

TEENAGE HOUSING TENURE AND NEIGHBOURHOODS AND THE LINKS WITH ADULT OUTCOMES: EVIDENCE FROM THE 1970 COHORT STUDY

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Introduction

This work is one of a pair of studies. (The other, which uses the Millennium Cohort Study, can be found at <http://sticerd.lse.ac.uk/case>.)

This pair develops the findings of two previous reports (Feinstein *et al*, 2008, Lupton *et al*, 2009). These examined housing in childhood for those born in 1946, 1958, 1970 and 2000, and its relationship with adult outcomes across a range of measures (except for those born in 2000).

They found as yet unexplained connections between being 'ever' in social housing in childhood and worse adult outcomes on an overall measure of deprivation and a range of individual measures for those born in 1958 and in 1970 (but not for those born in 1946) (Feinstein *et al*, 2008, Lupton *et al*, 2009). Statistically significant associations remained after using a large set of 56 controls for family and individual characteristics, for many outcomes and many ages, although the size of the associations was substantially reduced by controls.

The aims of the research

The current research uses the British Cohort Study, whose members were born in 1970.

This is the most recent cohort study whose members have reached adulthood. It was the one for which the most numerous statistically significant links were found, after controls, between childhood tenure and adult outcomes in Feinstein *et al* (2008) and Lupton *et al* (2009).

It aims to explore:

- If there were any differences in adult outcomes between those in social renting and private renting, and between private renting and home ownership;
- The nature of neighbourhoods experienced by those in different tenures as teenagers; and
- Whether features of social housing neighbourhoods might constitute either all or part of what appeared to be a 'tenure effect'.

The British Cohort Study 1

The British Cohort Study follows a sample of people born in Great Britain in 1970 as they have grown up. Data were collected at birth, at age 5, and 10, 16, 26, 30, and 34.

Childhood waves of data collection involved interviews with parents. Children were also tested and as they entered adolescence they were interviewed.

(For more information on the British Cohort Study and its data, see Lupton *et al*, 2009).

The British Cohort Study 2

We report data for cohort members:

- Born in England, rather than Great Britain (in contrast to Feinstein *et al*, 2008 and Lupton *et al*, 2009);
- Included in data collection at three points, in 1970, 1986 and 2004;
- For whom full data was collected on the main variables used in this analysis.

This produces a sample of about 4,000 people in all (the British Cohort Study included about 9,000 people born in 1970 who were tracked for at least some variables all the way through to 2004, across the whole of Great Britain).

The housing tenure of people born in 1970 when they were 16 years old in 1986

Amongst our sub-sample from the British Cohort Study, at the age of 16 in 1986, of those born in England in 1970:

- 80% were living in home ownership;
- 18% were living in social housing; and
- 2% were in private renting.

The vast majority living with their parents, rather than in their own households as independent adults.

A small group of those in owner occupation were there as a result of the Right to Buy between 1980-86.

The individual and family characteristics of people in different tenures at age 16

Compared to teenagers in owner occupied homes, teenagers in social housing had had, on average, a number of disadvantages at birth and in childhood 1970-1986.

On average:

- Their parents had lower qualifications and occupational class;
- They were more likely to be in a lone parent family at birth;
- They had mothers who had their first children younger;
- They had lower birth weights;
- They had more siblings;
- They were more likely to have experienced family dissolution during childhood.

It is almost logically impossible for these differences to have been 'caused' by housing tenure at age 16. This evidence suggests that in the 1970s and 1980s social housing was targeting more disadvantaged families.

Characterising neighbourhoods

We used the 1991 Census to characterise cohort members' 1986 neighbourhoods. (This was the closest date match available; other research suggests that the deprivation of neighbourhoods relative to others changes slowly).

We looked at:

- Small neighbourhood scale ('Enumeration Districts', since replaced by 'Output Areas', about 100-150 households); and
- Large neighbourhood scale (electoral wards, about 2,200 households).

We examined:

- Neighbourhood deprivation: what decile (tenth) of neighbourhoods the cohort member's address was in using the 'Carstairs' index of deprivation (similar to the IMD, but available for 1991); and
- Neighbourhood tenure mix: whether or not the neighbourhood was 'social housing dominated'

How many teenagers lived in different types of neighbourhoods'?

