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Towards a Relational Sociology of Retrofit

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Abstract

Decarbonisation of residential buildings ('retrofit') is vital if nations are to meet declared net zero targets. This challenge is especially acute in the UK, which has some of the least energy efficient homes in Europe. Yet, to date, sociology has paid relatively little attention either to the urgency of this challenge or to its potential solutions. This article uses concepts from relational sociology to propose a complete reframing of the retrofit challenge and concludes by offering suggestions to improve energy policy design and incentives. It opens new avenues for sociologically driven research into how and why people 'retrofit' their homes, highlighting dynamics of trust, power and emotion as meaningful barriers to retrofit at scale. We conclude that the multiple stakeholders seeking to boost energy efficiency interventions in homes should focus less upon economic incentives for 'rational actors' and more upon reducing, facilitating and smoothing the 'relational work' needed to deliver retrofit.

Keywords

climate change, decarbonisation, emotion, home, net zero, relational sociology, relational work, retrofit, trust

Introduction

This article uses concepts from relational sociology to propose a complete reframing of the retrofit challenge and concludes by offering suggestions to improve energy policy design and incentives. It opens new avenues for sociologically driven research into how and why people 'retrofit' their homes – that is, making changes to the physical fabric of a building to install energy efficiency measures, helping to meet decarbonisation targets. To date, sociology has had relatively little to say about retrofit. In a recent research project to explore experiences of home, renovation and climate change, however, we found concepts developed in new economic sociology – especially, 'relational work' – to have real explanatory power for understanding barriers to scaling retrofit.

A sociological approach to the retrofit challenge is desperately needed. Retrofit rates around the world, and particularly in the UK, remain far below the levels required to reduce carbon demand in line with the Intergovernmental Panel on Climate Change (IPCC) targets (Climate Change Committee [CCC], 2023). While UK government policies are failing to address the retrofit challenge, proposals for policy change tend to rely largely on top–down measures, or modifications to economic incentives (Behavioural Insights Team [BIT], 2011; Environmental Audit Committee [EAC], 2021; Marchand et al., 2015) with policymakers still approaching consumer decision making via an economically 'rational' model (Becker, 1976; Department for Business Energy and Industrial Strategy [BEIS], 2021; Heath, 1976; National Audit Office [NAO], 2021). We argue that, by ignoring the *relational* dynamics of retrofit, the huge sums of investment being made in domestic energy efficiency as guided by policies favouring 'rational actor' models are doomed to fail, along with delivering net zero.

In this context, retrofit matters. In the UK, the decarbonisation of residential buildings is highlighted as a critical objective needed to reach net zero emissions by 2050 (CCC, 2019a). The UK government has a target to achieve an EPC[1] rating 'C' for all homes by 2035, where cost effective, practical and affordable (BEIS, 2017). As of 2023, only

52.2% of homes met that standard (Department for Levelling Up, Housing and Communities [DLUHC], 2023). This goal is challenging for the UK because it has some of the oldest and least energy efficient homes in Europe (Fylan et al., 2016), and around 80% of the residential buildings projected to be in use by 2050 have already been built. Consequently, retrofitting the UK's existing housing stock is essential (CCC, 2019b; EAC, 2021). This is largely because the retrofit interventions required – such as loft/cavity wall insulation; low carbon heating, ventilation and cooling (HVAC); solar photovoltaic (PV) and so on – are not being deployed at rates necessary for the UK to meet either its carbon budgets or its 2050 targets (CCC, 2023). In short, 'policy progress in the buildings sector is not on track, with 77% of the required emissions reduction by the Sixth Carbon Budget period judged to be either at significant risk or with insufficient plans' (CCC, 2023: 151). Given known co-benefits to retrofit, including the creation of green jobs, lower energy bills and improvements to health and comfort (EAC 2021), the UK's approach to retrofit requires a radical new strategy.

Existing social science research into retrofit has typically focused upon overcoming barriers to the adoption of retrofit measures (Fylan et al., 2016), but with little sociological imagination – favouring a narrow focus on resolving information asymmetries and ensuring access to capital (Sorrell et al., 2004). Such work has tended to adhere to a behavioural and welfare economics approach to public policymaking, augmented by insights from behavioural economics that do little more than highlight 'cognitive biases' and 'motivational factors' beyond optimising financial returns (Frederiks et al., 2015). A further strand of literature notes that the associated theories of change in this work with respect to 'attitude, behaviour, and choice' are themselves problematic (Shove, 2010), arguing explicitly for a more *sociological* approach grounded in the everyday social practices of energy use (Shove and Walker, 2014).

