Why do they stay? Loss aversion and Duration of Residence

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Abstract

Migration and labor mobility studies are dominated, as their names suggest, by theories and empirical accounts of movers.   Studies of internal migration for example ask who moves, why they move and with what consequences - to themselves, their origin and destination. By contrast stayers are not as often the subject of enquiry despite the fact that most people move relatively infrequently. The alternative question, which we explore in this working paper, is why people spend most of their working lives in one place.

We follow a line of argument that privileges the view that staying is the dominant, preferred state and that moving is simply an adjustment towards a desired state of stability (or equilibrium). Our argument is based around the idea, already recognized in the literature, that migration is risky. However we extend the argument to the theoretically more interesting idea of loss aversion as developed within prospect theory. According to prospect theory existing possessions including the existing community are attributed a value well beyond their purchase price and that this extends the average period of staying among the loss averse.

We outline an empirical strategy which uses survival models to test the role played by an individual's perceived level of risk. In the process we control for a range of demographic and socio-economic characteristics as well as life stage events. We propose applying the Cox proportional hazards model in order to show how the occupancy durations of selected categories of people are differentially affected by their personal level of risk adversity. We distinguish, in particular, between the effects of events (like divorce, bearing a child, getting married) on extending or reducing the stay, for respondents with different prior levels of loss aversion.

Keywords: mobility, internal migration, adjustment, prospect theory, endowment effects, rational consumers

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## 1.	Introduction

Migration and mobility studies are dominated by theories and empirical accounts of movers. By contrast stayers, those who do not move, have received very little attention. To migration specialists they are simply those who are left and whose primary role is to provide a potential stock of future movers. As a result much less consideration has been given to why people *don't* move.

The motivation for the predominant focus on mobility, both within and between local labor markets, is that the resulting flows make a major difference, in both macro and micro terms, to the countries and regions of origin and destination and to the individuals and households themselves. However, within the time periods we usually consider, movers typically make up only a minority of the population. By contrast, the much larger number of stayers exercises the major influence on social structure simply by aging and otherwise changing in place.

As residential mobility and migration slows down, as it has in the United States and some OECD countries over the last 40 years, so there is growing need to better understand not only the decision to stay but also the internal demographic and economic dynamics of staying (Cooke 2013). This may in turn lead to a better understanding of both the (re)allocation of labor within (and between) countries as well as the social returns to geographic stability.

In this paper we view staying as the dominant, preferred state, and argue that for most people moving is simply an adjustment to a preferred new state but for others a move can be undertaken reluctantly in response to unexpected and unplanned events. Our point of departure is that we argue that people exercise a strong personal and social bias *against* moving which we present as an antithesis of the long held view of the United States as a mobile restless society. We articulate this argument by drawing on the concept of loss aversion as predicted by prospect theory - the notion that existing possessions and known neighborhoods, friends and local social networks are favored over alternatives in a way that makes people reluctant to change the status quo.

At the same time, we also recognize that those who do move often "do better" than those who stay put. There is a vigorous debate now about just how much movers gain when they change locations. The stylized fact that those who move make more gains than losses does not change the underpinning argument that staying is the preferred state. Moving happens when households need to adjust and rebalance their lives and it occurs within in a complex structure of links to family, neighborhoods and jobs (Niedomysl and Clark 2013). Our 21st Century world is a world where multi-generational families, single parent families and two worker families are continually evaluating whether to move or not and, if so, where to move. It is in this context, that we re-examine the decision process and what "staying put" means for people and places.

This paper is also written in the context of rising social and personal uncertainty. There have been several macro pictures advanced in which individuals and communities within increasingly globalized societies face greater uncertainty and organize accordingly (Beck 1999). Young people in particular respond as individuals to heightened levels of uncertainty

as to their future (Mills and Blossfeld 2003). Aversion to risk is manifest at both the social and individual levels and is documented as having important influences on behavior, especially major changes in people's lives. One of the most important of these life course events involves the simultaneous decision to either change or not change the place of residence and the associated potential or actual change in employment.

The paper has six sections. An initial section (2) reviews the literature on stayers, duration of stay and the context of moving and staying. Section 3 introduces a range of recent behavioral perspectives outside rational expectations theory and outlines the concept of loss aversion as set out in prospect theory. Such an approach is considered in the context of previous attempts to embed risk within models of migration. Section 4 conceptualizes staying as surviving and section 5 reviews the Cox proportional hazards model as a way of estimating the impact of loss aversion on the duration of residence. Section 6 reviews our findings and observations.

2.   Staying

Thus far, attention to 'staying' has been driven almost universally by its implications for moving. Moving remains the focus, not staying. Even when the focus is on estimating the duration of residence the implications of doing so are almost always for what happens afterwards and not on the staying, itself. For example, several papers examine the influence that the expected tie of residence has on the individual housing-buying process (Ayal and Hempel 1977) which is relevant for modelling individual's residential relocation behavior (Nijkamp, Vanwissen and Rima 1993) as well as predicting occupancy turnover in the rental market (Shear 1983). Most studies of residential duration by geographers have been concerned with their implications for subsequent movement, in other words, with *leaving* the residence (Huff and Clark 1978, Clark and Huff 1977, Goodman 2002).

Despite the downward slope of the duration of residence curve, most studies have modelled the decision to move rather than the decision to stay (Morrison and Relles 1975, Morrison 1971, Morrison 1967). Statistically the two are related of course and Morrison argued that the mover stayer model should be refined so that it could be used to describe movers and stayers on a continuum rather than as members of two discrete classes (Morrison 1970). In the long ensuing literature we have learned a great deal more about *movers*: who they are, what triggers their move and where they move to and when and in most recent detail, but relatively little about *stayers* (Hanson 2005). Of course we are not alone in drawing attention to the general neglect of 'staying'; the observation is of long standing (Ioannides 1987) and there have been several calls for improved measures of staying (Harsman and Quigley 1991, Pickles and Davis 1991).

There are some exceptions to the overall focus on moving. Those whose focus is on occupancy and length of residential occupancy are addressing staying and its effects. For example, expected value of length of residence in the same house is particularly important for explaining general living systems (Reinback and Oliva 1981) and clearly aging and staying in place has been the focus of staying studies (Fernandez-Carro and Evandrou 2014). Anily et al were amongst the first to focus on the attachment of household members to their neighborhood – their familiarity with the area, their social ties, and their feelings of security, all of which increase with length of residence (Anily, Hornik and Israeli 1999). Fischer and Malmberg (2001) and Hedman (2013) although addressing mobility also note how place and family connections can influence the decision to move or not and if to move whether to move nearby. In other words the connection to place or community can be used to explore the

decision to move or stay (Reuschke 2014). The importance of connection has also been pointed out by (Cook 2011) among many others.

