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Uncertainty, Expectations and Housing Market Choices

Abstract

Housing is a complex commodity and housing market choices carry with them substantial economic and social consequences for the households making them. Housing market decisions are complex, uncertain and involve expectations-formation. Standard economic theory – in the guise of expected utility theory – is particularly ill-suited as the basis for understanding such complexity. This paper therefore explores alternative avenues for potential development, reviewing the key characteristics of owner-occupied housing markets and housing search, and examining how the resources of institutional and behavioural economics could be used to inform our understanding of the residential mobility process. The paper concludes by outlining an agenda for empirical research.

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Introduction

Housing is a complex commodity and housing market choices carry with them substantial consequences for health, wealth, lifestyle, social networks, and job opportunities. For most households choices in the housing market represent long term and large scale commitments. They are also, typically, presented with a wealth of information that needs to be sifted, sorted and evaluated in order to arrive at a choice. The future values of, and changes in, some of the key relevant economic and social variables are uncertain at the point of decision. Housing market choices cannot therefore be made with secure knowledge of all the important variables. In order to proceed a household must form expectations regarding the values of the relevant variables: how such expectations are formed and how they influence action should therefore be questions of central concerns.

Standard consumer theory treats decision making under uncertainty as the maximisation of subjective expected utility (see, for example, Hirschleifer and Riley, 1992). One of the canonical texts in the field characterised subjective expected utility theory as suitable primarily for 'small world' problems (Savage, 1954): problems comprising a limited range of easily identifiable and well understood prospects. With the range of alternatives available, the complexity of the information to be evaluated and the pervasive uncertainty surrounding key variables of interest, housing market choices are emphatically not 'small world' problems. This suggests that standard theory is particularly ill suited as the basis for an adequate understanding of housing market decision processes.

At a theoretical level the difficulties in applying standard consumer theory to housing decisions have been recognised for many years (eg. Maclennan, 1982), yet the economic analysis of consumer behaviour in housing markets has, perhaps until recently, been dominated by expected utility maximisation as the key behavioural assumption (eg. Henderson and Ioannides, 1983, 1989; Hardman and Ioannides, 1995). As Meen (2003, 100) commented in a related context: '... there is an increasing consensus as to the most appropriate modelling approach to house

prices. ... the consensus is almost entirely neoclassical. Although there have certainly been cries that this is an inappropriate framework, in practice it is dominant'.

This dominance may, however, be beginning to be challenged. A number of recent empirical studies of housing market behaviour have argued that such behaviour can be better accounted for using concepts drawn from behavioural economics (most notably Genesove and Mayer, 2001; Engelhardt, 2003; Simonsohn and Loewenstein, 2006). In addition, studies have highlighted the importance of demographic factors and 'surprises', such as unforeseen unemployment, which 'push' and 'pull' many housing choices (eg. Munro et al, 1998; Ermisch and Di Salvo, 1996; Clark and Dieleman, 1996; Maclellan, 1994). Such findings represent a challenge to economic studies founded on households using optimal intertemporal choice strategies based around narrow economic and financial concerns such as rates of return or the user cost of capital.

While economists have been aware for some time of the importance of uncertainty and expectations for understanding housing decisions (eg. Goodman, 1989) and of the need to move away from analyses which ignore market imperfections (eg. Arnott, 1987), theoretical development typically takes the form of either elaboration upon or adjustments to existing approaches rather than radical reorientation. This paper seeks to contribute to the ongoing project of articulating an alternative perspective on housing market behaviour based upon behavioural and institutional economics that has advanced considerably since we first observed that this route offered considerable potential (Marsh and Gibb, 1997). Our approach here is, however, somewhat different to that adopted elsewhere. Rather than seeking to test for the relevance of a specific departure from rationality, such as nominal loss aversion, to housing market behaviour we start from a particular aspect of housing market behaviour – residential mobility decisions – and explore how a range of concepts from behavioural and institutional economics could illuminate the process. We would tentatively suggest therefore that we are seeking to address Fudenberg's (2006, 697) injunction that one strategy for advancing behavioural economics is to seek to examine a domain from a perspective that assumes all the main behavioural

economic assumptions, rather than just one key assumption, apply.

The paper reviews the key characteristics of housing market search and the context in which it occurs. It then briefly examines the nature of complex decision making in uncertain contexts before exploring the applicability of these ideas to (voluntary) residential mobility decisions. The paper ends by reflecting upon whether there are significance gains to be made for the economic analysis of housing markets by pursuing an alternative approach to theorizing housing decision making.

Housing market choice: the epitome of complexity?

Housing consumers face a whole raft of decisions around mobility and tenure choice. In order to illustrate the complexity of one component of this web of decisions we focus upon the residential mobility decision. We review two dimensions of the decision: the context in which it occurs and the process of choice itself. Much of this discussion will be familiar: the objective is to underline the way in which the decision departs to such a degree from the assumptions of standard theory that an alternative approach is warranted. We do not examine the motivations for residential mobility, which is in itself a complex issue (see Clark and Dieleman, 1996). We recognise that many such decisions are forced and only some aspects of the choice process discussed below will be relevant. However, at a broader level, the prevalence of forced mobility is further justification for revisiting our understanding of the microfoundations of housing markets.

