DISCUSSION PAPER SERIES

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ABSTRACT

Do Individuals Adapt to All Types of Housing Transitions?*

This paper provides one of the first tests of adaptation to the complete set of residential transitions. We use long-run SOEP panel data and consider the impact of all housing transitions, whether or not they involve a change in housing tenure or geographical movement, on both life satisfaction and housing satisfaction. Controlling for individual characteristics, some residential transitions affect life satisfaction only little, while all transitions have a significant effect on housing satisfaction. This latter is particularly large for renters who become homeowners and move geographically, and for renters who move without changing tenure status. Regarding housing satisfaction, we only uncover evidence of some adaptation for renter-renter moves. Losing homeowner status is the only transition that produces lower housing satisfaction, and here the effect seems to become even more negative over time.

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Introduction

Interest in adaptation in social sciences has increased notably in recent years. If individuals adapt to changes in their living conditions, then the associated initial short-run impact of an event on subjective wellbeing will diminish over time. If the long-run effect is zero, then conditions and circumstances will not matter in the long run, so that adaptation is complete; on the contrary, if there is no adaptation then an event that starts bad will remain equally bad and one that starts good will remain equally good.

The speed of adaptation may reflect the importance of the event to the individual: adaptation could be faster to a change in the job environment than to unemployment, for example. In the context of housing, which is what we consider here, individuals may adapt faster to a move that does not involve changing tenure status than to a move that involves becoming a homeowner (or no longer being one). The speed of adaptation to life events can also depend on individual personality (Headey and Wearing, 1989), with the optimistic adapting faster to unpleasant events while the pessimistic may adapt faster to pleasant events. Adaptation may then contain substantial individual heterogeneity, which is generally not observed by the analyst. Equally, it has been argued that adaptation to positive events may be faster than that to negative events (Lyubomirsky, 2011).[1]

Some research on adaptation in social science has used cross-section data, where the test consists of the comparison of different groups of individuals at the same moment who experienced the event in question at different points in the past. However, this comparison is muddied by the difficulty in distinguishing whether the observed differences across groups in terms of the time elapsed since a specific event reflect adaptation or rather initial (unobserved) differences in subjective well-being (SWB): see

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[1] A survey of some of this adaptation literature to a variety of life events can be found in Clark (2016).

Clark *et al.* (2008). Panel data avoid this difficulty by following the well-being of the same individual over time, leading up to and following the life-course event. As the focus is on within-individual changes, panel estimation allows us to control for time-invariant unobserved individual heterogeneity that may reflect personality traits, e.g. optimism or pessimism.[2]

We will here estimate linear models with individual fixed-effects (as in Clark *et al.*, 2008, and Clark and Georgellis, 2013) to analyse how individual well-being moves in the years around a variety of housing transitions, not only before the event in question but also in the years following it (*i.e.* adaptation to housing changes). These are of interest as housing is not only one of the most important decisions that individuals make in their life (along with partnership and occupation), but also probably their largest financial investment. In developed economies, homeownership is not only a way of accumulating wealth but also a sign of personal success (although negative externalities via status concerns may also be at play here: see Wei *et al.*, 2012, Foye *et al.*, 2018, Bellet, 2019, and Bao and Meng, 2021). There is in addition a general consensus that homeownership is beneficial for both individuals (Dietz and Haurin, 2003, Elsinga and Hoekstra, 2005, Diaz-Serrano, 2009, Diaz-Serrano and Stoyanova, 2010, and Hu, 2013) and society (Rohe and Stewart, 1996, Rosi and Weber, 1996, DiPasquale and Glaeser, 1999, Glaeser and Sacerdote, 2000, and Dietz and Haurin, 2003). However, this may not always be the case. For example, Oswald (1997) explicitly links unemployment to home ownership, arguing that the latter acts as an impediment to mobility and so increases unemployment. At the individual level, the debt that many households take on may have long-lasting effects, for example via labour supply, household consumption and fertility decisions. Equally,

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[2] We introduce individual fixed effects to pick up fixed personality, but cannot establish whether lags and leads differ by personality type, as the latter appears only relatively recently in the SOEP data we use.

there is a literature on "mis-wanting" that emphasises, in the domain of housing, individuals' under-estimation of their adaptation to house size and their over-estimation of their adaptation to commuting (Stutzer and Frey, 2008, and Odermatt and Stutzer, 2019). Despite the potentially important link between housing and well-being, the dynamic analysis of the relationship between the two has not been thoroughly analysed.

Our empirical analysis below will cover all of the following types of housing transitions: renters becoming homeowners, homeowners becoming renters, and housing mobility that does not produce a change in housing tenure, either for renters or homeowners. For renters who become homeowners, we also distinguish between those who buy the dwelling where they were residing as renters, and those who buy a different dwelling (*i.e.* renter-homeowner transitions without and with mobility). Our use of this complete set of housing transitions allows us to disentangle mobility and housing-tenure effects on subjective well-being. We find that all of these transitions have large effects on housing satisfaction, but their relationship to life satisfaction is generally more modest or even zero. As such, either housing is only a fairly small part of overall life satisfaction, or greater housing satisfaction is being offset by movements in some other domain.

There are lead effects with respect to most of the transitions, for both housing satisfaction and life satisfaction. These are of the usual type (as found for quitting one's job and marital transitions: see Clark, 2001, Clark and Georgellis, 2013, and Odermatt and Stutzer, 2019, for example), with lower satisfaction preceding a change in housing. There is relatively little evidence of lag effects in terms of life satisfaction, with the effect of housing mostly being transitory; on the contrary, there is little adaptation with respect to housing satisfaction for all of the transitions we analyse here. There are two exceptions to this pattern. Entering homeownership with geographical movement at the same time seems to produce a long-run boost for both types of satisfaction (which is larger than that from buying the house/flat that you were previously renting). Equally, moving

from homeownership to renting is associated with a long-run fall in both life and housing satisfaction. These results are important, as well-being relating to housing can be used as a barometer to assess housing programmes and policies.[3]

The remainder of the paper is structured as follows. Section 2 presents the conceptual framework and reviews the main research in the field of housing satisfaction. Section 3 then describes the data and the empirical framework, and Section 4 sets out the empirical results. Last, Section 5 concludes.

Related Literature

Much of the existing empirical work of the effect of housing on satisfaction has used cross-section data, and as such compares the satisfaction of different individuals at a given point in time. The impact of homeownership is usually estimated by including a dummy variable reflecting housing-tenure status. The estimated effects here are often ambiguous, depending on whether the outcome variable is housing/residential satisfaction or life satisfaction/happiness. Some work has uncovered only a weak or zero effect of homeownership on happiness (Rossi and Weber, 1996, and Bucchianeri, 2009), but a significant and positive one for housing satisfaction (Kinsey and Lane, 1983, Danes and Morris, 1986, and Elsinga and Hoekstra, 2005).

One obvious shortcoming in these comparisons is that they do not shed light on any pre-existing group differences in satisfaction and selection into different housing

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[3] Since 1999, under the US Department of Housing and Urban Development (HUD), a Real Estate Assessment Center (REAC) has conducted physical inspections, reviewed financial management operations, and evaluated housing satisfaction for individual local housing authorities (LHAs). Housing satisfaction is measured via a survey (initiated in late 1999), the results of which are used by the public housing authorities to determine follow-up actions. Housing authorities that consistently perform poorly may be taken over by the HUD. In the construction of the overall performance index, 10 out of the 100 points correspond to residents' housing satisfaction. See Varady and Carrozza (2000) for further details and results derived from the analysis of this data for Cincinnati. Carswell *et al*. (2009) provide an example of the use of housing satisfaction to evaluate housing counselling agencies in the city of Philadelphia.

statuses, which can substantially bias the results. Individual circumstances, both observable and unobservable, may well render homeownership more attractive, or feasible, for some individuals. In addition, housing mobility, irrespective of tenure status, is determined by other life-course events such as job mobility, changes in family composition and marital status, and so on. Panel data helps to address issues of unobserved heterogeneity across individuals. The latter not only allow us to observe the individual at the time that the residential transition occurs, but also to purge the estimated coefficients from individual unobserved heterogeneity via individual fixed effects.

We consider all housing transitions in panel data, and estimate their effects on both housing satisfaction and life satisfaction. In order to help place our analysis (and our results) in the existing literature, Table 1 summarises what we believe to be the main contributions in this area. These are described in more detail below.

[Table 1 around here]

A first stab at dynamic analysis can be found in Rohe and Basolo (1997), who considered data for the same individuals over two periods and observed a significant difference in housing satisfaction between renters who became homeowners and those who remained renters.[4] The limitations here are that there are only two time periods, and the regression analysis is a cross-section analysis of the level of satisfaction (in the second period) as a function of the change in housing status (which does not control for individual unobserved heterogeneity). Equally, the comparison is between a group of renters who rent for a period of 18 months and a group of renters who not only became homeowners but who also moved to a new address. We cannot therefore distinguish the

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[4] These are quasi-experimental data from about 200 interviews with low-income households.

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change in tenure status from the geographical move. This is actually a general limitation in existing work, on either cross-section or panel data, which often focuses only on homeownership and does not separately estimate the effect of moving house. One exception is Diaz-Serrano (2009), who uses European Community Household Panel (ECHP) data to establish a positive relationship between homeownership and residential satisfaction, separating the mobility and homeownership effects. He concludes that 50% of the residential-satisfaction impact of homeownership is actually attributable to moving house, irrespective of housing-tenure status.

Other longitudinal work has also considered the relationship between moving house and life satisfaction. Frijters *et al*. (2011) use data from the Household, Income and Labour Dynamics in Australia (HILDA) survey, and uncover an only weak relationship between life satisfaction and residential mobility, with a short (negative) lead effect and only two out of the eight quarterly lag coefficients being significant at the ten percent level. Nowok *et al*. (2013) analyse the British Household Panel Survey (BHPS), and find no statistically-significant rise in life satisfaction after either short- or long-distance mobility, although they do find a notable lead effect, with lower life satisfaction in the years preceding residential mobility.