Two types of stayers

There are in fact two types of stayers in a domestic population. The distinction rests on the spatial unit in question; those who stay in the same dwelling (as defined by Goodman for example) and those who move but stay within the same local labor market. We refer to these as dwelling stayers and (local labor) market stayers. In our planned analysis we will focus on both as well as acknowledging the minority who alter one but not the other, both of whom end up being long(er) distance commuters.

As we noted in the introductory remarks, there is still a prevailing view that migrants change labor markets to make economic gains and that those who stay do less well economically. And we know that the average gains from moving are often biased by very large gains to some movers while others make small gains, or even losses (Korpi and Clark 2015). While it is generally correct that the greatest economic returns come from metropolitan moves (Newbold 2011) and moves up the urban hierarchy more generally, there is no question that over the long run those who stay may still make acceptable and even greater gains in the wider sense of increasing wellbeing, including an economic return, as the recent literature on post-move satisfaction indicates (Sloan and Morrison 2015).

It is this more holistic view of gains from staying or moving that is at the heart of Bluestone and Harrison's argument *The deindustrialization of America* where they articulate an inherent conflict between capital and the community, between the needs of capital to have labor move to locations and the needs of community to maintain stability and to minimize turnover and build social networks (Bluestone and Harrison 1982). This conflict between capital and the community is manifest in a wide variety of outcomes across many countries. One interpretation of the most recent reduction in mobility in the USA for example has been that it represents a temporal stall in the capital accumulation process (Frey 2009).

In summary, the limited study of stayers implicitly assumes that their behavior is simply an inverse of mover behavior. Even in his modelling of stayers Goodman (2002) views them as movers in waiting, and therefore as a latent form of housing demand. Yet the shear proportion of stayers in any regional population requires a perspective which does not simply view stayers as movers in waiting, Morrison's (1970) continuum notwithstanding. In order to gain leverage into the world of the stayer is it necessary to view staying as a phenomena in its own right, as driven by a quite separate set of forces than would normally be called upon to explicate moving. In making this argument it is necessary to depart from the prevailing neoclassical model of adjustment and consider a number of ideas that are emerging out of behavioral economics and the parallel concerns with the subjective response to attachment and place.

What influences staying?

There are two conceptually different ideas advanced in the migration literature which implicitly explain staying: relative net earnings differentials and psychic costs. The first of these involves economics directly, the real income consequences. We consider relative net economic returns from moving through two markets, one that governs earnings (the labor

market) and the other, differentials in the cost of living (mainly the housing market). We then address net returns to changes that are not recorded through the market, personal social net returns, and the role of risk in each of these three domains.

Many papers in the economics literature on migration begin with a simple behavioral model in which individuals compare lifetime streams of earnings in alternative locations, usually the origin and prospective destinations. Migration occurs (assuming no legal constraints) if the net differences in the lifetime earnings streams in the place of destination exceed those at the origin over and above net of the costs of migration. (The classic paper is by Sjaastad, 1962). These costs of migration are assumed to include pecuniary expenses such as travel costs but also non-pecuniary elements such as "psychic costs", the emotional impact of leaving family and friends and having to cope with life in an unfamiliar and potentially hostile environment. (Barrett and Mosca 2013) p. 4).

Economic costs and psychic costs are measured in different ways, the former relying on market prices and the latter on changes in subjective wellbeing. The former may be thought of as external to the migrant/stayer and the later as internal to the people involved. The external reflects differences in the returns to labor and housing (mainly) in the local markets of origin and destination, and the latter reflects the way people appraise the conditions they find themselves in according to their own psychological make-up. Any model of staying (and moving) needs to address both dimensions.

Embedded in both the external and the internal is the notion of risk. Markets are inherently variable and uncertain in a globalized world, and social relationships are also uncertain in an age of liquid modernity (Bauman 2003). People in turn vary in their inherent and learned ability to cope with both types of uncertainty. Importantly, the two interact: the more variable markets are and the greater the disturbance in social conditions the greater is the demand placed on the resilience of the individual, on their ability to appraise and adapt to the risks in life and by extension to the risks of being in one place or another.

The declining rates of mobility documented in the USA (Taylor et al. 2008, Hanson 2005) we suggest may reflect a collective response to the changing nature and magnitude of risk in the 21st century, both economic and non-economic. At the same time there are structural changes which impact on both. For example, as metropolitan centers get larger and more diversified, more people are able to change jobs simply by moving internally within the larger city. This lowers the risk, both economic and social, associated with a change of job (Molloy, Smith and Wozniak 2011). Cooke has also pointed to the role of interconnection via the internet and other external modes of connection which may be a factor which reduces the need to move (Cook 2015).

Staying and cumulative inertia

An early view of duration of residence revolved around the axiom of cumulative inertia (McGinnis 1974, Myers, McGinnis and Masnick 1967) which stated that, "The probability of remaining in any state of nature increases as a strict monotonic function of duration of prior residence in that state (McGinnis 1968) p. 716). In other words, the longer an individual remains in one location (e.g. in one house or location) the less likely he or she or the household will move. Although the focus was on staying, on the duration of residence, it was residential mobility that was believed to be the primary driver of social change because it involved redistributing the population: "Since migration analysis is concerned with the

composition of migration flows from one area of the city to another, an understanding of the numbers and kinds of households leaving an area at any given time is essential" (Clark and Huff 1977), p. 1357). What is missing here of course is any recognition of the ways in which stayer populations change, not the least of which is aging.

Far from being an 'explanation' of staying, the so-called 'cumulative inertia' was simply an inductive observation. Even the empirical relationship was not universally accepted because several different processes contributed to the resulting negative distribution between duration of residence and mobility: the composition of the populations involved and the way several of their previous durations of residence affected the likelihood of moving (as shown in Clark and Huff's 'residence-history tree' (Clark and Huff 1977), p.1632). The difference between repeated moves of a small segment of the population and the single moves of a large number continued to bedevil descriptions of staying. Ginsburg (1971) for one points out the difficulty of distinguishing between cumulative inertia effects and heterogeneity effects. As Clark and Huff observed, "...duration of stay may only be significant [in accounting for moving] because the heterogeneity in the population has not been adequately described by the other demographic, social and economic variables (in the regression)" p. 1366.

Empirically it is essential to actually follow individuals. Otherwise, as Clark and Huff observed, the observed decline in the mobility rate with duration of residence is, "purely a function of the changing proportion of movers to stayers within the population which has not moved in the previous time periods" (Clark and Huff 1977 p. 1365). In other words, effects of cumulative inertia and heterogeneity (movers and stayers) are indistinguishable if we simply observe the aggregate relation between the duration of residence and the change in the mobility rates" (Clark and Huff, 1977 p. 1365).

The focus on the degree to which duration of residence raises or lowers the likelihood of moving kept the focus on the decision to move as the outcome measures (Gordon and Molho 1995). It also emphasized that the difference between the individual and the group is important, especially since following individuals over several occupancies is much more difficult empirically than counting lengths of stay of a given population. That is changing with the increase in longitudinal data sets and more detailed information on individuals and their behavior. Subsequent tests suggested that "when cumulative inertia did exist it is a very weak influence on the probability of migrating and that duration of stay since the last move is an inadequate measure of residence history effects" (Clark and Huff 1977 p. 1357).

