

Taming the 'masculine pioneers'? Changing attitudes towards energy efficiency amongst private landlords and tenants in New Zealand: A case study of Dunedin

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Abstract

New Zealand's housing is some of the poorest quality and hardest to heat in the developed world. The private rented sector in particular offers the worst quality accommodation to the country's poorest and most vulnerable tenants. Previous research has established a range of economic and socio-cultural explanations for the prevalence of poor conditions in private rented accommodation with the 'principal-agent problem' dominating the debate. This paper reports the findings from research in Dunedin, a city with some of the coldest conditions and least energy efficient properties in the country. The study was undertaken in 2015 and involved 30 in-depth interviews with landlords exploring their attitudes towards improving the thermal performance and energy efficiency of their properties. The results revealed a shift in attitudes amongst landlords over a period of about 5 years, with many becoming more amenable to investing in insulation and low energy heat sources. This shift has ostensibly been driven by pressure from tenants who appear to be departing from established cultural norms and becoming intolerant of cold homes and high bills. The study highlights how socio-cultural factors, such as growing expectations regarding warmth and comfort in the home, can disrupt established cultural norms and economic rationales to bring about change.

Key words

Private rented sector; domestic energy efficiency; principal-agent problem; New Zealand; private landlords.

1. Introduction

It is widely recognised that improving thermal performance and energy efficiency (EE) in the building stock depends heavily on measures to upgrade existing housing. However, the form and effectiveness of those measures will depend heavily on the character of the existing housing and its tenure.

New Zealand's (NZ) housing represents an extreme example of the kinds of poor conditions that exist in many developed countries around the world including in the UK, Australia, the United States and parts of Europe. NZ housing is amongst the poorest quality and hardest to heat in the developed world (Howden-Chapman et al, 2009) exhibiting indoor temperatures that consistently fall short of the World Health Organisation's (WHO) healthy indoor temperature range of 18-24 degrees centigrade, posing a threat to health (Isaacs, 2010). In this sense, NZ's housing stock presents an urgent and considerable challenge for energy efficiency policies and initiatives. As such, NZ provides an important case study for the international academic and policy community and warrants a great deal more research and academic attention than it has so far received.

The condition of the country's private rented sector (PRS) is a particular concern for several reasons: firstly, because (according to the most recent sources available - DBH, 2011) the sector houses a third of the country's population and is growing, increasing from 26 per cent of households in 1991 to 33 per cent in 2011; secondly because (again, according the most recent available source) the PRS houses a disproportionate number of poor households- 49 per cent of those under 65 and in poverty live in the PRS (Perry, 2012); and thirdly because private tenants living in poverty have the least choice over the property they live in and the least agency to

improve its conditions (Barton, 2012; Shelter 2014). Moreover, research both within and outside of NZ has pointed to the reluctance amongst private landlords to re-invest profit into improving the thermal performance and EE of their properties where there is no legal or regulatory requirement to do so (Ambrose, 2015; Barton, 2012; ACE, 2014).

To shed light on the issues that exist within the NZ PRS and the processes which perpetuate poor conditions, this paper presents data from the first stage of a two-part study which involved thirty in-depth interviews with landlords and letting agents in Dunedin, a city with some of the poorest housing and coldest indoor conditions in NZ, as will be shown. The second stage of the study- the results of which are under analysis at the time of writing- explores the perspective of low income renters in Dunedin, who- often out of lack of housing choice- endure some of the coldest and poorest housing conditions in the country, if not the developed world.

Primary research involving private landlords is rare, especially in New Zealand. Attempts at this have largely been confined to two local surveys of the physical fabric of rental properties in Dunedin and tenants' experiences of these conditions (see Povey and Harris, 2004 and Povey et al, 2014) and a one-off national survey of landlords' attitudes to various aspects of private renting conducted in 2004, which makes no specific mention of EE (Saville-Smith and Fraser, 2004). As such, the findings reported here represent the first in-depth qualitative study of landlords' attitudes towards EE improvements undertaken in NZ.

In property markets, the material and subjective aspects of human action interact with one another (Guy and Henneberry, 2000). For this reason, a qualitative study of key institutional actors, such as landlords, can provide insights into wider market

processes. Landlords and letting agents make decisions about investment in and improvements to the properties they own. They also have to be sensitive to changes in the housing market, such as changes in levels of demand for rental accommodation. The existing literature sheds little light on how landlords approach these decisions in general (Hope and Booth, 2014) and particularly in NZ (Bould, 2015).

This paper contains seven sections, including this one. The second section provides a review of the existing international literature relating to thermal efficiency and EE in the PRS and landlords' attitudes, underlining the case for the present study. The third section provides specific context in relation to the case study location. The fourth section outlines the methodological approach taken to the study. Section five sets out key findings from the empirical research followed by a discussion. Some overall conclusions are provided at the end of the paper and an agenda for further research is set out.

2. Energy efficiency in the NZ private rented sector

New Zealand homes are under heated by international standards (Howden-Chapman et al, 2009). Low indoor temperatures have been linked to poor health outcomes, excess winter deaths and a wide range of social and economic problems (Howden-Chapman et al, 2007; Isaacs and Donn, 1993; Trotman, 2008). A range of explanations for the particularly poor thermal performance of NZ homes have been identified, including their 'light' construction and poor thermal properties (wooden construction is widespread) (Isaacs et al, 2010); heating sources (80 per cent rely on electric heating and having only one permanent heat source in one room of the property is common) (Statistics NZ, 2014; Howden-Chapman et al, 2009); and

heating practices (under heating is an established practice) (Isaacs et al, 2003, Cupples et al, 2007; Mourik and Rotmann, 2013). The first of these factors is being addressed, to some extent, for new properties through the Building Code (MBIE, 2004) which requires minimum standards of ceiling insulation but still does not require wall insulation and double glazing, something expected as a minimum in the UK and Europe.

At the time the study was conducted in 2015 few mechanisms were in place to improve conditions within the existing stock with the most significant intervention to date being a subsidised insulation scheme called '*Warm up New Zealand (NZ): Heat Smart*', launched in 2009 (EECA, 2015; see Grimes et al, 2011 and Telfar-Bernard et al, 2011 for evaluations of the programme). A Warrant of Fitness (WOF) for rental housing has also been extensively debated on the basis that a diagnostic tool is required to identify the quality related deficiencies of the existing housing stock (Gillespie-Bennett et al., 2013). After pressure from several groups and after the attempted reintroduction of a private member's bill requiring a rental WOF was barred from introduction by Parliament's Speaker, a rental housing WOF was eventually field tested to assess its practicality (Bennett et al., 2016). This was conducted across five councils, all of which recruited 25 rental houses to undergo a WOF assessment. Of the sample of 144 houses, 94 per cent failed at least one of the 31 criteria. Many of the houses had numerous defects. Gillespie-Bennett's study recommended a WOF for rental housing on a national scale as a means of protecting the health and wellbeing of tenants.

Policy action on cold, unhealthy homes has been increasing over the past few years. An update to the Residential Tenancies Act (RTA) was introduced in August 2015 (and came into effect in July 2016) to help improve housing conditions for private

renters, requiring landlords to install smoke alarms; include a statement of the extent and safety of insulation in the property; and ensure that insulation meets the required standard (Falconer, 2017).

Furthermore, and most significantly, the Healthy Homes Guarantee Act (2017) allows government to set minimum standards for rental housing including for heating and insulation and improve health and social outcomes for tenants. A discussion document (MBIE, 2018), which proposes healthy homes standards for heating, insulation, ventilation, moisture ingress, drainage and draught stopping, is - at the time of writing- out for public consultation. The proposals regarding insulation offer the following options for consultation: 1) continue the status quo (requirements set under 2016 regulations would continue to apply after the 1st July 2019, so landlords would be obliged to replace or retrofit insulation to meet requirements for ceiling and underfloor insulation in their rental properties); 2) follow the 2001 Building Code insulation standard whereby the landlord must install or top-up insulation where it does not meet minimum R-values (this is likely to include between 10,000-70,000 more rental homes in its scope); and 3) follow the 2008 Building Code insulation standard whereby the landlord must meet minimum R-values (this is likely to include between 80,000-190,000 homes in its scope). Crucially, compliance with the healthy homes standards is the responsibility of the property owner rather than the tenant, and will be enforced by MBIE's Tenancy Services Compliance and Investigation team. Landlords that fail to comply may be liable for a financial penalty.

As these legislative moves suggest, the need to improve conditions in NZ's PRS is urgent. Much of NZ has a colder, damper climate than its Australian neighbours. Its

homes are older, more lightly constructed and less well insulated than most countries with similar climates (Howden-Chapman et al, 2009) and, as in the UK and elsewhere, the PRS is increasingly becoming a long term destination rather than a 'transition tenure' for many (Povey and Harris, 2004; Gabriel, 2010a). The country is also largely dependent on electric heating and prices have risen sharply in recent years, exacerbating tendencies towards under heating (New Zealand Government, 2018)). However, like in Australia, the USA, the UK and other European countries, many private landlords appear unwilling to contribute to the resolution of this problem (Ambrose, 2015; Barton, 2012; Gabriel 2010a).