While contributions from practice theory (Gronow, 2008; Jones and Murphy, 2011; Pink, 2012; Shove et al., 2012; Warde, 2005) were helpful in the treatment of policy questions, we see real value in theorising a relational sociology of retrofit, with our argument organised as follows. First, we offer a note on our research project to contextualise the theory development work presented throughout the rest of the article. Second, we introduce the 'relational turn' in sociology in broad terms, locating two key influences – Nick Crossley and Viviana Zelizer – within this theoretical approach. Third, we outline the relational approach within the new economic sociology pioneered by Zelizer's work. We then apply these concepts to two composite narratives (Johnston, 2024; Willis, 2019) – short 'vignettes' weaving together quotes and experiences from multiple participants to typify dynamics observed in our empirical work – to crystallise the difference between a 'rational' and a 'relational' approach to retrofit. Fourth, we show how this approach aids the task of designing policy options and incentives to boost demand for retrofit. Finally, we conclude by urging social scientists to embrace relational sociology in pursuit of innovative solutions to the global challenges of climate breakdown and the need to decarbonise societies.

A Note on the Project

Led by two sociologists and funded by the UK Energy Research Centre (UKERC), the *Whole Person, Whole Place: Net Zero Neighbourhoods* project brought together an

interdisciplinary team of social scientists to understand the retrofit challenge, inspired by the apparent failure of 'rational actor' explanations for energy behaviours. We saw these as inadequate and leading to poor policy design that was failing to boost uptake of retrofit. In response, we pursued a relational sociology to explain how people behave in context, as opposed to how neoclassical economics would have them operate to ensure their models remain coherent (Brown, 2018; Karvonen, 2013; Wilson et al., 2015).

Drawing upon Judson and Maller (2014), we noted that home renovation shares important characteristics with retrofit as households equate both with major structural intervention in the home. We know that renovations often happen when something breaks, when a new kitchen or bathroom is desired, when a boiler needs replacing or when a home is extended or cosmetically improved (Kerr et al., 2018). So, while sensitive to those excluded from retrofit on grounds of affordability and with fuel poverty rates soaring (Bonderup and Middlemiss, 2023; Edmiston et al., 2022; González-Pijuan et al., 2023; Middlemiss et al., 2023), the project deliberately focused upon the broadly 'able to pay' as it is their spending patterns that are highly significant to solving the climate crisis. We sampled this group quantitatively by targeting households that had recently paid for some form of renovation and who had not received financial help from the UK government to achieve this (Owen et al., 2023). We included questions on money and finance in our interviews but explored these through the same relational approach inspired by Zelizer and elaborated below (see also Evans and Gregson, 2023). This allowed us to analyse the social relations shaping that action, as revealed in the two vignettes outlined further on.

We pursued more relational explanations of why, when and how 'able to pay' households might be more or less likely to undertake retrofit, checked against incentives based upon conceptualisations of economic 'rationality'; for example, bill savings resulting from installation of double glazing (Wilson et al., 2015). We interviewed 38 UK households of different tenure types about their experiences of home renovation in three case study areas – Brighton (residential landlords), Glasgow (multiple-occupancy owner occupiers) and Leeds (sole-occupancy owner occupiers). We asked questions based on an idealised 'customer journey', exploring the social relations enacted at each stage, including how different monies were identified and negotiated to fund the work. Having reported our analysis of this empirical work in detail elsewhere (Bolton et al., 2023; Cairns et al., 2024; Mininni et al., 2024; Owen et al., 2023), in this article we strive instead to correct the *under-theorisation* of 'relationality' and to pursue its application to everyday life (Roseneil and Ketokivi, 2016). We do this by deploying composite narratives as vignettes specifically to help theorise findings across our interview data. We found this approach instructive in reflecting upon the value of relational sociology as both a novel theoretical and methodological (re)framing of the retrofit challenge (Middlemiss et al., 2024; Sampson and Johannessen, 2020; Willis, 2019).

What Is Relational Sociology?