The context of choice

Maclennan (1982) identifies seven distinctive features of the housing market (1982, pp.60-62) which render the use of standard consumer theory problematic:

1. Individuals transact in the housing market infrequently, which means that on entering the market consumers possess imperfect information regarding the state of the market
2. In the period between an individual's transactions the market will have

changed and evolved considerable and therefore any information that the individual possesses may be obsolete

3. Because it is costly to recontract in the housing market, imperfect information is likely to lead the consumer to engage in a search process
4. The fact that housing is a complex commodity exacerbates a consumer problems in evaluating possible purchases
5. Evaluating possible purchases is made more difficult by the spatially dispersed nature of vacancies
6. The process of house purchase entails engagement in some form of bidding
7. Because of the fixity of the secondhand housing stock, the relatively slow rate of turnover and relatively sluggish new supply there is likely to be considerable disequilibrium in particular submarkets as a result of changes in demand

Three key points arise from this account. The first is that time plays a central role. With its emphasis upon the obsolescence of existing knowledge, the need to acquire new knowledge, and the implication that the market itself will have evolved since the last time the consumer participated, the above account places 'historical time' at the heart of the analysis. This may seem self evident, but it stands in contrast to much standard economic reasoning where time is treated as 'logical' and the passing of time carries no implications for knowledge acquisition or learning on the part of market actors. The second point is to emphasise the centrality of information acquisition in the process of choice. The third point is the complexity of the process of evaluating the available alternatives.

Maclennan proceeds to present a behavioural framework that dispenses with many of the standard tools of economic thinking. It does not make *a priori* assumptions about choice processes, nor does it include standard assumptions about the existence of equilibrium, and it attempts to incorporate explicitly the linkages between individuals and housing market institutions. Yet, Maclennan's work lacks an explicit conceptualisation of decision making under uncertainty. Maclennan recognises this (1982, p.66) because he does not seek to specify what he terms the 'choice process sequence'. His framework leaves open the question as to whether choice processes themselves are best seen in orthodox maximising terms or in

terms of alternative accounts (eg. Starmer, 2000).

The process of choice

The context within which housing market search occurs is clearly complex, but the above account does not consider the stages through which households pass in the process of searching for and identifying an alternative dwelling.

Simplifying the account presented by MacLennan and Wood (1982, pp135-139), we can identify six components of the process that households are likely to engage in once they have decided to enter the market for owner occupied housing and search for an alternative dwelling:

1. select search strategy
Decide on the intensity of search and the information channels - newspapers, estate agents, internet, etc. to be used
2. area orientation
Establish preferences/aspirations and identify the broad areas or sectors of housing market in which these may be fulfilled. May be influenced by housing market intermediaries acting as gatekeepers.
3. establish vacancies
Establish the existence of specific purchase opportunities. May be influenced by housing market intermediaries acting as gatekeepers.
4. personally visit vacancies
Visit those vacancies which appear on paper most promising and assess in situ whether they are likely to fulfil aspirations
5. evaluate in detail
For the vacancy (or more rarely vacancies) further detailed evaluation of both dwelling and other amenities and facilities may be required.
6. form and place bid

If the vacancy appears to fulfil all the criteria that the household has employed then the household may proceed to decide on an offer to make and to present it to the seller or their intermediary. The nature of the offer may be influenced by the market intermediary's actions/advice.

Households do not necessarily proceed through these stages sequentially.

Fundamentally, there is no assumption that a household will proceed to the end of the process: at any stage the decision to cease searching may be taken because it becomes apparent that no available alternative meets the household's aspirations more adequately than the current dwelling. Even if the household proceeds through the various stages, as the search process increases a household's stock of knowledge of available options and current market conditions, it is possible, indeed likely, that this will reveal initial aspirations are unrealistic or unachievable. The household may step back through the stages of the search process as far and as frequently as is considered appropriate in the light of its expectations regarding the likelihood of identifying an appropriate alternative dwelling.

Having identified the various stages of the search process, it is necessary to look in more detail at the complex nature of the decision making processes which occur during these stages.

Complex decision making

Expected utility theory, as part of the standard economic model, assumes considerable knowledge and information processing capabilities on the part of the decision maker. It typically assumes that the decision maker is in a position to enumerate the range of options or prospects available at the choice point, assess the utility they will deliver, and assign probabilities to various possible future states of the world. This theory therefore places considerable informational and cognitive demands on the decision maker. More sophisticated versions of the theory which, for example, build in notions of search and optimal stopping rules increase these demands further.

While this type of approach can, without question, be applied to certain types of decision, it has been critiqued extensively in the wider literature as a general characterisation of decision making under uncertainty (see, for example, Davidson, 1991; Camerer *et al*, 2004). There are arguably now too many well documented examples of decision making that violate the theory for it to stand as a plausible general description. Dellavigna (2009) has provided a valuable overview of field evidence from behavioural economics that documents examples of nonstandard preferences, nonstandard beliefs, and nonstandard decision making.

The characteristics of residential mobility outlined above suggest that it is a particularly inappropriate candidate for the application of Expected Utility Theory, even as a broad approximation. We therefore consider the theoretical resources that are available for the construction of an alternative account. This section considers insights drawn from the institutional and behavioural economics tradition.