Landlords' apparent aversion to investing in the thermal and energy performance of their properties is often attributed to the so-called 'principal-agent' problem (Jaffe and Stavins, 1994), a concept used in many disciplines, and that has been increasingly applied to the case of landlords and energy efficiency (IEA, 2007). The principal-agent problem is described by the International Energy Agency (IEA) as the situation where *"two parties engaged in a contract have different goals and different levels of information"*. Jaffe and Stavins (1994, pp. 805) were the first to apply the concept to the matter of energy consumption and the so-called 'energy efficiency gap' which exists between actual and optimal energy use. In this context, they state that:

If the potential adopter [of energy efficiency measures] is not the party that pays the energy bill, then good information in the hands of the potential adopter may not be sufficient for optimal diffusion; adoption will only occur if the adopter can recover the investment from the party that enjoys the energy savings. Thus, if it is difficult for the possessor of information to convey it credibly to the party that benefits from reduced energy use, a principal/agent problem arises.

Thus, the principal-agent concept was felt to be well suited to conveying the situation identified in the PRS whereby it is assumed that principals (tenants) are poorly informed about EE and are therefore unlikely to pay a premium for a more energy efficient property and to make the connection between this and a warmer, more comfortable home. Knowing this, the agent (landlord) is unwilling to invest in EE measures on the basis that they will not be able to recoup the cost of their investments through higher rental yields or sales values (Ambrose, 2015; Barton, 2012).

The IEA have cemented the place of the principal-agent problem as the dominant explanation for sub-optimal take-up of energy efficiency measures and interventions and cited a case study of EE in the PRS as one of four prime and pervasive examples of this in their 2007 publication 'Mind the Gap: Quantifying Principal-Agent Problems in Energy Efficiency'.

The application of the principal-agent theory to the relationship between landlords, tenants and EE characterises landlords as economically rational actors who are logically unwilling to invest in something which is not (necessarily) required of them by law and which they do not believe will yield a return. In response to the potential for the principal-agent thesis to oversimplify the problem, the IEA emphasise the complexity of principal-agent problems of all incarnations. As such, they argue, there is no single policy instrument capable of overcoming it and neither 'regulatory mechanisms' nor 'information-based instruments' will be sufficient on their own. Instead, they strongly contend that 'policy packages' specific to the context in which

they will be applied are critical and that a combination of institutional support for energy efficiency, price factors and public awareness is required to affect change. As such, the importance of understanding how the dynamics of the problem operate within a range of different contexts is crucial in terms of developing effective solutions. However, the aforementioned IEA report does little to contribute to an understanding of the operation of the principal-agent problem within specific contexts, instead attempting to quantify in general terms, the overall impact of it on levels of energy consumption. It is to this gap in knowledge that this paper makes a contribution, by developing a fuller understanding of the dynamics of the problem of poorly performing rental accommodation in a case study location where the problem is arguably at its worst.

Both NZ as a whole and its main urban areas have been particularly under-researched in this regard, which is surprising given the severity of conditions there. However, relevant insights can be garnered from a small number of key studies. The aforementioned one-off survey of NZ landlords undertaken in 2004 alludes to the existence of the principal-agent problem in NZ. More specifically, the report concludes that those who view owning rental properties as a *"vehicle for passive investment and capital gain"* will be the least likely to invest in their asset (Saville-Smith and Fraser, 2004, pp.19). The same report indicates that many of their respondents are likely to fall into that category, and revealed that the majority of landlords are not even financially prepared for routine maintenance or repairs, let alone for more substantial investment in energy efficiency measures.

The links between housing and health have been relatively well-documented in NZ (see Howden-Chapman et al., 2012). More specifically, a body of NZ literature is building a growing evidence base around the health outcomes of improved energy performance as a result of national EE schemes. This includes Telfar-Barnard et al's (2011) study on the impact of retrofitted insulation and new heaters on health services utilisation and costs, pharmaceutical costs, and mortality, as part of a wider evaluation of the *Warm up NZ: Heat Smart* scheme¹. This study found that retrofitted insulation delivered through the scheme had a significant impact on reducing hospitalisation and pharmaceutical costs for occupants of houses that had been remediated. Insulation also contributed considerably in terms of reduced mortality. Howden-Chapman et al's (2008) work on the effects of improved home heating on asthma in children found that non-polluting, effective heating improves wellbeing and reduces symptoms of asthma and days off school. In a similar analysis of the *Warm up NZ: Heat Smart* scheme, Grimes et al. (2011) concluded that insulation treatment does, on average, reduce metered energy use for treated houses. Estimates of health benefits were also reported among households who had taken part in the scheme which boosted internal temperatures. Despite these documented benefits, uptake from insulation and heating schemes in NZ has still been proportionally lower amongst private landlords (Bierre, Bennett & Howden-Chapman, 2015).

Given the limitations of the existing evidence base specific within NZ, other useful insights into what the Dunedin study may reveal can be derived from the international literature, particularly that emanating from the UK, Western Europe and to a lesser extent, Australia. However, the NZ context is of course distinct, not least

¹ *Warm up NZ: Heat Smart* was a major part-publicly-financed programme which provided subsidised insulation and more energy efficient heating sources to eligible households (Mourik and Rotmann, 2014)

due to various differences in construction and established heating practices. There are sufficient sources in existence to enable a good understanding of these key differences. We know, first of all, that NZ's housing stock is far 'lighter' in nature than any of the other countries cited (Howden Chapman et al, 2009). This is the case for a range of reasons including the need for properties to be resilient to earthquakes and cause minimum damage if they collapse (MBIE, 2014). Heating practices are also distinct with entrenched under heating regardless of socio-economic group (Isaacs et al, 2003, Cupples et al, 2007; Mourik and Rotmann, 2013). A study by Schipper et al (2000) established that of a selection of countries studied around the world (including the UK, other European countries, Japan and Australia), NZ had the lowest space heating intensity of all.

Given these distinct heating practices, something attributed by Cupples et al (2007) in their paper *"Put on another jacket you wuss"*, to the country's 'masculine pioneer identity' established during colonial times, it is possible that thermal comfort in particular, is not regarded as a high priority for NZ tenants, despite the detrimental health consequences.

These cultural factors are believed to have constituted significant barriers to efforts to improve insulation standards across NZ's housing stock through the ongoing *Warm Up NZ: Heat Smart* scheme. According to evidence gathered by Mourik and Rotmann (2014), take-up of the scheme was initially low, ostensibly as a result of the country's 'masculine pioneer culture' and associated under-heating philosophy (Cupples et al, 2007). It is therefore possible that another contributor to landlords' apparent inertia in NZ could be a cultural acceptance of cold homes.

However, these kinds of physical and cultural factors are not unique to NZ. In the UK, for instance, both physical and cultural barriers to landlords improving the thermal and energy performance of their properties have also been identified. Specifically, the pre-1919 properties of the type pervasive in the UK are known to be intrinsically hard to insulate due to their construction and their poor thermal performance has been accepted as 'the norm' by many (Ambrose, 2015; DoE, 1976). It therefore appears that many common factors are at work across the countries where this issue has been studied, but that- as the IEA (2007) caution- the principal-agent problem can represent an over-simplification and the precise nature of the issue will differ between countries and contexts. Findings from other countries are put forward merely as a starting point for the analysis of the findings from NZ.

This paper does not aim to provide a comparison between NZ and other parts of the world, but it does seek to establish how insights from NZ can contribute to the emergent international literature on landlords and EE investment.

Drawing on insights from the UK and European literature as well as primary data from the former, Ambrose (2015) identifies a series of barriers deterring landlords from investing in the thermal performance and EE of their properties and provides the best indication of the factors which may be at work in Dunedin. These barriers can broadly be divided into economic and socio-cultural explanations of landlords' inertia and are summarised in *Table 1* below. Whilst economic explanations focus on what might be considered 'rational' behaviour (i.e. the principal-agent problem), socio-cultural explanations go beyond this, taking account of cultural and contextually specific factors that may disrupt economic rationality or even counter its existence and that influence concepts of what is regarded as rational and what is not. This framework broadens the restricted discourse on actors in the PRS, which is

commonly reduced down to 'risky tenants' and 'Ma and Pa landlords', in policy texts (Bierre, Howden-Chapman and Signal, 2010).