Overall, in 1986 at that age of 16, cohort members were fairly evenly spread between neighbourhoods in different deciles (tenths) of deprivation in 1991.

A small minority lived in neighbourhoods that were 'social housing dominated' in 1991. The proportions were:

- 8.5% in social housing dominated small neighbourhoods; and
- 14.8% in social housing dominated large neighbourhoods.

The two types of neighbourhood overlapped considerably. For example, 51% of those in social housing dominated small neighbourhoods were in the most deprived decile of small neighbourhoods.

The neighbourhoods of teenagers in different tenures at age 16: Deprivation

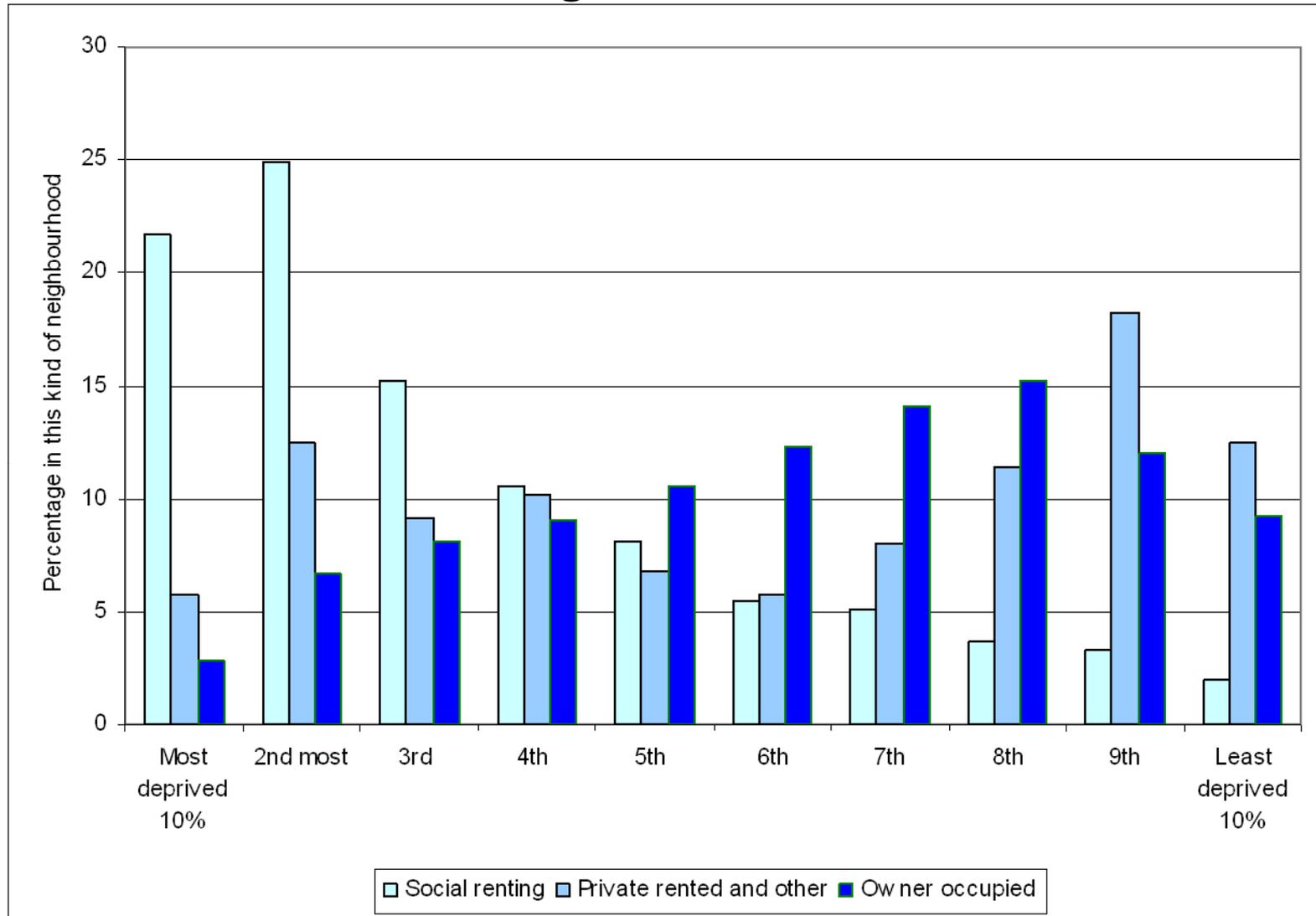
At both small and large neighbourhood scales, teenagers in social housing were highly concentrated in the most deprived neighbourhoods:

- 62% of teenagers in social housing were in the three most deprived deciles (tenths) of small neighbourhoods, compared to 18% of those in home ownership.
- Teenagers in social housing were largely excluded from less deprived neighbourhoods.