In the face of the complexity and uncertainty that attaches to housing market decisions departure from optimising behaviour is almost inevitable. Two questions arise. The first is: does the descriptive inaccuracy of standard accounts or the documentation of decision making anomalies matter? The second is: if optimising is neither likely nor possible, how should the decision process be understood? We leave consideration of the first question until later. We focus on the second question here.

Fundamental to any alternative account is the recognition, emphasized by institutional economists (eg. Hodgson, 1988, 1997), that economic agents face limitations upon their information processing and cognitive capacity.

Understanding the strategies that decision makers adopt in the absence of perfect rationality is therefore of central importance.

Simon's (eg 1982) well known concept of 'bounded' rationality offers a promising line of inquiry. Over several decades Simon argued that the alternative to the preoccupation with substantive rationality and the optimality of outcomes which is

exhibited by the mainstream economic literature is a concern with the reasonableness of decision making processes (so-called procedural rationality). Some thirty years ago Simon argued that:

There is now a large body of data describing human behaviour in ... [complex] ... problem situations. All of the data point in the same direction, and provide essentially the same descriptions of the procedures [people] use to deal with situations where they are not able to compute an optimum. In all these situations, they use selective heuristics and means-ends analysis to explore a small number of promising alternatives ... They depend on aspiration-like mechanisms to terminate search when a satisfactory alternative has been found (Simon, 1976, p.136)

The literature on decision making and 'bounded rationality' has subsequently expanded rapidly as both psychologists and economists attempt to develop a more adequate positive theory of decision making in the face of complexity and uncertainty (see Conlisk, 1996b, for a review). A key recent development is that centred on the notion of costly optimisation (Conlisk, 1988). The argument here starts from the recognition that any adequate economic theory of decision making needs to recognise that human cognition is a scarce resource and therefore people will economise on it. Experimental work by Pingle (1994) suggests that, when optimisation is costly, as the complexity of the decision problem increases there is a tendency for decision makers to resort to decision rules which economise on decision making costs but which do not, in general, produce optimal outcomes. When optimisation is costly decision makers do not make extensive comparisons of alternatives before making a choice, instead relying on other simpler decision rules. And in a complex, changing environment decision makers have little capacity to learn by repeated choice and again rely on simple decision rules which do not necessarily lead them to the optimal choice.

While these approaches are suggestive as the basis of an alternative approach, it is necessary to move beyond general propositions about the need for and use of decision rules and decision making heuristics. We start by considering two separate dimensions of the decision process: the first social and the second

individual. The discussion will be structured around the process of housing search outlined above.

Complex decision making and residential mobility

How do those engaged in housing market search select their search strategy? Given the large number of possible alternative dwellings, how do households orient their search and circumscribe its breadth? Once a set of dwellings which fulfil a household's broad selection criteria have been identified, how does the household evaluate the dwellings in detail?

The key dimensions of *search strategy* selection are intensity of search and the information channels used to identify possible alternative accommodation.

Intensity of search is a function of the urgency with which alternative accommodation needs to be identified and the quality of any intermediary used to assist search. It is also likely to be related to the state of the housing market which typically means a concern with the path of house prices and the flow of vacancies.

How housing consumers respond to house price movements varies (Kiel, 1994): some intensify search in the face of house price increases and others reduce the intensity of search or postpone search altogether. A key question for our purposes is, if we reject standard assumptions that housing consumers can form rational expectations because they are unsupported by the evidence (eg. Poterba, 1991; DiPasquale and Wheaton, 1994; Muellbauer and Murphy, 1997), how do consumers form expectations regarding the future path of house prices upon which they base their strategy? There is evidence that backward looking expectational mechanisms, or at best a combination of forward and backward looking mechanisms, seem to be able to account for observed market behaviour (Poterba, 1991). How might we start to explain this observation? One author to offer a relevant account is Keynes. His concept of 'animal spirits' and the question of how price expectations are formed in volatile markets has recently come to prominence as economists seek to understand the origins and implications of the current recession (eg. Akerlof and Shiller, 2009).

Keynes famously characterised uncertain knowledge as follows:

I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty ... The sense in which I am using the term is that in which the prospect of a European war is uncertain, or ... the rate of interest twenty years hence, or the obsolescence of a new invention ... About these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know. (1937, pp.213-214)

Keynes proposed three possible approaches when faced with this sort of situation (1937, p.214). First, one can assume that current circumstances are a 'much more serviceable guide to the future than a candid examination of past experience would show it to have been hitherto'. That is, proceed by ignoring future changes which we can know nothing about in the present. Second, one can assume that the 'existing state of opinion as expressed in prices and ... output is based on a correct summing up of future prospects'. This option has the most resonance with standard approaches to expectations, but note that it is not saying that prices *are* efficient in the way assumed and the mechanism by which the relevant prices are formed is not specified. Third, rather than relying on one's own judgement, it is possible to 'fall back on the judgement of the rest of the world which is perhaps better informed. That is, we endeavor to conform with the behaviour of the majority ... [this]... leads to what we may strictly term a *conventional* judgement'. Each of these alternatives offers a plausible explanation for expectational mechanisms which represent a reasonable response to an uncertain future, but which depart significantly from a concern with maximising the value of a mathematical expectation. A market containing individuals operating with these sort of expectational assumptions is, in the words of Keynes, based on so flimsy a foundation, it is subject to sudden and violent changes (1937, pp.214-215). Keynes considered that the market will exhibit strong dynamics, with any attained equilibrium being temporary at best: which is strongly reminiscent of the dynamics of the UK housing market over the last three decades at least (see for example Maclennan, 1994; Meen, 1996) but may not necessarily be the case in housing markets with a different institutional structure (see, for example, Englund

and Ioannides, 1997).