Barrier to investment	Description	Sources
Economic explanations		
Lack of direct financial incentives to landlords to invest or the 'principal-agent problem'.	It is assumed that principals (tenants) are poorly informed about EE and are therefore unlikely to pay a premium for a more energy efficient property. Knowing this, the agent (landlord) is unwilling to invest in EE measures on the basis that they will not be able to recoup the cost of their investments.	Barton (2012); Ace (2014); Bradbrook (1991); Wilkinson and Goodacre (2002); Druckman and Jackson (2008); Jackson (1992); Gillingham et al (2009); Jaffe and Stavins (1994)
Lack of knowledge and misinformation regarding the potential consequences of energy inefficiency and the range of possible solutions, exacerbated by a lack of time and technical knowledge amongst landlords.	Linked to the principal-agent problem. This argument emanates from discussions of energy saving technology adoption rates. It is posited that it is costly and time consuming for individuals (whether landlord or tenant) to learn enough about an innovation and understand whether it is profitable and worthwhile. Lack of knowledge amongst consumers is a frequently cited barrier to more energy conscious behaviour and a key rationale for energy labelling codes, for example.	Jaffe and Stavins (1994); Jakob (2006); Hope and Booth (2014); Howarth and Anderson (1993); IEA (2007).
Local and regional housing market factors including 'ceilings' on rent levels and property values in low value areas and associated lack of equity and income to aid investment.	A UK study identified that local housing market factors including location, property type and level of demand created 'ceilings' or maximum levels of rent that landlords can charge, leading them to ration investment accordingly.	Ambrose (2015)
Socio-cultural explanations		
Low expectations amongst residents and landlords	Studies in the UK have identified that cold homes and poor energy performance have become regarded as the 'norm' and that low expectations are entrenched. There is also evidence of a sense of impotence, with landlords doubting the extent to which they could improve energy performance given the inherent weaknesses of ageing housing. In NZ, references to the existence of a hardship	Ambrose (2015); Cupples et al (2007); Shove (2003) and Rybczynski (1986); Gillingham et al (2009).

	tolerant, masculine pioneer culture have similar implications. ²	
High turnover in the rental market: landlords perceive that tenants rarely make a long term commitment to a property.	Landlords in the UK expressed reluctance to invest in properties unless they had long term tenants. Other sources argue that transience actually encourages home improvements as new tenants demand higher standards while longer standing tenants are more likely to accept poor conditions as satisfaction with properties increases over time.	Ambrose (2015); DoE 1979)
Low trust in government initiatives amongst landlords	A study in the UK established that landlords are cynical about key EE initiatives perceiving them to be 'pro-tenant'. Media reports relating to <i>Warm Up NZ</i> suggest similar issues.	Ambrose (2015), Mourik and Rotmann (2013) and CEA (2014).

Table 1: factors deterring landlords from investing in thermal performance and EE improvements, based on the international literature.

These barriers are summarised in *Figure 1* below, and are supplemented by insights from a small number of relevant Australian and New Zealand studies including a major study of the barriers to greater environmental sustainability in the Australian PRS (Gabriel et al ,2010a,2010b). This study identified the prevalence of small scale, 'non-professional' investors and their associated lack of financial resource as a further barrier to improved energy performance in the sector. This was confirmed to be the case in NZ by the National Survey of Landlords (Saville-Smith and Fraser, 2004) which revealed that 42 per cent of landlords own only one rental property. Furthermore, an NZ ministerial briefing from 2002 pointed to a "*virtual absence of larger professional and institutional investors.*"

The factors identified in *Figure 1* therefore represent the extent of existing knowledge in relation to the factors determining landlords' propensity to invest in improvements

² Some caution is necessary, however, as many studies of the PRS have been concerned with the problems of low income and poor quality accommodation. In the long term, as general living standards rise, expectations about acceptable housing conditions tend to rise, with a concomitant increase in energy consumption. Such increases in consumption can dilute the expected energy savings of EE interventions as energy usage increases (or do not decrease) in line with increased comfort in the home. This phenomenon is known as the 'rebound effect'. Gillingham et al (2009)

to the thermal and energy performance of their properties. Figure 1 will help identify where the present study adds to and extends existing knowledge.

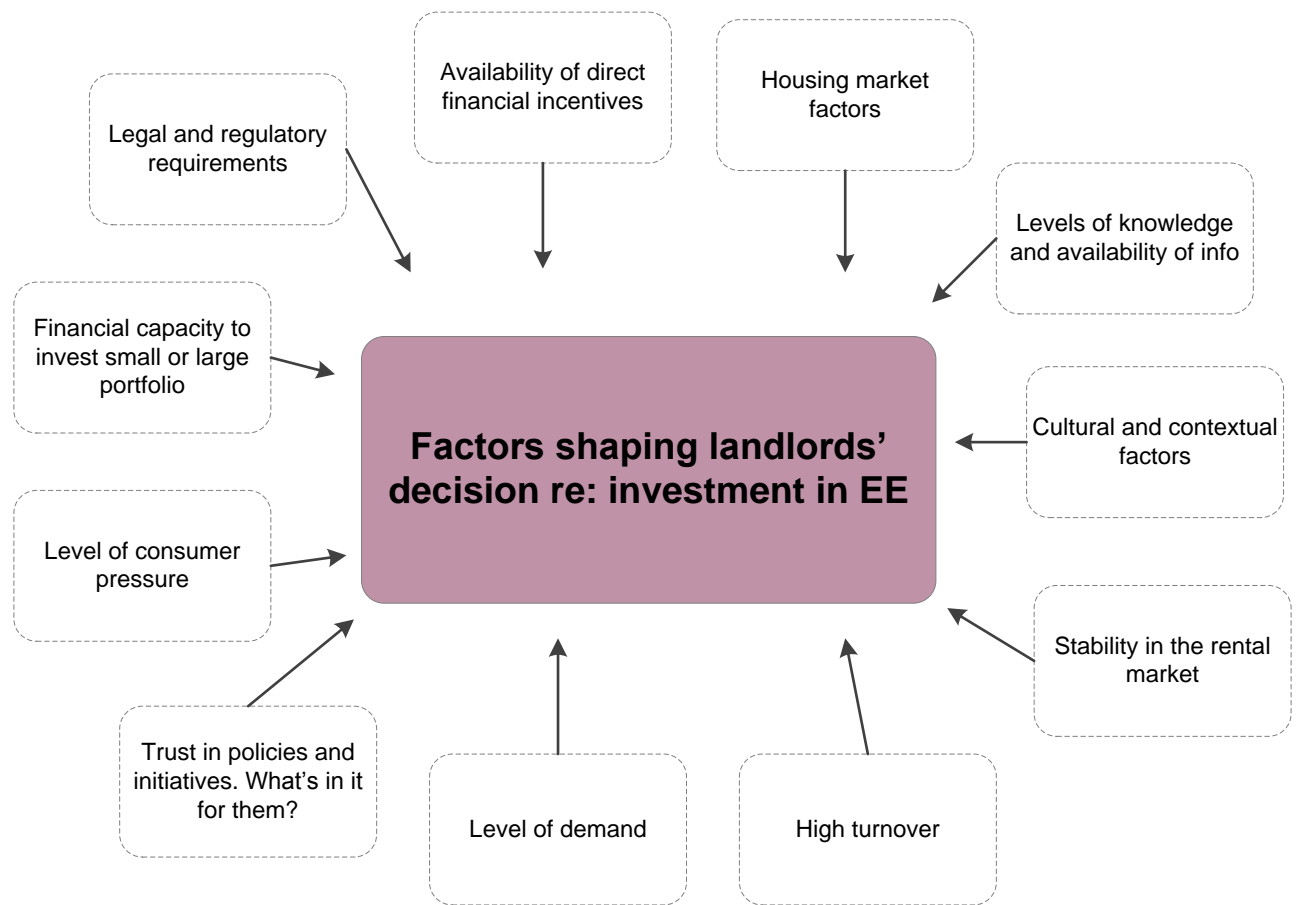


Fig. 1: summary of factors shaping landlords' decisions regarding investment in thermal performance and EE, as identified from the international literature.

3. Homes colder than the fridge: the PRS in Dunedin

Before continuing, the reader should note that all of the information provided in this section was true or the most recent available data at the time of the study in 2015.

Dunedin, like much of the southern South Island of NZ, experiences much cooler temperatures than more northern parts of the country, meaning that NZ's current minimum insulation standards would not be sufficient to produce indoor

temperatures that satisfy the WHO's thresholds for healthy indoor temperatures in these parts of the country (Lloyd et al, 2008).

Dunedin has a changeable oceanic climate with relatively cool summers and cold winters. The city had a population of around 120,000 people and is one of NZ's four principal cities. It has a large student population (around 20 per cent of its population) and has gained notoriety for having some of the coldest and poorest quality student accommodation in NZ (Mourik and Rotmann, 2013; Robertson and Norton, 2009). A study by Robertson and Norton (2009) recorded temperatures 'colder than the fridge' (2 degrees centigrade) in a student flat in the early hours of the morning in winter, illustrating the consequences of old, uninsulated properties of the type prevalent in the city.

These conditions are not confined to student houses as illustrated by the findings of a study which established that all 91 participating households were living in thermal conditions below the minimum temperature of 16 degrees recommended by the WHO (Shannon et al, 2003). Furthermore, 100 per cent of the sample expected indoor temperatures to fall below 15 degrees on a cold winter day and 50 per cent felt that their heating equipment was sufficient, highlighting low expectations.

