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**Special Issue**  
**Moving home**  
**and children's**  
**wellbeing**

## Inside this Special Issue

- Residential mobility and child wellbeing
- Mobility and survey response
- Life events and moves under duress
- Effects of moves in the early years – US & UK
- Lessons for housing policy

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# Foreword

**John Bynner**      **Executive Editor**

This Special Issue is a new venture for the LLCS journal, originating from the *Society for Longitudinal and Life Course Studies (SLLS)* 2014 conference in Lausanne, Switzerland. The theme of the conference was 'longitudinal research and social policy', which included a major stream devoted to symposia organised by the society's policy arm, Longview.

Longview issued invitations to the SLLS membership for expressions of interest in presenting symposia on the conference theme that would also break the mould in terms of interactive presentations and policy inputs. Proposals for six symposia were submitted on various elements of the interfaces between longitudinal research and policy, one of which was devoted to the effects of moving home for children and their families in the children's early years.

Coordinated by Mary Clare Lennon of the Graduate Center, City University New York, USA and Heather Joshi of the Centre for Longitudinal Studies, University College London Institute of Education, UK the symposium comprised presentations of longitudinal research findings alongside discussions with policy specialists on the implications arising from them. The main feature was comparison between US findings from the US 'Fragile Families and Child Wellbeing' cohort study and findings from the UK 'Millennium Cohort Study' – each oversampling economically disadvantaged families. The research reported – funded as an international collaboration

by the UK Economic and Social Research Council (ESRC) – was contextualised by the different forms of residential mobility as well as the differences in, housing markets and housing policies operating in the two countries.

The symposium was well received by conference participants and successful in meeting the aims of the conference policy stream, leading to the invitation to develop the papers for potential publication in the LLCS journal. The papers, subject to meeting standard journal criteria for scientific publications, would again break new ground in both form and content for a Special Issue. The aim was to provide a set of stand-alone papers that, when taken together, benefit from the interactions between them and the addition of policy discussion to deliver a rounded and insightful publication.

Much work by the contributors has gone into meeting these dual requirements and writing the guest editorial, for which the journal editors are most grateful. The final version includes papers on mobility outcomes for children, outcomes for families, impact on longitudinal sample attrition and housing policy. The precedent set opens up new opportunities in terms of combining scientific research reporting and policy dialogue, paving the way for more ventures in this direction in the future. We look forward to publishing more of them.

## Join our mailing lists...

### Cohort Network Group

SLLS is proud to host a forum for people working in and on longitudinal studies. It aims to build on links made under the EUCCONET (*European Child Cohort Network*) whose funding for co-ordination and communication between child cohorts ended in 2013. That venture brought together researchers across the behavioural, developmental, and health and statistical sciences, and the professional data, survey and communications managers who are also an important part of the interdisciplinary teams who create and run these studies.

Key objectives of the network are the maintenance and continuation of existing studies and the facilitation of the development of new ones at local or national level, even if the aspiration for a pan-European cohort seems unrealistic.

For full details and to join the CN mailing list visit <http://www.slls.org.uk/#!/cohort-network/c21hq>

### Interdisciplinary Health Research Group

Large-scale social surveys increasingly collect biomedical data, but at present an inter-disciplinary forum concerned with making best use of these combined social and biological data, is lacking.

A preparatory meeting was held at the SLLS Annual Conference 2014, to assess whether SLLS could fill this gap. Twenty conference delegates from the social and biological sciences attended the preparatory meeting and agreed to propose to the SLLS Executive Committee that a SLLS sub-group on *Interdisciplinary Health Research* be established. The Executive Committee agreed the group with the following remit:

- To enable informed use of biomarkers by social scientists
- To enable informed use of social data by biologists
- To bring together SLLS researchers from a variety of disciplines who work on or have an interest in health and health-related issues

For full details and to join the IHR mailing list visit [www.slls.org.uk/#!/health-research/c1njv](http://www.slls.org.uk/#!/health-research/c1njv)

### Policy Group

Life course study and longitudinal research are potentially of central importance to the policy process. The burgeoning of major longitudinal studies throughout the world and the allocation of large-scale government funding to building longitudinal resources reflect this growing interest. In this respect, SLLS is well placed to identify the expertise and research resources needed to underpin the relevant evidence base in different policy domains. For this reason the SLLS Executive Committee decided to create a database registering members' expertise, relevant experience and policy interest areas. It acts as a source of partners for collaboration on international longitudinal research projects directed at policy issues; helps the Executive Committee respond to policy debates; and broaden the scope of our international journal, *LLCS*, in policy research directions.

For full details and to join the PG mailing list visit [www.slls.org.uk/#!/policy-group/c99m](http://www.slls.org.uk/#!/policy-group/c99m)

## GUEST EDITORIAL: Residential mobility and wellbeing: exploring children's living situations and their implications for housing policy<sup>i</sup>

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Studies of residential mobility may be divided broadly into those that focus on the process of mobility — the decision to move and the process of moving — and those that ask questions about the outcomes of the residential mobility process — what happens after the move? Within studies of outcomes there is growing interest in just how residential change affects child and adolescent wellbeing. A recent symposium grappled with the implications of mobility for families and neighbourhoods with a series of papers on the outcomes of residential change (Guy, 2012). The papers in this special issue focus on similar broad issues of residential mobility, poverty, public policy and family and childhood outcomes of this process.

Overall, the tendency in studies of residential mobility was to assume implicitly, if not explicitly, that mobility was a good thing and it was the way in which households got better housing and nicer surroundings (for a general overview of residential mobility and the housing market, see Clark, 2012). Although initial studies of mobility emphasised choice and opportunity, there was a nagging suspicion that not all moves were good ones, and sometimes moves were not made by choice or did not have positive outcomes. The idea that moves contributed to social mobility was perhaps too optimistic. Moves might mean little more than residential churning with detrimental outcomes for children (Kingsley, Jordan & Traynor, 2012).

A shift in the approach to studying residential mobility began in the 1990s with the recognition of a need for greater attention to the valence of the life course and the events in family life that may prompt home moves (Clark & Dieleman, 1996; Mulder, 1993). This shift in conceptualisation refocused attention on the events in the life course and on what those interested in residential mobility viewed as triggers of mobility. Thus moves were linked to both positive and negative changes within the family, such as partnership formation and dissolution, changing jobs, or becoming unemployed (see, Anderson, Leventhal, Newman & Dupéré, 2014), as well as changes outside of the family, such as housing market booms and busts (Ferreira, Gyourko & Tracy, 2010), and housing policy changes. The housing boom followed by the Great Recession of 2008 was accompanied by both individual- and societal-level changes that impeded or hindered residential moves. And all of this was accompanied by a marked decrease in residential mobility generally. Both in the United States (US) and Europe there has been a significant drop in the probability of moving (Cooke, 2013; Champion & Shuttleworth, 2015), and there are questions about how the decline in mobility options will impact different cohorts and different family compositions, especially the disadvantaged.

Recent studies have centred residential moves within a life course perspective, distinguishing between moves that are generated by both positive

and negative circumstances, moves that result in improved neighbourhood conditions, and moves that improve or harm child wellbeing. The increasing availability of longitudinal data — and especially data from cohort designs — has advanced studies. Many of the earlier studies of residential mobility used cross-sectional data, making it difficult to rule out selection as an explanation for moving home. And, indeed, selection into residential mobility and neighbourhoods is a powerful driver of residential mobility, with individual, family, and societal factors facilitating and constraining home moves and neighbourhood choice. The drive to understand the link between mobility and neighbourhood outcomes, and the even more complex issue of how much the outcome was related to family and other individual changes versus the influences of the neighbourhood itself, has created a substantial literature on neighbourhood effects and their measurement. That said, we still have some way to go before we will really understand just how the neighbourhood impacts the outcomes from moving house and moving neighbourhood.

The increasing availability of longitudinal data has both enhanced and complicated the study of residential mobility. The enhancements are obvious: the ability to follow the same individuals over the course of time in the context of varying social, economic, and policy changes — on the individual, family, and societal levels — has transformed studies of residential mobility. In addition, study design and statistical procedures to study these changes are becoming more sophisticated, allowing for stronger causal inference. The complications are many, not the least of which is the correlation of residential mobility with study attrition. The tendency for those who move home to drop out of longitudinal studies has been well documented. Less well understood, however, are the longer-term implications of dropping out. The availability of panels with longer follow-up periods permits the investigation of these issues.

Four of the papers in this issue address aspects of the dynamics of residential mobility, using data from cohort or panel studies. The fifth considers the policy implications of the reported results. All analyses of residential change have to grapple with missing data and attrition. Thus we set up the special issue by first

addressing just this methodological problem. The paper by Tarek Mostafa considers the consequences of home moves for survey follow-up in the Millennium Cohort Study (MCS), a UK birth cohort study of children born in 2000-1 and followed since. Mostafa uses data from the first five interview waves, starting when the child was nine months old, then at ages three, five, seven, and 11. His question is whether residential mobility's effect on attrition is short- or long-term. In what is an extremely positive finding, he shows that, in a large proportion of cases, those who fail to complete an interview due to residential mobility are likely to return in subsequent waves. Thus, in many cases, residential mobility appears to represent a short-term disruption in the study's contact with the household. The results should reassure survey researchers — at least those who keep good tracking records. As Mostafa points out, one of the strong suits of the MCS is its ability — and its resources — to find most respondents over time.

The paper by William Clark utilises data from the Panel Study of Income Dynamics, a US-based survey initiated in 1968 with a household survey of about 5,000 families. Interviews obtained information on all household members, with most information collected about the household head. An important element of study design is that the PSID followed individuals as they left their original households, permitting the analysis of generations of families and individuals over time. Initially (and until 1997), the PSID respondents were interviewed annually; thereafter the interview has been biennial.

Clark uses this rich dataset to examine a range of life course disruptions that occur in families, including job loss (an economic disruption) and divorce, separation or widowhood (a family disruption) in relation to residential mobility due to housing disruption via eviction, housing repossession and housing demolition. Each of these disruptive events — in family structure and economic circumstances — is generally found among the most vulnerable families: young, poor, home renters, and those of low occupational status. In these populations, the event is likely to be accompanied by a home move and by a move to a less advantaged area. It appears that the combination of difficult life circumstances, stressful events, and moving under duress strikes hardest at

fragile families, those with few resources to cope. The paper also uses data from before and after the Great Recession to show the ways macro-level economic declines contribute to exposure to life course disruptions, especially among the most vulnerable.

Two of the papers specifically address the consequences of residential mobility for young children. Using data from the Fragile Families and Child Wellbeing Study conducted in the United States, Brenden Beck, Anthony Buttaro and Mary Clare Lennon examine correlates of residential moves among a birth cohort representative of large US cities. Data were collected when children were born and at ages one, three, and five. Beck et al. find high mobility rates, with almost seven in 10 children having moved home by age five. A substantial minority of young children move frequently, with 20% having moved home three or more times. This high rate of mobility is associated with changes in family structure (e.g., separation, acquiring a new live-in partner), paternal incarceration, persistent unemployment, and precarious housing tenures (primarily renting rather than owning). These effects hold with controls for family vulnerabilities (such as poor maternal health) and capabilities (such as education). Moving house at a young age is a normative step in the life course but one that may be enacted under difficult situations.

In addition to stressful family circumstances, financial hardship is associated with frequently moving home. Interestingly, families with higher incomes also tend to move more frequently than those with lower incomes. These results suggest that parsing out the economic circumstances associated with residential moves is important. As Clark shows, moving under duress is much more common among low-income families.

Child outcomes are associated with many of these difficult family circumstances, as well. In fact, Beck et al. find that controlling for these changes within families reduces associations of residential mobility with child verbal skills and behaviour problems (both internalising and externalising) to non-significance. Thus, the impact of moving home on children appears to be due to the circumstances that give rise to the move, rather than moving by itself.

Ludovica Gambaro and Heather Joshi also examine residential moves among children aged five and under. They use data from the MCS, when the child was nine-months, three years, and five years old. Young children in the UK move less frequently than do those in the US, with fewer than half having moved by age five and only 5% moving three or more times. These authors also examine the distance moved, showing that most moves are to areas relatively close to the area of origin. The precursors of moving home are similar to those found in the US: partnership changes and living in rental accommodation. Gambaro and Joshi also looked at overcrowding which was associated with the likelihood of moving home.

Their examination of child outcomes shows similar results to those found in the US. Any negative association of moving with poor verbal skills and behavioural outcomes can be accounted for primarily by changes in partnership and employment even before allowing for a further set of sociodemographic controls. In addition, they separately examine whether the move was to a disadvantaged area, finding that children who moved within such areas showed developmental outcomes no better, if not worse, than those of children who were born into disadvantaged areas.

The final paper, by Ruth Lupton, considers the policy implications of results presented in this issue, with a focus on recent housing and welfare policies in the UK. Lupton makes the point that recent policy changes, since 2010, such as the 'bedroom tax' and caps on overall benefit receipt, create more stress for low-income families than in the first years of the millennium. Policies since the 1980s have reduced housing security for the most disadvantaged, potentially creating a situation similar to that found in the US today, where private market mechanisms dominate housing policy. While the implementation of the bedroom tax has not resulted in mass evictions to date, research finds that families cut back on other expenditures in order to pay rent, creating more financial hardship for those already living on the edge.

Lupton offers a schema for developing policies that (1) encourage 'advantaging' moves (e.g., to better areas, for work, to improve schooling) and (2) discourage 'disadvantaging' moves (e.g., to worse

areas, as a result of eviction, what Clark calls ‘moves under duress’). This approach incorporates many elements of housing policy, such as rent subsidies and low-interest loans to purchase homes, but goes beyond them to incorporate broader policies that implicitly affect housing – those focused on neighbourhood improvement.

There is no question that we are in the midst of new thinking about residential mobility and the implications for families. As overall mobility declines, as housing costs increase, and as affordable housing becomes scarcer in both the US and Europe, it is possible that the old opportunities provided by mobility may no longer temper inequality in the urban mosaic. The continuing inflow of immigrant populations, often with relatively high fertility, may exacerbate the growing inequalities in the housing market. Growing wealth differences are increasingly

reflected in the housing market where families with access to generational transfers are doing well, while immigrant and low-income families are marginalized to less attractive outcomes. Shortages of affordable housing, the need to spend large proportions of income on housing, the resulting financial strain, the threat of eviction and demolition, and the like, may generate considerable stress in families and contribute to the very family problems (especially break-ups, partner changes) that accompany ‘mobility effects’. Seen from this vantage, the policy implication – to increase the supply of affordable housing – becomes clearer and more urgent. Under these conditions, life course perspectives and longitudinal data to assess housing stressors and outcomes are critical tools in residential mobility studies and their role in understanding impacts on children.

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## Endnotes

<sup>i</sup> The papers in this special section (with the exception of that by Mostafa) were developed for a symposium at the 2014 Annual Meeting of the Society for Longitudinal and Life Course Studies. This paper draws in part upon Jane Waldfogel's comments as a discussant at the SLLS symposium, for which we are grateful. We thank Brenden Beck, Richard Layte, and Jeylan T. Mortimer for helpful feedback on earlier versions of this paper.

# Measuring the impact of residential mobility on response: the case of the Millennium Cohort Study

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## Abstract

*This paper examines the relationship between residential mobility and unit non-response in the first five waves of the UK Millennium Cohort Study (MCS). The objective is to ascertain whether home moves affect the likelihood of response and whether any impact persists over time. The existing literature is extended by examining the impact of moving home on the likelihood of returning to the survey after dropping out in a previous wave. The findings show that by the fifth wave of MCS more than two thirds of respondents had experienced at least one home move, with most moves happening before wave 2. Residential mobility is found to have a negative impact on subsequent response, even though this impact does not persist over time. Put differently, moving home is circumstantial and movers are likely to come back to the survey after being absent in a previous wave. The findings also shed light on the importance of tracing home movers in order to maintain the sample representativeness in a long-term longitudinal survey.*

## Keywords

Home moves, response, longitudinal survey, The UK Millennium Cohort Study

## Introduction

Longitudinal surveys are typically challenged by unit non-response, which occurs when respondents drop out from the survey without returning or when they have interrupted patterns of response over time. It results in smaller samples, incomplete histories, lower statistical power, and, more worryingly, in sample bias if the likelihood of dropping out is related to relevant characteristics of respondents. In addition to the problem of refusal, non-contact, and non-cooperation, respondents are lost because they cannot be traced. In this paper, the focus is on the link between unit non-response and home moves in

the first five waves of the Millennium Cohort Study (MCS) up to age 11 in 2012. In particular, we want to understand to what extent residential mobility is associated with unit non-response.

This paper is written in the context of the Economic and Social Research Council (ESRC) funded project 'Home Moves in Early Years: the impact on children in the UK and the US'. The project uses data from MCS to examine how much, and in what circumstances, moving home can harm or enhance child development (Gambaro & Joshi, 2016, this issue; and Beck, Buttaro, & Lennon, 2016, this issue). One of the challenges is that home movers might be under-

represented among respondents in a longitudinal study like MCS.<sup>1</sup> The paper attempts to answer two research questions:

- 1- Are home moves associated with dropout from a longitudinal survey?
- 2- Is dropout after a home move permanent or transitory?

There is a large literature on the consequences of home moves for child wellbeing (for a review see Jelleyman & Spencer, 2008). The importance of home moves becomes apparent when their lifelong consequences are laid out (Tønnessen, Telle, & Syse, 2013). Residential mobility is likely to have an impact on employment, health, and education, especially when moves occur during the school year. These consequences highlight the relevance of this investigation to any longitudinal research dealing with residential mobility and its implications, especially as mobility is likely to lead to bias in sample composition with fewer home movers.

A number of studies such as Böheim and Taylor (2002) and Clark and Huang (2004) provide a description of moves in the UK. Residential mobility has been shown to be higher among unemployed individuals, tenants living in precarious conditions, tenants dissatisfied with their neighbourhoods, and families with young children (Plewis, Ketende, Joshi & Hughes, 2008). The rates are much lower for other age groups except for young adults aged between 20 and 34. Some of these factors (mainly social disadvantage) are known to be negatively associated with survey response (Mostafa & Wiggins, 2015) and cooperation with in-survey requests (Mostafa, 2015). However, it remains to be seen whether the impact of residential mobility on response persists after controlling for the socio-demographic characteristics of respondents and whether the effect is permanent in a longitudinal context.

Lepkowski and Couper (2002), Uhrig (2008), and Voorpostel (2010) show that residential mobility is associated with an increased difficulty in tracking respondents and subsequently with higher dropout rates. Similarly, Hawkes and Plewis (2006) show that in the National Child Development Study (NCDS) residential mobility is related to attrition even after

controlling for other variables. In a very recent study, Castiglioni and Brix (2014) find that respondents who move between waves are very likely to drop out even in the context of German surveys where population registers are available to fieldwork agencies for tracking purposes. According to Lemay (2009), residential mobility represents a shock event that negatively affects the propensity to take part in a survey since it makes wave on wave contact harder.

Studies specifically on the MCS report similar findings. Plewis et al. (2008) show that in MCS the odds of non-movers remaining in the sample are 1.4 times higher than the odds of those who have moved since the previous wave. Thus, residential mobility was found to contribute to overall non-response after the first wave and possibly to non-contact and non-cooperation separately. Calderwood (2010) examines what proportion of families who moved between waves 2 and 3 were successfully located through the study's tracking procedures. The paper also explores the effectiveness of tracking procedures in picking up address changes between waves. Unlike Lemay (2009), it shows that, conditional on being successfully located, movers were not less likely to respond than non-movers. It is also worth noting that the MCS attrition weights take account of residential mobility up to wave 2, when mobility was at its highest. Although using the attrition weights should correct for bias of initial mobility, they may not eliminate bias if it affects response after wave 2.

In this study, I am interested in the association between home moves and unit non-response in all five waves of the MCS. The analysis goes beyond the existing literature by examining the impact of home moves on the likelihood of returning to the survey after dropping out in a previous wave.

The next section on data and methods presents the MCS survey and the methods. Section III shows the extent of non-response and residential mobility. Section IV reports the cross-tabulations and regressions relating residential mobility and non-response, and the last section concludes.

## Data and Methods

The Millennium Cohort Study (MCS) is a longitudinal survey following a nationally representative, clustered, and stratified sample of

more than 19,000 children born in the UK in 2000-01. The sample was drawn from all babies born between 1<sup>st</sup> September 2000 and 31<sup>st</sup> August 2001 in England and Wales and those born in Scotland and Northern Ireland between 23<sup>rd</sup> November 2000 and 11<sup>th</sup> January 2002. MCS has been tracking the cohort members since the age of nine months and survey data have been collected and made available for analysis on five different occasions so far (i.e. age nine months, three, five, seven, and 11 years). The MCS has a complex design – the sample is stratified by country (i.e. England, Scotland, Wales, and Northern Ireland), clustered at the electoral ward level, and has oversampled minorities and disadvantaged groups. In addition to this and like any longitudinal survey, MCS has experienced attrition over time. For more information on sampling, response, and other issues on how to use MCS refer to: Plewis (2007), Ketende (2010), McDonald and Ketende (2010), and Ketende & Jones (2011).

In this paper, I rely on three groups of binary response models. The first group estimates the effect of residential mobility between two consecutive waves on the likelihood of response in each wave beyond the first. The second group estimates the effect of cumulative residential mobility (i.e. since the start of the survey until the wave of interest) on response in these waves and on participation in all five waves. This group also includes a regression where the data were reshaped into a panel dataset. This regression contrasts the variations in response with those in moving status over time while controlling for wave specific effects (i.e. wave dummy variables). Finally, the third group of models estimates the effect of residential mobility between two consecutive waves on the likelihood of returning to the survey after having been absent in the previous wave. The first two groups of models answer the first research question while the third answers the second.

Two questions about selectivity arise under the different models. First, selection into moving might affect the results if the likelihood to move is confounded by a number of factors. This issue is

addressed by including various socio-demographic variables as controls in all regressions. These were selected based on analyses of moving behaviour, (e.g. Böheim & Taylor, 2002; Gambaro & Joshi, 2016, this issue) in the literature. However, these covariates, measured at the time of the cohort child's birth, cannot capture the family events in subsequent years (such as partnership break-up, job loss, job gain, or birth of younger siblings) which are shown to trigger moves down the line. This paper examines the impact of moving on response regardless of its particular circumstances. Secondly, in the third group of models, selection into dropping out might be a concern. Since this model estimates the effect of moving on the likelihood of re-joining the survey after having dropped out in the previous wave, the sample will be restricted to those who were absent in a particular wave. As such, those who did not drop out will be excluded and the results will only be valid for a subsample of MCS. In order to address this limitation two types of models are estimated: i) a probit model with a sample restricted to the respondents who have dropped out in a previous wave (some of whom re-joined the study in the following one) and ii) a Heckman selection probit (Heckprobit) model with the entire sample. This model adjusts the findings by taking into account the fact that some respondents who did not drop out, could not re-join the study and therefore were excluded from the first probit model. The finding of the first model is valid for a subsample of the MCS survey while the finding of the Heckprobit model is valid for the entire sample.<sup>2</sup>

## Response and residential mobility in MCS

In what follows, response in MCS between birth and age 11 years is explored. Tables 1 and 2 present the response rates and the patterns of response among those ever interviewed (see Plewis 2007, p.24 for details on sampling respondents from the 27,201 families initially eligible to participate in the study). The base sample consists of the 19,244 families who were interviewed at least once in MCS. Percentages in the following tables are not weighted.

**Table 1. Response rates in the first five waves of MCS**

Response	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5
Successful response	96.4	81.0	79.2	72.0	69.0
Not issued	3.6	0.0	0.0	11.5	14.8
Ineligible	0.0	0.8	1.6	0.7	0.4
Untraced movers	0.0	3.6	2.8	3.7	2.0
Refusal	0.0	9.0	12.0	9.4	11.4
Non-contact	0.0	4.8	2.9	0.6	2.3
Other	0.0	0.8	1.5	2.1	0.1
Sample size	19,244	19,244	19,244	19,244	19,244

Table 1 shows that the proportion of non-respondents has increased over time with a dramatic rise between waves 1 and 2. The 'not issued' category in wave 1 consists of families (n=692) who joined the survey in wave 2 without having been issued in the first wave because their move into an address eligible for the wave 1 was not identified until after the start of the fieldwork. This group, referred to as 'new families', was only recruited in England, and they are known to have moved home between birth and wave 1. From wave 4 onwards, the 'not issued' group includes respondents who had not participated in two consecutive waves. Moreover, families known to have

emigrated were designated as ineligible. The ineligible category also includes all families where the cohort child died. The category of untraced movers consists of those who were found to have moved address, but whose new address is unknown, while those in the non-contact category are respondents whose address is known but were not successfully contacted for various reasons (e.g. living in gated communities, long working hours, etc). 'Other' are non-respondents whose moving or emigration status is unknown. Table 1 shows that the proportion of refusals is growing over time, while the proportion of untraced movers and non-contacts is dropping.

**Table 2. Response patterns up to wave 5**

Response patterns	All waves (%)
All waves	54.3
Monotone	26.2
Non-monotone	19.5
Sample size	19,244

In table 2, the response patterns are presented. The table shows that the majority of respondents (54.3%) participated in all five waves, while 26.2% participated in a number of waves before dropping out without coming back. The remaining 19.5% of respondents had interrupted response patterns. In other words, they participated in the survey, dropped out, and re-joined the study at a later wave. The relatively large proportion of non-monotone response shows that non-response is not necessarily

permanent and could be a transitory phenomenon for some respondents.

In this analysis, residential mobility is constructed as a binary variable taking the value of 1 if the family moved at least once between two consecutive waves and 0 if the family did not move. Mobility is largely based on self-reported answers to whether the family's address is the same as the last interview. The question was asked in all waves, including wave 1 where the question refers to the period since the

cohort member's birth and the first wave at age 9 months. It should be noted that moving status can be obtained from two different sources: the self-reported questions in the main interview, and the changes to the respondent's address over time (based on the address database). The address database is crucial for providing information on mobility on respondents who do not go on to complete a survey; however, where they do, information is generally consistent across the two sources, but there remain some discrepancies. Very few cases were found to be incorrect in waves 2 and 3 and were adjusted according to the information from the address database.

Information on the number of moves is not taken into account because it is not available in all waves and is not known for non-respondents. It is also worth noting that some respondents had a missing residential mobility status on particular waves because they either dropped out from the study (unit non-response) or they did not answer the mobility question (item non-response). In addition to this, some respondents answered 'don't know'. The missing and 'don't know' cases were imputed as either stayers or movers. Multiple imputations in Stata (i.e. 20 imputations) were carried out. The imputation model was based on the following socio-

demographic characteristics measured at birth: age of respondent at interview, cohort member's gender, ethnic group, highest educational qualification (expressed in National Vocational Qualification [NVQ] equivalent levels) in the household, main respondent's work status, housing tenure, breastfeeding, income item non-response, accommodation type, and sampling stratum. These variables are similar to the ones used in the construction of attrition weights in MCS (Ketende, 2010).

Table 3 shows the unweighted proportion of movers and stayers after imputation. The imputation of the variables did not make much difference to the distribution of mobility status. The largest number of moves happened between waves 1 and 2. This is expected as parents are more likely to move into larger accommodation around the time of a birth. Note that the greater number of imputed cases in waves 4 and 5 is due to unit non-response. Moreover, the period of time between two waves is not the same. The period of 27 months between waves 1 and 2 had the largest proportion of moves (40.4%) even though it is not the longest gap between two waves. The proportion of 21.4% moving in the last interval (4 years) represents a slowdown.

**Table 3. Proportion of movers and stayers before and after imputation<sup>3</sup>**

Residential mobility status	Between birth and wave 1	Between waves 1 and 2	Between waves 2 and 3	Between waves 3 and 4	Between waves 4 and 5
Average length of interval (months)	9	27	24	24	48
After imputation					
Did not move	83.7	59.6	77.1	89.9	78.6
Moved at least once	16.3	40.4	22.9	10.1	21.4
N of imputed cases	299	893	1,485	5,387	6,440
Sample size	19,244	19,244	19,244	19,244	19,244

Table 4 presents the unweighted cumulative proportion of movers and stayers between birth and the wave of interest. The proportion of families who have experienced at least one move rose over time,

with the largest increase taking place before wave 2. By wave 5 (i.e. the age 11 survey), two thirds of the families (68%) have experienced at least one move.

**Table 4. Cumulative proportion of movers and stayers based on imputed mobility status.**

Moving status	Between birth and wave 1	Between birth and wave 2	Between birth and wave 3	Between birth and wave 4	Between birth and wave 5
Did not move	83.7	51.4	41.3	38.1	32.0
Moved at least once	16.3	48.6	58.7	61.9	68.0
Sample size	19,244	19,244	19,244	19,244	19,244

The finding in table 4 is in line with the 2001 census data (standard table 8). In MCS, 16.3% of families moved between birth and age nine months, 40.4% moved between age nine months and age three years, and 22.9% moved between age three and five. By summing the three numbers (they add up to 79.6%) and dividing them by five we get the average percentage of 15.9% of families moving at least once in a year. This figure is slightly higher than the 15.3% obtained from the 2001 census for England and Wales (i.e. 15.3% of children aged under five lived at a different address the year before the census).

## Findings

Table 5 presents the percentage of movers within each category of response. The percentage of stayers and that of movers add up to 100%. By comparing the percentage of movers (known plus imputed) among respondents and non-respondents with the

percentages in table 3, it is possible to observe the following. First, movers are over-represented among the 'non-contact' category in all waves. Secondly, movers are slightly over-represented among the 'refusal' category in waves 4 and 5 while being under-represented in waves 2 and 3. Thirdly, movers are slightly under-represented among the 'ineligible' category in waves 3 and 4 and over-represented in waves 2 and 5. Fourthly, all untraced movers have by definition moved before dropping out. These findings indicate that residential mobility is associated with non-contact, ineligibility, and untraced categories while being less associated with refusals. In other words, residential mobility is associated with non-response categories that can be regarded as circumstantial rather than reflecting an active decision not to participate in the study. This warrants the exploration of the impact of residential mobility on re-joining the survey after dropping out.

