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The conditions of normal domestic life help explain homeowners' decisions to renovate

Charlie Wilson

Tyndall Centre, University of East Anglia, Norwich, NR4 7TJ, UK

E-mail: charlie.wilson@uea.ac.uk

Lucy Crane

Tyndall Centre, University of East Anglia, Norwich, NR4 7TJ, UK

E-mail l.crane@uea.ac.uk

George Chryssochoidis

Norwich Business School, University of East Anglia, Norwich, NR4 7TJ, UK

E-mail: g.chryssochoidis@uea.ac.uk

Abstract

Energy efficient home renovations are commonly understood as being (i) the result of a deliberative, intentional decision, which is (ii) motivated by comfort outcomes and energy cost savings, but which is (iii) constrained by financial and market barriers. In this paper, we argue for this broadly rational view of renovation decisions to be reframed as a decision process that unfolds over time and is situated within the conditions of domestic life. Based on evidence from a series of interviews with homeowners both prior to and following major home renovations, we find that renovation decisions take shape and emerge from the background conditions of everyday domestic life. We propose six conditions which are relevant to the emergence of renovation decisions. The conditions range from balancing competing commitments to the physicality of living. Each condition is grounded in social science research into home making, domestication, and domestic practice. We then set out how each of the six conditions can be empirically substantiated, both qualitatively using methods such as interviews, and quantitatively using methods such as questionnaires. Drawing on the results of a nationally representative UK homeowner survey (n=1028), we test both our measurement approach and the ability of these six conditions of domestic life to explain why some homeowners decide to renovate whereas others do not. We contrast homeowners who are not considering renovations with homeowners who are thinking about, planning, or in the middle of renovating. For those homeowners considering renovations, we contrast those considering energy efficient renovations with those considering amenity (e.g., kitchen) renovations. We find that the conditions of domestic life which give rise to renovation decisions are broadly consistent across both amenity and efficiency renovations. We also find a number of conditions differ significantly between renovators and non-renovators. Homeowners considering renovations are more likely to (i) find differences between their and others' homes unsettling, (ii) face competing commitments at home, particularly if associated with new things going on in the lives of household members, (iii) find ideas and inspiration for the home from external sources, and (iv) share and transmit information about renovations. Our findings support an overall picture of energy efficient renovations as an adaptive response to competing commitments within the home.

Introduction

The 'Green Deal' is a major regulatory innovation in the UK launched in January 2013 which allows the upfront costs of energy efficiency measures to be financed by a third party and repaid over time through charges on the property's energy bill (DECC 2010; DECC 2011). The Green Deal is premised on a particular understanding of why people do or do not renovate their homes. Energy cost savings and improved thermal comfort are seen as sufficient motivations for renovating. But upfront costs, uncertain property tenure, and concerns over contractor quality are barriers preventing renovations from going ahead (DECC 2012); see also (Bell, Nadel et al. 2011; Whitmarsh, Upham et al. 2011). These barriers need to be (and can be) overcome with the help of policies like the Green Deal. Homeowners' energy efficient renovation decisions are thus conceptualised as being broadly rational: motivated by outcomes, deliberative, discrete, constrained by financial and market barriers, and so influenced by financial incentives. In this paper, we argue for this rational view of energy efficient renovation

decisions to be reframed as a decision process that unfolds over time, and is situated within as well as emergent from the everyday domestic life of households. This is important because we contend that policies such as the Green Deal which seek to promote efficiency in the existing housing stock tend to be based on a narrow understanding of renovation decisions which in turn constrains their effectiveness. In this paper, we describe a novel approach for identifying, measuring, and testing the influence of six conditions of domestic life which help explain why some homeowners decide to renovate. In so doing, we demonstrate that energy efficiency from a renovation decision making perspective is not distinctive. It is one means towards the end of improving the conditions of domestic life.

Method

The propositions and data presented in this paper are informed by three strands of research. First, we conducted a systematic review of both academic and grey literature relevant to renovation decision making. This ranged from discrete choice models to social theories of practice and domestication. Specific literature is discussed in the sections below; a full literature review is forthcoming in a separate companion paper.

Second, we conducted a series of 35 interviews with owner-occupied households in the period January - May 2012 split between two study sites: Rackheath in Norfolk, and Sutton in South London. The interview sample was recruited using a 3*2 design to include: households who had recently renovated, households who were thinking about renovating at some point in the future, and households with no plans to renovate. The first two sub-samples were further split between energy efficient and amenity renovators. Common energy efficient renovations include replacing windows and doors, and installing insulation. Common amenity renovations include kitchen remodelling, loft conversions, and new bathrooms. Throughout this paper, we use the term 'renovations' to meaning major, structural changes or additions to the home typically requiring outside contractors with specialist expertise (cf. Maller and Horne 2011).

Third, we carried out a nationally representative online survey of UK homeowners in September 2012. The literature review and interview data informed the design of the survey questions and instrument. This was refined iteratively in three rounds of pre-testing and testing during the summer of 2012. Sampling and survey administration was contracted to a market research company. The sampling was purposively stratified to ensure roughly equal representation of homeowners at different stages of the renovation decision process. This is explained further below and in Figure 1. Summary statistics of the survey sample are included in Table 1.

Table 1. UK Homeowner Survey Sample Statistics.

Sample size (n)	1028
Sample size (n) per decision stage	
> stage 0: not considering renovations	~250
> stage 1: thinking about renovations	~250
> stage 2: planning renovations	~250
> stage 3: finalising renovations (see Figure 1 and note ^a for details)	~250
Mean respondent age	49.8 yrs
Frequency of female respondents	52.4%
Median household income	£30 - 35,000 / yr
Mean household size	2.4 people
Most common (mode) house type	semi-detached house
Most common (mode) house vintage	1950-1989
Most common (mode) length of tenure	10-20 yrs

Notes: ^a Survey respondents were assigned to one of the four stages (0,1,2,3) based on their self-identification as: 'not currently thinking about renovations as a possibility' -> stage 0; 'currently thinking about renovations as a possibility' -> stage 1; 'currently planning renovations to be done at some point in the near future' -> stage 2; 'currently finalising plans for renovating or in the middle of renovating' -> stage 3.

Homeowners deciding about renovations were asked which measures or parts of the home they were considering renovating. Responses were classified as either amenity measures (kitchens, other living spaces) or energy efficiency measures (windows/doors, heating systems, loft or cavity wall insulation). Energy efficiency measures are an upper bound as measures like renovations to windows and doors may not have anything to do with efficiency. Homeowners were then classified as considering amenity only, efficiency only, or mixed amenity / efficiency renovations (frequencies are shown in Table 2). Only 16% of the sample were considering efficiency only renovations, compared to 49% amenity only.

Table 2. Type of Renovations Being Considered. (N.B. Homeowners deciding about renovations only, decision stages 1-3).