The German Socio-Economic Panel (SOEP) is the most common dataset used in the relatively few existing panel analyses. Using this data, Zumbro (2014) shows that homeownership is positively correlated with life satisfaction in both cross-section and panel analyses, and even when a number of observable housing characteristics are included in the regression; however, he does not test for adaptation. Also using the SOEP, Nakazato *et al*. (2010) find that moving to a new residence does not affect life satisfaction, but does have an impact on housing satisfaction. No evidence of adaptation is found for the latter. Wolbring (2017) considers the impact of renter-renter house moves on housing satisfaction, and finds a sizeable immediate impact that subsequently falls

sharply over time (producing full adaptation). Last, Stotz (2019) focuses on the long- and short-term impacts of homeownership on housing satisfaction, distinguishing between renter-owner and owner-renter transitions. He finds a significant positive effect of attaining homeownership, and although the coefficients on the post-ownership transition dummies become around a third smaller five years afterwards, they remain fairly high.[5] On the contrary, losing ownership produces a smaller fall in housing satisfaction, but with no adaptation.

There are then a variety of existing results using SOEP data. The broad findings are of a positive impact of homeownership, but with varying degrees of adaptation. It is not easy to compare the findings between these different contributions, as the time periods and the empirical models used are not always the same (some include covariates and others do not). Some consider life satisfaction, others housing satisfaction, and a third group both. Last, homeownership and moving house are mostly not analysed as separate life events, whereas those who move house can be owners or renters, and in the same way those who become homeowners may buy a new house or that which they were already renting.[6]

We therefore propose to complement this existing work by considering both housing satisfaction and life satisfaction, looking at all possible housing transitions, and including a harmonised set of control variables: as such, even though we use the same dataset (with more waves), our findings may only partially coincide with those from the contributions in Table 1. As we will show below, our results regarding the transition to ownership that involves a change of residence are in line with those in Stotz (2019), and those for renter-renter transitions and housing satisfaction are consistent with one of the

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[5] As noted in Table 1, full adaptation is only found for inherited residences.
[6] Nowok *et al.* (2018) do make the distinction between geographical mobility in general and changes in housing tenure, using BHPS data. They do not analyse both at the same time though, and control for housing characteristics, such as space shortage, that may be thought to mediate part of the effect of housing transitions.

results in Wolbring (2017).[7] Our results are not directly comparable to those in Frijters *et al*. (2011), Nowok *et al*. (2013) and Nakazato *et al*. (2010), as these analyses cover moving house only without distinguishing between changes in tenure status.

Empirical Framework and Data

Data

Our empirical analysis uses 1984-2015 SOEP data, and our sample consists of men and women aged over 16. We only consider household heads and their partners. This produces a sample of 364,771 observations, consisting of 56,705 individuals with valid observations for all our contemporaneous variables used in the analysis (*i.e.* before we consider mobility and the lags and leads). This is an unbalanced panel, so that we have multiple observations for each individual but not all individuals appear in all 32 years of the panel. These 56,705 individuals are grouped in 43,320 households.

As this is a long panel, some individuals in our sample are observed to experience the housing events considered here more than once, although geographic mobility is more frequent than changes in housing tenure. We may well expect the impact of and adaption to life events to be different according to whether the event is experienced for the first or second time. We here deal with this issue (as in Clark *et al*., 2008) by considering only the first housing change in those cases where the individual has experienced more than one during our sample period (1984-2015).[8]

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[7] Wolbring (2017) only looks at renter-renter transitions. The full-adaptation conclusion refers to regressions without any covariates. When controls for significant life events are introduced, the adaptation to renter-renter moves becomes only partial, which is what we will also conclude for this type of housing-market transition below.

[8] It is not immediately obvious how to deal with lags and leads for individuals who experience multiple housing transitions in the SOEP. Someone who moved three years ago and will move again next year will have both lag and leads of housing movements at the same time; and in two years' time they will be adapting to two different moves. The situation becomes even more complicated when there are more than two transitions. In practice, keeping multiple movers in the analysis does not much change the results (as there

Our dependent variable is subjective well-being, measured by both overall life satisfaction and housing satisfaction. The former comes from the question "*How satisfied are you with your life, all things considered*?" and the latter from "*How satisfied are you today with your place or dwelling*?". These are asked of all SOEP respondents every year, with the answers being on a 0-10 scale, where 0 corresponds to completely dissatisfied and 10 completely satisfied.

Once we exclude observations with missing values for the covariates and outcomes in the regressions, the missing values mechanically generated when we create the lags and leads, and considering only the first observed housing transition, we end up with a sample of around 300 000 observations on 42 000 different individuals, which can be smaller depending on the type of transition analysed in the regressions. Figure 1 depicts the distribution of life and housing satisfaction in this sample. As is common for this kind of data, the distribution is left-skewed with bunching towards the top of the scale: the modal response is 8 on the 0–10 scale for both satisfaction measures. Only relatively few respondents report the maximum life-satisfaction score of 10, while the distribution of housing satisfaction is more skewed, with more respondents reporting scores of 9 or 10.

[Figure 1 around here]

We now turn to the estimation of the impact of housing on life and housing satisfaction. We consider both housing-tenure transitions and geographic mobility. We disentangle the two (as in Diaz-Serrano, 2009) by distinguishing between individuals who enter or leave homeownership, and those who experience geographic mobility (*i.e.*

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are only relatively few of them). The life-satisfaction patterns around house-moving in Wolbring (2017) are actually fairly similar for the first, second, third and fourth moves (see his Figure 2).

house movers). The pure effect of moving house on SWB is then captured by the effect of housing mobility for movers who do not change tenure status (*i.e.* homeowner to homeowner, or renter to renter).

We carry out a within-subject analysis, which requires that individuals be observed both before and after the event in question. We follow the same approach as in Clark *et al.* (2008). Moving house is picked up from the variable reflecting the year in which the household moved into the current dwelling. This variable is also used to detect any other movement that does not involve a change in the housing tenure status. For changes in the tenure status, we use the following procedure. For instance, letting *OWN* be the homeownership dummy, individual *i* transits into homeownership if $OWN_{i,t}=1$ and $OWN_{i,t-1}=0$. For recent homeowners, we define homeownership duration of one to two years by $OWN_{i,t}=1$, $OWN_{i,t-1}=1$ and $OWN_{i,t-2}=0$, and so on for longer lags. The analogous transitions and their lags for changes in housing tenure are calculated in the same way. The calculations for the lead variables, which will be used to test for movements in well-being before the housing transition,[9] is similar but now refer to the number of years before the transition in question.

[Table 2 around here]

Table 2 shows the number of housing events observed in our sample (without taking into account the missing values described above). Due to the long time-span of the SOEP, we have a considerable number of these. The column labelled "% between" shows the percentage of households who experienced this transition at least once during

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[9] The subjective well-being literature often refers to well-being movements before an event as "anticipation". We will call these lead effects here, as it may not always be the case that the individual knows that the future event is forthcoming. We will explicitly suggest below that the switch from being a homeowner to a renter is more likely to be unanticipated.

the sample period (1984-2015). Almost 25% (10,839) of the households experienced at least one housing transition of some type. Over all of the sample households, 2,539 (6%) changed from renting to homeownership (with or without a move), while 7,355 (17.3%) moved from one rented accommodation to another (*i.e.* without changing tenure status). 2,711 households (6.4%) changed from homeownership to renting, and 694 (1.6%) from one owned property to another. The 2,539 who became homeowners are split into 1,096 (2.6%) who bought the flat or house that they were already renting and 1,443 (3.4%) who became homeowners while moving house.

The panel nature of the data allows us to track individuals' reported life and housing satisfaction both before and after the housing event. Given our 32 waves of panel data, we can potentially follow individuals for up to 31 years before or after the event occurred. In practice, the vast majority of individuals can be tracked for far shorter periods. As in Clark *et al*. (2008), we here focus on the four years preceding the event in question for lead effects, and all years following the event to identify adaptation (grouping together all of the observations five or more years after the event for cell-size reasons).

Research Questions

We estimate movements in housing and life satisfaction before, during and after housing mobility. We do so using panel data, so that all comparisons are within-individual, avoiding issues regarding selection into different types of housing. In addition, we distinguish between changes in housing tenure and geographical house moves. This is important, as these changes most often occur at the same time (see Table 2). We ask the three following questions: (i) Are housing events contemporaneously correlated with life and housing satisfaction? (ii) Are there lead effects in well-being

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regarding future housing events? and (iii) How fast do individuals adapt to changes in housing?

Question (i) is probably the least original, as it has been extensively covered in existing cross-section and panel analyses. The other two questions, which require panel data, are to our mind more innovative, and especially in the sense that we separate geographical moves and housing tenure. A small number of contributions have shown that moving house is preceded by lower levels of housing satisfaction (Diaz-Serrano and Stoyanova, 2010, in the ECHP, and Nakazato *et al.*, 2010, and Wolbring, 2017, for the SOEP) and life satisfaction (Nowok *et al.*, 2013, for the BHPS), but there has been no systematic investigation of lag and lead effects across different types of housing transitions. Last, question (iii) has been addressed considering homeownership or moving house in general, but no previous work has split up these two factors by distinguishing all possible housing/tenure status transitions. As in Clark *et al.* (2008) we propose a straightforward test, which is explained in more detail below.

Empirical Model

We will pick up the presence of both lead effects and adaptation by using a series of appropriate dummies in a fixed-effects regression. We model satisfaction (S_{it}^{*}) at period *t* as follows:

$$S_{it}^{*} = \beta' X_{it} + \sum_{k=-4}^{5} \gamma_k H_{k,it} + \mu_i + \varepsilon_{it} \tag{1}$$

where S^{*}_{it} is either life and housing satisfaction, X_{it} a matrix of standard individual controls, to be described below, μ_i are the individual fixed-effects and ε_{it} is a random error term. In Equation (1), instead of entering a simple homeownership dummy that would pick up the average well-being effect over all of those who experience a certain

life-course event related to housing (H_{it}), we split this dummy up into ten groups: four

lead effects that capture this housing event in the future (0-1, 1-2, 2-3 and 3-4 years before

the event occurs) and six reflecting adaptation (0-1 years, 1-2 years, and so on up to the

last group, who experienced the housing event five or more years ago). Equation (1)

differs in implementation from the empirical model used in Clark *et al*. (2008) in that we

include the lags (k=0 to 5) and leads (k=-4 to -1) in the housing events at the same time,

whereas Clark *et al*. (2008) estimated lags and leads separately.[10]

We consider the first housing transition that individuals experience in our

sample, to avoid any habituation from repeated observed moves within a relatively-

short time period (although we do not by definition know about individuals' housing

transitions before they entered the SOEP survey).[11] Here, in each regression, households

with a particular type of transition (the treated group) are compared to those that do not

experience any transition at all during the sample period (the control group). As such,

we avoid analysing the effect of renter-renter transitions (say) including not only those

with no transitions but also the renter-homeowner, homeowner-homeowner and

homeowner-renter individuals in the control group. We believe that this is a clean

empirical strategy. As the number of households in each specific transition group is not

the same, the number of observations is different in each of Table 3's regressions.

