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The role of financial literacy when paying for aged care

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Abstract

Deciding how to pay for accommodation when entering residential aged care in Australia is complex. It can impact the residents' income, savings and wealth, along with their bequest value. Many older Australians and their informal carers lack financial literacy, which increases the likelihood of making suboptimal accommodation payment decisions. This may be exacerbated by cognitive decline. Our study examines how the financial literacy of informal carers impacts accommodation payment decisions made by Australians when entering residential aged care. It draws on an Australia wide survey to measure financial literacy among informal carers who helped residents make their accommodation payment decision. We used a set of regressions to estimate the relationship between the respondent characteristics and financial literacy, financial literacy and financial adviser use, and financial literacy and accommodation payment decision confidence, complexity, and stress. We found less than half of respondents were financially literate. Many exhibited underconfidence in their financial literacy, while others were overconfident. Both may lead to suboptimal accommodation payment decisions. We found aged care providers had a greater impact on using a financial adviser than financial literacy, suggesting a principal-agent relationship exists. Our results suggest higher financial literacy may reduce some decision complexity but its relationship with decision confidence was weak and its relationship with decision stress was not significant. These relationships were moderated by the perceived time available to decide on an accommodation payment. Increasing financial literacy is unlikely to substantially help people make a better accommodation payment decision. Increasing access to financial advice may reduce the likelihood of making suboptimal decisions, but limited trust and anxiety with using a financial adviser means there is no guarantee that people would use this service. Making the accommodation payment choice simpler may increase welfare by reducing the potential to make a suboptimal accommodation payment decision and reducing decision stress.

JEL classification: D14, G41, G51, G53, I18

Key words: Aged care, accommodation payment, financial adviser, complex financial decision, financial literacy, wealth

Introduction

Every year around 60,000 Australians enter residential aged care, of which 60 per cent pay for their accommodation. They can pay using a lump sum payment known as a refundable accommodation deposit, a rental payment known as a daily accommodation payment, or a combination of both (Aged Care Financing Authority, 2020). Deciding how to pay for accommodation is complex. It can impact a resident's aged pension, how much they pay for care services, their access to subsidised healthcare, and their annual taxation obligation. Many residents sell their home to pay for accommodation, with substantial leftover funds to be invested elsewhere. These decisions must be made despite many lacking financial literacy (Agnew et al., 2013) and many experiencing age-related cognitive decline.

Higher financial literacy is associated with better financial outcomes (Lusardi and Mitchell, 2014). Conversely, individuals with poor financial literacy are more likely to make suboptimal retirement decisions and experience worse wealth outcomes (Ameriks et al., 2003, Fong et al., 2019, Van Rooij et al., 2012, Martin and Finke, 2014). This paper examines the role of financial literacy in making an accommodation payment decision when entering residential aged care in Australia. We explore whether financial literacy influences the decision to consult a financial adviser and whether financial literacy impacts decision confidence, stress, and perceived decision complexity.

Our data is derived from surveying 589 informal carers who substantially helped a resident decide on how to pay for permanent residential aged care accommodation. We employed a validated financial literacy measure used in multiple developed countries known as the 'Big Three' questions, which seeks to measure literacy on inflation, interest rate, and risk diversification (Lusardi and Mitchell, 2011). We also asked respondents to self-rate their financial literacy, whether they used a financial adviser when making an accommodation payment decision, and asked questions on respondent and resident characteristics that may impact the decision.

We found less than half of all respondents were financially literate. Many were underconfident in their financial literacy, while others were overconfident, potentially leading to accommodation payment decision mistakes (Forbes and Kara, 2010). Higher financial literacy was associated with being male, being middle-aged, having higher educational attainment, and having a higher self-rated ability to work with financial information. Our results are consistent with research on financial literacy conducted in Australia and other countries (Lusardi and Mitchell, 2014, Agnew et al., 2013, Agnew and Szykman, 2005).

We found higher financial literacy measured by the 'Big Three' questions was unlikely to have increased the likelihood of using a financial adviser. The only individual-level variable that may have impacted financial adviser use was decision stress. Using a two-part financial literacy measure combining actual ('Big Three') and self-rated financial literacy, we found highly financially literate individuals were more likely to seek financial advice if they perceived their financial literacy to be low. This suggests underconfidence in financial ability impacts the demand for financial advice, which is consistent with research that finds overconfident people seek out less financial advice (Kramer, 2016).

Residential aged care providers may also impact the likelihood of using a financial adviser. A respondent was more likely to use a financial adviser if the provider suggested using a financial adviser, or the provider informed them that they had 28 days to make a payment decision once the resident entered care. This indicates a potential principal-agent relationship (Jensen and Meckling, 1976), given providers can influence accommodation payment decisions by the amount of information they provide.

We found higher financial literacy likely reduced decision complexity but had a weak relationship with decision confidence and no significant relationship with decision stress. The decision context moderated these relationships. Higher financial literacy was associated with greater confidence and reduced decision complexity only if there was enough perceived time to make the decision. Financial literacy was also positively associated with decision confidence, but only if the provider had not expressed a preference for a specific payment type. Provider behaviour alone was significantly related to decision confidence, perceived decision complexity, and decision stress, further strengthening the likelihood of a principal-agent relationship.

Our study contributes to the literature on characteristics that impact financial literacy (National Seniors Productive Ageing Centre, 2013, Xue et al., 2019, Agnew et al., 2013) and the role of financial literacy in seeking financial advice (Collins, 2012, Calcagno and Monticone, 2015, Kim et al., 2019, Kramer, 2016). It also adds to the literature on the role of self-rated financial literacy in making financial decisions (Allgood and Walstad, 2016, See et al., 2011, Parker et al., 2012), and the impact of financial literacy on emotive characteristics that impact financial decisions (DellaVigna, 2009, Gabaix et al., 2006, Porcelli and Delgado, 2009, Kahneman and Frederick, 2002, Morgado et al., 2015).

Our study is the first to identify poor financial literacy among people making aged care accommodation payment decisions in Australia and the first to identify significant decision complexity, underconfidence, and high decision stress within the accommodation payment decision. Our results suggest many accommodation payment decisions may be suboptimal from a financial perspective.

This has obvious policy relevance as the Australian Government legislates the accommodation payment choice. Increasing financial literacy through education programs or more information is unlikely to substantially increase decision confidence, reduce decision stress, or reduce decision complexity. The capacity to improve financial literacy is also limited by the time allowed to make an accommodation payment decision and provider influence on the consumer's decision.

Subsidising access to financial advisers could benefit some decisions, particularly if providers recommend consumers seek financial advice and inform consumers that they have 28 days to make an accommodation payment decision after entering care. Extending the amount of time allowed to make an accommodation payment decision may also promote greater financial adviser use, leading to more optimal decisions. However, consumers with low financial literacy may not seek out financial advice due to anxiety, and those with low financial literacy may lack the capacity to use financial advice beneficially.

Our results suggest the Australian Government should consider simplifying the accommodation payment decision by making consumers rent their accommodation. This would reduce accommodation payment choice, but given decision complexity and lack of financial literacy among consumers, a distinct lack of informed consumer choice already exists. Restricting choice in this instance could reduce decision stress and improve consumer welfare.

Related literature

Our study is the first to measure financial literacy and its impact on making an aged care accommodation payment decision in Australia. By measuring financial literacy within this population and how financial literacy impacts their use of a financial adviser and decision-making, we implicitly investigate the likelihood of consumers making suboptimal financial decisions that could significantly reduce a resident's income, savings and wealth, along with their bequest value.