Compounding these issues, Dunedin, as one of the early colonial settlements, has a particularly old housing stock by NZ standards with the majority (86 per cent) having been built before national minimum insulation standards were introduced in 1977 (Shannon et al, 2003). This statistic underlines the importance of convincing property owners to retrofit their properties with insulation.

Shannon et al (2003) also report that the population of the city is relatively poor by NZ standards and that this combined with the ageing housing stock, results in 36 per

cent of the city's population being in fuel poverty, which is considerable against a national average of around 14 per cent (Lloyd, 2006). The need for significant investment in improving energy performance across Dunedin's housing stock is therefore palpable and it is clear that as a case study, it represents a fairly extreme example of the challenges facing NZ as a whole.

Also of relevance is the housing market context in which the city's landlords operate. Dunedin has the second lowest average house prices in NZ (The Property Group, 2012). The city also has the lowest household income of all NZ's major centres (Statistics NZ, 2014), pointing to a low value private rental market. Of particular significance to this study is the fact that owner occupation is falling and the number of rental properties is increasing (The Property Group, 2012). Overall, 30 per cent of Dunedin's occupied housing stock is rental housing, with high concentrations around the University and in the lower-income suburbs. Around 40 per cent of the city's private rental demand comes from those who cannot afford to own their own homes and 25 per cent from students (The Property Group, 2012).

A report published by Dunedin City Council in 2012 emphasised a series of recent developments that had benefitted PRS investors in the city, including the growth in demand for PRS properties as owner occupation falls; increasing numbers of undergraduate students (however, this trend is now reversing); low house prices, low interest rates and rising rents in student areas and the city centre. As a result, Dunedin boasts higher than average gross rental yields of between 6 and 12 per cent against a national average of 4.9 per cent (The Property Group, 2012).

Therefore, despite having the outward appearance of a relatively depressed private rented housing market dominated by low value properties and low income tenants,

the Dunedin rental market actually offers investors a relatively high rate of return by NZ standards. Although, it should be noted that declining values since 2008 are putting pressure on these once healthy yields (The Property Group, 2012).

However, the living conditions for the growing number of PRS tenants in Dunedin, particularly those renting at the lower end of the market, are not as positive as their landlords' investment prospects. A widely cited local report by Povey and Harris (2004), which reported the findings of a survey of a representative sample of private rented properties in the city's lower value areas, revealed that 60 per cent of the houses surveyed were old, having been built before 1941; poorly constructed; were not weather tight; and were poorly maintained (57 per cent were in need of urgent repair). The report concluded that poor insulation and outdated heating systems place many of Dunedin's low value rental properties amongst NZ's coldest.

Commenting on these findings, The Property Group, who prepared the city's latest housing needs assessment in 2012, state that: *"landlords operating in low value areas of the city have few commercial incentives to improve the standard of their properties"* (pp.36). This, they argue, is largely the result of landlords' inability to increase rents (and therefore recoup the costs of improvements without diminishing profit) in recent years due to static or declining household incomes. They point out that demand for rental properties is, however, sufficiently buoyant that even poor quality properties will let quickly, a phenomenon widely observed in the UK, Europe and Australia in recent years (Shelter 2014; Gabriel et al 2010a). They add that the lack of legal and regulatory requirements to improve properties is also a significant factor deterring investment in the quality of properties.

4. Methods

The data informing this paper was collected as part of an independent research project undertaken in the city of Dunedin, NZ, during February- March 2015 with the support of the University of Otago. A second part to the study has been conducted - and currently analysed- which involves the exploration of a currently 'missing voice' in the debate about poor conditions in private rental housing: that of the tenant, and particularly the low income tenants who are least able to exercise choice over where they live and to exert pressure on their landlords to improve conditions. The insights from this study will provide a critical counter-point to the landlords' perspective reported here and will be presented in a subsequent publication.

As previously outlined, little is known about why landlords resist investment in the energy and thermal performance of their properties and why this resistance is particularly acute generally in NZ and specifically in Dunedin. To begin to unpick the drivers of this resistance, in depth qualitative interviews were employed to reveal detailed and nuanced insights into landlords' reasoning and decision making processes. To this end, a total of 30 interviews were conducted over a four week period. This approach (and number of interviews) was applied in a similar UK study and provided sufficient insights to elucidate some of the key reasons behind landlords' inertia and the less tangible aspects of their decision making processes (Ambrose, 2015; Hope and Booth, 2014). The limitations of a relatively small sample size are acknowledged, however.

Landlords were accessed through a local landlords' association and 'snowballing' techniques were utilised whereby initial respondents suggested others who may be willing to participate. The sample was therefore largely self-selecting and this should be borne in mind on the basis that landlords least positively disposed to property

improvement are unlikely to participate in a study of this nature, although some did. The study could also be criticised for overcoming potential difficulties in accessing landlords by using snowballing techniques which run the risk of leading the researcher to a series of like-minded individuals. However, this is not felt to have been the case on this occasion because- as will be revealed- the landlords interviewed varied in their views and perspectives in relation to the topic.

The final sample comprised of a diverse mix of landlords in terms of their levels of experience as landlords, their motivations for investing in property and the size of their portfolios. Those interviewed owned anything from two to 200 properties and let to a variety of tenants including students, low income groups, vulnerable groups through to the very affluent. In terms of their motivations for becoming a landlord, some had fallen into it almost by accident whilst others regarded it as their full time occupation. Four large letting agents were also interviewed; offering insights into the attitudes of larger numbers of landlords than could be interviewed directly through the study. The inclusion of this group also allowed for the assessment of the idea that letting agents may be well positioned to influence landlords and act as 'agents of change', as suggested by Gabriel et al (2010b).

Interviews with landlords and letting agents lasted between 45 minutes and one hour and covered a range of themes, aiming to encourage landlords to share their 'story' and explore how their attitudes and business models had evolved over their careers as landlords. Interviews began by exploring the respondent's background including their motivations for becoming a landlord, the size and nature of their portfolio, the types of properties and areas they preferred to invest in and the types of tenants they aimed to let to. This part of the interview also explored how they accessed

information and support, membership of professional bodies and what, in their view, made a property a good place to live. The second part of the interview aimed to establish the extent of the respondent's knowledge regarding the thermal performance and EE of their properties and how this might be improved. This section involved questions regarding who was responsible for such improvements and who should pay for them. They were also asked about how they responded to dissatisfied tenants. Respondents were then asked about what motivates (or may motivate) them to make property improvements, particularly relating to the thermal performance and EE of the property, and what may hold them back. The benefits and drawbacks of making these kinds of improvements and the extent of tenant demand for such improvements, as perceived by landlords, was also discussed as was the question of how landlords might fund improvements to their properties.

Due to the relatively small sample and the fact that the research was focussed in one location, it cannot be claimed that this study is representative of the NZ PRS as a whole or of cities exemplifying a poor quality PRS. Instead, the data sheds light on the perceptions and decision making processes of landlords as key agents with the ability to drive up standards of environmental performance, warmth and comfort in a city notorious for its poor quality rental housing.

The specifics of the NZ context will be carefully considered in the discussion of results and care will be taken to distinguish between findings specific to Dunedin and those with wider resonance. However, the value of taking a case study approach should not be underestimated, as emphasised by Flyvberg (2006) who states that even a single case study can add knowledge irrespective of whether it is representative and also by the IEA (2007) and Gabriel et al (2010) who both

emphasise that there is much to be learnt from examining the operation of the PRS in different contexts.

5. Findings

The review of international and NZ specific literature gave a strong indication that Dunedin landlords would accord with dominant international trends and display- for the wide variety of reasons outlined in *Figure 1*- a reluctance to invest in the energy and thermal performance of their properties. However, results from the primary research confounded these expectations, at least to some extent, and revealed a general attitude of acceptance amongst landlords with regard to the importance of installing basic EE measures in their properties. This is not to say that the landlords interviewed were all pro-active in this respect but merely that a higher proportion of the sample exhibited more positive attitudes towards making such improvements than might be expected on the basis of existing evidence and the multitude of actual and perceived barriers landlords may face. Most striking was the proportion of landlords that backed up a positive attitude with action and had invested in upgrading the energy performance of their properties, albeit fairly modestly in most cases. These findings challenge the picture painted by the literature and underline the importance of undertaking detailed studies of the operation of the PRS within a variety of different contexts in order to test universal assumptions, theories and concepts.

The reader should note that the actions reported by landlords (i.e. relating to the installation of various energy efficiency measures) during interviews have not been independently verified and should therefore be treated with a degree of caution,

Types of landlords

The landlords interviewed can be broadly categorised according to the typology set out in *Table 2*, below, in terms of their attitudes towards making improvements to the thermal and energy performance of their properties.