At small neighbourhood scale, teenagers in private renting were skewed towards more deprived neighbourhoods and those in owner occupation were skewed towards less deprived areas.

Looking at larger neighbourhoods, teenagers in these tenures were fairly evenly distributed between neighbourhoods with different levels of deprivation.

Example: Proportion of teenagers in each tenure found in small neighbourhoods in different deciles of our deprivation index 1991, at age 16 in 1986



The neighbourhoods of teenagers in different tenures at age 16: Tenure mix

At both small and large neighbourhood scales, teenagers in social housing were also highly concentrated in neighbourhoods dominated by social housing.

The proportion of those in each tenure group in social housing dominated small neighbourhoods (100-150 homes) was:

- In social housing 33%
- In private renting 8%
- In home ownership 4%

In social housing dominated large neighbourhoods (2,200 homes):

- In social housing 38%
- In private renting 10%
- In home ownership 10 %

Characterising outcomes in adulthood

We examined outcomes for cohort members at the age of 34 in 2004.

We used 11 measures of outcomes:

- 1) In paid employment/not;
- 2) Claiming means tested benefits/not;
- 3) Literacy or numeracy problems/none;
- 4) Depressed/not;
- 5) Suffering malaise (mild depression)/not;
- 6) Taking regular exercise/not;
- 7) Low life satisfaction/not;
- 8) Smoking at least 1 cigarette a day/not;
- 9) Highest qualifications;
- 10) Self-rated health; and
- 11) Self-efficacy.

These were the same measures as used in Feinstein *et al* (2008)¹⁴ and Lupton *et al* (2009).

(In 2004 cohort members may have been living in different homes, tenures and neighbourhoods to those they lived in at 16. For example, those in social renting at 16 may have been home owners at 34).

(Raw) Outcomes at age 34 in 2004 of people in different tenures at age 16 in 1986

(Raw outcomes do not take account of differences in individual and family characteristics between those in different tenures.)

Those in both rented tenures at age 16 in 1986 were more likely to have less desirable outcomes at age 34 in 2004 than those in home ownership at 16, in terms of all the 11 measures we examined.

This complements the links found for this cohort between whether people were ever in social housing in childhood and adult outcomes for this cohort in Feinstein et al (2008) and Lupton et al (2009).

(Raw) Outcomes at age 34 in 2004 of people in different rented tenures at age 16 in 1986

This study allows us to compare adult outcomes for those in social renting and private renting as teenagers.

Those in social renting at 16 had worse raw outcomes in terms of:

- Claiming means tested benefits, having literacy and numeracy problems, smoking, qualifications, self-rated health, and self efficacy than those in private renting at 16.
- However, those in social renting at 16 actually had slightly better raw outcomes than those in private renting in terms of depression, malaise and life satisfaction.

These results develop the results found for this cohort in Feinstein et al (2008) and Lupton et al (2009).

Reporting results: 'Odds ratios' 1

Subsequent results are presented through 'odds ratios'.

'Odds' and 'odds ratios' are technical terms (also used in horseracing) and do not mean exactly the same as 'risk' or 'probability'.

- The 'odds' of something occurring is the probability of having the condition (such as smoking at least one cigarette a day) divided by the probability of not having the condition (not smoking...).*
- For example, for those in owner occupation as teenagers, the odds of smoking at 34 were 20.2% (smokers)/79.8% (non smokers), or 0.253.*
- For those in social renting as teenagers the odds were 40.3%/59.7% or 0.675.*
- So those in owner occupation as teenagers had lower odds of smoking as adults than those in social renting as teenagers.*