This estimation allows us to carry out simple tests of the degree of

adaptation/habituation and lead effects in housing events. If there is no adaptation, we

expect the estimated lag parameters γ_0 to γ_5 in Equation (1) for a particular housing

event to all take on similar values. On the contrary, under adaptation the absolute size

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[10] Including leads and lags in separate regressions implies that the omitted category for the lags is all of the periods prior to the event. If some of these periods were miserable due to lead effects, then we will overestimate the lags. This point was made by Qari (2014), and explicitly addressed by Clark and Georgellis (2013) in their lags and leads analysis of British Household Panel Survey data.

[11] As such, an individual who is observed to make a renter-renter switch, and then some years later becomes a homeowner will not appear in our statistical analysis of renter-owner switchers.

of these coefficients will fall over time (so that the event has a diminishing effect on satisfaction over time). Analogously, with increasing lead effects, the coefficients γ_{-4} to γ_{-1}) will become larger as the event comes closer in time. Appendix Table A1 lists the number of observations in each lead and lag cell in the analysis.

The individual-level control variables (X_{it}) in Equation (1) include age, education, a German-citizenship dummy, labour-force status, marital status, number of children in the household, household income, and State of residence and year dummies. We hold these variables constant as we wish to isolate the subjective well-being consequences of the change in housing independently of potential confounders: housing moves could result from losing a job, retiring, divorcing or marrying, or a change in the number of children for example.[12] We allow for changes in labour-force status, marital status, number of children etc. at any moment in time, and not only at the time of the housing transition. The summary statistics for the two satisfaction measures and the control variables separately pre- and post-transition for the different housing transition groups, as well as for those who experience no housing transitions, are presented in Appendix Table A2. The no-transition group are notably more likely to be married and retired, and less likely to be divorced and working.

Regression Results

We consider all possible types of housing transitions. We first look at the effect of any housing transition, be it in terms of housing tenure, geographical mobility or both. We

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[12] An alternative to controlling for these variables would be to model lags and leads in all of family, labour-market and housing transitions at the same time. In the same spirit as note 6 above, we believe that this would be very unwieldy, with multiple lag and lead effects being interacted producing a plethora of mostly lightly-populated cells. Holding the other variables constant is likely a more practical solution. As we will discuss below, the adaptation results with and without family and labour-market variables turn out to be very similar. They are also similar for those who underwent changes in family status around the time of the housing transition and those who did not.

then explicitly split the sample into a variety of different transitions. These first consists of changes in tenure status: from renting to homeownership (RH), distinguishing between those who buy the dwelling that they used to rent (RH-SH) and those who move geographically as they change from renter to homeowner (RH-DH), and then the mirror change from homeownership to renting (HR). The last group consists of those whose tenure status does not change as they move house, from renting to renting (RR) or homeownership to homeownership (HH).

The estimation results of Equation (1) for life and housing satisfaction appear in Table 3. This table only lists the estimated coefficients on the lags and leads in housing transitions, with those on the other variables appearing in Appendix Table A3. As the estimated coefficients on these controls are very similar in all of the different life-satisfaction specifications, and equally across the housing-satisfaction specifications, Table A3 includes only one set of estimated coefficients on the non-housing variables for each satisfaction measure: those that correspond to columns (1) and (2) of Table 3.

[Table 3 around here]

Lag and Lead Effects in Housing

The life- and housing-satisfaction estimates in Table 3 are labelled LS and HS respectively. First, in general, residential transitions are more strongly correlated with housing satisfaction than with life satisfaction: this is particularly the case for the lag coefficients. Second, all transitions have a positive impact on housing satisfaction (whether this impact is measured relative to the year before the move, or to 5+ years before the move) except that of homeowners becoming renters. Third, there is actually not that much evidence of adaptation. The only specific transition that is associated with

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notable adaptation is the renter-to-renter movement (as analysed in Wolbring, 2017), where the housing satisfaction coefficient from three years after the move onwards is around two-thirds the size of the immediate impact, and the life satisfaction coefficient becomes insignificant.[13] It is notable in Figure 2 and 3 that homeowners who become renters do not adapt, with the estimated housing satisfaction coefficients in Figure 3 showing a drop in satisfaction that instead seems to keep falling over time (the analogous estimated coefficients for life satisfaction in Figure 3 are too imprecise to draw a conclusion). Last, the estimated coefficients show the use of splitting up housing transitions: the effect of becoming a homeowner differs according to whether it involves geographic mobility; adaptation to geographic mobility is higher for renters than for homeowners; and HR is not the mirror image of RH.

In columns 1 and 2, a housing transition of any kind has a positive impact on both housing and life satisfaction, with the effect size being much larger for the former. We find lead effects for both satisfaction measures, with lower well-being preceding transitions (along the same lines as those found in the literature for job quits and marital transitions). But this pattern is again not the same by type of transition: there are no such lead effects for those who become homeowners without moving, and for homeowners who switch to being renters.

For housing satisfaction there is on average adaptation after a housing transition (from 1.06 in the transition year to 0.72 five or more years after the transition). The results for the separate transitions discussed below will make clear that this apparent adaptation to housing transitions mostly represents some adaptation in renter-renter

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[13] We describe adaptation here by comparing satisfaction after the event to satisfaction at the time of the event (*i.e.* comparing γ_0 to γ_1-γ_5 in terms of Equation (1)). An alternative comparison is of satisfaction after the event to that recorded before the housing transition. In this light, renter-renter moves produce a significant rise in life satisfaction (albeit one that is small in size) over a substantial period of time.

moves and an "anti-adaptation" profile for homeowner-renter moves, where the initial negative effect worsens over time.

[Figures 2 and 3 around here]

The fixed-effects models of housing transitions on both life and housing satisfaction in Table 3 produce a lot of numbers. We therefore illustrate the estimated coefficients in Figures 2 (for life satisfaction) and 3 (for housing satisfaction). On the X-axis, the values from -4 to -1 correspond to the lead effects, while those from 0 to 5 show adaptation (the lag effects). The horizontal line is at zero, corresponding to average life satisfaction (conditional on the control variables) five or more years before the transition in question. The vertical scale is the same in all six graphs within each figure, so that we can visually compare the impact of the six residential transitions. The vertical bars around each point refer to the 95% confidence intervals. The vertical dotted line is at zero, the year of the housing transition.

Becoming a Homeowner

There are two types of transition here: households who buy the dwelling that they were previously renting (RH-SH, in columns 3 and 4 of Table 3), and those who move when becoming homeowners (RH-DH in columns 5 and 6). The results are not the same, underlining the importance of considering housing tenure and geographical movement as separate phenomena. The RH-SH transition has no effect on life satisfaction but raises housing satisfaction durably by around 0.3 to 0.6 of a point (*i.e.* 15 to 30% of a standard deviation, from Figure 1). On the contrary, the estimated coefficients for the RH-DH transition are at systematically over one housing-satisfaction point, with

only slight evidence of adaptation: as in Diaz-Serrano (2009), a large part of the satisfaction effect of becoming a homeowner is then the associated change in accommodation. This RH-DH transition also attracts significant life-satisfaction coefficients that are 0.2 to 0.3 points higher after renters become homeowners of a different dwelling.

There are also notable movements in housing satisfaction before the RH-DH transition (from -0.13 four years before the transition to -1.04 the year before). For life satisfaction, we do not find negative lead coefficients, but rather slight positive coefficients in the two years before the transition.

Moving without Changing Housing Tenure

Moving without changing housing tenure also has a notable effect on housing satisfaction. The immediate estimated housing-satisfaction coefficients for renter-renter movers (columns 9 and 10), are notably larger than those for homeowner-homeowner switchers (in columns 7 and 8). There is however some adaptation for RR, but none for HH, which renders the estimated housing-satisfaction effects more similar over time. Neither of these transitions has a substantial effect on life satisfaction after the event. There are lead effects for both types of move for both satisfaction measures, which are substantially larger for housing satisfaction than for life satisfaction.

Losing Homeownership

Our final results refer to those who switch from homeownership to renting (in columns 11 and 12 of Table 3). Losing homeownership status is the only residential transition associated with lower housing satisfaction, and in addition the only transition for which we observe the opposite to adaptation, with the drop in satisfaction increasing in size over time: the estimated housing-satisfaction effect in the first year after the

transition is -0.135, but -0.600 five or more years after the transition. There is also some evidence of lower life satisfaction following the loss of homeownership, although the estimated coefficients are not very precise. Contrary to the other housing transitions, there are negative lead effects only one year before the transition for both life (-0.214) and housing satisfaction (-0.135). As such, the loss of homeowner status may well be more of a shock than the other types of housing transitions that we analyse here.

The main regressions in Table 3 control for both labour-force status and marital status: this is to avoid the housing-satisfaction relationship being confounded by other correlated movements, such as divorce, retirement or job loss. We can evaluate the extent of this potential confounding by first re-running our panel satisfaction analysis without marital status, labour-force status, household income and number of children: the results are depicted in Appendix Figures A1 and A2 (the estimated coefficients are listed in Appendix Table A4). The lag and lead profiles here are remarkably similar to those in Figures 2 and 3: most of the effects of housing transition on well-being are then not due to changes in income, the family or on the labour market.[14]

A second approach to the potential confounding of changes in family life around the time of moving, with their associated lead and lag effects, is to estimate our main equations separately for those who experience one or other of the main events associated with housing transitions, marriage and the birth of a new child (both within the two years preceding the transition), and those who do not.[15] The results for the latter "no event" group (available on request) are very similar to those in Table 3: confounding by changes in the family does not seem to lie behind our results.

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[14] As such, the drop in life satisfaction prior to the homeowner-renter switch may be caused by some kind of shock, but this shock is not related to labour-force or marital status.
[15] This is in the spirit of the life satisfaction sub-regressions by the various events that may be associated with entry into poverty in Clark *et al.* (2016).