Amenity renovations only (measures = kitchen, other living spaces) ^a	49%
Energy efficiency renovations only (measures = heating, windows, doors, insulation) ^a	16%
Mixed amenity / efficiency renovations (combination of measures) ^a	36%

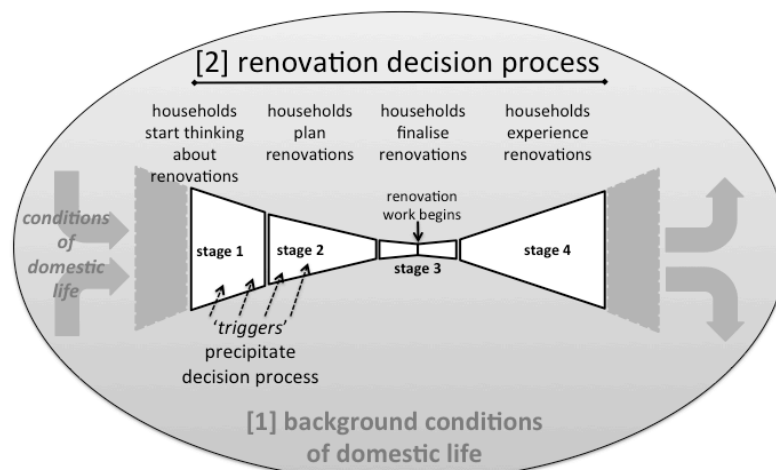
Notes: ^a Open text responses were coded as either amenity or efficiency, or left as 'other' if measures were not clear.

Renovation Decisions from the Conditions of Domestic Life

Figure 1 shows the representation of renovation decision making underpinning our research. Its generality applies to all types of renovation, including both efficiency and amenity. It has various key features which are in contrast to the broadly rational framing of renovation decisions which underpins initiatives such as the Green Deal:

- Renovation decisions are not a static 'event' but a process; this process can be represented as a sequence of stages (see tapered wedges in Figure 1).
- Renovation decisions are shaped not by a discrete, consistent set of variables but by influencing conditions which vary over the decision process.
- Renovation decisions are not induced by financial and market incentives but are rooted in and emergent from the conditions of domestic life (see grey egg in Figure 1). In some cases, these conditions may be 'bypassed' by exogenous triggers (such as a boiler breaking down). Triggers are not background, recurrent features of domestic life but one-off, high salience events which precipitate an immediate response.
- Renovation decisions are not about improving energy efficiency and saving money on energy bills but about adapting the home to meet the demands of domestic life (with energy efficiency as one possible means towards those ends).

We distinguish four related stages within our model of the renovation decision process (see tapered wedges in Figure 1), consistent with other stepwise, incrementally self-reinforcing decision models as in (Rogers 2003). Stage 1 = thinking about renovations; Stage 2 = planning renovations; Stage 3 = finalising and carrying out renovations; Stage 4 = experiencing and evaluating renovations. In this paper we focus on stages 1-3, prior to the renovation work being carried out. In addition, we distinguish a null stage or stage 0 to describe homeowners not thinking about renovations.



Notes [1]: Grey egg represents background conditions of domestic life.
 Notes [2]: Tapered white wedges represent renovation decision process.
 Narrowing wedges represent decision making becoming more specific, focused.

Figure 1. Representation of the Renovation Decision Process

Research on energy efficient renovation decisions is commonly subject to self-selection biases. Homeowners observed, interviewed or surveyed have a prior interest or commitment to either renovating or energy efficiency or both. This is particularly the case for research subjects identified through their participation in energy efficiency programmes or interventions, such as the Pay-As-You-Save trial funded by the UK government to test Green Deal-type financing. The representation of the renovation decision shown in Figure 1 tries to explain where this interest in, or intention to renovate energy efficiently originates. We are concerned not with the motivations of already committed energy efficient renovators but with how and why these renovators became committed in the first place. Our proposition is that this commitment emerges from the conditions of everyday domestic life (represented as the grey egg in Figure 1).

Once the decision process becomes more concrete, the relevance of the conditions of domestic life recedes, and the salience of more immediate concerns increases. The decision becomes more clearly intentional and deliberative. This means thinking and deciding about: what to renovate? how much will it cost, how to finance it? how to do the renovations? and so on. These are the emphases of stages 2 and 3 in the representation shown in Figure 1. The broadly rational framing of renovation decisions which underpins the Green Deal and which characterises intentional decision models such as the innovation decision model (Rogers 2003) or the Theory of

Planned Behaviour (Ajzen 1991) therefore only applies (and becomes analytically useful) once homeowners are already interested in or committed to renovating.

Exogenous Triggers of Renovation Decisions

The representation of the renovation decision process in Figure 1 includes the possibility for decisions to be exogenously triggered. By exogenous, we mean external to, or outside everyday domesticity. Triggers are not background, recurrent features of domestic life but one-off, high salience events which create strongly necessary or favourable conditions for renovating. The most obvious trigger is the breakdown of an essential structure or function of the home such as the boiler or heating system. Other triggers include: a strong recommendation from someone locally; a strong recommendation from a contractor or outside expert; a very attractive financial offer becoming available. The emphases in these latter triggers is on ‘strong’ or ‘very attractive’, i.e., with a salience that precipitates an immediate response.

Table 3 shows the frequency of responses for each of the four potential triggers included in the national homeowner survey. Results are shown per decision stage. Roughly one quarter of households deciding about renovating (stages 1-3) report doing so necessarily because something needing fixing or replacing. This proportion is consistently higher for efficiency only renovators (see Table 2), reaching up to 37% of households in stage 3. In other words, energy efficient renovations are more likely to be triggered by something breaking down or not working properly than amenity renovations. The other three triggers are infrequently reported (see Table 3), with less than 6% of households citing strong local recommendations, strong expert recommendations, or very attractive financial offers as having triggered their renovation decision process. These proportions are again consistently higher for efficiency only renovators, particularly in the case of the financial offers.

Overall, however, roughly two thirds of households report no exogenous trigger, so at least two thirds of households’ renovation decision processes are emergent from the background conditions of domestic life (according to our decision model). We say at least because decisions emergent from domestic life are compatible with all but the most extreme exogenous trigger (e.g., boiler breaks down irreparably in mid-winter). As a survey response, exogenous triggers may also offer a useful rationalisation or post hoc justification for costly, time consuming, disruptive renovations, so response frequencies may be inflated.

Table 1. Exogenous Triggers for Renovation Decisions. (N.B. Response frequencies are not additive).

Trigger	Measurement Item (yes/no)	‘Yes’ Frequencies per Decision Stage (n≈250) <i>N.B. not additive</i>			
		0 ^a	1 ^a	2 ^a	3 ^a
Fixing or Replacing	Something in your home stopped working properly so needed fixing or replacing	n/a	22%	28%	30%
Local Recommendation	Someone who lives locally strongly recommended home renovations to you	n/a	3%	6%	6%
Expert Recommendation	A contractor, builder, or outside expert strongly recommended home renovations to you	n/a	4%	4%	5%
Financial Offer	A very attractive financial offer for home renovations became available	n/a	2%	4%	6%

Notes: ^a Decision Stages: 0 = not thinking about renovations; 1 = thinking about renovations; 2 = planning renovations; 3= finalising renovations. See Figure 1 for details.

