.2 shows the annual gross household income, by local government area (LGA).

Figure 3.2 – Average annual household income by LGA ($2023 values)



Regional and remote areas, particularly areas in Northern Australia, central Western Australia (WA), inland New South Wales (NSW), inland Victoria (VIC) and Tasmania (TAS) have the lowest average gross household income. Comparatively, high levels of household income are typically concentrated in metropolitan areas; affluent areas such as the eastern suburbs and lower north shore of Sydney and inner-city Melbourne suburbs have some of the highest average income levels in the country.

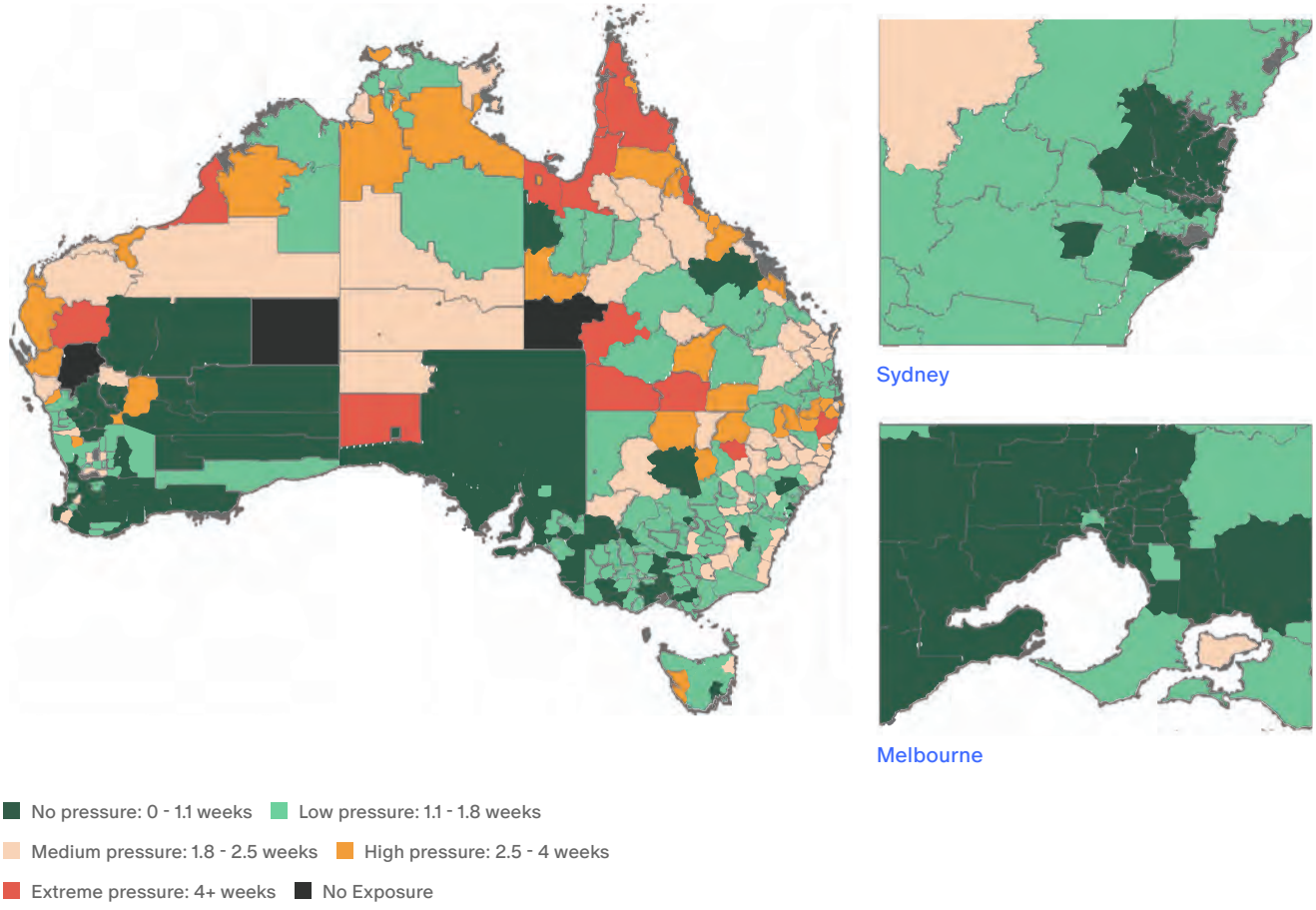
4. Distribution and drivers of home insurance affordability pressures

4. Distribution and drivers of home insurance affordability pressures

4.1 Geographic distribution of home insurance affordability pressure

Figure 4.1 shows the distribution of the median AAHIA by LGA, using the same definition of affordability pressure bands as shown in Table 3.1.

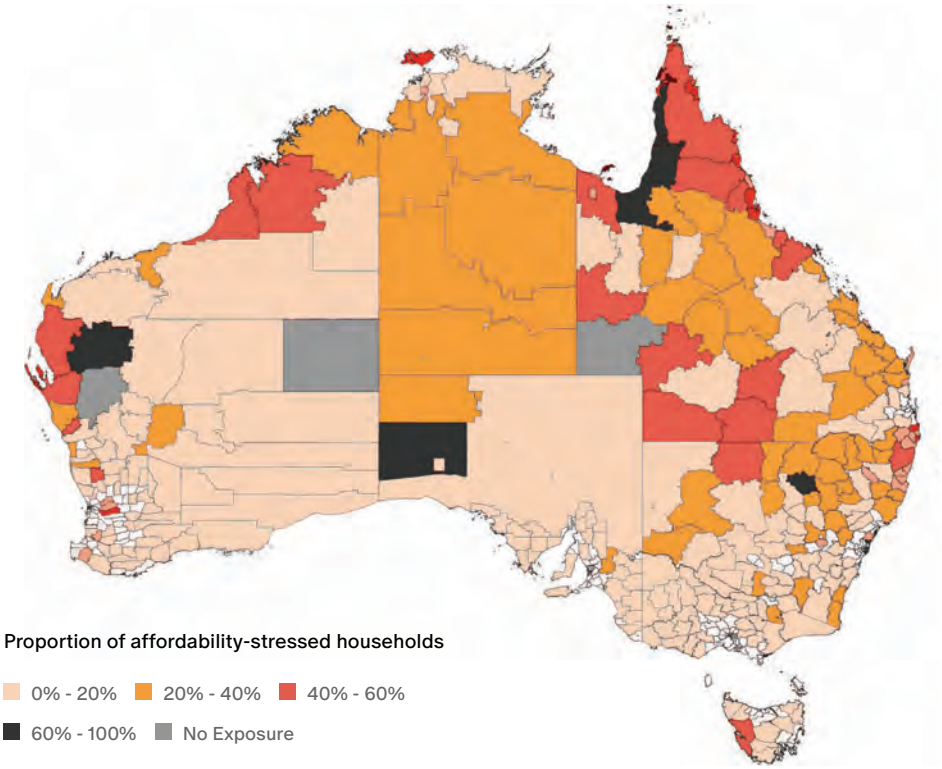
Figure 4.1 – Median AAHIA by LGA



Affordability pressure is driven by the interaction between the home insurance premiums (typically from the underlying natural perils risk as seen in Section 5.2) and household income. We note the following:

- LGAs suffering extreme home insurance affordability pressures are concentrated in Northern QLD, the Northern Rivers region of NSW and Northern WA. In these areas, half of the population pay more than a month of gross household income for their annual home insurance premium. The affordability pressures faced in these regions are driven by their high perils risk (cyclone for QLD and WA and flood for NSW) and may also reflect insurer actions to recoup high losses in recent years from natural peril events in these regions.
- LGAs with medium affordability pressures are more spread across Australia – their affordability pressure is primarily driven by a combination of lower household incomes and higher flood risks.
- Metropolitan areas typically have lower natural hazard risks and higher incomes. This means that the capital cities have lower affordability pressures on average. However, affordability pressure is still present within parts of the capital cities of Greater Sydney, Greater Melbourne and Greater Perth, particularly on the edges of the city extents.
- Figure 4.1 shows the median affordability pressure across each LGA in Australia. There are households in each LGA where the affordability pressure differs greatly from the median. Figure 4.2 shows the proportion of affordability-stressed households in each LGA and demonstrates that there are households facing affordability pressure in every LGA. Affordability pressures continue to be particularly concentrated in Northern Australia. In regions like Far North QLD, over 40% of households face home insurance affordability stress.

Figure 4.2 – Proportion of affordability-stressed households by LGA



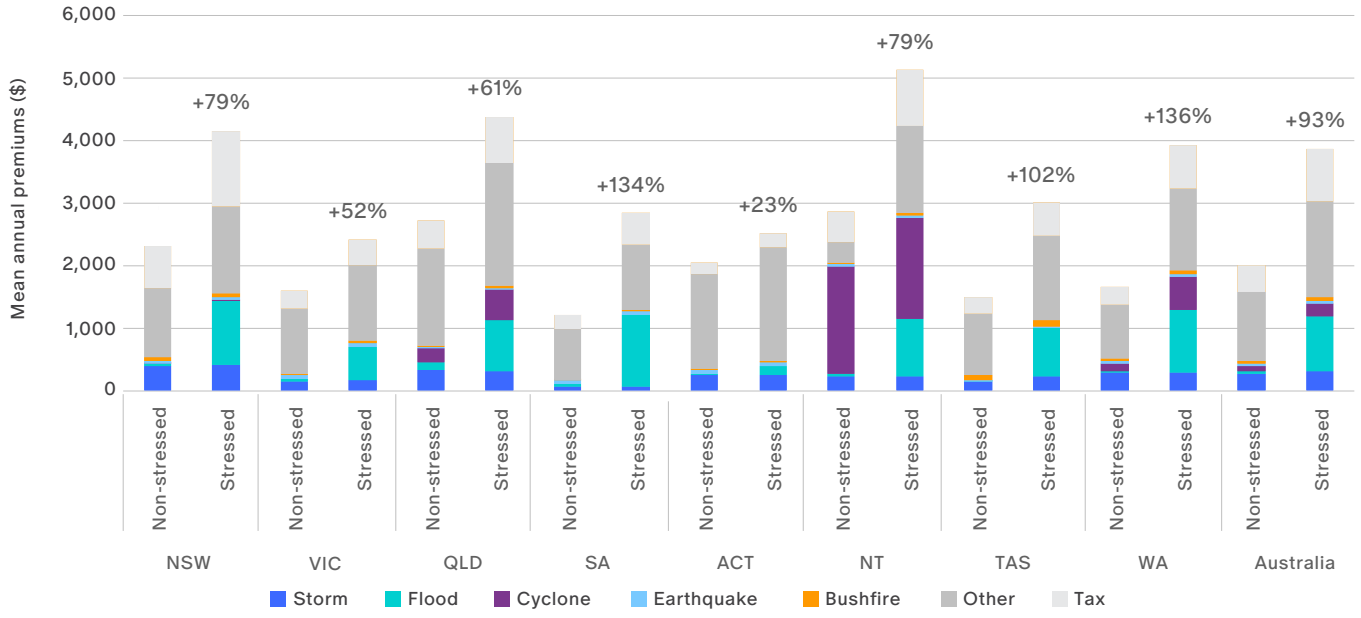
"Exposure to natural perils dominates the premiums for affordability-stressed households"

4.2 Natural peril drivers of affordability pressure

In this section, **cyclone** refers to losses arising from a weather system which causes wind or storm surges. **Flood** refers to losses arising from fluvial flooding, driven by both cyclonic and non-cyclonic weather systems. We note that these definitions are different to the ARPC's definition of cyclone, which we discuss in more detail in Section 6.

Figure 4.3 shows how the components of home insurance premiums vary by state between affordability-stressed and non-affordability-stressed households.

Figure 4.3 – Total home insurance premiums by state, split by affordability stress

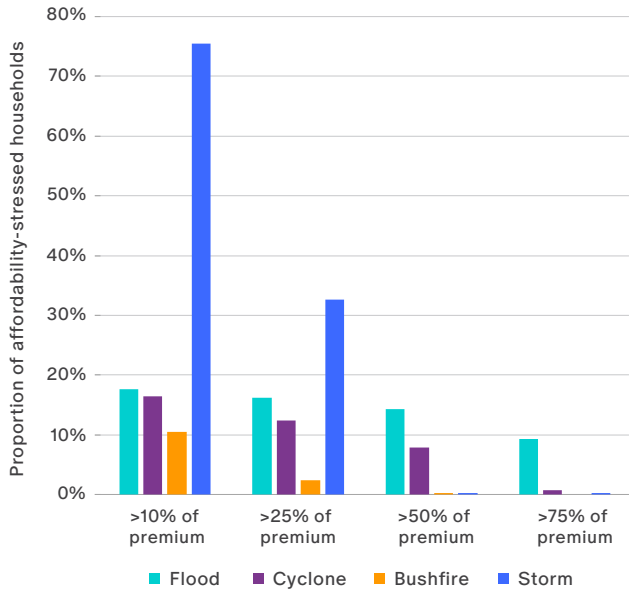


Exposure to natural perils dominates the premiums for affordability-stressed households — for 23% of affordability-stressed households, over half of the premiums relate to natural perils costs, mostly from exposure to cyclones and floods. Affordability-stressed households pay on average at least 50% more than non-affordability-stressed households in all states other than the Australian Capital Territory (ACT); in WA, SA and TAS, the premiums for stressed households are more than double.

Importantly, Figure 4.3 shows that cyclone premiums impact relatively equally across affected states, as the cyclone premiums do not differ greatly between stressed and non-stressed households. However, the flood premiums do vary substantially; while exposure to flood risk is generally minimal for non-stressed households, the significant increases in premiums show that stressed households tend to live in more flood-prone areas.

Figure 4.4 shows the contribution of natural peril risk towards the total home insurance premiums for affordability-stressed households. In particular, we focus on properties where a single natural peril dominates (i.e., contributes more than 50%) the overall insurance premium, in order to examine which peril drives affordability pressure.