Australian studies have identified poor financial literacy among older Australians (National Seniors Productive Ageing Centre, 2013, Xue et al., 2019, Agnew et al., 2013). However, these studies have explored which individual characteristics impact financial literacy and measure the impact of poor financial literacy on financial decisions more generally, such as on retirement planning.

Several papers have also focused on the relationship between financial literacy and complex financial decisions. These have explored different investment types, such as retirement planning (Agnew et al., 2013, Van Rooij et al., 2011, Van Rooij et al., 2012) portfolio dynamics (Bianchi, 2018, Abreu and Mendes, 2010, Koh et al., 2018, Von Gaudecker, 2015) stock/derivatives market participation (Thomas and Spataro, 2018, Hsiao and Tsai, 2018) and savings decisions (Jappelli and Padula, 2013).

Financial literacy is positively associated with better financial outcomes (Lusardi and Mitchell, 2014). Financially literate individuals are more likely to invest in the stock market, plan for retirement, and develop a savings plan (Van Rooij et al., 2012, Agnew et al., 2013). They are also more likely to contribute to a more diversified and complex investment portfolio and greater wealth outcomes (Koh et al., 2018). While more financially literate individuals hold portfolios with greater risk, they can better smooth their risk exposures over time (Bianchi, 2018).

Individuals with poor financial literacy often fare worse in their financial decision outcomes. They are more likely to make suboptimal retirement decisions and experience worse wealth outcomes (Ameriks et al., 2003, Fong et al., 2019, Van Rooij et al., 2012, Martin and Finke, 2014). They are more likely to make financial mistakes and shy away from participating in financial markets, resulting in substantial welfare loss (Campbell 2006, Calvert et al., 2007).

Our study adds to emerging research on factors that impact the demand for financial advice. It is the first to measure decision maker characteristics that may influence whether a financial adviser is consulted when making an aged care accommodation payment decision in Australia. While our study rest within an Australian aged care context, choosing an accommodation payment decision can be characterised as a complex financial decision. Our results therefore have implications for other types of complex financial decisions such as retirement planning.

The general conclusion from both empirical work and theoretical models is that financial literacy complements financial advice (Collins, 2012, Calcagno and Monticone, 2015). Calcagno and Monticone (2015) found investors with low financial literacy were less likely to consult a financial adviser because they could not learn from the advice. Van Rooij et al. (2012) found people with higher financial literacy demand more formal financial advice, including from a financial adviser. Gerrans and Hershey (2017) found poor financial literacy increased anxiety towards meeting a financial adviser, preventing Australians from seeking financial advice. Trust and anxiety have also been incorporated into theoretical models of financial adviser use and behaviour (Gennaioli et al., 2015).

Some studies have challenged whether the relationship between financial literacy and using a financial adviser is complementary. Kim et al. (2019) found that financial literacy did not significantly impact using a financial adviser for money management and investment decisions in the US when controlling for cognitive ability. Kramer (2016) also found no significant relationship between measured financial literacy and seeking a financial adviser among a cohort of German households and investors. Instead, they found a significant negative relationship between self-rated financial literacy and seeking a financial adviser, suggesting financial literacy could potentially substitute financial advice. Our study adds more evidence to this debate.

Little attention has been paid in the literature to the effects of self-rated financial literacy on financial decisions, despite the potential usefulness of self-rated financial literacy in explaining financial behaviours. Allgood and Walstad (2016) analysed literacy across four types of financial

decisions (credit cards, investments, mortgages or loans, and insurance) and financial advice, finding perceived financial literacy to be just as important as measured financial literacy when explaining financial behaviour. They found combining perceived and measured financial literacy measures had the greatest explanatory power for financial behaviours.

A similar result was found by Anderson et al. (2017) when examining the relationship between perceived and actual financial literacy with decisions regarding precautionary savings and retirement planning. Self-rated financial literacy can also proxy for confidence in financial knowledge, which can impact the demand for financial advice but also lead to financial mistakes (See et al., 2011, Parker et al., 2012). Our study builds on this literature by estimating the relationship between financial literacy (measured and self-rated) and using a financial adviser when deciding on an accommodation payment.

Finally, our study is the first to evaluate the impact of financial literacy on emotive decision characteristics, including decision confidence, perceived decision complexity, and decision stress. Reduced decision confidence and increased decision complexity are likely to increase the likelihood of making a suboptimal decision. Research suggests people simplify complex decisions by ignoring complex information or by being myopic (Gabaix et al., 2006). People can employ simplifying decision heuristics when faced with a complex financial decision, such as excess diversification, preference for the familiar, preference for the salient, or avoiding the choice altogether (DellaVigna, 2009).

Similarly, acute stress can interfere with rational decision-making by modulating risk-taking behaviours (Porcelli and Delgado, 2009). The decision maker may rely less on higher order cognition and more on heuristics containing systematic biases (Kahneman and Frederick, 2002). When there is uncertainty, acute stress tends to exacerbate these biases in decision-making, although the effect is dependent on individual characteristics (Morgado et al., 2015). Understanding the relationship between financial literacy and decision confidence, decision stress, and perceived decision complexity can therefore provide some indication of whether consumers are making accommodation payment decision mistakes when entering residential aged care.

Background

The Australian residential aged care sector housed and delivered care to 242,612 residents in 2018-19 (Aged Care Financing Authority, 2020). The Australian Government subsidises a resident based on an assessment of their income and assets. Fully supported residents, which make up around half of all residents, do not pay for their care services or accommodation. Partially supported residents pay some accommodation costs, while unsupported residents pay for all their accommodation costs and some also pay for care services.

Residents have several ways to pay for their accommodation. They can choose to provide a refundable accommodation deposit, a daily accommodation payment, or any combination of both. There is a spread of preference among consumers. In 2018-19, 35 per cent paid a refundable accommodation deposit, 41 per cent paid a daily accommodation payment, and the remainder paid a combination payment (Aged Care Financing Authority, 2020). Residents have 28 days once they enter care to decide how they will pay for accommodation and have six months to pay their agreed refundable accommodation deposit payment. The refundable accommodation deposit is returned in full to the resident or the estate when the resident exits the care facility.

Refundable accommodation payments are unique to the Australian residential aged care sector. They were introduced in 1997 to help providers undertake capital expenditure to meet new

building standards and build single bed rooms. Since then, refundable accommodation deposits have been mostly used by providers to finance significant refurbishment and renovations of facilities, and the development of new facilities. On 30 June 2019, there were 94,870 refundable accommodation deposits held by providers worth $30.2 billion in total. The average value of a refundable accommodation deposit held by a provider was $318,000 (Aged Care Financing Authority, 2020).

Providers are legislated to offer any combination of refundable accommodation deposit and daily accommodation payment. Providers cannot offer financial advice to consumers unless they hold a financial advice license. Some providers may try to encourage consumers towards choosing a refundable accommodation deposit, for example, by not exploring other payment options with the consumer. Interviews with providers suggest some providers offer fee discounts if a consumer selects a refundable accommodation deposit, although the extent of this practice within the sector is unclear (Cutler et al., 2021).

Choosing an accommodation payment type is potentially the most complex financial decision a resident will make in their lifetime. The decision is often made when the residents' cognitive skills are at their lowest and when they are potentially stressed and emotional from having to move into a residential aged care home. The average age of a resident entering residential aged care is 82.5 years for men and 84.8 years for women (Department of Health, 2020). Around 65 per cent of residents have a recorded diagnosis of dementia, while 83 per cent have some form of cognitive impairment (Dyer et al., 2018).

Many residents sell their home to pay for their accommodation. Selling a home is complex, requiring some understanding of the actual and forecast market value and the legal process for transferring deeds. Many residents will also have significant surplus funds after selling their home to invest elsewhere. Optimising financial return requires them to understand several asset classes, form some expectation of their returns relative to their risks, and perform calculations that require some understanding of interest rates and the time value of money (Lusardi, 2008).