Six Conditions of Domestic Life Relevant to Renovation Decisions

We characterise domestic life using six ‘conditions’ which are grounded in theories of home making, domestication, and domestic practices, as well as in our interview data. We choose the term ‘domestic life’ as a simple term to describe the idea and process of home making which: (i) involves creating or making something, rather than being given or dealt something; (ii) includes a meaning of home that is shared both within and outside the physical house; (iii) introduces the notion of shared space, both literal and imagined; (iv) embeds the domestic within everyday life, rather than treating it as something separate. The six conditions of domestic life we propose are summarised in Table 4, and expanded upon in detail in the sections below. We found each of these conditions helped us understand the emergence of both energy efficient and amenity renovation decisions (see Figure 1).

Table 4. Six Background Conditions of Domestic Life Relevant to Renovation Decision Making.

Normality State	Brief Description	Key References
Delineating	The process through which households identify themselves as similar to, or different from, others, and normalise or justify their own behaviour.	(Wilhite and Lutzenhiser 1999; Leonard, Perkins et al. 2004; Gabb 2011)

Prioritising	The balancing of competing and at times conflicting commitments in domestic life which may be identified in boundaries or the crossing of boundaries.	(Nippert-Eng 1996; Munro and Leather 2000)
Negotiating	Family dynamics and power relations within the context of the home. Whose needs are being prioritised and how these needs are being put before others.	(Ehn and Löfgren 2009; Hargreaves, Nye et al. 2010)
Embodying	Views of the body and its abilities will impact how space is used and the physicality of living in a home.	(Imrie 2004; Imrie 2004; Shove, Chappells et al. 2008)
Adapting	Tacitly acknowledging or being explicitly aware of changing the physical arrangement of the home to meet competing needs or solve perceived problems with objects or the use of space.	(Chappells and Shove 2005; Shove, Watson et al. 2007)
Demonstrating	Challenging or confirming activities in the home, generating thoughts and ideas for changing the home, or creating barriers to achieving balance. May involve the absorption of media representations, government policy, and so on.	(Gram-Hanssen 2007; Hand, Shove et al. 2007)

Delineating and *Prioritising* are the more general conditions describing household identity and the relationships between household practices respectively. *Demonstrating* and *Adapting* are more specifically related to physical spaces and structures in the home and changes made to them. *Negotiating* and *Embodying* are moderating conditions for how decisions are made within households and how the physical challenges of domestic life are managed. These six conditions are neither exclusive nor discrete. They may characterise the domestic life of a given household to greater or lesser extent. For some households, particular conditions may be strongly salient. For other households, there may be a strong interplay between several conditions. All the conditions are dynamic, and are likely to change over time. But our initial work with renovating households at a single cross-section through time suggests these conditions help explain the emergence of an interest in or commitment to renovate. This in turn helps explain why homeowners are even considering renovations in the first place, and so why they may walk through the door of a home renovation store, sign up to a local authority incentive programme, or contact a Green Deal provider. An example of how the conditions of domestic life described in Table 4 shape the emergence of renovation decisions is given in Box 1 in narrative form.

Box 1. Narrative Describing the Emergence of Renovation Decisions from the Conditions of Domestic Life.

A household becomes aware of differences between their domestic life and the domestic life of others [*Delineating*]. Perhaps the physical arrangement of their home could be better adapted to domestic life, by rearranging objects or through DIY projects? Maybe more major structural renovations are required [*Adapting*], particularly given the future physical needs of certain household members [*Embodying*]. Ideas and inspirations from renovation TV shows and home stores take on newfound salience [*Demonstrating*]. Competing visions as to how the home is used, and how this might be improved, are also brought to the fore [*Prioritising*] with different household members shaping how these competing visions are portrayed and resolved [*Negotiating*].

Measuring the Conditions of Domestic Life in the Context of Renovation Decision Making

Table 4 summarises the six conditions of domestic life which we found help explain the emergence of renovation decisions. Here, we explain and substantiate each of these six conditions, drawing on a range of literature and social theory concerned with domesticity as well as our interview data. We then develop the conceptual reasoning behind each condition by proposing a set of constructs which can be used to test for their relevance in a larger sample of homes. We present initial results from this testing in our national homeowner survey (n=1028) and discuss the findings.

Delineating

‘*Delineating*’ is the process through which households identify themselves in terms of others. These may be specific others, such as a friend, colleague, or family member, or more general others, such as a nation, government, or culture (Hargreaves, Nye et al. 2010; Mellor, Blake et al. 2010; Gabb 2011). *Delineating* thus implies a recognition of one or more others relative to which households may identify themselves as being similar or different. Household members may be aware or unaware of this process, but will often be able to describe what they consider to be average or ‘normal’ behaviour and contrast it with their own behaviour (Gabb 2011). Recognising exemplars of home improvement, for example, would suggest the salience of others (Leonard, Perkins et al. 2004). This does not imply a behavioural response or physical activity; *Delineating* is a higher order process through which self-identity is constructed and challenged. Throughout the *Delineating* process households normalise, and are seen to normalise, their own behaviour by justifying it in relation to others’ activities or marking themselves out as different. This relates to the establishment of, and compliance with, descriptive social norms in domestic life (Wilhite and Lutzenhiser 1999). *Delineating* may vary in being active and self-aware, in being very passive yet signalled through certain activities or participation, or in being more clearly a post hoc rationalisation of valued aspects of a household’s identity. Themes relating to *Delineating* were explored in the open-ended homeowner interviews through questions such as: What do you

think the average UK home is like? (prompts: physical appearance, emotional feel, household members, cleanliness, etc.).

Based on both the conceptual reasoning and the interview data, we developed three constructs which together describe Delineating. These are shown on the left of Table 5 with a short description. Measurement items corresponding to each construct are also shown. We included these items in the national homeowner survey using a seven point Likert scale (1 = disagree | 7 = agree). We report mean responses for each item in decision stages 0 – 3 (see Figure 1). Relative to five point Likert scales, seven point scales increase response heterogeneity although with some risk of mid-point anchoring biases. We note though that both recent methodological research as well as our internal analysis found no evidence of mid-point anchoring nor a high frequency of mean responses (Dawes 2008).

Table 5. Constructs & Measurement Items for *Delineating*.

Constructs - <i>Delineating</i>	Short Description	Measurement Item (1=Disagree 7=Agree)	Mean Response (with s.d.) ^a per Decision Stage ^b				
			n	0	1	2	3
Recognising Others	Evidence of recognition of others	We have a clear idea about how similar our home is to the typical home in the UK	1014	5.0 (1.5)	5.1 (1.5)	5.0 (1.5)	5.0 (1.6)
Reassuring Identity	Delineation of household identity in relation to others	[not included in survey]					
Unsettling Identity	Delineation of household identity in contrast to others	Differences we see between our home and other people's homes makes us want to change our home	1014	2.9 (1.7)	3.8 (1.8)	3.9 (1.8)	3.8 (1.9)

Notes: ^a s.d. = standard deviation (as a measure of variability)

Notes: ^b Decision Stages (see Figure 1 for details): 0 = not thinking about renovations; 1 = thinking about renovations; 2 = planning renovations; 3= finalising / in the middle of renovations.