Figure 4.4 – Relative contribution of natural-peril premiums to the total premium for affordability-stressed households[10]



- Exposure to **flood** risk is localised, dependent on factors like proximity to bodies of water and elevation of the land and home. However, flood represents the most significant proportion of affordability-stressed households where the total premiums are dominated by a single natural peril, with 14% of households where over 50% of the premiums relate to flood risk.
- Despite only being present in Northern Australia, **cyclone** risk dominates the premium for 7% of all affordability-stressed households. We examine the impact of the Cyclone Pool on affordability pressure in Section 6.
- Almost all affordability-stressed households are exposed to some level of **storm** risk, although the premiums are generally small. Storm risks dominate the premiums for only 0.3% of affordability-stressed households.
- In general, **bushfire** risk does not represent a material component of the premiums for affordability-stressed households. **Earthquake** risk is almost non-existent which is why it is not displayed in Figure 4.4.

The affordability pressure profile of 'boundary perils', where the risk is acute at boundaries such as riverbanks, bush/urban interfaces and beaches, differs from the profile of 'wide-area perils' such as cyclone or earthquake, which are geographically widespread. Generally, the distribution of affordability pressure due to boundary perils is more skewed within an LGA.

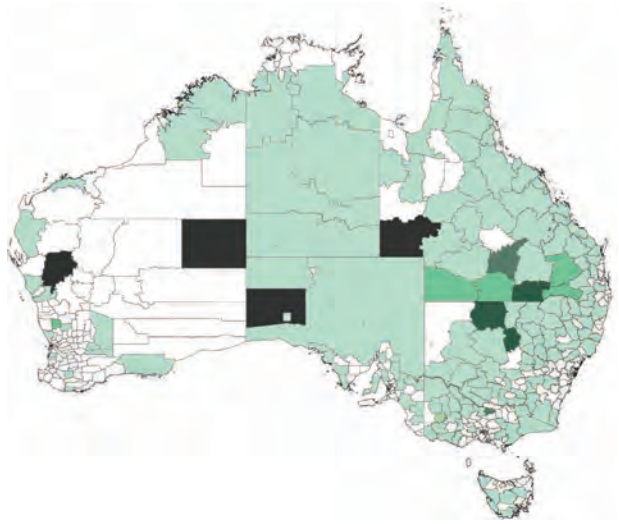
The following figures demonstrate this is the case for flood (a boundary peril) and cyclone (a wide-area peril). The figures show where these risks dominate (i.e., contribute more than 50% to) the overall insurance premium for non-affordability-stressed households and affordability-stressed households separately.

10 By way of example, the figure shows that:

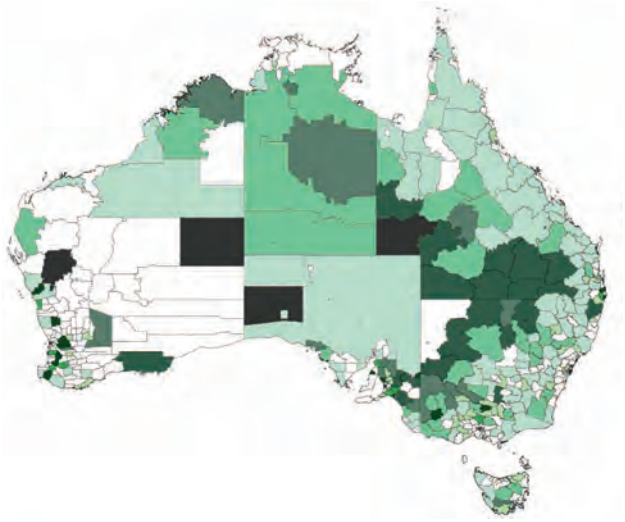
- For 76% of affordability-stressed households, the storm premiums comprise at least 10% of the total premiums.
- For 33% of affordability-stressed households, the storm premiums comprise at least 25% of the total premiums.

Figure 4.5 – Proportion of households where flood risk contributes over 50% of the overall insurance premiums

Non Affordability-stressed Households



Affordability-stressed Households



Proportion of households with flood risk contributing over 50% of total insurance premium

No Households <20% 20% - 40%

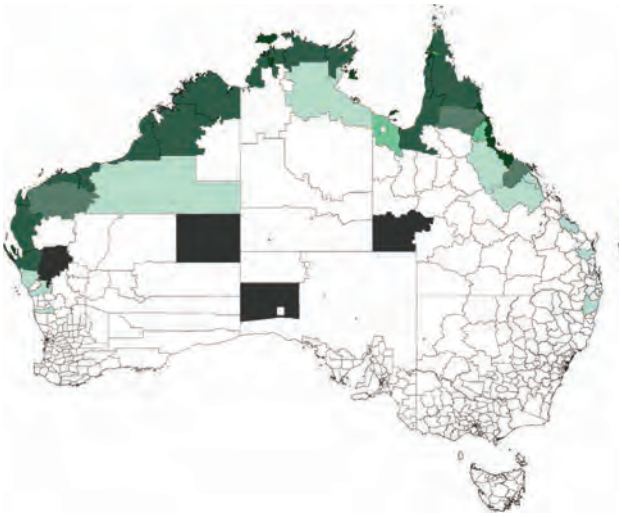
40% - 60% 60% - 100% No Exposure

Figure 4.5 shows that exposure to flood is much greater in affordability-stressed households. For most non-stressed households, flood is not a key driver of the overall premium, other than in regions in northern NSW and south QLD that have been heavily impacted by recent flooding events. The picture is substantially different for affordability-stressed households – flood risks dominate the premiums for many regions across the country, including inland QLD and the Northern Rivers regions of NSW.

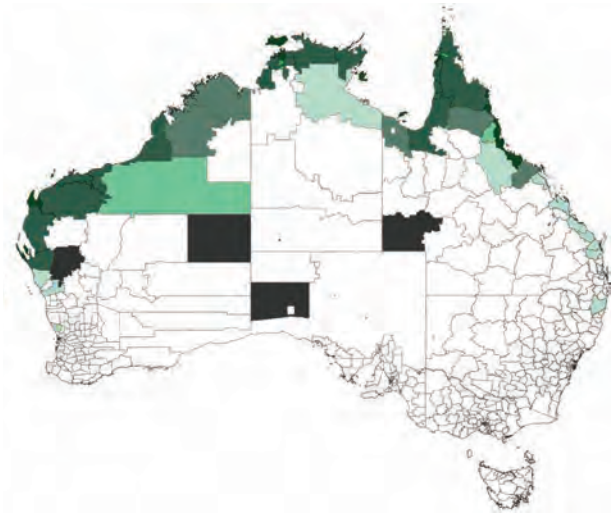
We estimate that there are 171,000 households with affordability stress and with flood contributing more than 50% of the home insurance premiums. We estimate that the total flood premium for this group of households is $1.5 billion per annum, including expenses, taxes and other insurer costs, and after the impact of the Cyclone Reinsurance Pool ($890 million excluding expenses, taxes and other insurer costs).