Accommodation payment choices can also impact the income support consumers receive from the Australian Government. Means-testing is used to assess aged pension amounts and the amount a consumer is required to contribute for nursing care services. The Commonwealth Seniors Health Care, which provides discounts on medicine under Australia's subsidised drug program, and discounts on doctor visits, is also income tested. The amount of income received also dictates the amount of tax a resident will pay.

Most residents will have an informal carer to help them make an accommodation payment decision. Most informal carers are partners or children. They may also experience significant stress and emotional turmoil from helping their loved one move into a residential aged care facility, especially if it resulted from an unexpected health shock. Most informal carers are also likely to have poor financial literacy and are not able to fully comprehend the potential impact different accommodation payment types would have on the resident's financial circumstances.

There is likely an optimum accommodation payment choice for each resident from a financial perspective. This optimum would rest on the resident's financial circumstance, accommodation price, expected length of stay, level of risk tolerance, and views on future asset performance. Residents are thrust into making this complex financial decision. Having the numeracy skills and financial knowledge to make an optimal accommodation payment decision is essential for avoiding accommodation payment mistakes leading to worse financial outcomes.

Data

We conducted an online survey of informal carers who helped a resident make an accommodation payment decision when entering residential aged care between January 2016 to August 2020. Respondents were recruited online over June-August 2020. Each respondent was screened to ensure they had cared for a permanent resident of an aged care home and were significantly involved in helping that person make the accommodation payment decision. Respondents were also screened to ensure they had a good understanding of the resident's financial circumstances when they entered care.

The survey included nine groups of questions (Table 1). Financial literacy was measured using the 'Big Three' questions (Lusardi and Mitchell, 2008). These questions cover literacy on inflation, interest rate, and risk diversification and have been used in studies within Australia (Agnew et al., 2013) and other developed countries (Lusardi and Mitchell, 2011). Each question is presented in Appendix A. We also asked residents to self-rate their financial knowledge.

Table 1: Survey questions

Question theme	***Description of questions***
Accommodation payment choice	Question on whether the resident paid a RAD, DAP or a combination of both.
Assistance with accommodation payment choice and provider involvement	Questions on whether the respondent consulted a financial adviser, other information sources used, whether providers expressed a payment type preference or suggested using a financial adviser.
Paying for accommodation	Questions on factors considered when making the accommodation payment decision.
Feelings toward the payment process	Questions on whether provider informed the respondent of time available to decide, whether the respondent felt they had enough time, and questions on perceived decision complexity, confidence and stress.
Factors in choosing an aged care home	Questions on the period deciding on an aged care home, waiting period to enter an aged care home, and most important factors considered when choosing an aged care home.
Financial circumstances of the resident	Questions on how much the resident pays for accommodation, basic daily activities, care services, and extra services. Questions on income support received, along with the personal and financial circumstance of the resident before moving into an aged care home.
Financial literacy of the respondent	Questions to test understanding of inflation, interest rate and risk diversification. Question asking the respondent to self-rate their ability to understand financial information.
Sociodemographics of the respondent	Questions on age, gender, location of home, language spoken at home, education, and relationship to resident
Sociodemographics of the resident	Questions on age, gender, location of aged care home

There were 653 respondents that completed the survey. Respondents in the lowest tenth percentile for the time taken to complete the survey were dropped due to these being 'speeders'. They completed the survey in approximately 9 minutes or less (n=64). This was deemed inadequate for accurately answering the survey questions based on a focus group held on the

survey before making it public. These respondents also had a high proportion of implausible responses to some survey questions.

The total sample size after data cleaning was 589 respondents. This is comparable to other surveys that have explored the role of financial literacy in financial decision-making and seeking financial advice among investors (Calcagno and Monticone, 2015, Kramer, 2016). The characteristics of residents cared for by respondents were broadly representative of the Australian residential aged care population (Table 2). Residents were 1.5 years younger upon entry on average, and the proportion of male residents was two per cent more within the sample (Australian Institute of Health and Welfare, 2021).

The relationship between the resident and the respondent was mostly familial. Children acting as informal carers accounted for 49 per cent of the sample. In comparison, another 31 per cent had some other family connection, such as being a spouse, sibling, nephew or niece, grandchildren, in-law, uncle, or aunt. The remaining 20 per cent of respondents were the resident's friends.

Around 46 per cent of respondents had completed tertiary education. This suggests the sample was highly educated, given that 24 per cent of the Australian adult population has completed tertiary education (Australian Bureau of Statistics (ABS), 2017). This may reflect a selection process. More educated family members may have nominated themselves or been nominated by the family to help the resident navigate entry into aged care, which is often considered complex, confusing, and stressful. It may also reflect the self-selection of respondents into the survey.

Table 2: Resident and informal carer descriptive statistics

Variable	*N*	*Mean/Proportion*
Resident demographic characteristics		
Age	589	82.5 years
Gender: Male	589	35%
Marital status: Single	589	81%
Resident situation		
No one left in residence	589	73%
Moved from other residential aged care home	589	7%
Resident moved from a hospital to aged care home	589	36%
Resident faced a waiting period to get into aged care home	589	71%
Owned residence	589	69%
Owned additional residential property/properties	589	11%
Received government income support prior to residential aged care	589	55%
Receives partial government support for aged care accommodation payment	589	57%
Receives extra services at residential aged care[(a)]	589	35%
Regional characteristics of aged care home		
Metro area	589	70%
Inner-regional area	589	19%
Outer-regional area	589	9%
Remote area	589	1%
Very remote area	589	1%
State or territory		

Variable	*N*	*Mean/Proportion*
New South Wales	589	36%
Victoria	589	29%
Queensland	589	18%
Western Australia	589	7%
South Australia	589	6%
Tasmania	589	2%
Australian Capital Territory	589	2%
Northern Territory	589	0.3%
Payment type chosen		
Refundable accommodation deposit (RAD)	589	49%
Daily accommodation payment (DAP)	589	30%
Combination RAD and DAP payment	589	22%
Informal carer demographic characteristics		
Age	589	53.3 years
Male	589	38%
English-speaking	589	95%
Informal carer - highest educational attainment		
Year 12 or below	589	21%
Certificate/diploma	589	33%
Tertiary degree	589	46%
Informal carer's relation to resident		
Spouse	589	3%
Child	589	49%
Sibling	589	3%
Friend	589	20%
Nephew or niece	589	7%
Other[(c)]	589	18%

Note: (a) Some aged care homes offer extra hotel-type services, including specialised menus, better room furnishings, preferred brand of toiletries, access to paid TV services and hairdressing. (b) Including support from friends, rent from family home or other properties, aged care loan, reverse mortgage, refund from retirement village, personal loan or other. (c) Comprised mostly other familial relations, including grandchildren, in-laws and uncles/aunts.

Of all respondents, 76 per cent thought there was enough time to make an accommodation payment decision, although only 54 per cent were informed by the provider that they had 28 days after the resident entered care to make an accommodation payment decision (Table 3).

Many respondents sought informal help when making an accommodation payment decision, with 49 per cent relying on family and friends and 71 per cent seeking additional online information. Providers advised 40 per cent of respondents to use a financial adviser to help make the accommodation payment decision, while 37 per cent consulted a financial adviser. Of these, 87 per cent followed the financial adviser's advice on the recommended accommodation payment type.

Providers also contributed to the accommodation payment decision. Of all respondents, 48 per cent noted that the aged care home expressed a payment type preference. Only 54 per cent of

providers informed the respondent that the resident had 28 days to decide on an accommodation payment once they entered care, while 40 per cent of respondents noted a provider suggested they speak to a financial adviser before deciding.