The *Reassuring Identity* and *Unsettling Identity* constructs capture different ways in which households position themselves with respect to others in terms of how they see or identify themselves. However, the measurement items confine the scope of potential others down to mean specifically other people's homes. These are specific cases of the *Recognising Others* construct which simply captures whether households recognize others or not, and so has much higher mean scores. No measurement item was included in the survey for *Reassuring Identity* due to length constraints. The *Recognising Others* and *Unsettling Identity* constructs are positively correlated in stages 1-3 ($r=.2$, $p<.01$), but there is no correlation in stage 0. In other words, the constructs describing *Delineating* are more sharply resolved for households thinking about or planning renovations (i.e., in decision stages 1-3).

Prioritising

'Prioritising' is the balancing of competing and at times conflicting commitments. These commitments may relate to work, family, friends, community, interests, leisure, socialising, and so on. In its active form (and if dwelled upon), Prioritising can include the process of decision making to try and resolve different commitments, and allocate finite amounts of time, domestic space, resources, and so on (Munro and Leather 2000; Jarvis 2005). Prioritising may be identified through the existence of boundaries within the home or through the recognition of boundaries being crossed (Nippert-Eng 1996). Boundaries can be seen as constructs created to categorise and compartmentalise lives to help organise tasks or focus on one task or another. Common examples of boundaries include: work-life, adult-kids, quality time, relaxing-chores. Themes relating to Prioritising were explored in the open-ended homeowner interviews through questions such as: Do you have a dedicated area at home that is your space to work? Do you have a dedicated area at home for children to play?

Based on both the conceptual reasoning and the interview data, we developed four constructs which together describe Prioritising. These are shown in Table 6 with their corresponding measurement items and mean responses from the national homeowner survey for decision stages 0 – 3.

Table 6. Constructs & Measurement Items for *Prioritising*.

Constructs - <i>Prioritising</i>	Short Description	Measurement Item (1=Disagree 7=Agree)	Mean Response (with s.d.) per Decision Stage				
			n	0	1	2	3
General	Balancing competing commitments	It's difficult to know how to use the available space at home with all the different things going on in our lives	1008	2.8 (1.7)	3.3 (1.8)	3.9 (1.8)	3.4 (1.9)
New Ways of Life	Facing competing commitments due to a new way of life	New things we're doing in our lives mean we have to rethink the way we use our home	995	2.8 (1.7)	3.5 (1.9)	4.2 (1.8)	4.0 (1.9)
New People	Facing competing commitments due to new household members	A new member of our household means we have to rethink the way we use our home	717 ^a	1.9 (1.7)	2.1 (1.9)	2.6 (2.1)	2.8 (2.2)

New Objects	Facing competing commitments due to new objects in the home	Some new object or thing we've got means we have to rethink the way we use our home	942	2.2 (1.5)	2.4 (1.6)	2.6 (1.7)	2.9 (1.9)
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Notes: ^a 1 person households excluded from *New People* construct measurement item, hence lower n.

The *New Ways of Life*, *New People* and *New Objects* constructs give rise to different kinds of commitments which households may be facing and trying to balance. Mean responses scores for all the constructs are relatively low, particularly in the case of *New People* which may most commonly describe households with very young children. *New Ways of Life* as the most broadly specified construct has the highest mean scores across the decision stages. We expected each of these three constructs to be specific cases of the *General* construct which simply captures whether households are trying to balance competing commitments or not. Correlations between the *General* construct and the three more specific constructs are significant and medium to strong ($r=.3$ to $.6$, $p<.01$). The three specific constructs are also themselves strongly correlated ($r=.4$ to $.7$, $p<.01$). An association between *New People* and *New Objects* is intuitive in the case of new born babies with new cots, bottles, clothes, toys, as are the *New Ways of Life* implied by parenthood (cf. Shove, Chappells et al. 2008). Similarly, new activities or hobbies (*New Ways of Life*) may commonly introduce new technologies, objects or 'things' into the home (*New Objects*). To further test for an underlying structure to the *Prioritising* constructs, we ran an exploratory factor analysis on the four measurement items, both for the sample as a whole and per decision stage. We were interested in whether the measurement items were consistently correlated throughout the decision process and so could be reduced into a single underlying factor. This was indeed the case with the *New Object* measurement item loading most strongly ($\lambda=.6$ to $.8$) and the *General* item loading most weakly ($\lambda=.6$ to $.7$). In sum, therefore, we found *Prioritising* constitutes a single 'factor' which is coherent and stable, and confirms the conceptual reasoning set out above.

Negotiating

'*Negotiating*' is concerned with family or household dynamics, and power relations within the context of the home (Ehn and Löfgren 2009; Hargreaves, Nye et al. 2010). *Negotiating* arises in response to issues around whose needs are being prioritised, and how these needs are being put before others (Oates and McDonald 2006). Ex post justifications of different types of behaviour can be revealing of how compromises were reached and decisions made. Although *Negotiating* may be more salient in many person households, it may also be relevant in one person households if they live part of the week with others. Themes relating to *Negotiating* were explored in the open-ended homeowner interviews through questions such as: Do household members have different points of view when it comes to how your home is arranged? How many people are involved in deciding how your home gets used?

Based on both the conceptual reasoning and the interview data, we propose *Negotiating* to be a unitary or single dimension construct for which two measurement items were developed. Mean responses from the national homeowner survey are shown in Table 7 for decision stages 0 - 3. Developing multiple items for the same construct is common practice in survey design to ensure validity (i.e., survey items measure what they are designed to measure).

Table 7. Constructs & Measurement Items for *Negotiating*.

Constructs - <i>Negotiating</i>	Short Description	Measurement Item (1=Disagree 7=Agree)	n	Mean Response (with s.d.) per Decision Stage ^a			
				0	1	2	3
[unitary construct]	The influence of internal household dynamics on prioritising needs and domestic life	Some household members have more to say than others about how we use our home	781	3.0 (2.0)	3.4 (2.0)	3.8 (2.0)	3.7 (1.9)
		More than one person is involved in deciding about what happens at home	797	5.8 (1.7)	5.7 (1.6)	5.9 (1.5)	5.9 (1.4)

Notes: ^a 1 person households excluded from *Negotiating* measurement items, hence lower n.