Last, the movements in well-being around housing transitions may well differ from one household to another. We considered four major household types here: single *vs*. married, and with and without children. Figure A3 shows the life-satisfaction profiles for these four groups for first any housing transition and then for that of renter to homeowner (different dwelling): these can be compared to those for the whole sample at the top-left and top-right of Figure A1. The figures behind these graphs appear in Table A5.

The results first show that the well-being movements around housing transitions are not the same across households. The jump in life satisfaction upon the transition is larger for the married with children and the single without children, and there is no or only partial adaptation for these two groups. These profiles of course partly reflect the different transitions that these groups experience. For the specific transition of renter to homeowner (different dwelling), the most-striking rise in life satisfaction is for the married with children (at just under half of a life-satisfaction point), who seem to particularly value the stability that homeownership brings.

Conclusions

This article has used 32 waves of German Socioeconomic Panel data to consider the relationship between life and housing satisfaction and future, contemporaneous and past housing events. We apply the same analytical method to evaluate anticipation and adaptation to six different housing transitions, some of which involve a change in housing status and some of which do not. For individuals who become homeowners, we distinguish between those who move and those who buy the dwelling that they were already renting.

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We find lead effects for housing satisfaction in all cases, although the size of these differs. In particular, losing homeownership status seems to be more of a shock than the other housing transitions. Equally, all transitions apart from homeowner to renter produce higher housing satisfaction. We split those who transit from renting to homeownership into those who buy the dwelling they were renting and those who move. The interest in doing so is underlined by the difference in the jump in housing satisfaction following the transition, which is three times larger for the latter group. We conclude that the largest part of the jump in housing satisfaction of those who change from renter to homeowner found in the existing literature probably reflects geographic mobility, rather than the change in housing status as such. The fact that the adaptation profile for both renter-homeowner groups is similar may also indicate that there is little adaptation to geographical mobility (at least in terms of housing satisfaction).

There is on the contrary only little evidence of adaptation in terms of housing satisfaction, and no evidence of complete adaptation for any of our five specific housing events. Notably, the fall in housing satisfaction following the loss of homeownership becomes larger over time.

Our most significant estimated coefficients are found in the housing satisfaction regressions. However, we do uncover some significant movements in life satisfaction as well. Attaining homeownership via geographic mobility is associated with durably higher life satisfaction; equally there is some evidence of lower life satisfaction following a move from homeownership to renting.

We surveyed the existing literature in Table 1. Some of this work has found adaptation, using measures of housing satisfaction. In our comprehensive analysis, this is the exception rather than the rule, and is mostly confined to renter-renter moves (where we find it for both housing and life satisfaction). It is of interest to speculate on why this might be the case. As we noted above, this does not seem to reflect adaptation

to geographic mobility, as there is no adaptation for renter-owner moves that also involve moving house. One possibility is that adaptation is faster to circumstances (here rental accommodation) that individuals might consider to be more temporary. Most of the other housing transitions that we analyse have significant effects on satisfaction when they occur, but with little evidence of adaptation.

There are two transitions that are mirror images: those between Renting and Ownership. The standard approach in panel data analysis is to include a homeownership dummy. Our results suggest that this may not suffice, as the direction of the change matters. In particular, the renter-owner switch is associated with a large jump in both housing and life satisfaction, and little adaptation; on the contrary, the fall in satisfaction following the owner-renter switch is much smaller, but grows larger in absolute terms over time. This is to an extent consistent with less adaptation to negative shocks (Lyubomirsky, 2011).

Many housing transitions come with geographical mobility, but it is not only the latter that matters: the jump in satisfaction is much larger for the renter-owner switch with mobility than it is for the renter-renter or homeowner-homeowner switches. In terms of which types of household benefit the most from the former, we suggest that it is the married with children.

Germany currently has almost the lowest homeownership percentage of OECD countries.[16] Recent years have seen rising homeownership rates in OECD countries (Andrews and Caldera Sánchez, 2011): Has this general rise been conducive to societal well-being, and should Germany follow suit? The cautious answer from our analysis would be Yes. The switch from renting to owning (a different house) is associated with rises in both housing and life satisfaction, with little adaptation. As such, individuals do

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[16] https://www.oecd.org/housing/data/affordable-housing-database/housing-market.htm.

not seem to "mis-want" owning a house. This rise is especially large for those who may be argued to benefit more from homeownership, the married with children. German homeownership rates have risen over time, but it seems that there remains potential well-being returns to continued growth. We should, however, underline that our empirical results are for one country only, and we do not currently know whether the same patterns would also result in countries such as the UK or Spain, where homeownership rates are substantially higher.

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Figure 1

The Distribution of Life and Housing Satisfaction in the SOEP Analysis Sample
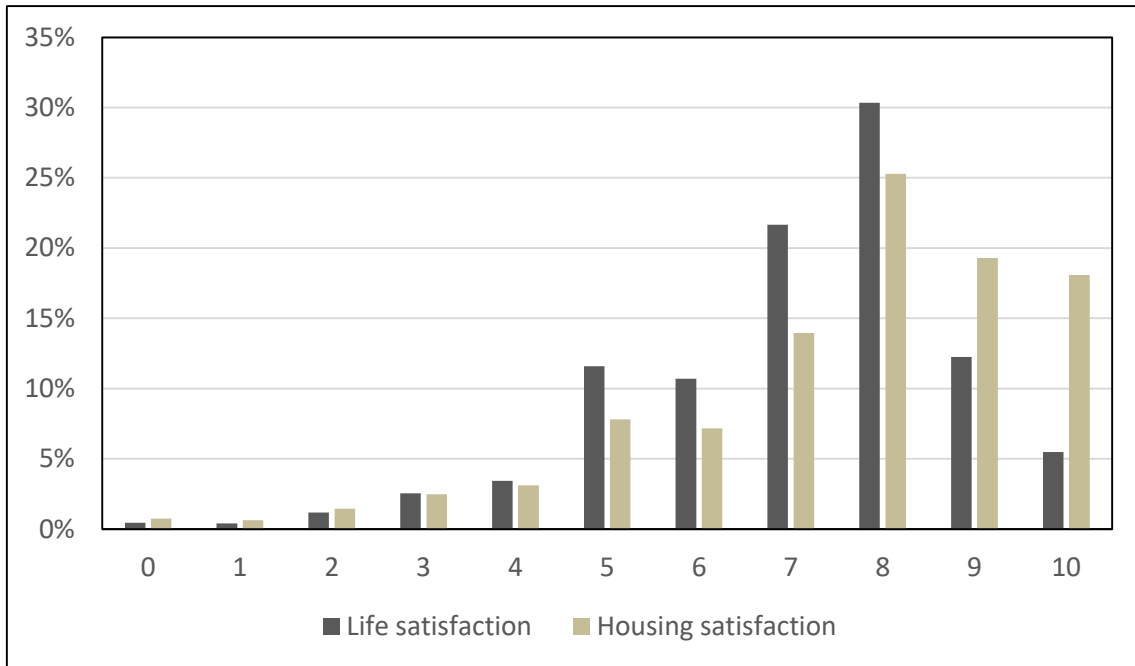
Notes: Both satisfaction variables are measured on a 0-10 scale, where 0 corresponds to completely dissatisfied and 10 completely satisfied. The mean (standard deviation) of life satisfaction is 7.04 (1.76); the analogous figures for housing satisfaction are 7.77 (1.95).

Figure 2
Lags and Leads of Housing Transitions on Life Satisfaction
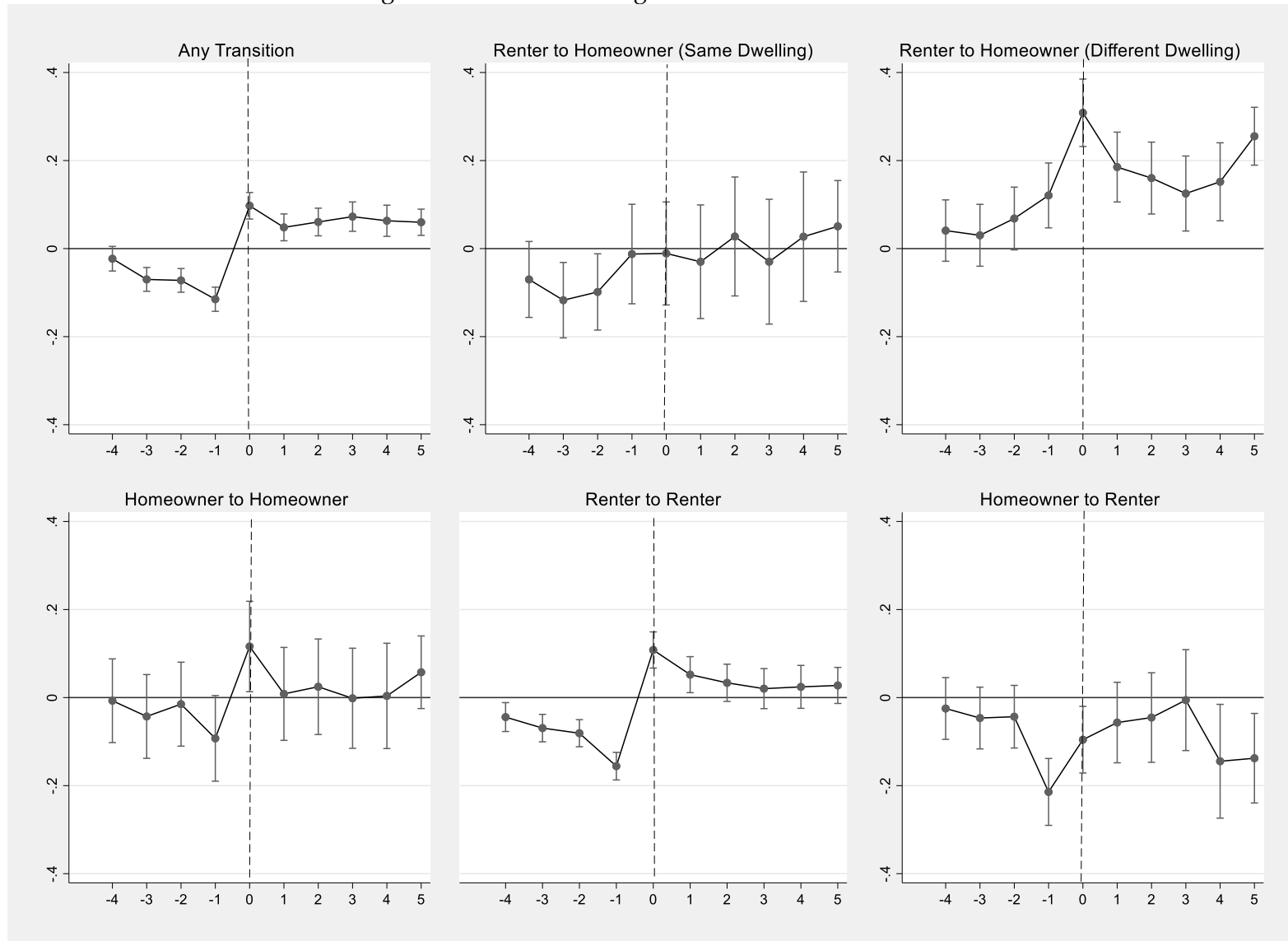
Note: The figures here are the estimated γ satisfaction coefficients from 4 years before the event occurs to 5+ years afterwards from Equation (1).