Table 3: Decision context

Variable	*N*	*Proportion*
Contextual factors around decision-making		
Informal carer felt there was enough time to make an accommodation payment decision	589	76%
Sources of help used to assist decision-making:		
Help from family and friends	589	49%
Help from a GP or healthcare professional	589	11%
Used online information	589	71%
Financial adviser use:		
Consulted a financial adviser	564	37%
Followed financial adviser's payment advice	198	87%
Financial adviser price was >$2000	206	13%
Provider behaviour		
Aged care home expressed payment type preference	589	48%
Aged care home informed informal carer about 28-day decision-making period	589	54%
Aged care home suggested speaking to a financial adviser before making payment decision	589	40%

Highly financial literate respondents, defined as answering all 'Big Three' questions correctly, accounted for 48 per cent of the sample (Table 4). This was slightly higher than the average financial literacy measured in the general working age Australian population, which is 43 per cent (Agnew et al., 2013). This again may reflect selection by the respondent to help the resident make an accommodation payment decision to account for differences in the sample compared to the working age Australian population or selection into the survey. It could also be related to other factors known to correlate with financial literacy, such as age and education.

Respondents answered 2.3 financial literacy questions correctly on average. This is comparable to people who reported planning for financial decisions in a general population study (Agnew et al., 2013). The individual proportions answering the interest rate (86 per cent), inflation rate (71 per cent) and risk diversification (69 per cent) question correctly in the sample were also higher than the respective proportions in the general working-age Australian population, which was 83 per cent, 70 per cent and 55 per cent respectively (Agnew et al., 2013).

Most respondents thought their ability to work with financial information was 'good' (39 per cent), 'very good' (25 per cent) or 'excellent' (7 per cent). Only 3 per cent rated their ability as 'poor', despite the proportion of respondents getting one question or less correct being 20 per cent, suggesting there was some overconfidence in financial literacy. Around one-quarter of the total sample (24 per cent) reported that they would take substantial or above-average risks in investments with spare cash.

Table 4: Financial literacy, self-rated financial ability, and financial risk appetite

Variable	*N*	*Mean/Proportion*
Financial literacy ('Big Three' questions)		
- Number of questions answered correctly	589	2.25
- Zero questions answered correctly	589	4%
- One question answered correctly	589	16%
- Two questions answered correctly	589	32%
- Three questions answered correctly	589	48%
- Interest rate question answered correctly	589	86%
- Inflation question answered correctly	589	71%
- Diversification question answered correctly	589	69%
Self-rated ability to work with financial information[a]		
- Poor	589	3%
- Fair	589	25%
- Good	589	39%
- Very good	589	25%
- Excellent	589	7%
Two-part financial literacy measure[b]		
Perceived High / Actual High	589	15%
Perceived High / Actual Low	589	17%
Perceived Low / Actual High	589	31%
Perceived Low / Actual Low	589	37%
Appetite for financial risk		
Takes substantial/above average risks in investments with spare cash (0/1)	589	24%

Note: (a) The question asked was 'How would you rate your ability to work with financial information in everyday life?' (b) The two-part financial literacy measure was created by categorising respondents based on their actual financial literacy as measured using the 'Big Three' questions, and their perceived financial literacy as measured by their self-rated ability to work with financial information. Respondents were rated has having 'Perceived high' financial literacy if they self-rated their ability to work with financial information as 'very good' or 'excellent'. Respondents were rated as having 'Actual high' financial literacy if they answered all 'Big Three' questions correctly.

A two-part measure of financial literacy was developed that combined responses to the 'Big Three' questions and the respondent's self-rating of their ability to work with financial information. A two-part measure of financial literacy has proven useful for describing financial decisions elsewhere (Allgood and Walstad, 2016). Kramer (2016) used the same two-part measure to examine its impact on the likelihood of seeking financial advice, confirming self-assessed financial literacy played a larger and more significant role than measured financial literacy.

Respondents were defined as having high measured financial literacy if they answered all 'Big Three' questions correctly and low measured financial literacy otherwise. Respondents were also defined as having high perceived financial literacy if they noted their ability to work with financial information as 'very good' or 'excellent', and low perceived financial literacy otherwise. This resulted in four two-part financial literacy categories, including 'Perceived high / Actual high', 'Perceived high / Actual low', 'Perceived low / Actual high', 'Perceived low / Actual low'.

The two-part financial literacy measure suggests 37 per cent of respondents had 'Perceived low / Actual low' financial literacy (Table 4). These respondents may have had a limited understanding of the accommodation payment decision and were not confident in their financial ability. Only 15 per cent of respondents had 'Perceived high / Actual high' financial literacy. Nearly half of all respondents had a mismatch between their perceived and actual financial literacy. Of all respondents, 17 per cent had 'Perceived high / Actual low' financial literacy, suggesting these respondents may have been overly confident with their ability to work with financial information. Similarly, 31 per cent of all respondents had 'Perceived low / Actual high' financial literacy.

Primary outcome variables

We developed five primary outcome variables to assess decision confidence, decision complexity, and decision stress (Table 5). Decision confidence comprised of two questions to determine whether the respondent thought the accommodation payment decision was best for the resident financially and whether they would make the same accommodation payment decision given a choice.

Perceived decision complexity also comprised of two questions, including whether the respondent understood the difference between a lump sum payment and daily payment and whether they found deciding on how to pay for accommodation complex. Decision stress comprised of one question asking the respondent whether deciding on paying for accommodation was stressful for them.

Overall, 67 per cent of respondents felt certain that the decision made was best for the resident financially, indicating a low level of decision confidence for 33 per cent of respondents. However, 90 per cent of respondents noted they would make the same accommodation payment choice again. While 84 per cent of respondents reported that they understood the difference between accommodation payment types, 54 per cent still found the decision stressful, while 60 per cent found the decision complex.

Table 5: Summary of primary outcome variables

Variable	*N*	*Proportion*
Decision confidence		
[i] How certain do you feel that your accommodation payment decision was the best for the resident financially? ('Very certain or certain' = 1, zero otherwise)	589	67%
[ii] Would you make the same aged care home accommodation payment choice now compared to when the resident first entered care? ('Yes' = 1, zero otherwise)	589	90%
Perceived decision complexity		
[iii] Did you understand the difference between a lump sum payment and daily payments when making a decision on how to pay for accommodation? ('Yes' = 1, zero otherwise)	589	84%
[iv] "I found deciding on how to pay for accommodation complex" ('strongly agree' or 'agree' = 1, zero otherwise)	589	60%
Decision stress		
[v] "Deciding on how to pay for accommodation was stressful for me". ('strongly agree' or 'agree' = 1, zero otherwise)	589	54%

Methods

The role of financial literacy when paying for residential aged care was assessed using a set of equations with latent dependent variables. Different model specifications were used based on the outcome measure under investigation.

We first investigated the relationship between respondent characteristics and financial literacy. An ordered logistic regression model was employed, with the outcome variable being the number of 'Big Three' questions answered correctly. We assumed that the latent variable 'financial literacy' (L_j^*) is linked to the observed variable (L_j) across four different categories when it crosses each threshold:

$$L_j = \begin{cases} j \; if \; \alpha_{j-1} < L_i^* \leq \; \alpha_j \\ 0 \quad\quad otherwise \end{cases} \text{ where } L_j \in 0,1,2,3$$

We regressed the response probability on selected regressors informed by empirical studies conducted in Australia and other countries. The estimation was performed by maximum likelihood using the following conditional probability model given by:

$$\Pr(L_i = j|\, x) = F\left(\alpha_j - \beta x_i'\right) - \; F(\alpha_{j-1} - \; \beta x_i')$$

where *F(z)* is the logistic cumulative density function, x_i' is the regressor vector of selected respondent characteristics, and β is the K x 1 parameter vector.