What the literature did do however was focus attention, however momentarily on stayers, those who did not move and were increasingly less likely to move the longer they remained in residence. It also provided some of the first thinking about the way in which duration might be linked to risk aversion (Smith 1979b, Smith 1979a). Smith suggested that duration of staying could be used to understand the overall relationship between aggregate staying and a population's risk aversion. Smith suggested that the probability of relocation decreases as risk aversion increases and it is this general concept which we will develop in more detail below. An assumption of risk neutrality is more appropriately replaced by some measure of risk aversion. And (David 1976) has shown how individual variations in the degree of risk aversion enter into a decision making model of migration and generate several of the well-known properties of migration streams.

In summary, the problem with 'cumulative inertia' as a route into understanding staying is that it is purely empirical and has no theoretical connection to either the external nor internal

factors which govern the decision to stay. By demonstrating cumulative inertia as a phenomena we did not learn the reasons behind inertia and more particularly why it applied some in some places, some people, and some periods and not others. Partly for this reason attention turned to the demography behind and by extension to staying.

Staying and the demographic role of the life course

The demography of staying may be thought of as the demography of inertia. Of all accounts of staying it is probably the descriptive relationship between the demographic characteristics of movers and stayers that has been most enduring. This is for two reasons. First, movement is dominated by the young and second, family formation plays a major role in decisions to change dwellings. As for cumulative inertia, the demography of staying has been tied almost totally to the dwelling alone. For example Ioannides (1987) and others (Clark and Dieleman 1996) (Mulder 1993) used panels of families to show that a household's propensity to change place of residence is a function of their desire and need to adjust housing consumption. As Morrow- Jones pointed out, the early household stage of movement between rental units created much of the overall mobility in a population (Morrow-Jones 1988). Ioannides also drew close attention to the relationship between a life history and housing changes (Ioannides 1987). None of this however, linked the moving and or staying to the housing markets and labor markets in which the dwelling is embedded.

The introduction of life events, or what have come to be known as triggering events, brought life course changes directly into the mobility decision. While economists had focused on wage differentials as a motivator for moving, especially for longer distance migrations, demographers, sociologists and geographers focused on how life changes such as getting married, having a child, dissolving a relationship each of which is a potential trigger for moving. The life course and event history models showed how these (Courgeau 1985, Clark 2013) and specifically for childbirth (Clark, Deurloo and Dieleman 1994), divorce (Dieleman and Schouw 1989, DeWilde 2008, DeWilde 2009, Mulder and Wagner 2012), and marriage (Mulder and Wagner 1993) are closely related to residential moves. Few considered their implications for staying.

Housing and demography have, with some exceptions (Myers 1990), been treated separately, but there is an important sense in which the two are closely related. The availability, or the lack of availability, will affect the chances for young people to leave home and enter the housing market. A buoyant market, especially a vibrant rental market provides enhances changes to start on the housing ladder. Supply generates opportunities, and demand is influenced by the size of young, potentially home-owning cohorts (Mulder 2006). More specifically, with respect to our discussion in this paper, Mulder (2006) points out how homeownership itself can hamper residential mobility by binding people to places.

Housing costs do not just affect the chance to enter the housing market they can also influence demographic behavior. The impact of housing costs on fertility is an example - the way housing markets themselves, through the costs of ownership affect the timing of pregnancy (Clark 2012) Similarly, "Women have often entered the labor market to increase household resources and to make home ownership possible or to maintain it. It is possible that the strong emphasis on homeownership, and where child care is problematic, will create a situation where couples who are unwilling to forgo ownership, decide to delay fertility" (Clark 2012 p. 3). Previous work by Simon and Timura (2009) provided a historical evidence for a link between fertility and housing costs.

Because decisions about fertility, workforce participation and housing ownership are interconnected, so their timing is correlated and jointly subject to risk management, and hence subject to loss aversion. However, when we conceptualize an interconnection between housing pricing and fertility we must recognize an alternative conceptualization in which parents who want to have children sooner, or to have more children, can move towards lower cost housing (Easterlin and Crimmins 1985). For these writers, the issue is the question of a taste for fertility.

Housing market contexts

In what is probably the most explicit model of stayers, Goodman focused on estimating their housing demand noting how, "Due to moving and transactions costs, most housing buyers do not routinely move in response to small changes income or housing price" (Goodman 2002). He developed a model to consider the demand and tenure choice as functions of multiple measure of prices and incomes, providing important insights into the estimation of demand for a group that do not adjust their housing consumption.

In a subsequent paper Goodman extended his panel to 12 years allowing him to examine the market influences on those who left and stayed. (Goodman 2003). He modeled the determinants of the length of stay concluding that the, "length of stay has measurable and important effects" (Goodman 2003) p. 107). Amundsen (1985), in turn, has shown how the optimal number of moves is related to moving costs, income and preference for housing and he demonstrates, under simplified conditions, that the moves are equally spaced (Amundsen 1985). Others have explored the relationship between the expected length of stay and the transactions costs of selling a home (Haurin and Gill 2002).

Housing costs have also been shown to affect the likelihood of adult children leaving home (Clark and Mulder 2000, Ermisch 1999, Lauster 2006). Simon and Tamura for example show, over the long period 1940-2000 using pooled individual data, that rental rates per room, is strongly and significantly related to age at first birth and conclude that "the price of living space has a small but significant effect on the fertility decisions of households, both on women's age at first birth and on completed fertility (Simon and Tamura 2009)

Ambrose analyzes the duration of households in various HUD assisted housing programs in an effort to help policymakers identify the factors that lead households to successful transition out of assisted housing (Ambrose 2005). Particularly relevant to our study are his observations on the relationship between duration of residence and indicators of pressures on the housing market. Ambrose suggests for example that residential tenant duration is an important factor in determining market rents, presumably because rentals come up for renewal which allows price hikes, a view supported by the fact that rent control significantly increases household tenancy duration.

One such study was motivated by the effect of lowering residential property transaction taxes on household moving behavior (in Flanders). Transaction taxes were a function of the size of the dwelling. As they report, "Transactions costs will often be an important element in the decision whether or not to actually move, given the households wants to move" (Decoster,

Capeau and De Swerdt 2005, p. 2).   From our point of view we might consider this a reduction in the loss which might occur and expect the loss aversion to be less sensitive.[3]

Staying by owner occupiers is also subject to market forces. Consider for example the fact that in a market dominated by the existing stock, the longer the duration of residence the fewer properties come onto the market thus reducing market supply and potentially increasing housing prices. If duration of residence in turn is sensitive to price (as the rental example above suggests) then at some point durations will decrease. There is, in other words, a cyclical relationship between duration of residence and price, a point related to the way loss aversion relates to price as we will argue later.