**Table 5. Residential mobility and response in the five waves of MCS.**

Residential mobility status	Between birth and wave 1	Between waves 1 and 2	Between waves 2 and 3	Between waves 3 and 4	Between waves 4 and 5
Productive	13.2	38.0	21.4	9.8	20.6
Not Issued	100.0	0.0	0.0	9.8	21.4
Ineligible	0.0	41.2	21.7	9.4	26.9
Untraced Movers	0.0	100.0	100.0	100.0	100.0
Refusal	0.0	36.2	18.4	11.1	23.0
Non-Contact	0.0	43.2	25.7	12.7	27.2
Other	0.0	41.2	29.2	10.8	0.0

Tables 6 and 7 present the odds ratios of a number of logit regression analyses. The dependent variable is the response outcome in each wave. It takes the value of 1 if the family participated in the survey and 0 otherwise.

The choice of the correlates was motivated by the existing literature on non-response and by the choices made previously by Ketende (2008) when the non-response weights in MCS were constructed. In addition to this, controls that are known to be associated with the likelihood of moving homes (Gambaro & Joshi, 2016, this issue) were chosen in order to reduce the bias resulting from non-random selection into moving.

Only birth characteristics were included in the analyses since they are non-missing for all respondents. The characteristics of new families (i.e. absent in wave 1) were measured in wave 2. Moreover, some of the categories within the correlates were recoded to avoid small numbers and because in some cases the 'not applicable' category predicted perfectly one of the outcomes.

In table 6, four logit response models are estimated. The independent variable of interest is residential mobility during the period that preceded the survey wave (i.e. the first column of results presents the impact of mobility between waves 1 and 2 on response in wave 2). The findings show that residential mobility has a significant impact on response in waves 2 and 3 with movers being less likely to respond than stayers. The effects in waves 4 and 5 are non-significant. The greatest effect in terms of its magnitude is in wave 2, which is probably caused by the high proportion of families who moved before this wave.

The findings also show that ethnic minorities, non-employed main respondents, those living in a flat or maisonette, families with boy cohort members, and main respondents who did not answer the income question (wave 2 and 3) are less likely to respond. In contrast, more educated main respondents are more likely to respond.

Table 6. The effect of residential mobility on response

	Response wave 2		Response wave 3		Response wave 4		Response wave 5	
<b>Moving status between the wave of interest and the preceding wave (reference: did not move)</b>								
Moved at least once	0.69 <sup>***</sup>	(0.029)	0.75 <sup>***</sup>	(0.034)	0.98	(0.067)	1.01	(0.051)
<b>MR's age at wave 1</b>	1.02 <sup>***</sup>	(0.004)	1.01 <sup>***</sup>	(0.003)	1.02 <sup>***</sup>	(0.003)	1.02 <sup>***</sup>	(0.003)
<b>CM is a boy</b>	0.91 <sup>*</sup>	(0.035)	0.94	(0.034)	0.90 <sup>**</sup>	(0.030)	0.89 <sup>***</sup>	(0.028)
<b>MR's ethnic group (reference: White)</b>								
Mixed	0.58 <sup>**</sup>	(0.097)	0.61 <sup>**</sup>	(0.099)	0.62 <sup>**</sup>	(0.096)	0.69 <sup>*</sup>	(0.107)
Indian	0.71 <sup>**</sup>	(0.092)	0.75 <sup>*</sup>	(0.091)	0.78 <sup>*</sup>	(0.086)	0.83 <sup>+</sup>	(0.092)
Pakistani/Bangladeshi	0.74 <sup>**</sup>	(0.069)	0.83 <sup>*</sup>	(0.074)	0.93	(0.076)	1.23 <sup>*</sup>	(0.102)
Black/Black British	0.51 <sup>***</sup>	(0.052)	0.62 <sup>***</sup>	(0.063)	0.70 <sup>***</sup>	(0.067)	0.66 <sup>***</sup>	(0.061)
Other	0.57 <sup>***</sup>	(0.076)	0.60 <sup>***</sup>	(0.078)	0.52 <sup>***</sup>	(0.061)	0.72 <sup>**</sup>	(0.087)
NA	11.1 <sup>***</sup>	(2.840)	1.16	(0.121)	0.98	(0.088)	0.92	(0.079)
<b>Highest educational qualification (NVQ) in the household (reference: NVQ level 1)</b>								
NVQ level 5	1.16	(0.152)	1.48 <sup>**</sup>	(0.179)	1.48 <sup>***</sup>	(0.163)	1.48 <sup>***</sup>	(0.159)
NVQ level 4	1.26 <sup>*</sup>	(0.128)	1.62 <sup>***</sup>	(0.152)	1.58 <sup>***</sup>	(0.136)	1.52 <sup>***</sup>	(0.129)
NVQ level 3	1.08	(0.111)	1.32 <sup>**</sup>	(0.127)	1.40 <sup>***</sup>	(0.124)	1.28 <sup>**</sup>	(0.111)
NVQ level 2	0.89	(0.086)	1.14	(0.102)	1.15 <sup>+</sup>	(0.095)	1.12	(0.091)
Other	0.81 <sup>+</sup>	(0.099)	1.07	(0.123)	0.98	(0.103)	0.97	(0.101)
None of these	0.82 <sup>*</sup>	(0.077)	0.99	(0.087)	1.01	(0.082)	0.93	(0.075)
<b>Work status (reference: MR is in work/on leave)</b>								
MR not in work	0.91 <sup>*</sup>	(0.040)	0.84 <sup>***</sup>	(0.035)	0.79 <sup>***</sup>	(0.030)	0.82 <sup>***</sup>	(0.030)
<b>Housing tenure (reference: own outright )</b>								
Own - mortgage/loan	0.99	(0.109)	1.21 <sup>+</sup>	(0.117)	1.08	(0.097)	1.13	(0.098)
Part rent/part mortgage	0.74	(0.218)	1.31	(0.398)	1.36	(0.386)	0.98	(0.250)
Rent from local authority	0.84	(0.098)	1.17	(0.122)	0.96	(0.093)	1.02	(0.096)
Rent from Housing Association	0.76 <sup>*</sup>	(0.094)	1.13	(0.128)	0.93	(0.098)	0.97	(0.100)
Rent privately	0.70 <sup>**</sup>	(0.085)	1.04	(0.115)	0.87	(0.089)	0.93	(0.093)
Living with parents	0.90	(0.123)	1.18	(0.148)	0.90	(0.104)	0.95	(0.107)
Live rent free	0.89	(0.180)	1.11	(0.213)	0.91	(0.159)	1.04	(0.180)
Other	0.44 <sup>***</sup>	(0.084)	0.69 <sup>*</sup>	(0.124)	0.73 <sup>+</sup>	(0.125)	1.02	(0.174)

<b>Breastfeeding attempted</b>	1.46 <sup>***</sup>	(0.063)	1.40 <sup>***</sup>	(0.058)	1.31 <sup>***</sup>	(0.050)	1.35 <sup>***</sup>	(0.050)
<b>Income item non-response</b>	0.82 <sup>**</sup>	(0.054)	0.83 <sup>**</sup>	(0.053)	0.83 <sup>**</sup>	(0.049)	0.81 <sup>***</sup>	(0.047)
<b>Accommodation type (reference: a house or bungalow)</b>								
A flat or maisonette	0.68 <sup>***</sup>	(0.037)	0.86 <sup>**</sup>	(0.047)	0.82 <sup>***</sup>	(0.041)	0.85 <sup>***</sup>	(0.042)
Other	0.55 <sup>**</sup>	(0.103)	0.71 <sup>+</sup>	(0.128)	0.81	(0.139)	0.66 <sup>*</sup>	(0.112)
<b>Stratum (reference England-Advantaged)</b>								
England - Disadvantaged	0.89 <sup>*</sup>	(0.054)	0.89 <sup>*</sup>	(0.050)	0.88 <sup>**</sup>	(0.044)	1.02	(0.049)
England - Ethnic	0.85 <sup>*</sup>	(0.072)	0.84 <sup>*</sup>	(0.066)	0.84 <sup>*</sup>	(0.060)	0.98	(0.069)
Wales - Advantaged	0.77 <sup>*</sup>	(0.081)	0.75 <sup>**</sup>	(0.073)	0.79 <sup>**</sup>	(0.070)	0.86 <sup>+</sup>	(0.073)
Wales - Disadvantaged	0.98	(0.075)	0.88 <sup>+</sup>	(0.063)	0.95	(0.062)	0.90 <sup>+</sup>	(0.055)
Scotland - Advantaged	0.71 <sup>***</sup>	(0.064)	0.78 <sup>**</sup>	(0.067)	0.73 <sup>***</sup>	(0.056)	0.72 <sup>***</sup>	(0.053)
Scotland - Disadvantaged	0.66 <sup>***</sup>	(0.055)	0.76 <sup>***</sup>	(0.063)	0.74 <sup>***</sup>	(0.056)	0.65 <sup>***</sup>	(0.047)
NI - Advantaged	0.64 <sup>***</sup>	(0.069)	0.87	(0.093)	0.75 <sup>**</sup>	(0.071)	0.76 <sup>**</sup>	(0.068)
NI - Disadvantaged	0.57 <sup>***</sup>	(0.047)	0.93	(0.078)	0.85 <sup>*</sup>	(0.064)	0.97	(0.071)
<b>N</b>	19,244		19,244		19,244		19,244	

Exponentiated coefficients; Standard errors in parentheses, <sup>+</sup>  $p < 0.10$ , <sup>\*</sup>  $p < 0.05$ , <sup>\*\*</sup>  $p < 0.01$ , <sup>\*\*\*</sup>  $p < 0.001$ . CM stands for cohort member and MR for main respondent.

Table 7 presents the odds ratios from five cross-sectional logit response models and one logit model with pooled data over time. In the cross-sectional models, the independent variable of interest is cumulative residential mobility between the cohort member's birth and the wave in which response is sought. In the pooled regression, the data is restructured into a panel dataset and a response model is estimated with wave dummy variables. Note that in this model, only moving status varies over time while all other controls are measured at birth and are time invariant. The controls included in all regressions are the same as those in table 6 and they

generated similar results. Therefore, only the results on moving status and on the wave dummy variables are reported.

The findings show that those who have moved at least once between the cohort member's birth and the wave of interest are less likely to respond in waves 2, 3 and 4. Those who have moved at least once between birth and wave 5 are also less likely to participate in all five waves. Furthermore, even after controlling for wave-specific factors in the pooled regression, those who have moved at least once since the start of the survey are found to be less likely to respond.

Table 7. The cumulative effect of residential mobility on response

	Response wave 2	Response wave 3	Response wave 4	Response wave 5	All waves	Pooled Logit
<b>Moving status since birth (reference: did not move)</b>						
Moved at least once	0.72 <sup>***</sup> (0.031)	0.90 <sup>*</sup> (0.038)	0.92 <sup>+</sup> (0.037)	0.94 (0.038)	0.73 <sup>***</sup> (0.028)	0.41 <sup>***</sup> (0.009)
...						
All models include the same controls as in table 6						
...						
<b>Wave dummies (reference: Wave 2)</b>						
Wave 3						0.98 (0.026)
Wave 4						0.70 <sup>***</sup> (0.018)
Wave 5						0.64 <sup>***</sup> (0.016)
<i>N</i>	19,244	19,244	19,244	19,244	19,244	76,976

Exponentiated coefficients; Standard errors in parentheses, <sup>+</sup>  $p < 0.10$ , <sup>\*</sup>  $p < 0.05$ , <sup>\*\*</sup>  $p < 0.01$ , <sup>\*\*\*</sup>  $p < 0.001$ . CM stands for cohort member and MR for main respondent.

Table 8 presents the results of six probit models that measure the impact of mobility on the likelihood of re-joining the survey after dropping-out. The independent variable of interest is residential mobility during the period that preceded drop-out from the survey (measured since the beginning of the survey). Two types of models are estimated: i) a probit model with a sample restricted to the respondents who have dropped out in a previous wave and ii) a Heckman selection probit (Heckprobit) model with the entire sample. This model adjusts the findings by taking into account selection into dropping out in a particular wave.

The working assumption behind these models is that residential mobility is circumstantial and even if it leads to drop out in one wave it should not prevent respondents from joining the survey on a future occasion. The findings show that respondents who dropped out from the study in wave 2 are more likely to return in wave 3 if they have moved homes during the period preceding the drop out. The effect is non-significant for returning at waves 4 and 5. In the adjusted model, the effect is smaller in magnitude but remains significant for those absent in wave 2. Note that the non-significant effects are on the waves in

which moving was found not to be associated with response (table 6). The results of both models, unadjusted and adjusted for selection, are substantively valid depending on the respondents of interest. The first model is valid for the subsample of respondents who dropped out in a particular wave, and the second is valid for the entire sample.

Moreover, the results suggest that the effect of home moves on response are transitory and will only affect response if they overlap with the data collection phase. In other words, the effect of residential mobility is different in nature from the effect of the personal characteristics of respondents (e.g. ethnicity, social class, personality, and predispositions). These characteristics are expected to have a persistent effect on response in each wave. The findings also demonstrate the importance of tracing non-respondents and maintaining the address database since successful response is likely to be achieved on a future occasion if residential mobility was the reason for drop out and if families' new whereabouts can be established. This finding also supports reissuing the not-issued cases at certain point in the survey's life.

Table 8. The impact of residential mobility on the likelihood of coming back to the survey

	Probit		Heckprobit		Probit		Heckprobit		Probit		Heckprobit	
	Absent in wave 2		Absent in wave 2		Absent in wave 3		Absent in wave 3		Absent in wave 4		Absent in wave 4	
<b>Moving status before dropping out (reference: did not move)</b>												
Moved at least once	0.28 <sup>***</sup>	(0.046)	0.16 <sup>***</sup>	(0.025)	-0.088	(0.071)	-0.046	(0.036)	0.15	(0.101)	0.14	(0.146)
<b>MR's age at wave 1</b>	-0.0040	(0.004)	-	(0.003)	-0.00038	(0.006)	-0.013 <sup>***</sup>	(0.004)	0.0035	(0.005)	-0.0046	(0.029)
			0.014 <sup>**</sup>	*								
<b>CM is a boy</b>	-0.037	(0.043)	0.018	(0.028)	-0.052	(0.061)	-0.0092	(0.038)	0.087 <sup>+</sup>	(0.049)	0.100 <sup>*</sup>	(0.046)
<b>MR's ethnic group (reference: White)</b>												
Mixed	0.15	(0.173)	0.30 <sup>*</sup>	(0.120)	0.036	(0.234)	0.32 <sup>*</sup>	(0.157)	-0.050	(0.199)	0.058	(0.426)
Indian	0.11	(0.144)	0.18 <sup>+</sup>	(0.094)	0.036	(0.201)	0.13	(0.125)	-0.086	(0.169)	-0.047	(0.229)
Pakistani/Bangladeshi	0.21 <sup>*</sup>	(0.103)	0.22 <sup>**</sup>	(0.067)	0.42 <sup>**</sup>	(0.135)	0.33 <sup>***</sup>	(0.086)	0.40 <sup>***</sup>	(0.117)	0.38	(0.234)
Black/Black British	0.17	(0.106)	0.37 <sup>***</sup>	(0.072)	0.23	(0.153)	0.38 <sup>***</sup>	(0.097)	0.084	(0.129)	0.17	(0.300)
Other	-0.21	(0.143)	0.10	(0.103)	-0.56 <sup>*</sup>	(0.234)	-0.12	(0.168)	0.18	(0.157)	0.31	(0.407)
NA	-0.12	(0.344)	-1.00 <sup>***</sup>	(0.180)	0.066	(0.158)	0.11	(0.098)	0.068	(0.120)	0.11	(0.156)
<b>Highest educational status in the household (reference: NVQ level 1)</b>												
NVQ level 5	0.22 <sup>*</sup>	(0.107)	0.16 <sup>*</sup>	(0.072)	-0.026	(0.136)	-0.081	(0.088)	-0.012	(0.110)	-0.032	(0.119)
NVQ level 4	0.19 <sup>+</sup>	(0.115)	0.067	(0.076)	0.20	(0.145)	-0.017	(0.095)	-0.026	(0.122)	-0.10	(0.270)
NVQ level 3	0.18	(0.113)	0.0053	(0.075)	0.096	(0.146)	-0.20 <sup>*</sup>	(0.094)	-0.016	(0.120)	-0.13	(0.414)
NVQ level 2	0.19	(0.150)	0.051	(0.096)	0.14	(0.218)	-0.19	(0.131)	0.16	(0.181)	0.011	(0.615)
Other	0.18	(0.134)	0.18 <sup>+</sup>	(0.091)	-0.17	(0.182)	-0.15	(0.117)	-0.077	(0.144)	-0.065	(0.149)
None of these	0.13	(0.104)	0.15 <sup>*</sup>	(0.071)	-0.017	(0.131)	-0.042	(0.086)	-0.086	(0.107)	-0.065	(0.143)
<b>Work status (reference: MR is in work/on leave)</b>												
MR not in work	-0.069	(0.050)	0.0030	(0.032)	-0.16 <sup>*</sup>	(0.072)	-0.014	(0.046)	-0.034	(0.057)	0.0097	(0.170)
<b>Housing tenure (reference: own outright )</b>												
Own - mortgage/loan	0.076	(0.130)	0.065	(0.084)	0.028	(0.157)	-0.14	(0.097)	0.15	(0.145)	0.11	(0.249)
Part rent/part mortgage	0.20	(0.323)	0.25	(0.211)	0.81 <sup>+</sup>	(0.475)	0.25	(0.287)	-0.30	(0.499)	-0.36	(0.468)
Rent from local authority	0.25 <sup>+</sup>	(0.136)	0.23 <sup>*</sup>	(0.089)	0.034	(0.165)	-0.065	(0.103)	0.18	(0.151)	0.20	(0.141)
Rent from Housing Association	0.24 <sup>+</sup>	(0.144)	0.28 <sup>**</sup>	(0.094)	-0.0075	(0.179)	-0.067	(0.112)	0.11	(0.160)	0.15	(0.160)
Rent privately	0.22	(0.141)	0.33 <sup>***</sup>	(0.092)	0.023	(0.175)	0.016	(0.109)	0.056	(0.157)	0.11	(0.214)
Living with parents	0.21	(0.155)	0.20 <sup>*</sup>	(0.101)	-0.17	(0.198)	-0.18	(0.125)	0.047	(0.173)	0.071	(0.170)
Live rent free	0.33	(0.224)	0.25 <sup>+</sup>	(0.144)	-0.10	(0.299)	-0.12	(0.193)	0.57 <sup>*</sup>	(0.252)	0.57 <sup>+</sup>	(0.307)
Other	-0.019	(0.207)	0.36 <sup>*</sup>	(0.148)	0.37	(0.286)	0.30 <sup>+</sup>	(0.180)	0.71 <sup>*</sup>	(0.277)	0.69	(0.431)
<b>Breastfeeding attempted</b>	0.052	(0.048)	-0.13 <sup>***</sup>	(0.031)	0.12 <sup>+</sup>	(0.068)	-0.087 <sup>+</sup>	(0.044)	0.096 <sup>+</sup>	(0.056)	0.033	(0.254)

<b>Income item non-response</b>	-0.019	(0.071)	0.071	(0.048)	-0.12	(0.110)	-0.035	(0.069)	-0.17 <sup>+</sup>	(0.088)	-0.13	(0.208)
<b>Accommodation type (reference: a house or bungalow)</b>												
A flat or maisonette	0.062	(0.059)	0.21 <sup>***</sup>	(0.040)	-0.064	(0.087)	0.075	(0.056)	-0.027	(0.069)	0.040	(0.248)
Other	-0.034	(0.192)	0.26 <sup>+</sup>	(0.140)	-0.53 <sup>+</sup>	(0.304)	-0.20	(0.211)	-0.52 <sup>+</sup>	(0.272)	-0.45	(0.482)
<b>Stratum (reference England-Advantaged)</b>												
England - Disadvantaged	0.14 <sup>*</sup>	(0.070)	0.12 <sup>**</sup>	(0.045)	0.14	(0.098)	0.13 <sup>*</sup>	(0.059)	0.054	(0.077)	0.11	(0.186)
England - Ethnic	0.11	(0.093)	0.13 <sup>*</sup>	(0.061)	0.13	(0.124)	0.16 <sup>*</sup>	(0.079)	0.100	(0.102)	0.16	(0.197)
Wales - Advantaged	0.034	(0.123)	0.13 <sup>+</sup>	(0.080)	0.35 <sup>*</sup>	(0.173)	0.28 <sup>**</sup>	(0.102)	-0.033	(0.141)	0.051	(0.325)
Wales - Disadvantaged	0.055	(0.089)	0.058	(0.057)	0.27 <sup>*</sup>	(0.121)	0.21 <sup>**</sup>	(0.074)	-0.073	(0.097)	-0.018	(0.234)
Scotland - Advantaged	0.13	(0.104)	0.21 <sup>**</sup>	(0.067)	0.059	(0.160)	0.11	(0.095)	-0.17	(0.132)	-0.096	(0.339)
Scotland - Disadvantaged	0.28 <sup>**</sup>	(0.094)	0.32 <sup>***</sup>	(0.062)	0.10	(0.136)	0.21 <sup>*</sup>	(0.085)	-0.27 <sup>*</sup>	(0.115)	-0.17	(0.463)
NI - Advantaged	0.34 <sup>**</sup>	(0.122)	0.37 <sup>***</sup>	(0.077)	-0.18	(0.232)	-0.13	(0.137)	-0.20	(0.163)	-0.12	(0.378)
NI - Disadvantaged	0.45 <sup>***</sup>	(0.091)	0.47 <sup>***</sup>	(0.059)	0.11	(0.146)	0.092	(0.089)	-0.0004	(0.113)	0.057	(0.217)
Constant	-0.80 <sup>***</sup>	(0.214)	-1.56 <sup>***</sup>	(0.140)	-0.47 <sup>+</sup>	(0.276)	-1.31 <sup>***</sup>	(0.173)	-0.56 <sup>*</sup>	(0.247)	-1.07	(1.483)
Censored			15,590				15,142				13,649	
Uncensored			3,654				1,889				2,744	
<i>N</i>	3,654		19,244		1,889		17,031		2,744		16,393	

Exponentiated coefficients; Standard errors in parentheses, <sup>+</sup>  $p < 0.10$ , <sup>\*</sup>  $p < 0.05$ , <sup>\*\*</sup>  $p < 0.01$ , <sup>\*\*\*</sup>  $p < 0.001$ . CM stands for cohort member and MR for main respondent.

## Conclusion

This paper examined the impact of home moves in the first 11 years on response in the MCS longitudinal survey. The findings show that residential mobility is not a cause of permanent non-response. In other words, movers who dropped out in a previous wave can reappear in subsequent waves. This finding goes beyond the existing literature since it shows that the impact of home moves on survey response may be only short-term. This impact depends on the importance given to tracing non-respondents and encouraging their co-operation. The Millennium Cohort Study is a testimony to the success of these efforts. Non-respondents are very likely to come back if the reason for dropping out, or not being found in time, was moving home around the time of the survey, provided that their new address is ascertained. As shown by Gambaro & Joshi (2016, this issue), most home moves are local and happen in reasonably favourable circumstances, which would have made contact easier to maintain than moves over longer distances and under distressed circumstances.

Moreover, the paper showed that residential mobility of families with young children is nevertheless likely to be a challenge for longitudinal

birth cohorts. Movers are more likely to be missing from the early waves of a longitudinal survey and less likely to be missing from later waves. This is consistent with the literature (Clark & Huang 2004; and Plewis et al. 2008) and with the fact that most moves happen in the early years after the birth of the child when parents are particularly likely to be looking for bigger or better accommodation.

Looking beyond MCS, the results of this paper can be generalised to other studies since longitudinal surveys are likely to face dropout due to home moves, even though the effect of residential mobility is transitory. The success of bringing these attriters back to the survey will depend on the effectiveness of the tracing efforts.

For data users interested in residential mobility, the association between mobility and response requires an adjustment for sample bias. The standard MCS attrition weights take mobility into account up till wave 2, but they do not take it into account from wave 3 onwards. Using the standard weights at wave 3 will understate bias due to the recent drop-outs among movers. Similarly, using the weights for wave 3 will overstate the bias caused by moving due to the movers who re-joined the survey.

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## Endnotes

<sup>1</sup> In MCS the characteristics of non-responders are known from previous waves, especially waves 1 and 2 in which most families participated. This information is not available for Fragile Families and Child Wellbeing Study (FFCWS).

<sup>2</sup> Note that in the last group of models, I have resorted to a probit specification since logistic regressions are not supported by the Heckman selection approach in Stata.

<sup>3</sup> The proportions in tables 3 and 4 are unweighted and the analytical sample consists of all 19,244 families ever interviewed in MCS. Moreover, the cases with missing residential mobility status were fully imputed. The numbers differ from those in Gambaro & Joshi (this issue) because they are unweighted and are based on a larger sample.

# Life events and moves under duress: disruption in the life course and mobility outcomes

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## Abstract

*There is a well-established body of research about the effect of life course changes on the probability of migration and mobility, and there is well-documented evidence of the link between specific life course events and tenure. Still, we have only a partial picture of what happens in the housing market when specific disruptive events impact families. This article reviews our broad understanding of life course triggering events and then examines just what happens when families move following a destabilising event (involuntary moves, loss of job, divorce and separation). Families can be variously affected by these disruptive events but the effects are greater for families at the margin, those who are renters, living in less advantaged neighbourhoods and with lower incomes. While these findings are not surprising, the size and likelihood of disruptive events is both larger than often reported, and increased during the housing crisis of 2006 to 2009.*

## Keywords

Mobility, housing, life course, involuntary moves

## Introduction

As families move through the life course they make decisions about when to move and where to live, sometimes across town and sometimes to another city. A large body of research has established that this relocation process is driven by an underlying desire to improve living and working environments, as well as to increase opportunities for children. Underlying this body of research is the notion that for the most part families are making choices about whether to move and where to live. But it is increasingly true that for many families the choices may be limited and that there are now a growing number of moves which are created by unintended events, sometimes internal, but often external – events outside the family's control.

This paper explores the nature of disruptions in the life course and the mobility responses of families. Specifically, I examine those who experience economic 'shocks', (being fired or laid off), family disruptions caused by separation, divorce, and death, and housing 'shocks' such as being evicted by landlords or banks. I ask how many families are subject to these disruptions, who is most likely to be affected by unexpected life course events and what are the responses by families to these stressful events? These three questions are at the heart of the research reported in the paper.

The questions are framed within the larger context of life course approaches to mobility and migration as outlined by Mulder and Wagner (1993) and Clark and Dieleman (1996). These studies used the broad field of life course analysis to show how people make

transitions in the housing market in response to changes in occupations, workplace locations and family composition. We have tended to think of these moves as mostly planned and taking place in response to positive changes in the life course – marriages, new births, new and better jobs and moves up the occupational hierarchy. However, the previous generally positive view of life course events is less persuasive as a theoretical model when the context has changed from an expansionary housing market to one where there is housing market instability, declining or stagnating wages and family stress. Where once there was much more of a linear progression from high school or university to marriage, children, homeownership and usually moves to suburban communities, at least in the United States, now those process have become uncoupled from age, marriage may not occur at all, and the number of single parent families is a significant proportion of all families (see discussions in Blossfeld, Bucholz, Bukodi & Kurz, 2008 and Bruckner & Mayer, 2005).

In addition to family changes, in the past decade the US housing market has been buffeted first by increasing prices and reduced affordability and then the ‘crash’ in housing prices during what has come to be known as the great recession. Rising house prices made it difficult for young house buyers to enter the market and those who stretched their budgets to buy into ownership were often unable to sustain their mortgages in a time of economic uncertainty (Clark, 2013a). Thus the external effects of job losses and housing foreclosure increased the likelihood of household and family duress. In this context I examine the three questions about the extent, likelihood and outcomes of disruption in families and consequent decisions about residential moves. The core focus of the paper is to redirect attention from the previous generally positive view of residential change to the situations where disruptive events may generate outcomes that are less positive for families.

### Previous research and the context of residential moves

To provide a context for the analysis of disruptive moves the paper briefly reviews the use of the life course paradigm to examine the interdependencies in

the timing of migration and mobility events and life events. Much of this research focused on how the timing of an event, say marriage, is intertwined with residential relocation (Odland & Shumway, 1993; Mulder & Wagner, 1993). These studies and the papers that followed were interested in the links between one life event and its potential spatial outcome. Because the focus was by and large on the synchronicity of the events the research was less focused on the outcomes and whether families are advantaged or disadvantaged by the migratory events. More recent work asks about how family events from having a child, getting divorced or separated are related to family outcomes and the residential changes that ensue (Mulder, 2013; Clark, 2013b).

Life events are important in the decision to move but we know too that the context, social and economic, also plays a role in the likelihood of moving. In an expanding economy and increasing wages there is likely to be more opportunity to move. In contrast in a time of fiscal uncertainty there may be a tendency to ‘stay put’. Immobility may be more attractive if times are uncertain. The family structure itself, especially with the changing role of women in the household, also has an important role to play in residential and migratory outcomes. Clearly changes in any one of the occupational, family or housing careers can lead to changes in the others and the potential need to move to take advantage of new opportunities.

In the analyses of the role of ‘event-push’ or triggers the focus has often been on one event at a time. In these studies, as I have reported elsewhere, different research groups have shown how childbirth (Clark, Deurloo & Dieleman, 1994), divorce (Dieleman & Schouw, 1989; Dewilde, 2008; Mulder & Wagner, 2012), and marriage (Odland & Shumway, 1993; Mulder & Wagner, 1993) influence the likelihood of a move. Migration (a longer distance move) or mobility within the city are then adjustment processes which allow individuals and families to bring their locations in line with their perceived needs for specific locations and quantities of housing in response to the change created by the specific event. In a development of the work on life events Clark (2013b) showed that the set of events can be examined in concert and evaluated against one another. That

research showed just how important the negative effects of divorce and separation are on the likelihood of moving.