We also undertook a sensitivity analysis by defining financial literacy as answering all 'Big Three' questions correctly and regressing this outcome variable against the same selected respondent characteristics using binomial logistic regression.

We then investigated the relationship between resident and respondent characteristics and provider behaviour on the decision to consult a financial adviser. A binomial logistic regression model was employed, with the outcome variable being whether the respondent had used a financial adviser. We assumed that the latent variable 'financial adviser' (A_j^*) is linked to the observed variable (A_j) across two different categories:

$$A_j = \begin{cases} 1 \; if \; a \; financial \; advisor \; was \; used \\ 0 \quad\quad\quad\quad otherwise \end{cases}$$

We regressed the response probability on select resident characteristics and respondent characteristics. This included a baseline measure of financial literacy represented by whether the respondent had answered all 'Big Three' questions correctly, and sensitivity analyses that included self-rated financial literacy and the two-part financial literacy measure, while keeping all other regressors the same. We included provider characteristics to assess the potential relationship between the provider and using a financial adviser. The estimation was performed by maximum likelihood with the conditional probability model given by:

$$p_i \equiv \Pr[A_i = 1|x] = F(x_i', \beta), \qquad i = 1, \ldots, N$$

where *F(z)* is the logistic cumulative density function one, x_i' is the regressor vector, and β is the K x 1 parameter vector.

Finally, we investigated the relationship between financial literacy on the respondent's self-reported decision confidence, complexity and stress. There were five binary outcome variables

used within the analysis, each representing answers to the questions presented in Table 5. Binomial logistic regression was employed for all analyses.

Our baseline measure of financial literacy was represented by answering all 'Big Three' questions correctly. We decomposed financial literacy into its three domains by regressing the five outcome variables on each financial literacy question. We also assessed financial literacy using the respondent's self-rated ability to use financial information and the two-part financial literacy measure.

Other characteristics expected to impact the outcomes were included in the regression equations (see Appendix B). These included responses to questions on the context within which the accommodation payment decision was made, such as whether the respondent thought there was enough time to make the decision, sources of informal help used, use of a financial adviser, and provider behaviour within the decision-making process. Select variables were interacted with financial literacy to determine whether the impact of financial literacy was moderated by the decision-making context.

We used the Huber-White robust estimator of variance to estimate heteroscedasticity consistent standard errors across all estimations.

Results

We developed three sets of results to examine financial literacy's role in making an accommodation payment decision. This included the relationship between financial literacy and respondent characteristics, factors that influenced the respondent to seek financial advice, and the impact of financial literacy on decision confidence, complexity, and stress.

Financial literacy and respondent characteristics

Financial literacy was significantly associated with several respondent characteristics (Table 6). Higher financial literacy was significantly associated with being male. A hump-shaped pattern of financial literacy was evident across age. Being younger (less than 45 years old) and being older (65 years and older) were significantly associated with lower financial literacy. Having a tertiary degree was associated with higher financial literacy.

Our results concord with other studies. These have found low levels of financial literacy in the general Australian population (Xue et al., 2019, Agnew et al., 2013) and that financial literacy varies across adult population characteristics. Men tend to have greater financial literacy (Jappelli and Padula, 2013, Agnew et al., 2013, Lusardi, 2008). Individuals with lower education levels have lower financial literacy (Lusardi, 2008, Agnew et al., 2013), as do individuals without university education (Lusardi and Mitchell, 2014).

Other studies have also found financial literacy to be low in young people, to peak throughout middle age, and then decline after retirement (Lusardi and Mitchell, 2014, Stolper and Walter, 2017, Lusardi, 2019, Kalmi and Ruuskanen, 2018). This pattern is consistent with a theoretical model of lifecycle financial literacy where individuals undertake investment in financial knowledge to the point where their marginal time and money costs are equal to the marginal benefits of investment (Lusardi and Mitchell, 2014).

Table 6: Relationship between financial literacy and respondent characteristics

Variable	*Coeff.*	*Robust s.e.*	*p-value*
Male	0.697***	0.183	0.000
English-speaking background	-0.857*	0.489	0.080
Age group (reference group: 65+ years):			
Less than 45 years	-0.704**	0.314	0.025
45-64 years	0.223	0.223	0.319
Highest educational attainment (reference group: tertiary degree):			
Year 12 or below	-0.776***	0.209	0.000
Certificate/diploma	-0.661***	0.191	0.001
Reports taking substantial or above-average investment risks	-0.078	0.207	0.707
Self-rated ability to work with financial information (reference group: very good/excellent):			
Poor/fair	-0.867***	0.218	0.000
Good	-0.027	0.187	0.884
Intercept 1	-4.663	0.605	
Intercept 2	-2.711	0.556	
Intercept 3	-1.066	0.549	
Chi-Square:		61.29	
Prob > Chi-Square:		0.000	
N		*589*	

*p<0.1**
*p<0.05***
*p<0.01****

Financial literacy was also significantly associated with self-rated ability to work with financial information. Respondents with 'poor' or 'fair' self-rated ability to work with financial information were more likely to have lower financial literacy measured using the 'Big Three' questions than those rating themselves as 'very good' or 'excellent'. Our results make intuitive sense and concord with Kramer (2016), who found the relationship between measured financial literacy and self-assessed financial literacy to be positive and significant, although relatively weak.

A sensitivity analysis was undertaken using a binomial logistic regression by defining being financially literate as answering all 'Big Three' questions correctly. The results support the significant associations between higher financial literacy and male gender, tertiary education, and self-rated ability to work with financial information. The association for the younger age group became insignificant at the 10 per cent level.

Financial literacy and financial adviser use

Few factors were significantly associated with using a financial adviser (Table 7). Respondents caring for residents who had moved from another residential aged care home were significantly more likely to have used a financial adviser. This may be due to greater experience and familiarity with the complexity of accommodation payment decisions, and hence greater knowledge around the potential usefulness of consulting a financial adviser.

Table 7: Factors influencing the choice to seek a financial adviser

Variable	*Coeff.*	*Robust s.e.*	*p-value*
Resident characteristics:			
Age	-0.007	0.013	0.577
Gender	0.002	0.224	0.992
Single	-0.014	0.275	0.959
Resident situation:			
Received government income support prior to residential aged care	0.120	0.218	0.581
Moved from other residential aged care home	0.808**	0.400	0.043
Informal carer characteristics:			
Male	-0.206	0.226	0.362
English-speaking	0.063	0.502	0.900
Age group (reference group: 65+ years):			
- Less than 45 years	-0.364	0.456	0.424
- 45-64 years	-0.122	0.387	0.752
Financial literacy – all 'Big Three' questions correct (1 = all correct)	0.289	0.223	0.195
Highest educational attainment (reference group: tertiary degree):			
- Year 12 or below	0.187	0.290	0.520
- Certificate/diploma	0.042	0.252	0.869
Reports taking substantial or above-average investment risks	0.186	0.250	0.458
Felt had enough time to make payment decision	0.124	0.292	0.670
Agreed that the decision was stressful	0.570**	0.237	0.016
Agreed that the decision was complex	0.174	0.299	0.559
Provider characteristics/influence:			
Suggested consulting a financial adviser	2.138***	0.214	0.000
Informed informal carer about 28-day decision-making period	0.694***	0.237	0.003
Expressed payment type preference	0.135	0.229	0.555
Aged care home in outer-regional or remote area	-0.464	0.367	0.207
Intercept	-2.152	1.329	0.105
Chi-Square:		137.99	
Prob > Chi-Square:		0.000	
N		*555*	

*p<0.1**
*p<0.05***
*p<0.01****

The only respondent characteristic that had a significant relationship with using a financial adviser was the respondent reporting that the decision was stressful. This intuitively makes sense as those finding the decision stressful may seek help from a financial adviser. Decision

complexity was not significantly associated with using a financial adviser, nor was financial literacy or educational attainment.