To enlarge on the story further, since rental and owner occupied housing are substitutes, the relationship between duration and price in the two markets are not independent. In the rental market however greater turnover is associated with rising rentals (because landlords can adjust prices upwards when tenancies end) whereas in the ownership market it is lower turnover that raises prices (because lower turnover reduces market supply).   However, because conditions in the rental and owner occupied sectors are related, rising durations of residence by owners can restrict entry by renters lengthening their duration of residence. In this way durations of residence in the two sectors are related.

There are other examples of the way such market connections operate. For example rising mortgage rates can lower the probability of leaving rental and also reduce the level of upgrading within owner occupier market thus increasing durations of residence. In each case therefore 'staying' or duration of residence is subject to changes in external conditions (like mortgage rates) and is itself an argument for market indicators such as price. On the other hand, the long term increase in home ownership rates observed over the period 1993-2009 in the USA may not necessarily be due to mortgage market innovations and the relaxation of down payment requires as is often argued but simply be "an implication of U.S. demographic evolution, most notably the decline in interstate migration and, less importantly, population aging (Mnasri 2014 p. i).

Chan asks whether falling house prices increase durations of residence (Chan 2001) Falling house prices have caused numerous home owners to suffer capital losses. Those with little home equity may be prevented from moving because proceeds from the sale of their house are insufficient to repay their mortgage and provide a new down payment. A data set of mortgages is used to examine the magnitude of these constraints. Estimates show that average mobility would have been 24% higher after four years, had real house prices increased at 1980s rates, and 10% higher if house values had merely kept up with inflation. Among those with high initial loan-to-values, the differences are even greater. Sometimes housing costs leads to decisions which can lengthen the stay (Haurin, Parcel and Haurin 2002).

Staying and the labor market

If we follow an earlier argument about two types of stayers and cast our net wider so that staying refers to staying in the city or local labor market, then we move away from the realm of housing per se and into local duration of residence which has less to do with housing adjustment and more to do with the way people respond to the local demand and supply of

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[3] These authors note how in the Flanders case, "it is now possible to deduct the amount of transaction taxes paid in the past on a secondary market purchase from the amount of transaction taxes due when buying another dwelling on the secondary market and selling the previous one". p. 2.

labor. In this literature, duration is also examined as staying. Instead the geographic mobility of labor is assessed as a measure of labor market flexibility and its ability to align demand and supply geographically. In drawing on this argument, Oswald argues that, "an economy's 'natural rate' of unemployment depends on the ease with which its citizens can move around to find jobs. Fluid societies have efficient economies."(Oswald 1999). His argument is that homeownership retards labor mobility which he supports with a series of graphs showing a positive relationship between unemployment and homeownership rates in Europe in 1960 and 1990. He also shows how changes in home ownership by state are positively correlated with change in unemployment across states of the USA 1970-1990.

Not surprisingly such a bold statement about the relationship between housing tenure and mobility has elicited several responses but most saliently by Green and Hendershott (2001) who show quite clearly that the relationship disappears with the proper controls. Nevertheless, the issue of how homeownership affects the likelihood of moving or staying is pertinent and the previous reference to Mulder (2006) emphasizes a telling finding- that owners move less often and are more tied to places. The discussion however has underscored the importance attached to the so called 'fluid society' one which is more "open" with an ability to create more opportunities.

While we have a set of approaches to staying and to duration which invoke the pure notions of cumulative inertia, demographic and housing contexts they do not deal with a growing area of interest and of potential importance namely variations in the propensity to stay due to psychology. Recent research has demonstrated that there are real psychological consequences of moving (Oishi and Talhelm 2012, Oishi 2010) and many of these costs are the very ones which make stayers risk averse. There is considerable stress involved in moving (Oishi et al. 2011) because moving carries considerable social consequences including the way friendships can be severed and are structured (Lun et al. 2013) as a result of relocation.

Several international studies, especially in the medical and demography literature, have investigated the association between migration and mental health. Anxiety, depression and an increased risk for psychotic disorders have been reported to be prevalent in some migrant populations (Coid et al. 2009, Silveira 1998, Aichberger et al. 2010, Bhugra 2004). These findings are explained – at least to some extent - in terms of higher social adversity, migrant stress, social isolation, depression, loneliness and poor living conditions of the migrant populations. A focus on the experiences of Irish migrants living in Britain in the second half of the 20th century for example has revealed high levels of social deprivation and poor health among Irish migrants, especially men, e.g. (Leavey 1999). In order to integrate these psychological perspectives we turn to behavioral approaches and in particular the role of risk.

3. Behavioral approaches and the role of risk

In the last decade the behavioral basis of economic decisions has been the focus of studies notably by (Kahneman and Tervsky 1979) and developed by others (Shiller 2005, Akerlof and Shiller 2009). As a result, terms like irrational exuberance, nudge, and animal spirits have now become part of the contemporary lexicon for our understanding of how people *actually* behave especially when it comes to investments and decisions more broadly. Ackerlof and Shiller's *Animal Spirits* for example was written to promote the understanding

of the role played by emotions in influencing economic decision making. [4] In his paper on psychology and economics DellaVigna (2009) suggests that individuals deviate from the standard (economic) model in three respects: nonstandard preferences, nonstandard beliefs and nonstandard decision making (DellaVigna 2009).

Strangely, little of this attention to 'irrationality' has crept into the urban literature especially where one might have expected it to take hold most strongly, namely in the modelling of location decisions. Part of the price we pay for the bifurcation of Geography and Sociology into cultural and modelling approaches is that emotions, and what mainstream economists call 'the irrational', have been confined to the cultural realm whose scholars citation circles fail to overlap with those wishing to formally model urban phenomena. Ironically perhaps, it is in the bastion of neoclassical economics, in the study of finance markets, where the behavioral is having its greatest influence. This is despite economist's tendency to de-emphasize the importance of emotional factors because the effects of emotions are difficult to model and quantify.

Marsh and Gibb have recently responded to the citation gaps in the urban literature as it relates to our understanding of the housing market behavior by noting that the standard economic theory of decision-making under uncertainty – expected utility theory – is quite ill-suited as the basis for understanding housing choices (Marsh and Gibb 2011) p. 216 - a point observed some time ago by one who has tried (Maclennan 1982). Marsh and Gibb make a renewed appeal to institutional economics beginning with Simon's notion of 'bounded rationality' (Simon 1982). They point out how, "expected utility theory, as part of the standard economic model, assumes stable and well-defined preferences, considerable knowledge, and sophisticated information processing capabilities on the part of the decision maker" (p. 219). Maximization of subjective expected utility, they note is really only suitable for 'small world' problems, those comprising a limited range of easily identifiable and well-understood prospects. Housing market decisions, particularly those involving residential mobility are by contrast, emphatically not 'small world' problems (Marsh and Gibb, 2011, p. 216).