Figure 4.6 – Proportion of households where cyclone risk contributes over 50% of the overall insurance premiums

Non Affordability-stressed Households



Affordability-stressed Households



Proportion of households with cyclone risk contributing over 50% of total insurance premium

No Households <20% 20% - 40%
40% - 60% 60% - 100% No Exposure

Figure 4.6 shows that cyclone premiums are similar between affordability-stressed and non-affordability-stressed households. Cyclone risk is a wide-area peril, as the risk is geographically widespread, and does not have a clear relationship with income level. As discussed further in Section 6, this means that measures addressing cyclone risk only, without consideration of economic resources, will provide benefits to both affordability-stressed and non-affordability-stressed households.

5. Change in the home insurance premiums

05. Change in the home insurance premiums

> "Premiums have increased by 28% at the median level and 46% at the mean level"

As discussed in Section 3.1, there have been significant increases in the home insurance premiums over the 12 months to 31 March 2023.

Table 5.1 compares the 2023 and 2022 home insurance premiums, showing an increase of 28% at the median level, and of 46% at the mean level. This insurance premium increase is driven by insurer price changes on a profile of market-representative quotes. For our analysis, we have attributed these increases to three main drivers: increases to sum insured, updated view of natural perils losses (reflected in our updated models), and changes in other insurance cost components, which are discussed below.

Table 5.1 – Median and mean home insurance premiums

	Median	Mean
Home insurance premium (2022)	1,484	1,534
Home insurance premium (2023)	1,894	2,234
Change	28%	46%
Impact of:		
Sum insured indexation	14%	14%
Change in updated natural perils modelling	1%	9%
Change in other insurer cost components	12%	22%

5.1 Sum insured indexation

Building material and labour costs have increased significantly over the last two years, from supply-chain shortages resulting from COVID-19 and the Ukraine War, surges in demand from multiple extreme weather events, and general inflation. The Cordell Construction Cost Index (CCCI) tracked an increase of 12% over the 2022 year, noting particular volatility in the prices for timber, metal and concrete (CoreLogic, 2023); similarly, the ABS Producer Price Index showed an 11% increase in inputs to house construction costs over the 12 months to March 2023 (ABS, 2023).

The 2023 Index includes an increase of 14% to the sum insured. This indexation reflects the higher costs required to repair or rebuild a home as discussed above. It also includes a small allowance for further prospective increases in building cost inflation, as premiums set as at 31 March 2023 will on average cover claims occurring on 30 September 2023.

As previously noted, the premiums in the AAHIA Index assume that the insurance coverage purchased fully reflects the current cost of rebuild and that insurers will put through the full true impact of sum insured indexation on policy estimates. In reality, homeowners choose their own level of protection, which may not fully reflect the increases in building cost inflation in their sum insured, particularly in areas where premiums are already high.

5.2 Updated natural peril models

The 2023 AAHIA Index includes updates for new Finity models for storm and flood. The updates provide a more granular assessment of risk and show an increase in the level of risk in areas most exposed to floods and storms.

Finity's new hydrological flood model considers the historical rainfall, river drainages, river systems and terrain to model how the water will flood under certain return periods. This is an improvement over the previous statistical-based model. Other improvements include:

- Including flood defences (such as flood levees) and reflecting their level of protection; and
- Detailed terrain data to determine the elevation of the property and the surrounding topography.

The updated flood model increased the mean flood premium in NSW, NT, TAS and WA, resulting from more detailed capture of risk from the hydrological model compared to the previous statistical modelling. The results were also cross-validated against flood losses in recent history across the country.

Finity's new storm model is developed using higher resolution and more granular data across Australia. The new modelling approach separates storm risk into three discrete components: hail, severe convective storms and low-pressure systems. The model was calibrated to insurance claims data to better estimate the cost of damage from storms.

The update to the storm model resulted in increases to the mean premium, most notably in NSW, ACT and WA. Most of the increases are concentrated around the Perth metropolitan region, which is one of the highest storm risk areas in Australia.

In the last year, Finity has also made some minor improvements to the bushfire and cyclone models, but these have a minimal impact on the overall result compared to the previous AAHIA Index.

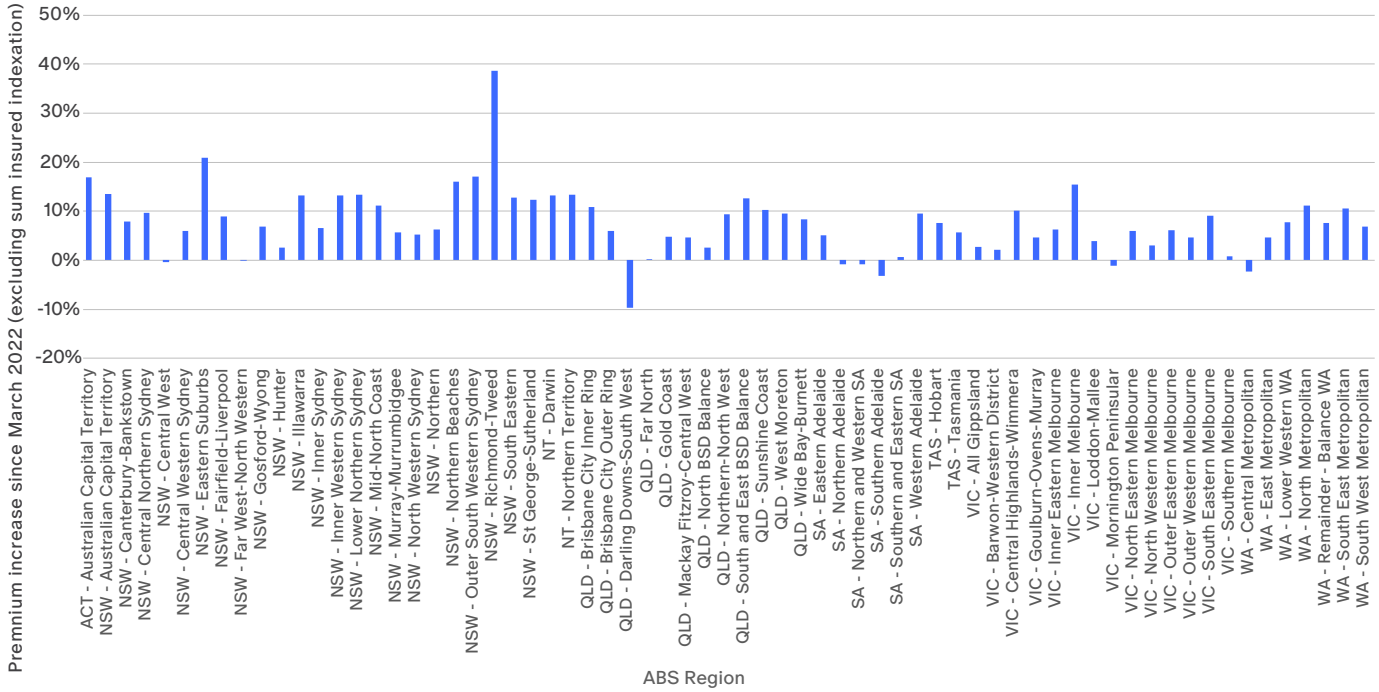
The majority of households across Australia are minimally impacted by this reassessment of the natural perils risk. At a median level, the update to the natural peril models only increased the AAHIA by 1%. However, the mean AAHIA has increased by 9%, skewed by the small portion of homeowners where the underlying view of natural perils exposure has changed following model upgrades and improvements.