Reporting results: 'Odds ratios' 2

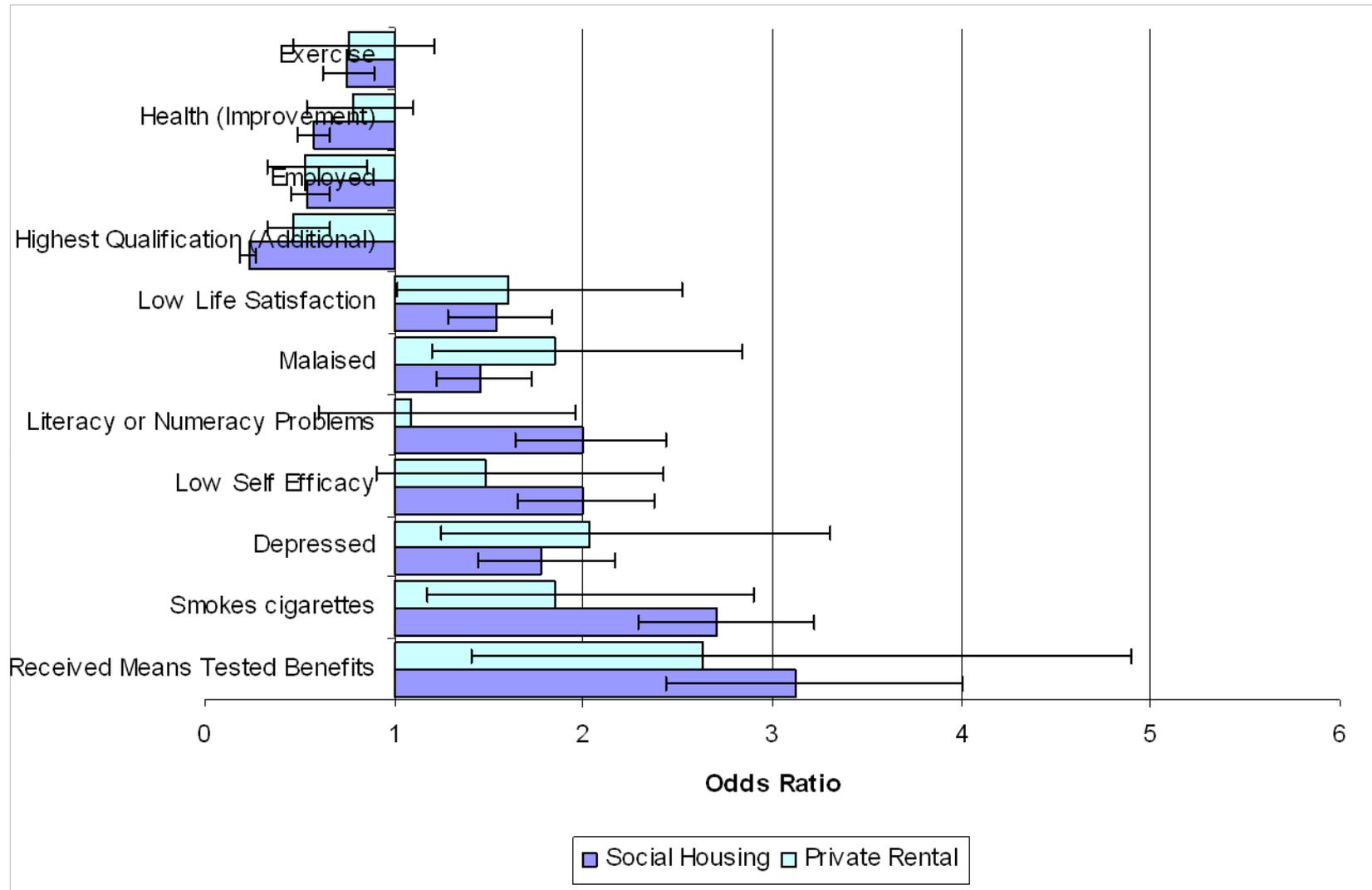
- An 'odds ratio' is the differences in odds of an outcome between those in different groups, such as those in social renting as teenagers and those in owner occupation.
- So, here, the odds ratio of smoking at 34 for those in social housing as teenagers compared to those in home ownership as teenagers is $0.675/0.253$ or 2.66.
- An 'odds ratio' between social housing and owner occupation of more than one means that the outcome (here, smoking) was more likely for those in social housing as teenagers compared to those in home ownership, and *visa versa*.
- However, an odds ratio for two groups of 2.66 does not directly translate to meaning that the outcome was '2.66 times as likely' for one group as the other.