Despite offering a very useful review of the potential for behavioral approaches to elucidate decision making with respect to residential mobility, Marsh and Gibb underplay the very complexity of the move decision, together with loss aversion and other psychological inhibitors they review, and the way these complexities actually combine to inhibit moving and thereby increase the proportion of the population who are stayers. The easier, default option for the complex decision making problem we call moving is simply to not move. Staying is *the* classic example of the inability of many households to make complex, costly decisions. This is most apparent in the case of homeowners, who by and large are free to make such decisions (mortgage foreclosure cases notwithstanding).   The information requirements of moving are high as are the transactions costs and the degree of risk or cost of getting it wrong.   The element of risk arises much more strongly in the moving case because there is already a stock of social capital invested in the place that could potentially be lost. There is an asset that is owned and into which one has also invested considerable social capital. The decision to move or stay is therefore quite central and one of the most useful frameworks for appreciating such behavior is prospect theory.

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[4] The term 'animal spirits' goes back to Keynes, and 'irrational exuberance' to Greenspan. Interestingly, both arguments lead the authors to develop a case for stronger government intervention in the market.

Applying risk analysis to migration

In one of the seminal papers on migration Sjaastad refers to the psychic costs of migration, which he defined as a consumer surplus equal to the maximum dollar income that could be taken from the individual before he/she would decide to migrate in order to improve his/her economic position (Sjaastad 1962). In the subsequent Harris and Todaro model of migration between stylized rural and urban sectors, the risk element is recognized more explicitly but is still limited to the probability of securing employment in the sense that potential migrants respond to *expected* earnings (Harris and Todaro 1970). This in turn allows Harris and Todaro to predict continued rural-urban migration even in the face of high urban unemployment as a rational choice of rural dwellers. At the end of the day, neither Sjaastad nor Harris and Todaro make an attempt to actually measure psychic costs or the distribution of risk averseness in the population.

Even today the existing empirical evidence on risk aversion as it relates to migration is mostly indirect. Daveri and Faini (1999) for example examine how income variability and the correlation of income between regions in Italy affects migration probabilities, and their results are consistent with the hypothesis that risk aversion determines migration probabilities (Daveri and Faini 1999). Such expectations were also behind Smith's theoretical inquiry into, "regional differentiation when the characteristic undergoing spatial selection is some measure of risk aversion" (Smith, 1979 p. 31). Considerably later, Heitmueller posited a model in which risk averse individuals are less likely to migrate (Heitmueller 2005). He uses this model to look at the interaction of unemployment benefits and risk aversion using data on migration between eastern and western members of the European Union. Clearly the issues of risk and mobility are emerging as serious issues in the literature (Bauernschulster et al. 2014).).

In one of the few attempts to empirically examine the relationship between migration and risk attitudes, Jaeger et al (2010) draws on *direct* measures of attitudes towards risk to show that being relatively willing to take risks is associated with an increase of at least 1.6 percentage points in the probability of ever migrating in the period 2000-2005 (Jaeger et al. 2010). This is a substantial effect relative to the unconditional migration propensity of 5.1 percent. A parallel paper using the German Socio-Economic Panel, SOEP, proposes a link between risk aversion, the size of networks, migrant characteristics and the timing of migration (Umblijs 2012). As the size of the network at the destination increases over time, finding employment becomes less uncertain which induces more risk-averse individuals to migrate. Although written with international migration in mind these last ideas are directly relevantly to internal migration and to residential mobility in general.

In summary, although the way people view risk has been recognized as being relevant by those studying migration (Hart 1975, David 1976) few have been able to go as far as actually incorporating respondents own measures of risk aversion into models of migration. This objective is now possible as the result of two relatively recent developments. The first is the coming of age of several large panel surveys which now cover long enough periods in people's lives for multiple mobility decisions to be observed together along with the fact that some now capture subjective measures of risk aversion. The second is the development of prospect theory which offers risk aversion as an important restriction on decision making, particularly where there is a lot at stake as is the case with both internal and international mobility decisions. The presence of the two, the theoretical rationale, and the data with

which to test the proposition that an important characteristic of staying which opens up exciting prospects for our deeper understanding of the dynamics of adjustment in urban areas.

Prospect theory

In the neoclassical model of the rational actor which underpins most analyses of the moving decision it is implicitly assumed that the *experienced* utility of outcomes can be inferred from their *decision* utility because rational decision-makers by assumption know what they will like (Kahneman, 1999, p. 17). However, it is this very assumption that prospect theory questions and seeks to replace largely through a deeper understanding of the way people perceive risk.

In conventional thinking, gambles are assessed by their expected value, that is where each outcome is weighted by its probability of occurring. However, as Bernoulli observed, most people dislike risk and wish to avoid the worst outcome, and therefore a risk-averse decision maker will choose a sure thing that is less than its expected value. In doing so they are in effect paying a premium to avoid the uncertainty (insurance). More importantly, he realized that people's choices are based not on dollar values but on the psychological values of outcomes, their utilities. "The *psychological* value of the gamble is therefore not the weighted average of its possible dollar outcomes; it is the average of the *utilities* of these outcomes, each weighted by its probability" (Kahneman, 2011, p. 273). This last sentence is fundamental in appreciating the applicability of subjective risk adversity to our understanding of staying and hence mobility.

Kahneman and Tervky's contribution was to show that what matters in decision making is not the *absolute* level of wealth people might gain from a decision, but its *relative* level – relative to what they already have (Kahneman and Tervsky 1979).[5] Being risk averse means that people will not simply choose the highest expected utility from undertaking a given act such as moving because they don't want to risk losing what they already have. The notion of reference dependence and the reference point is therefore central to understanding the utilities that result from choices and is the central reason why prospect theory is so relevant to our understanding of staying. Indeed, Kahneman himself was well aware of the relevance of prospect theory for understanding residential mobility noting that, "If you changed jobs *or locations*, or even considered such a change, you surely remember that the features of the new place were coded as pluses or minuses relative to where you were" (Kahneman 2011 p. 291).

In summary, people make different choices about the same likely outcomes depending on where they are coming from, their reference points. People's histories are therefore important in understanding what choice they will make when faced with any expected utilities generated on the basis of known probabilities. To say that two people will make the same choice when faced with the same expected utilities is incorrect if their reference points are different. "..utility depends on the history of one's wealth, not only on present wealth" (Kahneman, 2011 p. 277). In short, people think in terms of gains and losses, rather than absolute wealth. By contrast, in the strict labor market model of mobility people gain or lose in absolute rather than relative terms.

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[5] This is a separate concept to another predominant discussion in the literature where 'relative' is defined in terms of what *other* people have. The two uses of the term relative are similar however in the concept considered here is about relating prospective gains to those held by the *same* person in the past to the gains made by another (similar) person who is a member of their reference group.

To reiterate, the contribution of prospect theory lies its demonstrating that, "a given state can be assigned quite different utilities depending on the state that preceded it, and quite different states can be assigned approximately the same utility if they represent the same change relative to the reference level" (Kahneman, Diener and Schwarz 1999, p.17. What this implies therefore is that one cannot infer the likelihood of moving simply in terms of estimating absolute gains and losses as neoclassical models of migration do. One has to know both the reference point (what could be lost) *and* the sensitivity of the potential mover to that possible loss.