The 'classical' strand of European sociological theory – from Marx, Weber and Simmel, through to Elias and Bourdieu – held social relations to be significant for interpretating social action. Feminist scholarship has long signalled the importance of social relations

in the study of gender, intimacy and emotion (Hill Collins, 1990; Hochschild, 1983). Yet, Bandelj (2020) notes, only in the 1990s did a distinct 'school' of relational sociology emerge, in New York, centred on the work of Tilly (1998), White (1992) and their colleagues and former students (Dépelteau and Powell, 2013; Emirbayer, 1997; Fuhse, 2015; Powell and Dépelteau, 2013). This 'relational turn' insists that sociology's basic unit of analysis should not be individuals or structures, but *the social relations between actors*.

Prandini (2015) recounts the critique of the common struggle between atomistic and collectivistic paradigms as apparent across sociology in: social theories supported by cybernetic science (Luhmann); pragmatism (Dewey); interactionism (Goffman; Mead); phenomenology (Schütz); ethnomethodology (Garfinkel); figurational theory (Elias); the morphogenetic approach (Archer); and social network analysis (Scott). Despite variations, Prandini (2015) argues that these traditions each regard 'the individual' and 'society' as important in shaping phenomena but recognise that it is a mistake to theorise them as discrete entities. Rather, the individual only exists because she is socialised; and society is only meaningful when it is interiorised by her. Both are essentially made via the same process: interactions and the forming of relationships. The ontological building-block of relational sociology is thus 'communication', an ongoing and dynamic social process, condensing expectations between actors into stronger or weaker ties.

Given this complexity, as an interdisciplinary research team we benefitted from work by Crossley (2011, 2015, 2020, 2022). Crossley's approach to relational sociology refutes both *individualism* (methodological and ontological) and *holism* (e.g. structural functionalism, Marxism) that would reduce social actors to being mere bearers of social functions, laws or systems. For Crossley (2015: 66–68), qua Mead (1962) and contra individualism, human beings become social actors only through interaction with others who are already socialised. Social actors are thus emergent properties of webs of affiliations that produce social interaction and interactivity.

'The individual' is thus a theoretical abstraction, as in the case of *homo economicus*. This is the 'rational actor' of neoclassical economics, Bourdieu's (2005: 209) 'anthropological monster', a self-interested and instrumental actor concerned only with making decisions that maximise their own utility. Commonly traced to Smith (1776), the theory of the economic rational actor is based on the idea that individuals possess perfect information to calculate the costs and benefits of all possible choices. This is, of course, unrealistic and ignores how people are shaped by factors other than self-interest, such as *trust, power* and *emotions* – something Smith (1759) himself knew – and that we elaborate below in the context of retrofit.

Since individuals are born and live in groups, their thoughts, feelings and actions are *always* interwoven with those of others. Reducing the social world to discrete atomic entities renders both that world and the actions of those within it unintelligible. Crossley (2011, 2015) argues that the decision to explain social phenomena by invoking the abstraction of 'the individual' requires that this abstraction is contextualised through reference to the social relations in which the individual is embedded. Furthermore, following Tilly (2006), social relations matter for explaining social phenomena in ways that cannot be reduced back to individual actors (Crossley, 2020, 2022). Individuals are seldom conceived in their embodied, fleshy forms, and have traditionally become

sociologically interesting only when they are contextualised within the specific social relationships in which they are situated (i.e. as members of social groups, organisations or identities).

Likewise, though Crossley (2015) concedes there is some value to the holistic claim that the whole is greater than the sum of its parts, the mistake of various structural forms of sociology is to reify, hypostatise and ultimately mystify 'society' (itself an abstraction) as an entity distinct from the nexus of human interactions and interactivities. Here, it is 'agency' that miraculously disappears, with 'society' becoming a separate 'thing', somehow over, above and in addition to actors and their interactions (Bourdieu, 1990; Giddens, 1984). From this holistic point of view, society is wrongly divided into interacting 'parts' that carry their own intentions that require satisfaction, as much in Parsons's (1991) 'functional prerequisites' as in the teleological destinies of Marxism and historical materialism. For Crossley (2015), both individualism and holism are flawed because they resort to abstract conceptions of an underlying 'substance' ('the individual', 'society') in seeking to explain the social world.

