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Mixed Evidence on Mixed Tenure Effects: Findings from a Systematic Review of UK Studies, 1995–2009

ELENA SAUTKINA*, LYNDAL BOND** & ADE KEARNS[†]

*School of Geography, Queen Mary, University of London, London, UK, **MRC/CSO, Social and Public Health Sciences Unit, Glasgow, UK, [†]Department of Urban Studies, University of Glasgow, Glasgow, UK

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ABSTRACT *Mixed tenure is a key feature of UK housing and regeneration policy. Following an earlier review-of-reviews pertaining to mixed tenure effects (Bond et al., 2011), this paper presents a systematic review of the UK evidence published between 1999 and 2005. The majority of the available evidence is cross-sectional, mostly derived from modest-quality case-study research across nearly 100 sites, supplemented by a very few secondary studies using national data. Six broad domains of outcomes have been investigated across 27 studies. Some positive impacts of mixed tenure were found in the social and residential domains, though notably without impacts on social capital. The evidence for mixed tenure effects in the environmental, safety and economic domains is very mixed. In the human capital domain of health and education, the evidence is sparse. A stronger theoretical base (including the assessment of causal mechanisms) is required to guide future research on mixed tenure effects, which should be longer term and longitudinal in nature, using comparison case studies and secondary data.*

KEY WORDS: Mixed tenure, UK, evidence, review

Introduction: Policy and Evidence

The key housing policy goal of the UK government is to create communities where people want to live; to achieve this, government is seeking to create mixed communities (Communities and Local Government [CLG], 2011a). There is an apparent difficulty in defining the term ‘mixed communities’ (see Jupp, 1999; Tunstall & Lupton, 2010), and research shows that stakeholders’ interpretations of this term vary, which creates ambiguity (Fenton, 2010; Fordham & Cole, 2009). The term ‘mixed community’ encompasses a variety of fields: housing tenure and price, types of household, income, age and ethnicity (CLG, 2011a; Urban Task Force [UTF], 2005). In this paper, our focus is

Correspondence Address: Elena Sautkina, School of Geography, Queen Mary, University of London, Mile End Road, London E1 4NS, UK. Tel.: +44 (0)2078 822 751; Fax: +44 (0)2078 827 479; Email: elena.v.sautkina@gmail.com

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directed at mixed tenure, as this is one of the leading features in housing policy, often seen as both a mean and an end for mixed communities.

Although the idea of planning for mixed tenure is not new in the UK, as shown in the example of post-war New Towns programme (Cole & Goodchild, 2001), since the beginning of 1990s tenure mix policy has been a significant element of housing policy and urban regeneration (see Kleinmans, 2004; Tunstall, 2003). Over a decade later, an update report from the UTF set out a recommendation to 'transform all social housing estates into mixed tenure communities by 2012' (2005, p. 11), and Scottish Planning Policy 3 (Scottish Government, 2008, para. 94) suggested that 25 per cent of the total number of housing units on each site should be affordable housing units. The policy of creating mixed tenure neighbourhoods is seen as an alternative to ghettoisation, concentration of poverty and social exclusion, as by 'mixing' tenures within the same neighbourhood policy-makers aim at achieving a wider income mix and thus counteract or reduce deprivation. According to Tunstall & Lupton (2010), mixed tenure became an essential (rather than optional) component of UK regeneration policy from 2005. Inclusive, mixed communities were seen as an antidote to social, economic, housing, environmental and other problems that are often, but not always, experienced in social housing mono-tenure areas. Continuing support for 'mixed communities' based on a mix of housing types and tenures can be seen in the UK government's latest housing and planning policy statements. Mixed tenure is expected to contribute to 'sustainable, inclusive communities' (CLG, 2011a, para. 20), and to the regeneration of areas of poor housing and widening of opportunities for home ownership (CLG, 2011b, paras. 107, 111). Although tenure mix and income mix do not necessarily coincide (Musterd & Andersson, 2005; Tunstall & Lupton, 2010), in the UK 'mixed tenure' is frequently used as a proxy for 'income mix' since data on tenure is much more easily obtainable, for example from the census, while statistics on household income are not (Bailey *et al.*, 2007).

Tenure mix is seen as feasible and beneficial, and it is believed that different types of housing and tenures will not make 'bad neighbours' (ODPM, 2005). Mixed tenure neighbourhoods are supposed to be planned in such a way as to provide residents with the necessary infrastructure to ensure access to jobs, amenities, open space and affordable homes (CLG, 2010; UTF, 2005). Mixed tenure is expected to bring various benefits to residents: encourage sense of community and social capital; support family networks; provide role models; increase community participation and place attachment; improve school attainment; improve housing, physical environment, services and amenities, neighbourhood image, safety and residential stability; increase income mix and rates of employment; create job opportunities; and boost local economy to mention but few (for an overview, see Bailey *et al.*, 2007; Kearns & Mason, 2007). Clearly, the creation of such neighbourhoods is not straightforward, involving the close, coordinated work of many public and private actors, and at various levels; as Fenton (2010, p. 27) notes: 'Mixed communities arise from a complicated interaction between national policies, programmes and funding streams, local discretion and use of these, and market forces'. The issue of whether the claimed benefits of mixed tenure are achievable is a further complication.