Type of landlord	Description	Approach to EE	Approx. proportion of sample
Non-joiners	Provide accommodation to students and/or low income groups. Have little or no interest in EE.	Aim to keep capital expenditure to a minimum. Feel they are meeting a need for low cost accommodation and that EE increases rents.	10 per cent
Passive actors	Provide accommodation to students and low income groups. Have some interest in EE but are passive in their pursuit of it.	Understand the importance of warm homes that are affordable to heat but cannot or will not invest in EE measures as they perceive that they cannot recoup costs through rent increases/ uplift in capital value. Try to achieve improved energy performance through low cost passive measures: i.e. draught proofing, thermal curtains.	10 per cent
Active	Let to a variety of tenants. Accept the need for EE measures and will provide the basics.	Feel that tenants expect insulation (ceiling and maybe under floor too) and air source heat pumps (ASHP) as standard and will provide them. Most feel they can charge \$5-10 per week (£2.50-£5) for providing these measures. Double glazing is ruled out on cost and is reportedly not expected by tenants.	70 per cent
Pro-active	Let to a variety of tenants but tend to avoid low income groups and younger	Interested in buildings and innovation. Will include a wider range of EE measures when renovating a property including	10 per cent

	students. Very interested in and accepting of the benefits of a wider range of EE measures.	ASHP, mechanical heat ventilation and double glazing in addition to insulation. Often have skills in construction and do the work themselves to reduce costs.	
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Table 2: Types of landlords identified in Dunedin.

Active landlords

As *Table 2* illustrates, the majority of those interviewed were deemed to fall into the 'active' category, i.e. they accepted the need for minimum standards of EE measures in their properties. In these cases, measures were usually confined to the installation of an air source heat pump (ASHP) in one central living area and what might be considered, by international standards, to be basic insulation, generally applied only to the ceilings and sometimes under floors, too.

"ASHP and insulation are expected as standard now." (Letting agent and landlord, 200+ properties)

"Now it's average to have ceiling insulation. Those that are above average have insulation under floors too." (Landlord, 10 properties)

"ASHP were not expected when we started, now it's almost a norm and a given that you've got one and maybe even two..." (Landlord, 20+ properties)

Although it could be convincingly argued that this group does not go far enough, neglecting to install measures that would, in much of Europe at least, now be considered rudimentary such as double glazing, insulation in the walls and a permanent heat source in each room, it will nonetheless be encouraging to those

campaigning for change in NZ. Caution should be exercised, however, in assuming that a majority of Dunedin landlords as a whole fall into this category, remembering that the sample was largely self-selecting.

Why are landlords becoming more active?

There was consensus amongst those landlords and letting agents interviewed that there had been a clear shift in attitudes towards EE investment over the last three to five years. The primary driver of this was felt to be pressure from tenants, many of whom, contrary to the masculine pioneer attitude identified by Cupples et al (2007), were not prepared to tolerate cold homes any longer and as such, regarded basic insulation and an ASHP in the main living room as essential.

"One of the first questions prospective tenants ask is whether it's insulated and has it got a heat pump." (Landlord, 50+ properties)

This is surprising in light of the international literature characterising private renters as a largely passive group, disempowered by a lack of housing choice. Quite the opposite appeared to be true of Dunedin tenants and there were several examples of empowered tenants holding landlords to ransom over EE measures:

"We didn't put a heat pump in one of the properties because they didn't complain so we left them to it. Although most tenants expect it now and some recently said they wouldn't sign the lease if we didn't agree to put a heat pump in." (Landlord, 4 properties)

The majority of landlords and letting agents interviewed were clear that consumers were becoming more discerning regarding the thermal performance of properties

and increasingly recognised the connections between EE and a home that is easier to heat and more comfortable. Indeed, it was widely reported that prospective tenants now routinely asked if a property is insulated and whether it has an ASHP.

"We do an appraisal in terms of how a property can be improved when we sign them up and one of the first things we look at is insulation and heating, so if there's no heat pump then it won't let so easily. So we say it's going to make it easier to let if we can tell the prospective tenants that it's well heated and maintained, potentially we might be able to increase the rental income because it makes them more competitive, cos if they're competing with something next door that is very similar but isn't insulated and heated it's obvious which one the tenant's going to go for." (Letting agent and landlord, 200+ properties)

However, as one landlord and letting agent highlighted, there is a risk, given this shift in tenants' expectations that landlords simply attempt to 'tick the box' and install minimal insulation which will, in turn, undermine the effectiveness of the ASHP: a phenomena he is increasingly witnessing and that will not deliver the warmer homes tenants seek.

"Tenants are now conditioned to ask for insulation and a heat pump. On the landlord's side, they think, 'okay, ceiling insulation is in-check; heat pump is in-check'. What they need to understand is that ASHPs are inefficient in poorly insulated properties." (Landlord and letting agent, 50+ properties)

The increased awareness that tenants are reportedly displaying was attributed by landlords to a number of factors including increased media coverage. Indeed, cold homes have become somewhat of a media preoccupation locally, particularly since the death of a local infant due to cold related illnesses (Mourik and Rotmann, 2013).

Publicity that has accompanied the Government's free insulation scheme (*Warm up NZ*) and the activities of the Otago University Students Union were also believed to have raised consumer awareness of the benefits of warmer, more efficient homes.

"I think there's been quite a lot of publicity about slum landlords and draughty houses in recent years so there's been an increased awareness of the need for ASHPs and good insulation." (Letting agent and landlord 200+ properties)

"In the last three years, tenants have definitely become more discerning. I think it's got a lot to do with the students' association. They train them when they are in halls of residence about the questions they should be asking landlords and run sessions. They tell them to look for insulated properties with energy efficient appliances. They don't seem bothered about the latter though but the message has got through about insulation." (Landlord 70+ properties)

Will tenants pay more for warmer homes?

While most of the landlords interviewed reported that, in light of these expectations, better energy performance improves 'letability', it was still not considered to be a 'deal breaker' by most with location, cost, appearance and size felt to remain tenants' primary concerns. This finding is in line with research in the UK that established that landlords are more likely to invest in EE improvements that also have cosmetic benefits (Ambrose, 2015).

"Energy is becoming important but aesthetics still sell the place, tenants still prefer somewhere with a nice kitchen, bathroom, good carpets and painted, over somewhere without those things but with good insulation. Some have upgraded their

windows, usually with aluminium framed double glazing. It makes the place look better and tenants like that." (Letting agent and landlord, 50+ properties)

Others felt that although location remained tenants' first consideration, the energy performance of a property would help them to narrow down their search within that area, if there were multiple properties to choose from. As the following quote illustrates, a number of landlords felt that tenants would pay a small premium of around \$10 per week (£5) for a property that is ostensibly warmer and easier to heat, as denoted by the presence of basic EE measures (insulation and an ASHP).

"Location definitely plays a massive part in it but if I show them two properties of \$10 difference around the same area and one is fully insulated and one is only partially insulated, they'll definitely spend more money to take the one that is fully insulated." (Landlord, 100+ properties)

There were also several examples of landlords brokering deals with tenants who had made requests for improved energy performance to increase their rent to cover the cost of heat pump installation, something tenants were reportedly comfortable with.

"I never noticed it was cold in there, I've used the fire a few times and it worked really well but they found it cold and weren't happy, so I said 'I'll put a heat pump in' cos hopefully they'll be long term tenants. So we had a discussion over how much the rent would need to go up by [...] I gave them a good deal and put their rent up \$10 a week just for the capital. It will take about six years to pay off." (Landlord, 3 properties)

Non-joiners and passive actors

A small number of landlords felt that although they probably could slightly increase rent for a more energy efficient property, there remained a market for cheaper, unimproved properties and that the trend towards charging higher rents for more efficient properties had strengthened this market. This view was expressed by around 10 per cent of landlords (the 'non-joiners').

"Yeah I'm sure it may be possible to charge a bit more in rent. We've got a four bedroomed villa, it looks like it's pretty much in original condition, had nothing done to it. We haven't had any trouble renting it. Some students are just looking for space and convenience like the supermarket being just across the road and it's not that far to walk to the university and they don't want to pay for double glazing and expensive insulation, they just want a place that's not expensive." (Landlord, 6 properties)

A small number of landlords exhibited a slightly more positive attitude but were, like the non-joiners, largely unwilling to invest significantly in EE measures. All of the landlords pursuing this approach owned a small number of properties and claimed that they could not afford to actively improve the energy performance of their properties, despite appreciating the benefits of doing so. Commenting on this approach, two large letting agents suggested this attitude was symptomatic of the sort of 'unprofessional' approach to property investment exemplified by many 'small time' investors.

"Our landlords are more often than not busy professional people who you can rationalise with. There are landlords out there who are small time and manage their own properties who will spend the absolute bare minimum on their properties to keep them inhabitable cos it's all about cash flow." (Letting agent, 200+ properties)

The rise of the Air Source Heat Pump

Two thirds of landlords had installed ASHPs and many believed that tenants now expected them 'as standard'. ASHPs are perceived by landlords as relatively affordable to buy and install and as economical to run for tenants - a view ostensibly informed by Government guidance recommending them, which had been circulated by the local landlords' association. However, as the following quote highlights, there are considered to be few (if any) other options now that previously very common forms of heating such as log burners and multi-fuel stoves have been restricted on air quality grounds (Povey and Harris, 2004).