Just as we now know that the life events across a wide range of circumstances ‘trigger’ moves, we also know that both internal and external events and decisions can trigger mobility and residential change more broadly. Internally, family composition has been changing and family structures are different from those of three decades ago with associated implications for mobility. If we examine the age by which most individuals are likely to be married (and the associated mobility), we find that among the 30-34 year old cohort only 6% of men and 9% of women were still unmarried in 1970, but by 2010, 36% of men and 27% of women were still never married (US Bureau of Census). Over the past three decades there has been a distinct weakening of marriage, increased rates of later marriage, and a decreasing proportion of families with children (State of the Union, 2005). Despite all of the economic benefits of marriage – greater wealth, increased economic assets, greater likelihood of being healthy, and overall higher likelihood of satisfaction and happiness – we find that the likelihood of marriage has decreased and the likelihood of divorce has increased, although divorce rates have now plateaued.

Along with family composition change there has been an increase in single parenthood and children born into non-married households. The percentage of children under 18, who live with a single parent in the United States has more than doubled in the past 30 years from about 12% to 27% (The State of Our Unions, 2005). Although childbearing outside of marriage has decreased slightly in the past half-decade, from about 1.7 million in 2008 to 1.6 million in 2012, these births still make up 41% of all births to women aged 15-44 (Martin, Hamilton, Osterman, Cartins, & Mathews, 2015).

There is an argument that the change is simply a change in the way in which families are organised and reflects greater freedom, especially for women – that even though many children are being born outside of standard marital arrangements they are often in relatively stable unions. However, there is counter evidence which suggests that many children either in single parent or two parent non-married households are likely to have less advantageous life outcomes

(Berger & McLanahan, 2015; McLanahan & Garfinkel, 2012; McLanahan, 2011). Certainly the fragile families study suggests that the new reality of family structures creates a context where children born in households with unmarried parents are likely to be in situations that portend greater likelihoods of instability than in traditional married households.<sup>ii</sup> No single factor seems to be dominant in the outcomes for children in fragile families. Demographic, cultural and psychological factors play varying roles but the overall conclusion is one of fewer opportunities and poorer overall outcomes.

Economic contexts have changed too. Stagnant or only modestly increasing incomes are a force in generating increasing labour force participation by women in families and these changes in turn interact with family outcomes. The proportion of dual income, two worker households grew from 47% in 1970 to 67% in 2007 (Bureau of Labor Statistics, 2015). In many of these instances the increase in work opportunities and the increase in women’s participation can be welcomed as a new reality about women in the workforce. But, to the extent that women’s entry was necessitated by economic events, the picture may be more complicated. The workforce participation of women with children under five years of age was 39% in 1975 and had risen to 64.2% in 2010. How much of this change is driven by necessity and how much by women pursuing careers is contentious but it does appear that for lower income households in expensive housing markets the impetus is more necessity than choice (Williams & Bourshey, 2010)

### **Mobility and disadvantage – why does unintended mobility matter?**

Earlier in the discussion I drew a distinction between moves which are generally advantageous and planned i.e. those which are generated by leaving home, getting married and moving into ownership, and moves which are not planned and which have the potential to destabilise the family. The moves in response to unplanned events are likely to be more disruptive than planned events, which because they are planned take advantage of new opportunities. Unplanned moves are often moves that have to ‘make do’ with accommodation that is far from

satisfactory from a families perspective. Then the question arises apart from the immediate effects of the need to deal with an unplanned move, what are the more general issues that revolve around unintended mobility – why does it matter? The literature on mobility suggests three outcome dimensions to unplanned moves which have implications for the analysis in this paper – (1) the spatial implications that arise from neighbourhood area (2) the implications for health outcomes again from a change in residential location and (3) the implications of disruptive events for children’s residential and school mobility.

### Neighbourhood change

Planned moves involve relocations to new houses or apartments and often to better neighbourhoods. Unplanned moves still involve changes in houses but can and often do involve moves down the socioeconomic hierarchy of neighbourhoods. And, the changes generated by destabilising events are often moves which do not have the luxury of being able to be carefully planned, but necessarily are changes in location which are ‘make-do’ outcomes to satisfy immediate needs for shelter.

Studies of neighbourhood change have documented how singles and single parent families are more likely to move to less advantaged neighbourhoods and partnership dissolution has negative impacts for all moves except those who are already in the most advantaged neighbourhoods (Clark, Van Ham & Coulter, 2014). Clearly in this case, resources matter as forces that ameliorate the impact of destabilising events. Research has also shown that while we can reliably link higher income and higher levels of education to moves up the neighbourhood hierarchy it is less straightforward to explain moves down the hierarchy, although most research confirms that job loss and divorce make it difficult to maintain the socioeconomic status of the neighbourhood (Clark & Maas, 2015).

A study of neighbourhood quintile changes shows that a larger proportion of those who moved down to the lowest quintile from the one above are divorced, divorced with children or have never been married (Clark, 2012). In the US context they were almost all minority—Hispanic or Black families and were renters and of course they were young. While 34% of those

moving down to the lowest quintile were divorced, only 10% who moved up to the most advantaged quintile were divorced.

### Health and mobility outcomes

Neighbourhoods are also at the centre of a growing body of research which suggests that living in an advantaged area has a broad range of benefits and, by extension, living in a less advantaged neighbourhood can have negative outcomes on health and other social outcomes. The positive effects of neighbourhood cohesion, and perceived neighbourhood cohesion, are seen as offsetting the adverse effects of neighbourhood socioeconomic adversity. (Robinette, Charles, Moigle, Almeida, 2013). Those living in deprived neighbourhoods are more likely to report poorer and emotional health if they perceive their neighbourhoods as unsafe (Flouri, Midouhas Joshi, & Sullivan, 2015; Robinette et al., 2013).

Beyond the general impacts of less advantaged neighbourhoods, and of greater significance for the discussion in this study, is the potential impact of mobility on outcomes for children. A meta study of health outcomes through the life course identified higher levels of behavioural and emotional problems with residential mobility (Jellyman & Spencer, 2008). They conclude that high frequency residential change is “potentially a useful marker for the clinical risk of behavioral and emotional problems” (Jellyman & Spencer, 2008, p.584). Bures (2003) also examined self-rated health at mid-life in relationship to childhood stability and showed that family stability was an important dimension of health outcomes at mid-life. Importantly for studies like this one both neighbourhood stability and family stability were positively associated with good mental health in midlife.

Studies of specific destabilising events such as housing eviction also document the potential health effects of these occurrences. In one study matching low income urban mothers who were evicted compared with those who were not evicted, mothers who were evicted were more likely to suffer depression, report worse health and more parenting stress (Desmond & Kimbro, 2015). As we know that housing instability is also likely to be accompanied by

household instability, the effects are compounded (Desmond 2012).

### Impacts on school attendance

Disruptive moves matter for children because residential change often means that children face school change. Somewhere in the range of 15-18% of all school-age children move in the previous year (Schachter, 2001). The most recent data show that about 8.8 million or 14% of five-19 year olds changed residence between 2002 and 2003 (Schachter, 2001). While student mobility (moving between schools) is an inevitable consequence of family mobility, Kerbow (1996) and Rumberger, Larson, Ream, & Palardy (1999) show that student mobility also occurs because of overcrowding, suspension and expulsion policies and not surprisingly, studies of student outcomes, test scores, retention and high school completion find that mobile students score lower in these areas. However, when student background and family composition is factored in, the research suggests that mobility may be more a symptom than a cause of poor school performance (Rumberger, 2003). Temple and Reynolds (1999) show that achievement differences between mobile and stable students are largely related to factors that pre-date their school mobility.

Mobile students do often come from poorer families and were not doing well before mobility (Nelson, Simoni, & Adelman, 1996). There are however, some studies that find that residential mobility reduces the odds of high school graduation even after controlling for family background (Haveman & Wolfe, 1994). The finding that is of most importance for this study of destabilised moves is that it is students in low income, single parent families and who are renters (mobility is substantially higher for renters overall) that have the poorest performance records (Temple & Reynolds, 1999). The negative impacts of mobility seem to be more pronounced in families without both biological parents (Tucker, Marx, & Long, 1998). Survey evidence suggests that a large proportion of those who move, do so locally, churning so to speak, in the local neighbourhood, and sometimes making multiple moves because of economic and family problems (Coulton, Theodos & Turner, 2012). Such moves, initiated as a result of destabilization, go on to

destabilise the local institutions in which the children participate, further challenging the ability to provide a continuing education.

It is not that mobility, even unintended mobility, has negative outcomes per se, rather it is the extent to which the unintended mobility outcomes from economic, family or housing events are focused on more vulnerable families and, by extension, on families with children. This analysis examines these questions about the impacts of unintended mobility – how often do these events occur, where are the events focused and who is disproportionately affected?

### Data and methods

This research uses the files of the Panel Study of Income Dynamics (PSID). The Panel Study of Income Dynamics (PSID) is now a four-decade long study of approximately 5,000 families, and their families. Members of the original 5,000 families who leave to start new households are in turn followed. The original sample included a nationally representative sample of all US households and a sample of approximately 2,000 low-income households. By following family members the sample remained representative of the nation's families and individuals over time. This study became what is now called the Panel Study of Income Dynamics (Hill, 1992; McGonagle, Schoeni, Sastry & Freedman, 2012). The PSID has been used in many hundreds of peer-reviewed publications, and the user base has grown increasingly diverse, drawing, in addition to the strong use by economists, investigation by psychologists, medical researchers, public health scholars, geographers and others. The study was initially a yearly survey but changed to every two years in 1997.

This study uses data from the 1999-2011 surveys to identify the destabilising event of job loss (an economic disruption), a divorce, separation or widowhood (a family disruption) and housing disruption via eviction, housing repossession or housing demolition. The events being studied in the analysis are relatively rare events for any one family and more than one event occurs in less than a 100 cases over the pooled sample in the 12 year period.<sup>iii</sup> The unit of analysis is the family (which can be a

couple, a couple with children, a single person or a single parent). The data is set up to examine a destabilising event at time  $t$  and then look forward to  $t+1$  and ask if a move occurred in the interval after the event. The data are pooled over the six paired waves and analysed with a cross sectional model. Clearly this is not a multiple-year longitudinal analysis as it takes advantage of measurement only over a two-year period, but still, in this sense it captures change in the life course in a narrow window.<sup>iv</sup>

The measures of disruption for job loss come from the variable, “why last job ended” – company folded, strike, laid off and fired (PSID= ER47524). The values for family disruption come from the variable “change in marital status” (ER52408). I included divorce even if re-marriage occurred in the same year as it can still be viewed as a significant family change. There were only a few such cases. Housing disruption was measured from the reason for move question (ER47443), specifically the codes for response to outside events. The specific codes were for house demolished, other involuntary moves. The category is not available for all years and required the removal of divorce and military from the codes. This was done by substituting the marital status change measure for divorce. A small number of health related moves are included in the category.

Variables for age of head and age squared and tenure, standard controls in models of mobility and migration are included as are measures of marital status, children in the household, education, occupation and family income. Recall that the models are assessing the association of a disruptive event with family status in the case of evictions and job loss. Is job loss more likely for owners or renters, married or unmarried families? For the dependent variable, change in marital status, the sample is of married couples and married couple families where the disruptive events of separation and divorce are examined by age, tenure and socioeconomic status.

To assess the number of events in any one sample-year I ask if a divorce/separation, job loss or eviction occurred in that year. I am able to calculate the number and percentage of events for each survey year 1999-2011 (seven years). To measure the mobility response to disruptions I examined “did you move since the last interview” variable.<sup>v</sup> This was possible for 1999-2001 to 2009-2011 (six periods). A

2011 household has data on whether there was an eviction, divorce or job loss but whether that family moved can only be assessed with 2013 data (not available at the time of the analysis).

The analysis is presented in two formats, (a) the univariate measures of events and mobility outcomes across age, education, occupation, income, tenure and neighbourhood status and (b) logit models of the association of events and mobility outcomes. The univariate analysis of events examines the occurrence by age family income (adjusted to 2011 values) and education (BA or more), occupation (professional or not) and tenure (rent=1). The measure of neighbourhood status is derived from principal component analysis of all tracts in the United States and then tracts are grouped into deciles of disadvantage based on the principal component (the first factor). The decile (and quintile) allocations used tract data on nine variables designed to measure socioeconomic status.<sup>vi</sup> These variables were used to create an index score for all US tracts in 2000, and the tracts were divided into deciles of disadvantage.

The same variables are used in logit models of (a) the probability of having an event and (b) the probability of having an event and moving. In the case of eviction there is only one model, event and moving. Age and family income (adjusted to 2011 values) are introduced as continuous variables and education (BA or more), occupation (professional or not) and tenure (rent=1) are dichotomous measures. I am also interested in locational relationships and to measure the interaction of moves and the neighbourhood status I used deciles of area disadvantage where high scores indicate advantage (lack of disadvantage). The logit regressions use the family weights.

As it is a panel survey, a family could have events in more than one year. In fact very few households have multiple events of the same type but as I note later in the discussion of results, slightly more than a quarter had two or more events over the ten-year period.

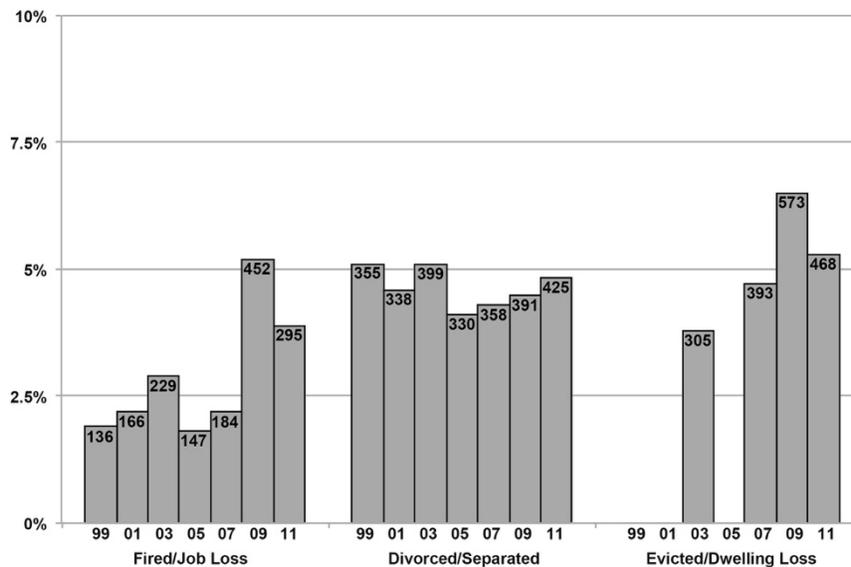
## Analysis and findings

### How often do disruptive effects occur?

The likelihood of a family experiencing a destabilising event is modest but not negligible. On

average in any year about 2-3% of households experience an economic disruption, 4.5 to 5% experience a family disruption and 4-6% experience a housing eviction or building demolition and a required move (figure 1). The housing eviction rate is somewhat higher than the reported housing eviction

from the Current Population Survey of 2.5% for the US intra county movers as a whole (Current Population Survey 2011-2012). The CPS estimate probably underestimates housing disruptions as it does not include forced moves from housing repossession and demolition.



**Figure 1: Percent of destabilising events by type and year (Source: Panel Study of Income Dynamics, 1999-2011) Bar values are the number of events**

While disruptions are a small proportion in any one year, over a ten year period there were an estimated 1,609 firings, job losses and redundancies, 2,596 family disruptions and an estimated 2,600 housing disruptions.<sup>vii</sup> Summing the events we find that nearly 12% of households have some disruptive event in the decade long period. Among families reporting economic and family disruptions, as many as two thirds moved in the same year (table 1). Clearly we are dealing with a non-trivial life course interruption and, as I will show later, the concentration of these events by age, tenure, and socioeconomic status further exacerbates the outcomes of disruption.

Multiple events do occur but in general in any one year it is quite rare to have more than one event. However, 92 households had economic and family events and another 99 had economic and housing events. However, when we look at the whole period nearly a third (28.8%) had two or more events in the

decade and these households were more likely to be families with children.

**Who has a shock and moves?**

There are no surprises in which families have destabilising events and which families move. The analysis across age, education, occupation, income tenure and quintiles of area disadvantage documents just how the fallout of destabilising events occurs more often and has greater mobility implications for young, low income renters who live in less advantaged neighbourhoods. It is the strong interaction of the events and movement probabilities that are documented in the following tables. I review the individual variable impacts and then model the likelihood of having a destabilising event and the likelihood of moving. Destabilising events, especially divorce and family breakup, occur across the economic spectrum (to professional families and to

families with more education and higher incomes). However, these households seem not to have immediate needs to move after these events and when they do move they can better weather the outcomes of destabilisation.

Exactly 40% of sample families are between 20-39 years<sup>viii</sup> and they have more than half of all the economic, family and housing events (table 2). Their mobility outcomes for those with an event are 72.3% for the youngest age group (342/473) and remain high for the 30-39 age cohort. The 20-29 year old cohort is about one fifth of all households (18.9%) but 43.3% of families who have an economic shock and who move. Somewhat similar mobility results occur for both family events and housing events though, as we would expect, at somewhat lower rates. Being fired or losing your job is likely to have much stronger effects on whether you can stay or not, in contrast to the impacts of a family or housing disruption. In every instance it is the young who have the most disruptions. While family events themselves are somewhat equally likely to occur across the age cohorts, mobility behaviour is disproportionately greater for younger headed households (table 2).

Education and professional occupations matter for events and their mobility outcomes (tables 3 and 4). Those with only a high school education or less make up about 50% of the sample but they have 62% of the economic destabilisations and 56% of the housing events. It is true that families where the head has a college education have slightly fewer family disruptions than would be predicted by their cohort size, it is however, a modest difference. Sales and construction workers are 55% of the sample but experience 70% of the economic disruptions and 62% of the housing events. Again family events are more evenly spread across the categories.

The lowest income categories include nearly 50% of the sample but have 68 % of the economic destabilisations, 62% of the family disruptions and 70% of the housing evictions, repossessions or building demolitions (table 5). The very lowest income families are those who are most likely to be precariously housed and when we add the impacts of being a renter we see the way in which the conjunction of events (being low income and being a renter) exacerbates the outcome for these vulnerable families (table 6). In the renter/owner table we see

that 66% (555/839) of those with an economic event and 78.9% (981/1244) with a family event actually move.

To the extent that destabilising events occur to lower income families, we would expect the impacts to be concentrated in less advantaged neighbourhoods but it turns out to be somewhat more complicated. Even though more than half of the economic destabilisations occur in the two least advantaged groups of neighbourhoods (quintiles one and two) there are significant numbers of destabilising events in all quintiles. Still, they are rather more likely to be absent in the more advantaged neighbourhoods. Economic destabilisations are half as likely to occur in the most advantaged neighbourhoods than less advantaged neighbourhoods and family events and housing events are also significantly less likely to happen in the most advantageous neighbourhoods (table 7). Housing disruptions are half as likely in the most advantaged quintile in comparison with the most disadvantaged quintile.

As outlined in the methods discussion previously, I use logit models to provide estimates of the variables that are associated with the families who have destabilising events and which families respond by moving. To reiterate, I estimate effects for the role of age, family status, income, occupation, education and tenure on these events.

### **What are the correlates of destabilising events and what are the mobility outcomes?**

The univariate analysis documented how status interacted with income and tenure (renters) to describe a precariously housed population who were most likely to be affected by economic and housing destabilisation. The story is somewhat similar for family events but it is clear that these events are likely to occur across the economic spectrum, it is the mobility outcomes that vary in these family events. A divorce in a more affluent family, while undesirable, is less likely to lead to housing and location destabilisation (it may be a move but not a disadvantageous move) than for less educated, lower economic status families who do not have access to the ameliorating effects of being owners and having more assets. In other words, the effect of any

destabilising event is magnified in marginalised households.

The models for families having destabilising economic events and their mobility responses, document clearly that after controlling for the fact that young families move more frequently than older families (note the coefficients for age) it is the unmarried, renters and low income families who are most impacted by job loss, business closing and redundancy (table 9, model 1). The interesting finding is that of those who have an economic destabilisation, it is the higher status (education and occupation) families who move and chose a lower status neighbourhood (table 9, model 2).<sup>ix</sup> These families are able to survive the disruption by moving, even if they must give up some level of neighbourhood status in the process.

Again, income matters in the models of family disruption (table 9, model 3, 4). However, these models have lower levels of concordance, that is, they explain the outcomes less well and overall reflect what we can hypothesise about family disruption. It is less demographically or economically defined. The event is less likely for those families with more income, higher socioeconomic status, but occurs across all decile profiles. As with economic destabilisation, it is again those renter families with more socioeconomic status, and in less disadvantaged neighbourhoods who move to resolve the disruptions, and who solve their disruption by choosing lower status neighbourhoods. The intention to move again, as we would expect, is negative, having moved reduces the likelihood of further moves.

The story is both similar and different for families who have housing disruptions that by definition involve moving (table 9, model 5). Both younger and older families are impacted (both have negative coefficients). Female-headed families are more impacted than those with higher socioeconomic status. Certainly this is an expected finding. However, both family income and area disadvantage decile location are positively related to disruptive events. A plausible explanation that will require further research is that the analysis is capturing two processes and two populations, or a non-linear process. At the one extreme are low income single parent renter families who are evicted while at the

other extreme are higher income well located families who, during the economic crisis, were unable to maintain ownership in the rapidly changing boom and bust cycle of the housing market.

## Conclusions and observations

The picture that emerges from an analysis of destabilising family, economic and housing events is not an attractive one. The analysis in this study documents the likelihood of disruptive events, which though small, still affects one in ten families over a decade-long period, and that number was higher during the financial crisis of the late 2000s. Using the Panel Study of Income Dynamics I capture how these events disproportionately involve low income, less educated renter households who are often single parents. For example, low-income households make up less than 24% of the sample but they have 36% of the economic destabilising events and 40% of the housing shocks.

Children in these disadvantaged families are likely to suffer many of the negative outcomes outlined in the discussion of the negative consequences of high frequency mobility. These effects – from the well documented immediate effects of frequently changing schools and neighbourhoods, to the potential long term health outcomes of high mobility rates during childhood – are real and measurable and, from this analysis, more frequent and more localised than previously reported. A large body of work has documented the impacts on families and children but that work has not often set the research within the population as a whole – how many and where and on whom are the impacts. Overall, the evidence supports the finding that children from disrupted families, compared to those from intact families, will have more problems in the long run from both the event itself as well as the ensuing mobility.

That nearly a third of families have two or more events in the decade emphasises further the precariousness of low income, less educated and less skilled households. It is these families who are likely to have more than one destabilising event. They are also the families who are likely to change neighbourhoods and to move to lower status areas.

The likelihood of an event occurring was significantly higher during the period of the housing

crisis. In 2009 and 2011 the proportion of economic and housing disruptions increased by a third or more in those years. Interestingly, family destabilisations declined slightly – a response to another unwanted outcome, the inability to solve family problems in times of economic crisis.

While the findings in this research are not novel in the sense that we have already a rich literature on the outcomes of disruptions and mobility on precarious families, they serve to remind us that we are dealing with a difficult if not intransigent problem. The findings reiterate how difficult it will be to both intervene in the poverty-housing cycle and to create

more welcoming contexts for children. The research also reiterates that leveling the field between owners and renters even if we cannot all become owners, is difficult and will require basic changes in tax codes, real estate law and access to affordable housing more broadly. There is a strong implied argument from the research in this paper that there should not be a tax penalty on renters and a tax advantage for owners. The high levels of mobility generated by destabilising events are four to five times greater than average mobility rates and preliminary research suggests that these families have continuing high rates of mobility even in the absence of specific destabilising events.

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**Table 1. Events by year and type and mobility outcomes****a) Total events**

	<b>N</b>	<b>% with children</b>
Total pooled sample of households	56,113	44.6%
Economic events	1,609	51.8%
Plus housing	99	55.5%
Family events	2,596	43.9%
Housing events	1,739	41.9%

Note: Housing events (all moved) includes, evictions, disposessions, housing demolished.

**b) Events by year and mobility outcomes**

<b>Year</b>	<b>Economic</b>	<b>% moved</b>	<b>Family</b>	<b>% moved</b>	<b>Housing</b>
1999	136	36.8%	355	45.9%	300 (est)
2001	166	31.9%	338	45.3%	300 (est)
2003	229	48.9%	399	55.6%	305
2005	147	63.3%	330	64.3%	300 (est)
2007	184	54.9%	358	60.6%	393
2009	452	49.3%	391	62.7%	573
2011	295	53.6%	425	63.8%	468

**Table 2. Distribution of events and their likelihood and mobility by age of head categories across the pooled sample at the start of each survey window**

Destabilisation	Age Category	Total n	% n	n with event	% with event	n moved	% moved
Economic	20 – 29	10,610	18.9%	473	29.4%	342	43.3%
	30 – 39	12,475	22.2%	395	24.5%	212	26.8%
	40 – 49	12,800	22.8%	380	23.6%	135	17.1%
	50+	19,858	35.4%	342	21.3%	85	10.8%
	Total	56,113	100.0%	1,609	100.0%	790	100.0%
Family	20 – 29	10,610	18.9%	585	22.5%	456	30.7%
	30 – 39	12,475	22.2%	737	28.4%	488	32.9%
	40 – 49	12,800	22.8%	591	22.8%	316	21.3%
	50+	19,858	35.4%	681	26.2%	221	14.9%
	Total	56,113	100.0%	2,596	100.0%	1,483	100.0%
Housing	20 – 29	10,610	18.9%	538	30.9%	538	30.9%
	30 – 39	12,475	22.2%	454	26.1%	454	26.1%
	40 – 49	12,800	22.8%	319	18.3%	319	18.3%
	50+	19,858	35.4%	398	22.9%	398	22.9%
	Total	56,113	100.0%	1,739	100.0%	1,739	100.0%

Note: A very small number of cases with heads <20 years and cases with missing data are not reported in the table.

**Table 3. Distribution of events and their likelihood and mobility by educational status of head at start of each survey window**

Destabalisation	Educational Category	Total n	% n	n with event	% with event	n moved	% moved
Economic	HS and less	27,814	49.6%	989	61.5%	507	64.2%
	Some college	13,153	23.4%	368	22.9%	195	24.7%
	College +	12,765	22.7%	184	11.4%	52	6.6%
	Missing	2,381	4.2%	68	4.2%	36	4.6%
	Total	56,113	100.0%	1,609	100.0%	790	100.0%
Family	HS and less	27,814	49.6%	1,331	51.3%	745	50.2%
	Some college	13,153	23.4%	733	28.2%	448	30.2%
	College +	12,765	22.7%	445	17.1%	240	16.2%
	Missing	2,381	4.2%	87	3.4%	50	3.4%
	Total	56,113	100.0%	2,596	100.0%	1,483	100.0%
Housing	HS and less	27,814	49.6%	976	56.1%	976	56.1%
	Some college	13,153	23.4%	413	23.7%	413	23.7%
	College +	12,765	22.7%	291	16.7%	291	16.7%
	Missing	2,381	4.2%	59	3.4%	59	3.4%
	Total	56,113	100.0%	1,739	100.0%	1,739	100.0%

**Table 4. Distribution of events and their likelihood and mobility by occupational status of head at start of each survey window**

Destabalisation	Occupational Category	Total n	% n	n with event	% with event	n moved	% moved
Economic	Professional	12,195	21.7%	159	9.9%	65	8.2%
	Sales Services Technical	17,419	31.0%	558	34.7%	344	3.5%
	Construction Manual Work	14,775	26.3%	582	36.2%	274	34.7%
	Military (2003 – 2009)	390	0.7%	1	0.1%	1	0.1%
	Missing	11,334	20.2%	309	19.2%	106	13.4%
	Total	56,113	100.0%	1,609	100.0%	790	100.0%
Family	Professional	12,195	21.7%	472	18.2%	274	18.5%
	Sales Services Technical	17,419	31.0%	1,026	39.5%	659	44.4%
	Construction Manual Work	14,775	26.3%	502	19.3%	308	20.8%
	Military (2003 – 2009)	390	0.7%	12	0.5%	10	0.7%
	Missing	11,334	20.2%	584	22.5%	232	15.6%
	Total	56,113	100.0%	2,596	100.0%	1,483	100.0%
Housing	Professional	12,195	21.7%	221	12.7%	221	12.7%
	Sales Services Technical	17,419	31.0%	720	41.4%	720	41.4%
	Construction Manual Work	14,775	26.3%	381	21.9%	381	21.9%
	Military (2003 – 2009)	390	0.7%	63	3.6%	63	3.6%
	Missing	11,334	20.2%	354	20.4%	354	20.4%
	Total	56,113	100.0%	1,739	100.0%	1,739	100.0%

Table 5. Distribution of events, their likelihood and mobility by income categories (adjusted to 2011 values) at start of each survey window

Destabilisation	Income Category	Total n	% n	n with event	% with event	n moved	% moved
Economic	<25,000	13,159	23.5%	580	36.0%	359	45.4%
	25,000 – 49,999	14,328	25.5%	510	31.7%	254	32.2%
	50,000 – 74,999	10,430	18.6%	260	16.2%	96	12.2%
	75,000 – 99,999	6,843	12.2%	121	7.5%	40	5.1%
	100,000+	11,353	20.2%	138	8.6%	41	5.2%
	Missing	0	0.0%	0	0.0%	0	0.0%
	Total	56,113	100.0%	1,609	100.0%	790	100.0%
Family	<25,000	13,159	23.5%	761	29.3%	459	31.0%
	25,000 – 49,999	14,328	25.5%	856	33.0%	482	32.5%
	50,000 – 74,999	10,430	18.6%	445	17.1%	243	16.4%
	75,000 – 99,999	6,843	12.2%	221	8.5%	127	8.6%
	100,000+	11,353	20.2%	313	12.1%	172	11.6%
	Missing	0	0.0%	0	0.0%	0	0.0%
	Total	56,113	100.0%	2,596	100.0%	1,483	100.0%
Housing	<25,000	13,159	23.5%	700	40.3%	700	40.3%
	25,000 – 49,999	14,328	25.5%	507	29.2%	507	29.2%
	50,000 – 74,999	10,430	18.6%	262	15.1%	262	15.1%
	75,000 – 99,999	6,843	12.2%	113	6.5%	113	6.5%
	100,000+	11,353	20.2%	157	9.0%	157	9.0%
	Missing	0	0.0%	0	0.0%	0	0.0%
	Total	56,113	100.0%	1,739	100.0%	1,739	100.0%

Table 6. Distribution of events, their likelihood and mobility by tenure at start of each survey window

Destabalisation	Tenure	Total n	% n	n with event	% with event	n moved	% moved
Economic	Own	32,573	58.0%	572	35.6%	107	13.5%
	Rent	20,526	36.6%	839	52.1%	555	70.3%
	Other	3,014	5.4%	198	12.3%	128	16.2%
	Missing	0	0.0%	0	0.0%	0	0.0%
	Total	56,113	100.0%	1,609	100.0%	790	100.0%
Family	Own	32,573	58.0%	1,063	40.9%	275	18.5%
	Rent	20,526	36.6%	1,244	47.9%	981	66.1%
	Other	3,014	5.4%	289	11.1%	227	15.3%
	Missing	0	0.0%	0	0.0%	0	0.0%
	Total	56,113	100.0%	2,596	100.0%	1,483	100.0%
Housing	Own	32,573	58.0%	259	14.9%	275	14.9%
	Rent	20,526	36.6%	1,207	69.4%	981	69.4%
	Other	3,014	5.4%	273	15.7%	273	15.7%
	Missing	0	0.0%	0	0.0%	0	0.0%
	Total	56,113	100.0%	1,739	100.0%	1,739	100.0%

Table 7. Distribution of events, their likelihood and mobility by neighbourhood disadvantage status

Destabalisation	Neighbourhood Status Quintile	Total n	% n	n with event	% with event	n moved	% moved
Economic	1 (most)	11,516	20.5%	520	32.3%	258	32.7%
	2	11,682	20.8%	385	23.9%	210	26.6%
	3	11,141	19.9%	292	18.1%	130	16.5%
	4	10,816	19.3%	239	14.9%	130	16.5%
	5 (least)	10,589	18.5%	160	9.9%	53	6.7%
	missing	569	1.0%	13	0.8%	9	1.1%
	total	56,113	100.0%	1,609	100.0%	790	100.0%
Family	1 (most)	11,516	20.5%	519	20.0%	311	21.0%
	2	11,682	20.8%	640	24.7%	356	24.0%
	3	11,141	19.9%	551	21.2%	319	21.5%
	4	10,816	19.3%	489	18.8%	277	18.7%
	5 (least)	10,589	18.5%	373	14.4%	202	13.6%
	missing	569	1.0%	24	0.9%	18	1.2%
	total	56,113	100.0%	2,596	100.0%	1,483	100.0%
Housing	1 (most)	11,516	20.5%	461	26.5%	461	26.5%
	2	11,682	20.8%	369	21.2%	369	21.2%
	3	11,141	19.9%	354	20.4%	254	20.4%
	4	10,816	19.3%	285	16.4%	285	16.4%
	5 (least)	10,589	18.5%	228	13.1%	228	13.1%
	missing	569	1.0%	42	2.4%	42	2.4%
	total	56,113	100.0%	1,739	100.0%	1,739	100.0%

**Table 8. Mean values for initial year for variables in the models of disruption and mobility**

Variable	N	Missing	Mean
Age of head of household	56,100	13	45.024
Age of head squared	56,100	13	2,291.571
Married	56,113	0	0.497
Children in household	56,113	0	0.446
Tenure (renter)	56,113	0	0.420
Family income	56,113	0	70,762.178
Head some college plus	56,113	0	0.462
Head manager/professional	56,113	0	0.217
Decile of neighbourhood status	55,544	569	5.379

Source: Panel Study of Income Dynamics 1999-2011 pooled over seven two-year intervals.