5.3 Changes in market premiums

The actual premiums paid by customers differ from the technical premiums for many reasons, as discussed in Section 3.1. In order to calibrate the technical view of combined hazard and non-hazard costs to what is actually charged and paid, the overall premiums are calibrated to the level of retail premiums across the Australian market at March 2023 using a batch of 10,000 quotes across a representative pool of households. The change in the median retail premiums between March 2022 and March 2023, after normalising for the impact of sum insured indexation, is shown below.

> // Reinsurers have responded... by increasing reinsurance prices significantly //

Figure 5.1 – Change in median retail premiums at March 2023



Overall, the increase in the median retail premiums in the 12 months to 31 March 2023 (after normalising for sum insured indexation) was 14%. The increases were stronger in NSW, and less pronounced in SA and VIC.

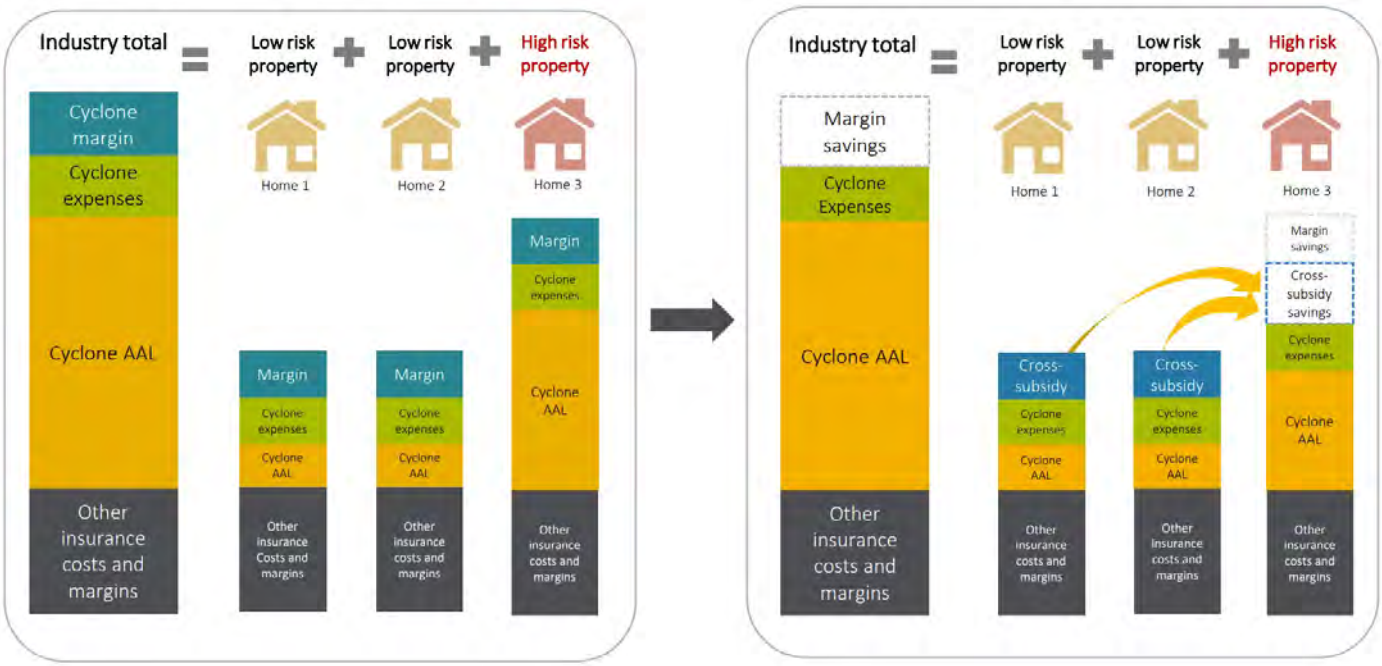
Severe weather events have stressed the reinsurance industry not only in Australia, but globally. Insurer losses from these weather events only form a portion of the total costs, with reinsurers covering a substantial portion of losses as part of the treaty reinsurance programs purchased by insurers. Reinsurers have failed to earn their cost of capital five years out of the last six (S&P Global, 2023), and whilst they can absorb short-term losses, they need to seek sustainable pricing over a longer horizon. Reinsurers have responded accordingly over the last 12 months by increasing reinsurance prices significantly and reducing available capacity. While insurers have restructured their catastrophe programs, the net outcome is an increase in the net cost of reinsurance, which is passed on to policyholders.

6. The Cyclone Reinsurance Pool

6. The Cyclone Reinsurance Pool

The Commonwealth Government implemented a Cyclone Reinsurance Pool (Cyclone Pool) commencing 1 July 2022 covering cyclone and related flood damage. The Cyclone Pool is intended to improve the accessibility and affordability of insurance for households and small businesses in cyclone-prone areas, which are mainly located in northern Australia (Department of Treasury, 2021). The Cyclone Pool, managed by the ARPC, will provide cyclone reinsurance to insurers, which will exclude any profit margins and be backed by a $10 billion guarantee from the Commonwealth Government. The Cyclone Pool is intended to be cost-neutral to government, with no cash subsidy from the taxpayer. At the time of writing, two insurers had entered the Cyclone Pool, more had entered on 1 July 2023 and the remainder are required to enter the Cyclone Pool by 31 December 2024.
Figure 6.1 shows the high-level design of the Cyclone Pool.

Figure 6.1 – Illustrative Design of the Cyclone Reinsurance Pool[11, 12]



The Cyclone Pool was designed to reduce the overall cost of cyclone reinsurance to the industry, with the removal of reinsurance and insurance margins across the market translating into savings for medium- and high-risk properties. The Cyclone Pool is intended to be neutral to low-risk customers; as such, the margin savings for these low-risk properties are not passed on to low-risk customers, but rather provide cross-subsidies for high-risk customers. The Australian Competition and Consumer Commission (ACCC) has been tasked with monitoring to check that any savings in margins are passed on to consumers by insurers.

The Cyclone Pool covers wind-related losses from cyclones, storm surge from cyclones and riverine floods caused by cyclones (also referred to as cyclone-related flooding or cyclonic flooding).

11. Figure 1.2 of (Finity Consulting, 2022).
12. AAL in Figure 6.1 stands for Average Annual Loss and is a view of the average expected losses to arise from cyclone events over a medium-to-long-term horizon.

As discussed in further detail below, our analysis shows the following:

- The Cyclone Pool is expected to reduce total cyclone premiums across the Australian population[13] by $368 million (or by 26%) and total flood premiums by $228 million (or by 9%).
- The Cyclone Pool effectively targets the highest cyclone risks (see Figure 6.3). However, it does not differentiate between affordability-stressed and non-affordability-stressed households. This is because cyclone risk is geographically widespread, and the Cyclone Pool was not designed to specifically target affordability pressures at a household level.
- For 87% of homes in Australia, the Cyclone Pool is expected to have little to no impact on premiums.
- There may be some individual households where home insurance premiums increase under the Cyclone Pool. It was anticipated that there could be some differences between the modelling approach used by insurers and the ARPC. The Cyclone Pool was designed as a reinsurance program to allow insurers to smooth over any premium differences. Areas which may see modest increases are expected to be in low-risk areas.
- Part of the benefits in affordability is from addressing cyclone-related flood premiums, rather than cyclone premiums, in particular in QLD and WA.