"Why a heat pump? Well, what else is there?" (Landlord, 4 properties)

Generally, only one heat pump was installed in a property regardless of its size, usually in the main living area. Additional pumps may be installed in exceptional circumstances (e.g. a bedroom with high ceilings, large windows and south facing). There were several examples of landlords raising rent levels in order to cover the cost of installing an ASHP where requested by the tenant.

However, in response to reportedly widespread feedback from disconcerted tenants that their heating costs had increased since the installation of the ASHP, many landlords concluded that tenants often did not know how to use the technology to the best effect. Research in the UK (Ambrose et al, 2012) established similar difficulties on the part of tenants. Apparent misuse of ASHPs had led one landlord to move away from the installation of this sort of technology and to revert to more 'passive' EE measures.

"I won't install ASHPs anymore because they are used inefficiently. People use them like fan heaters. So I aim to achieve energy efficiency passively. I provide warm, dry homes by sealing around the windows and doors, providing thermally lined curtains,

putting in underfloor and roof insulation. I also make sure none of the flower beds are in contact with the house because this can cause damp." (Landlord, 3 properties)

Double glazing

Double glazing is an area in which NZ differs considerably from the UK and Europe. The Building Code does not require it except where windows in new properties would take up 30 per cent or more of the wall space (MBIE, 2007). As a result, double glazing remains rare, particularly amongst the existing stock. An interview with a UPVC double glazing provider revealed a lack of demand and resulting high costs, a scenario likely to prevent double glazing from becoming more affordable in the future. Where it is installed, thermally inefficient aluminium framed windows (usually with thermal breaks) are favoured as they are manufactured locally and prices are therefore lower.

Accordingly, 27 of the 30 landlords interviewed believed that double glazing was too expensive with costs for whole houses consistently estimated between \$15,000 to \$20,000 per property. This level of expenditure, it was argued, would 'break' their business models. In other words, they believed they would not recoup the high capital costs through increases in rental income or capital appreciation. Moreover, it was argued by most landlords that there is no tenant demand for it. This argument was well rehearsed in relation to a range of EE measures beyond insulation and ASHPs.

"Tenants don't expect double glazing, not yet anyway and if I did install it, it would totally disrupt my cash flow and sap my borrowing quota which I need for other maintenance." (Landlord, 5 properties)

Others claimed that lenders would not accept the need for capital investment in anything beyond basic EE measures (which would not include double glazing) when purchasing or re-mortgaging a rental property:

"The bank sets the budget for the project. The first thing they did was go down the list of costs and strip it right back to the bare minimum. No added extras they say because no one will pay any more for them and that's true." (Landlord, 6 properties)

Low income tenants

A critically important finding from this study, which is perhaps more predictable on the basis of the existing literature, is that it appears unlikely that consumer pressure of the sort that has resulted in insulation and ASHPs now being considered a basic expectation, is felt as strongly by the landlords of low income tenants. These tenants are very much the preserve of the 'non-joiners' and 'passive actors', just as the benefits of a 'pro-active' landlord tend to be confined to higher income groups. These 'types' of landlords widely argued that they were helping to address a gap in the market for low income rental properties and as such, had a duty to keep their rents as low as possible:

"You can still fill older, draftier properties but you have to charge below market rents to do that now. There is still a market for really cheap properties and whoever takes them on doesn't expect much." (Letting agent, 100+ properties)

Low income tenants, it was argued, would rather have an affordable property than a warmer, more energy efficient one and little credence was given to the argument that a more efficient home may help tenants save money.

Policies and regulation

In spite of the reservations of these 'lower end' landlords, the idea of the introduction of minimum quality standards within the PRS, as will be the case in NZ? and the UK from 2018 (UK Government, 2013), may not be as unpalatable to landlords as might be assumed. This bodes well for the upcoming introduction of the Healthy Homes Guarantee Act with only one of the thirty landlords interviewed reporting that they would exit the market and sell on their properties if minimum standards were introduced. The majority felt that a minimum standard would create a 'level playing field' and would simply result in them paying less for properties that did not meet the standard at the point of purchase. They did, however, concede that this would have the effect of increasing rents for all tenants, with obvious implications for low income households. In line with the findings of research in Australia (Gabriel et al, 2010b), most felt strongly that any minimum standard should be accompanied by some degree of subsidy or financial support, at least initially.

"If regulation comes along, you'd deal with it. Everyone would be affected, there'd be no exemptions. So that way you level the playing field. There are winners and losers though and the loser isn't necessarily the landlord. It'll be the tenants that pay and everyone's rent would go up." (Landlord, 30 properties)

The influence of the Government's subsidised insulation scheme- *Warm up NZ*- on landlords' behaviour regarding insulation should also not be underestimated. On the basis of this relatively small sample, awareness of the scheme was widespread and appears to have been effective in increasing the number of rental properties with insulation or in raising the quality of insulation if already installed. The majority of landlords interviewed (approximately 90 per cent) had installed or improved

insulation in their properties in the last 2-3 years. Whilst many had taken advantage of the subsidies available, some perceived *Warm up NZ* to be poor value for money and bureaucratic and had installed insulation themselves. In this sense, it could be argued that the existence of the scheme had still served its purpose.

"The scheme [Warm up NZ] makes them think about it but in most cases they can buy it cheaper and do it themselves because the scheme had so much compliance cost on top that it was actually a bit of a rip-off." (Letting agent and landlord, 100+ properties)

The role of letting agents

Another finding worthy of note is that letting agents were in a strong position, as trusted advisors to the landlords that use them, to promote the benefits of EE.

"I'm sure I can convince any owner there's a benefit in insulation and heating, I've convinced people to repaint the entire outside of houses before the house goes on the market, so it's a matter of the property managers having the ability, if it's a managed property, to convince those people from anecdotal events." (Letting agent and landlord, 200+ properties)

They are also reported to play a key role in making such improvements financially viable due to their perceived ability to secure the best possible rental income from a property. However, if landlords feel that they cannot undertake improvements without increasing or maximising their rental income, then questions remain over the extent to which energy efficient housing is accessible to low income groups.

6. Discussion

The findings reported in this paper suggest that a shift in landlords' attitudes towards investment in EE measures has occurred in Dunedin over a 3 to 5 year period and that this was predominantly driven by increased pressure from significant segments of tenants who now expected a basic standard of insulation and an ASHP as 'standard'. It should, however, be borne in mind that, although in a minority, there were some landlords, predominantly those whose business models focussed on low income groups (the 'passive actors' and 'non-joiners'), who were unlikely to experience pressure from tenants or to feel the need to respond to it if they did. Such landlords still conform neatly to the principal-agent thesis and are staunch in their belief that their business models cannot accommodate EE measures. This suggests that within a general trend towards shifting attitudes there will always be exceptions.

As the research did not include interviews with tenants at this stage, we are reliant on the views of landlords and letting agents as to why consumer attitudes have shifted, at least within certain segments of the private rented sector. The consensus regarding this shift is that some combination of the media, government initiatives and campaigns undertaken by local institutions, groups and charities has driven change. Government sources also suggest that rising energy prices have played a part (New Zealand Government, 2018). These findings appear to endorse the IEA's (2007) assertion that a combination of institutional support for energy efficiency, price factors and public awareness is required to affect change.

The action taken by landlords remains relatively limited, however, excluding many of the basic EE measures expected in the UK and Europe (such as double or triple glazing and insulation in walls), but at the same time, appears to align to the current extent of consumer expectations in NZ and the limitations imposed by the construction of NZ homes.

The way in which landlords in Dunedin have responded to consumer pressures is contrary to the implications of the principal agent problem and to experience in other countries including the UK and Australia (Shelter, 2014; Gabriel et al, 2010a).

Whilst it may be true that EE is both poorly understood and undervalued by many tenants, as assumed by the principal-agent thesis (IEA, 2007), it appears that warmer homes are not, as demonstrated by the pressure placed on Dunedin landlords by their tenants to improve the warmth of their homes. It is therefore not unreasonable to posit that in Dunedin, a process that began with local campaigning (aided by rising energy prices) has raised awareness amongst and empowered tenants to rally against cold, inefficient homes, resulting in a climate where landlords are expected to provide basic EE measures but are not expected to absorb the entire cost of doing so. Referring back to the factors outlined in *Table 1*, it is possible to see how if living conditions continue to rise and consumers become wiser then cultural norms and expectations around the level of warmth and comfort that is acceptable may be adjusted. In this scenario the principal-agent problem and absence of financial incentives may also be alleviated.