Consumers' understanding of the state of the housing market - in terms of the rate at which prices are changing, their future trajectory, and the flow of vacancies on to the market - will play a role in determining the cost of search. In a buyers' market, with relatively little competition for vacancies, households can look at a range of dwellings and evaluate them in detail with the expectation that once this search process has been completed it would be possible to select the preferred dwelling from the full range visited: it is unlikely that dwellings will have been sold in the meantime. In a sellers' market, however, the luxury of extended search is not available: purchasers will stop searching as soon as they identify a dwelling which meets their aspirations because to continue searching may be to lose the attainable in the search for the optimal. This effect of the state of the market can be located within the costly optimisation framework by arguing that in a sellers' market the costs of seeking an optimum increase. This point is not lost on those working within the SEU framework (see eg. Clark and Smith, 1982), but the further, significant point here is that as the costs of optimising increase behaviour will change towards increased reliance on rule following resulting in outcomes that are suboptimal from the perspective of substantive rationality.

At the *area orientation* stage of the search process a household will have a set of aspirations regarding the desired physical characteristics and social and neighbourhood amenities. The household is also likely to have a set of preferences over the area in which they wish to reside. We can distinguish at least two possibilities. First, area preferences may be a function of the aspirations for particular physical characteristics - for example, the need to consider suburban locations if a garden is seen as essential - but, if so, such aspirations are likely to be fulfilled by properties in a number of locations. In this instance, area preferences are only partially determined by such aspirations. Alternatively, area preferences may be independent of dwelling type aspirations and the two may conflict.

How do households decide on areas for search? How are area preferences traded off against dwelling type aspirations in situations where the two conflict?

Concerns with physical characteristics, physical location and local amenities/public goods have tended to dominate economic analyses of housing demand and residential mobility decisions, although authors such as Tu and Goldfinch (1996) try to incorporate broader considerations such as the marketability of a dwelling for future resale. We would argue that in order to understand adequately residential demand we need to broaden the framework to consider social as well as physical space.

There has been recent interest in the social signalling through consumption (eg. Ireland, 1994; Bagwell and Bernheim 1996; Charles et al, 2009) and this has included consideration of the role that house prices play in housing consumption decisions (Lim, 1997). This literature makes appeals to concepts such as conspicuous consumption and the so-called Veblen effect (Veblen, 1899). One suggestion considered by Lim (1997) is that house prices are positively related to a household's utility: buying a more expensive property generates greater household satisfaction. While we would suggest that it is the ability to signal relative social position through expenditure, rather than high prices *per se*, which generate utility, we would commend the move towards recognising the social dimension of household consumption. It opens the way for a significant departure from the highly atomistic account of consumption that are frequently offered. The social dimension of consumption is a key element in an alternative account of search processes and, in particular, the way in which households manage the complexity of housing market information which faces them. Also, the references to Veblen in the recent literature indicate an increased willingness to explore ideas from institutional economics which offer a very different account of consumption and which can offer assistance in the current task (see Ackerman, 1997, for a brief discussion).

In making sense of both the area orientation and later evaluation stages of the housing search process – as well as the instigation of search in the first place - the role that social comparisons and reference groups play in determining aspirations and preferences is, we would argue, potentially crucial. The question of how preferences for housing are formed is not one which troubles housing economists unduly: as in much of mainstream economics housing preferences are treated as

innate (but see Munro et al, 1998). Yet, a more adequate account would recognise that housing preferences and aspirations are, in part at least, socially determined (see eg Mason, 1988). Since the early part of this century research has been conducted on the way in which household consumption is shaped by reference to the nature and level of consumption by others (Baxter, 1993). Housing consumption and decisions to change the level of housing consumption will be made in relation to housing 'wants'. Such wants incorporate an element of need which is related to the demographic characteristic of the household (eg. number of bedrooms needed to avoid overcrowding) and its economic circumstances (eg. need for mobility in the face of labour market instability). Wants will also, however, be defined at least in part in relation the 'social environment' and in particular to the levels of consumption attained by reference groups. Thus housing consumption will in part be about social positioning: the classic "keeping up with the Jones'" syndrome (see e.g. Frank, 2009, for a more general discussion of the point). That the social dimension of housing consumption is significant is well established outside of economics (eg Berry, 1994) and it has considerable potential to inform an account of housing market choice.

The size of the relevant reference groups will vary, but some of the information to which households will refer is drawn from society more broadly. One illustration of this is the notion that there exists a 'housing ladder' which households will ascend during their life course. As Munro and Madigan (1998, p715) observe: 'in order for the idea of a 'ladder' to make sense, it is clear that there must also be an apparent consensus as to the ordering of housing opportunities (ie what is better and what is worse)'.