Significant relationships were found between provider behaviour and the respondent seeking a financial adviser. The respondent was more likely to have consulted a financial adviser if the provider had suggested using a financial adviser. Furthermore, a respondent was more likely to have consulted a financial adviser if the provider informed them they had 28 days to make an accommodation payment decision once the resident entered care. This suggests that information given to the respondent by the provider impacted the decision-making process. A provider expressing an accommodation payment type preference was not significantly associated with using a financial adviser.

A sensitivity analysis was undertaken to determine whether alternative definitions of financial literacy were significantly related to using a financial adviser. These included the respondent's self-rated ability to work with financial information and the two-part financial literacy measure. The association with the self-rated financial literacy measure was negative, suggesting those with more confidence in their ability were less likely to use a financial adviser, although this relationship was insignificant (Table 8).

A significant and positive relationship was found between respondents with 'Perceived low / Actual high' financial literacy and using a financial adviser, compared to respondents with 'Perceived low / Actual low' financial literacy. These respondents may have sought financial advice because they were underconfident in their financial literacy skills, but thought they had the capability to understand the financial advice. They may have used their high financial literacy to better recognise that the accommodation payment decision was complex.

Table 8: Financial adviser and alternative financial literacy measures

Variable	*Coeff.*	*Robust s.e.*	*p-value*
Self-rated financial literacy (reference: self-rating of 'poor'/'fair'/'good')			
Perceived high financial literacy – self-rating of 'very good' or 'excellent'	-0.248	0.240	0.301
Two-part financial literacy (reference: perceived low/actual low)			
- Perceived high/Actual high	-0.179	0.341	0.601
- Perceived high/Actual low	0.439	0.330	0.183
- Perceived low/Actual high	0.725***	0.274	0.008

p<0.1
*p<0.05***
*p<0.01****

Financial literacy and decision confidence, complexity and stress

The relationship between financial literacy and decision confidence, complexity, and stress was mixed (Table 9). Financial literacy was significantly related to one component of complexity. Respondents that answered all 'Big Three' questions correctly were significantly more likely to have understood the difference between lump sum and daily payments. Financial literacy was not significantly associated with whether the respondent thought the decision was complex. A significant relationship was also not found between financial literacy and decision confidence or decision stress.

We explored other factors beyond financial literacy that may impact decision confidence, decision complexity, and decision stress. This was to test whether the decision-making

environment influenced the relationship. Results suggest respondents with enough time to make an accommodation payment decision were more confident with their accommodation payment decision. They also considered the decision less complex and less stressful (Table 9).

Provider behaviour was also found to significantly impact the decision process, which may indicate a potential principal-agent relationship that could be used by providers to impact decisions. Respondents informed by providers that they had 28 days to decide once the resident entered care were more confident with their accommodation payment decision and considered the decision less complex and less stressful. Provider behaviour did not significantly impact the respondent's understanding of the difference between lump sum and daily payments.

Respondents told by a provider that it preferred a specific accommodation payment type were less certain that their decision was best for the resident financially. The respondent also thought the decision was more complex, although this result must be interpreted with caution. Provider preference would be endogenous to decision complexity if the respondent asked the provider what type of accommodation payment it preferred because of decision complexity.

Our baseline results suggested the relationship between financial literacy and decision confidence or decision stress was insignificant, and there was only a significant positive relationship with reduced decision complexity. Other factors beyond financial literacy seemed to have a stronger relationship with the accommodation payment decision. We therefore evaluated whether there was a significant relationship between individual components of financial literacy and decision confidence, decision complexity and decision stress (Table 10).

Responses to each 'Big Three' question were used to create three variables that were regressed onto the five outcome variables representing decision confidence, complexity, and stress. We found only one significant relationship between understanding inflation and understanding the difference between lump sum payments and daily payments.

We also evaluated the relationship between financial literacy and decision confidence, decision complexity, and decision stress using two additional financial literacy measures (Table 10). First, we defined financial literacy based on how the respondent's self-rated ability to work with financial information in everyday life. Respondents that noted they were either 'very good' or 'excellent' were categorised as financially literate. Second, we defined financial literacy using our two-part measure.

We found consistent results across these alternative financial literacy measures. A respondent self-rating their financial literacy as 'very good' or 'excellent' was more likely to understand the difference between a lump sum payment and a daily payment. There was no significant relationship between self-rated financial literacy and all other outcome variables used to measure decision confidence, decision complexity, and decision stress.

Similarly, the two-part financial literacy measure was significantly associated with the likelihood of a respondent understanding the difference between lump sum and daily payments. Respondents with 'Perceived high / Actual high' financial literacy had the highest likelihood of understanding the payment decision, relative to those with 'Perceived low / Actual low' financial literacy.

Table 9: Factors impacting decision confidence, complexity, and stress

	Decision confidence						***Perceived decision complexity***						***Decision stress***		
Outcome variable	***[i] Decision confidence: 'decision was best for the resident financially'***			***[ii] Would you make the same aged care home accommodation payment choice now compared to when the resident first entered into care?***			***[iii] Understood the difference between lump sum and daily payments***			***[iv] Decision was complex***			***[v] Decision was stressful***		
Covariate of interest:	***Coeff.***	***Robust s.e.***	***p-value***	***Coeff.***	***Robust s.e.***	***p-value***	***Coeff.***	***Robust s.e.***	***p-value***	***Coeff.***	***Robust s.e.***	***p-value***	***Coeff.***	***Robust s.e.***	***p-value***
Financial literacy – all 'Big Three' questions correct (1 = all correct)	0.076	.232	0.742	0.357	.347	0.304	0.642**	0.312	0.039	-0.124	0.208	0.550	-0.303	0.257	0.239
Informal carer felt they had enough time to make the decision	1.429***	0.261	0.000	0.785**	0.371	0.034	1.207***	0.323	0.000	-0.976**	0.465	0.036	-1.793***	0.293	0.000
Provider behaviour:															
Informed informal carer about 28-day decision-making period	0.743***	0.237	0.002	0.538*	0.325	0.098	0.320	0.329	0.330	-0.516*	0.303	0.089	-0.397*	0.228	0.082
Expressed payment type preference	-0.558**	0.238	0.019	-0.274	0.350	0.434	-0.256	0.329	0.436	0.714**	0.281	0.011	-0.190	0.211	0.368
Intercept	-2.160	1.563	0.167	-2.332	2.075	0.261	-2.912	2.073	0.160	2.431	2.267	0.283	-2.835*	1.709	0.097
Chi-Square		111.45			76.57			81.35			86.67			97.96	
Prob > Chi-Square		0.000			0.000			0.000			0.000			0.000	
N		*555*			*555*			*555*			*555*			*555*	

Note: See Appendix B for full list of additional covariates.
*p<0.1**
*p<0.05***
*p<0.01****