Reporting results: Error bars

The following charts use 'error bars' (horizontal lines) to show whether results are statistically significant.

- *Error bars represent the 95% confidence interval.*
- *Bars that pass through an odds ratio of one (on the x-axis) indicate no significant differences between the tenures being examined and owner occupation (at the 5% level).*
- *Longer error bars indicate greater potential variance around the central estimate.*

Odds ratios for raw outcomes at age 34 for those in both rented tenures as teenagers, compared to those in home ownership



Does teenage housing tenure have a role in explaining adult outcomes?

Controls

We controlled for individual and family advantage, with 2 sets of controls.

The small set of controls included 8 measures:

- 1) Index of family advantage;
- 2) Mothers' age at the birth of her first child;
- 3) Whether mother had moved away from her home region by the birth of first child;
- 4) Cohort member's weight at birth;
- 5) Whether cohort member was born into a lone parent family;
- 6) Whether cohort member was in a lone parent family at 16;
- 7) Number of siblings resident in the household at 16; and
- 8) Region lived in at 16.

The large set of controls included 56 variables, as used in Feinstein *et al* (2008) and Lupton *et al* (2009).

Applying controls

After applying the small and large sets of controls, the relationship seen between teenage tenure and adult outcomes modified substantially by the small set of controls, and slightly more by the large set.

Thus, the associations between tenure and outcomes we have found can be described as likely to be:

• partly due to the characteristics of the individuals and families found in them, in terms of:

- the 8 variables in the small set of controls; and**
- the 56 variables in the large set of controls.**

These results complement the results found for this cohort in Feinstein et al (2008) and Lupton et al (2009).

Understanding results

- *Differences eg in adult outcomes between those in different tenures as teenagers that are statistically significant are unlikely to have occurred by chance.*
- *Differences eg in adult outcomes appear more important where they are larger (eg larger odds ratios).*
- *Differences appear more important where they occur for more variables.*
- *Differences that remain after controlling for other factors are more likely to be caused by tenure or something linked to it.*
- *Differences cannot prove causation ie that (differences in) teenage tenure caused (differences in) adult outcomes.*
- *Plausible hypotheses about causal pathways are required to support any causal hypothesis.*

Comparing the role of different rented tenures in explaining adult outcomes

This study allows us to compare adult outcomes for those in social renting and those in private renting as teenagers. It shows that:

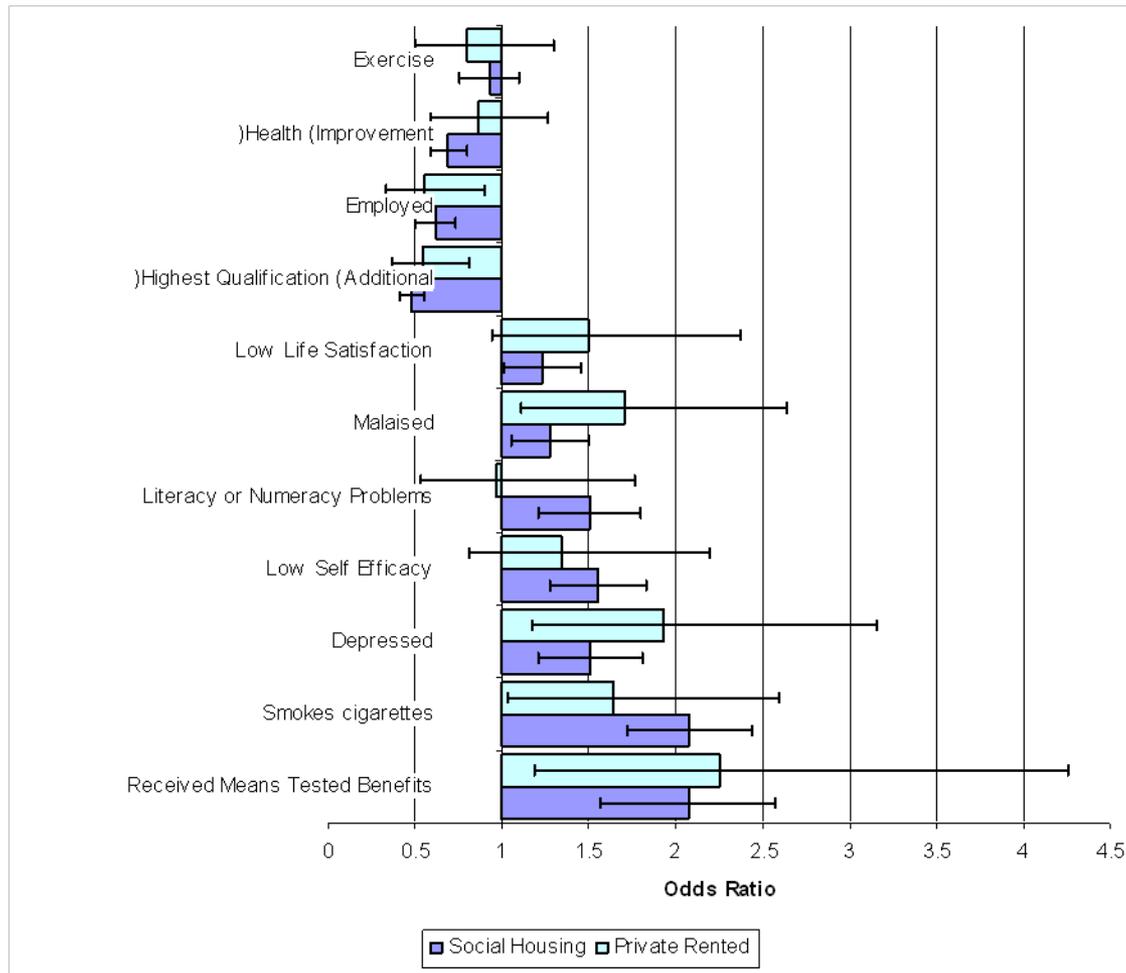
- Private renting at 16 does not appear to have offered any clear advantage over social renting at 16 in terms of young adult outcomes. The critical tenure difference appears not to be between social renting and other tenures, but between **both rented tenures** and **home ownership**.