The social dimension of choice can help us understand the process of area orientation and dwelling choice. It can also illuminate the broader tenure choice decision. A pure intertemporal optimisation approach to housing consumption would hypothesise that households will switch between rental and ownership tenures in response to changes in economic variables in order to maximise the return from investment in housing and other assets. Yet, switching is not widespread in Britain. Given that the notion of a housing ladder is well established in popular discourse, and ownership is seen as higher up the ladder, then clearly

this would provide one reason why households are less likely to switch from ownership to renting than strictly financial criteria would suggest was appropriate. Murie (1998) has argued that home ownership is now, rightly or wrongly, seen as a 'badge of citizenship' and that those who reside in other tenures are viewed as 'damaged' citizens (see also Gurney, 1999). Only if renting – either in the private or social sectors - were truly unavoidable will it be countenanced by many households.

The question as to why homeownership is attributed a higher social status is interesting. The conventional explanation focuses upon the fiscal advantages of owner occupation and the lack of acceptable or accessible alternative in other tenures (eg. O'Sullivan, 1984, Hills, 1991, Forrest et al, 1990). While this approach has much to commend it as an account of the growth of owner occupation in Britain during the twentieth century it may be inadequate to explain its sustenance and persistence. In this regard, a closer examination of homeownership as an institution is illuminating. Walter Hamilton (1934) viewed an institution as "a way of thought or action of some prevalence and permanence, which is embedded in the habits of a group or the customs of a people" (cited in Hodgson, 1998, p179). The beliefs that sustain home ownership - for example, that renting is throwing money away and that rising real house prices are an unambiguously good thing – can be relatively unshaken by all but the most negative experiences of home ownership (see eg Munro and Madigan, 1998; Forrest et al, 1998). As long as the institution of home ownership remains in its current form there will continue to be a presumption in favour of owning that will persist even when it is out of step with the 'requirements' of the British economy for greater flexibility and mobility. It is probable that we will see households clinging to owner occupation even when they may be financially better off in an alternative tenure. Institutions evolve relatively slowly over time and therefore create a degree of inertia in the way markets function: even with the very recent negative experiences of home ownership in the UK, the headline discussions are of strategies to increase mortgage lending and residential transactions again and claims to have detected the first signs of house price increases. It may take many years for a 'new reality' to be recognised and an alternative perception of the relative merits of the various tenures holds sway.

When we consider the search process stages of *personally visiting vacancies* and *evaluating in detail*, we again need to recognise the centrality of expectations. We can usefully draw upon some key results from behavioural economics. The literature is extensive and many of the arguments are well rehearsed and reviewed (see Rabin, 1998, for an overview). There are five findings which are of particular relevance here:

- Experienced utility and expected utility
- Reference levels
- Loss aversion, endowment effects and the status quo bias
- Anchoring and adjustment bias
- Preferences for improving over declining sequences

A standard economic approach to households' evaluation of alternative dwellings is illustrated by Tu and Goldfinch (1996, p.521) when they argue that 'if a buyer is rational ... he/she will be able to estimate correctly the utility he/she can obtain from each dwelling'. Yet, evaluating a dwelling as a potential home involves constructing a scenario regarding what life - in all its diverse aspects - will be like in a particular location. It may also involve trying to make an assessment of the likely saleability of the property at some indistinct point in the future. Importantly, it is upon the basis of these scenarios that choices are made: where future prospects are inaccurately perceived choice may appear, from some 'objective' viewpoint or with hindsight, perverse and the decision maker may miss the global, or even local, optimum. Turnbull (1994) makes progress in incorporating these sort of concerns into orthodox demand theory, but in doing so he is obliged to translate his initial concern with uncertainty into a concern with 'consumption risk' and treat realised consumption levels as a incorporating a stochastic component.

Although when discussing housing choice the tendency is, quite legitimately, to focus on search, housing has important experience good characteristics that need to be recognised. A consumer cannot fully appreciate their purchase until after it

has been made and the good is being consumed. If 'housing' is in part an experience good, then at the point of choice the decision maker's expectation of the utility following from a particular option can differ systematically from the experienced utility of that outcome. As Rabin (1998, p.33) notes: 'even when they correctly perceive the physical consequences of their decisions, people systematically misperceive the well-being they derive from such outcomes'. And the more uncertainty there is about the consequences flowing from the various options - the 'noisier' the information available - the more difficulty the decision maker will have identifying the right course of action and the greater the likelihood of making a sub-optimal choice (see eg. Arthur, 1991). We must therefore treat any theoretical approach which is founded on the assumption of accurate perception of future experience with some caution.

It may be that different households construct choice scenarios with differing margins of error between expected and experienced utility. The familiar distinction between in-migrants and those making local adjustment moves is one which is likely to be important here: in migrants have much less information about the location - they have not already experienced the neighbourhood amenities and lifestyle which are components of the good 'housing' - and are thus more likely to misperceive outcomes. But even the local movers may fail to perceive accurately their future situation. Indeed any housing choice decision is likely to have consequences that are not foreseen at the choice point. These are not problems of imperfect information: no amount of further information that can be collected at the point of choice will mitigate the problems significantly. They are primarily problems of the knowability of the future in the present.

The second well established finding from behavioural economics is that rather than the absolute characteristics of a person's situation being the determinant of their well being, it is often how their current situation compares to some reference level which is important (Rabin, 1998, p13; Frank, 2009). How reference levels are established and how they change are questions that remain to be fully explored. A household's reference levels are likely to depend on past and possible future consumption patterns, but there will also be a role for social comparison and the consumption patterns exhibited by the household's reference or peer

groups.