By contrast, relational sociology suggests that the social world is a network of interactions and social ties, of different types and on various scales, between actors who are themselves formed by and through those interactions. Actors are always *in-relation* to one another, their actions are always *interactions* (Crossley, 2011: 68), and it is these that are generative of what is named 'society'. Relational sociology thus takes us beyond narrow 'rational actor' models of human behaviour by showing how social action is (re) produced in and through interaction, creating meaning and identity in people's lives (Burkitt, 2014; Crossley, 2011). Understanding interactions, and the resources that underpin them (Middlemiss et al., 2024), better helps to explain what is happening in specific social situations and to articulate why and how things may change (Crossley, 2011). Put simply, only by overcoming what Bourdieu (1990: 31) called the 'absurd opposition between individual and society' can we begin to understand how *the social relations between actors* impacts behaviour – and, in the present substantive case, the willingness or otherwise of people to retrofit their homes. Overcoming this 'absurd opposition' has been a particular concern of new economic sociology.

The Relational Approach in New Economic Sociology

Despite the approach of recent energy policy, access to finance is not the only barrier to the delivery of retrofit at scale. In 2020, the UK government announced a suite of COVID-19 economic measures that were 'climate facing', including £2bn aimed at a domestic 'green recovery' via the Green Homes Grant and a further £100m via the Clean Heat Grant (BEIS, 2021). The government presented these interventions as economically substantial yet, taken together, they represented less than 1% of the estimated £250bn needed for the UK's domestic retrofit transition (Bailey et al., 2019).

Our initial scoping research for the project learned that these government interventions also represented a tiny fraction of the £19bn UK homeowners spent on repair, maintenance and improvement (RMI) to their homes in 2020, when most people experienced periods of national lockdowns due to COVID-19 (Office for National Statistics [ONS], 2020). Put simply, UK homeowners were prepared to spend almost *10 times*

more than the government committed to its flagship domestic retrofit programmes.[2] Despite the public's enthusiasm for home improvements, the government has issued fewer retrofit grants year-on-year (CCC, 2023), indicating a failure of policy design and instruments. While we acknowledge there are many variables in these data, what matters for our argument here is that access to finance is not the primary obstacle to retrofit at scale. By continuing to favour 'rational actor' incentive structures that focus upon optimising financial value returns to customers, energy policymakers are missing the point.

Our research puzzle was to discover why specifically 'able to pay' homeowners *with* access to finance for home improvements were not installing energy efficiency measures alongside renovations. In trying to solve this puzzle, we were aided by Zelizer (1994, 2000, 2005, 2012) and the relational approach developed more widely in new economic sociology (Bandelj, 2012, 2015, 2020; Wherry, 2012, 2016). Below, we show how this approach helps to understand what shapes decision making and then reveal its significance for reframing the retrofit challenge via two vignettes.

Beyond 'Hostile Worlds'? The Social Life of Money

As Bandelj (2020: 252) explains, a 'focus upon relationality has played a foundational role in the new economic sociology, which staked its claim on understanding the role of social relations in economic life'. Within this approach, the false separation of individual and society – highlighted above via Crossley's work – echoes long-standing debates in economic sociology about 'embeddedness' (Granovetter, 1985; Steiner, 2009).

Rather than the economy and society remaining fixed as two entirely separate spheres, Zelizer (1994, 2012) stresses how 'the economy' cannot be retained as an autonomous space, somehow filled with individual 'rational actors' pursuing instrumental goals via a market, with 'society' seen simplistically as merely a context for this activity. Consequently, neoclassical economics typically conceives of economic actors and social actors as somehow separate, with the former as (boundedly) rational utility maximisers. At its most extreme, this line of thought can even insist that affect, emotions and intimacies exist in a separate sphere known as 'society', whose corrupting ideas of social justice must somehow be cleansed from the 'economy' to allow perfect markets to operate (Streeck, 2014: 58–61).

In stark contrast, Zelizer's (1994) study of the 'social life of money' refutes this representation of economy and society as 'hostile worlds'. Through her relational approach, economy and society are rather connected worlds of social processes sustained by their mutual co-constitution and elaboration through *interaction*. Bandelj (2020) argues that due to this co-constitution, the concept of 'relational work' can be fruitfully employed to uncover the micro-level dynamics of economic interactions (i.e. decision making within households) that, in her view, more structural and macro-focused theories struggle to address.