The two measurement items for the *Negotiating* construct capture dominance relationships and pluralism in household decision making. (Note that single person households were excluded from these items). The frequency distributions and mean scores suggest that *Negotiating* is not a common feature of domestic life. There was strong agreement with the pluralism item, but disagreement with the dominance item. However, the negative correlation between the two items was generally weak and not significant ($r=-.1$ to $.1$, ns). It may be that the *Negotiating* constructs form a clearer picture in specific groups such as (i) households with some working adults and other non-working adults, (ii) households with children at home during the week and some working adults. These conditions have the potential to bring multiple perspectives into conflict around the use of domestic space.

Embodying

'*Embodying*' centres on how views of the body and its abilities will impact the use of space at home (Imrie 2004). *Embodying* includes both the human body's physical connection to the place that is home, and how that

place shapes living and life in the home (Imrie 2004). Manifestations of *Embodying* may change over time, or may pre-empt changes that are yet to occur with one or more household members, particularly children and elderly people. *Embodying* is ultimately concerned with the physicality of living. In energy terms, this links strongly to thermal comfort (Shove, Chappells et al. 2008; Cole, Robinson et al. 2010; Shove, Chappells et al. 2010). Themes relating to *Embodying* were explored in the open-ended homeowner interviews through questions such as: Does anyone in your home have particular physical needs? Do these influence how your home is arranged?

Based on both the conceptual reasoning and the interview data, we propose *Embodying* as a unitary or single dimension construct for which two measurement items were developed for the national homeowner survey, as shown in Table 8.

Table 8. Constructs & Measurement Items for *Embodying*.

Constructs - <i>Embodying</i>	Short Description	Measurement Item (1=Disagree 7=Agree)	n	Mean Response (with s.d.) per Decision Stage ^a			
				0	1	2	3
[unitary construct]	Impact of physical needs and abilities on how space is used	How we use our home is adapted to the physical needs of our household's members	896	4.1 (2.2)	3.6 (2.1)	3.9 (2.2)	4.2 (2.1)
		Physical issues faced by some household members influence how our home is arranged	867	2.7 (2.0)	2.7 (2.0)	2.9 (2.1)	3.2 (2.2)

Notes: ^a High number of missing values reduced n per stage.

The two measurement items for the *Embodying* construct capture physical needs to which homes may be adapted, and physical issues influencing how homes may be arranged. Both items were strongly positively correlated throughout the decision stages ($r=.6$, $p<.01$) confirming *Embodying* as a single dimension construct. The relatively low mean scores for both measurement items suggest this is not a common or salient feature of domestic life nor a common lens through which people view their home. This is particularly marked in the second measurement item framed around 'physical issues' which could be interpreted more strongly and negatively than the first measurement item framed around 'physical needs'. *Embodying* is likely to be relevant only for particular types of household with physically 'vulnerable' members including elderly adults or young children who stay at home during the week. We compared responses on the *Embodying* measurement items for a sub-sample of households with 'vulnerable members' ($n=339$) with responses for the remaining households without 'vulnerable members' ($n=525$). Mean responses on both measurement items were indeed higher in the vulnerable sub-sample, with both differences statistically significant ($t(862)=2.6$, $p<.01$ for the 'physical needs' item, and $t(834)=3.1$, $p<.01$ for the 'physical issues' item). Interestingly, *Embodying* strongly and positively correlates with the *Negotiating* measurement item on certain household members having a dominant say over how a home is used. These dominating decision makers are likely to be those with particular physical needs.

Adapting

'*Adapting*' involves either a tacit acknowledgement or an explicit awareness of changing the physical arrangement or material surroundings at home to meet competing needs or solve perceived problems with objects or the use of space. This might be a precursor to altering physical structures (e.g., knocking down walls), but initially attention might simply be on how furniture and furnishings are arranged. *Adapting* may also be consistent with a sentiment or admission to just make do with things as they are. Recognising that the current configuration of the home is not adapted to the household's current living patterns may be uncomfortable, and making do is a strategy for reducing dissonance just as thinking about making structural changes may be (Watson and Shove 2005). Although focused on physical spaces and structures, *Adapting* also has an emotional dimension in response to the challenges of prioritising commitments and household members' needs (Chappells and Shove 2005). *Adapting* could thus be a seemingly unconscious way of acknowledging some discontent with the current pattern of domestic life (Shove, Watson et al. 2007). Themes relating to *Adapting* were explored in the open-ended homeowner interviews through questions such as: Do you move furniture about in your home? If so, why?

Based on both the conceptual reasoning and the interview data, we developed four constructs which together describe *Adapting*. These are shown in Table 9 with their corresponding measurement items and mean responses from the national homeowner survey for decision stages 0 – 3.

Table 9. Constructs & Measurement Items for *Adapting*.

Constructs - <i>Adapting</i>	Short Description	Measurement Item (1=Disagree 7=Agree)	n	Mean Response (with s.d.) per Decision Stage			
				0	1	2	3
Adapters	Awareness of need to make changes to the home	We're always changing things around at home	1008	2.6 (1.5)	3.0 (1.5)	3.4 (1.7)	3.6 (1.8)
Major	Awareness of need to make changes	The changes we could make	955	3.8	5.2	5.3	5.0

Changes	to the home by renovating using outside contractors	to our home would need contractors to do the work		(2.2)	(1.9)	(1.8)	(1.9)
DIY Changes	Awareness of need to make changes to the home by redecorating, repairing, or rearranging things, or through DIY projects	Repairing, redecorating, reorganising - DIY is the best way to make our home compatible with what we need from it	1000	5.1 (1.7)	4.7 (1.5)	4.8 (1.6)	5.2 (1.5)
Making Do	Awareness of need to make changes to the home but accommodating this by just making do	Although we could make changes to our home, we are ok just making do	1001	4.2 (1.7)	4.1 (1.6)	3.3 (1.7)	3.2 (1.8)

The *Major Changes*, *DIY Changes*, and *Making Do* constructs describe possible responses in terms of changes to the home so as to prioritise certain commitments, meet competing needs, or solve perceived problems with how space and objects are used. Ways households can themselves reorganise or use DIY projects to change the home scored highest (*DIY Changes*) followed by more major renovations requiring outside contractors (*Major Changes*). The *Adapters* construct captures whether households make changes to the home or not: are they adapters in a more constitutional or compulsive sense? Mean scores on the *Adapters* construct were lower than for any of the specific constructs, suggesting *Adapting* is linked to particular needs, commitments or tensions.

We did not have clear prior expectations as to how the *Major Changes*, *DIY Changes*, and *Making Do* constructs might inter-relate. Households might adopt a mix of response strategies, perhaps distinguishing what they do to different parts of the home, perhaps combining major and minor (DIY) changes as part of a single process. In this case, the three constructs would be positively correlated. Conversely, households might pursue one response strategy such that the others became unnecessary or inappropriate. For example, if competing needs within the home could be addressed through DIY projects, this would obviate the need for more major renovations. In this case, the three constructs would be negatively correlated. Correlations between the *Major Changes*, *DIY Changes*, and *Making Do* constructs were generally weak and insignificant ($r = -.2$ to $.2$, ns or $p < .05$). We ran an exploratory factor analysis to test for an underlying structure to the *Adapting* constructs, but found no consistent and interpretable factor solution and weak item loadings ($\lambda < .5$). It is possible that the different response strategies - renovating, DIY, and making do - are complementary in some households, but mutually exclusive in other households. Heterogeneity may therefore mask a coherent pattern in the full sample. One clear, although weak signal is the negative correlation between *Major Changes* and *DIY Changes* in decision stages 1-3 ($r = -.2$ to $-.1$, $p < .05$). In households thinking about or planning major renovations which by definition are beyond the scope of households' DIY capabilities, DIY projects are less likely.