Following this concern with reference levels is the third key finding that when making risky choices people are significantly more averse to losses than they are to similar sized gains (Kahneman, et al, 1990): an area in which this is particularly significant is in levels of wealth. This implies that ‘the displeasure from a monetary loss is greater than the pleasure from a same-sized gain’ (Rabin, 1998, p.14). Where there is a small risk that a choice will leave the decision maker worse off in relation to their reference level there is a strong preference for the status quo. Linked to this is the observation that decision makers display an endowment effect (Thaler, 1980) which means that once a person possesses a good it assumes a greater value than before s/he possessed it, and consequently demands more as a seller than s/he would previously have been willing to pay as a buyer. When this effect is generalised to concern for more than one good, a strong *status quo basis* has been identified, whereby individuals prefer the status quo to a situation in which they would lose some goods even if they gain other goods of seemingly equivalent monetary value.

The behavioural economics concept of nominal loss aversion is one that has been explored in a housing context: the behaviour of many sellers in the context of falling house prices has been shown to be significantly affected by loss aversion (Genesove and Mayer, 2001; Engelhardt, 2003). Such loss aversion is a source of market inertia. When thinking about the issue from the buyers’ point of view the issue relates more to how the expected consumption/utility levels at some alternative dwelling compare to those at the current dwelling (the *status quo*).

Where the consequences flowing from a decision are uncertain and the decision maker has to make a judgement about likely magnitudes then experimentally it has been shown that decision makers tend to display anchoring and adjustment bias (eg Tversky and Kahneman, 1974). By this is meant that decision makers are asked to estimate by how much something differs from a pre-specified number they tend to anchor their judgement on an initial point and then do not make a sufficiently large adjustment away from it. Without the pre-specified number they arrive at different answer. So not only will decision makers have a tendency to

prefer existing holdings (the *status quo*) to an alternative of equal value, when attempting to assess how much an alternative differs from the starting point of reference they will tend to underestimate the difference.

Simonsohn and Loewenstein (2006) provide an interesting discussion of the way in which in-migrants fail to adjust their understanding of prevailing price levels when moving from high to low (or vice versa) priced housing markets and as a consequence their willingness to pay is different from that of established residents (eg an initial tendency to overbid for properties in the low price area because they are used to higher average prices).

The final relevant finding, presented initially by Loewenstein and Prelec (1991), is that people show a strong preference for improving over declining sequences following from a choice. That is, even where the sequences flowing from two available options contain the same elements, the chooser exhibits a preference for an ordering which starts with the element with the lowest valuation and then ascends.

Residential mobility: A behavioural and institutional economic approach

How can we bring these findings to bear on (voluntary) residential mobility and search? The key question that consumers are seeking to answer is: should they remain where they are or relocate to obtain a desired level of housing-related consumption? The households will have a set of aspirations regarding their dwelling - their housing 'wants' - determined in part by the consumption of their reference groups: we will call this consumption level C_{Ref} . This should be seen as encompassing the full range of activities and amenities accessible at a given location – including signalling of social status - and not just the consumption of 'housing' *per se*. The household will also have fairly clear expectations of the level of utility to be obtained from the *status quo* option remaining in their current dwelling: call this consumption level C_{SQ} . The consumption level attained in an alternative dwelling we will call C_{Alt} . The trigger for considering mobility is when consuming at the current dwelling drops below the reference level (ie. $C_{SQ} < C_{Ref}$) either because the reference level has shifted up (and hence the need to 'keep up

with the Jones') or consumption at the current location is predicted to decline (eg. as a result of neighbourhood decline). Only if an alternative dwelling is expected to lead to a level of utility equal to or in excess of the level to which the household aspires will the household move (ie. $C_{SQ} < C_{Ref} \leq C_{Alt}$).

Consumption levels should be viewed over time and alternative dwellings should not offer only a short term move towards C_{Ref} but also long term improvement. Those alternatives which suggest the possibility of an improving sequence (eg. sustained house price inflation or imminent gentrification) over those sequences which appear to be descending (eg. high probability of increased maintenance costs or neighbourhood decline in the medium term). The formation of expectations about trajectories will be shaped by conventional and institutional factors. In all cases households will be concerned to look at the downside risk and avoid options with a high probability of outcomes which place them in a worse position relative to their aspirations.

In assessing the available alternatives against C_{SQ} and C_{Ref} households have to envision alternative scenarios. They may make insufficient adjustments away from their current consumption level when assessing C_{Alt} and tend to overvalue their existing consumption bundle relative to alternatives. This would tend to mean that some alternatives would be rejected because they are insufficiently different from the current consumption level, even though that would not have been the case in terms of experienced utility had the move occurred. This sort of outcome is made increasingly likely if the parameters of the decision are highly uncertain and it is very difficult to form a view on the likely consequence of a move to a particular location. In this instance, to draw an analogy with statistics, households would form a confidence interval for the likely outcome rather than a point estimate. The more uncertain the household is regarding the consequences of a particular option the wider the confidence interval will be and the less likely the household is to consider that option because gains are not unambiguous. Only where it is very clear that the alternative offers gains relative to the *status quo* will the search trigger relocation.