Overall, reflecting back on the factors identified from the international literature, as set out in *Table 1*, it appears that in Dunedin, a combination of economic and socio-cultural factors are contributing to the shifts in attitudes identified by the research. The primary economic factor at work appears to relate to the provision of financial incentives. Whereas previous research in this field has done little to challenge the principal-agent thesis and the underpinning notion that tenants do not attach value to more efficient properties or appreciate the connection between EE and warmer homes, in Dunedin tenants' attitudes appear to have shifted. The impact of this seemingly widespread shift is that landlords must meet tenants' expectations in order

to ensure that their properties remain easy to let. Moreover, tenants are, in many cases, reported to be willing to contribute to the cost of EE measures, reducing the financial burden on the landlord. However, at the root of this change lies a distinctly socio-cultural process which has led consumers towards reduced tolerance of cold, inefficient homes as the norm. This relatively rapid shift in cultural norms appears, on the basis of the data presented, to be the catalyst for changes in landlords' behaviour.

Other factors identified elsewhere, such as a lack of technical understanding and knowledge amongst landlords also resonates in Dunedin and remains a considerable challenge for the future as landlords acquiesce to tenant demand and install EE measures with little understanding of how this should be approached and of the interaction between different measures. As with elsewhere, low trust in government initiatives is evident amongst Dunedin landlords, yet there is little doubt that *Warm Up NZ: Heat Smart* has played a role in raising awareness of the need for insulation and in boosting installation rates.

7. Conclusion

Prior to this research, it was largely accepted that the economically focussed principal-agent thesis provided an accurate articulation of the way landlords approach decisions regarding investment in EE measures and an adequate explanation for their inertia, as asserted by the IEA (2007). However, this study has demonstrated that socio-cultural factors such as expectations regarding warmth and comfort amongst tenants, as identified by Shove (2003), Rybczynski (1986) and Cupples et al (2007) have the potential to disrupt established economic rationales. For example, evidence from Dunedin suggests that where widespread consumer pressure is engendered, cultural norms regarding the acceptance of cold, inefficient

homes may shift, thus challenging the idea that 'principals' do not value EE sufficiently to pay more for it. The evidence from Dunedin suggests that many do. Indeed, one of the most significant lessons to emerge from the study is that consumer pressure (linked to organised pressure group campaigns) is powerful and has the potential to erode entrenched cultural norms which would otherwise constrain improvements, such as the 'masculine pioneer identity' and associated acceptance of cold homes identified by Cupples et al (2007) and Mourik and Rotmann (2013). The conditions created by this shift in attitudes also look likely to have fostered conducive conditions for forthcoming legislative changes from 2019 under the RTA.

If increased consumer pressure endures, in the future landlords will need to build the costs of basic EE measures into their business models. As Dunedin landlords acknowledge, this is likely to involve them endeavouring to pay less for properties at the point of purchase or charging a higher rent to both cover the costs of the measures and to reflect the increased amenity of the property.

However, the pattern of investment, as reported by the landlords, also provides a warning, emphasising that there are both winners and losers associated with any change. Low income groups are the least likely to benefit from investment in their home as they rent from landlords who fall into the category of 'passive actors' and 'non-joiners,' who, as identified by Saville-Smith and Fraser (2004) view rental properties as a *"vehicle for passive investment and capital gain"*. As such, their attitudes and behaviour continue to conform to the principal-agent thesis.

This is of particular concern given that low income tenants are a significant group within the sector (Perry, 2012) and stand to gain the most from improved housing

conditions (Povey and Harris 2004, Povey et al, 2014). This suggests that moves towards regulation and the introduction of minimum standards must be accompanied by and adjusted to a nuanced understanding of the operation of landlords' business models to avoid the abandonment of the poorest tenants by private landlords.

In terms of future research priorities, the fact that the case study of Dunedin has produced results that differ from the findings of related research undertaken in the UK, Europe and Australia, suggests that there is much to be learnt from examining the operation of the PRS in a variety of different contexts, something stressed and explicitly encouraged by Gabriel et al (2010a) and the IEA (2007). Moreover, this study has clearly indicated that the role of the consumer can be critical in effecting a shift in landlords' attitudes and behaviour and a key priority for future research will be to understand consumer attitudes towards the energy performance and what drives them to demand higher standards. Certainly, the accounts of landlords and letting agents revealed by this study suggest that tenants are predominantly driven by the desire for warmer and more comfortable homes that are more affordable to heat, rather than by saving energy *per se*. If this is the case then it is likely that, in line with the concept of the 'rebound effect' (Gillingham et al, 2009), the main benefits of the shift in attitudes witnessed will be in relation to the health and wellbeing of tenants as opposed to energy and carbon savings.

A key remaining question concerns the extent to which the conditions that have fostered change in Dunedin can be replicated elsewhere. One obvious lesson is that more informed and empowered consumers are a powerful weapon. However, is it possible to foster such strength of feeling where conditions are anything short of dire? In the UK for example, the presence of gas central heating and double glazing is the norm and when in use affords a level of comfort almost unimaginable to

Dunedin tenants. Fuel poverty is nevertheless a significant and well documented political issue in the UK and some other European countries. In this context, governments might consider promoting local campaigns based on the Dunedin model. At the same time, market conditions in the UK and perhaps elsewhere, where rents are inflated and incomes static or reducing, mean that political campaigns alone may be ineffective.

Therefore, although the principle of increasing consumer awareness and pressure may be transferable to other contexts, country-specific economic factors including housing market conditions may form obstacles to the replication of the Dunedin 'model of change' elsewhere.

The question of whether it is desirable to replicate this model elsewhere should also be considered. As the evidence presented in this paper suggests, although change is taking place, conditions in the Dunedin PRS remain far from perfect. Most notably, landlords were unequivocal that the introduction of minimum standards for EE would necessarily result in rent increases which would hit low income tenants hardest.

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References

Ambrose, A. Goodchild, B. and O'Flaherty F (2012), User perspectives in low energy housing [online]. Available from: <http://www.shu.ac.uk/research/cresr/ouexpertise/user-perspectives-low-energy-housing>. [Accessed: 22nd July 2015]

Ambrose, A. (2015), Improving energy efficiency in the private rented sector: what makes landlords act? *Indoor and Built Environment*, 24(7): pp. 913-924.

Association for the Conservation of Energy (2014). Private rented sector energy efficiency regulations (domestic) (England and Wales). Consultation response submitted to Department of Energy and Climate Change. London: ACE.

Barton B. (2012) Energy Efficiency and Rental Accommodation: Dealing with Split Incentives. Report for the University of Waikato Centre for Environmental, Resources and Energy Law. Hamilton: University of Waikato.

Bennett, J., Howden-Chapman, P., Chisholm, E., Keall, M. and Baker, M.G. (2016). Towards an agreed quality standard for rental housing: field testing of a New Zealand housing WOF tool. *Australian and New Zealand Journal of Public Health*, 40(5): pp. 405-411.

Bierre S, Bennett M, Howden-Chapman P. (2015). Decent expectations? The interpretation of housing quality standards in tenancy tribunals in New Zealand. *New Zealand Universities Law Review* 26(2): pp.153-85.

Bierre, S., Howden-Chapman, P. and Signal, L. (2010). 'Ma and Pa' Landlords and the 'Risky' Tenant: Discourses in the New Zealand Private Rental Sector. *Housing Studies*, 25(1): pp. 21-38.

Bould, N, (2015), Drivers of Landlord Motivation to Upgrade and Maintain their Rental Properties: a proposal to the Ministry of Business, Innovation and Employment. Dunedin: Ahika.

Building Research Association of New Zealand, (2011), BRANZ 2010 House Condition Survey-Condition comparison by tenure. Judgeford: BRANZ.

Bradbrook A (1991) The Development of Energy Conservation Legislation for Private Rental Housing *Environmental and Planning Law Journal*: 8(2): pp. 91-1107.

Community Energy Action (2014), *Rentals lagging behind in insulation scheme*, [online]. Available from: http://www.cea.co.nz/Rentals-lagging-behind-insulation-scheme-1.1770_N.10 [Accessed 24th July 2015]

Cupples J, Guyatt V, Pearce J, (2007), "Put on a jacket, you wuss": cultural identities, home heating, and air pollution in Christchurch, New Zealand" *Environment and Planning A* 39(12): pp. 2883 – 2898.

Department of Environment. (1979). English House Condition Survey, 1976, Part 2: Report of the Social Survey. London: HMSO.

Druckman A and Jackson T (2008), Household energy consumption in the UK: A highly geographically and socio-economically disaggregated model. *Energy Policy*, 36: pp. 3177-3192.

Energy Efficiency and Conservation Authority, (2015). *Warm Up New Zealand: Healthy Homes*. [online]. Available from: <http://www.eeca.govt.nz/eeca-programmes-and-funding/programmes/homes/insulation-programme>. [Accessed 22nd July 2015].

Falconer, E. (2017). 'Home sweet rental home', *Radio New Zealand*, 5 January 2017. Available from: <http://www.radionz.co.nz/stories/201829248/home-sweet-rental-home>. [Accessed 21st April 2017].

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12(2): pp.219-245.

Gabriel, M, Watson, P, Ong, R, Wood, G and Wulf, M (2010a), The Environmental Sustainability of Australia's private rental housing stock, Report for the Australian Housing and Urban Research Institute. AHURI Positioning Paper No. 125.