Demonstrating

'*Demonstrating*' describes the absorption and/or transmission of different approaches to the design and use of physical space at home. These approaches might include those seen in media representations, advertising, or changes in policy and social marketing (Sparke 1995). *Demonstrating* can challenge or confirm activities as simple as hammering a nail into a wall or as complex as re-designing a whole home (Hand, Shove et al. 2007). *Demonstrating* can also generate thoughts and ideas for the home, or can place barriers in the way of achieving balance in domestic life (Hand, Shove et al. 2005; Gram-Hanssen 2007). *Demonstrating* is typically seen as bigger than the self or household, and is often impersonal or interpreted in reference to 'others' (Sparke 1995). *Delineating* also involves reference to 'others' but in a general, more abstract sense in relation to identity (see above); *Demonstrating* is more concerned with specific, physical activities in or to the home. Themes relating to *Demonstrating* were explored in the open-ended homeowner interviews through questions such as: Do you watch renovation programmes on the television? Do you keep up to date with new renovation ideas and methods?

Based on both the conceptual reasoning and the interview data, we developed six constructs which together describe *Demonstrating*. These are shown in Table 10 with their corresponding measurement items and mean responses from the national homeowner survey for decision stages 0 – 3.

Table 10. Constructs & Measurement Items for *Demonstrating*.

Constructs - <i>Demonstrating</i>	Short Description	Measurement Item (1=Disagree 7=Agree)	n	Mean Response (with s.d.) per Decision Stage			
				0	1	2	3
Internalising	Renovating as subject of absorption & transmission	We get lots of ideas and inspirations for changing our own home	1018	3.8 (1.6)	4.6 (1.5)	5.0 (1.5)	5.0 (1.6)
Internalising - Homes	Other people's homes as source of inspiration	We take on board how other people have their homes when doing things to our home	1016	3.4 (1.7)	4.0 (1.6)	4.3 (1.6)	4.1 (1.7)
Internalising - Media	Media representations of homes as source of inspiration	How homes are portrayed in the media can't help but influence what we do in our own home	1014	3.2 (1.6)	3.8 (1.7)	3.9 (1.8)	3.8 (1.9)
Internalising-	Visiting home stores as	We get inspired by things we	1022	3.7	4.2	4.4	4.4

Stores	source of inspiration	see displayed or advertised in home stores		(1.7)	(1.7)	(1.8)	(1.7)
Externalising - Private	Telling other household members about changes to the home	Changes we've made to our home are a talking point within our household	999	3.4 (1.8)	4.0 (1.8)	4.4 (1.7)	4.8 (1.7)
Externalising - Public	Telling people outside the household about changes to the home	When people visit our home, we show them the changes we've made	1002	3.6 (1.9)	4.2 (1.9)	4.5 (1.8)	4.9 (1.9)

The *Internalising - Homes, Media and Stores* constructs describe different but specific sources of ideas and inspiration for making changes to homes. Home stores are the most commonly cited, followed by other people's homes and then the media, but the distribution of responses for all three is very similar. The *Internalising* construct simply recognises external influences on renovation behaviour which are internalised by households. Correlations between all four constructs were consistently significant and medium to strong ($r=.3$ to $.8$, $p<.01$). A propensity or openness to external sources of influence is consistent across different sources (others' homes, media, stores). The two *Externalising* constructs describe different ways of modelling or transmitting information about changes made to the home among household members (*Private*) and wider afield (*Public*). Mean responses on each item are similar; the two items are also strongly and positively correlated ($r=.5$ to $.06$, $p<.01$). Moreover, both *Externalising* constructs correlated positively with the *Internalising* constructs ($r=.2$ to $.4$, $p<.01$). This suggests that finding inspiration or ideas for changing the home from external sources is part of a *Demonstrating* condition which includes the sharing or modelling of any changes to the home actually made. However, an exploratory factor analysis on the six *Demonstrating* measurement items found a clear and interpretable two factor solution which split the four *Internalising* items from the two *Externalising* items. In other words, the internalising and the externalising aspects of *Demonstrating* can be interpreted as two separate constructs. One other interesting finding is that renovating households (stages 1-3) report being more influenced by single sources of influence (homes or media or stores) rather than all three sources in equal measure. This could mean that particular influences become, or are seen as becoming more salient or dominant when deciding about renovations.

Relationships Between the Conditions of Domestic Life

The conceptual basis and subsequent measurement of constructs describing the six conditions of domestic life has so far been considered one condition at a time. Yet as noted from the outset, the six conditions may be strongly inter-related (see, for example, Box 1). They provide different lenses through which to view the same household, drawing out and making salient different characteristics of that household's domestic life. We would expect, therefore, to find correlations between measurement items across the conditions. To explore these correlations, we used factor analysis to test whether the full set of 20 measurement items create stable, coherent and consistent 'factors'. Factor analysis is a common statistical procedure for reducing the number of items in a data set by identifying a smaller number of latent variables (or 'factors') with which different groups of items consistently correlate. Our prior expectation is for a 6 factor solution, with one factor corresponding to each of the 6 conditions. However, both the *Negotiating* and *Embodying* condition are likely to be relevant only for sub-groups of the sample, as discussed in previous sections. So it is also possible that factor analysis in the full sample finds only a 4 factor solution corresponding to *Delineating*, *Prioritising*, *Adapting* and *Demonstrating*.

The identification of a robust factorial structure would support our conceptual and methodological proposition that the six conditions of domestic life are composed of correlated constructs or components. Factor analysis is useful not only for indicating the internal conceptual structures within each factor, but also between factors (analogous to relationships between the six conditions). The absence of a clear factorial structure does not, however, invalidate the conditions. Rather it could indicate strong heterogeneity within the sample and/or the divergent (uncorrelated) nature of the constructs within each condition.