At the center of prospect theory is the value function for gains and losses. The "critical feature of this function is that it is steeper in the domain of losses than in the domain of gains. The differential sensitivity to losses versus gains is called loss aversion. The coefficient of loss aversion is the ratio of the slopes of the value function in the two domains." (Kahneman, 1999, p. 17). Figure 1 shows the difference between the willingness to accept (as compensation of the loss) C-A and the willingness to pay (B-A). The difference between the willingness to accept and to pay is the endowment effect. He/she expects more money as an owner seller and less as a buyer of the same good. In Figure 1, losses reduce value more rapidly than gains increase them so the coefficient (of loss aversion) is greater than one. As Kahneman goes on to explain, this value function, "represents the decision utility of the gains and losses associated with possible outcomes of the decision at hand: *it is silent about the experienced utility of the reference situation*." Ibid p. 18 (our italics). The loss aversion depicted in Figure 1 could, he notes, "represent either a general priority of negative over positive affect in hedonic experience or a deeply ingrained conservative tendency in decision –making" (p. 18).

Figure 1. A depiction of the value function in prospect theory

A typical value function
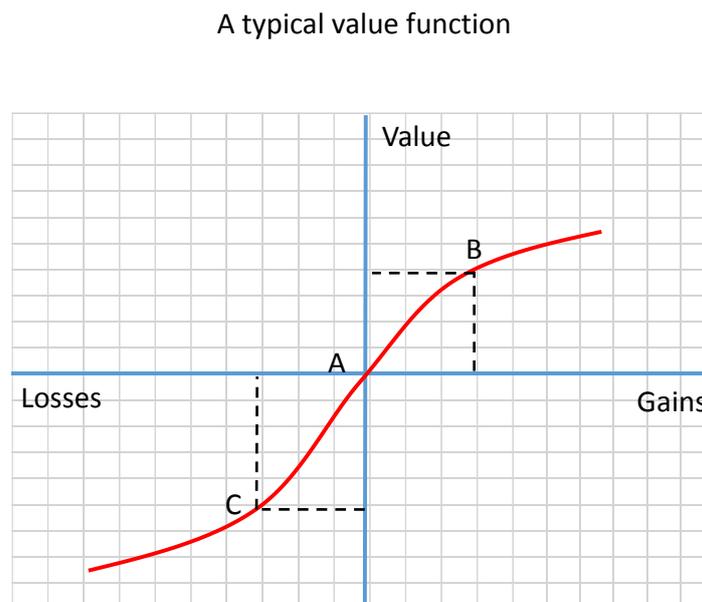
After Kahneman, 1999, Figure 1.2

The preference for the status quo therefore is a consequence of loss aversion (Kahneman, 2011) p. 291. An endowment effect exists for (owner occupied) housing because it has both use and its exchange value (as opposed to money itself which only has exchange value). In attempting to match their own use value, owner's estimates of their home's exchange value typically exceeds that of the market, leading as Chan (2001) and Genesove and Mayer (2001) have shown both longer times to sell and a higher probability of not selling and therefore staying.

Such recent applications of prospect theory to seller behavior in the housing market bring us very close to the applications of interest in this proposal. Mobility has long been viewed as the decision to act on expectations that are positive (Hey & McKenna, 1979; Kan, 1999; M. Lu, 1999b; Sell & De Jong, 1983). There is also a substantial literature relating residential mobility/migration to prior levels of residential satisfaction (Lu, 1998) as well as determinants of residential satisfaction (Lu, 1999a) and intention (DeGroot et al. 2011a, DeGroot, Mulder and Manting 2011b). While studying moving as a function of prior residential satisfaction implicitly recognizes that movers are aware of the risk, the authors responsible for this literature do not invoke prospect theory nor do they access measures of resident's level of risk aversion. Instead of remaining a 'black box', prospect theory allows Sjaastad's psychic costs to be are opened up and given analytic, and as we suggest below, empirical content.

The few studies that have actually estimated the effect of risk preferences on major decisions have identified their significant effect in other related domains, in the case of marriage and fertility for example. For example, highly risk-tolerant women are more likely to delay marriage (Schmidt 2008). Similarly, the probability of divorce increases with relative risk tolerance because risk averse individuals require compensation for the additional risk that is inherent in divorce (Light and Ahn 2010). For the same reason risk-averse homeowners hold out for a greater gain when selling in order to compensate for their lost use value (Genesove & Mayer, 2001). These same papers highlight the close relationship between the mobility/staying decision as it relates to the dwelling (and place more generally), and major events in the life course: marriage, having children and divorce. The fact that the 'staying' decision is often intimately related to these demographic events means that their simultaneity needs to be recognized and modelled using appropriate longitudinal or panel data.

What the presence of life course events means therefore is that it is not simply a question of 'staying' in a dwelling or in a local labor market. It is often a question of also staying in an existing relationship with a partner or household more broadly. The risks of moving (and hence the gains through staying) are multiplied in situations where assets of several kinds are aggregated (or assets are combined with liabilities – the dwelling and the former partner for example). As an example, Kulu and Steele use a rich longitudinal register data from Finland to apply multilevel event-history analysis which allows for multiple births and housing changes over the life course (Kulu and Steele 2013). They model the risk of housing changes relative to the time since the birth of children and the hazard of births relative to the duration in the current house. The implication of their work is that in modelling the decision to stay or move, one need not only to include an explicit measure of the way residents view risk but to do so on the context of other changes going on as part of the life course.

In summary, rational expectations theory may not be the appropriate heuristic for understanding the way people make complex decisions. Changing residence, particular to a new area, is a classic example of the multidimensional, inter-temporal decision which many find both stressful and difficult. When faced with these kinds of decisions people use many other heuristics in which psychology plays an important role. Loss aversion is one of the predominant theories as to how people handle these situations. It is our argument that by appreciating the central tenets of prospect theory and the role of the endowment effect one can appreciate the phenomena of staying, show why staying is higher than expected (on the basis of rational expectations theory) and on why staying tends to increase in periods of external as well as internal uncertainty.

At the same time, one of the difficulties associated with prospect theory is knowing how to apply it (Barberis 2013). Recent applications to seller behavior in the housing market bring us very close to the moving decision (Genesove and Mayer 2001). For example, mobility might be viewed as the decision to act on expectations that are positive (Kan 1999, Lu 1999b, Sell and De Jong 1983, Hey and McKenna 1979). Unmet expectations are often treated as the same as lack of satisfaction; dissatisfaction as unfulfilled expectations. There is a considerable literature relating residential mobility/migration to prior levels of residential satisfaction (Lu 1998) and what their determinants are (Lu 1999a) and the realms they apply to (Morris, Crull and Winter 1976, Heaton, Fuguitt and Zuiches 1979). Only some make the distinction between voluntary and forced moves (Lundholm et al. 2004) and a growing literature is now asking whether expectations (of movers) are being met by outcomes (Lu 2002). We turn now to ways of empirically modelling the propensity to stay as a function of risk.