Figure 3
Lags and Leads of Housing Transitions on Housing Satisfaction
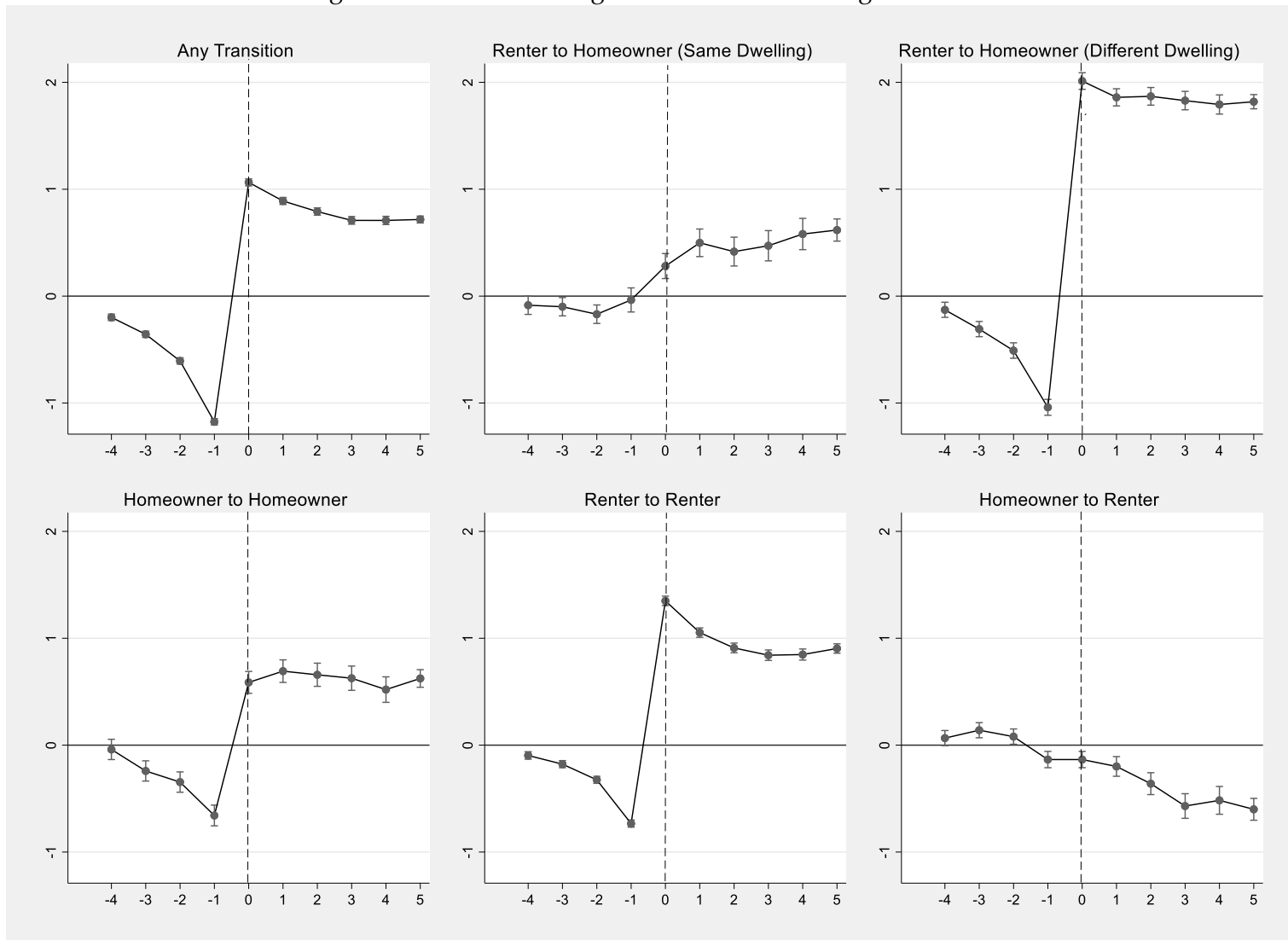
Note: The figures here are the estimated γ satisfaction coefficients from 4 years before the event occurs to 5+ years afterwards from Equation (1).

Table 1
Some Previous Analyses of Housing and Subjective Well-being

	Country	Period	Data	Type of transition analysed	Outcome	Method	Adaptation	Significant at 5% level	Comments
Rohe & Basolo (1997)	USA	1994-1996	Ad hoc	Renter-Owner	LS	OLS	NS	Yes	Small sample (N=171), only 2 periods
Diaz-Serrano (2009)	EU-15	1994-2002	ECHP	Renter-Owner	HS	OLS FE	NS	Yes	Distinction between same and different place of residence
Diaz-Serrano & Stoyanova (2010)	EU-15	1994-2002	ECHP	Residential (any)	HS	2SLS	NS	Yes	
Frijters *et al.* (2011)	Australia	2002-2007	HILDA	Moving House	LS	OLS FE	No	No	
Nowok *et al.* (2013)	UK	1996-2008	BHPS	Moving House	LS	OLS FE	No	No	
Zumbro (2014)	Germany	1992-2009	SOEP	Homeowner	LS	OL/OLS FE	NS	Yes	
Nakazato *et al.* (2010)	Germany	1991-2007	SOEP	Moving House	LS	LGM	No	No	Sample only of those who move for house-related reasons
					HS		No	Yes	
Wolbring (2017)	Germany	1998-2012	SOEP	Renter-Renter	HS	OLS FE	Yes	Yes	Full adaptation without controls; partial adaptation with controls for significant life events
Stotz (2019)	Germany	1984-2011	SOEP	Renter-Owner	HS	2SLS	Yes	Yes	Distinguishes same, different, and inherited flats for R-O. Full adaptation only for inherited flats
				Owner-Renter	HS		No	No	
Our Analysis	Germany	1984-2015	SOEP	Residential (any)	LS	OLS FE	No	Yes	
					HS		Yes	Yes	
				Renter-Owner	LS		No	Yes	Distinguishing same and different flat; very slight adaptation for the latter
					HS		Yes	Yes	
				Owner-Owner	LS		Yes	Yes	
					HS		No	Yes	
				Renter-Renter	LS		Yes	Yes	
					HS		Yes	Yes	
				Owner-Renter	LS		No	Yes	"Anti-adaptation" for this group
					HS		No	Yes	

Notes: OLS (FE) = Ordinary least squares (with fixed effects); 2SLS = Two-stage least squares; LGM = Latent growth model; OL = Ordered Logit; HS = Housing satisfaction; LS = Life satisfaction; NS = Not Studied. In the last column, "flat" is used as shorthand for the residence, which can be either a flat or a house.

Table 2

Number of Housing Events in the SOEP Analysis Sample

	No. Housing Events	% between
	(1)	**(2)**
(a) Any Housing Transition[3]	10,839	25.18
(b) Renter to homeowner (same accommodation)	1,096	2.57
(c) Renter to homeowner (different accommodation)	1,443	3.39
(d) Homeowner to homeowner	694	1.63
(e) Renter to renter	7,355	17.27
(f) Homeowner to renter	2,711	6.36

Notes: (1) Column (1) shows the number of households that move at least once. (2) These percentages are calculated over the total number of households in the sample

(3) The sum (b)+(c)+(d)+(e)+(f) will be generally higher than (a) since households can move more than once and experience different types of transitions. These figures include those households that change status more than once during our sample period, which is why the sum of the specific transitions does not match the number of transitions reported in (a). For those households that move more than once, the regression analysis only considers their first recorded housing transition.

Table 3

Determinants of Life (LS) and Housing Satisfaction (HS) - Lag and Lead Coefficients Only

	Any Housing Transition		Renter – Homeowner			
			Same House (RH-SH)		Different House (RH-DH)	
	LS	HS	LS	HS	LS	HS
	(1)	(2)	(3)	(4)	(5)	(6)
Leads						
3-4 years hence	-0.0230	-0.198***	-0.0701	-0.0850*	0.0409	-0.128***
	(0.0143)	(0.0155)	(0.0440)	(0.0439)	(0.0356)	(0.0360)
2-3 years hence	-0.0700***	-0.357***	-0.117***	-0.0993**	0.0302	-0.308***
	(0.0138)	(0.0150)	(0.0437)	(0.0436)	(0.0359)	(0.0363)
1-2 years hence	-0.0722***	-0.606***	-0.0985**	-0.169***	0.0683*	-0.509***
	(0.0137)	(0.0149)	(0.0442)	(0.0442)	(0.0364)	(0.0368)
Within next year	-0.115***	-1.176***	-0.0123	-0.0358	0.121***	-1.041***
	(0.0140)	(0.0152)	(0.0576)	(0.0575)	(0.0376)	(0.0381)
Lags						
0-1 years	0.0973***	1.064***	-0.0110	0.281***	0.309***	2.012***
	(0.0154)	(0.0167)	(0.0597)	(0.0596)	(0.0391)	(0.0396)
1-2 years	0.0482***	0.890***	-0.0299	0.499***	0.185***	1.860***
	(0.0155)	(0.0169)	(0.0658)	(0.0658)	(0.0405)	(0.0410)
2-3 years	0.0604***	0.791***	0.0276	0.416***	0.160***	1.869***
	(0.0160)	(0.0174)	(0.0689)	(0.0688)	(0.0416)	(0.0421)
3-4 years	0.0726***	0.709***	-0.0298	0.471***	0.125***	1.829***
	(0.0170)	(0.0184)	(0.0723)	(0.0722)	(0.0435)	(0.0440)
4-5 years	0.0632***	0.708***	0.0271	0.581***	0.152***	1.793***
	(0.0181)	(0.0196)	(0.0750)	(0.0747)	(0.0452)	(0.0458)
5+ years	0.0598***	0.717***	0.0507	0.618***	0.255***	1.819***
	(0.0152)	(0.0165)	(0.0530)	(0.0530)	(0.0335)	(0.0340)
R-squared	0.035	0.076	0.034	0.017	0.033	0.074
Observations	312,970	311,465	191,081	190,301	201,910	201,112
Individuals	42,424	42,407	31,696	31,686	31,783	31,773