In its simplest expression, 'relational work' (Tilly, 2006; Zelizer, 2005) concerns how and in what ways social relations shape economic behaviour. Bandelj (2012: 175) notes that the concept helps 'to integrate structural, cultural, and power-focused analyses of economic life, to highlight the often-overlooked role of emotions in economic exchange, and to ground an alternative to rational action theory in economic sociology'. The

concept reveals how economic actors create, maintain, solidify, change and improve the relationships that exist between them through economic processes (Garcia, 2014). In so doing, Wherry (2012: 97) explains, the 'different categories of relationships [. . .] are matched with different media of exchange'. For example, there are situations where gifting cash money would be deemed 'crude', or socially taboo, depending upon the social relations shaping the exchange.

Both Tilly (2006) and Zelizer (2005) stress the ways in which relational work leads to the creation, negotiation and formation of 'relational packages', a key building block for interpreting economic action. Some relational packages – paying a regular cleaner, for example – become routinised and have clearly defined (strong or weak) ties, boundaries, scripts and so on. Others are more uncertain, ambivalent and require constant management – hence, relational *work* – to sustain them, ensure both parties agree on the meaning of the relationship and thus assign appropriate forms of economic activity and media of exchange. Zelizer (1994) demonstrates that where and from whom money arrives into a household – and whether framed as a *gift, payment* or *entitlement* – plays a material role in shaping how it is then used depending upon the social relations the money expresses. Social relations are negotiated and rendered meaningful by deciding whether the money received should be spent, saved or invested (and to what ends) through a practice Zelizer calls 'earmarking'.

For retrofit, 'relational work' captures the effort expended when entering unfamiliar and uncertain interactions. These are less likely to be scripted or standardised, for example, because people typically lack the technical expertise to know how best to go about decarbonising their home. The experience will thus involve building new affiliations with strangers who do know, and this is both time- and emotion-consuming 'work'. Tracing relational work exposes actors as practical negotiators employing different and sometimes new and uncomfortable actions, including the commitment of resources, muddling through and improvisation (Bandelj, 2020: 255). But, as Bandelj (2012: 179) explains elsewhere:

> relational work is not mere sociality. It is relational work in the sense that it is an intentional effort or activity directed toward the production or accomplishment of a goal, even if that goal is not clearly defined from the start.

Trust, Emotion and Power in Economic Decision Making

Relational work is also fundamental to the development of trust. Rather than being separate elements of 'society', emotion, power and identity are instead fundamental to 'economic' action since each influences decisions within interaction and shapes outcomes. For example, any relation involves potential power/knowledge asymmetries and, since actors must constantly (re)interpret the positionality of others, interactions involve emotions. Bandelj (2020) suggests there are four standout contributions of new economic sociology: *obfuscated exchange; clarifying and blurring practices; relational accounting*; and *emotions and power in relational work*. We suggest the last two are especially relevant to the retrofit challenge.

Relational accounting elaborates Zelizer's (2000, 2012) concept of 'earmarking' – the way individuals and families 'jam jar' pots of money for specific purchases (e.g. food, bills, clothes, holidays, savings, etc.). This refutes the neoclassical idea that money is a

fungible, liquid commodity with a fixed preference function, such that the acquisition of more money would be used to fulfil more preferences in order of utility to the individual. Instead, Zelizer shows that what individuals spend money on is closely tied to the social relations that surround it and the relational work involved in its acquisition. For example, a family *gift* will be spent differently to a bank loan; an *entitlement* from the state will be put to a different use than a regular salaried *payment* (Sykes et al., 2015). These earmarking practices are not 'added onto' the realm of economic exchange but are a fundamental constituent of it, negotiated through interaction with significant others (DiMaggio and Louch, 1998).

Money is thus another social relation among many, and is acquired, interpreted, negotiated and circulated through relational work, which also involves *emotions* and *power*. Hargreaves and Middlemiss (2020) explore how large energy investments in the home are negotiated within the household. They show how such decisions are enrolled in power relations outside the home in terms of both power/knowledge asymmetries when engaging contractors, and in emotions connected to the home as a place of safety, familial love, aesthetic taste and shared or competing aspirations for greater comfort and convenience. Time is a crucial factor here too, since all actors bring to interactions their own sense of self as understood in relation to their own narrative history and imagination about the future (Beckert, 2016). Emotive memories of previous encounters, expectations based on the past and pending future obligations are all situational and temporal characteristics that influence how relational work unfolds (Bandelj, 2020). Emotions also play a role when relational work fails, for example when negative experiences with trades elicit feelings of shame, betrayal or disappointment.