Our initial expectations were that the salience, relevance, or 'strength' of the six conditions of domestic life might vary through the decision process, but that the factor structure - the set of relationships between measurement items per condition - should remain consistent and coherent. To test these expectations, we initially ran the factor analysis on the whole sample, across all decision stages 0-3. Results are shown in Table 11. An initial unrestricted analysis of the full set of measurement items across the whole sample found a six factor solution with good fit to the data but a clear interpretation of only some factors. This is shown in column [1] in Table 11. The factorial structure distinguishes the *Prioritising* and *Embodying* conditions, and also *Demonstrating* but split into two distinct factors corresponding to *Demonstrating - Internalising* and *Demonstrating - Externalising*. In factor analysis it is important to generate solutions with both good fit to the data but also clear and consistent interpretability. So we reduced the set of measurement items stepwise focusing on those items internally characterised by a lack of statistical significance and estimation of model fit problems (e.g., lack of convergence). Column [2] in Table 11 shows the final analysis of a reduced 'cleaned' set of 8 measurement items which produces an optimal factor solution distinguishing *Prioritising*, *Demonstrating* -

Internalising and *Demonstrating* – *Externalising*. This factorial structure remains consistent and coherent across decision stages, and has both strong and significant within-factor correlations and weak or no cross-correlations between factors. The final column marked [3] in Table 11 tests whether the factor describing *Embodying* is robust in the sub-sample of households with potentially physically vulnerable members (i.e., pre-school children or elderly adults) who are at home during weekdays. In this sub-sample (n=230), *Embodying* does indeed appear in a stable four factor solution similar to that found in the full sample (column [1]) but with a much improved goodness of fit.

Table 11. Factor Analysis of Measurement Items for Conditions of Domestic Life.

	[1] initial exploratory factor analysis, full sample	[2] 'cleaned' exploratory factor analysis, full sample	[3] exploratory factor analysis, sub-sample of 'vulnerable' households
n (items)	20	8	10
n (cases) ^a	563	677	230
factor solution (with rotated factor loadings, λ)	[F1] <i>Dem. – Internalising</i> (4 items, $\lambda > .5$) [F2] <i>Prioritising</i> (4 items, $\lambda > .6$) [F3] <i>Dem. – Externalising</i> (2 items, $\lambda > .6$) [F4] <i>Embodying</i> (2 items, $\lambda > .7$)	[F1] <i>Dem. – Internalising</i> (3 items, $\lambda > .7$) [F2] <i>Prioritising</i> (3 items, $\lambda > .5$) [F3] <i>Dem. – Externalising</i> (2 items, $\lambda > .6$)	[F1] <i>Dem. – Internalising</i> (3 items, $\lambda > .6$) [F2] <i>Prioritising</i> (3 items, $\lambda > .6$) [F3] <i>Embodying</i> (2 items, $\lambda > .7$) [F4] <i>Dem. – Externalising</i> (2 items, $\lambda > .6$)
goodness of fit ^b	good / excellent RMSEA = 0.041 (90% C.I. < 0.047)	excellent RMSEA = 0.000 (90% C.I. < 0.035)	excellent RMSEA = 0.000 (90% C.I. < 0.035)
interpretation	in the full sample, only three conditions form stable factors although the <i>Demonstrating</i> condition splits into an <i>Internalising</i> and an <i>Externalising</i> factor for an overall four factor solution	reducing the items analysed to produce the 'optimal' factor solution finds a three factor solution, with <i>Embodying</i> dropped	using only a sub-sample of potentially physically 'vulnerable' households finds a four factor solution as in the unrestricted analysis of the full sample (column [1])

Notes: ^a listwise exclusion of missing values meant reduced sample as *Negotiating* and *Prioritising – New People* items were not asked of single person households.

Notes: ^b Root Mean Square Error of Approximation (RMSEA) of goodness of fit is considered acceptable if RMSEA < 0.08 and excellent if RMSEA < 0.05 with the upper 90% confidence interval (C.I.) < 0.08 - for details, see: (Browne and Cudeck 1993).

In summary, three of the proposed conditions of domestic life - *Prioritising*, *Embodying*, and *Demonstrating* split into its *Internalising* and *Externalising* constructs - do appear to form coherent and meaningful factors which are statistically significant and stable across the decision stages. In contrast, *Delineating*, *Adapting*, and *Negotiating* do not form part of a clear factorial structure. This may indicate divergence between their constituent constructs (most likely the case with *Adapting*), or heterogeneity of response to the measurement items (most likely the case with *Negotiating*).

The Emergence of Renovation Decisions from the Conditions of Domestic Life

The purpose and conceptual design of the six conditions of domestic life is to help explain the emergence or origination of renovation decisions (to the extent that these are not exogenously triggered). We are particularly interested in significant differences households deciding about renovating (stages 1-3) and non-renovating households (stage 0). We emphasise, however, that households are grouped into one of these stages within a single cross-sectional sample. These reported measurements of their conditions of domestic life describe a point in time, as does their stage in the renovation decision. Both domestic life and the renovation decision are dynamic, unfolding processes. Our reporting of measurement items per stage is not meant to imply that households remain static in either.

Table 12 shows the results of statistical tests of differences in the mean responses to each of the 20 measurement items across the four decision stages. It is striking that 18 out of the 20 measurement items show significant differences between the decision stages, with 16 of these being strongly significant ($p < .01$). This is an initial indication that the conditions of domestic life proposed are relevant to renovation decision making. For each measurement item whose means are significantly different across stages 0 to 3, we also include in Table 12 the difference between the means for stage 0 and stage 1, and the significance of the Bonferroni-corrected pairwise comparison with significant results shown in bold. (The post hoc Bonferroni correction adjusts the observed significance level of the t-test to account for the multiple comparisons made within the ANOVA which inflate the likelihood of Type I errors in pairwise comparisons).

Table 12. Mean Differences for All Constructs & Measurement Items.

Normality State	Construct / Measurement Items	Changes in Conditions across Decision Stages		Changes in Conditions across Renovation Types	
		Mean Differences: Stages 0,1,2,3	Change from Stage 0 -> 1 ^b	Mean Differences: E only, A only, mixed A/E ^c	Change from E only -> A only ^d
Delineating	<i>Recognising Others</i>	F(3,1010)=0.6 ^{ns}	n/a	F(2,677)=2.3	n/a
	<i>Unsettling Identity</i>	F(3,1010)=15.8**	+0.9**	F(2,677)=8.4**	+0.3*
Prioritising	<i>General</i>	F(3,1004)=16.3**	+0.5**	F(2,675)=2.8	n/a
	<i>New Ways of Life</i>	F(3,991)=27.4**	+0.7**	F(2,666)=6.0**	+0.1 ^{ns}
	<i>New People</i>	F(3,713)=6.2**	+0.2 ^{ns}	F(2,493)=1.7	n/a
	<i>New Objects</i>	F(3,938)=7.0**	+0.2 ^{ns}	F(2,633)=3.2*	+0.1 ^{ns}
Negotiating	[item 1]	F(3,777)=6.8**	+0.4 ^{ns}	F(2,535)=2.1	n/a
	[item 2]	F(3,793)=0.4 ^{ns}	n/a	F(2,538)=0.3	n/a
Embodying	[item 1]	F(3,892)=3.2*	-0.5 ^{ns}	F(2,598)=0.3	n/a
	[item 2]	F(3,863)=3.2*	-0.0 ^{ns}	F(2,583)=1.4	n/a
Adapting	<i>Adapters</i>	F(3,1004)=17.6**	+0.3 ^{ns}	F(2,674)=2.7	n/a
	<i>Major Changes</i>	F(3,951)=31.3**	+1.4**	F(2,645)=0.8	n/a
	<i>DIY Changes</i>	F(3,996)=4.4**	-0.4 ^{ns}	F(2,666)=0.3	n/a
	<i>Making Do</i>	F(3,997)=24.8**	-0.2 ^{ns}	F(2,677)=1.5	n/a
Demonstrating	<i>Internalising</i>	F(3,1014)=32.2**	+0.8**	F(2,681)=6.6**	+0.5**
	<i>Int. - Homes</i>	F(3,1012)=15.0**	+0.6**	F(2,680)=3.9*	+0.3*
	<i>Int. - Media</i>	F(3,1010)=9.7**	+0.6**	F(2,679)=1.6	n/a
	<i>Int. - Stores</i>	F(3,1018)=10.3**	+0.5**	F(2,683)=3.6*	+0.5**
	<i>Ext. - Private</i>	F(3,995)=31.2**	+0.7**	F(2,667)=1.7	n/a
	<i>Ext. - Public</i>	F(3,998)=21.2**	+0.6**	F(2,672)=1.5	n/a