> "The Cyclone Pool is expected to reduce total cyclone premiums by 26% and total flood premiums by 9%"

6.1 Assumptions and limitations

We have modelled the expected impact of the Cyclone Pool at 31 March 2023, noting that only two insurers have entered the Cyclone Pool at the time of preparing this Report, with more entering at 1 July 2023 and the remainder expected to enter the Cyclone Pool by 31 December 2024. Our modelling compares the home insurance premiums without the Cyclone Pool ('pre-Cyclone Pool'), with the premiums assuming full adoption of the Cyclone Pool ('post-Cyclone Pool').

Figure 6.2 shows how the premium differs pre- and post-Cyclone Pool.

Figure 6.2 – Home insurance premium components pre- and post- Cyclone Pool

Overall premium pre-Cyclone Pool	=	Cyclone market premium[1]	+	Flood market premium[1] (including cyclonic flooding)	+	Other natural perils market premium[1]	+	Non-natural perils costs market premium[1]
Overall premium post-Cyclone Pool	=	ARPC premium[2] for wind and surge, including overhead expense loadings[3] but excluding profit margins	+	Cyclonic flooding: ARPC premium[2] for flood, including overhead expense loadings[3] but excluding profit margins	+	**Non-cyclone flooding:** Flood market premium[1], multiplied by ARPC flood adjustments provided at CRESTA level	+	Other natural perils market premium[1]	+	Non-natural perils costs market premium[1]

1. Finity's technical premiums, loaded for insurer expense and profit margins and tax loadings.
2. Based on a number of policy and building characteristics. The assumed sum insured, construction type and construction year come from Finity's sum insured calculator Rebuild; the roof type, building type and number of stories is from Finity's geospatial dataset finpoint. Otherwise, we have assumed a default level of $500 excess, no mitigation, and coverage level of "B".
3. Overhead expenses are assumed to comprise 60% of the total insurer margins, based on APRA statistics.

13. Australian population includes all current insured households, as well as households that currently do not have insurance cover because of price or value considerations. The actual insurance market would be smaller than our household population.

We note the following key assumptions, and the limitations:

- We have assumed that insurers will pass on cyclone and cyclonic flood reinsurance premiums charged by the ARPC directly to policyholders. We have also assumed that insurers will not charge a profit margin over the ARPC reinsurance premiums (but will continue to include a loading for overhead expenses). In reality, insurers are free to set their own premiums, which may vary significantly from the ARPC premium. This is subject to premium monitoring by the ACCC, which will require insurers to demonstrate that savings from the Cyclone Pool are passed on to customers.
- We have determined the proportion of flood costs that relate to cyclones using the ARPC's estimates at a CRESTA level (49 regions across Australia). However, we note that flood risk is highly localised (as discussed in Section 4.2) and the proportion related to cyclones will vary within each CRESTA zone.
- The base home insurance premiums are calculated using Finity's natural peril models, which differ from the models used in the calculation of the ARPC premiums. In practice, insurers will use a range of different models, and there is no single consensus across the industry on the long-term premium level for cyclone risk. This means that Finity, the ARPC, and individual insurers will each have different views about the total cyclone premiums across Australia, as well as varying views on individual cyclone risk for each household. It is important to note, therefore, that some of the differences observed between the pre- and post-Cyclone Pool premiums in our analysis are driven by varying views in the underlying cyclone cost estimation, rather than by fundamental differences in views on cyclone risk or the scheme design.

6.2 Impact on home insurance premiums

Table 6.1 – Impact of the Cyclone Pool on Home Insurance Premiums

Premiums including insurer margins and tax[1]	2023 Premiums ($m)			
	Pre-Cyclone Pool	Post-Cyclone Pool	Difference ($m)	Difference (%)
Cyclone	1,441	1,073	(368)	(26%)
Flood	2,599	2,372	(228)	(9%)
Other perils	5,945	5,945	-	0%
Other premium components	13,014	13,014	-	0%
Total premium	**22,999**	**22,403**	**(596)**	**(3%)**

1. Calculated premiums assume no under-insurance or non-insurance across Australia.

Table 6.1 shows that under the Cyclone Pool:

- Cyclone premiums (wind and storm surge) are expected to reduce by $368 million (26%)
- Total flood premiums (including cyclonic flood) are expected to reduce by $228 million (9%)
- Total home insurance premiums are expected to reduce by $596 million (3%).

The reductions in the total premiums across Australia result from:

- Reductions in the net cost of reinsurance, as ARPC does not charge a profit margin.
- Removal of profit margins on cyclone and cyclonic flooding, as this risk is fully passed on to the ARPC and no longer borne by the insurer.
- The ARPC premiums reflect a long-term view of the home insurance premiums and do not reflect short-term market movements. In comparison, as noted above, insurers may set their pricing across different time horizons in response to a change in appetite or to react to recent claims experience.
- Differences in the view of total cyclone and cyclonic flooding premiums between Finity and the ARPC. This includes some cross-subsidies between the Home, SME and Strata pools in the ARPC premiums.

The Cyclone Pool does not directly impact the storm, earthquake, bushfire or attritional premiums. However, there may be some re-allocation of the reinsurance cost for higher catastrophe reinsurance layers due to the removal of cyclone-related diversification benefits. We have not modelled this effect, but the impact is likely to be small on a per-policy basis.

Table 6.2 shows the overall impact of the implementation of the Cyclone Pool as well as the modelled mean premium savings, where the modelled premiums pre- and post-adoption of the Cyclone Pool differ by more than $100[14]. For completeness, the impact of the pool on mean premium across all households is also shown.

14. We consider that premium differences below $100 are highly likely due to differences in modelling rather than being a designed impact of the Cyclone Pool.

Table 6.2 – Mean savings impact by state of the Cyclone Pool implementation

			Premium savings from CRP[1]		
	Total household population	Overall mean impact ($)	# Homes	% Homes in state	Mean ($)
NSW	3,206,222	20	45,000	1%	1,660
NT	79,329	1,190	67,000	84%	1,410
QLD	2,067,963	200	446,000	22%	1,220
WA	1,105,502	10	40,000	4%	2,370
Australia	10,296,475	90	598,000	6%	1,350

1. Where the modelled premiums differ by more than $100

Our modelling shows clear savings in premiums from the Cyclone Pool, with a $90 mean saving across Australia and larger savings noticeable in parts of the NT, Northern WA and QLD. However, savings are much more noticeable for high-risk policies, with nearly 600,000 households expected to receive an average premium saving of $1,350 under the Cyclone Pool. Almost 75% of the households with premium savings are located in QLD, which in turn accounts for 22% of all homes in the state. The 67,000 homes receiving premium savings in the NT represent 84% of all households in the territory.