Finally, power is also a core part of relational work, with technical language laying claim to expertise in ways that signal a clear asymmetry between the participants during interaction (Bandelj, 2012; Tilly, 2006). Through relational work, for example, skilled social actors can make up, or in some cases overcome, a lack of economic capital as compared with others in the exchange and so achieve their preferred outcome, as Bourdieu's (1984, 1986) influential work on distinction and the forms of capital reveals. Achieving desired outcomes is shaped by differentially distributed capitals, the suitable adaptation of habitus to field and whether what is defined as 'succeeding' in the exchange goes beyond the assumed objective of profit maximisation by one actor, as pursued by interesting work elsewhere on the status-conferring qualities of distinct forms of conspicuous 'green consumption' (Elliott, 2013; Horton, 2003).

So far, we have considered relational work at the person-to-person scale. Yet these same interactions occur between individuals who in context represent larger organisations that must also engage in ongoing relational work, for example, with suppliers, customers, business partners, local governments and trades. They are constantly assessing the intentions, actions and reactions of their counterparts as they navigate phases of the retrofit process (e.g. procurement, quality assurance, sourcing materials, policy design and so on). Indeed, stewarding relationships has become critical in determining whether a given company or enterprise thrives, survives or fails. Furthermore, in the case of cross-company collaboration, there is often an intertwining of competitive and non-competitive behaviours negotiated through relational work to establish trust, while at the same time hedging positions to protect an organisation's interests (Bandelj, 2012).

Given this rich array of concepts in Zelizer's work, we now express their utility in helping to reframe the retrofit challenge by deploying two vignettes as composite narratives developed from our analysis of interview data and using Johnston (2024) and Willis (2019) as guides. The first vignette, 'Sue', came out of an analysis of policy documents, in which financial calculations of cost/benefit were foregrounded as motivating factors for households to retrofit. We used a close reading of these policy documents to construct an imagined 'rational' subject. As an exercise, we then retold 'Sue' as an imagined relational subject, drawing on our reading of relational sociology as articulated above. The second vignette was constructed after our analysis of the 38 interview transcripts, and provides a composite narrative, pulling out the key relational themes from these data. We could have told 'Bob and Marie' in a number of ways, but we crafted this vignette carefully to be reflective of the kinds of people we interviewed, with regards to their interests and values, their commentary on their experience and their articulation of what we describe as the 'relational' experience of retrofit. We could have used a single example and told the story of one interviewee, but providing a composite narrative allowed us to pull together a richer story to bring to life our theoretical contribution.

Vignette 1: 'Sue'

The energy policy approach. A consumer's energy bill is £1400 per year. If this consumer wants to save money on their energy bill, the consumer can pay £12,000 to insulate the home and install a heat pump. The consumer will save £500 per year as a result, and a further £50 if they switch to a flexible energy tariff. The consumer can apply to the government for £4196 of the initial £12,000. The consumer will then pay £7804. The consumer can access a low-interest loan from their local authority to fund this cost. The investment will pay back in 14 years without calculating the additional value of their home. The consumer will have to manage this project individually, assume all risk and negotiate directly with all necessary tradespeople.

The relational approach. Sue is a small business owner who lives in a 19th-century stone-built three-bed semi in Otley, on the outskirts of Leeds. Sue works from home, so must use heating during cold days. She has two children, aged seven and nine. Sue wants a new family bathroom but does not have the time to organise it and is worried she will hire a dishonest builder like her neighbour did for their new kitchen, costing them lots to 'make good'. The boiler in Sue's house is OK, maybe she will get three more years out of it. Sue heard from her friend Emma, who is a plumber, that there is a new scheme that Leeds City Council is running in Otley. Emma says the council have assessed all the properties in Otley and can offer Sue a low-interest loan to cover everything: the new bathroom, some cavity wall insulation suitable for her house and new windows so seven-year-old Alex's bedroom is not always cold. They will switch the boiler for an air-sourced heat pump, with the council taking responsibility for managing the project. Emma says the council have a stall explaining the scheme at the local market, so Sue is going along on Saturday to learn more.