In view of the emphasis on mixed tenure policy across the UK, as well as of the claimed potential impacts of this approach, a legitimate question arises: what evidence is there to support or negate the claims for positive effects produced by mixed tenure? When there is uncertainty in a particular evidence field, it is common practice to use systematic review methods to provide an authoritative overview of evidence and to suggest directions for

future research (Petticrew & Roberts, 2006). In a recent paper, we critically appraised existing reviews of UK research on effects of mixed tenure, all published between 2003 and 2008 (see Bond *et al.*, 2011). Two of our comments on the past reviews were that none had managed to review all (often not even a majority) of the available primary evidence, and nor did they provide a critical appraisal of individual studies or make any comments on conflicting evidence between and within studies. It has to be acknowledged, however, that none of the UK reviews except one, which took a systematic approach to literature search and inclusion (Atkinson, 2005), intended to systematically review the available literature, partly a reflection of constraints such as the research funders' interests at the time.

Since our previous work, there have been further reviews of the evidence surrounding mixed communities published, and it is noticeable that these reviews are far more cautious and sceptical in tone and conclusion than earlier ones. For the government in England, Tunstall & Lupton (2010) make a number of significant statements: that mixed tenure has a limited role and is unlikely (alone) to improve individuals' life chances; that the evidence is too weak to offer guidance about the levels of mixing required; and the evidence of mixed tenure benefits is not strong enough to justify the financial and social costs of restructuring of social housing areas. For the government in Scotland, Monk *et al.* (2011) further conclude that while the evidence is supportive of mixed tenure in new developments, the evidence is less clear that mixed tenure in existing social housing estates is effective, over and above traditional renewal (in physical, environmental and service terms).

Once again, however, the reviews are not systematic or comprehensive enough to give a clear overview of where the evidence is stronger or weaker for mixed tenure effects, particularly in the case of the UK. This is further complicated by the fact that where UK evidence is lacking, reviewers may (understandably) refer to evidence from other places (most notably the USA, Western Europe and Australia), drawing on review work by others, such as Galster (2010, forthcoming 2012). However, without an assessment of the social, cultural and institutional differences between states and continents, it is not self-evident that findings on neighbourhood effects or on mixed tenure impacts from elsewhere are generalisable to the UK, nor that inappropriate policy transfer could not occur as a result (Dolowitz & Marsh, 1996, 2000; James & Lodge, 2003). For example, the closest equivalent to housing tenure mix policies in the case of the USA is the HOPE VI restructuring programme, for which the research findings have already been reviewed by Popkin *et al.* (2004). Here, however, the effects of mixing are difficult to disentangle from issues of race, since poor public housing tenants tend to be predominantly black. Therefore, in our view, a systematic review of the UK evidence on the effects of mixed tenure is still required—one which critically appraises the evidence in relation to a wide range of impacts ascribed to mixed tenure and indicates where the strengths and weaknesses lie.

This paper presents the findings of a systematic review of primary and secondary studies on the effects of tenure mix conducted over a 15-year period in the UK. We chose 1995 as the start date for our review as, to our knowledge, this period coincided with an emerging research and policy interest in the question of social balance and housing tenure mix on estates in the UK, commenced just in advance of, and then continued throughout, the period of New Labour government.¹

The aim of this systematic review is to identify and critically assess the available UK evidence on tenure mix effects by answering two main questions:

- (1) Is there evidence on social, human capital, residential, environmental, crime and safety, and economic outcomes of mixed tenure policies and circumstances?
- (2) From what types of study is the evidence derived, and what is the quality of such evidence?

To answer these questions, we identified all relevant studies, described their characteristics (regarding study design, methods, data analysis, presentation of findings), critically examined the quality of the evidence and summarised and discussed the studies' findings. Therefore, this paper provides a comprehensive critical overview of the available UK evidence base to-date, and sets out recommendations for future research and policy in the area of tenure mix and its effects.²

Methods

Inclusion/Exclusion Criteria

This systematic review sought to include all studies conducted in the UK and that examined tenure mix effects and correlates, published between January 1995 and March 2009. Because housing tenure is the main mechanism by which the UK government has sought to achieve social and income mix within communities, this review was focused on tenure mix effects and characteristics of mixed tenure communities. Therefore, it excluded studies on mixed use, social mix (age, ethnic and cultural), housing issues (e.g. housebuilding, housing density, housing design), policy discussions, policy reviews, and policy guides which did not present any evidence of mixed tenure effects and correlates. This paper focused on studies that have used primary data and/or routinely collected data. It included studies using both qualitative and quantitative data, and of any design.