At a final search stage of evaluating in detail, there is a question of how households evaluate the many attributes of the various dwellings visited in order to make a selection. There are a number of decision rules which have been proposed as alternatives to orthodox rational choice-based perspectives. Baxter (1993) categorises them under the broad heading compensatory and non-compensatory decision rules (see also Starmer, 2000). A compensatory rule would assume that households are willing to trade off one housing attribute against another, possibly foregoing some attributes entirely. A non-compensatory rule, on the other hand, would assume that for a dwelling to be evaluated as a satisfactory alternative it must have a minimum acceptable amount of each of the desired attributes. Non compensatory rules come in various forms and many are more sophisticated than the above suggests. One rule which has attracted attention within economics is the lexicographic rule which argues that choice should be based upon a ranking in order of importance of the various attributes (see eg Earl, 1983; Lavoie, 1992).

A range of decision making heuristics have thus been proposed. It is inappropriate to assume that it is possible *a priori* to identify *the* heuristic that applies to housing market choices. Only through empirical research can the nature of the rules employed be established. We would endorse the Baxter's observation that:

The nature of the heuristic used will vary from one set of circumstances to another, and is also likely to vary from one individual to another ... It may be that further research will enable a number of especially common, and more than usually significant, heuristics to be identified, or enable the available heuristics to be more closely integrated. (Baxter, 1993, p112)

This is has been identified as an important future research direction not just in relation to housing decision making but to advance the broader behavioural economic agenda (Fudenberg, 2006).

Housing market search can therefore be illuminated by a range of insights from both institutional and behavioural economics. We need to recognise the cognitive limitations of housing decision makers and that households have to adopt

strategies to cope with these limitations. Theoretical accounts of housing decision making need to broaden the range of factors considered as potentially significant in shaping decisions and to recognise that not only are preferences shaped to some degree by the decision maker's social environment but also that such social influences can assist households in keeping the decision to manageable proportions.

Furthermore, we would argue that behavioural economics points to the likely significance of inertia in housing market choices. Inertia in the housing market has been attributed to a number of sources. For example, equity constraints could be relevant at declining market (but see Engelhardt, 2003). A further, more general account of inertia might ascribe it to high transaction costs. Our argument is not, however, about transaction costs inhibiting relocation – such an argument would suggest that policy action to reduce such costs might increase transaction volume. One might encompass the argument in the rather nebulous concept of 'psychic costs' of transacting - but that distracts from the point that these are not variables over which policy has much leverage, they are inherent in the characteristics of the housing decision making process itself. And expectations formation is central to the issue.

What we know about decision making points in the direction of relative conservatism and inertia, and conservatism and inertia that increases with increased uncertainty. Inertia is overcome to precipitate a move only where such a move appears to be unambiguously beneficial. High transaction costs would tend to reinforce the inertia generated within the decision making process itself.

Earlier we raised the question as to whether it matters if standard approaches to understanding decision making are descriptively inaccurate for housing markets. One might argue that descriptive accuracy is not a significant criterion for theory acceptance: a theory of the housing market based upon standard microeconomic foundations could be of instrumental value if it can provide accurate predictions of the behaviour of housing markets (one of the three characteristics of good theory identified by Stigler, 1965 – the others being generality and tractability). From this perspective it doesn't matter if households make decisions for all sorts of

idiosyncratic reasons as long as these reasons are idiosyncratic in different ways and on the average cancel out in the aggregate. It is only if people's decision making is systematically biased away from the predictions of the standard models of rationality that there is an issue.

There are also important questions as to whether naive or non-rational market actors can survive in real market settings without being exploited or learning from their mistakes: that is, does the market discipline participants so that they behave more rationally? While in some contexts this disciplining process may be strong and repeated transactions educate participants in effective behaviours, other have argued that certain types of irrational or less than optimal market behaviours can survive without being competed out of existence and affect market outcomes. One of the seminal pieces to demonstrate this theoretically was DeLong et al (1990). The topic of aggregate characteristics of models based upon agents with behavioural economic characteristics is an area of continuing development. These are also active areas of debate between mainstream economists and advocates of alternative, more psychologically-informed theory (see eg. Caplin and Schotter, 2008). DellaVigna (2009, pp.365-66) acknowledges the argument that market forces might eliminate non-standard behaviour but says that there are four evidenced reasons why behavioural economics continues to matter: especially with house purchase feedback is infrequent and hence individuals are inexperienced; experience itself can be shown to exacerbate bias; agents and firms have little incentive to de-bias individuals; and some non-standard biases cannot be altered by experience particularly with respect to socially-induced preferences.

Our starting point for investigating alternative microfoundations was precisely that conventional housing market models were perceived by some to have ceased to produce accurate predictions or be able to give plausible accounts of observed housing market behaviour, although we are conscious that such perceptions are contested. The problems of modelling the housing market have been brought into sharp focus with the debates over whether housing markets experienced a bubble in the early 2000s or not: some take it as self-evident that some form of abnormal psychology took hold of some housing markets leading to a short-term bubble (often informed by the sort of conventional price expectations that Keynes

identified), while others are comfortable with the view that prices moved in line with fundamentals. This is not a debate to be pursued here. Our point is that there is sufficient uncertainty over the adequacy of models founded on standard assumptions that there is value in seeking to explore the potential of an alternative.