Notes: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 3 (Continued)

Table 3 (Continued)

Determinants of Life (LS) and Housing Satisfaction (HS) - Lag and Lead Coefficients Only

	Homeowner–Homeowner (HH)		Renter – Renter (RR)		Homeowner – Renter (HR)	
	LS	HS	LS	HS	LS	HS
	(7)	(8)	(9)	(10)	(11)	(12)
Leads						
3-4 years hence	-0.00712	-0.0403	-0.0443***	-0.0965***	-0.0248	0.0659*
	(0.0485)	(0.0484)	(0.0167)	(0.0179)	(0.0358)	(0.0361)
2-3 years hence	-0.0429	-0.241***	-0.0693***	-0.178***	-0.0465	0.140***
	(0.0485)	(0.0484)	(0.0159)	(0.0170)	(0.0358)	(0.0360)
1-2 years hence	-0.0149	-0.346***	-0.0809***	-0.324***	-0.0434	0.0798**
	(0.0486)	(0.0486)	(0.0157)	(0.0168)	(0.0363)	(0.0365)
Within next year	-0.0927*	-0.658***	-0.156***	-0.734***	-0.214***	-0.135***
	(0.0497)	(0.0495)	(0.0160)	(0.0171)	(0.0388)	(0.0390)
Lags						
0-1 years	0.116**	0.587***	0.108***	1.350***	-0.0956**	-0.135***
	(0.0524)	(0.0523)	(0.0210)	(0.0224)	(0.0386)	(0.0388)
1-2 years	0.00841	0.692***	0.0521**	1.053***	-0.0567	-0.199***
	(0.0538)	(0.0538)	(0.0208)	(0.0223)	(0.0467)	(0.0469)
2-3 years	0.0246	0.658***	0.0336	0.910***	-0.0453	-0.361***
	(0.0554)	(0.0553)	(0.0216)	(0.0230)	(0.0519)	(0.0522)
3-4 years	-0.00156	0.626***	0.0204	0.841***	-0.00572	-0.570***
	(0.0580)	(0.0579)	(0.0232)	(0.0249)	(0.0585)	(0.0588)
4-5 years	0.00382	0.520***	0.0244	0.847***	-0.145**	-0.517***
	(0.0610)	(0.0609)	(0.0249)	(0.0265)	(0.0659)	(0.0664)
5+ years	0.0576	0.624***	0.0276	0.904***	-0.138***	-0.600***
	(0.0421)	(0.0420)	(0.0209)	(0.0223)	(0.0519)	(0.0521)
R-squared	0.034	0.020	0.035	0.051	0.034	0.020
Observations	193,325	192,542	248,580	247,280	195,171	194,383
Individuals	31,732	31,720	39,233	39,220	32,843	32,831

Notes: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Appendix

Table A1
The Frequency Analysis of Leads and Lags

	Any Housing Transition		Rent – Owner				Owner - Rent		Rent – Rent		Owner–Owner	
			Same dwelling		Different dwelling							
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Leads												
3-4 years hence	6 023	31.98	907	5.06	1 715	9.59	986	5.47	986	5.47	644	3.59
2-3 years hence	7 612	38.30	1 111	5.73	2 004	10.36	1 117	5.72	1 117	5.72	723	3.71
1-2 years hence	8 490	35.51	1 319	6.29	2 285	10.91	1 269	6.01	1 269	6.01	772	3.66
Within next year	8 991	42.55	1 671	6.99	2 582	10.80	1 470	6.10	1 470	6.10	821	3.41
Lags												
0-1 years	22 400	79.46	1 580	5.61	2 600	9.22	2 686	9.45	6 514	22.91	1 015	3.57
1-2 years	18 405	65.29	1 196	4.24	2 246	7.97	1 941	6.83	5 487	19.30	817	2.87
2-3 years	15 071	53.46	991	3.52	1 971	6.99	1 566	5.51	4 578	16.10	676	2.38
3-4 years	12 784	45.35	820	2.91	1 691	6.00	1 234	4.34	3 623	12.74	569	2.00
4-5 years	10 710	37.99	705	2.50	1 462	5.19	1 028	3.62	2 784	9.79	484	1.70
5+ years	9 003	31.94	599	2.12	1 253	4.44	824	2.90	2 236	7.86	409	1.44

Note: The percentage figures refer to individuals who individuals who report at least one of the transition events in the column heads.

Table A2

Summary Statistics

| | No Transitions | Renter – Homeowner | | | | Homeowner– Homeowner | | Renter – Renter | | Homeowner – Renter | |
| | | Same House | | Different House | | | | | | | |
		Before	After	Before	After	Before	After	Before	After	Before	After
Life satisfaction	7.144	7.092	6.991	7.238	7.246	7.224	7.256	6.971	6.876	7.072	7.000
Housing satisfaction	7.701	7.805	7.941	7.033	8.355	7.721	8.359	7.092	7.283	7.936	7.617
Log income	7.682	7.568	7.770	7.638	7.974	7.730	7.975	7.557	7.567	7.707	7.563
Number of children	1.036	0.988	0.904	1.151	1.225	1.104	1.088	1.128	1.098	0.985	0.701
German citizenship	0.870	0.874	0.927	0.826	0.914	0.892	0.946	0.815	0.808	0.918	0.936
Married	0.637	0.574	0.639	0.579	0.718	0.609	0.701	0.506	0.549	0.512	0.440
Single	0.222	0.273	0.223	0.329	0.202	0.293	0.193	0.363	0.281	0.354	0.358
Widow	0.070	0.075	0.065	0.010	0.016	0.024	0.041	0.031	0.052	0.062	0.068
Divorce/separation	0.071	0.078	0.073	0.082	0.065	0.074	0.065	0.100	0.117	0.073	0.133
Less than high school	0.220	0.237	0.189	0.185	0.130	0.168	0.143	0.240	0.276	0.219	0.178
High school	0.613	0.607	0.640	0.609	0.589	0.629	0.630	0.596	0.569	0.618	0.599
More than high school	0.167	0.155	0.172	0.207	0.281	0.203	0.227	0.164	0.155	0.163	0.224
Working	0.548	0.605	0.613	0.751	0.729	0.708	0.643	0.651	0.593	0.585	0.640
Not working	0.126	0.111	0.103	0.078	0.087	0.108	0.108	0.097	0.116	0.098	0.073
Retired	0.181	0.142	0.151	0.013	0.046	0.043	0.119	0.051	0.112	0.125	0.138
Student	0.043	0.043	0.038	0.053	0.044	0.044	0.034	0.065	0.041	0.076	0.041
Maternity leave	0.014	0.018	0.013	0.032	0.024	0.022	0.020	0.022	0.026	0.014	0.023
Unemployed	0.048	0.039	0.036	0.034	0.030	0.034	0.025	0.064	0.078	0.038	0.042
Other	0.039	0.041	0.047	0.038	0.040	0.040	0.053	0.049	0.035	0.063	0.043
West Germany	0.795	0.800	0.772	0.812	0.803	0.849	0.852	0.766	0.768	0.786	0.823
East Germany	0.205	0.200	0.228	0.188	0.197	0.151	0.148	0.234	0.232	0.214	0.177

Table A3

Fixed-effects Estimation of the Determinants of Life and Housing Satisfaction:
The Estimated Coefficients on the Non-housing Variables

	Life Satisfaction	Housing Satisfaction
Base: Age 16-30		
30-35	-0.979***	-0.133**
	(0.0525)	(0.0569)
35-40	-0.939***	-0.182***
	(0.0472)	(0.0512)
40-45	-0.871***	-0.156***
	(0.0425)	(0.0461)
45-50	-0.823***	-0.148***
	(0.0377)	(0.0409)
50-55	-0.797***	-0.153***
	(0.0332)	(0.0360)
55-60	-0.698***	-0.135***
	(0.0293)	(0.0318)
>60-65	-0.476***	-0.0854***
	(0.0260)	(0.0281)
>65	-0.164***	-0.0201
	(0.0228)	(0.0247)
German citizen	0.131***	-0.0839***
	(0.0221)	(0.0240)
Base: Married		
Single	-0.0138	0.230***
	(0.0226)	(0.0245)
Widowed	-0.207***	0.0449*
	(0.0219)	(0.0237)
Divorced	0.0352	-0.117***
	(0.0236)	(0.0256)
Separated	-0.261***	-0.158***
	(0.0268)	(0.0291)
Number of children in the household	-0.0136**	-0.0972***
	(0.00605)	(0.00659)
Base: Less than high-school		
High-school education	0.0601***	0.00633
	(0.0201)	(0.0218)
More than high-school education	0.231***	0.234***
	(0.0265)	(0.0288)
Log(household income)	0.362***	0.139***
	(0.00977)	(0.0106)
Base: Working		
Non-working	-0.0726***	0.0186
	(0.0120)	(0.0131)

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Retired	-0.0961***	0.0471*
	(0.0232)	(0.0251)
In Education-Training	-0.0655*	0.0509
	(0.0383)	(0.0415)
Maternity Leave	0.0891***	-0.0523**
	(0.0231)	(0.0250)
Unemployed	-0.547***	0.0252
	(0.0142)	(0.0154)
Not Working (work from time to time)	-0.0892***	0.00214
	(0.0171)	(0.0186)
R-squared	0.035	0.076
Observations	312,970	311,465
Individuals	42,424	42,407