Discussion. The first approach typifies how current energy policy treats homeowners: as a geo-spatially dislocated individual consumer, guided by 'rational actor' incentives of

financial optimisation and investment utility. The second approaches 'Sue' *relationally* as a mother, neighbour, bill payer and citizen situated within a local web of place-based *affiliations* representing both *strong* and *weak ties*. As the building owner, Sue makes the decision to renovate the building, but not in perfect isolation since her decisions are shaped by a network of social relations: her family, friends and the wider community. Rather than simply providing 'the context' within which Sue's otherwise 'rational' financial decisions are *embedded*, a relational approach reveals how Sue's social relations are the basis upon which she begins to engage with that decision. How the idea of home retrofit first comes into her life, through her friend Emma, shapes how Sue engages with the process, what monies she is prepared to *earmark* for this purpose and what relational work she is willing to undertake to achieve a given outcome.

The crucial insight here, as already elaborated above, is that money and finance are not separate from this process but also require significant *relational work*. Sue must *interact* with neighbours, her friend Emma, contacting Leeds City Council, researching retrofit technologies, attending an information event at the local market, all to assess how comfortable she is in making decisions that will result in structural interventions to her home. This is revealed by Sue's trust in her friend Emma, whose professional expertise she finds reassuring in seeking to overcome a *power/knowledge asymmetry* regarding both heat pump technology and the new council loan scheme. An institutional actor is suddenly positioned as trustworthy because it arrives into Sue's world via a trusted *strong tie*. We can see that *emotions* are also expressed in Sue's caring responsibilities towards her children, specifically Alex who she fears is too cold in his bedroom. By not recognising all of this *relational work* as part of people's lived experience, we argue that energy policy and linked financial incentives miss a major barrier to the uptake of retrofit.

This first vignette has helped to crystallise the differences between seeing 'Sue' as a *rational* consumer, an approach presently favoured by UK energy policy, and a *relational* approach that suggests radically different policy interventions are needed to boost retrofit.

Vignette 2: 'Bob and Marie'

Bob and Marie are a middle-income couple in their 50s, living near Leeds. They have a son, Johnnie, who lives away at university. Their stone terraced house had single-glazed windows, so they recently invested in triple glazing after inheriting money when Marie's mum died.

Before last winter, Marie was keen to spend the money on a conservatory, as she has always wanted one. But given recent rises in energy bills, Bob persuaded her that better glazing would mean they could keep the house warmer each winter. Bob's friend Mike, who lives two doors down, had recently triple-glazed his house and enthused about how much more comfortable he is.

Bob and Marie could only afford to replace their windows when Marie's mum died, and they wanted to use the money she left them to 'do something useful for our home'. They got three quotes from local companies to test who they felt they could trust to do the work and best cope with being in their home. They hired a company owned by the friend of a close friend to do the work, and who also did Mike's windows. Because Bob and Marie were keen to spend their money locally, and favoured a tradesperson trusted by Mike, they

did not end up choosing the cheapest quote. In fact, although they were only going to double glaze initially, the company *Local3Glaze* quoted triple glazing for only slightly more money. Their son Johnnie is active in climate politics and has been hassling his parents about reducing their carbon impact, so he supported their decision to triple glaze.

Discussion. Bob and Marie's decision making was shaped by the social relations of money in that Marie's inheritance was central to their decision to improve the energy efficiency of their home. Here we can see *relational accounting* at work, as decisions on how to spend money are closely tied to the social relations surrounding it and the *relational work* undertaken to acquire it. With a lump sum arriving into the family as a windfall *gift*, they felt an obligation to *earmark* this money for something Marie's mother would have consented to and negotiated it in the context of Johnnie's environmental concerns. As inheritance arrives with strong emotional attachments, the decision to earmark it for improving the comfort and convenience of their home is clearly shaped by relationships of long-term care.

Social relations beyond the household were also significant, with both 'Mike' and the 'friend of a friend' providing local place-based sources of *trust* and helping the couple to navigate *power/knowledge asymmetries*, reducing the *relational work* needed to identify their options and then to manage tradespeople in their home during the work. Crucially, Bob and Marie did not choose the cheapest quote. They based their decision on who they felt most comfortable with, even going a step further to pay for triple glazing because they had placed their trust in a local company recommended by a close friend. By drawing upon existing *strong ties*, the requirement to build weaker *affiliations* with strangers was greatly reduced, along with levels of worry and anxiety, demonstrating the importance of reducing *relational work* in incentivising people to act.