Significance: * p<.05, ** p<.01, ns not significant

Notes: ^a Decision Stages: 0 = not thinking about [renovations]; 1 = thinking about; 2 = planning; 3= finalising; see Figure 1 for details.

Notes: ^{b,d} Post hoc Bonferroni-corrected pairwise comparisons show mean difference (stage 1 - stage 0, and amenity only - efficiency only) and significance of difference and mean difference.

Notes: ^c E only = energy efficiency only; A only = amenity only; mixed A/E = mixed amenity and efficiency; see Table 2 for details.

We focus our discussions here on those constructs describing the conditions of domestic life which are significantly different between stages 0 and 1, i.e., distinguish homeowners not considering renovating from homeowners considering renovating. Significant pairwise differences are shown in bold in the column ‘Change from Stage 0 -> 1’. (In the next section, we discuss differences between amenity and efficiency renovators).

In the *Delineating* condition, households which find differences between their and others’ homes unsettling (*Unsettling Identity*) are more likely to be thinking about renovating. In the *Prioritising* condition, all four constructs increase from stage 0 to stage 1 as households facing competing commitments or difficulties prioritising the use of space at home are more likely to be thinking about renovating. Of the three specific constructs, only *New Ways of Life* increases significantly from stage 0 to stage 1. A household facing competing commitments associated with “new things we’re doing in our lives” is more likely to be thinking about renovating. Neither the *Negotiating* construct nor the *Embodying* construct increased significantly from stage 0 to 1, although the measurement item for *Negotiating* on dominance and power imbalances increases through the decision process suggesting the presence of dominant members within a household is more likely to be salient in households thinking about renovating. In the *Adapting* condition, the *Major Changes* construct is significantly higher in households in decision stages 1-3 (which, by definition, are thinking about or planning major renovations using contractors). The *DIY* or *Making Do* constructs are correspondingly lower but not significantly so. A consistently high mean score for the *DIY Changes* construct throughout the decision process suggests that a household using its own skills and capabilities is a common response to the awareness of a need to make changes to the home. In contrast, the *Making Do* construct decreases monotonically throughout the decision process.

Of all the conditions of domestic life, *Demonstrating* shows the clearest signal for distinguishing renovators from non-renovators. All the *Demonstrating* constructs significantly increase from stage 0 to stage 1 (and again from stage 1 to 2). Compared to households not thinking about renovating (stage 0), households currently deciding about renovations are both more likely to find ideas and inspiration from external sources, and are more likely to transmit information about renovations to others. One interpretation is causal: households with a propensity to be inspired and to act as inspiration for others are more likely to decide to renovate. Another interpretation is correlational: households deciding to renovate are more likely to be receptive to ideas to inform their renovation plans (motivated for other reasons) and are also most likely to transmit these ideas. In other

words, the correlations and ANOVA results in Table 12 are descriptive of the stages in which renovating households find themselves, but they do not explain why they are in those stages.

Conclusions

The conceptual and empirical basis of the proposed six conditions of domestic life provide a rich account of the relationship between domesticity, homemaking, and renovation decisions. Many of the constructs developed to measure different aspects of the conditions help understand how renovation decisions emerge from domestic life. Specific constructs that differ significantly between households thinking about and not thinking about renovations appear particularly useful in this respect:

- *Delineating - Unsettling Identity*: households which find differences between their and others' homes unsettling are more likely to be renovators.
- *Prioritising - General / New Ways of Life*: households facing competing commitments, particularly if associated with "new things we're doing in our lives", are more likely to be renovators.
- *Demonstrating - Internalising / Externalising*: households which find ideas and inspiration for the home from external sources, and which share and transmit information about renovations, are more likely to be renovators.

This combines into an overall picture of renovations as an adaptive response to competing commitments within the home and/or to a questioning of households' own sense of identity in relation to the design and use of their homes. Moreover, this picture is broadly consistent for different types of renovations, whether energy efficient or amenity-related. The only significant differences are that amenity renovators are stronger receivers and re-transmitters of ideas and influences. Conversely, high salience exogenous triggers from outside everyday domestic life are more likely to precipitate energy efficient renovations.

Implications of these findings for policymakers and service providers seeking to promote energy efficiency in the existing owner-occupied housing stock include:

- Certain types of household are more likely to be thinking about renovating; households involved in new activities ('doing new things') may be particularly receptive to targeted marketing.
- Bundle or package energy efficiency measures into amenity renovations; market the Green Deal through kitchens contractors not insulation contractors.
- Parts of the home breaking down or needing repair triggers around 1 in 3 energy efficient renovations; ensure the supply chain of emergency or immediate response contractors is positioned to deliver efficient measures.

There are many limitations to this research. In particular, the development and testing of measurement items for the normality states is fairly experimental. It is also worth emphasizing that causality can not be demonstrated with these data as the samples in each of the four decision stages are independent. We recognise that using simplistic and standardised survey questions to measure complex and contingent conditions of domestic life is inherently problematic from a number of perspectives, both methodological and epistemological. Our efforts were an attempt to link the rich and detailed insights from social theories and investigations into domesticity with more narrowly framed consumer research on energy efficient renovations which informs public policies such as the Green Deal (DECC 2011). These efforts can be improved in many ways. First, we plan to run a second wave of our survey with a repeat sample of homeowners who have changed stage in the decision process since the first survey. This longitudinal sub-sample should allow the explanatory power of the six conditions to be tested more robustly. Second, we plan to include different measurement items for the conditions to see if results are sensitive to item wording and construction. Third, we plan to analyse further the inter-dependencies between the six conditions and to see how these may change through the decision process.

In sum, we find that the origins or emergence of energy efficient renovation decisions can be understood by looking through six distinct but related lenses at domestic life. The six conditions of domestic life we propose are conceptually and empirically grounded, and can be measured in large samples using standardised measurement items.

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