Notes. Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table A4

Determinants of Life (LS) and Housing Satisfaction (HS) - (Lag and Lead Coefficients Only) – Without Controls for Marital Status, Labour-Force Status, Income or the Number of Children

	Any Housing Transition		Renter – Homeowner			
			Same House (RH-SH)		Different House (RH-DH)	
	LS	HS	LS	HS	LS	HS
	(1)	(2)	(3)	(4)	(5)	(6)
Leads						
3-4 years hence	-0.0319**	-0.205***	-0.0657	-0.0678	0.0413	-0.140***
	(0.0141)	(0.0152)	(0.0428)	(0.0426)	(0.0350)	(0.0353)
2-3 years hence	-0.0808***	-0.367***	-0.0762*	-0.0682	0.0290	-0.334***
	(0.0136)	(0.0147)	(0.0424)	(0.0423)	(0.0352)	(0.0356)
1-2 years hence	-0.0780***	-0.623***	-0.0919**	-0.156***	0.0840**	-0.538***
	(0.0135)	(0.0146)	(0.0431)	(0.0429)	(0.0356)	(0.0359)
Within next year	-0.122***	-1.193***	-0.00220	-0.0253	0.153***	-1.088***
	(0.0138)	(0.0148)	(0.0559)	(0.0556)	(0.0368)	(0.0371)
Lags						
0-1 years	0.0696***	1.013***	0.0181	0.248***	0.339***	1.926***
	(0.0151)	(0.0163)	(0.0581)	(0.0578)	(0.0383)	(0.0387)
1-2 years	0.0331**	0.845***	0.0199	0.451***	0.243***	1.769***
	(0.0152)	(0.0164)	(0.0642)	(0.0641)	(0.0398)	(0.0401)
2-3 years	0.0491***	0.744***	0.0577	0.358***	0.213***	1.775***
	(0.0157)	(0.0169)	(0.0673)	(0.0670)	(0.0408)	(0.0412)
3-4 years	0.0681***	0.661***	0.00682	0.444***	0.175***	1.722***
	(0.0167)	(0.0180)	(0.0710)	(0.0707)	(0.0425)	(0.0429)
4-5 years	0.0574***	0.653***	0.0842	0.536***	0.211***	1.666***
	(0.0177)	(0.0191)	(0.0739)	(0.0734)	(0.0443)	(0.0447)
5+ years	0.0583***	0.664***	0.125**	0.599***	0.298***	1.699***
	(0.0148)	(0.0160)	(0.0521)	(0.0519)	(0.0327)	(0.0330)
R-squared	0.02	0.072	0.021	0.014	0.021	0.069
Observations	330,019	326,902	202,517	200,648	213,711	211,823
Individuals	44,896	43,327	33,641	32,557	33,711	32,627

Notes: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table A4 (Continued)

Determinants of Life (LS) and Housing Satisfaction (HS) - (Lag and Lead Coefficients Only) – Without Controls for Marital Status, Labour-Force Status, Income or the Number of Children

|	Homeowner–Homeowner (HH)		Renter – Renter (RR)		Homeowner – Renter (HR)	
	LS	**HS**	**LS**	**HS**	**LS**	**HS**
	(7)	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Leads						
3-4 years hence	-0.00222	-0.0438	-0.0478***	-0.0923***	-0.0129	0.0755**
	(0.0476)	(0.0473)	(0.0166)	(0.0176)	(0.0348)	(0.0349)
2-3 years hence	-0.0310	-0.253***	-0.0724***	-0.177***	-0.0431	0.131***
	(0.0473)	(0.0469)	(0.0157)	(0.0167)	(0.0348)	(0.0349)
1-2 years hence	-0.00375	-0.373***	-0.0769***	-0.316***	-0.0355	0.0813**
	(0.0472)	(0.0469)	(0.0155)	(0.0165)	(0.0352)	(0.0352)
Within next year	-0.109**	-0.673***	-0.155***	-0.740***	-0.248***	-0.116***
	(0.0484)	(0.0481)	(0.0158)	(0.0168)	(0.0375)	(0.0376)
Lags						
0-1 years	0.0879*	0.587***	0.105***	1.310***	-0.187***	-0.0982***
	(0.0510)	(0.0507)	(0.0207)	(0.0220)	(0.0374)	(0.0375)
1-2 years	0.0152	0.678***	0.0582***	1.023***	-0.115**	-0.161***
	(0.0527)	(0.0525)	(0.0205)	(0.0219)	(0.0455)	(0.0455)
2-3 years	0.000365	0.643***	0.0438**	0.867***	-0.112**	-0.371***
	(0.0543)	(0.0540)	(0.0212)	(0.0226)	(0.0507)	(0.0509)
3-4 years	0.00196	0.593***	0.0411*	0.794***	-0.0553	-0.587***
	(0.0568)	(0.0565)	(0.0229)	(0.0245)	(0.0575)	(0.0576)
4-5 years	-0.0169	0.499***	0.0436*	0.793***	-0.162**	-0.551***
	(0.0599)	(0.0596)	(0.0245)	(0.0260)	(0.0650)	(0.0651)
5+ years	0.0661	0.592***	0.0465**	0.853***	-0.182***	-0.642***
	(0.0409)	(0.0406)	(0.0206)	(0.0219)	(0.0510)	(0.0510)
R-squared	0.021	0.018	0.020	0.047	0.022	0.017
Observations	204,791	202,920	262,254	259,519	206,732	204,853
Individuals	33,687	32,600	41,622	40,209	34,815	33,725

Notes: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table A5
Determinants of Life Satisfaction by Household Type

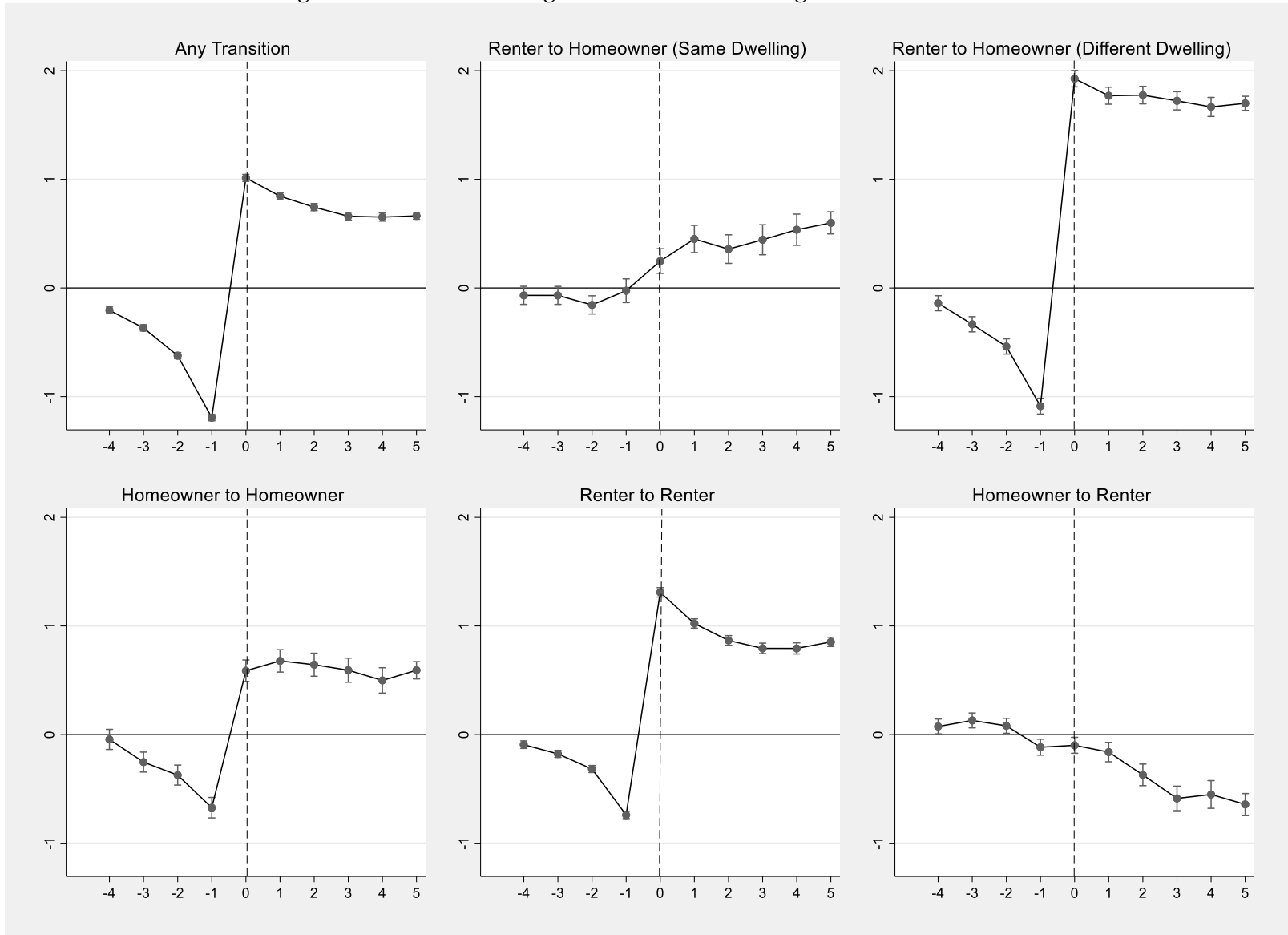|	Married without children		Married with children		Single without children		Single with children	
	AHT	RH-DH	AHT	RH-DH	AHT	RH-DH	AHT	RH-DH
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Leads								
3-4 years hence	-0.0342	0.0925	0.0361	0.0446	-0.0259	-0.00538	0.0408	0.142
	(0.0252)	(0.0656)	(0.0240)	(0.0496)	(0.0391)	(0.119)	(0.0794)	(0.250)
2-3 years hence	-0.0782***	-0.0404	-0.0394*	0.0503	-0.0106	0.101	-0.101	0.00781
	(0.0251)	(0.0670)	(0.0234)	(0.0496)	(0.0383)	(0.129)	(0.0814)	(0.280)
1-2 years hence	-0.0861***	0.104	-0.0296	0.104**	0.0214	0.0684	-0.0163	0.285
	(0.0256)	(0.0673)	(0.0236)	(0.0514)	(0.0392)	(0.134)	(0.0863)	(0.300)
Within next year	-0.157***	0.114*	-0.0473*	0.232***	0.0649	0.136	-0.0648	0.0419
	(0.0264)	(0.0691)	(0.0244)	(0.0546)	(0.0418)	(0.141)	(0.0924)	(0.326)
Lags								
0-1 years	0.0662**	0.289***	0.178***	0.461***	0.212***	0.286*	0.0746	-0.374
	(0.0289)	(0.0732)	(0.0278)	(0.0557)	(0.0448)	(0.158)	(0.0979)	(0.342)
1-2 years	0.0313	0.174**	0.111***	0.345***	0.150***	0.470***	-0.0808	-0.381
	(0.0292)	(0.0750)	(0.0280)	(0.0575)	(0.0457)	(0.171)	(0.0982)	(0.373)
2-3 years	0.0626**	0.307***	0.0769***	0.294***	0.234***	0.216	-0.0950	-0.761**
	(0.0298)	(0.0780)	(0.0283)	(0.0577)	(0.0487)	(0.186)	(0.101)	(0.388)
3-4 years	0.0225	0.178**	0.101***	0.253***	0.218***	0.443**	-0.0654	-0.625
	(0.0310)	(0.0800)	(0.0295)	(0.0597)	(0.0538)	(0.206)	(0.111)	(0.439)
4-5 years	0.00902	0.174**	0.0575*	0.300***	0.209***	0.356	-0.0379	-0.505
	(0.0319)	(0.0801)	(0.0315)	(0.0630)	(0.0598)	(0.226)	(0.123)	(0.478)
5+ years	0.0232	0.254***	0.0850***	0.324***	0.136**	0.377**	-0.153	-0.338
	(0.0258)	(0.0582)	(0.0295)	(0.0555)	(0.0583)	(0.172)	(0.128)	(0.482)
R-squared	0.024		0.022		0.014		0.020	
Observations	138,624		100,604		27,887		8,951	
Individuals	18,938		18,361		6,922		2,660	