Table 10: Sensitivity analyses using two alternative financial literacy measures

	Decision confidence						*Perceived decision complexity*						*Decision stress*		
Outcome variable	***[i] Decision confidence: 'decision was best for the resident financially'***			***[ii] Would you make the same aged care home accommodation payment choice now compared to when the resident first entered into care?***			***[iii] Understood the difference between lump sum and daily payments***			***[iv] Decision was complex***			***[v] Decision was stressful***		
Covariate of interest:	***Coeff.***	***Robust s.e.***	***p-value***	***Coeff.***	***Robust s.e.***	***p-value***	***Coeff.***	***Robust s.e.***	***p-value***	***Coeff.***	***Robust s.e.***	***p-value***	***Coeff.***	***Robust s.e.***	***p-value***
Individual 'Big Three' questions (1 = correct)															
Interest rate	0.163	0.293	0.578	-0.020	0.426	0.963	0.223	0.413	0.589	-0.743	0.455	0.103	-0.205	0.298	0.493
Inflation	-0.073	0.249	0.769	0.361	0.343	0.292	0.581*	0.317	0.067	0.311	0.285	0.274	0.297	0.240	0.217
Risk diversification	-0.020	0.244	0.936	0.351	0.345	0.309	0.210	0.314	0.504	-0.202	0.272	0.456	0.060	.221	0.787
N	*555*			*555*			*555*			*555*			*555*		
Perceived high financial literacy – self-rating of 'very good' or 'excellent' (*reference: self-rating of 'poor'/'fair'/'good'*)	0.367	0.237	0.121	0.236	0.348	0.497	0.571*	0.326	0.079	0.148	0.211	0.482	-0.353	0.278	0.204
N	*555*			*555*			*555*			*555*			*555*		
Two-part financial literacy (reference: Perceived low/Actual low)															
Perceived high/Actual high	0.499	0.359	0.165	0.348	0.521	0.504	1.059**	0.511	0.038	-0.633*	0.370	0.088	0.008	0.289	0.979
Perceived high/Actual low	0.223	0.320	0.487	0.667	0.451	0.139	0.704*	0.420	0.093	-0.177	0.419	0.672	0.210	0.302	0.487
Perceived low/Actual high	-0.026	0.276	0.925	0.685	0.420	0.104	0.730**	0.372	0.049	-0.170	0.340	0.618	-0.095	0.263	0.718
N	*555*			*555*			*555*			*555*			*555*		

Note: See Appendix B for full list of additional covariates.
*p<0.1**
*p<0.05***
*p<0.01****

Respondents with 'Perceived high / Actual high' financial literacy respondents were also more likely to state the decision being less complex, which likely reflects a greater understanding of the decision rather than overconfidence. This is suggested by the insignificant relationship found between either 'Perceived high / Actual low' respondents or 'Perceived low / Actual high' respondents and whether the respondent thought the decision was complex.

Financial literacy was also interacted with whether the respondent thought they had enough time to decide and provider behaviour (Table 11). This included whether the provider informed the respondent that they had 28 days to decide once the resident entered care and whether the provider expressed a payment preference. This allowed us to test whether the impact of financial literacy on decision confidence, decision complexity, and decision stress was modified by the decision context.

The decision context moderated the impact of financial literacy. Respondents with high financial literacy, defined as answering all 'Big Three' questions correctly, experienced increased decision confidence and reduced decision complexity when they had enough time to make the accommodation payment decision. These respondents were more likely to understand the difference between lump sum and daily payments. They were more likely to make the same accommodation payment choice now compared to when the resident first entered care. Respondents with high financial literacy also had significantly increased decision confidence and reduced decision complexity if the provider did not express a preference for an accommodation payment type.

Table 11: The impact of high financial literacy interacted with having enough time and provider behaviour on outcomes

	Decision confidence		*Perceived decision complexity*		*Decision stress*
Outcome variable	***[i] Decision confidence: 'decision was best for the resident financially'***	***[ii] Would you make the same aged care home accommodation payment choice now compared to when the resident first entered into care?***	***[iii] Understood the difference between lump sum and daily payments***	***[iv] Decision was complex***	***[v] Decision was stressful***
Without enough time to decide	-0.734	-0.518	0.542	0.725	-0.183
p-value	0.864	0.329	0.262	0.455	0.715
With enough time to decide	0.133	0.762*	0.703*	-0.410	-0.114
p-value	0.616	0.080	0.066	0.140	0.613
Not informed of 28 day period by provider	0.433	0.136	0.621	-0.565	0.238
p-value	0.174	0.677	0.130	0.203	0.433
Informed of 28 day period by provider	-0.311	-0.087	0.673	-0.155	-0.383
p-value	0.323	0.865	0.142	0.635	0.178
Provider did not express a payment preference	0.391	1.346***	0.932**	-0.452	-0.118
p-value	0.232	0.007	0.036	0.173	0.665
Provider expressed a payment preference	-0.184	-0.528	0.369	-0.050	0.132
p-value	0.554	0.285	0.387	0.906	0.671

Note: These results are for respondents with high financial literacy (defined as answering all 'Big Three' questions correctly). See Appendix B for full list of additional covariates.

*p<0.1**
*p<0.05***
*p<0.01****

Discussion

Our study explored how financial literacy impacts accommodation payment decisions made by Australians when entering residential aged care. Our results suggest many residents and their informal carers are unlikely to have made an informed accommodation payment decision due to choice complexity and the lack of financial literacy. This may have reduced the resident's income, savings, wealth and bequest value.

Less than half of all respondents in our sample answered all 'Big Three' questions correctly. Most respondents perceived the accommodation payment decision as stressful and complex and many were uncertain about their decision. This suggests many respondents ignored complex information and used simplifying heuristics when making an accommodation payment decision (Gabaix et al., 2006, DellaVigna, 2009, Porcelli and Delgado, 2009). Reduced cognition in old age may have further increased the likelihood of suboptimal accommodation payment decisions, given confidence in financial knowledge can remain even when cognition declines (Gamble et al., 2015).

Some respondents exhibited underconfidence in their financial literacy, while other respondents exhibited overconfidence. Overconfidence may induce risky decision behaviour (Tokar Asaad, 2015), such as not seeking help from a financial adviser when making an accommodation payment decision. Overconfident people can mistakenly consider themselves to be investment experts and shun professional advice (Kramer, 2016). Confidence in financial ability can unjustifiably rise with age among older people (Kim et al., 2019).

More than 60 per cent of respondents noted they did not seek a financial adviser when making an accommodation payment decision. Financial adviser anxiety can prevent individuals from initially seeking financial advice, attending follow-up sessions and may hinder the quality of the professional advice based on poor information flow from the individual (Gerrans and Hershey, 2017). Our survey found that most respondents relied upon online information (71 per cent) or help from family or friends (49 per cent) to make an accommodation payment decision.

Higher financial literacy can increase the likelihood of using a financial adviser as it reduces information search costs and reduces an individuals' psychological burden when making complex financial decisions (Maarten et al., 2012). That does not seem to occur within our study. We found an insignificant relationship between financial literacy and whether a respondent used a financial adviser, which aligns with other research on the relationship between financial literacy and seeking professional financial advice (Kim et al., 2019, Kramer, 2016).

We also found an insignificant relationship between self-rated financial literacy and whether a respondent used a financial adviser. This contrasts with Kramer (2016), who found a significant negative relationship between self-rated financial literacy and seeking a financial adviser among investors. However, respondents with 'Perceived low / Actual high' were more likely to seek financial advice, suggesting underconfidence increased the demand for financial advice. This aligns with Kramer (2016), who found people with 'Perceived high / Actual low' financial literacy were less likely to seek financial advice, suggesting overconfidence stopped people from seeking financial advice.

Our results suggest higher financial literacy is associated with reduced decision complexity through increased understanding of the difference between accommodation payment types. This relationship is enhanced when the respondent perceived they had enough time to decide on the accommodation payment type, and the provider did not express a payment type preference. Similarly, higher financial literacy was positively associated with decision confidence when these

two provider conditions were met. We found no significant relationship between financial literacy and decision stress.