After the **small** set of controls, those in social renting at 16 had higher odds than those in private renters of positive outcomes for some measures, and lower odds for others. The differences between the two rented tenures in terms of the size of links was small.

- Very few results were statistically significant for private renting for the **large** set of controls.

These results develop the results found for this cohort in Feinstein et al (2008) and Lupton et al (2009).

Odds ratios for outcomes at age 34 for those in both rented tenures as teenagers, compared to those in home ownership as teenagers (small set of controls)



Note: Because the group in private renting was small, fewer outcomes achieve statistical significance. We do use the large set of controls because of concerns about overfitting in the model for private renting

The role of teenage housing tenure in explaining adult outcomes

Using the small set of controls:

- Differences in outcomes at 34 between those in social housing and owner occupation tenure at 16 remained for 10 of the 11 outcomes (but were no longer statistically significant for regular exercise).

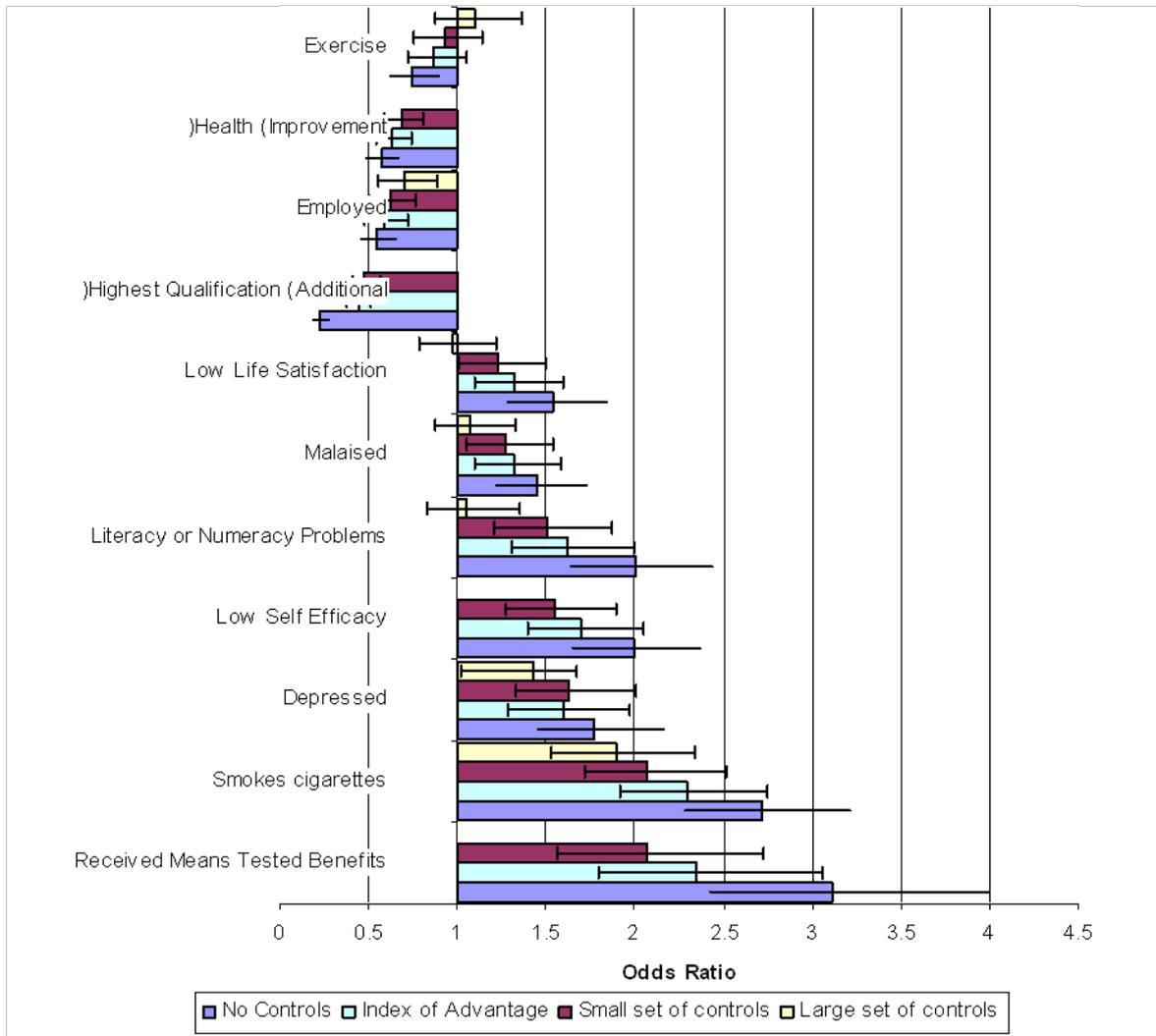
Using the large set of controls:

- Links between tenure at 16 were no longer statistically significant for 6 of the 11 outcomes. Statistically significant links remained for smoking, depression, qualifications, paid employment and self-rated health.

Both sets of controls reduced the size of the association between teenage tenure and adult outcomes considerably.

These results complement the results found for this cohort in Feinstein et al (2008) and Lupton et al (2009).

Odds ratios for outcomes at age 34 for those in social rented housing as teenagers, compared to those in home ownership as teenagers (raw outcomes and various controls)



The role of teenage neighbourhoods in explaining adult outcomes

After applying controls for family and individual circumstances with both the small and large sets of controls, taking neighbourhood characteristics into account modified somewhat the relationship seen between teenage tenure and adult outcomes.