So beyond developing an alternative account of decision making at the micro-level there is the task of linking the behaviour of individual economic agents to market phenomenon and providing an account of the interaction between market aggregates and individual decision makers. Modelling on the basis of assumptions drawn from institutional and behavioural economics is likely to have an impact upon the characterisation of aggregate market behaviour and the way in which the market responds to structural shifts or exogenous shocks (Simon, 1984). However, the precise implications of bounded rationality for market dynamics are not clear (Conlisk, 1996b). Such a conceptualisation of housing decision makers opens up the possibility of providing an account of recent changes in housing market functioning which many existing models struggle to accommodate. And recognising the implications of genuine uncertainty and complexity in this way does not imply that housing economics must cease to be concerned with behavioural regularity.

Our argument regarding the links between the micro- and macro-levels is summarised schematically in Figure 1.

The top left of the diagram summarises the influences upon a household's housing wants. If the expected utility from current housing consumption falls short of the some reference level then, subject to available resources, the household will decide to move. The housing search process is then entered. The process is presented in the right side of the diagram, which indicates that key stages of search are influenced in part by the social environment and that evaluation of dwellings is conditioned by behavioural characteristics. When an alternative dwelling which offers a level of expected utility equalling or exceeding the reference level is identified then movement is likely. This move contributes to the aggregate behaviour of the market, which in turn influences the economic and social environment of this and other decision makers. If, on the other hand, the

alternative dwelling does not offer the desired improvement in expected utility then the household must decide between continuing search - possibly after modifying housing wants - or terminating the process by remaining in its current dwelling.

Conclusion

The economic analysis of housing choice has been dominated by analyses which can be located within the subjective expected utility framework. Yet, it has been argued that housing market models which are based upon rational choice and optimising behaviour have notably failed to account for observed behaviour (see eg. DiPasquale and Wheaton, 1994; Meen, 1996; Cho, 1996). It is precisely this failing which motivates our interest in alternative theoretical approaches.

Reviewing the nature of housing decisions and the context in which they take place suggest to us that an alternative approach needs to have several characteristics that would diverge from existing approaches. It should recognise that genuine uncertainty means that individuals are more likely to adopt behaviour that is rational in a procedural, not substantive, sense and that they employ more or less sophisticated behavioural rules which allow them to cope with uncertainty and reach a decision. Household preferences and behaviour are influenced by their social environment, in particular by reference groups and decisions are likely to diverge from substantive rationality in a number of ways that have been well-established in a range of other, less complex, decision contexts.

The sort of behavioural focus that we are advocating is typically criticised by economists for its *ad hoc* nature when compared to the elegant and parsimonious explanations offered by rational choice theory. In response to this observation we would endorse the position taken by Simon (1978, p.8) when he observes that:

[t]here is something to be said for an Ockham's Razor that, eschewing assumptions of optimization, provides an explanation of behaviour that is consistent with either optimizing or satisficing procedures on the part of the human agent. Parsimony recommends that we prefer the postulate that

men are reasonable to the postulate that they are supremely rational when either of the two assumptions will do our work of inference as well as the other.

In seeking to develop an approach rooted in institutional and behavioural economics we are not seeking to deny the importance of either the role of abstraction in theorising or of attempts to model housing market behaviour. Inevitably any process of theorising requires abstraction from the complexity of concrete decision situations and the distillation of the essence of the process. Rather we are suggesting that the nature of housing choices challenges the nature of the abstractions that are conventionally employed. Recognising uncertainty, complexity and the important role played by expectations requires economic models built on a micro-foundation of boundedly rational agents following relatively simple decision rules.

Yet the implications of this type of alternative approach for our ability to produce housing market forecasts are debateable. On the one hand, Heiner (1983, p.561) has suggested that predictable behaviour will evolve only to the extent that uncertainty prevents agents from successfully maximizing. It is limitations to rationality which allow us to say anything meaningful about the way markets will behave. On the other hand, Ormerod (1999), drawing inspiration from Kirman (1993) and complexity theory, argues that the combination of rule following by economic agents and social interaction between them results in complex aggregate market dynamics which defy attempts at forecasting.

We have sought to provide a relatively rich, if informal, account of the housing search process, in contrast to the relatively thin accounts founded on rational choice. The discussion has generated a range of questions and hypotheses that need to be explored empirically. It may be that empirical work will identify where simplifications of our account can be made without sacrificing too much in the richness of its implications. This would no doubt aid the process of formalisation. But formalisation which would proceed on the basis of a sound understanding of process, rather than a reliance upon standard approaches. We therefore finish by identifying key questions that are ripe for empirical investigation:

- What considerations do households take into account when formulating their preferences for housing?
- What influence do market intermediaries have upon the scope of the options moving households consider?
- Which methods of forming price expectations are most common and which are the more common ways in which price expectations influence decision making processes?
- Which decision heuristics are used in housing market decision making and which are the most frequently employed?
- Which of the characteristics of decision making identified in the behavioural economics literature are most important in shaping housing market behaviour?
- How do reforms to the buying, selling and financing of owner occupied housing influence the way in which consumers make housing market choices?
- What are the implications for market dynamics of modelling households as operating in a procedurally rational manner?

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