Decile of Neighbourhood status, 1= most disadvantaged, 10 least disadvantaged.

Table 9: Logit Estimates for models of economic, family and housing disruptions

Variable	Model 1 Households experiencing an economic disruption	Model 2 Households who moved after an economic disruption	Model 3 Households experiencing a family disruption	Model 4 Households who moved after experiencing a family disruption	Model 5 Households experiencing housing disruption
	b(SE)	b(SE)	b(SE)	b(SE)	b(SE)
Age of head of household	0.10 (0.00)***	-0.12 (0.01)***	-0.01 (0.00)***	-0.04 (0.13)***	-0.03 (0.00)***
Age of head squared	-0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***	-0.00 (0.00)	0.00 (0.00)***
Married	-0.23 (0.02)***	-0.15 (0.04)**			
Children in household	0.02 (0.01)	-0.09 (0.04)*	0.06 (0.01)***	-0.48 (.035)***	-0.02 (0.01)
Tenure (renter)	0.50 (0.02)***	1.98 (0.04)***	0.48 (0.01)***	2.61 (0.03)***	2.33 (0.01)***
Family income	-0.00 (0.00)***	0.00 (0.00)**	-0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***
Head some college plus	-0.15 (0.01)	0.17 (0.04)***	-0.08 (0.01)***	0.23 (0.03)***	-0.12 (0.01)***
Head manager/professional	-0.51 (0.02)***	0.39 (0.05)***	-0.14 (0.01)***	0.09 (0.04)*	-0.27 (0.02)***
Decile of neighbourhood status	-0.03 (0.00)		0.02 (0.00)		0.03 (0.00)***
Choice lower status neighbourhood		0.62 (0.05)***		0.39 (0.04)***	
Intention to move		0.02 (0.04)		-0.09 (0.03)**	
Female head					0.03 (0.01)*
Intercept	-4.66 (0.06)***	3.33 (0.17)***	-2.26 (0.04)***	2.78 (0.13)	-1.44 (0.04)***
Likelihood ratio chi-square (df)	12966.54 (9)	5681.35 (10)	4478.59 (8)	14103.61 (9)	34647.09 (9)
Score chi-square test (df)	11583.90 (9)	5185.43 (10)	4412.67 (8)	12554.89 (9)	34878.47 (9)
Wald (df)	10320.67 (9)	4207.73 (10)	4343.00 (8)	9461.22 (9)	23503.69 (9)

## Endnotes

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<sup>ii</sup> The Fragile Families and Child Wellbeing Study (FFS) collected data on 5,000 families in the United States and this data has been the basis of significant research on understanding fragile families (Reichman, Teitler, Garfinkel & McLanahan, 2001).

<sup>iii</sup> It is possible that disruptive events could be influenced by race/ethnicity but the sample size is not large enough to break down relatively rare events by race in this analysis and the focus is on families rather than race ethnicity per se.

<sup>iv</sup> Another paper could take up durations between disruptive events, which would be a way of capturing more of the longitudinal aspect of disruptive events and mobility. The move might not come in the immediate window.

<sup>v</sup> A move can be local or long distance but in this data set we cannot distinguish between local and long distance moves. It is possible that there could be differences in the outcomes depending on the distance of the move.

<sup>vi</sup> Pct single parent family with children, pct linguistically isolated, pct unemployed. Pct with public assistance, pct income below poverty, pct households with 2.0 per room (density) pct 35-44 years old renters pct households no vehicle.

<sup>vii</sup> The PSID does not have data on housing evictions for 1991, 01 and 05. To suggest the total impact of evictions I have estimated a value of 300 for the missing years.

<sup>viii</sup> Age of head is measured at the time of the each survey window – 1999, 2001 and so on.

<sup>ix</sup> In a strict sense, choosing a lower status neighbourhood is not a predictor. However, think of this as a conditional choice that actually allowed the mobility. That is, the move could not occur unless they household chose a lower status neighbourhood. In this sense it is a predictor of being able to move.

# Home moves and child wellbeing in the first five years of life in the United States

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## Abstract

*By the time they are five years old, nearly 70% of children in the United States have moved home, with a substantial minority moving more than once. These early years are important for children's later learning and development. Yet, there are a limited number of studies of residential mobility's impact on young children. The literature indicates the importance of stressful family events, unstable housing, economic hardship, and neighbourhood conditions for residential mobility and child wellbeing. But research seldom examines the impact of these dimensions simultaneously. We used data from the first four waves of the Fragile Families and Child Wellbeing Study to analyse precursors of residential mobility and the association of residential mobility with child behavior (N=2,511) and cognitive capabilities (N=2,033) at age five. Using Generalized Estimating Equations (GEE), we find that the frequency of moving is explained by a range of stressful circumstances, including lack of parental employment, partnership transitions, paternal incarceration, unstable housing tenure, and financial hardship. These circumstances are associated with increased likelihood of moving home even when other family and neighbourhood conditions are controlled, suggesting that moving is part of a constellation of events and changes experienced by young children. Using OLS regression models we find that, for young children, the circumstances associated with moving residence appear to be more consequential for child wellbeing than does moving itself, even when children experience multiple moves.*

## Keywords

Residential mobility, child development, early years, Fragile Family and Child Wellbeing Study, Generalized Estimating Equations

## Introduction

In this paper, we examine the precursors of residential mobility among young children and the relationship between residential moves and child behaviour problems and cognitive skills. There is little research on this topic, even though the United States has particularly high rates of home moves among

very young children. According to the 2000 Current Population Survey (chosen because it coincides with our data on children), almost one in four (23.3%) children aged zero–four had moved home in the year prior to March 2000 (US Census Bureau 2001). Although the Census does not report data on multiple moves, research finds that these are common as well,

especially among low-income children (Jelleyman & Spencer, 2008).

### Precursors of residential mobility

Changing residence does not occur at random. Families move for various reasons, primarily due to life course changes, such as the birth of a new child or the formation of a new household partnership. Some of these changes are the result of difficult circumstances, such as marital separation or unemployment. Studies of the consequences of residential mobility for child wellbeing often treat the conditions that promote home moves as 'nuisance factors', variables that must be controlled to estimate the true causal effect of mobility. Sampson and Sharkey (2008, p. 1) note that researchers tend to see such processes of selection as "a statistical problem to be controlled away and not something of substantive interest in itself." And yet, the circumstances in family life that may lead to home moves are of great interest as they represent important sources of family stress and opportunity. Building on a recent paper by Anderson, Leventhal, Newman and Dupéré (2014) that draws attention to the context in which residential mobility occurs in childhood, we examine the circumstances in family life that precede home moves and that may, independent of moves, be a source of stress for families. We hypothesise that any negative association of residential moves with child wellbeing is accounted for by events and conditions that precede home moves rather than by moving *per se*.

### Residential mobility and child wellbeing

Studies of residential mobility and child wellbeing are often framed within Bronfenbrenner's ecological systems perspective that emphasises the interrelationships among the developing child and the multiple contexts within which development occurs (Bronfenbrenner, 2005; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 2006). Development is a process that unfolds as children interact with contexts that range from immediate (e.g., family) to more remote (e.g., culture). Contexts that are more proximal to the child, such as home, school, and peer group, are thought to be of more direct influence on development, since the child's daily activities and interactions are embedded in these arenas.

Using this framework, some scholars have suggested that residential mobility harms children to the extent that it disrupts family routines, educational progress, social networks and peer relationships. These disruptions contribute to poor child health and mental health outcomes (e.g., Anderson, Leventhal, Newman, & Dupéré, 2014; Astone & McLanahan, 1994; Stokols, Shumaker, & Martinez, 1983; Ziol-Guest & McKenna, 2014). Our study takes a somewhat different perspective, by first investigating the disruptions that occur within families prior to residential moves and then examining the consequences of both these disruptions and moving for children. We suspect that, for young children, the circumstances associated with moving residence may be more consequential for their wellbeing than is moving itself, even when children experience multiple moves. These circumstances include changes in family structure and parental employment, unstable housing tenure, and financial hardship, all of which contribute to residential mobility and adverse child outcomes.

Our study brings together Bronfenbrenner's theories with insights from social stress theory. (Brown & Harris, 1978; Dohrenwend & Dohrenwend 1969; George, 1989; 1993; Holmes & Rahe, 1967; Thoits 1983). According to social stress theory, stressful life events require readjustment on the part of individuals, at times, taxing their ability to cope. Early research posited that any change, positive or negative, could be stressful (Holmes & Rahe, 1967) but later studies have shown that negative change, such as divorce, is especially detrimental to psychological wellbeing (Brown & Harris, 1978; Thoits, 1983). In considering effects on children, the family stress model posits that a parent's capacity to interact positively with her or his child may be undermined when the parent is exposed to stressful conditions (Conger & Elder, 1994). Ultimately, children in such circumstances often develop behavioural and school problems.

Some researchers view home moves as stressful events that have potential negative impacts on children. These studies generally find that residential mobility is associated with behavioural problems, adverse mental and physical health, and lower academic performance (Jelleyman & Spencer, 2008; Mehana & Reynolds, 2004; Pribesh & Downey, 1999;

Scanlon & Devine, 2001), with frequent moves thought to be most detrimental for children (Jelleyman & Spencer, 2008). Research suggests that such effects are particularly strong among children from households with low income (Scanlon & Devine, 2001). However, when investigators control for a range of background characteristics, some find that 'effects' of mobility may be fully or partly accounted for by these characteristics (e.g., Anderson, 2012; Wood, Halfon, Scarlata, Newacheck, & Nessim, 1993), suggesting that selection into moving may drive some of the negative associations of child outcomes with residential mobility. In this paper, we investigate whether moves have negative effects on young children's wellbeing independent of the precursors of moving.

Early childhood is a stage in which children experience rapid and foundational changes for future growth and learning (Phillips & Shonkoff, 2000). Yet, it has not been established whether moving during this time period has consequences for children. The physical growth and brain development occurring during early childhood pair with the increase in motor, language and emotional skills: children learn to direct their attention, control their behaviour, interact with others in an orderly way, and begin to form attachment bonds with people and places. As family stress theory suggests, home moves might affect young children through disruptions in their parents' and siblings' lives and social networks. Moreover, because of the cumulative nature of learning, moves occurring before age five could have an impact on school readiness. On the other hand, it is also possible that such cumulative learning includes the skills of adaptation and resilience that will allow the child to mitigate or prevent the consequences of adversities (Masten et al., 2012).

Given this, it is surprising that there are so few studies of younger children compared to the numerous studies of school-age children. There are even fewer based on national samples or longitudinal data. Results of the existing studies diverge from both the school-age literature and from one another. Some research indicates that residential mobility in the early years does not have an impact on cognitive or academic ability (Anderson, 2012; Coley, Leventhal, Lynch, & Kull 2013; Stoneman, Brody, Churchill, & Winn, 1999; Zioli-Guest & McKenna,

2014). This finding is inconclusive, however, as studies generally rely on small (e.g. Stoneman et al., 1999) or unrepresentative (e.g., Anderson, 2012) samples. Diverging from the other studies, Schmitt, Finders, & McClelland (2015) do find mobility is negatively associated with achievement in the fall term of pre-school in a sample of children primarily from Head Start. They find an indirect impact of mobility on spring achievement *via* fall achievement. Such mediating effects of early academic achievement suggest, along with previous research, that early years learning may have a cascade effect on later school performance (Phillips & Shonkoff, 2000).

When examining emotional and behavioural outcomes, researchers have found limited effects of residential mobility. Some find that externalising and internalising behaviours are not associated with residential moves (Anderson 2012; Murphey, Bandy & Moore 2012). Zioli-Guest & McKenna (2014)<sup>i</sup> report that attention problems, internalising behaviour and externalising behaviour are higher among children who moved three or more times and were also poor, compared to other young children. Studying a low-income population of young children, Stoneman and colleagues (1999) find that problem behaviours and depression were associated with frequent moves only among children whose temperaments were characterised by low emotional intensity. Using three-level hierarchical linear models and a sample from low-income urban areas, Coley and colleagues (2013) find negative effects of residential mobility on behaviour problems between individuals (i.e., moving is associated with more problems) but positive effects within individuals (i.e., moving is associated with fewer problems), suggesting possible selection processes at work. These associations hold in both early childhood and adolescence. As with studies of cognitive achievement, studies of behaviour generally rely on small and unrepresentative samples, although more recent work does use larger samples and longitudinal data (e.g., Zioli-Guest & McKenna, 2014).

### Childhood residential mobility in context

We argue that moving home might not reduce wellbeing on its own, but may do so because it co-occurs with stressful events like marital dissolution, job loss or financial hardship. For young children,

home moves often follow stressful family events such as parental incarceration, marital separation and unemployment (Clark, 2016, this issue; Clark 2012; Clark & Davies Withers, 1999; Geller, Garfinkel, Cooper, & Mincy, 2009; Long, 1992a), which diminish family economic resources. While these family events may undermine the wellbeing of children in general, economic hardship is especially detrimental for younger children (see, for example, Duncan, Brooks-Gunn, & Kato Klebanov, 1994; Gershoff, Aber, Raver, & Lennon, 2007). Moreover, for some children, moving house is a direct result of economic hardship and, at times, moving is involuntary (Clark, 2016, this issue; Long, 1992b; Phinney, 2013). Recent studies by Desmond, Gershenson, and Kiviat (2015) and Phinney (2013) highlight the importance of residential instability and evictions for children and families.

In sum, the literature indicates the importance of stressful family events, unstable housing, and economic hardship for residential mobility and its outcomes. But research seldom examines the impact of these dimensions simultaneously. And yet, the literature suggests the value of this joint analysis. First, these dimensions of children's lives are linked to each other. Changes in family structure affect residential mobility: children whose parents separate or divorce are highly likely to experience residential moves (Astone & McLanahan, 1994; South, Crowder & Trent, 1998), as are children whose parents become unemployed or change jobs (Clark & Davies Withers, 1999) or become incarcerated (Geller & Franklin, 2014). Second, overlapping mechanisms underlie the impact of each dimension on child wellbeing. Family transitions and residential mobility compromise child wellbeing to the extent they increase economic hardship, reduce the quality of social relationships, heighten family stress, and damage maternal mental health (Astone & McLanahan, 1994; Pribesh & Downey, 1999; Yeung, Linver, & Brooks-Gunn, 2002).

Put together, these studies suggest the importance of examining the precursors as well as the consequences of residential mobility for young children's wellbeing and development. Specifically, we predict that disruptions in families (including partnership transitions, parental incarceration, changes in parental employment, and instability of housing tenure) will be associated with home moves

over time among young children. We expect further that effects of residential mobility on child wellbeing depend, in part, on the circumstances that precede mobility. This overarching framework integrates a family stress perspective with an ecological model. By combining these, we gain the former's emphasis on stress throughout childhood and on linked lives (Elder, Johnson, & Crosnoe, 2003) with the latter's focus on the multiple contexts in which child development unfolds, specifically in families and neighbourhoods (Bronfenbrenner, 1977 and 1986).

## Data

We used restricted, non-public data from the first four waves of the Fragile Families and Child Wellbeing Study (FFCWS), a longitudinal investigation of 4,898 families with children born between 1998 and 2000 in 20 large US cities, oversampling unmarried parents (Reichman, Teitler, Garfinkel, & McLanahan, 2001). We focus on early childhood and include data from interviews as well as ecological measures at the time of the child's birth and when children were one, three, and five years old. Interviews were conducted with both the mother and father (when available) of the focal child<sup>ii</sup>. Besides these core surveys, additional information (e.g. child developmental outcomes, physical environment, parenting, etc.) was collected through in-home interviews with the primary caregiver and child activity assessments. At age five (the wave from which the child outcome measures were taken), 4,139 mothers completed the core questionnaire. Of these, 74% participated in the home interview and 57% (of children) in the activities assessment. Because of this non-random self-selection, we chose two analytic samples restricted respectively to 2,511 children with complete data on mobility, residential area disadvantage and behavioural outcomes (part of the in-home interview) and to 2,033 children with complete data also on verbal outcomes (included in the activity assessment component). However, when comparing background and family characteristics between the full and analytic samples, we did not find large differences<sup>iii</sup>.

To deal with missing data, we employed a two-stage strategy that built on both the longitudinal nature of the Fragile Families study and the fact that the information was collected from both mother and

father of the focal child. In the first stage, whenever applicable, missing information from the mother was logically replaced using either a repeated version of the variables in question, and/or supplementing it with the equivalent item from the father questionnaire. In the second stage, we imputed the remaining missing data *via* multiple imputation (Rubin, 1987). Multiple imputation (MI) is a simulation-based technique that creates multiple copies of the original data set and replaces missing information in each of these with values predicted from other variables (not necessarily with complete observations). Each imputed data set is analyzed as if it had complete data and the relative vector of parameters and associated variances is estimated. Then, following Rubin's rules, the vector of combined parameters and associated variances is computed, that is: each combined parameter equals the average of the corresponding values across all the multiple data sets; each combined associated variance equals the sum of the 'average within-imputation variance' and the 'between-imputation variance' (Rubin, 1987). The goal of MI is not to predict true values but rather to handle missing information in order to produce valid inference (Rubin, 1996). We used the module implemented in Stata 13 to carry out the MI procedure in our analytic sample. We created 20 imputed data sets and, using the univariate method with passive approach, we imputed each single cross-sectional variable with missing information separately by the appropriate imputation model (e.g. logit, multinomial, Poisson, etc.) and then created the longitudinal measures<sup>iv</sup>. We used these augmented data to run the models for the multivariate analyses.

All analyses used the five year-wave city-level probability weights and were adjusted to account for survey design. Moreover, in our longitudinal model,

we also adjusted for (the natural logarithm of) time between interviews since the spacing of the surveys varied from child to child and there were some outliers.

## Measures

In the present investigation we used both time-varying and time invariant measures as dependent as well as independent variables. Some of the time-varying measures capture changes occurring between consecutive waves, whereas the others are cross-sectional predictors lagged with respect to the dependent variables (tables 1 and 2 specify which contiguous waves the changes refer to and when the data were collected). Moreover, because of our analytic strategy (see below), most of the time-varying measures were also combined into single longitudinal variables. We detail the operational definitions of all measures below.

## Dependent Variables

*Number of Moves between Contiguous Waves* is the count of residential moves that occurred between consecutive waves of data collection reported by the mother at respectively age one, three, and five. On each measurement occasion the range ran from 'zero moves' through '10 moves'. Table 1 gives the average number of moves at each wave. At each time point, the inclusion of stayers brings the average number of moves to below one. Between birth and one year, 34% of children had moved at least once and between one–three years and three–five years, around 40% of the children moved at least once (not shown). Because moving four or more times between waves was relatively infrequent (occurring in fewer than 1% of cases), we recoded these cases by setting the upper limit of this measure to '3+ moves'.

**Table 1. Weighted descriptive statistics: outcome variables**

Variable	Mean	St. Dev.	Min – Max
<i>Number of moves between:</i>			
Birth to age 1	.43	.70	0 – 3+
Age 1 to age 3	.50	.68	0 – 3+
Age 3 to age 5	.52	.76	0 – 3+
<i>Child outcomes at 5yr:</i>			
Vocabulary score <sup>1</sup>	94.19	16.57	40 – 139
Externalising behaviour <sup>2</sup>	.40	.24	0 – 1.5
Internalising behaviour	.24	.20	0 – 1.1

<sup>1</sup> Based on the Peabody Picture Vocabulary Test (PPVT). It is an age-based standard score with M=100, SD=15 (Dunn & Dunn, 1997).

<sup>2</sup> The averages of 30 externalising and 22 internalising items on the Child Behavior Checklist (as selected by the FFCWS) scored 0 to 2 (Achenbach, 1992).

*Peabody Picture Vocabulary Test* (PPVT) is the cognitive measure which assesses children's age-standardised knowledge of receptive vocabulary and comprehension of spoken English. In this test, interviewers asked children to identify a picture (among a set of four pictures) that corresponded to a word that the interviewer read. The PPVT is highly correlated with standardised measures of intelligence such as the Wechsler Intelligence Scale—Third Edition (Dunn & Dunn 1997). As shown in Table 1, children in the FFCWS cities, even after weighting for the overrepresentation of single mothers, score about 5.8 points lower than the normed average of 100 (normed standard deviation=15).

*Internalising behaviour* and *Externalising behaviour* are two scales consisting of the sum of items from the Child Behavior Checklist (CBCL) (Achenbach, 1992; Achenbach & Rescorla, 2000), administered to caregivers as part of the in-home interview to rate the child on various emotional and behavioural problems at age five. The CBCL Internalising measure, which encompasses the CBCL sub-scales 'Anxious/Depressed' and 'Withdrawn', covers emotional problems; the Externalising measure,

which instead encompasses the CBCL sub-scales 'Aggressive' and 'Delinquent', assesses acting-out forms of behavioural problems. Response categories for each item indicated frequency of the problems ('0. not true', '1. somewhat or sometimes true', '2. very true or often true'). We took the mean score of 22 internalising and 30 externalising items. Cronbach's alphas for the two scales were respectively .75 and .86. As seen in table 1, in FFCWS, more externalising than internalising behaviour items are endorsed by the mothers.

### Main Independent Variables

We created two types of longitudinal measures: one set (shown in table 2) captures wave-to-wave changes and is used in analyses of residential mobility; the other (shown in table 3) captures changes between birth and age five and are used in analyses of child outcomes.

*Partnership change between contiguous waves* was created by combining FFCWS-constructed variables indicating the specific family structure at each of two consecutive waves (i.e. mother with child's biological father; mother with partner who is not child's

biological father; and single mother). The resulting combination was then recoded in a final five-category measure which refers to the changes that occurred between interviews, that is whether the mother had: been stably coupled (i.e. with the same partner at both interviews); transitioned from being in a couple to living with a new partner; transitioned from being single to living with a partner; transitioned from living

with a partner to being single; or was single at both time points. As shown in table 2, the proportion of stably coupled women declines at each wave from 68% between the child's birth and age one, to 60.5% between age three and five. There is a corresponding increase in proportions who move from coupled to single or who remain single between waves.

Table 2. Weighted descriptive statistics: time-varying variables

Measured between waves	Birth to year 1	Year 1 to year 3	Year 3 to year 5
	Mean (SD)	Mean (SD)	Mean (SD)
<i>Partnership change</i>			
Stably coupled biological father (ref.)	.678 (0.47)	.676 (0.47)	.605 (0.49)
From coupled to new partner	.005 (0.07)	.014 (0.12)	.031 (0.17)
From single to coupled	.106 (0.31)	.063 (0.24)	.072 (0.26)
From coupled to single	.063 (0.24)	.098 (0.30)	.115 (0.32)
Stably single (no partner at both waves)	.148 (0.36)	.148 (0.36)	.177 (0.38)
<i>Change in paternal incarceration</i>			
No incarceration (ref. group)	.951 (0.21)	.941 (0.24)	.939 (0.24)
Incarcerated at start of period	.014 (0.12)	.019 (0.14)	.019 (0.14)
Incarcerated at end of period	.030 (0.17)	.024 (0.15)	.020 (0.14)
Incarcerated at both waves	.006 (0.07)	.016 (0.13)	.022 (0.15)
<i>Transition in HH employment status</i>			
Stably employed (ref. group)	.759 (0.43)	.747 (0.43)	.737 (0.44)
From out of work to employed	.075 (0.26)	.085 (0.28)	.096 (0.30)
From employed to out of work	.081 (0.27)	.088 (0.28)	.093 (0.29)
Workless at both waves	.085 (0.28)	.080 (0.27)	.074 (0.26)
Measured at a point in time	Birth	Year 1	Year 3
	Mean (SD)	Mean (SD)	Mean (SD)
<i>Housing Tenure</i>			
Private market rental (ref.)	.413 (0.49)	.376 (0.48)	.335 (0.47)
Public housing tenancy	.118 (0.32)	.095 (0.29)	.148 (0.35)
Subsidised rental	.071 (0.26)	.072 (0.26)	.090 (0.28)
Homeownership	.252 (0.43)	.273 (0.45)	.284 (0.45)
Other/shared accommodation	.145 (0.35)	.183 (0.39)	.143 (0.35)
Index of local area relative disadvantage	.795 (1.45)	.756 (1.44)	.713 (1.47)
Hardship <sup>1</sup>	.605 (0.99)	.561 (0.95)	.618 (1.00)
Nat. log of equivalised HH income <sup>1</sup>	9.665 (1.50)	9.835 (1.45)	9.799 (1.37)
Household size	4.418 (1.67)	4.459 (1.61)	4.552 (1.56)
New sibling (or twin/triplet at birth)	.023 (0.15)	.126 (0.33)	.367 (0.48)

<sup>1</sup> Reported in an interview subsequent to the time period.

*Change in paternal incarceration status between waves* is the combination of two original dichotomous variables indicating whether, for each of two consecutive time points, the child's biological father was in jail. The four values of the resulting variable indicate whether he was: never incarcerated from beginning to end time point, incarcerated just at the beginning time point, incarcerated at the end time point, or incarcerated throughout the whole time. About 5–6% of fathers were incarcerated at each interview.

*Transition in household employment status between waves* is a four-category variable indicating change in the employment of the mother and her partner within each household across contiguous waves. At the baseline wave, we considered a mother as 'employed' if she had a job at the time of the interview or if her last job terminated no longer than six months prior to the birth of the child. For the child's father or the mother's partner, we considered his employment status at each wave s/he lived with the child's mother. We considered the household as 'employed' at a given interview if the mother (or the partner if she had one) reported having worked at a regular job most of the previous week. We constructed an employment transition measure with the following categories: household 'stably employed', 'from out of work to employed', 'from employed to out of work' and 'out of work throughout'. As seen in table 2, about three in four households reported at least one person working between each of the waves.

*Housing tenure before moving* reports the type of tenancy that child's mother had at the wave preceding any residential move (i.e., at birth, one year and three years). It is a five-category variable ('1. private market rental', '2. public housing tenancy', '3. subsidised rental', '4. homeownership', and '5. other/shared accommodation')<sup>v</sup>. As shown in table 2, the modal tenancy at each wave is market rental (without subsidy), followed by homeownership.