While our modelling shows premiums for some policyholders increase under the Cyclone Pool, this is likely driven by differences in the modelling approach for cyclone and cyclonic-flood risk between Finity and the ARPC. These differences were anticipated during the design of the Cyclone Pool; this is a key reason why the Cyclone Pool was designed as a reinsurance program, in order to allow insurers to smooth over any premium differences. Areas which may see modest increases are expected to be in low-risk areas.

6.3 Impact of Cyclone Pool on home insurance affordability

The Cyclone Pool was designed to reduce premiums for the highest-risk households. It did not explicitly consider home insurance affordability, as it did not consider the economic resources available for households.

Our analysis shows that the Cyclone Pool eases affordability pressures for the most stressed households, with the mean AAHIA for affordability-stressed households in cyclone-impacted states expected to reduce from 8.8 weeks to 7.8 weeks following full adoption of the Cyclone Pool.

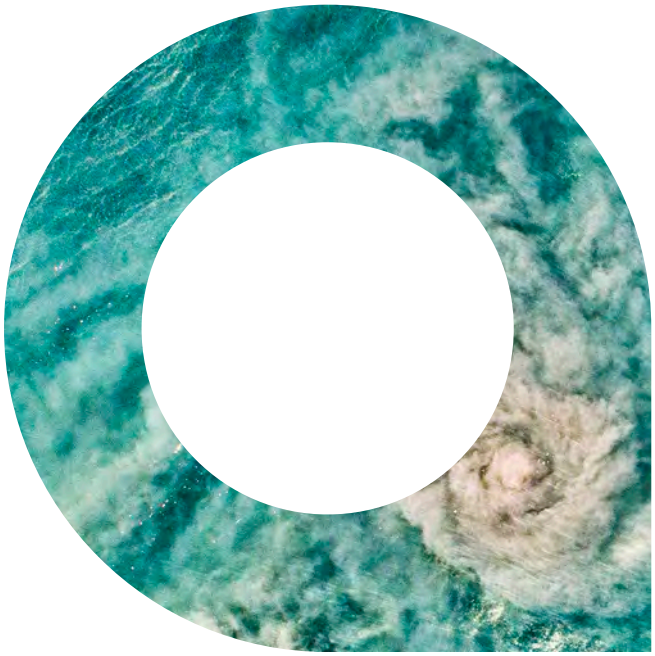
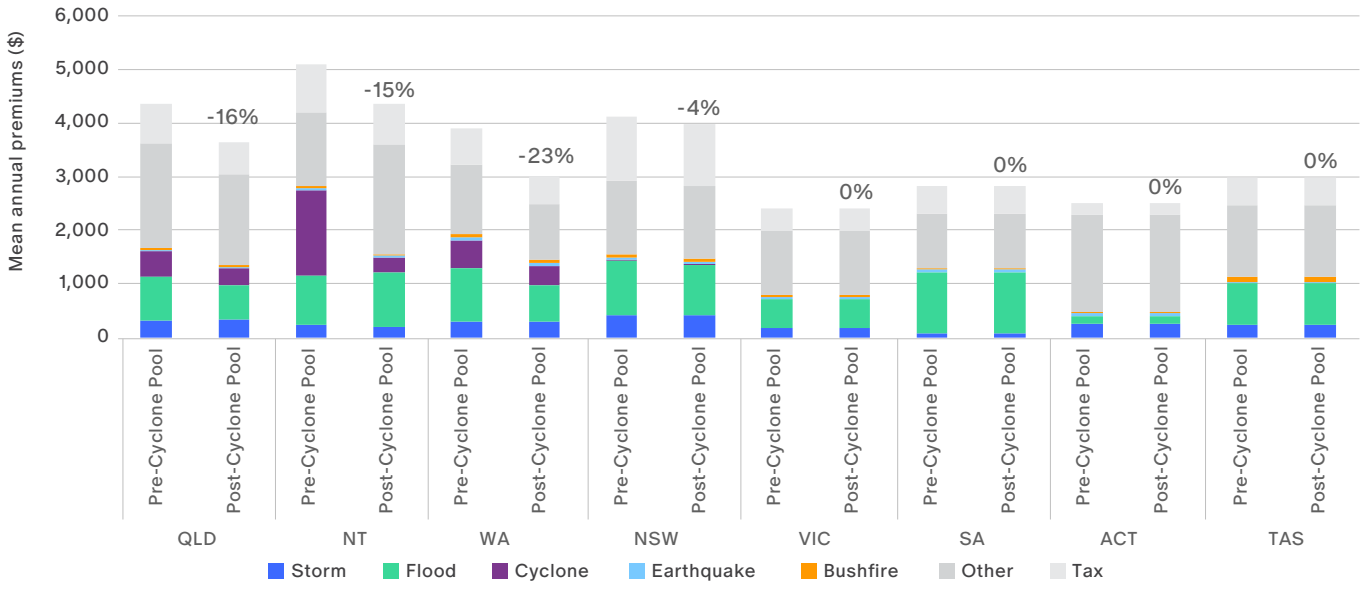


Figure 6.3 compares the mean premiums for affordability-stressed households, pre- and post- full implementation of the Cyclone Pool.

Figure 6.3 – Home insurance for affordability-stressed household by state, pre- and post-Cyclone Pool



The Cyclone Pool is expected to reduce the mean home insurance premium for affordability-stressed households by 23% in WA and 16% in QLD. Total premiums in the NT are expected to reduce by 15%, despite the technical cyclone premium reducing by a higher amount, which assumes reduced cross-subsidies[15] for these premiums (see also Section 3.1). As fewer homes in NSW are exposed to cyclone risk, the average savings for affordability-stressed households are lower, at 4%.

Figure 6.4 compares how the Cyclone Pool is expected to impact the technical cyclone and flood premiums for affordability-stressed and non-affordability-stressed households.

Figure 6.4 – Comparison of Cyclone Pool impact on affordability-stressed vs non-affordability-stressed households, by state