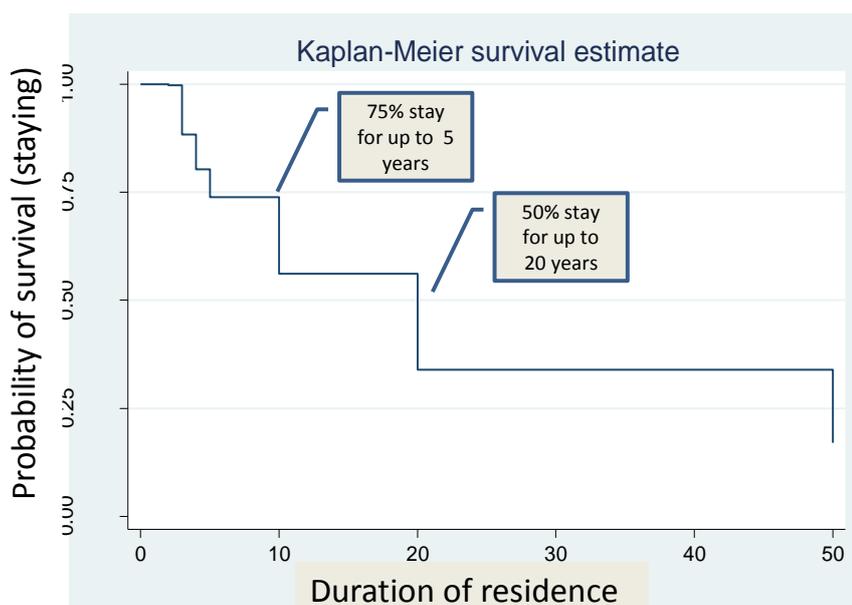## 4.   Staying as surviving.

Unlike moving, which is an instantaneous change in state, staying has a duration that can extend, in some cases, to the full life of the person if they do not move from their place of birth. Moving is typically modelled as a binary outcome, whereas staying is observable over a period can be modelled *as a* duration. When it comes to staying the research question is not simply 'did the person *not* move', but rather how long did the person stay. The emphasis is therefore on the interval between the moves and not simply the fact that they did not move.

The analytical implications are significant. By switching our focus from the 'move' to the 'stay' we address the difference between an instantaneous event and a duration. In doing so we not only alter the conceptual framework we use to understand the residency experience but the very structure of the statistical models that are appropriate for estimating the impact of factors that modify the length of occupancy. We address the statistical implications below. At this point suffice it to note that it is insufficient simply to regress the length of stay on a set of covariates as one might do in modelling the probability of moving. Instead the essential problem in the analysis of survival, and survival analysis involves substituting the normality assumption of OLS with one that approximates the distribution of failure times (Cleves et al. 2010) p. 2.[6]

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[6] There are still few attempts to view occupancy in such terms despite a well- developed literature on event history modelling Box-Steffensmeier, J. M. & B. S. Jones. 2004. *Event history modeling: a guide for social scientists*. Cambridg: Cambridge University Press. and a contemporary suite of relevant software Cleves, M., R.

To fix ideas, and to introduce one of the key concepts used in survival analysis, consider Figure 2. This step function represents the average length of time new entrants spend in the dwelling (or local labor market).

Figure 2: The average survival of residents

Kaplan-Meier survival estimate

75% stay for up to 5 years

50% stay for up to 20 years

Probability of survival (staying)

Duration of residence

Source: Based on the distribution of stays in dwellings in New Zealand as drawn from the Statistics New Zealand Dynamics of Motivation for Migration Survey (Morrison and Clark 2011).

Figure 2 illustrates the way the probability of the occupancy spell surviving diminishes over time. In this example, 75 percent of occupancies survive for a decade, and a further 25 percent for another decade, but it takes a further 30 years for the proportion of original occupants to drop to 25 percent. In this illustration the estimated survival time declines at a decreasing rate over the period.

The two meanings of risk

At this point we have to confront the fact that we have introduced two quite different notions of risk. The first occupies the left hand side of our model and the second the right hand size. The first comes out of survival analysis and refers to the risk an occupancy will fail (i.e. the person will move). The second comes out of prospect theory and measures how loss averse

G. Gutierrez, W. Gould & Y. V. Marchenko. 2010. *An introduction to survival analysis using Stata*. College Station, Texas: A Stata Press publication .

the occupant is. In order to avoid confusion we need to label these two meanings of risk unambiguously. While the term failure may be appropriate when considering machines it is more often replaced by 'event' in social science applications (Box-Steffensmeier and Jones 2004) p. 8). In our case however, the event is the move and it marks the 'failure' of the occupancy and therefore 'failure rate' remains appropriate – it is the failure of 'staying' to meet the collective needs of the household. What we want to know therefore is what causes occupancy to fail, and not just fail, but fail *at a particular time in its history*. The distinction is critical to understanding why survival analysis is applied to staying.

The hazard rate is the risk an occupancy will end, in some period, given that the spell of occupancy has lasted up to or beyond some length of time (Box-Steffensmeier and Jones, 2004 p. 15). As these authors express it, 'failure' is conditional on 'survival' and hence the event is conditional on its history. Recall that our central hypothesis is that risk aversion delays the onset of the event, the move, and as such increases the occupancy spell or the stay- given the period of stay up to that point. By the same argument, occupants who are risk tolerant are less averse to moving and will, other things being equal, enjoy shorter spells as occupants, given the survival of the occupancy to that point. The dependent variable in our model is therefore the hazard rate.

More specifically, our central concern is the relationship between the failure rate, $f(t)$, and the survival rate, $S(t)$, where both relate to the occupancy. The hazard rate is the ratio of the two, so $h(t) = f(t) / S(t)$ where t is a realization or value of T which is a positive random variable denoting survival times. The possible values of T have a probability distribution that is characterised by a probability density function, $f(t)$, and a cumulative distribution function, $F(t)$.

The survivor function denotes the probability a survival time T is equal to or greater than some time t and can be thought of as the proportion of units surviving beyond t. "At the origin time, $t = 0$ and $S(0) = 1$ all units in the study are surviving. As time passes, the portion of surviving units must decrease as occupancies in the study end (or remain flat if no one leaves); hence, $S(t)$ is a strictly decreasing function. Empirically, an estimate of the survival function will resemble a step function because with observed data, cases fail at specifically recorded times(Box-Steffensmeier and Jones 2004) p. 13, as we illustrated in Figure 2 above

In summary, we can think of the hazard rate as relationship between death and survival- the chance that the occupancy spell will end given that it has survived thus far. In the occupancy case the hazard rate is the rate at which occupants will leave, given they have occupied the dwelling or area for t. In this sense, the hazard rate is a *conditional* failure rate. There is a strict mathematical relationship between the hazard rate, the survival and the failure rate and therefore if any one of these is specified, the others are fully determined (Box-Steffensmeier and Jones 2004), p. 14). Together their estimated values can be used to interpret the effect of risk aversion on the length of the occupancy spell.