*Index of local area relative disadvantage* is a composite score created by Principal Component Analysis (PCA) based on a set of seven variables from

the 2000 US Census measuring different aspects of socioeconomic disadvantage (proportion of: people below poverty level, people at least 16 years old who are unemployed, households receiving welfare, female-headed households, people aged 25 or older with no high school diploma) and advantage (proportion of: people aged 25 or older with college degree and people at least 16 years of age who are managerial/professional workers) of the census tract of residence (Wodtke, Harding, & Elwert, 2011). The index was created at the national level on a total of almost 65,000 US census tracts. Its semantic polarity is such that higher scores indicate higher levels of local area disadvantage. The index was then merged to each of the four waves of the FFCWS data and used in the multivariate models.

*Level of hardship* is a sum of five items referring to possible problems encountered up to twelve months before each follow-up interview because of scarcity of money (i.e. receiving free food/meals, not being able to pay full rent/mortgage, not paying full amount utilities bills, borrowing money from friends/family, not seeing doctor/going to hospital because of money problems). We selected these items because they were asked consistently over time in the surveys at age one, three and five.

In analyses of child outcomes, the primary independent variable is *Total number of moves from birth through five-year wave*. This is the sum of the counts of residential moves that occurred between consecutive waves (see above). Because of outliers and to establish linearity in the parameters, it was recoded to a range from 'zero moves' through 'five or more moves'<sup>vi</sup>. The distribution of moves is shown in table 3. Only 31% of families had not moved at all between the child's birth and fifth birthday; a similar percent moved only once. Multiple moves are common, with 18.6% having moved twice and another 19.9% moving three or more times. This is in stark contrast to the MCS statistics reported by Gambaro & Joshi (2016, this issue) who found that only 5% of the U.K. cohort moved three or more times (albeit in a somewhat shorter time frame of nine months to five years).

**Table 3. Weighted descriptive statistics: time-invariant variables**

Variable	Mean	St. Dev.	Min – Max
<i>Number of moves, birth–5yr</i>			
0	.310	.46	0 – 1
1	.305	.46	0 – 1
2	.186	.39	0 – 1
3	.100	.30	0 – 1
4	.050	.22	0 – 1
5+	.049	.22	0 – 1
<i>Partnership change, birth–5yr</i>			
Stably coupled with biological father (ref. group)	.519	.50	0 – 1
From coupled to new partner	.040	.20	0 – 1
From single to coupled	.084	.28	0 – 1
From coupled to single	.129	.34	0 – 1
Multiple transitions	.146	.35	0 – 1
Stably single	.082	.27	0 – 1
<i>Paternal incarceration, birth–5yr</i>			
Never incarcerated	.914	.28	0 – 1
Incarcerated before birth	.019	.14	0 – 1
Incarcerated after birth	.067	.25	0 – 1
<i>Household employment status, birth–5yr</i>			
Stably employed (ref. group)	.646	.48	0 – 1
From out of work to employed	.081	.27	0 – 1
From employed to out of work	.086	.28	0 – 1
In and out of work (2 or 3 changes)	.164	.37	0 – 1
Stably workless	.023	.15	0 – 1
Household was ever evicted, birth–5yr	.041	.20	0 – 1
Index of local area relative disadvantage at 5yr	.603	1.45	-2.0 – 4.9
Index of local area relative disadvantage at birth	.795	1.45	-2.0 – 4.9
Average level of hardship, 1–5yr	.593	.77	0 – 5
Child has had new siblings, birth–5yr	.397	.49	0 – 1
Child was firstborn	.381	.49	0 – 1
Mother was not born in US	.215	.41	0 – 1
<i>Mother's race/ethnicity</i>			
White (ref. group)	.302	.46	0 – 1
Black	.361	.48	0 – 1
Hispanic	.277	.45	0 – 1
Other race/ethnicity	.060	.24	0 – 1
Mother's age in years at birth wave	27.1	6.15	14 – 47
Mother's level of education at birth wave	4.0	1.66	1 – 7
Mother's level general health at 1yr wave	3.9	1.06	1 – 5
Mother depressed at 1yr wave	.098	.30	0 – 1
Child's biological sex is male	.571	.49	0 – 1
Child was born underweight	.091	.29	0 – 1
Child's general health at 1yr	4.5	.78	1 – 5

Variable	Mean	St. Dev.	Min – Max
Child's age in months at 5yr	60.6	2.37	56 – 71

The main explanatory variables for analyses of child outcomes are shown in table 3. A longitudinal indicator *Partnership change from child's birth through five-year wave* was created from the between wave transitions. Since this variable accounts for the transitions that occurred across all four waves of data, an additional category 'multiple transitions' was added. A dummy variable that captures whether or not the father was incarcerated at or since the child's birth was included as well. In addition, we created the longitudinal predictor *Transition in household employment status from child's birth through five-year wave* which records the transitions across all four waves and adds the category 'in and out of work' to capture multiple employment transitions. We include an indicator of eviction (any report of eviction in waves 1, 3 and 5), housing tenure at birth, and local area disadvantage at birth and at age five. The *Average level of hardship from child's birth through five-year wave* was computed by averaging the three measures of hardship described above across waves.

### Control Variables

*Natural logarithm of equivalised income* is the time-varying measure used to represent household income in the year before the interviews took place. We equalise the original income measure by weighting it according to household size and composition (i.e. number of children vs number of adults) using the formula proposed by McClements (1977). This equalised measure then accounts for the cost of living across households. Moreover, to limit the effect of outliers we used the natural logarithm of this new measure. We include income and mother's education to capture the influence of socioeconomic status on mobility and child outcomes which research has routinely documented (Leventhal & Newman, 2010; Long 1992b; Mehana & Reynolds 2004).

*Household size* is the number of individuals living in the household, including the respondent; and *New siblings* indicates whether after the focal child's birth new siblings became part of the household ('0. no' and '1. yes'). At baseline we assigned value '1. yes' if the mother had had twins or triplet. At ages one and

three we combined information from a question about whether the mother had another baby or was pregnant at the time of the interview and from the addition of a new child on the household roster ('Biological/Adopted child', 'Stepchild', 'Foster child'). *New siblings from child's birth through five-year wave* indicates whether or not any new sibling became part of the household over that period. We also created a dummy variable, *Child was first born*, to indicate whether the focal child was the oldest among the co-resident siblings. These household characteristic variables control for family growth that might affect space needs, precipitate moves, and change the ecological context of child outcomes.

Finally, we also included in the multivariate models a series of time-invariant controls available at either baseline or age one. They can be grouped into measures about: the mother (i.e. mother was not born in US, race/ethnicity, age, level of education, level of general health at one-year wave, depressed at one-year wave<sup>vii</sup>); and the child (biological sex is male, low birthweight as below 2,500 gm, level of general health at one year, age in months at five-year wave). Further details about all the variables can be found in table 3. A wide range of research has found *mother's race/ethnicity* to be an influence on residential mobility (Anderson 2012, p. 84; Coulton, Theodos, & Turner, 2009; Desmond 2012; Long 1992b, p. 866). As discussed in the literature review, maternal health is closely linked with child outcomes (Cicchetti, Rogosch, & Toth, 1998; Lyons-Ruth, Brofman & Parsons, 1999) and mobility (Anderson et al., 2014), which motivates our inclusion of these variables.

### Analytic strategy

We conducted the multivariate analysis using two different modelling techniques. To address the question about the precursors of residential mobility we modeled the number of residential moves over time by Generalized Estimating Equations (GEE). The main advantage of this technique over generalised linear models is the ability to account for within-subject correlation among the repeated measures (Hilbe, 2014). Such correlation structure can be further specified as independent, exchangeable,

autoregressive, or unstructured, although some authors emphasise the robustness of GEE models even with a mis-specified correlation structure (Fitzmaurice, Laird, & Ware, 2011). To choose the most appropriate specification, we compared the zero-level correlations of the repeated measures of the dependent variable with the post-GEE estimation of the within-subject correlations for three different correlation structure specifications of the model (i.e. autoregressive, exchangeable and unstructured). We found the greatest similarity with the correlations obtained after the run of the GEE with a first order autoregressive specification (i.e. AR1). This means that the value of the outcome (number of moves) is more highly correlated with its immediately preceding value, but progressively less the earlier the time points its (time-varying) values belong to. In addition, because our dependent variable did not show over-dispersion, we chose the Poisson model link for the final specification. We ran two GEE models: the first, with family events and circumstances; in the second, we included all the controls.

To investigate the consequences of residential mobility for child wellbeing we ran separate series of Ordinary Least Squares (OLS) regression models to predict each of the three child outcomes of interest (PPVT, and internalising and externalising behaviour). The goal is to test (a) whether there is any baseline association between number of moves and the dependent variables, and (b) whether this association

is explained away by the different family events (i.e. change in family configuration, change in household employment status), housing related measures, family vulnerabilities and capabilities, and demographics. Therefore, for each dependent variable we ran a total of five models where the first includes the total number of moves controlling just for child's sex and exact age at the age five interview<sup>viii</sup>, and the following models add progressively (2) partnership and incarceration (3) employment transitions (4) tenure, eviction, area disadvantage, and hardship (5) all controls (for more details, see table 6 below).

## Results

### The precursors of residential mobility

Table 4 gives results of Generalized Estimation Equations (GEE) predicting number of moves between waves for equations with measures entered sequentially. Model 1 shows coefficients for changing family characteristics, including partnership change, paternal incarceration, parental employment changes, housing tenure, local area disadvantage, and hardship, while Model 2 includes all control variables shown in the bottom half of table 4. We report both logistic coefficients and exponentiated ones (IRR: Incidence Rate Ratios). The latter indicates the percentage change in the rate of moving associated with a one-unit increase in the predictor variable.

**Table 4. Generalised estimating equations with poisson distribution predicting number of residential moves**

Variable	Model 1		Model 2	
	b (SE)	IRR	b (SE)	IRR
<i>Partnership change</i>				
Stably coupled (ref. group)	—	—	—	—
From coupled to new partner	.64 (.19)**	1.90	.63 (.19)**	1.88
From single to coupled	.29 (.09)**	1.34	.24 (.09)**	1.27
From coupled to single	.29 (.11)**	1.33	.28 (.11)**	1.32
Stably single	.02 (.08)	1.02	-.04 (.08)	.96
<i>Paternal incarceration</i>				
No incarceration (ref. group)	—	—	—	—
Incarceration at start	.26 (.12)*	1.30	.27 (.12)*	1.31

Variable	Model 1		Model 2	
	b (SE)	IRR	b (SE)	IRR
Incarceration at end	.24 (.14) <sup>†</sup>	1.27	.23 (.12) <sup>†</sup>	1.26
Incarcerated throughout	.20 (.15)	1.22	.15 (.13)	1.17
<i>Household employment status</i>				
Stably employed (ref. group)	—	—	—	—
From out of work to employed	.01 (.09)	1.01	.05 (.09)	1.05
From employed to out of work	.12 (.11)	1.13	.15 (.12)	1.16
Stably workless	.16 (.11)	1.17	.23 (.12) <sup>*</sup>	1.25
<i>Housing tenure</i>				
Private market rental (ref. group)	—	—	—	—
Public housing tenancy	-.38 (.15) <sup>*</sup>	.68	-.32 (.15) <sup>*</sup>	.73
Subsidised rental	-.22 (.11) <sup>†</sup>	.80	-.17 (.11)	.84
Homeownership	-1.18 (.13) <sup>***</sup>	.31	-1.10 (.13) <sup>***</sup>	.33
Other/shared tenancy	-.20 (.07) <sup>**</sup>	.82	-.24 (.07) <sup>**</sup>	.78
Index of local area relative disadv. birth	-.02 (.03)	.98	.00 (.03)	1.00
Hardship	.13 (.03) <sup>***</sup>	1.14	.11 (.03) <sup>**</sup>	1.11
Nat. log of equivalised HH income	—	—	.04 (.02) <sup>†</sup>	1.04
Household size	—	—	-.02 (.02)	.98
Child was first born	—	—	.13 (.08) <sup>**</sup>	1.14
New sibling	—	—	-.26 (.09) <sup>**</sup>	.77
Mother was not born in US	—	—	.11 (.13)	1.12
<i>Mother's race/ethnicity</i>				
White (ref. group)	—	—	—	—
Black	—	—	-.19 (.11) <sup>†</sup>	.83
Hispanic	—	—	-.13 (.13)	.88
Other race/ethnicity	—	—	.20 (.17)	1.22
Mother's age	—	—	-.03 (.01) <sup>***</sup>	.97
Mother's level of education	—	—	.02 (.03)	1.02
Mother's level of general health	—	—	.02 (.04)	1.02
Mother depressed	—	—	.32 (.09) <sup>***</sup>	1.37
Child's biological sex is male	—	—	-.01 (.05)	.99
Child was born underweight	—	—	.12 (.07)	1.12
Child's general health	—	—	.01 (.04)	1.01
Constant	-1.46 (.42) <sup>**</sup>	.23	-1.35 (.64) <sup>*</sup>	.26

Variable	Model 1		Model 2	
	b (SE)	IRR	b (SE)	IRR
Lowest Wald $\chi^2$ across Imputations ( <i>df</i> )	430*** (87)		693*** (103)	

†  $p < .1$ , \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

In the first model, we find that respondents who are stably single do not differ on number of moves from those who are stably coupled between waves. All partnership transitions are associated with more frequent moves, with the highest rate of moving found among those transitioning from one partner to another (IRR=1.90). Parental incarceration also increases the rate of moving, especially for those incarcerated in the period prior to the move. Housing tenure is associated with moving frequency, with those living in private market rentals moving more often than residents in other tenures. Homeowners move the least (69% below the rate of renters in the private market), while those in public housing move at 32% below the rate found in private renters. Renters in subsidised housing move at 20% below the rate of private renters, but this estimated parameter is just marginally significant. Each unit increase in hardship on the 0–5 scale increases the rate of moving by 14%.

The second model shows further minor changes in most of the coefficients in model 1. The coefficient for worklessness increases and becomes statistically significant. Respondents who are out of work at two consecutive time points have a 23% higher rate of moving compared to those whose household is employed at both times. The coefficient for subsidised rental is no longer statistically significant.

Regarding the covariates, there is a marginally significant effect of income in the positive direction, indicating that, controlling for hardship, households with higher income tend to move more frequently. Older mothers move less frequently than younger ones, while depressed mothers have a higher rate of moving. Both of these findings are consistent with the literature (e.g., Phinney, 2013).

### Residential mobility and child outcomes

Table 5 summarises results of five sequential OLS models for each child outcome (verbal skills, internalising problems, and externalising problems). For each outcome, we find a significant association of number of residential moves from birth through age five in the first model (with few controls) and, in each case, these associations are reduced to non-significance with the addition of other variables. The coefficient of verbal skills on number of moves in model 1 is reduced by more than half with the inclusion of partnership transitions and incarceration, and remains non-significant in models 2 through 5. The coefficient of internalising problems reduces more gradually in models 2 and 3 becoming non-significant in models 4 and 5. The coefficient of externalising problems on number of moves remains significant in models 1–3, only becoming non-significant in the final model.

Table 5. Regression coefficients for number of residential moves for different model specifications predicting child outcomes

Variable	Verbal score	Internalising problems	Externalising problems
	b (SE)	b (SE)	b (SE)
<b>Model 1:</b> Family structure at birth, child's sex and age	-1.28 (.45)**	.015 (.006)*	.020 (.008)*
<b>Model 2:</b> Model 1 with partnership change, parental incarceration	-.58 (.44)	.014 (.007)*	.017 (.008)*
<b>Model 3:</b> Model 2 with employment transitions	-.47 (.42)	.013 (.007)†	.016 (.008)*
<b>Model 4:</b> Model 3 with housing tenure, eviction, local area relative disadvantage at birth and 5yrs, hardship	-.10 (.59)	.007 (.007)	.014 (.007)†
<b>Model 5:</b> Full model (see table 6 for all variables)	-.44 (.55)	.008 (.008)	.012 (.008)

† p < .1, \* p < .05; \*\* p < .01; \*\*\* p < .001

It is worth pointing out that the pattern of results shown in table 5 is very similar to that shown by Gambaro and Joshi for children in the UK Millennium Cohort study (2016, this issue, see table 4). Similar sets of controls reduce the association of moves with child outcomes in both cases (although there are some differences in variables included by each study and some differences in the estimates for each variable). Future work will offer a direct comparison of results of these two studies.

Table 6 shows the final, full model (model 5) for each outcome variable. Even with all control variables in the equation, parental employment remains associated with verbal skills. Compared to children in stably employed families, those whose

parents are stably workless or move into or out of employment, have lower reading skills. However, while the coefficient for stably workless households is fully statistically significant, the coefficients for the other two categories of households are only marginally significant. Also, children residing in public housing have lower vocabulary levels than those who are in private rentals. Income, but not hardship, is associated with verbal skills, with children from higher income families performing better. Consistent with this, children with more highly educated mothers and healthier mothers perform better. Both immigrant and minority children have lower verbal scores.

Table 6. Regression coefficients for full models predicting child outcomes

Variable	Verbal score	Internalising problems	Externalising problems
	b (SE)	b (SE)	b (SE)
Number of moves	-.44 (.55)	.008 (.008)	.012 (.008)
<i>Partnership change</i>			
Stably coupled (ref. group)	—	—	—
From coupled to new partner	-9.22 (5.25) <sup>†</sup>	.013 (.052)	-.019 (.040)
From single to coupled	1.67 (2.55)	.035 (.033)	.032 (.038)
From coupled to single	-2.69 (2.17)	.017 (.022)	.024 (.030)
Stably single	-1.38 (2.29)	.051 (.033)	.045 (.033)
Multiple transitions	-.33 (2.05)	.012 (.031)	.034 (.034)
<i>Paternal incarceration</i>			
No incarceration (ref. group)	—	—	—
Incarceration before child's birth	2.28 (1.56)	-.013 (.045)	.054 (.032)
Incarceration after child's birth	-1.56 (1.98)	.005 (.026)	.042 (.033)
<i>Household employment status</i>			
Stably employed (ref. group)	—	—	—
From out of work to employed	-6.14 (3.11) <sup>†</sup>	.030 (.026)	.056 (.033) <sup>†</sup>
From employed to out of work	-4.27 (2.39) <sup>†</sup>	.038 (.027)	.039 (.038)
Stably workless	-7.43 (3.52) <sup>*</sup>	.019 (.072)	-.012 (.039)
In and out of work	.25 (3.22)	-.004 (.025)	.032 (.032)
<i>Housing tenure</i>			
Private market rental (ref. group)	—	—	—
Public housing tenancy	-4.87 (1.89) <sup>*</sup>	-.019 (.021)	-.004 (.023)
Subsidised rental	-4.57 (3.07)	.044 (.025) <sup>†</sup>	.033 (.047)
Homeownership	1.97 (2.01)	.011 (.027)	.033 (.031)
Other/shared tenancy	-1.30 (1.49)	-.003 (.020)	-.009 (.028)
Household was ever evicted	-1.15 (2.04)	.056 (.036)	-.013 (.028)
Index of local area relative disadvantage at birth	-.06 (0.68)	.013 (.010)	-.006 (.013)
Index of local area relative disadvantage at year 5	-.80 (0.67)	.007 (.005)	.011 (.010)
Hardship	.83 (1.22)	.026 (.009) <sup>**</sup>	.028 (.008) <sup>**</sup>

Variable	Verbal score	Internalising problems	Externalising problems
	b (SE)	b (SE)	b (SE)
Nat. log of equivalised HH income	1.46 (0.43)**	-.000 (.007)	.001 (.007)
Household size	-.86 (0.48)†	.007 (.010)	.007 (.008)
Child was firstborn	1.40 (1.59)	.012 (.018)	.002 (.028)
New sibling	3.71 (1.49)*	.001 (.020)	-.012 (.017)
Mother was not born in US	-5.94 (1.90)**	.046 (.047)	-.010 (.038)
<i>Mother's race/ethnicity</i>			
White (ref. group)	—	—	—
Black	-5.11 (1.93)*	-.067 (.015)***	-.006 (.026)
Hispanic	-6.22 (2.12)**	.000 (.025)	.026 (.036)
Other race/ethnicity	1.10 (2.46)	-.015 (.048)	-.028 (.052)
Mother's age	.09 (0.12)	.002 (.002)	-.002 (.003)
Mother's level of education	.87 (0.47)†	-.005 (.006)	-.003 (.007)
Mother's level of general health	1.35 (0.51)*	-.002 (.008)	-.011 (.010)
Mother depressed	1.96 (2.53)	.032 (.030)	.035 (.023)
Child's biological sex is male	-1.31 (1.29)	.010 (.016)	.033 (.013)*
Child's age	.04 (0.35)	.004 (.004)	-.007 (.004)†
Child was born underweight	-1.35 (1.55)	-.005 (.021)	.051 (.031)
Child's general health	-.42 (0.96)	-.011 (.010)	-.002 (.012)
Constant	82.04(20.18)***	-.049 (.280)	.776 (.277)**
R <sup>2</sup>	.38	.11	.09
Lowest F-test across Imputations (df)	54*** (36)	20*** (36)	11*** (36)

† p < .1, \* p < .05; \*\* p < .01; \*\*\* p < .00

Behavioural outcomes show a different pattern of correlation, with fewer significant predictors in the final model. Financial hardship is positively associated with internalising problems. Black children have lower rates of internalising problem. Finally, similar to internalising problems, externalising behaviour problems are higher among children whose families face financial hardship. They are also higher among boys.

## Discussion

Some residential mobility research treats events that co-occur with moves as ‘nuisance factors’ to be statistically controlled. However, these events contribute to both residential mobility and to child wellbeing. Moving appears to be part of a constellation of events and changes experienced by young children. Accounting for the breadth of events will be important for future research, and we find that of particular importance among the range of stressful circumstances are lack of parental employment, partnership transitions, paternal incarceration, unstable housing tenure and financial hardship.

These results resonate with Bronfenbrenner’s ecological systems perspective, with its focus on the importance of proximal contexts for young children. Moving appears to be a response to both positive and negative circumstances as seen in the increased likelihood of moves with high levels of financial hardship as well as the somewhat increased likelihood of moves with high levels of income. Moving house at a young age is a normative step in the life course but one that may be enacted under difficult situations.

The importance of context is further highlighted in our models of child outcomes. We find support for our hypothesis that the association of the number of home moves with child outcomes appears to be entirely accounted for by the circumstances associated with moving and characteristics of families that do move. Before these factors are taken into account, the more children move in the early years, the worse their verbal skills and the more internalising and externalising problems they exhibit. The association with vocabulary is accounted for by family transitions in partnership and paternal incarceration, both of which generate more frequent

mobility. These types of events also reduce the association of residential mobility with behaviour problems. For internalising behaviour, employment transitions account for a small part of the association with moving as does housing tenure. The association between number of moves and externalising problems is accounted for, in part, by transitions in family life, employment, hardship, and tenure and fully accounted for once the set of control variables is included. For all three outcomes, the impact of moving home on children appears to be due to the circumstances that give rise to the move, rather than moving by itself. These results are consistent with those reported by Gambaro and Joshi for the UK in this issue and consistent with past findings (Anderson, 2012; Wood, Halfon, Scarlata, Newacheck, & Nessim, 1993)<sup>x</sup>.

These findings have important implications for housing policy. A major concern in any housing policy change is whether it will allow families to stay in their homes or require them to move. Many recent policies in the US, including the federal Rental Assistance Demonstration program and local initiatives like New Jersey’s Ethel Lawrence housing development, encourage moving as either an explicit or implicit feature (Blumgart 2015; Massey, Albright, Casciano, & Derickson, 2013). Our finding that moves themselves are not harmful, at least for young children, might suggest to policymakers that concern for young children need not dictate whether policies should encourage housing stability or mobility. Rather, we suggest that policy makers distinguish between ‘advantaging’ and ‘disadvantaging’ moves (see Lupton, 2016, this issue), creating policies that facilitate the former and deter the latter. As for our findings that unemployment and economic hardship maintain an enduring impact on children even when controlling for other factors, this underscores the need for policymakers to maintain or develop responses to the negative underlying causes of moves.

While this study benefited from a rich array of measures and from a panel design, it is not without limitations. We have no direct measures of families’ reasons for moving; nor, with the exception of controlling for evictions, do we measure involuntary moves. Desmond and Kimbro (2015) indicate that the report of eviction in the Fragile Families Study is likely

to be an underestimate. In addition, forced or involuntary moves may occur without eviction: threats of legal action, rent increases above what is affordable, cut backs in housing subsidies, and the like, may all compel families to move house (Desmond & Kimbro, 2015). Moreover, families may wish to move but may be unable to do so because of financial constraints. Some research suggests that even when families are not forced to move, high rent burdens damage children's wellbeing (Harkness & Newman 2005; Newman & Holupka 2014, but see Coley et al. 2013). Future research should investigate both the desire to move and reasons for moving (or staying put) as Lupton suggests in this issue.

This study was also conducted prior to the Great Recession, a period in which instability in employment, income, and housing increased. Effects of moving during those difficult economic times may

differ from those in the period studied here when the economy was stronger. In addition, the housing and neighbourhood contexts that influence child wellbeing are themselves shaped by shifting housing policies and markets. The mortgage crisis of 2008 forced many foreclosed homeowners to move into rental units, hastening the decline of homeownership and the increase in renting. This housing instability is felt at the household-level as ontological insecurity (Giddens, 1984, 1991; Hiscock, Kearns, Macintyre, & Ellway, 2001; Ross & Squires, 2011), which refers to the sense that the material and social world are neither trustworthy nor constant. Coupled with increased economic uncertainty and hardship, growing housing instability may produce more difficulties for families and their young children in years to come.

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## Endnotes

<sup>i</sup> This article uses data from the Fragile Families and Child Wellbeing Study, as does ours. Given different model specifications, our analyses do not replicate these results. We discuss this further in endnote ix.

<sup>ii</sup> If the mother had twins or triplets, only one child was followed. This was the case for 95 of the 4,898 mothers interviewed in the baseline wave.

<sup>iii</sup> The differences between our analytic samples and the full sample were all under the 2% range. The largest difference referred to the race/ethnicity variable, which in the analytic samples overrepresented Black mothers by 1.7% and mothers of Other race/ethnicity, who instead are underrepresented by 1.6%.

<sup>iv</sup> An alternative viable method for our study is Multiple Imputation by Chained Equations (MICE) where the missing values are filled in through a series of linked (i.e. chained) univariate imputation models run iteratively. In MICE both 'imputed' and 'imputing' variables may have missing information and each one of them is imputed using its own imputation model (i.e. its own posterior predictive distribution; see Royston & White, 2011). The imputation then proceeds according to the increasing level of missing information, starting from the variable with the lowest amount of missing values. Due to the theoretical weakness of this approach (van Buuren, Brand, Groothuis-Oudshoorn & Rubin, 2006) and the modest amount of missing information in our analytic sample (between one-15 cases had incomplete data on seven variables, less than 5% on two measures, and 10.7% on one), we preferred the MI univariate method with passive approach. The Multivariate Normal (MVN), another imputation method, was not appropriate for our study because of its normal distribution assumption used in the data augmentation, which is not tenable for the categorical variables we used in the analyses.

<sup>v</sup> The baseline measure had four rather than five categories because sharers/others were included both homeowners and market renters in the survey item. To create this fifth category we first reallocated in it those cases that had not moved in following waves (i.e. the stayers) then, for the remaining cases we proceeded with conditional multiple imputation.

<sup>vi</sup> We evaluated the distribution of this measure (which ranged from 0–20) and checked for linearity of the parameters, using dummy variables to represent each number of moves. Based on these analyses, we top-coded number of moves at five (where a total of 2.2% of cases had experienced 6–20 residential moves).

<sup>vii</sup> As measured by the Comprehensive International Diagnostic Interview Short Form (CIDI-SF) (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998).

<sup>viii</sup> In this baseline model we add the dummy 'single mother at birth' to further control for survey design effect. Its statistical adjustment is then picked up in following models once we introduce the variable on parental structure.

<sup>ix</sup> It is important to note that our findings differ from those reported by Ziol-Guest and McKenna (2014) who used the same dataset. They found that more than three moves, coupled with childhood poverty, was most consequential for child attention problems, internalising behaviour and externalising behaviour. We chose to not discretize number of moves because our analyses showed that there is a linear association (in the parameters) between moves (up to five and more) and child outcomes. We also chose to use the full range of information of family economic circumstances (including level of hardship and income). MacCallum and colleagues (2002) caution strongly against the practice of converting continuous measures into discrete variables, especially when testing for interaction effects. We were unable to detect an interaction of number of moves and family income (or hardship) using continuous measures of these variables.

# Moving home in the early years: what happens to children in the UK?

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## Abstract

*Children's early years are a time when many families move home. Does residential mobility affect children's wellbeing at age five in terms of cognitive and behavioural development? The question arises as moving home is sometimes portrayed as a stressful life event adversely affecting child development, particularly if frequent. Other studies suggest a more mixed role for home moves, which may reflect good or bad changes in family circumstances. This paper first presents evidence from the first five years of the UK Millennium Cohort Study about who moved, how often and why. We find that many British families at this point in the life cycle move to improve the housing of a growing family. We then investigate the relationship between the number of moves and child outcomes. Generally, moving displays an adverse association with our three indicators of child development at age five. However the adverse association is statistically explained by changes in family structure, employment status, insecure housing tenure, and other controls for family vulnerabilities. Moving is better seen as sometimes a response to other family stressors. Differentiating moves in terms of their destination we find that moving into the 30% poorest areas, as well as 'failing' to move out of them, shows some adverse outcomes for children. After allowing for other associations with family disadvantage, also apparent in other studies of the Millennium Cohort, we find a small but significant disadvantage to living in low-income areas as well as moving within them.*

## Keywords

Residential mobility, area poverty, move quality, child development, early years, Millennium Cohort Study

## Introduction

This paper presents large-scale evidence on moving home by young families in the UK, looking for signs of any impact on children while they are still in their early years. Residential mobility is of interest from various angles – the geographical distribution of the population, the flexibility of the labour market and of housing and other service provision, family dynamics over the life-course, as a cause and consequence of health conditions, and of differences between neighbourhoods. There are many interacting facets to an individual change of address. These are narrowed here to a focus on moves and outcomes in children's early years,

before schooling dominates their environment, but in which developmental foundations with lifelong consequences are laid down (Heckman, 2000; Shonkoff & Phillips, 2000).