Showing that people's decisions are not made in a 'rational' economic way, but navigated via complex social relations, opens up new ways to encourage households to engage in retrofit. Promoting retrofit either via the narrow incentive that it will lead to marginal reductions in energy bills, or via the need to meet abstract and distant climate targets, appears to ignore the lived experiences of Sue, Bob and Marie for whom such concerns were not central to their decision making. As such, we now discuss how a relational approach can be used to improve retrofit policy.

What Is the Added Value of a Relational Approach to Retrofit?

Access to finance matters. But while innovative financial packages are important, they risk offering insufficient incentives to mainstream retrofit schemes. We argue that it is necessary to approach this challenge *sociologically* by considering the social relations involved in why, when and how people make decisions about their homes and to account for these relational dynamics when designing retrofit policy and linked finance options.

As we have argued, scaling retrofit requires moving beyond finding the right price point or marginal financial saving for households. Instead, policy solutions should focus upon *reducing the levels of relational work* involved and account for the earmarking of private funds. As illustrated by the two vignettes, our research in three different contexts and tenure-types found evidence of people developing strategies for this themselves, by

seeking recommendations from friends and family and by 'staying local' with trades. This suggests that a place-based model for local area-based retrofit delivery – leveraging existing relational networks among neighbourhoods, community and faith-based centres, sports clubs, school groups and so on – would help to build trust and overcome power/knowledge asymmetries, especially for people who lack necessary capitals when faced with choosing tradespeople and a range of energy efficiency technologies. A relational approach also reveals that people are not consistently 'able to pay', but rather have particular life moments (e.g. receiving an inheritance) that create fluctuations in the availability of money that can be earmarked for such purposes. This issue is further compounded by dynamics of race, gender, disability and class where power/knowledge asymmetries are often far more acute and in need of greater attention (cf. Bandelj et al., 2021). Policy needs to move beyond 'rational actor' assumptions and focus instead on the steps to reduce the levels of relational work needed to establish trust in the process for different types of households.

Based on our research, certain strategies are more likely to succeed. For example, exploring 'green' incentives linked to inheritance tax or via trusted place-based organisations (i.e. combined/local authorities, building societies) are worth pursuing. Above all else, reducing the immense amount of relational work loaded onto both households (demand) and trades (supply) ought to be the priority of an energy policy informed by a relational approach to retrofit. Put simply, retrofitting homes involves buildings; but it also involves the people living within them. It is futile to design policies or delivery schemes that privilege the technical needs of the former while misunderstanding the social relations of the latter. Relational sociology opens up new possibilities for energy policy, shifting the focus towards finding ways to reduce, facilitate and smooth the relational work required to deliver retrofit and increase the likelihood of meeting decarbonisation targets.

Conclusion

The contributions of this article are threefold. First, we have argued for the urgent need to move towards a relational sociology of retrofit, in order to reframe popular (mis)conceptions of individuals as 'rational actors'. We have set out the implications of this for energy policy design. Second, we have demonstrated what relational sociology has to offer in illuminating empirical puzzles, such as the urgent decarbonisation of homes in order to meet net zero targets. Third, we have revealed what is to be gained for relational sociology itself by submitting key concepts to empirical testing as a response to the call by Roseneil and Ketokivi (2016). We have shown the value of key concepts in relational sociology for responding to grand challenges, helping those across business, industry and policy making to look beyond 'rational actor' models and embrace a relational sociology of retrofit.

Relational sociology remains at the early stages of its conceptual development and exploration. We have demonstrated how it can offer a far richer (and more compelling) way of understanding the challenges of increasing the uptake of domestic retrofit, demanding the redesign of energy policy. We close by strongly recommending that social scientists working in interdisciplinary spaces to help deliver net zero targets join us in

embracing, applying and empirically testing this relational approach in linked sites of analysis (Middlemiss et al., 2024).

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Notes

1. 'EPC' refers to the Energy Performance Certificate, which is required whenever a property is built, sold or rented in the UK. It contains information about a property's energy use and typical energy costs, scoring an energy efficiency rating from A (most efficient) to G (least efficient) that remains valid for 10 years.
2. Another source puts this figure far higher, at nearly £55bn – an average of £4035.70 per home – and during just the first five months of 2020 (money.co.uk, 2020). As this figure was based on a survey of just 1000 households, we have used the more conservative figure of £19bn, which remains a striking rebuttal both to the relative ambition of the Green Homes Grant scheme and the belief that access to finance is the primary barrier to scaling retrofit in the UK.

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