Notes: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; AHT = Any Housing Transition; RH-DH = Renter to homeowner buying a new dwelling.

Figure A1
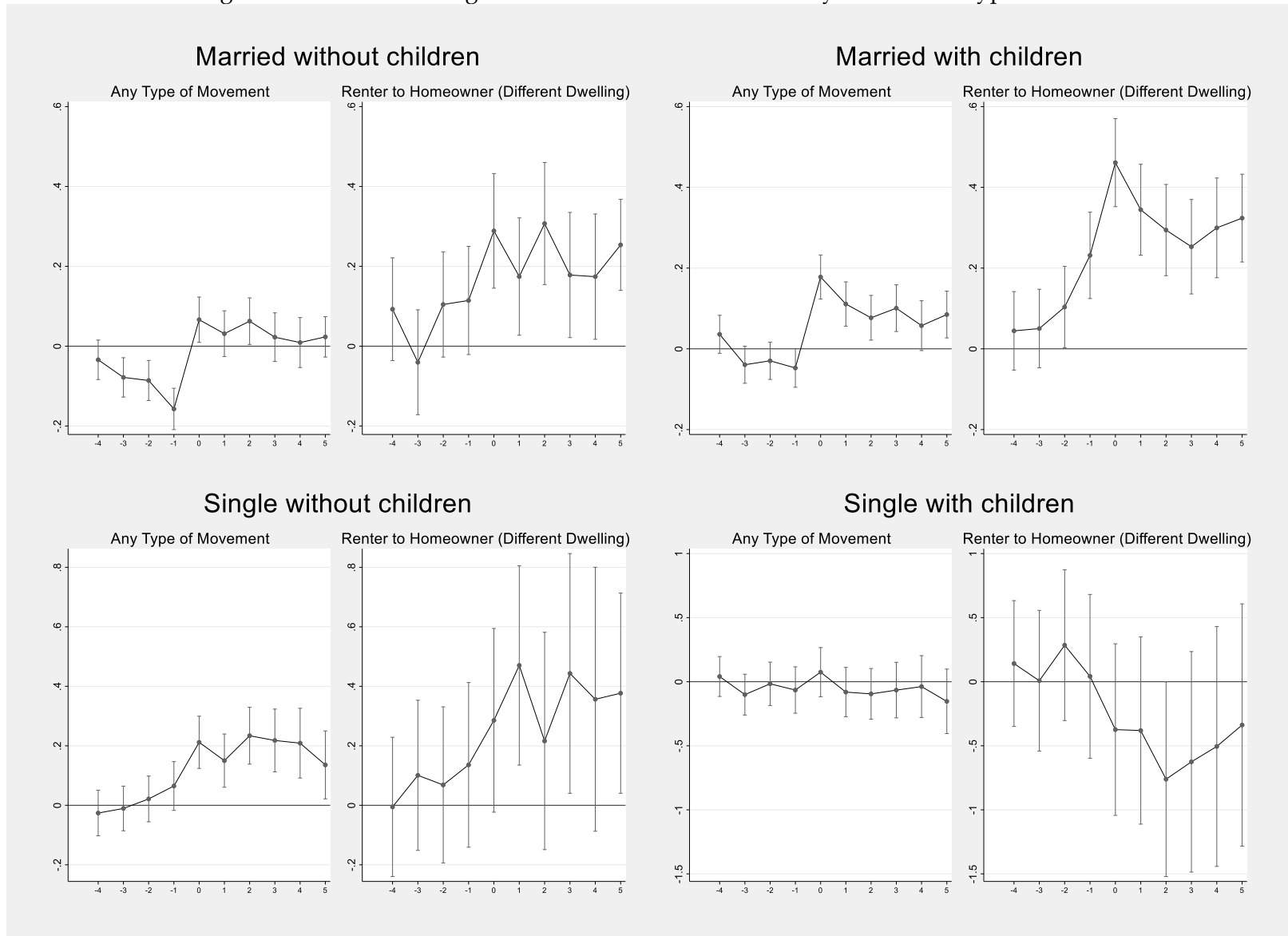Lags and Leads of Housing Transitions on Life Satisfaction
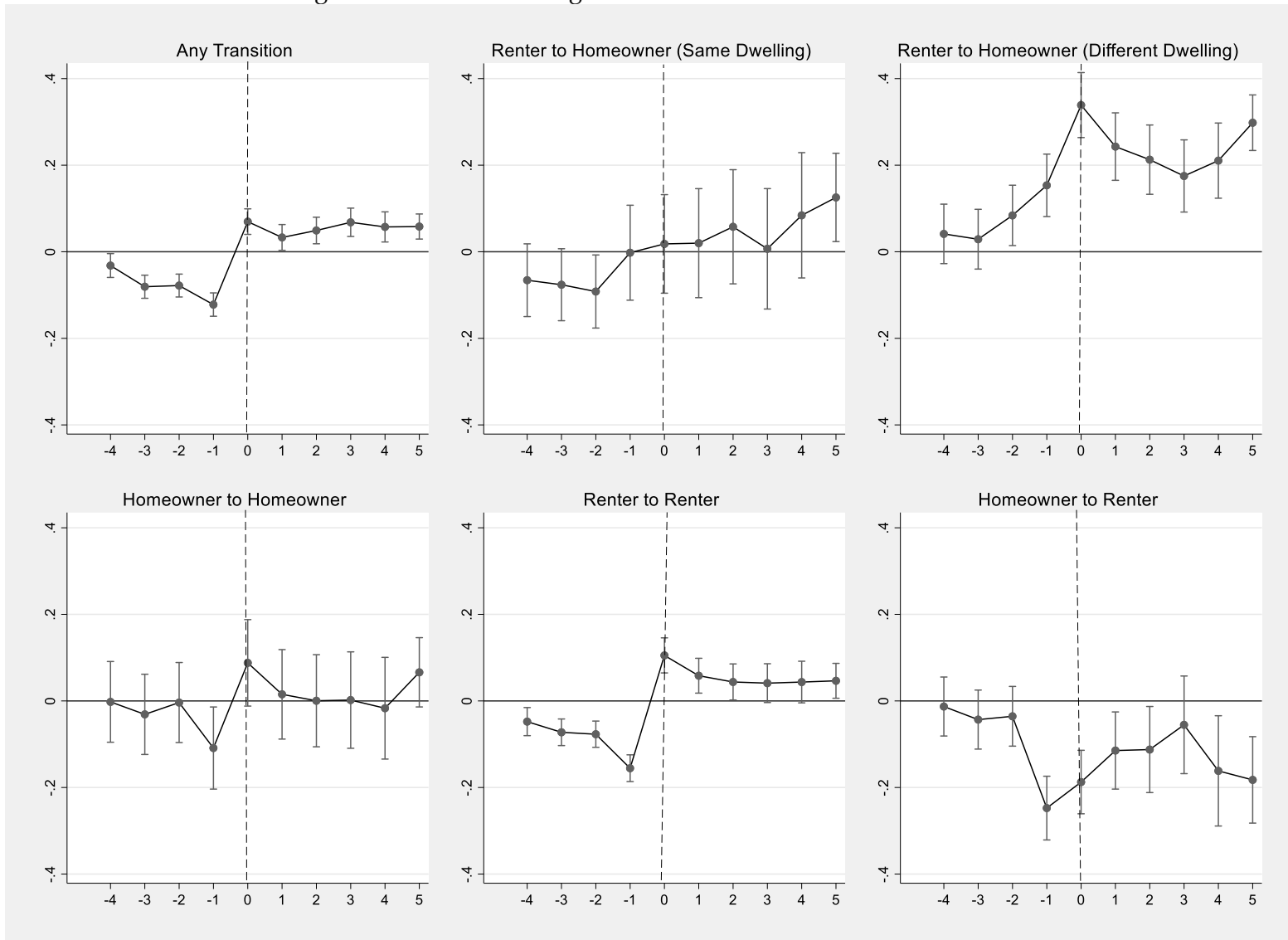
Note: The specifications here do not control for marital status, labour-force status, income or the number of children.

Figure A2
Lags and Leads of Housing Transitions on Housing Satisfaction

Note: The specifications here do not control for marital status, labour-force status, income or the number of children.

Lags and Leads of Housing Transitions on Life Satisfaction by Household Type

Note: The specifications here do not control for marital status, labour-force status, income or the number of children.