Our substantive concern therefore is the fact that periods of residential or areal occupancy vary; that some people stay in their dwellings or local labor market longer than others. We want to know why and in particular the relative importance of loss aversion and why loss aversion plays a stronger role in modifying occupancy among some occupants (in some areas) than others.   To make such estimations we specify the Cox proportional hazard model.

5. The Cox proportional hazard model

The other major difference between the instantaneous 'move' and the continuous 'stay' is the way each phenomena relates to the typical argument used to account for each. The fact that the stay is characterized as a duration means that it can be accompanied by *changes* in the values of explanatory variables such as age, income, health status over its duration as well as the timing of discontinuous events such as the birth of a child, marriage and divorce. By contrast, the traditional regression based model is unable to account for covariates having values that change over time for it implicitly treats all covariates as if they are time invariant (Box-Steffensmeier and Jones 2004), p. 19). As they observe, the inclusion of Time Varying Covariates (TVCs) in event history analysis can lead to novel information regarding how the risk of an event occurrence changes in relation to changes in the value of the TVC. This kind of risk-based interpretation of TVCs is naturally forthcoming from event history methods, where the hazard rate is often modeled directly (Box-Steffensmeier and Jones 2004), p. 19).

Many changes occur over the duration of a person's stay in the dwelling or local labor market and while they have been shown to be important in accounting for the move, e.g. (Clark 2013), in this study we want to be able to assess how they might have influenced the length of the stay. In this way, we plan to show that the concern for mobility does not translate directly into any knowledge of the occupancy and that what causes people to move is not the same as what causes people to stay, given their duration to that point.

The importance of TVCs in understanding staying that places considerable demands on the data. It requires, at a minimum a longitudinal framework so that the values of potential arguments can be captured at each interval. For example if duration is argued to be a function of income then both the income and the way it has changed over each duration interval must be captured. The same also applies to our central variable of interest, loss aversion. The evidence suggests that risk aversion itself varies with time (e.g. decreases with age) though there are both time invariant and variant aspects to risk aversion (Morin and Suarez 1983, Paulsen et al. 2012, Jung and Treibich 2014). Since both the hazard and the principal argument (risk aversion) varies over time (along with other arguments) one needs a methodology which can capture the way in which the 'survival' of the stay is affected by changes in the time varying arguments. For example:

(1) $\qquad h_i(t) = \; h_o(t) \, e^{\beta' X}$

where $h_o(t)$ is the baseline hazard function and $\beta' X$ is the column vector of regression parameters times the row vector of covariates. "Because the coefficients are parameterized in terms of the hazard rate a positive coefficient indicates that the hazard is increasing as a function of the covariate (and hence, the survival time is decreasing). Correspondingly, and a negative sign indicates the hazard is decreasing as a function of the covariate (Box-Steffensmeier and Jones 2004) p. 19). Our expectation with respect to the occupant's propensity to take risks is that the estimated sign of the coefficient on loss aversion will be negative; controlling for other covariates in the model, the greater the aversion to loss, the lower the chances are that the occupancy will fail and that the occupant will move. IIn this sense loss aversion is associated with longer durations of occupancy.

Estimation

Unlike the decision to move which has typically been modelled as a binary OLS, the parameters of the survival function require recognition that the error is not normally distributed and that the distributions can be right of left censored.

A working survival function can be written as follows:

(2) $\qquad S_i = \alpha + \gamma\,E_i|\;\mu\,R_i|\;\beta X_i + \varepsilon_i$

where S_i is the period of survival in the dwelling (or local labor market) experienced by the ith individual. The notion and measurement of survival is most fully developed in epidemiology where one is interested in the effect of treatment on the chances of survival. In our residential case such 'treatments' are not experimentally administered but are 'naturally' occurring events that take place over the life course, such as marriage, divorce, the birth of a child, a raise in income, the gain or loss of a job etc. These are events 'internal' to the household each of which has the potential to reduce or extend a person's stay in their dwelling or local labor market.

We are also interested in characteristics of the individual which *condition* the effect of such events. Of central interest given our reference to prospect theory is the individuals own attitude to risk, to the risk of moving and of terminating the stay, R. Exactly the same event can have quite different impacts on different people because they are mediated by their predisposition for taking risk. In short, there are two conceptually distinct influences on survival or staying. The first is the event itself, E, and the second is the level of risk attached to the possible consequences of that event by the occupant, R. The birth of a child for example may precipitate a change of address in one household but not another who may already planned for the additional living space. Over and above these life course factors, a person's level of risk tolerance (or risk adversity) can mediate the relationship between S and E. This line argument implies that both E and R play a role, as well as the way risk interacts with the event to precipitate the move, R x E.

There are also events external to the individual/household that are of potential relevance in shortening or lengthening the occupancy, such as changes to the neighborhood, to the local labor market or indeed to the national economy (e.g. monetary conditions that alter mortgage interest rates for example). At this conceptual stage it is sufficient to simply identify such events as E, recognize the possibility of their mediation through the individual's level of risk aversity and the presence of other influences as in the matrix X which condition the influence of both E and R. At this stage it is sufficient to think in terms of 'internal events', those to do with the household (E^h), those to do with the neighborhood (E^n) and those to do with the local labor market (E^l) and those to do with the macro economy (E^m).

Section 6. Conclusions

Migration and labor mobility studies are dominated, as their names suggest, by theories and empirical accounts of movers. By contrast stayers are rarely the subject of enquiry despite the fact that within any time period most residents are stayers, not movers. As the average duration of occupancy rises and geographic mobility rates declines so we need to know more about the phenomena of staying – in the dwelling or local labor market. In this paper we

have suggested that staying is the occupant's dominant, preferred state and that moving is simply an adjustment towards a desired state of stability at alternative location.

Of particular interest is what influences the time people spend living in one place. Our argument is based around the idea that internal migration is risky but we extend the argument beyond the notion of uncertainty per se to embrace the endowment as outlined in prospect theory and the associated idea that when faced with major decisions many people are loss averse and postpone or even cancel previously intended moves.

When trading known possessions (including social relationships) against alternatives the more risk averse will either delay or hold onto the asset they already know and seek higher compensation for its release. Specifically we argue that existing possessions and known social context (e.g neighborhoods) are favored for consumption and investment reasons well beyond their purchase price and that this extends the average period of staying beyond that suggested by neo-classical models of migration.

We have suggested applying the Cox proportional hazards model as a way of empirically estimating the occupancy lengthening effects of risk aversion, as well as identifying the different way in which the durations of residence of select categories of people are affected by their individual levels of risk aversion.

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