Early childhood is one of the points in life where people often move home. For example, the UK 2001 Census indicates that one in five families with a new birth had moved in the prior 12 months. Residential mobility declined for older children, but was still at 10% among five year olds. Children's mobility, of course, reflects decisions made by their parents and indeed the mobility rate of pre-schoolers was very similar to that of adults aged 30 to 35 (Champion, 2005). The residential mobility

literature has long highlighted the link between family formation and mobility, but by focusing on *why* people move it has largely ignored children (Dieleman, 2001). Demographers and developmental psychologists have paid more attention to children, but they have usually been concerned with school-age children and adolescents (Anderson, Leventhal, Newman & Dupéré, 2014). Although it is important to enquire whether home moves at school age disrupt schooling and peer relations, this study is specifically focussed on pre-school years, and deliberately abstracts from these issues.

There are several reasons to think that residential moves are also significant events for younger children. First, well before starting school children spend an increasingly large amount of time outside their home with adults other than their parents (Shonkoff & Phillips, 2000). Moving home can cut these ties. Second, families with very young children often rely on a *local* network of support. Again, moving can expose parents, and mothers in particular, to difficulties in accessing services or obtaining the help they need. The residential mobility of families with young children is also relevant to service delivery. In the UK, since the early 2000s, several policies for children under five, for example Sure Start and the Neighbourhood Nursery Initiative, have had a distinct spatial character, with investment targeted within the most deprived areas. Mobility can undermine these policy efforts, especially if it is the most vulnerable families who move out.

Early childhood is here seen as a distinct phase in life, when moving home is a common event, which affects the contexts with which young children regularly interact – the family, the home environment and the neighbourhood. We ask which families change home during children's first five years of life and what association there is between moving and child's outcomes. In addressing these questions, we examine a series of co-occurring events in children's lives as well as the nature of moves. To do so, we use longitudinal evidence from a single source, the UK Millennium Cohort Study (MCS) over the period 2001-2006 when these children reached the age of five, and when public policies to support young families were in their heyday (Stewart, 2013). The study was undertaken in parallel with the analysis of residential mobility in the contrasting context of US cities, recorded by the

Fragile Families and Child Wellbeing Study (FFCWS), and analysed by Beck, Buttaro and Lennon (2016, this issue). We conclude that whether moving home helps or hinders children to flourish depends on the 'quality' of the move and a host of circumstances surrounding it.

### Some relevant literature

A vast literature from several disciplines about residential mobility concurs that, in both the US and UK, people tend to be more mobile in phases of the life cycle when they have, or are themselves, young children. In the normal course of events, growing families require more living space (Clark & Onaka, 1983). At least one person moves when partnerships form, as well as dissolve. Moves are also associated with positive or negative changes in employment, and may be motivated by opportunities to improve housing or neighbourhood. Besides these regularities, moving patterns in the UK are different from those in the US, mainly because they are less frequent and the structure of housing tenure has been more favourably tilted towards social housing in the UK than is public housing in the US. We concentrate mainly on studies from the UK, as they are more relevant to our empirical analysis (see Beck et al., 2016, this issue, for further references to the US literature).

Moves of British working age households in the 1990s were typically local and infrequent (Böheim & Taylor, 2002; Clark & Huang, 2003), but not invariably. They tended to cover longer distances when triggered by changes of employer. There were high rates of mobility for private tenants and those initially overcrowded or dissatisfied with their neighbourhood; higher rates of mobility for the unemployed than the employed, and for families with children under rather than over six. Marital change was also seen to trigger moves. Frequent mobility may be an influence on the stability of partnerships as well as vice versa (Boyle, Kulu, Cooke, Gayle, & Mulder, 2008). As described by Clark (2013 and 2016, this issue) moves have a multiplicity of motives and vary in the extent to which they are forced or voluntary, or realised as intended. Owner occupation tends to be a destination tenure, from which people seldom move out, while renting privately has tended to be transitional, associated with instability. There is particular interest in Britain in the relative

immobility of social tenants (i.e. those who rent from local government authorities or not-for-profit housing associations), who may not be free to seek new accommodation further afield than their original provider. Cho and Whitehead (2013) show that the characteristics of individuals to whom such housing is allocated offer an alternative explanation for their not moving. As the social housing sector shrinks from the mid 2000s (as also reported in Lupton, 2016, this issue), it is increasingly catering to the more vulnerable. At the other end of the social spectrum, good schools are a magnet for moves by families in the UK (Gibbons & Machin, 2006), in particular by relatively advantaged, home-owning parents of pre-school children in the MCS (Hansen, 2014b). This behaviour boosts house prices in favoured localities, and contributes to spatial socioeconomic segregation.

The topic of residential mobility is intertwined with that of neighbourhood. Mobility may be both a cause of differences between communities – via selective in- and out-migration – and a consequence – neighbourhood characteristics (like good schools) may attract in-moves, or (in the case, say, of high crime) may precipitate flight. Among the challenges facing the study of effects of location per se on individual health, development or behaviour are those of allowing for selection effects, and of allowing for the duration of individual exposure to a particular environment, for which information on mobility can help (Hedman, 2011; van Ham, Manley, Bailey, Simpson, & Maclennan, 2013). Even if statistical indicators measure nothing more than the composition of the ‘local’ population, their use in the targeting of policies can be justified on grounds of practicality. New Labour policies in early years of the 2000s were dominated by the idea of bringing resources to the most disadvantaged areas (Lupton, Fitzgerald & Fenton 2013), rather than incentivising people to move out of them. This contrasts with an approach that has been adopted in the US of moving disadvantaged families away from disadvantaged areas, as explored in the Gautreaux and Moving to Opportunity experiments, which implicitly assumed that individuals would have something to gain from being in a ‘better neighbourhood’ (Chetty, Hendren & Katz, 2016; Rosenbaum, 1995). In the UK the idea of mobility as a policy lever is probably less acceptable.

A review of the literature on area effects on children’s outcomes, primarily in the US, provides a

number of estimates of clear, albeit small, neighbourhood differences beyond those explained by individual circumstances, although the mechanism behind them is poorly understood (Leventhal & Brooks-Gunn, 2001; Sastry, 2012). In the UK context, where inequalities across areas are not as wide as in the US (Tunstall, 2005), an association has been found between the neighbourhood context, variously measured, and child outcomes but this is relatively minor compared to the association with the individual family material circumstances. McCulloch (2006) found that externalising behaviour problems among the offspring of the British 1958 cohort, assessed in 1991, showed a more robust association to their neighbourhood than internalising behaviour or cognitive scores. In the case of the school-age twins in the Environmental Risk (E-Risk) Study the apparent protective effect against anti-social behaviour of neighbourhood collective efficacy was found only in deprived areas (Odgers et al., 2009). The analysis of internalising and externalising behaviour of three year olds in the MCS (Flouri, Tzavidis & Kallis, 2010) used a variety of information on small statistical areas from the official Indices of Multiple Deprivation (IMD), but concluded that the socioeconomic resources of individual families dominated the explanation of child mental health problems. Further analysis of problem behaviour in the MCS over ages three, five and seven (Flouri, Midouhas, Joshi, & Sullivan, 2015), found some evidence that neighbourhood deprivation was a risk factor for behaviour problems, alongside family poverty and adverse life events. Their model also allowed for residential mobility implicitly as it contributed to the sum of ‘adverse’ events, though it was neither identified separately, nor screened on whether the event had been stressful. Families whose moves put them into another IMD decile were ‘credited’ with a changed exposure to neighbourhood conditions. Positive parenting buffered these albeit modest risks. An analysis of cognitive outcomes in the offspring of the 1958 cohort, assessed at ages ranging from four to 16, found an independent association of neighbourhood poverty and the child’s vocabulary only among children aged four to six, contrary to the expectation that it would be stronger for older children (McCulloch & Joshi, 2001). Even here, as elsewhere, the size of the estimated ‘effects’ of local conditions was much smaller than those of

family circumstances. Heilmann, Kelly, Stafford, and Watt (2013) used a cross-classified multi-level model of children aged seven surveyed in the MCS who had neither moved school nor home since age five and found that neighbourhood 'effects' in cognitive scores were dominated by school 'effects'.

There is also research specifically on the effects of moving home during childhood. A psychological literature includes moving home as at least a potentially 'adverse life event' for children as well as adults (Tiet et al., 1998). Jelleyman and Spencer (2008) provide a systematic review of 26 studies on the health outcomes of residential mobility in childhood, but the studies included come mainly from North America and mainly concern outcomes in mid childhood or adolescence. A common finding is a negative outcome of multiple (or 'high frequency') moves. In particular, a study of residential mobility across phases of childhood draws attention to the changes in family and neighbourhood context entailed by a move for the child's experience, and notes the tendency in the US of such contexts to deteriorate with the number of moves (Anderson, Leventhal, Newman, & Dupéré, 2014). Clark (2016, this issue) adds to the US-based evidence of adverse outcomes, school drop-out in particular, from high frequency moving. Dong and colleagues (2005) however warn that apparent associations between childhood residential mobility and multiple health risks during adolescence and adulthood may reflect a hidden role of adverse childhood experiences. These were ascertained in Dong's study through retrospective questions. Chetty, Hendren and Katz (2016) have recently reported long-term gains in terms of adult earnings to people who moved to better areas as children, but their data do not include outcomes in childhood. Oishi and Schimmack (2010) report that long-term outcomes in adulthood of childhood residential mobility depend on the individual's personality type, extroverts being more likely to thrive.

There is also mixed evidence on the outcomes of mobility from Europe. Chen (2013) uses Swedish data and finds a robust relationship for lower educational attainment among adolescents with a history of residential mobility and not living in owner occupation. This is attenuated, but not eliminated, by parents' education and little affected by family income and wealth. In a long term, prospective follow up of moves in childhood to ages

18 and 36 in the West of Scotland, Brown et al. (2012) found frequent moves, especially if they involved moving school, were associated with poorer outcomes in mental health and illegal drug use, even after adjusting for family circumstances. This was not found for physical health. Verropoulou, Joshi and Wiggins (2002) examined the relationship between moving home, family structure and children's wellbeing in the school-aged children of the British 1958 cohort. In data collected in 1991, they found little to no association between moving home and children's cognitive attainment, or behaviour problems.

There have also been analyses of moves specifically among young children in the dataset we use here – the MCS. Moving in pregnancy or in the child's first nine months was associated with poor health in MCS mothers and their infants (Tunstall, Cabieses, & Shaw, 2012). These authors were able to account for much of this by the family characteristics and the negative circumstances (such as a combination of partnership breakdown and homelessness) of some moves. However, changing address can potentially disrupt the relationships with health care providers. Pearce, Elliman, Bedford and Law (2008) found that moving was negatively associated with the uptake of childhood immunisations in MCS children up to age three. Moves between the first and second survey (when the cohort child went from nine months of age to three) were analysed by Flouri, Mavroveli and Midouhas (2013) in relation to behaviour problems at the second survey for both the cohort child and up to two older siblings aged four to 16. Adjusting for family socioeconomic disadvantage at the first survey explained the association of moving with internalising problems but not with externalising problems. The latter remained significant even after accounting for change in family's socioeconomic disadvantage between waves, the level of local disadvantage and any change in it occasioned by a move.

Hence, the possible effects of moving home on children might be positive, negative, neutral, or reciprocal, depending on the outcome considered, the reason for the move and the circumstances and characteristics of the people making the move or staying put. Like the associations between child development and neighbourhoods, the association between moving and child outcomes in quantitative data is often statistically attributable to other

factors, and the mechanisms behind causal effects, if any, remain poorly understood.

## The present study and our research questions

We aim to extend the literature on residential mobility by turning attention to pre-school children. We look at mobility during early childhood and its association with cognitive and behavioural outcomes at age five. This also brings new findings and rich data to the study of child development. We build on the literature on residential mobility by examining those factors, such as partnership change and employment change, families' capabilities and initial housing circumstances, which may both explain mobility and directly account for variations in child outcomes. In particular, given the primacy of family environment for young children, we introduce a fine-grained classification of partnership changes and include an indicator of maternal depression alongside other socioeconomic control variables. We also take into account that residential mobility occurs within a context of neighbourhoods between which moves may be made. More precisely, we include a measure of poverty of the area of origin and that of destination to classify moves.

We explore evidence for effects of mobility on children in a changing national context. There is reason to suppose unfavourable moves by young families might have become more common, given the changes since the recession of 2008 and subsequent changes of government policy, as elaborated by Lupton (2016, this issue). Our research questions are:

1. Who are the families who make at least one move?
2. Is the number of moves made by family before a child was five associated with the outcomes we observe for children at that age?
3. Are these associations accounted for by other observed variables, including the level of poverty in the initial area?
4. Are moves to more or less advantaged areas associated with different child outcomes?

Before presenting the findings, we describe the data, variables and methods used.

## Data and definitions of variables

We use data from the first three sweeps of the Millennium Cohort Study (MCS), a large-scale longitudinal study of children born in the UK between September 2000 and January 2002. Its clustered sample design oversamples areas (electoral wards) with high child poverty, high minority ethnicity (England), and the three smaller countries of the UK. The initial interviews (MCS1) were in 2001-2 when the cohort children were aged nine months. The second sweep (MCS2) was when the children were aged three, mostly in 2004, and the third (MCS3) around age five, mostly during 2006. There have been further follow-ups, not included in the present study. Altogether 19,244 families have been interviewed, including 692 missed at MCS1 ("New Families"). Around 15,000 responded at each of MCS2 and MCS3, not all the same people. For further information see [www.cls.ioe.ac.uk/mcs](http://www.cls.ioe.ac.uk/mcs) and Hansen (2014a). We look only at the first child in families who had twins or triplets in the study. Although both parents were interviewed, where available, most of our information comes from the 'main respondent', in almost all cases the child's natural mother, who is for convenience referred to as 'mother'.

Our analytical sample includes 14,373 families who participated in MCS3 and for whom there is valid information on our three child outcomes (described below). In our analyses we use weights taking into account both the survey's complex sampling design and attrition up to sweep 3 (Plewis, 2007). However, we have not attempted to correct for biases introduced by excluding 873 families present at MCS3 with missing child outcome data. They were, for example, more likely to be living in disadvantaged areas.

For our multivariate analyses all variables with missing values in the analytic sample were imputed. Information on time-invariant characteristics was logically deduced from sweeps in which the respondent had participated. For all time-varying variables, imputations were carried out using a Markov-Chain-Monte-Carlo procedure with 20 imputations in Stata. Imputation allows us to retain two sets of families with valid child outcome information at MCS3 who had not participated at one of the two previous sweeps. One set is the "New Families", mentioned above (508 in the analytic sample) who were not present at sweep 1. The other is a substantial group in the original

survey who did not respond at sweep 2 but who returned at sweep 3 (1,277 cases in the analytic sample). Not surprisingly, both groups were more likely to have moved than families present at all three sweeps. Indeed, residential mobility is a source of survey non-response generally, and in MCS (Mostafa, 2016, this issue; Plewis, Ketende, Joshi, & Hughes, 2008). By not discarding observations missing at either wave 1 or 2 (“non-monotonic attrition”), as well as using the attrition weights reflecting those absent from sweep 3, we have made an effort to minimize the bias from attrition.

### Outcome variables at age five

The three indicators of child development at five are naming vocabulary, internalising behaviour problems and externalising behaviour problems.

The first indicator measures expressive language skills, an aspect of verbal cognitive ability. Assessment was made using the British Ability Scale (BAS) Naming Vocabulary subtest (Elliott, Smith, & McCulloch, 1996). The test asks the child to name a series of pictures of everyday objects. The analysis uses standardised scores based on the normative BAS sample (Connelly, 2013).

The second and third indicators measure behaviour problems and are taken from a parental self-completed report on the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997; see also [www.sdqinfo.com](http://www.sdqinfo.com)). These difficulties are not necessarily mutually exclusive. Internalising problems reflect how far children turn problems in on themselves, while externalising problems reflect their turning outwards (‘acting out’). The internalising scale is the sum of subscales for emotional problems and peer problems. Examples of items in the two subscales are “Often seems worried” and “Tends to play alone”. The externalising one combines the conduct problems and the hyperactivity subscales, with items such as “Fights or bullies other children” and “Constantly fidgeting”. Both the internalising and externalising scales demonstrate good reliability, with Cronbach’s alphas in the analytical sample of .66 and .79 respectively.

### Mobility

Respondents were asked whether they had moved home between sweeps and we construct our mobility variables on the basis of their replies<sup>1</sup>. In our analyses we focus on mobility between MCS1

and MCS3. We do not take into account the non-trivial number of moves occurring in the nine months between the cohort member’s birth and MCS1, for lack of information to model them precisely. We create two indicators of mobility: one binary, on whether or not the family reported any move between sweeps 1 and 3; and the other continuous, counting how many addresses they reported.

### Housing variables

We look at two characteristics of housing: tenure and living space. Respondents are asked directly about the arrangement under which they occupy their home. We group their answers as follows: 1. Social tenants, which includes both those renting from local authority and housing association; 2. Private renters, whether or not they receive housing benefit, a government subsidy towards rent; 3. Home owners, which comprises outright owners, as well as those with a mortgage or partly owning and partly renting; 4. Other arrangements, which includes sharing with parents or living rent free. In relation to housing space, we use information on the number of rooms and the number of people living with respondents to create a binary indicator for overcrowding, defined as more than two people per room (Sabates & Dex, 2015).<sup>2</sup>

### Local Area

We approximate neighbourhood quality using a measure of the level of income poverty of residents in small areas. Small area is defined here, based on the statistical geography of the 2001 Census, as Lower Super Output Area (LSOA) in England and Wales; Datazone in Scotland; and Super Output Area in Northern Ireland.<sup>3</sup> We use the income deprivation subscale of the first round of indexes of multiple deprivation (IMDs) for the four UK countries ((National Assembly for Wales (Statistical Directorate), 2005; Northern Ireland Statistics and Research Agency, 2005; Office of the Deputy Prime Minister, 2004; Scottish Executive (Office of the Chief Statistician), 2004). While the overall indexes differ slightly across countries, the income subscale does not. In all countries it is calculated as the ratio of people on means-tested benefit (including tax credits if below the poverty line) to the area population. We use the country-specific deciles of the income subscale included in the MCS dataset to construct a binary variable equal to 1 if the area is

in the bottom three deciles, and 0 otherwise – a cut-off commonly used with IMDs. Because the deciles are country-specific, our multivariate analysis controls for UK country. Note that this sort of measure reflects the composition of the social environment of the area and, possibly, its rating in the housing market. It does not directly capture the quality of the services available nor the finer nuances of community processes that may be important to families with young children.

### Move Quality

We attempted to assess whether the outcome of moving from the address at sweep 1 to the one occupied at sweep 3 constituted an improvement, deterioration, or no change in the quality of living accommodation, using information on both housing and area. However, after experiments with potential combinations of our variables on housing space, tenure and neighbourhood (described below), we operationalised ‘quality of move’ in terms only of dichotomising neighbourhood income within and above the bottom three deciles. We thus classified movers and stayers into six groups: 1. Stayers in the better 70% areas; 2. Movers within the better 70%; 3. Movers into the better 70%; 4. Movers within the bottom 30%; 5. Movers into the bottom 30%; 6. Stayers in the bottom 30%.

### Partnership changes

We are interested in capturing changes in partnership status of the child’s mother, as these may affect both mobility and child outcomes. We use information from cohort birth until the third interview and divide our sample into the following groups: 1. Stably coupled<sup>4</sup>; 2. Stably single (no partner); 3. From mother with biological father to mother with non-biological father; 4. From single mother to mother with father (whether biological or not); 5. From mother with biological father to single mother; Multiple transitions. <sup>4</sup>Along with intact couples of biological parents, we also include a very small number whose cohort child is adopted

### Parental Employment transitions

Movements in and out of employment have been shown to be associated with residential mobility. Here, these changes are taken into account at the family level. The family is deemed to be in employment if there is at least one parent in work at each one of the three surveys, and ‘workless’ if no parent has a job, be they a single parent or a couple. Their employment is summarised as follows: 1.

Stably employed; 2. Stably workless; 3. Workless to employed (1 transition); 4. Employed to workless (1 transition); 5. In and out of work (2 or 3 transitions). We have not attempted to record any further detail of the work histories, such as which parent of two was employed, in what type of work, but the net family income at MCS1 is taken into account separately. This allows us to differentiate between children whose families have different levels of earnings at baseline.

### Family demographics, health, and economic resources

We allow that other facets of family circumstances, vulnerabilities and capabilities, may influence moving and also, either directly or indirectly, child outcomes. Our controls are family income (in logs), the size of the household, whether by age five the child has a new sibling, and maternal characteristics, such as education, ethnicity, whether born outside the UK, and indicators of her physical health and of depression<sup>4</sup>. We also take into account child characteristics correlated with development – low birth weight, health problems, and birth order, and for measurement reasons, the child’s exact age at the time of the assessment.

### Analytic Strategy

Our analysis proceeds in two stages. The first investigates the predictors of moving in the period up to the survey at age five. The second stage models the outcomes for children at that age five survey, in terms of a cognitive score and internalising and externalising problems. Both mobility and child outcomes are analysed in relation to parental partnership and employment transitions occurring between the cohort child’s birth and age five and also in relation to a set of controls for family vulnerabilities and capabilities measured at one point in time. In the first stage, we model mobility as a binary outcome and use a logistic regression to estimate the probability of making at least one move between the first survey at nine months and the third survey at age five. We prefer a binary indicator to a move count (as used by Beck, et al. 2016, this issue) because the proportion of families making repeated moves is small. Also, results do not vary substantially when modelling mobility as the number of moves using a negative binomial model.

The analyses of child outcomes are all conducted as linear regressions. We start with a modelling strategy that captures mobility by number of moves

and introduces sequentially family transitions, employment transition, area and housing variables, and family vulnerabilities and capabilities (a similar strategy is adopted by Beck, et al., 2016, this issue). As it turns out that the number of moves is not much associated with child outcomes, we elaborate the information about those making any move in a different way – where moves ended up rather than how many were made. We attempt to distinguish the ‘good moves’ that are less likely to involve adverse outcomes for children, from ‘bad moves’, as discussed by Lupton (2016, this issue). After also looking at some other dimensions, our crude

operationalisation of this distinction involves comparing the locations at nine month and age five surveys in terms of the level of income poverty of each area. We use 30% as cut-off to classify the poorest areas, but also checked the results against different cut-offs, as described below.

### Descriptive Statistics

The mobility profile is presented in table 1. The sample used here divides exactly 40:60 into families who moved between the nine month and age five surveys and those who did not, in terms of weighted percentages.

**Table 1. Home moves in the first three surveys of MCS**

	N	Weighted %	St. Dev
Moves between MCS1 and MCS3 (9 months to age 5)			
<b>No move</b>		<b>60.0</b>	<b>49.0</b>
No move since CM’s birth		52.7	49.9
Moved between birth and 9 months		7.2	25.9
<b>Any move</b>		<b>40.0</b>	<b>49.0</b>
One move		26.5	44.1
Two moves		8.6	28.0
Three or more moves		4.9	21.7
<b>All</b>	14,373	100	

Notes: Percentages are weighted for survey design and attrition. The sample size is the number of valid cases within the analytic sample. For 508 New Families, mobility status between sweep 1 and sweep 2 is deduced on the basis of their answers on the date moved to the current address. We replaced missing information (338) on the number of moves by attributing only one move to those who reported moving, and zero otherwise, thus slightly underestimating the true value.

Most – two thirds – of the movers (27% of the cohort) moved only once, one in five movers moved twice, and only one in eight of them (5% of the whole cohort) moved three or more times. This is about half the rate of mobility reported in the FFCWS cohort, reflecting the generally higher level of mobility for this age group in the US (Beck, et al., 2016, this issue). Around one in seven of the MCS movers covered long distances, over 50 km, between the MCS1 and MCS3 surveys, while one in four moved less than one km. When asked about reasons for the most recent move, the majority of MCS respondents cited positive attractions of a bigger house or better area, including, but not exclusively, for better schools. Negative reasons, such as family break-up, or problems with neighbours were mentioned very much less frequently. Only a very small number (1.4% of our sample) of MCS families experienced moves due to eviction, problems with landlord or inability to pay. It should be noted that

this information is elicited after moving, once the respondent is interviewed at her new address. It is not surprising that so called “pull factors” – attractive characteristics of the new location – dominate responses, while “push factors” – negative features of the location of origin – are seldom reported. We were therefore unable to rely on this information to classify moves as ‘good’ or ‘bad’. Likewise very few of the MCS moves involved homelessness. This is not surprising given that the time period covered by our window on MCS (2001-2006) was relatively prosperous, with a much more benign housing market than currently. A limitation of the data is that movers were not specifically asked if the move in question had been stressful, intended or regretted, as this would have been a better way to identify adverse events. Neither could we examine the effects of forced stays – families who could not move due to poor housing supply (see Lupton, 2016, this issue).

**Table 2. Whether the cohort family moved in the first 3 surveys: distribution of predictor variables and logistic regression estimates**

		All		Stayers		Movers		Odds ratios	b	se
		Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.			
Partnership changes	12552									
Stably coupled		75.6	42.9	81.9	38.5	66.0	47.4	ref		
Stably single		5.2	22.1	4.3	20.2	6.5	24.7	1.40***	0.33	0.12
From both natural to other coupled		1.3	11.2	0.8	9.0	2.0	13.9	3.08***	1.13	0.18
From single to coupled (1 transition)		4.4	20.5	3.3	17.8	6.1	23.9	1.49**	0.40	0.13
From both natural to single (1 transition)		7.9	26.9	5.9	23.6	10.9	31.1	1.96***	0.67	0.09
Multiple transitions		5.7	23.2	3.9	19.3	8.5	27.9	1.68***	0.52	0.10
Parental Employment transitions	11682									
Stably employed		81.4	38.9	85.2	35.5	75.3	43.1	ref		
Stably workless		3.8	19.0	3.1	17.3	4.8	21.4	1.04	0.04	0.13
Workless to employed		3.4	18.1	2.8	16.6	4.2	20.1	1.08	0.07	0.12
Employed to workless		5.7	23.2	4.4	20.5	7.7	26.7	1.01	0.01	0.10
In and out or work		5.8	23.3	4.4	20.5	7.9	27.0	1.03	0.03	0.11
Where living at MCS1	13837									
Tenure										
Owners		67.7	46.8	75.4	43.1	56.1	49.6	ref		
Social housing		19.8	39.9	18.1	38.5	22.5	41.8	1.19*	0.17	0.08
Private renting		7.4	26.1	3.8	19.0	12.9	33.5	3.26***	1.18	0.10
Sharers/other		5.1	21.9	2.8	16.5	8.5	27.8	2.61***	0.96	0.11
Overcrowded MCS1	14373	11.1	31.4	8.4	27.7	15.3	36.0	2.00***	0.69	0.09
Area Lowest 30% IMD (Income) MCS1	14176	30.1	45.9	27.7	44.7	34.0	47.4	1.08	0.07	0.05
Country at MCS1	14373									
England		82.9	37.7	81.8	38.6	84.5	36.2	ref		
Wales‡		4.9	21.7	5.6	22.9	4.0	19.6	0.67***	-0.39	0.06
Scotland		8.9	28.4	8.8	28.3	9.0	28.7	0.99	-0.01	0.07

Northern Ireland		3.3	17.9	3.8	19.2	2.5	15.5	.60***	-0.52	0.08
Family initial vulnerabilities and capabilities										
Mother's age when child born (years)	13865	29.3	5.7	30.3	5.3	27.7	5.9	0.95***	-0.05	0.01
Child is oldest sibling (MCS1)	13865	43.6	49.6	37.6	48.4	52.5	49.9	1.28***	0.24	0.06
Child has younger sibling (MCS3)	14373	41.2	49.2	36.5	48.2	48.2	50.0	1.41***	0.34	0.08
Child had low birth weight	13831	6.4	24.5	6.0	23.7	7.0	25.6	1.1	0.10	0.09
Child had health problems (MCS2)‡	13006	15.7	36.4	15.5	36.2	16.0	36.7	0.99	-0.01	0.06
Mother depressed (MCS1)	13851	24.2	42.9	22.5	41.8	26.9	44.3	1.16**	0.15	0.05
Mother's general health (MCS1, score 1-3)	13853	2.2	0.7	2.2	0.7	2.1	0.7	0.97	-0.04	0.04
Mother's highest qualification level	13829	4.0	1.6	4.1	1.6	4.0	1.6	1.09***	0.09	0.02
Family income (MCS1) (log £ /week)	13729	5.6	0.7	5.7	0.6	5.6	0.7	1.13*	0.12	0.05
Household size persons (MCS1)	13865	3.9	1.1	4.0	1.1	3.8	1.2	.99	-0.01	0.03
Mother's Ethnic group	14373									
White		91.1	28.5	90.7	29.1	91.7	27.6	ref		
Indian‡		1.7	13.1	1.9	13.6	1.5	12.2	0.65*	-0.43	0.18
Pakistani and Bangladeshi‡		2.7	16.3	2.9	16.7	2.5	15.8	0.65**	-0.43	0.12
Black or Black British‡		2.2	14.7	2.4	15.2	2.0	13.9	0.69†	-0.37	0.18
Other ethnic group ‡		2.2	14.8	2.2	14.8	2.3	14.9	.79	-0.24	0.17
Respondent not born in UK‡	12977	13.7	34.4	14.3	35.0	12.9	33.5	1.05	0.05	0.09

## Notes:

Means are percentages unless otherwise stated.

Difference in means between stayers and movers are significantly different at .05 level unless marked ‡ in row label.