Using a two-part financial literacy measure, respondents with 'Perceived high / Actual high' financial literacy understood the difference between lump sum and daily payments more and were less likely to note the decision was complex. This suggests respondent confidence also plays a part in whether the respondent understood the accommodation payment choice. The role of confidence in decision-making was also supported by our finding that only respondents with 'Perceived low / Actual high' financial literacy were more likely to use a financial adviser.

Our study has some limitations. While the 'Big Three' questions for capturing financial literacy and numeracy have been validated elsewhere, other financial literacy knowledge held by respondents may not be captured. Studies also use other question sets to measure financial literacy. We attempted to account for this potential missing data problem by also including self-rated ability to work with financial information.

Our results may also be impacted by unobserved omitted variables, particularly for our estimations on characteristics that impact financial adviser use. While we tried to control for this by including variables likely to impact demand, such as education, appetite for investment risk, and self-rated ability to work with financial information, some unobserved personal traits may be related to the demand for using a financial adviser and financial literacy. Any bias that does exist is expected to underestimate the true effect given this bias direction has been found elsewhere (Lusardi and Mitchell, 2014).

Conclusion

The Australian Government legislates that providers must allow a resident to pay for their accommodation using any combination of refundable accommodation deposit and daily accommodation payment. A government operated Financial Information Service is available to support people when entering residential aged care. This provides people with financial information on how an accommodation payment decision may impact their pension and aged care fees, but does not provide financial advice.

Our results suggest financial literacy education may help some consumers at the margin but is unlikely to substantially reduce suboptimal accommodation payment decisions. The relationship between financial education, improved financial literacy and better financial behaviour is weak due to inherent biases and heuristics. Poor financial literacy was pervasive among our respondents and had little relationship with decision complexity and decision stress. Both are associated with increased use of decision heuristics (Gabaix et al., 2006, DellaVigna, 2009, Kahneman and Frederick, 2002) and risk-taking behaviour (Porcelli and Delgado, 2009).

Complexity in making an accommodation payment decision means decision heuristics and biases will likely remain after receiving financial literacy education. There is also significant heterogeneity in financial circumstances among respondents, so financial literacy education must be tailored to individual resident financial and personal resident circumstances. It also requires some prediction on the future value of financial assets. Both needs are typically met through professional financial advice only.

The Australian Government could establish a financial adviser service or subsidise private financial adviser use, but there are several potential barriers to creating better accommodation payment decisions. Some may distrust government advice given it has an incentive to reduce age pensions and maximise co-contributions to care. This problem could be mitigated by devising

'choice architecture' that encourages the use of government advice, such as automatically enrolling consumers to receive financial advice based on individual assets, income and preferences and allowing them to opt out (Thaler and Sunstein, 2021).

Some may also distrust private financial advisers given their potential incentive to direct the consumer to sell the family home. Any significant assets left over must be invested elsewhere, giving the financial adviser an opportunity to recommend financial products. Some people may also be underconfident in being able to understand financial information or be overconfident in their ability to understand financial information, thereby rejecting the need for advice. There is also no guarantee the person receiving financial advice will understand the information received, or use it when making an accommodation payment decision.

While there is a financial incentive for residents to make an optimal accommodation payment decision, there is a potential lack of interest even if financial advice was accessible. This is the experience of some for superannuation. Australians are subject to compulsory superannuation, which requires an employer to make a minimum annual contribution to a superannuation account chosen by the employee. This should incentivise Australians to increase their financial literacy, but Australians do not have higher financial literacy compared to other developed countries. Furthermore, many Australians have made suboptimal superannuation decisions, with around $2.6 billion spent each year in unnecessary fees and insurance. Many hold accounts with entrenched underperforming fund managers (Productivity Commission, 2018).

The Australian Government should consider simplifying the accommodation payment decision. One option is to remove means testing arrangements and exempt income earned by residents from income tax. This would remove the complexity of trying to determine how an accommodation payment decision would impact the age pension, the amount a consumer is required to contribute for nursing care services, and income tax. This option is unlikely to be attractive to the Australian Government. It would introduce greater inequities into the Australian tax system and would require the Australian Government to pay more if providers were to receive the same level of revenue.

Another option is to remove refundable accommodation deposits as an accommodation payment choice, instead making people pay rent for accommodation. This would reduce accommodation payment decision uncertainty, stress and perceived complexity.

Some may argue that it would also reduce consumer choice and negatively impact residents that would otherwise choose a refundable accommodation deposit. Our results suggest informed choice, whereby people make rational accommodation payment decisions based on full information, is unlikely to be occurring. This is particularly so given our results suggest the existence of principal-agent relationships in this decision context, perceived short time frames for decision-making and personal and financial stressors. Furthermore, choosing an accommodation payment is a once in a lifetime event, so there is little opportunity to learn from mistakes.

There is also some uncertainty whether consumers would prefer the current accommodation payment choice compared to something simpler. Accommodation payment choice was introduced to enhance consumer welfare. However, people can be overwhelmed with too much choice, leading to suboptimal decisions. This has been demonstrated in healthcare markets that have complex choices, such as selecting private health insurance plans and Medicare Part D prescription drug plans in the US (Bhargava et al., 2017, Abaluck and Gruber, 2011).

There is no evidence that the current accommodation payment choice in Australia increases consumer welfare relative to something simpler, yet this study suggests many consumers are likely making a suboptimal accommodation payment decision, potentially leading to worse financial outcomes. Further research is needed on the heuristics and biases associated with

making an accommodation payment decision, the cost of making a suboptimal accommodation payment decision and whether consumers are willing to trade off less choice for reduced decision complexity and stress.

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Appendix A

The 'Big Three' questions used to assess financial literacy[1]

[1] **Understanding of interest rate:** Suppose you had $100 in a no fee savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

- More than $102*
- Exactly $102
- Less than $102
- Don't know

[2] **Understanding of inflation:** Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?

- More than today
- Exactly the same
- Less than today*
- Don't know

[3] **Understanding of risk diversification:** Please tell me whether this statement is true or false. 'Buying shares in a single company usually provides a safer return than buying units in a managed share fund.'

- True
- False*
- Don't know

[1] Asterisks correspond to the correct answer.

Appendix B

Table B.1: Additional covariates used to estimate the relationship between financial literacy and decision confidence, complexity, and stress

Resident demographic characteristics	***Payment type chosen***
Age (years)	Refundable accommodation payment
Male	Daily accommodation payment
Single	Combination payment
Resident situation	***Informal carer demographic characteristics***
No one left in residence	Age (years)
Moved from other residential aged care home	Male
Resident moved from a hospital to aged care home	English-speaking
Resident faced a waiting period to get into aged care home	***Informal carer's highest educational attainment***
Owned residence	Year 12 or below
Owned additional residential property/properties	Certificate/diploma
Received partial government support for aged care accommodation payment	Tertiary degree
Regional characteristics of aged care home housing resident	***Informal carer's relation to resident***
Metro area	Spouse
Inner-regional area	Child
Outer-regional area	Sibling
Remote area	Friend
Very remote area	Nephew or niece
State / territory of residential aged care home	Other[(a)]
New South Wales	***Contextual factors around decision-making***
Victoria	*Sources of help used to assist decision-making:*
Queensland	Help from family and friends
Western Australia	Help from a GP or healthcare professional
South Australia	Used online information
Tasmania	*Financial adviser use:*
Australian Capital Territory	Informal carer consulted a financial adviser
Northern Territory	

Note: (a) Comprised mostly other familial relations, including grandchildren, in-laws and uncles/aunts. Asterisks indicate covariates of interest in this study.