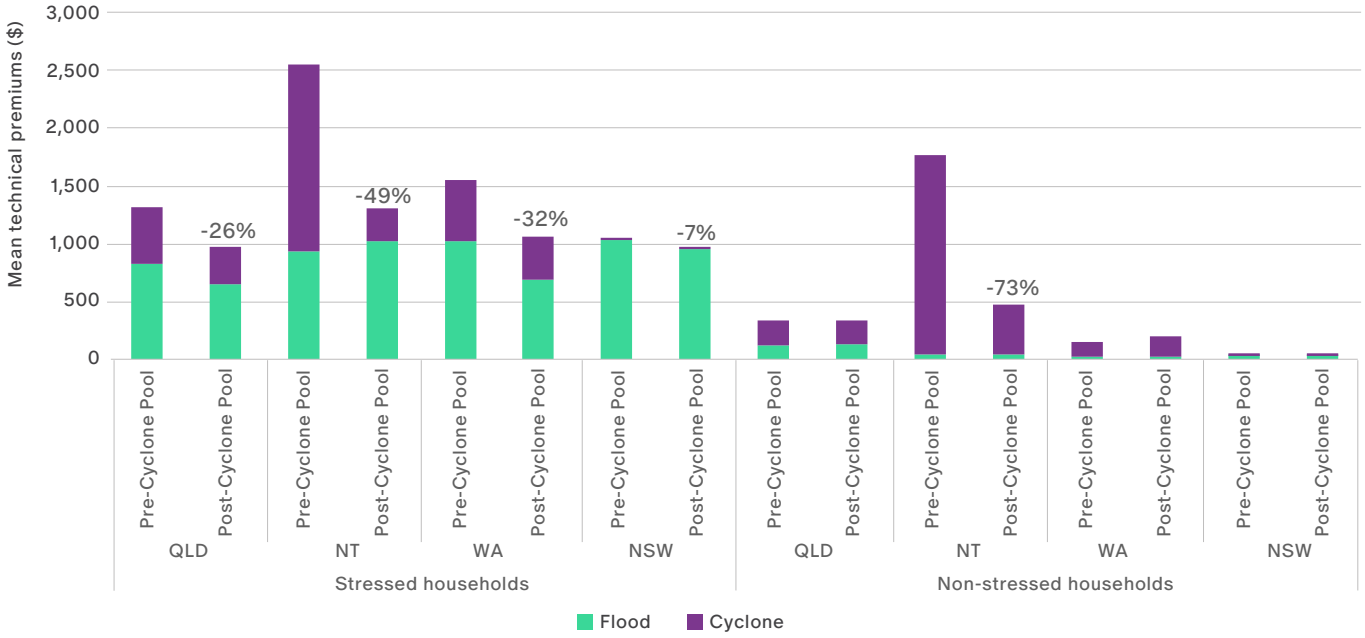


Figure 6.4 shows that the Cyclone Pool effectively targets the highest cyclone risks, but does not differentiate savings between affordability-stressed and non-affordability-stressed households. While the Cyclone Pool will provide significant savings in cyclone premiums for affordability-stressed households in cyclone-impacted states, it provides a similar level of savings for non-affordability-stressed households, particularly in the NT. That is, the Cyclone Pool does not specifically differentiate between households' ability to pay.

15. We have assumed that insurers will respond to more affordable premiums in the NT by reducing the level of cross-subsidies in loss-making policies. This may not be the actual outcome of the implementation of the Cyclone Pool in these regions.

Figure 6.4 also shows that flood premiums make up a substantial portion of the premiums for affordability-stressed households. In QLD, WA and NSW, the flood premiums make up a larger component of total premiums than the cyclone premium for stressed households. In comparison, there is minimal exposure to flood risk for non-stressed households. As discussed in Section 4.2, this suggests that poorer households tend to live in regions exposed to significant flood risk. While the Cyclone Pool also translates into some savings for cyclonic flooding – particularly in QLD and WA – the pool does not fully address affordability issues caused by high exposure to flood risk.

Figure 6.5 compares the median AAHIA for affordability-stressed households, pre- and post- implementation of the Cyclone Pool by LGA.

Figure 6.5 – Change in median AAHIA by LGA for affordability-stressed households: post-Cyclone Pool

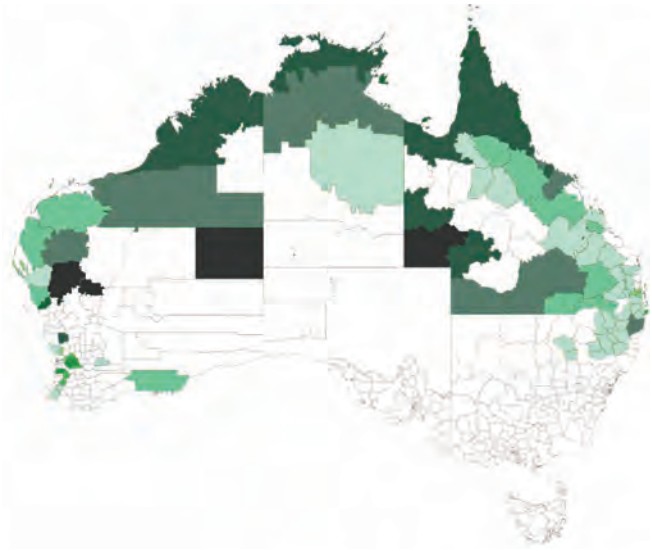


Figure 6.5 shows that full adoption of the Cyclone Pool is expected to reduce affordability pressures for households that currently face affordability stress and have risk exposure to cyclone or cyclone- related flooding. This is evident in Northern QLD, the NT and in the north of WA, where for some LGAs the median AAHIA is expected to improve by more than 2 weeks. There are some areas where affordability pressures may experience modest increases; however, broadly speaking, this will have a minimal impact and is reflective of modelling differences.

> "The Cyclone Pool translates to some savings for cyclonic flooding but does not, and is not intended to, fully address affordability issues due to flood risk"

References

Australian Bureau of Statistics. (2023, November). *Average Weekly Earnings, Australia*. Retrieved from: https://www.abs.gov.au/statistics/labour/earnings-and-working-conditions/average-weekly-earnings-australia/latest-release

Australian Bureau of Statistics. (2022, December 16). *Overseas Migration*. Retrieved from: https://www.abs.gov.au/statistics/people/population/overseas-migration/latest-release#:~:text=Net%20overseas%20migration,-Net%20overseas%20migration&text=In%20the%20year%20ending%2030,net%20loss%20of%2085%2C000%20people.

Australian Bureau of Statistics. (2022, April 28). *Survey of Income and Housing, User Guide, Australia.* Retrieved from: https://www.abs.gov.au/statistics/detailed-methodology-information/concepts-sources-methods/survey-income-and-housing-user-guide-australia/2019-20/weights

Australian Bureau of Statistics. (2023, April 28). *Producer Price Indexes, Australia*. Retrieved from: https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/producer-price-indexes-australia/mar-2023

CoreLogic. (2023, January 16). *CoreLogic*. Retrieved from: https://www.corelogic.com.au/news-research/news/2023/australian-construction-costs-hit-new-high,-but-signs-of-easing-emerge

Finity Consulting. (2022). *Cyclone Reinsurance Pool - Summary of the Actuarial Premium Rate Assessment. Australian Reinsurance Pool Corporation.* Retrieved from: https://arpc.gov.au/what-we-do/the-cyclone-pool/premium-pricing/

Paddam, S., Liu, C., & Philip, S. (2022). *Home insurance affordability and socioeconomic equity in a changing climate.* Actuaries Institute. Sydney. Retrieved from: https://actuaries.asn.au/Library/Opinion/2022/HIAGreenPaper.pdf. Actuaries Institute.

Phillips, K. (2016, April 13). The mining boom that changed Australia. *ABC News (Australian Broadcasting Corporation).* Retrieved from: https://www.abc.net.au/radionational/programs/rearvision/the-mining-boom-that-changed-australia/7319586

S&P Global. (2023, January 25). *Pricing Momentum is Helping Reinsurers Turn The Corner.* Retrieved from: https://www.spglobal.com/ratings/en/research/articles/230125-pricing-momentum-is-helping-reinsurers-turn-the-corner-12620048

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