Logistic regression carried out after multiple imputations (mi estimate command) using 14373 observations. Significance level of OR estimates: † p< .1; \* p< .05; \*\* p< .01; \*\*\* p<.001. Overall model: F(32, 384.9) = 36.16 Prob > F = 0.000

As shown in table 2 the majority (76%) of MCS families in our sample had both biological parents present at all of the first three surveys, although the proportion of stable couples was smaller (66%) for the movers, who correspondingly had more family transitions, the most frequent of which was one change from two biological parents to a one-parent family. Stability in employment was also the norm for both sets of families, but more so for the stayers, where 85% of the families had a least one parent in work at all three surveys, compared with 75% of the movers. Movers were more likely than stayers to have dropped out of work, once or more than once (8% each among movers; 4% each among stayers).

Two thirds of the families were in owner occupation at nine months (and also at age five), in line with the national statistics on housing tenure reported in Lupton (2016, this issue), but movers were less likely to own their home. The next biggest group were social tenants, constituting one fifth of the total sample at each point. The smaller categories - private renting and the rest (largely sharing accommodation) were also over-represented among movers, as was overcrowding, and residence in disadvantaged areas.

We are using the event of a birth into the Millennium cohort to take a sample of families at an early stage of formation. The average age of mothers at that birth was 29.3 years. The stayers were over two years older than the movers, further along their life-course, and some had moved in the recent past. Many of the stayers had their first child before the cohort child (60%). Over half of the cohort children among movers were first-born. The movers were also further behind in the family building process in that more of them had another child during the observation period than the stayers.

Our set of variables on health – low birth weight, child having a longstanding health problem reported at age three, mother’s general health and mother’s depression – all indicate on average poorer health among mover families.

We allow for the family’s net income at the first survey and the highest level of education attained by the mother. There was little difference between the movers and stayers in terms of log equivalised household income. There was greater difference in their educational attainment, as mothers in the moving families averaged lower qualifications.

Around 9% of the families were assigned to non-white ethnic groups. Ethnic minorities tended to be under-represented among movers, as were immigrants to the UK.

In summary, the 40% of the parents who moved in this period were younger and more likely to be adding to their families. They also had fewer resources, as they were less likely to be owner-occupiers, less well educated, less healthy, and more likely to live in poor areas at first interview. Movers were also more likely to have changes in partnership and loss of employment than those whose address was stable

### Who are the families that make at least one move?

The multivariate logistic model of making at least one move during the observation period reinforced some of these associations apparent in the bivariate comparison of movers and stayers. Families undergoing any sort of partnership change, or indeed having no partner throughout, were significantly more likely to move than intact couples, even when other factors are taken into account. Families where there was a change of partner had the highest relative odds of moving. Families with changes of employment status (or no employment throughout) were, by contrast, not significantly more likely to move than those with at least one parent employed throughout, once other circumstances were factored in. Owner-occupiers’ low mobility and private renters’ high mobility were confirmed. Those whose accommodation was overcrowded at MCS1 also show an independently raised rate of mobility, whereas the higher mobility of those sampled in poor areas was explained by other terms in the model.

The characteristics of a ‘growing family’ – younger mother, the cohort child being the first born and not being the last – although all inter-related, each showed an independent association with the propensity to move. Household size, however, showed no association before or after modelling. Most of the features of the child’s and mother’s health, though significantly worse for movers in terms of means, did not make a significant contribution to the explanation in the multivariate model. The exception is the high propensity of depressed mothers to move<sup>5</sup>. Alongside family vulnerabilities, the multivariate analysis also reveals some markers of

socioeconomic advantage – families with higher income and better educated mothers (especially graduates) have an underlying propensity to move.

### Is the number of moves made by the family associated with worse child outcomes at age five?

On the face of it, the children whose families had moved had lower vocabulary scores, and somewhat more externalising and internalising behavioural difficulties than those who stayed put (as shown in table 3). This lends some support to the idea that moving might be a risk. That would be

a premature conclusion before considering how many times those families had moved and the other ways in which the movers may have been at a disadvantage, including co-occurring changes, such as parental separation, which could impact child development and are more common among movers, as shown in table 2. We therefore report an exploration of the association of the number of moves between the first and third survey and child outcomes at age five. The rationale for this specification is to look for potential adverse effects of multiple moves, assuming that any move would be ‘worse’ than none.

**Table 3. Child development outcomes at age five**

	ALL		Stayers		Movers	
	Weighted mean	St. Dev.	Weighted mean	St. Dev.	Weighted mean	St. Dev.
Vocabulary z score	0.552	1.06	0.582	1.07	0.507	1.05
Externalising problems (max 20)	4.64	3.35	4.5	3.27	4.9	3.45
Internalising problems (max 20)	2.40	2.44	2.3	2.38	2.54	2.51
N	14,373		8,709		5,664	

Naming Vocabulary taken from the second edition of the British Ability Scales (BASII; Elliott et al. 1996). A z score was created from the reference-population-age-adjusted scores using the mean and standard deviation of the normative scores from the standard BASII tables (Connelly 2013). Internalising difficulties (emotional symptoms and peer problems) and externalising difficulties (hyperactivity and conduct problems) are each based on 10 items of the Strengths and Difficulties Questionnaire, each with 10 items each rated on a scale from 0 (best) to 2 (worst).

Table 4 summarises a series of regressions of number of moves on the three child outcomes at age five. Model 1 controls only, in addition, for the child’s sex and exact age. There are significant estimates of worse outcomes for more moves. These are, per move, -0.044 standard deviations on the vocabulary score, and increases of 0.14 and 0.28 on internalising and externalising problem scores (or 0.058 and .059 respectively if the behaviour variables are also expressed in standardised z scores). These estimates shrink in size and significance as sets of potentially competing explanatory variables are introduced. The allowance for the associated changes in family

structure alone (model 2) reduces the estimate of moves on the verbal score to insignificance. This happens to the internalising score at the next model (3) when employment transitions are also introduced. The externalising score retains borderline significance as housing tenure, overcrowding and area at MCS1 are introduced, in model 4. Interestingly, the estimate of moves on the vocabulary score turns briefly positive at this point. None of the outcomes are significantly related to the number of moves when controls for the family’s demographic, health and economic background are taken into account (model 5).

**Table 4. Estimated coefficients for number of moves in OLS regressions of child outcomes**

	Verbal skills		Internalising problems		Externalising problems	
	b	SE	b	SE	b	SE
<b>Model 1:</b> Only sex and age controlled	-0.044***	.012	0.140***	.027	0.275***	.034
<b>Model 2:</b> As model 1, with partnership transitions	-0.002	.012	0.060*	.027	0.104**	.032
<b>Model 3:</b> As model 2, with partnership and employment transitions	0.012	.012	0.039	.027	0.079*	.033
<b>Model 4:</b> As model 3, with housing tenure, overcrowding and area	0.024*	.012	0.020	.026	0.061†	.032
<b>Model 5:</b> As model 4, with family demography, vulnerabilities and resources	0.001	.011	0.005	.027	0.040	0.32

Notes: OLS regression carried out after multiple imputations (mi estimate command) using 14,373 observations.

Significance level of OR estimates: † p< .1; \* p< .05; \*\* p< .01; \*\*\* p<.001.

Although the externalising scores are most strongly associated with the small set of explanatory variables in model 1, it was verbal skills that were most strongly predicted by the full set of variables in model 5. Internalising behaviour showed the least 'sensitivity' to successive sets of explanatory variables.

The main point to emerge from table 4 is that generally speaking the poorer scores of children who moved are explained by the accompanying family events and circumstances. Moving may be part of the story leading to children's falling behind, but it appears the events and circumstances that lead to poor child outcomes, and may also lead to moves, are the main drivers of the disadvantages we found among children in moving families. Importantly, the same pattern of results emerges from the analysis of FFCWS by Beck et al. (2016, this issue).

### **Do children have worse outcomes at five if they have moved into 'worse places'?**

We return to the effects of the changes and circumstances below, but next turn to the question

of whether we should be trying to distinguish between the sort of moves that bring advantage or disadvantage to children rather than a mere count of their number. Lupton (2016, this issue) draws attention to the notional distinction between 'good' and 'bad' moves. The challenge here is to operationalise a simple distinction of move quality that is not tautologically defined in terms of its outcome for children. We sought to distinguish between moves that themselves resulted in improvement or deterioration in the 'place' the family was living by the third survey. Since we do not have a complete history of every address occupied over the period, we compared the addresses occupied at the first and third surveys, in table 5, on just three of the possible dimensions on which they could be rated: area, housing tenure, and living space

Table 5. Where living at age five

	All		Stayers		Movers		Sig of mean diff movers and stayers
	Mean (%)	SD	Mean (%)	SD	Mean (%)	SD	
Area at MCS3 Bottom 30% Income IMD (as rated in 2001)	28.4	45.1	27.7	44.7	29.4	45.6	ns
Bottom 30% IMD both surveys	24.7	43.1	27.7	44.7	20.1	40.0	
Moved into Bottom IMD	3.5	18.3	-		8.8	28.4	
Left Bottom IMD band	5.5	22.7	-		13.9	34.6	
Better 70% both surveys	66.4	47.2	72.3	44.7	57.2	49.5	
Tenure at MCS3							
Owners	69.8	45.9	77.4	41.8	58.4	49.3	***
Social housing	19.9	39.9	16.4	37.0	25.0	43.4	***
Private renting	7.8	26.9	4.1	19.8	13.4	34.1	***
Sharers/other	2.5	15.5	2.1	14.3	3.0	17.1	**
All	14,370	100	100		100		
Tenure at MCS3 BY tenure at MCS1							
Same tenure as MCS1	83.0	37.6	92.5	26.4	68.7	46.4	***
Became owners	7.11	25.7	4.34	20.4	11.31	31.7	***
Ceased to be owners	3.9	19.4	1.32	11.4	7.8	26.9	***
	13,834						
Overcrowded MCS3	4.8	21.3	5.0	21.9	4.4	20.5	ns

Notes:

Significance level of difference in means: † p&lt; .1; \* p&lt; .05; \*\* p&lt; .01; \*\*\* p&lt;.001.

One type of residential change that might have led to adverse outcomes for children (over and above the other factors in the model) was the deprivation classification of the area. On our dichotomised summary of the income deprivation index, movers could have experienced one of four possible combinations and stayers could have remained in either the bottom 30% or the upper band. There are thus six possible values for the combination of areas at MCS1 and MCS3. A quarter of the cohort (weighted) overall were living in the deprived areas at MCS3, 20% of the movers had moved within them, 9% had moved 'down' into them, and more, 14% had moved 'up' into the better band.

There was less change in housing tenure: a small net increase in owner occupation by age five. This conceals some changes in tenure in all directions, mainly by the movers, but also including a shift of 2% of the stayers from social housing to owning, most likely through 'the right to buy'. Two thirds of the movers originally in social tenancies stayed in that tenure, with about one sixth becoming owners. One third of the private renters, and one tenth of

those originally sharing or rent-free remained in their first tenure category if they moved. Although 86 % of the owners who moved maintained their tenure, their moving out of this typically 'destination tenure' was highly correlated with adverse events such as partnership or employment loss. As a result, owner occupation at age five did not add to the explanatory models on child outcomes, and we did not include tenure change as an indicator of a possibly independently bad sort of move. Neither did we include housing space. Movers generally gained additional rooms, catching up with, or over-taking, the stayers, and recording even lower rates of overcrowding than the stayers. Overcrowding at MCS3 was not included in the regressions of child outcomes reported in table 6 as it was not significant<sup>7</sup>. As the quality of the move appeared to be captured mostly by the income deprivation of the area, we substituted the six-fold categorical variable for the numbers of moves tested in table 4's full model 5, leaving aside information on tenure or space.

**Table 6. Estimated association of child outcomes with moving into and within the bottom 30% of areas between MCS1 and MCS3**

	Verbal skills			Internalising Problems			Externalizing Problems		
	Coef.	Sig	SE	Coef.	Sig	SE	Coef.	Sig	SE
<b>Type of move MC1-MCS3 by area change</b>									
Stayers in better 70% areas									
Movers within better 70%	-0.02		0.03	-0.03		0.05	0.01		0.08
Movers into better 70%	-0.05		0.05	0.06		0.09	0.10		0.14
Movers within bottom 30%	-0.13 **		0.04	0.36 ***		0.09	0.37 **		0.12
Movers into bottom 30%	-0.03		0.06	0.04		0.14	0.01		0.20
Stayers in bottom 30%	-0.10 **		0.04	0.12 †		0.07	0.06		0.09
<b>Partnership changes (ref. stably partnered)</b>									
Stably single	0.01		0.06	0.23		0.15	0.45 *		0.19
From both biological to other coupled	-0.02		0.07	0.13		0.20	1.63 ***		0.30
From biological to coupled (1 transition)	-0.08		0.05	-0.03		0.15	0.74 ***		0.17
From both biological to single (1 trans)	-0.08 *		0.04	0.10		0.10	0.59 ***		0.13
Multiple transitions	-0.01		0.04	0.22 †		0.12	0.56 **		0.16
<b>Parental employment transitions (ref. stably employed)</b>									
Stably workless	-0.27 ***		0.06	0.64 ***		0.17	0.61 **		0.21
Workless to employed	-0.04		0.05	0.07		0.15	-0.17		0.20
Employed to workless	-0.05		0.04	0.34 **		0.12	0.17		0.15

In and out of work (2or 3 trns)	-0.12 **	0.04	0.19	0.12	0.01	0.16
<b>Where living at MCS1</b>						
Tenure (ref. Owner)						
Social housing	-0.03	0.03	0.20 *	0.09	0.50 ***	0.11
Private renting	-0.02	0.04	0.09	0.11	0.22 †	0.13
Sharing/other	0.05	0.06	0.00	0.15	0.21	0.18
Overcrowded at MCS1	-0.05	0.04	-0.04	0.10	-0.18	0.13
<b>Family capabilities and vulnerabilities</b>						
Mother's age when child born (years)	0.01 ***	0.00	0.00	0.01	-0.04 ***	0.01
Child is oldest sibling (MCS1)	0.15 ***	0.02	0.43 ***	0.07	-0.14	0.09
Child has younger sibling (MCS3)	-0.03	0.03	0.19 ***	0.05	0.09	0.07
Child had low birth weight	0.15 ***	0.04	0.43 ***	0.10	-0.14	0.12
Child had health problems (MCS2)	-0.08 **	0.03	0.32 ***	0.08	0.32 **	0.10
Mother depressed (MCS1)	0.01	0.02	0.32 ***	0.06	0.32 ***	0.08
Mother's general health (MCS1, score 1-3)	0.02	0.02	-0.34 ***	0.04	-0.45 ***	0.05
Mother's highest qualification level)	0.12 ***	0.01	-0.14 ***	0.02	-0.30 ***	0.03
Family income at first survey (log £ /week)	0.15 ***	0.02	-0.18 **	0.06	-0.09	0.07
Household size persons (MCS1)	-0.07 ***	0.01	0.04	0.03	-0.06	0.04
Mother's Ethnic group (ref White)						
Indian	-0.24 **	0.09	0.43 *	0.20	0.23	0.24
Pakistani and Bangladeshi	-0.69 ***	0.08	0.93 ***	0.19	0.35	0.22
Black or Black British	-0.46 ***	0.08	0.16	0.15	-0.25	0.22
Other ethnic group	-0.36 ***	0.07	0.29 †	0.17	-0.11	0.19
Mother not born in UK	-0.17 ***	0.04	0.08	0.09	-0.13	0.11
<b>Country at MCS3 (ref. England)</b>						
Wales	-0.14 ***	0.03	-0.10	0.06	-0.03	0.08
Scotland	0.02	0.03	-0.08	0.06	0.02	0.08
Northern Ireland	0.05	0.05	-0.11	0.07	-0.30 ***	0.08
Child is male	-0.06 **	0.02	0.05	0.04	0.94 ***	0.05
Child's age in months (MCS3)	-0.01 *	0.00	-0.02 **	0.01	-0.05 ***	0.01
Constant	-0.25	0.29	5.09 ***	0.67	10.74	0.78

Notes: OLS regression carried out after multiple imputations (`mi estimate` command) using 14,373 observations.

Significance level of estimates: †  $p < .1$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Within the majority living in the 70% better-off areas at MCS3, there was no difference in the child outcomes between those who had moved into these areas, moved within them or not moved at all, as shown in table 6. The absence of any 'moving effect' was already familiar when no distinction was made by the geography of destination. For the families who had moved within the bottom 30% of areas, there was a significant deficit on all three outcomes in comparison with the reference group, stayers in the better 70% areas. In the case of externalising behaviour the coefficient of 0.37 on

the SDQ score can be interpreted as an independent effect of moving. However for vocabulary, the stayers in the bottom 30% areas show almost as much of a mark-down on the z score (-0.10, also significant) as the movers within these areas (-0.13), which looks more like an effect of living in poor areas than something attributable to the disruption of moving. For internalising behaviour there is a significant estimate for movers within these areas as for externalising and vocabulary. It seems that the generally propitious unmeasured circumstances that accompany many

moves are more than outweighed by otherwise unobserved adversity if a move ends up in one of the disadvantaged areas. There is also some indication of an adverse association within poor neighbourhoods for families who do not move, and can perhaps be described as having failed to move out of them. The children whose families had moved into poor areas from elsewhere did not display significantly worse outcomes, perhaps because some of them had compensated for a downward move by improvements in living space.

We tested the robustness of these results by imposing different thresholds for the definition of 'poor areas' contrasting the bottom 20% with the top 80% and the bottom 40% with the top 60%, rather than relying on the conventional 30% cut-off. In both of these versions, the estimates for an adverse effect of moving within the poorest areas were similar for all three outcomes. The adverse estimate for remaining at the bottom appeared significant for all three outcomes, for both alternative thresholds. Vocabulary showed deficits around -0.1 for children who had moved out of either the bottom 20% or 40% of areas, also negative but not significant when the threshold is set at 30% (table 6). These alternative versions on the whole reinforce the conclusion that the effects within disadvantaged areas are robust, reflecting some genuine disadvantage for children whose families live in poor areas, whether or not they move. Expressed in terms of standardised outcome scores, the contrast between moving within deprived areas and staying put in non-deprived areas is -0.13 for vocabulary, 0.15 for internalising, and 0.08 for externalising problems – neither negligible nor overwhelming in relation to other estimates in the model.

Our quest for other ways in which residential mobility may be related to child outcomes has also involved looking at the time elapsed since the last move at the age-five survey. Externalising behaviour was the only outcome to show any association (small) with moves in the last six months. Further attempts to identify recent moves that were also spatially unfavourable found few such events and no significant adverse effects. The possibility that moves may be more disturbing for older children has been investigated in the evidence collected on the older siblings of the Millennium cohort, so far inconclusively.

The estimated coefficients for controls in table 6 closely resemble those that were not shown in table 4. They involve somewhat larger and more strongly determined coefficients than even the term for 'moving within poor areas'. They also vary by outcome. Partnership transitions are important independent predictors for externalising behaviour; employment transitions show adverse effects of persistent worklessness on all three outcomes, to an extent about twice of that estimated for moving within poor areas; social housing shows adverse associations for the behaviour outcomes, but not the verbal. Overcrowding at MCS1, though a powerful predictor of moving, showed no independent association with child outcomes. Older mothers have children with better vocabulary and fewer externalising problems. Cohort members with no older siblings do well on vocabulary but have more internalising problems, all else equal. Mother's depression is related to the two behaviour scores by about the same amount as moving within poor areas, but this may reflect the perception of the person reporting on behaviour (i.e. the mother) even though the depression was recorded several years previously. There are significant deficits on vocabulary for children in ethnic minorities at age five<sup>8</sup>. Family income is strongly related to the verbal score and also to internalising behaviour. The mother's education is a consistent predictor of child outcomes, just one rung higher on a seven-step ladder predicts about as much as avoiding being a mover within the bottom 30% for two out of three outcomes. The effects of moving are further put in perspective if one considers that family income, mother's age and education, and home ownership are positively correlated and estimates should be evaluated in combination to get an idea of the gap in child outcomes between prosperous and poor families. For example, the combination of having a mother with three steps up the education ladder (no qualifications to the middle level '3', or middle to a post-graduate qualification), plus an extra standard deviation of log income (roughly a doubling), plus living in owner occupation rather than social housing is predicted to raise the verbal score by nearly half a standard deviation (0.48) and reduce the behaviour scores by 0.73 and 1.45 points for internalising and externalising respectively (or just under one third of a standard deviation in each case). These are bigger orders of

magnitude than the estimates for poor areas or for moving within them.

Thus the approach via quality of move in table 6 has been more successful at untangling a 'mobility effect' than the quantity of moves modelled in table 4, but it is relatively small, and appears to be more a penalty affecting children who 'fail' to move away from poor areas, whether or not they move within them. These results therefore also contribute to the literature attempting to quantify contextual 'effects' on child outcomes.

## Conclusion

We have looked at the correlates of British families moving home when they have a child under five in a longitudinal survey in the early 2000s. Moving was common for these growing families though not as common as in the US. We enquired whether the modestly lower average child development scores in families who moved meant that moving itself impeded children's progress, or whether these deficits could be accounted for by the other events and circumstances, as has tended to be found in literature on mobility and contextual effects on children.

Our main conclusion is that the five-year-olds in the UK Millennium cohort showed very little sign, in general, of a setback, on the outcomes observed, from family moves *per se*, over and above the formidable impact of other family changes and circumstances. We have been able to detect that moving adds to family stressors if it occurs within relatively deprived areas (echoing an earlier finding in another set of British data by Odgers et al., 2009). These areas also show poorer child outcomes for those who lived in them without moving home. Thus in the relatively poorer areas, particularly for vocabulary, we find an association with context almost as great as for mobility.

As these are observational data we cannot claim that these are true causal results of living and moving in deprived areas. We cannot rule out unobserved factors leading both to the location and the child outcome. We have however allowed for a number of potentially confounding factors in our rich dataset. Perhaps it is not surprising that our model in terms of a simple count of moves does not differentiate child outcomes. As we have seen, moves themselves vary in terms of housing

destinations, the reasons families make them and the distances they cover. In the period our sample was observed, most moves were for better housing and or better location and covered sufficiently short distances to maintain a social network and contact with service providers. Few moves seem to have been forced. Family stresses were associated with poor child outcomes whether or not they involve a move, and whether or not the family lived in a disadvantaged area.

We repeat that our results are confined to children who moved during their early years and were assessed at age five. We therefore have no conclusions concerning development in later years or the experience of children who move home (and/or school) when they are at school age, but these have been investigated – with mixed results – in other research, and the possibility still remains of exploring these questions with the children of MCS and their older siblings. Another topic for future research is to draw a closer comparison between the UK MCS and the US Families and Child Wellbeing Study than is possible by just looking at the two articles in this issue.

Looking towards the subsequent period when the economy faltered, the labour market became less stable, the provision of social housing was shrinking, home ownership became less affordable and policies to support young families in cash and kind were being cut, it is likely that the number of young families moving home for negative reasons will have been increasing, as argued by Lupton (2016, this issue). It also seems unlikely that children will be spared adverse consequences of forced moves (Clark, 2016, this issue). But this study suggests that it is not only movers whose children's development may show the imprint of stresses and disadvantages. The 'stayers' who are in so many ways like the movers also show difficulties and deficits in their children's scores, which may even be exacerbated by not being able to move. Moving is neither an unambiguously adverse event, nor always a step forward, but it is a feature of family life. The public policies underpinning the early years, though increasingly stretched and localised, should be able to support families, both to take advantage of opportunities for good moves, and to avoid having to make bad moves.

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## Endnotes

<sup>1</sup> Moves can also be inferred from the survey's address records. Information is generally consistent across the two sources, but there remain some discrepancies, mainly caused by changes of address that are not reported at interview. We decided to rely on self-reported information which allows greater consistency with other information collected in the interview (a similar approach is also taken by Beck, Buttaro and Lennon, this issue).

<sup>2</sup> The room total excludes halls, bathrooms, toilets, kitchen and one living room.

<sup>3</sup> LSOAs in England and Wales had a mean population around 1,600 in 2001; Datazones in Scotland, 800; and Super Output Area in Northern Ireland 2,000.

<sup>4</sup> Mother's depression is based on a question as to whether she had ever been diagnosed with depression or severe anxiety.

<sup>5</sup> We found in a separate analysis these mothers were also likely to have expressed dissatisfaction with their original neighbourhood at MCS1 but this term is not included in the model as we cannot say in which direction, if any, causation runs.

# The Influence(s) of housing policies on the residential moves of families with young children

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## Abstract

*Residential mobility (or ‘moving home’) is a common and often desired occurrence for families with young children. Many seek upward moves, to homes that better suit expanding households and areas that are deemed good for children. Families will seek to avoid ‘disadvantaging moves’ (those which are involuntary, frequent or which take them to less good housing or neighbourhoods), although much less attention is given to these kinds of moves in the housing policy literature. In this paper, I explore how advantaging moves could be facilitated and disadvantaging ones minimized, through housing policy. Drawing on a review of policy in the UK since 1980 and particularly in England since 2010, I develop a schema for considering kinds of policies that might impact on different kinds of moves for families in different housing tenures, as well as looking at the ways in which policies not explicitly designed to impact on mobility might nevertheless have this effect. This provides a framework for policy development and evaluation which should be applicable in different national contexts.*

## Keywords

Residential mobility, early years, housing policy, Millennium Cohort Study, Fragile Families and Child-Wellbeing Study

## Introduction

This paper is motivated by two of the key themes emerging from the other papers in this issue, which are concerned with the residential mobility patterns of families in the first five years of life.

One is the variation in moving patterns in different countries. As Gambaro and Joshi (2016, this issue) and Beck, Buttaro and Lennon. (2016, this issue) show in their analyses of residential mobility in the US and the UK in the early 2000s, the extent and frequency of moving varies considerably between the two countries. Between birth and age five, almost 70% of the children in the Fragile Families and Child Wellbeing Study (FFCWS) in the US moved at least once, and 20% moved three or more times. By contrast, 47% of children in the Millennium Cohort Study (MCS) in the UK moved

between birth and age five, and only 5% moved three or more times. This may partly reflect the differences in sampling for these two studies. The FFCWS sample focused on non-marital births, though Beck et al. weighted the sample to represent the 20 large cities from which it was drawn. The MCS was drawn from across the UK and did not focus on non-marital births, although the sample was clustered to adequately represent ethnic minority children and those from disadvantaged backgrounds, resulting in a largely urban sample. However, differences in rates of mobility are also reported in population-wide data. Nearly 22% of US children aged one to four moved in the year before the 2000 Census, compared with 14% in the UK.

The second theme is the different kinds of moves that young families make, and the effects of these. Many studies (although few concentrating on the early years) have examined the effects of residential mobility on children's outcomes, tending to find that residential stability is beneficial for child development (Jelleyman and Spencer 2008), and that frequent moves are particularly problematic (Astone & McLanahan 1994; Ziol-Guest & McKenna 2014). Cutts et al. (2011) also find that multiple moves are associated with poor health and developmental risk for very young children. However, there has been less focus on the type of moves that families make. Residential mobility ('or moving home')<sup>i</sup> is a common and often desired occurrence for families with young children. Many people at this stage in the life cycle are seeking to upgrade to homes that are better suited to the needs of their growing families. Some will also be moving upwards in their careers, perhaps involving relocation for jobs and/or the financial capabilities to establish themselves in more well-to-do neighbourhoods or nearer well-regarded schools. These moves, which are voluntary, timely, and which improve the fit between the family's needs and its accommodation, can be thought of as 'advantaging moves'. However, some families make 'disadvantaging moves', which are involuntary and/or frequent and/or to smaller or lower quality homes or worse neighbourhoods. In this journal issue, Gambaro and Joshi (ibid) find that moves *per se* are not generally associated with adverse outcomes for children aged under five but that this can be the case when these moves are either made in adverse circumstances (such as job loss or family break-up) or result in less favourable housing and neighbourhood circumstances. As Clark demonstrates in this issue, the effects of moving under duress can be greater for households who are already more vulnerable.

The existing policy literature, however, pays relatively little attention to disadvantaging moves. As Clark (2012) argues, mobility studies have tended to downplay unexpected or unanticipated residential mobility, with much of the analysis set within the framework of purposive employment or housing related choices. Indeed, the concept of the housing 'career' implies an upward trajectory if not necessarily a linear one. In particular, the choice paradigm is less useful in social (public) housing,

where allocation rather than choice is often what determines residential location.

In this paper, I take an explicit look at the housing policy implications of the findings of the other papers in this issue, considering all the kinds of moves that families make not just the positive and planned ones. Housing policies are not the only influences on patterns of residential mobility. Comparing countries and time periods, social, cultural, geographical and economic factors will also account for variation, as will as other economic and social policies. However, it is not unreasonable to see housing policies as having a significant role, as Caldera Sanchez and Andrews (2011) show in their wider analysis of OECD countries. Thus if encouraging the kinds of moves that are beneficial for families, and minimizing the kinds of moves that are negative are legitimate goals, what would this mean in housing policy terms? What policy levers would need to be pulled, and how might policies affect mobility in unintended ways?

To do this, I draw on a review of housing policy in the UK since 1980, and particularly on a more detailed consideration of policy in England since 2010. This latter period is of particular interest because in a number of ways, residential mobility emerged as an explicit objective of policy in England at this time. In some respects, also, as I show, the UK system began to become more similar in character to the one which pertained in the US at the time the studies in this special issue were conducted. I make reference to some key US/UK comparisons simply to increase the utility of this paper in conjunction with the others in this issue which contrast the UK and US situations. However, my intention is not to evaluate specific policies or to make international comparisons but to develop a framework for thinking about the relationships between housing policies and mobility patterns. I propose a policy schema for considering the kinds of policies that might impact on different kinds of moves for families in different housing tenures, in order to provide food for thought about policy directions and the kinds of information needed to support policy-making and analysis of its effects. This schema, I contend, should be applicable in the US and other countries as well as the UK. It should also have wider applicability in terms of the life course. Given that the paper is intended to consider policy implications of the findings of these studies on the moves of families with young

children, I focus in my review on the moves that families might make (rather than, for example, the moves of older people into residential care). However, housing policy is rarely specific to the exact ages of children in a household, so the findings here should also have relevance to other life stages.

## Housing and housing policy in the UK since 1980

To help orient the later discussion, especially for readers outside the UK, I start with a brief overview of housing in the UK and policy developments in the last three and a half decades. Some essential contrasts with the US are drawn.