Gabriel, M, Watson, P, Ong, R, Wood, G and Wulf, M (2010b), The Environmental Sustainability of Australia's private rental housing stock, Final Report for the Australian Housing and Urban Research Institute. AHURI Positioning Paper No. 159

Gillespie-Bennett, J, Keall, M., Howden-Chapman, P. and Baker, M. (2013). Improving health, safety and energy efficiency in New Zealand through measuring and applying basic housing standards. *The New Zealand Medical Journal*, 126 (1379). Available from: <https://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2013/vol-126-no-1379/view-gillespie-bennett>. [Accessed 23rd April 2017]

Gillingham K, Newell RG and Palmer K. (2009), Energy efficiency economics and policy. Report for the National Bureau of Economic Research. Working Paper no. 15031. Cambridge MA: NBER.

Grimes, A., Young, C., Arnold, R., Denne, T., Howden-Chapman, P., Preval, N. and Telfar-Barnard, L. (2011). *Warming up New Zealand: Impacts of the New Zealand Insulation Fund on Metered Household Energy Use*. Wellington, NZ: Motu Economic and Public Policy Research.

Guy, S., and Henneberry, J. (2000). 'Understanding urban development processes: integrating the economic and the social in property research' *Urban Studies*, 37(13): pp. 2399-2416.

Howarth, R. B., & Andersson, B. (1993). Market barriers to energy efficiency. *Energy Economics*, 15(4): pp. 262-272.

Hope J.H and Booth A (2014). Attitudes and behaviours of private sector landlords towards the energy efficiency of tenanted homes, *Energy Policy*, 75: pp.369-378

Howden-Chapman, P., Pierser, N., Nicholls, S., Gillespie-Bennett, J., Viggers, H., Cunningham, M., Phipps, R., Boulic, M., Fjallstrom, P., Free, S., Chapman, R., Lloyd,

B., Wickens, K., Shields, D., Baker, M., Cunningham, C., Woodward, A., Bullen, C. and Crane, J. (2008). *Effects of improved home heating on asthma in community dwelling children: randomised controlled trial*. *BMJ*, 337, a1411.

Howden-Chapman P, Viggers H, Chapman R (2007). Warm homes: drivers of demand for heating in the residential sector in New Zealand. *Energy Policy*, 37: pp.338-399

Howden-Chapman, P., Viggers, H., Chapman, R., O'Dea, D., Free, S., O'Sullivan, K. (2009), Warm homes: Drivers of the demand for heating in the residential sector in New Zealand, *Energy Policy*, 37(9): pp. 3387-3399.

Howden-Chapman, P., Viggers, H., Chapman, R., O'Sullivan, K., Telfar-Barnard, L., and Lloyd, B. (2012). Tackling cold housing and fuel poverty in New Zealand: A review of policies, research, and health impacts. *Energy Policy*, 49: pp. 134-142.

International Energy Agency (2007), *Mind the Gap: Quantifying Principal-Agent Problems in Energy Efficiency*. Paris: OECD/IEA.

Isaacs, N., Saville-Smith, K., Camilleri, M. and Burrough, L. (2010) Energy in New Zealand houses: comfort, physics and consumption. *Building Research & Information*, 38(5): pp 470–480.

Isaacs, N. and Donn, M. (1993), Health and Housing-seasonality of New Zealand mortality. *Australian Journal of Public Health*, 17(1): pp. 68-70

Jackson T (1992) Energy efficiency without tears: Towards a 'no-regrets' greenhouse policy. Report for Friends of the Earth. London: FOTE.

Jaffe A,B. and Stavins, R,N (1994), The energy-efficiency gap. What does it mean? *Energy Policy*, 22(10): pp. 804-810.

Jakob, M (2006) Marginal costs and co-benefits of energy efficiency investments. The case of the Swiss residential sector, *Energy Policy*: 34: pp.172-187.

Lloyd, B. (2006). *Fuel Poverty in New Zealand*, [online]. Available at: <https://www.msd.govt.nz/about-msd-and-our-work/publications-resources/journals-and-magazines/social-policy-journal/spj27/fuel-poverty-on-new-zealand-27-pages142-155.html>. [Accessed: 22nd July 2015].

Lloyd EL, McCormack C, McKeever M, and Syme M (2008) The effect of improving the thermal quality of cold housing on blood pressure and general health: a research note. *Journal of Epidemiology and Community Health*, 62: pp.793–797

Ministry of Business, Innovation and Employment, (2004). *Building Act*. [online]. Available at: <http://www.building.govt.nz/blc-building-act>. [Accessed: 22nd July 2015]

Ministry of Business, Innovation and Employment. (2007). *Changes to Building Code energy efficiency provisions: insulation, lighting and solar water heating* [online].

Available from: <http://www.building.govt.nz/codewords-24-5>. [Accessed: 22nd July 2015]

Ministry of Business, Innovation and Employment. (2014) *Review of the earthquake-prone building policy* [online] Available from: <http://www.building.govt.nz/epb-policy-review-process>. [Accessed: 20th June 2015]

Ministry of Business, Innovation and Employment (2018) *Healthy Homes Standards: Proposed healthy homes standards for heating, insulation, ventilation, moisture ingress, drainage and draught stopping*. Discussion document [online] Available from: <https://www.hud.govt.nz/assets/Healthy-Homes/Discussion-document-Healthy-Homes-Standards.pdf>. [Accessed 1st November 2018].

Mourik, R and Rotmann, S (2013), Most of the time what we do is what we do most of time. And sometimes we do something new. Subtask 1: Analysis of case studies IEA DSM Closing the Loop- Behaviour Change in DSM: From Theory to Practice. Paris: IEA.

New Zealand Government (2018). *Electricity Price Review: First Report for Discussion* [online] Available from: <https://www.mbie.govt.nz/info-services/sectors-industries/energy/electricity-price-review/consultation/first-report.pdf>. [Accessed: 31st October 2018]

Perry, B. (2012). Household incomes in New Zealand: Trends in indicators of inequality and hardship 1982 to 2011. Wellington: Ministry of Social Development.

Povey, D.M and Harris, U. (2004), Old, Cold and Costly? A survey of Low Income Private Rental Housing in Dunedin 2004. Dunedin: Presbyterian Support Otago.

Povey, D.M, Liebergreen, N and McKague, F (2014), Out in the Cold: a survey of low income private rental housing in Dunedin 2013. Dunedin: Presbyterian Support Otago.

Schipper, L., Unander, F., Marie-Lilliu, C., Walker, I., Murtishaw, S. (2000). Indicators of Energy Use and Efficiency in New Zealand: An International Perspective: Comparison of Trends Through 1995. Paris and Berkeley: International Energy Agency and Lawrence Berkeley National Laboratory.

Shove, E. (2003), 'Converging Conventions of Comfort, Cleanliness and Convenience'. *Journal of Consumer Policy*, 26(4): pp. 395–418.

Stuff.co.NZ (2015). Landlords required to insulate and install smoke alarms in rental properties. [Online]. Available from: <http://www.stuff.co.nz/business/70096597/Landlords-required-to-insulate-and-install-smoke-alarms-to-rental-properties>. [Accessed: 22nd July 2015]

Robertson, H and Norton, S, (2009), A Summary of Housing Related Research at the Otago Energy Research Centre. Dunedin: University of Otago.

- Rybczynski, W. (1986). *Home: A short history of an idea*. New York: Viking.
- Saville-Smith, K. and Fraser, R. (2004), National Landlords Survey: Preliminary Analysis of the Data Wellington: CRESA.
- Shannon, S, Lloyd, B, Roos, J and Kohlmeyer, J, (2003), EVH3- Impact of Housing on Health in Dunedin NZ, Dunedin: University of Otago.
- Shelter, (2014). *Can't Complain: why poor conditions prevail in private rented homes*. London: Shelter.
- Statistics NZ, (2014), *New Zealand in Profile: An overview of New Zealand's people, economy and environment*. Wellington: New Zealand Government.
- Telfar-Barnard, L., Preval, N., Howden-Chapman, P., Arnold, R., Young, C. and Denne, T. (2011). *The impact of retrofitted insulation and new heaters on health services utilisation and costs, pharmaceutical costs and mortality: Evaluation of Warm up New Zealand: Heat Smart*. Wellington: University of Otago.
- The Property Group, (2013). *An assessment of Future Social Housing Need in Dunedin 2011-31*. Dunedin: Dunedin City Council.
- Trotman, R. (2008), *NOW Home: Occupants experience of the home and implications for future NOW homes*. Waitakere: Beacon Pathway Ltd.
- UK Government (2013), *The Energy Act*. [online]. Available from: <http://www.legislation.gov.uk/ukpga/2013/32/contents/enacted/data.htm>. [Accessed: 22nd July 2015]
- Wilkinson S J and Goodacre C (2002) Promoting energy efficiency in the private rented sector. *Property Management*. 20(1): pp.49-63