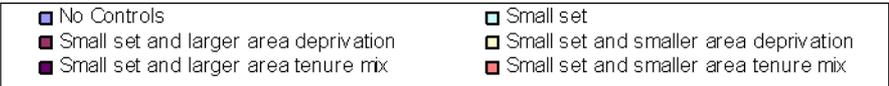
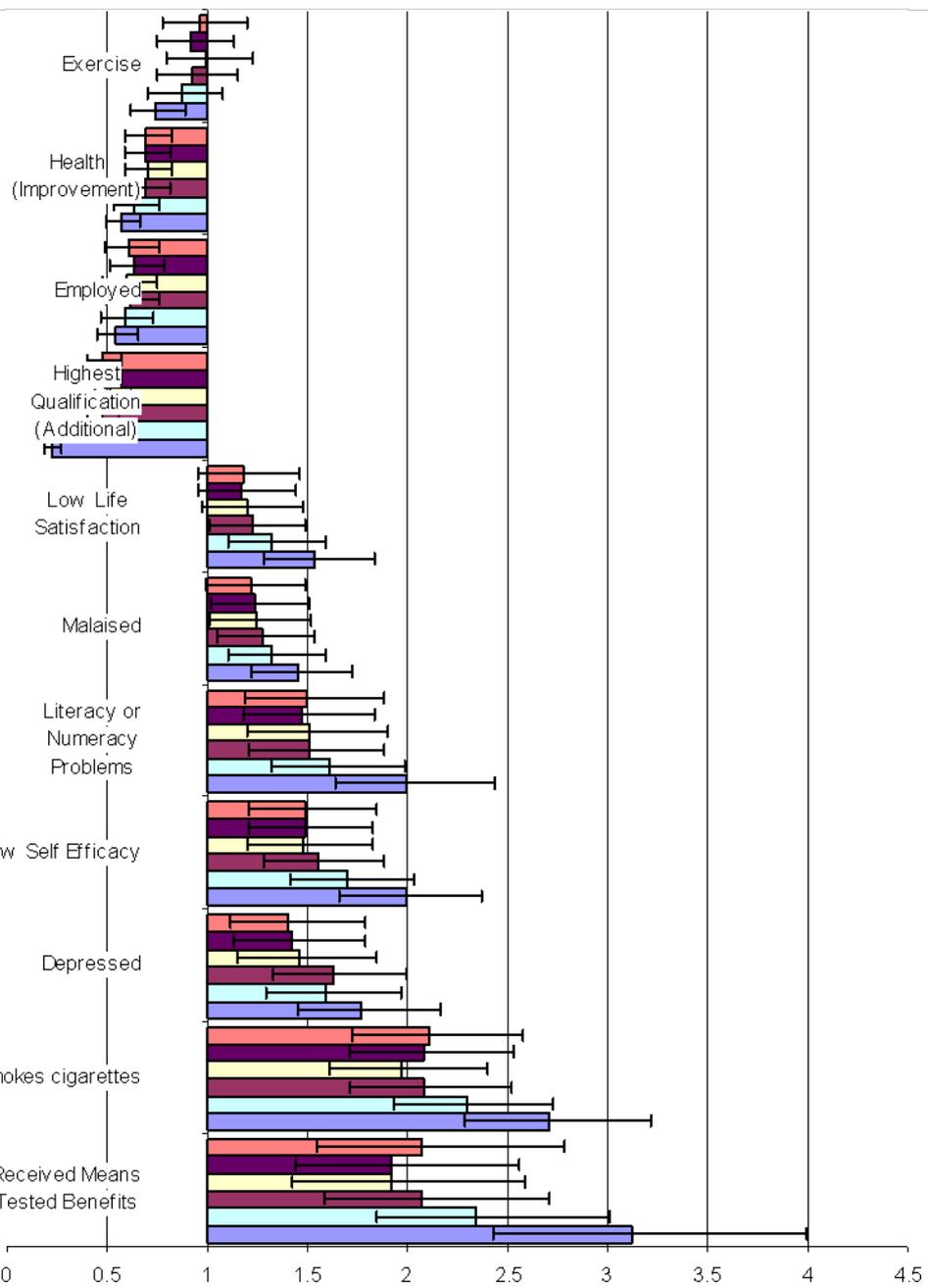
Thus, the associations between tenure and outcomes we have found can be described as likely to be partly due to the characteristics of the neighbourhoods homes in different tenures were found in:

- in terms of deprivation; and
- in terms of tenure mix;
- at both small neighbourhood scale (about 100-150 households) and larger neighbourhood scale (about 2,200 households).

These results extend those found for this cohort in Feinstein et al (2008) and Lupton et al (2009).

Odds ratios for various outcomes at age 34 for those living in in social housing compared to those in home ownership as teenagers (small set of controls, and various measures of teenage neighbourhood characteristics)

(Chart follows on next slide)



Summary

This evidence of associations between teenage tenure and adult outcomes that remain after controls for family and individual and neighbourhood characteristics does not amount to evidence that these differences were caused by housing tenure.

It may be that research using other descriptions of neighbourhoods, such as employment rates, or other scales such as local authority scale, might show more area effects. In addition, it may be that there are other 'hidden' variables, such as particular family and individual characteristics that might explain the relationships found.

(Similarly, the fact that the small and large sets of controls and the neighbourhood measures modify the relationship between teenage tenure and adult outcomes is not definitive proof that they caused part of the connection).

References

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For more information

A report summary, the full text, and summary and text of the companion reports based on the Millenium Cohort Study are available at: <http://sticerd.lse.ac.uk/case/>.

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