In the UK (and US), the vast majority of households can be grouped into one of three housing 'tenures'. They either own their home (or are buying it with a mortgage), rent from a for-profit landlord or rent from a non-profit landlord. Those renting from non-profit landlords (local councils or charitable housing associations) are referred to in the UK as being in 'social' housing' tenure ('public' housing in the US) and those renting from for profit landlords are known as 'private renters' (usually just 'renters' in the US). Social housing represents a mode of government housing subsidy which is channelled to landlords to enable them to provide homes at low cost to the tenant. Social rents are cheaper than private rents. However, both social and private tenants with low incomes can also receive subsidies through the social security system<sup>ii</sup> to help them pay their rent – known as Housing Benefit and similar in concept to 'housing vouchers' to subsidise private renters in the US. Changes in the amount of social housing or the levels of subsidies available to renters of different kinds clearly affect housing options in the same ways that the size and price of the 'for sale' market affects owner-occupiers. These tenures also bring with them different routes in and out of housing and different rights and regulations. Social tenants in the UK are allocated homes depending on their need, and until very recently they were granted permanent tenancies. Private renters choose from a range of available homes but typically have much less security – six-month or 12-month tenancies are typical.

Unlike in the US, social housing has historically made up a very large proportion of tenures in the UK, especially for families with children. This

proportion peaked in 1980 when it housed nearly a third of households. The election of Margaret Thatcher's Conservative government in 1979 signalled a profound change in housing policy, designed to encourage home ownership and to privatise housing provision in the rented sector. Under the 'Right to Buy' legislation (1981) council tenants were enabled to buy their homes at substantial discounts, without the provision for local authorities to build replacement housing. Local authorities were incentivised to transfer their stocks of public housing to housing associations. Financial incentives were offered to attract private investment into the rental sector, while funding for the refurbishment of social housing was reduced, and there was a rolling back of rent and tenancy protections. The 1996 Housing Act legislated that homeless people (now more tightly defined) should only have rights to temporary not to permanent accommodation. Housing policy overall became less about the provision of affordable housing through government intervention and more about stimulating a housing market, with basic provision for those with nowhere to live. The result of these policies was an increase in home ownership, from 57% of households in 1980 to 69% in 1997 (when the long period of Conservative government came to an end), and a decline in social housing (from 31% to 21%) (Department for Communities and Local Government Live Tables 801).

In the early 2000s, therefore, when the data were collected for the studies reported in the other papers in this issue, the UK still had a significant social rented sector, while in the US, housing rented from public authorities was home to only around 1% of households overall<sup>iii</sup>. On the other hand, the US had a much bigger private rented sector (around one third of households with children). In the UK, just 10 per cent of households with children were renting privately at that time. This reflects a much earlier policy shift in the US towards subsidising rents in the private sector rather than building public housing units. However, it is also important to note the smaller proportion of subsidised households overall, arising from the relative lack of generosity of the US welfare system compared with the social security system in the UK. Overall in the US in 2000, there were only around five million subsidised renters in all federally subsidised schemes (including both public housing and housing vouchers). This is approximately the same number

as in social housing in the UK, a country about one-fifth the size.<sup>iv</sup>

Under the Labour government in England from 1997-2010, policies aimed at the social housing sector enjoyed something of a revival (Tunstall, 2015). Explicitly recognising the importance of good housing for health, educational and other outcomes, Labour's 'Decent Homes' programme set a new housing quality standard, supported by government funding to ensure that all homes reached this standard by 2010. However, at the same time, the size of the social housing stock continued to reduce, by about 400,000 homes in England over the decade 2001-2011. The government also began to identify problems with the social housing sector, including a perceived inability for tenants to move in pursuit of job opportunities because of lifetime tenancies and the fact that housing allocations were managed by multiple different local authorities (Hills, 2007). Meanwhile bigger changes were underway in the private housing market. Although the Labour government was keen to support home ownership, as the 2000s progressed, rising house prices, fuelled by inadequate supply, the availability of cheap mortgages, and 'buying to let' put an end to the long run growth in owning, as first time buyers found it increasingly difficult to get a foot on the housing ladder. The financial crisis of 2007/8 created a more acute problem, with currently owning households reluctant to sell in declining markets and a rapid decrease in mortgage availability and tightening of terms, effectively stalling the private housing market. By 2011, 18% of households (and 19% of households with children) were in private rented accommodation, up from 12% (and 10% of households with children) ten years earlier. The reduction in social housing, combined with an increase in private rents in line with rising house prices, led to a substantial rise in the total housing subsidy bill, since more private renters were drawing on Housing Benefit to help with their rents (Office for Budget Responsibility, 2014). Homelessness has also been rising since the economic crisis. The number of homeless households grew by 16% between 2010 and 2013 and the number of households temporarily accommodated after being accepted as homeless by 14% between 2010 and 2014 (Tunstall, 2015).

Housing policy under the Coalition government elected in England in 2010 (and its Conservative

successor elected in 2015) has been largely concerned therefore with attempting to 'kick-start' the housing market, through a range of policies which I describe in more detail in the next section. In terms of housing subsidy, its emphasis has been on increasing the supply of 'affordable' homes (with submarket rents but higher than traditional social housing), rather than increasing the supply of social housing. There has been a new focus on making 'better use' of the social housing stock. In the 2011 Localism Act, steps were taken to reduce security of tenure for social renters in order enable the social housing stock to be used in a more fluid way to meet immediate needs. By 2012/13 9% of new lettings were fixed term tenancies rather than indefinite 'secure' tenancies (Chartered Institute of Housing, 2014). In 2013 the Coalition also introduced a size criterion for the payment of Housing Benefit to social renters (known popularly as the 'bedroom tax'). This reduced the amount of rent eligible for Housing Benefit for households of working age deemed to have 'spare' bedrooms, anticipating that 'under-occupiers' would move to more 'suitable' homes, leaving larger homes for larger households.<sup>v</sup> At the same time, both the Coalition and Conservatives have made reducing the overall costs to the government of housing subsidies a key element in their wider package of 'austerity measures' designed to cut the country's budget deficit, with a range of cuts affecting private sector tenants which I elaborate in more detail later in the paper.

This brief review reveals that the scope of what may be described as housing policy is very broad – including among others direct subsidies to suppliers, subsidies to consumers, incentives to developers and landlords, wider fiscal and monetary measures, and policies governing allocations to subsidised homes and tenancy rights and securities. Any or all of these may potentially affect household mobility. The argument in the remainder of the paper aims to bring some coherence to the relationships between policy and mobility by exploring three core propositions. The first is that while there are policies that are explicitly intended to impact on mobility, those policies that have most effect on structuring mobility are those in which goals around mobility are at most implicit. Both implicit and explicit need to be considered. The second is that the different policies that affect mobility in different housing

tenures are distinct, and indeed that different kinds of mobility may be intended for people in different tenures. The third is that policies to support advantaging moves (perhaps described as 'enabling' policies) and those designed to minimize disadvantaging moves (perhaps 'protective policies') are likely to be very different from one another, because they affect people in different positions in the housing system and imply different degrees of targeting. These two goals of 'enabling' and 'protecting' need to be thought of as conceptually distinct, and policies evaluated in relation to each of them separately.

### Explicit and implicit connections between housing policy and mobility

It is clear from the review above that there are some housing policies which are at least in part explicitly designed to enable the mobility of individual households and some which seek to increase rates of mobility overall or within specific tenures. During the 2000s a number of the Labour government's housing policies had the stated aim of increasing household mobility. These included its expansion of the private rented sector, changes to social housing lettings policies to enable more choice, and measures to facilitate and speed up the home buying and selling process (for example electronic conveyancing and home information packs, which required the seller to collect information about their property prior to sale, thus avoiding protracted and interrupted transactions).

Since the Conservative/Liberal Democrat Coalition government came to office in 2010, the use of policy to increase mobility has been particularly evident. In the owner-occupied sector, this was born out of a concern to 'free up' a housing market blocked by lack of new supply and the inability of would-be buyers to afford a first home. The Coalition maintained the low interest rates that it had inherited following the financial crisis. It introduced 'Help to Buy' equity loans and government-backed mortgage guarantees, and 95% mortgages for first time buyers to buy newly built homes up to the value of £500,000, as well as increasing the discounts available to people wanting to buy their council house. It also funded various schemes to bring empty homes back into use and to offer financial assistance to developers to restart schemes stalled in the recession. It introduced a 'growing places' fund to pay for

infrastructure associated with new housing, and a 'New Homes Bonus' for local authorities achieving private development in their areas. Home information packs (Labour's plan to facilitate moving) were abolished because they were perceived to be too burdensome and costly for sellers, and were thus having the opposite effect. In the social housing sector, a National Home Swap scheme was introduced to make it easier for social housing tenants to move between landlords around the country. The 'bedroom tax' policy was also intended to encourage moves, not for the sake of a 'freer' housing market or moves to employment but in order that subsidised housing could be used for those deemed in most need not necessarily those who were currently occupying it.

In theory, policies to get the housing market moving should increase the chances of 'advantaging' moves for owner occupiers. Indeed the Coalition government identified the ability to move home for work as an element in its Social Mobility Strategy (Cabinet Office and Deputy Prime Minister's Office, 2011), counting measures to stimulate home ownership and private renting as part of its effort to enable this. On the other hand, the 'bedroom tax' would be expected to increase the likelihood of disadvantaging moves for low income social renters, since some would have to move involuntarily and to smaller homes because they could no longer afford their original rent. However, freeing up larger under-occupied homes in the social rented sector should enable some families in overcrowded homes to move into more suitable properties. Similarly, reductions in the length of tenancies might increase the possibility of disadvantaging moves for some families but open up the opportunity of advantaging moves for others.

In practice, both in the owner occupied and social rented sectors, these measures have had modest effects on mobility. Both under Labour and the Coalition, the effects of specific policies to encourage moving within (and into) the owner occupied sector were dwarfed by the bigger issue of an increasing mismatch between housing supply and demand, both generally and in terms of affordability. As the economy returned to growth following the financial crisis and recession, house prices continued to rise in most parts of England, and according to some commentators, were inflated by the Help to Buy scheme (Chandler

and Disney, 2014). At the same time, post-crisis banking regulation made it harder for would-be buyers to borrow, and the effects of the recession on household incomes and job security made it less likely for existing owners to sell. The English Housing Survey [Annex Table 1.12] shows that the number of owner occupier households moving in the twelve months prior to the survey fell from 985,000 in 2007/8 to 360,000 in 2009/10, and that the Coalition's measures along with and the return to economic growth only resulted in an increase to 680,000 by 2013/14, not yet back to pre-crisis levels. While the new Help to Buy scheme enabled around 80,000 transactions, it was not clear how many of these would have taken place anyway (NAO 2014).

In respect of social renters, Clarke et al. (2014) found that only 4.5% of social tenants affected by the bedroom tax had downsized in the first six months of the policy, while Wilcox (2014) gave this figure at 6%. In part, this was because in many places there were insufficient smaller social rented properties to move to. A time lag can also be expected. Surveys of local authorities, landlords and tenants in 2014 found evidence of increasing arrears of a level likely to lead to eviction as well as reluctance on the part of private landlords to accept benefit clients (Grant Thornton, 2014). The number of repossessions of homes by landlords – a clear case of involuntary moves – has risen rapidly since the Housing Benefit reforms (and other welfare reductions) were introduced, with two thirds of repossession claims being made by social landlords. However, as Kemp, Cole, Beatty and Foden (2014, p.29) reported, for many people “moving home was a last resort”, to be considered only when other options were exhausted. It appears to have been much harder than the government anticipated to ‘get people moving’ through withdrawing housing subsidy, because of the multiple attachments and preferences that people have for their homes and neighbourhoods. Clark (2012) makes a similar observation in relation to the US ‘Moving to Opportunity’ experiment, where low income tenants were supported to move out into lower poverty neighbourhoods (thus an additive not a subtractive policy, in contrast to the UK bedroom tax). Although ostensibly advantaging moves were made, many participants in the programme ended up moving back to their previous or similar neighbourhoods. Decisions by governments, he

observes, “are always embedded in the dynamic geography of the city” (p81), and connections and preferences have an important role to play.

More important, perhaps, is to remember that housing policies that aim specifically to impact on moves make up a small proportion of all housing policies. Residential mobility is, of course, crucial to housing market functioning, and is thus *implicit* in wider policies - policies which seek to ensure sufficient supply, access to first time entrants, affordability and availability of credit, among others. ‘Advantaging’ moves will be possible in a housing market where there are the right numbers of homes of the right size in the areas in which there is demand to live, and where these same supply/demand conditions also exist for people who are not able to afford market rents or mortgages. Disadvantaging moves could be limited by increasing the quality of the housing stock and neighbourhood conditions and amenities, and by reducing differentials in these, so that falling down the ladder has a less negative effect, as well as by regulatory measures to protect tenants from unwarranted eviction, for example.

However, policies to achieve these goals are rarely advocated for their effects on residential mobility *per se*. They have other goals and rationales. Yates (2012) sets out some of these in her discussion of housing subsidies. She identifies three traditional rationales: those around allocative and productive efficiency (for example preventing negative housing influences on health or education); those around social justice or equity (for example helping to distribute wealth more evenly or ensure more equitable consumption of housing goods), and those around economic stabilisation and growth (for example using housing investment to stimulate economic growth in a recession). In addition, she points to ‘enabling’ rationales for housing subsidies, where the goal is to remove constraints within the operation of the housing market. All of these are principally rationales for policies that change the state of housing supply and consumption, not specifically the moves that people make within the system, although mobility is an inevitable product. I suggest that issues of mobility tend only to be explicitly articulated, and policy responses developed, when they become a problem – for example that people cannot get their first foot on the housing ladder, cannot move for work, have to move frequently

disrupting schooling or are 'clogging up' a social housing stock that politicians want to use in a more flexible way. The implication of this is that when looking at policies which would enable advantaging moves and reduce disadvantaging ones we should not only or primarily be concerned with policies which have an explicit intention to create mobility or increase stability. We also need to look at the wider policy portfolio.

### The importance of housing tenure

As the examples given above clearly show, policies that affect mobility (whether explicit or implicit) are tenure specific. This is not the place for a complete review of housing policy, but it is nevertheless useful to be clear about the different kinds of housing policy levers that governments seeking to influence mobility in different tenures can pull. Again, Yates (2012) provides a helpful classification of many of these under the broad category of subsidies (which she suggests can cover any measures that affects consumption or production of housing): targeted subsidies to renters versus untargeted subsidies providing implicit assistance to homeowners through the tax system; explicit subsidies involving government outlays versus implicit subsidies; those directed at consumers versus those directed at producers; upfront or recurrent subsidies. Beyond subsidies, we might also add regulation (Gibb and Whitehead, 2007) planning policies and governance, and wider monetary policies, such as control of general interest rates. Examples include:

- Homeownership policies: deposit assistance, subsidised loans or mortgages, mortgage guarantees, tax concessions to homeowners, transaction taxes/reliefs, tax concessions and grants to developers or provision of government land, planning targets or processes, regulation of transaction processes
- Private rental policies: housing allowances, rent controls, tax concessions to landlords, landlord regulation (e.g. length and conditions of tenancy, quality standards)
- Social rental housing: below-market rents, housing allowances, grants to developers, affordability targets for planning, landlord

regulation (as above), allocations policies (including provision for homeless), funding for housing maintenance.

For these reasons, the impacts of policies on the residential mobility patterns of families with young children specifically (or for that matter of any other group whose mobility is of interest) will depend on the location of such families within the housing system, between and within tenures. Who is within a particular tenure at a given time and who is without will shape the outcomes of policy. The Conservative's (1981) introduction of the Right to Buy policy is one example that illuminates some of these complexities. The Right to Buy enabled existing social tenants to enter the housing market and in theory to become more mobile through buying and selling their council properties. However, for social tenants not able to buy, the prospects of moving were reduced because of the decline in the overall stock, and options for would-be tenants including homeless families were limited.

More generally, data from the English Housing Survey show the effect on moving patterns of the combined housing policies (broadly conceived) of the last 15 years. In 2000/01, 2.32 million households were estimated to have moved within the last year, of which 43% were home owners at destination, 36% private renters and 21% social renters. Thus moves were more likely for owner-occupiers. By 2007/8 on the eve of the financial crash, the number of recent movers had increased to 2.37 million, with a small decrease to 41% being homeowners, a larger increase to 43% private renters, and a reduction to 16% in social housing. By 2010/11, the number of recent movers had dropped to 2.04 million, with just 22% home owners, 62% private renters, and 16% social renters. Moves were predominantly occurring within the private rented sector.

Of relevance in this context, the increase in private renting has particularly affected families with children, since it is precisely these kinds of households (newly forming families on upward labour market trajectories and wanting to buy their first home) who have found it increasingly difficult to enter owner-occupation. In 2007/8, 59% of households with children in England were buying their home with a mortgage. 12% were renting privately. By 2013/4, these figures had changed to

48% and 24% respectively, a considerable change. Home ownership moves have been thwarted, but families with children are now twice as likely to be in a sector with high mobility. Data from the 2011 Census shows that 25% of private-renting families with a child aged under five moved in the year before the Census, compared with 13% of social renters and 6% of owner occupiers with children that age.

What is not known, and is not really revealed by the questions asked in the English Housing Survey, is whether these are 'advantaging' or 'disadvantaging' moves. No doubt some families are benefiting from the flexibility of renting, while others are experiencing housing insecurity or sub-standard housing conditions. The 2011 Census also shows that among families with a child under five, 22% of those in private renting were experiencing housing deprivation (as measured by overcrowding, lack of central heating or sharing with another household), compared with 7% in owner occupation. According to the English Housing Survey 2012-13, private renters (23%) were also more likely to be dissatisfied with their tenure than owner occupiers (2%) or social renters (6%). On the other hand, only 7% of private renters who had moved said that the landlord had ended the tenancy. Most moved because they wanted to. Understanding the kinds of moves that families are able or required to make within private renting, and how housing conditions and security for families within that tenure can be maximised, have become significantly more important over recent years, requiring different policy emphases.

### **Enabling and protective policies**

Lastly, I consider the idea of 'enabling' versus 'protective' policies. Almost all the policies discussed to date relate, if mobility is explicit at all, to the idea that policies should enable advantaging moves. However, we might also consider policies that help protect against disadvantaging moves. These might include policies around security of tenure, in order to prevent evictions or other involuntary moves. We might also think more broadly about policies governing neighbourhood conditions and services since, as Leishman and Rowley (2012: p380) point out, housing units are spatially fixed, so that "occupancy of a given unit implies consumption of neighbourhood level attributes and services at a level and quality

available in the particular neighbourhood in which that housing is located". Thus policies around the provision of local government, health and wider public services, from childcare to transport to doctors' surgeries to environmental management must also be considered, sometimes focused through central government-led efforts at urban renewal. Since social housing is often spatially clustered, these neighbourhood conditions and services can also be strongly influenced by the management policies and practices and investments of social landlords.

Approaches to these kinds of 'protective' policies have varied considerably in England during the period under review. During the 1980s and 1990s, while it became easier for social housing tenants to make advantageous moves, via the 'Right to Buy' scheme, and while home ownership was widely opened up by cheap mortgages, there were no obvious policies to avoid the risk of disadvantaging moves for those who could not buy. Indeed, a key feature of this period was a widening of inequalities in neighbourhood conditions and services, due both to rapid deindustrialisation and reduced spending on public services (Hills, 1996; Social Exclusion Unit, 1998; Lupton, 2003). Thus for people having to move to cheaper or less desirable neighbourhoods, the risks of moving to a low quality neighbourhood increased. Underinvestment in social housing also created a backlog of repairs which meant that those with the least choice in the housing system were increasingly likely to face sub-standard housing conditions. Under Labour in the 2000s, by contrast, there were investments in Decent Homes and neighbourhood renewal, achieving noticeable but modest improvements in the quality of living conditions and services in the poorest neighbourhoods and some narrowing of the gaps between neighbourhoods (Lupton, Fenton, and Fitzgerald 2013). Thus in social housing the likelihood of disadvantaging moves to worse neighbourhoods probably decreased. However, the overall quantity of social housing decreased, restricting moves within that sector as well as restricting moves into the sector from homelessness. Under the Conservative/Liberal Democrat Coalition from 2010-2015 although the importance of good housing for children's welfare was recognised in the government's child poverty strategy (DWP and DFE, 2011) and the previous government's Decent Homes programme to

upgrade the quality of social housing was continued (albeit at a lower level), very little in practice was pledged to ensure neighbourhood quality. In fact the Coalition cancelled all the previous government's programmes and funding around 'neighbourhood renewal', at the same time as making cuts of around one-third to local authority budgets in general, much of which has been felt in non-statutory services such as libraries, youth centres, children's centres and environmental services (Lupton and Fitzgerald, 2015). Thus moving 'down market' may once again prove to be more disadvantaging than it was when greater efforts were made to ensure parity of neighbourhood conditions.

One last consideration here is that, while in most cases the explicit or implicit mobility outcomes of housing policies would be enabling (to increase the possibility of advantaging moves) or protective (to minimise disadvantaging moves), there are also examples of housing policies which increase the possibility of disadvantaging moves because these appear to be justified on other grounds. One such is the suite of measures introduced by the Coalition government to reduce the costs of rental subsidies in the private sector. For private renters, the cap on the amount of rent that could be fully funded by Housing Benefit was set at 30% of the local market rent (down from 50%), and there was an overall weekly cap, as well as an overall cap on the total amount of welfare benefits a household could receive. These measures would be expected to force some immediate unwanted moves. They would also be expected to decrease the chance of future advantageous moves for low income private renters, since they would be priced out of higher income areas such as central city areas close to employment opportunities, or better off suburbs with high quality schools and amenities. Under these measures, large swathes of London and some other higher rental areas are likely to become unaffordable to subsidised tenants (Hamnett, 2010; Fenton, 2011; Chartered Institute of Housing and Shelter, 2011).

Many objections have been made to these policies. Some are on equity grounds, for example arguments about 'rights to the city' or the impacts on low income children of school moves and housing insecurity. Some are on efficiency grounds, for example that low paid workers need to be able to work close to jobs. However, the government has argued that this is an equitable measure, since it is correcting a situation in which people on benefits are able to live in properties unaffordable to many people in work. More generally, the policy is embedded in a wider suite of austerity and welfare reform policies, including the aforementioned 'bedroom tax' designed to reduce government debt and remove disincentives to paid work. To date, there is insufficient information to be able to evaluate actual policy effects, including their effects on children. Understanding how these effects unravel over the next decade will be extremely important in understanding whether and how policies which seem to be deliberately created to promote disadvantageous moves have negative effects in childhood and later life.

### Summary and concluding remarks

The aim of this paper has been to scope the policy implications of findings on 'advantaging' and 'disadvantaging' moves for families with young children, in order to better understand how governments might increase the former and minimise the latter. I have set out three broad considerations in order to help navigate this complex policy territory. Two of these: the importance of tenure and the difference between policies aimed at promoting advantaging moves versus avoiding disadvantaging moves are summarised in table 1. I have also argued that we need to consider both policies that are explicitly aimed at affecting mobility, and policies with broader rationales of which mobility is a product. Both of these kinds of policies appear in the table.

**Table 1: Housing policies and the residential mobility of families with young children: a framework illustrating the kinds of policies affecting different kinds of households and moves**

Policy goals/Type of residential mobility	Tenure		
	Owner occupiers	Social tenants	Private renters
<b>Facilitating advantaging moves</b> Voluntary, timely upward (home and neighbourhood)	<ul style="list-style-type: none"> <li>- Match supply and demand generally</li> <li>- Incentivise building in high demand areas</li> <li>- Fiscal policies, government loans and tax reliefs to ensure affordability</li> <li>- Streamline buying and selling process</li> <li>- Reduce costs of selling (transaction taxes)</li> </ul>	<ul style="list-style-type: none"> <li>- Match supply and demand generally</li> <li>- Ensure supply in high demand areas (mixed development)</li> <li>- Affordable rents and subsidies</li> <li>- Enable moving between areas and landlords</li> <li>- Efficient use of stock</li> <li>- Allocation of homes to homeless families</li> </ul>	<ul style="list-style-type: none"> <li>- Match supply and demand generally</li> <li>- Rent subsidies/rent controls in high demand areas</li> </ul>
<b>Avoiding disadvantaging moves</b> Involuntary, frequent downward (home and neighbourhood)	<ul style="list-style-type: none"> <li>- Consistently high quality of stock and neighbourhood conditions and amenities</li> <li>- Loans to those at risk of repossession</li> </ul>	<ul style="list-style-type: none"> <li>- Consistently high quality of stock and neighbourhood conditions and amenities</li> <li>- Security of tenure</li> <li>- Rent controls/subsidies</li> <li>- Effective management practices to minimise eviction, and homelessness services</li> </ul>	<ul style="list-style-type: none"> <li>- Consistently high quality of stock and neighbourhood conditions and amenities</li> <li>- Rent subsidies/controls</li> <li>- Landlord regulation</li> <li>- Security of tenure</li> </ul>

This exercise does not point to specific policy prescriptions but to some more general conclusions. One is that this is a complex picture with multiple simultaneous policies at work. Policy makers concerned with making an impact on mobility will need better information about the effects of policies on rates of mobility, whether intended or not, and on the effects of moves on different people and in combination with other factors. The same policies may produce advantaging moves for some while disadvantaging others, and these trade-offs could usefully be made more explicit. In reality the picture is probably even more complicated than is set out here. This paper focuses on housing policy, broadly conceived. I have touched only lightly on other policies which may impact on residential mobility (for example neighbourhood management and regeneration and health, education, support and mediation services) because they influence the reasons why people make undesired moves in the first place, such as relationship breakdown, job loss, financial difficulties, and victimisation including domestic violence. Neither have I covered policies that might enhance the benefits of good moves and mitigate the negative effects of bad ones, for example helping families to connect with support services and social networks in new homes and areas. All of these would benefit from inclusion in a broader policy model. In particular, since 'disadvantaging moves' tend to occur when families are already experiencing adverse circumstances, it might be equally important that policy focuses on the avoidance of these adverse circumstances as on the avoidance of moves.

A further crucial consideration, generally absent from the literature on residential mobility, is the effect of the avoidance of moves. A consistent finding of studies of tenants experiencing current government reforms to housing welfare in England is that they are cutting back on essential household spending. Commonly, this takes the form of cut-backs in food and heating and borrowing from family and friends in order to avoid moving, and for some, the experience of significant financial hardship and stress (Kemp, Cole Beatty & Foden 2014; Herden, Power, and Provan 2015; Power, Provan, Herden & Serle, 2014). Very little evidence is yet available on the effects of these behaviours on children's wellbeing and outcomes. Bragg et al. (2015), in a small scale study, report children being

anxious about their family's financial situation and threats of loss of home, as well as being hungry and finding it difficult to concentrate at school. Both financial hardship and family stress have been shown to be negatively associated with child wellbeing (e.g., Gershoff, Aber, Lawrence, Cybele & Lennon, 2007). This is a critical omission, since other aspects of government policy seek to improve the outcomes of children from low income families in the interests of more equal childhoods (Lupton & Thomson, 2015).

Lastly, I have also observed in this review that specific policies aimed at 'getting people moving' do not necessarily have the intended effects. In relation to market housing, wider monetary and regulatory policies have a bigger effect, while in the subsidised sector, people may respond to policies intending to make them move by restricting other aspects of life in order to be able to stay. This may be read as an argument that high level policies affecting the structure of the housing market and the subsidies within it are more important than specific policies around mobility per se, and the ties of home and neighbourhood play a bigger part in housing behaviour than economic models recognise. Nevertheless, policies specifically aimed at affecting mobility are likely to continue to be a part of the policy mix when problems with mobility come to the fore. Gaining a better understanding of how they actually work will continue to be important.

I started this paper by thinking about the implications for housing policy of studies of residential mobility in the UK and US. I conclude it by thinking about the implications of housing policy considerations for longitudinal studies in these countries. We can see from the material presented here that the changes in UK housing policy in recent years by no means bring the level of private renting among UK families to that of the US, especially for low income families for whom social housing remains a significant tenure option, but they do make comparisons of family mobility between the two countries of increasing interest as the housing policy contexts come close together. Moreover, although it may be hard to see the effects of specific policies in longitudinal studies, this does not mean that these studies cannot inform policy. On the contrary, thinking about the ways in which housing policies explicitly or implicitly aim to shift household mobility behaviour, and what happens in

practice, serves to highlight the complexity of the interactions between housing pathways and other household circumstances and trajectories (income, employment, family, and neighbourhood ties for example). Longitudinal studies can illuminate

precisely the mobility behaviours of those whom policy makers are seeking to enable or protect, and should be an important source for understanding likely policy effects.

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## Endnotes

<sup>i</sup> I use the term 'moving home' as a shorthand for 'residential mobility'. It does not infer 'moving back home', for example to a parental address.

<sup>ii</sup> For the benefit of readers outside the UK, it should be noted that since the devolution of powers from the Westminster government to the Scottish Parliament and Welsh and Northern Ireland Assemblies at the end of the 1990s, housing has been a devolved responsibility. Thus this paper refers to UK policy up until

devolution, and English policy afterwards. Social security policy (including housing subsidies) remains at UK government level.

<sup>iii</sup> The sector is so small that respondents to the US Census are not specifically asked about what kind of landlord they rent from. The data here are taken from the US Department of Housing and Public Administration (HUD) 'Picture of subsidised households'.

<sup>iv</sup> In the US, there are also state and local subsidies not reported by HUD, while in the UK, there are also households in private renting subsidised by Housing Benefit.

<sup>v</sup> Encouraging older households to 'downsize' is clearly a policy tool that could be used to create 'advantaging moves' for growing families. It is interesting to note that the 'bedroom tax' does not affect pensioner households. As this paper is being written, there are current debates in the UK about how the government could make it easier for older owner-occupiers to downsize, for example by offering a one-off exemption on property transaction taxes or expanding the supply of high quality older persons' accommodation. However, 'intergenerational' approaches to residential mobility such as this have not been a feature of policy to date.

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