Literature Search

The search we conducted was part of a broader strategy aimed at identifying all UK evidence on the effects and correlates of mixed tenure, including studies using primary data, routinely collected data and reviews (see Bond *et al.*, 2011 for the accompanying review-of-reviews). We searched 12 databases³ using the following search terms: mixed tenure, tenure mix*, mix of tenure*, mixed income communit*, mixed communit*, balanced communit*, mixed income new communit* (MINCs), mixed income*, tenure diversification, dispersed tenure*.⁴ This search strategy was applied to titles, abstracts, key words and full texts. The search was restricted by date (1995–2009) and geography (UK). In addition, we relied on one of the authors' (AK) expert knowledge of relevant literature. We also asked 12 UK experts for any references our search may have missed, and examined the reference lists from the papers we identified.

Literature Reviewing Process

Studies identified were screened independently for inclusion by the three authors. Studies based on primary research and those based on routinely collected data were reviewed separately. For the studies using primary data (hereafter the 'primary studies'), critical

appraisal of methodology and extraction of evidence were conducted independently by two authors. There was a high level of agreement between the two reviewers, and any differences were resolved by discussion involving the three authors. Primary study ratings (see below) were then assigned by one author and checked by the two other authors. For the studies using routinely collected data (hereafter the 'secondary studies'), critical appraisal of methodology and extraction of evidence were conducted by one author and checked by two other authors.

Reviewing Primary Studies

For the primary studies, a rating procedure analogous to that used by Thomson *et al.* (2009) in a systematic review of housing improvement impacts was developed. Criteria for evaluation of quality of qualitative research were based on the framework developed by Spencer *et al.* (2003). The quality evaluation criteria for the primary studies included 42 items covering six areas: description of study areas, quantitative and qualitative methods used, data collection, use of comparisons areas and discussion (see Web box at <http://tinyurl.com/gowelljournals>).

It is a common practice in systematic reviewing, when reviewers face a large number of studies of variable quality, to base the description of outcomes on studies of better quality (see Petticrew & Roberts, 2006). After a consideration of the studies' quality across the six broad assessment categories, an overall Grade A, B or C was assigned to each study.⁵ To achieve an A grade overall, a study had to be assigned two A grades across the four *main* evaluation domains (i.e. study areas, quantitative methods, qualitative methods and discussion), *and* assigned B in the remaining main categories, *and* assigned C in no more than one *secondary* category (i.e. data collection, comparisons). To achieve a B grade overall, a study had to have no more than two C grades assigned across the six domains. Studies with three or more C grades across the six domains were given an overall grade C. Note that the grading of an A in this review is relative to these studies only, i.e. it is not necessarily comparable with studies rated A in other reviews.

Evidence in all outcome domains of mixed tenure covered in the 'Findings' sections of the primary studies and supported with data (i.e. tables, figures and qualitative interview quotes) was coded using thematic analysis and tabulated under main headings. These included the following outcome domains: social, human capital (including health and employment), residential (e.g. residential quality, housing quality, residential satisfaction), neighbourhood (e.g. environmental quality, neighbourhood satisfaction, quality of services), safety and economic outcomes.

After the data was extracted in the described way, it was categorised by the reviewers according to what it told us about the effects of mixed tenure. For each outcome reported, reviewers made a judgement as to whether there was evidence of a positive effect, negative effect, mixed evidence, evidence of no effect or absence of evidence.⁶ Because none of the primary studies have reported effect sizes, we could not distinguish between amplitudes of various 'effects'. The 'effect' categories were defined as follows:

- *Positive effect*: a positive effect of mixed tenure on an outcome was reported. For instance, Silverman *et al.* (2005) reported an improvement in neighbourhood image.
- *Negative effect*: a negative effect of mixed tenure on an outcome was reported. For example, Jupp (1999) found that residents of all tenures were less satisfied than the national population on issues of privacy, security and noise. Pawson *et al.*

(2000) reported an increase in permanently sick adults, that is, a reduction in good health.

- *Mixed evidence*: study reported both evidence of positive effect and evidence of negative effect of tenure mix on an outcome. For instance, Page & Boughton (1997) found that social renters did not mind tenure mix, as compared to owner-occupiers. Harding (1997) reported that crime rates dropped for certain types of offences and stood unchanged for other types (e.g. robbery).
- *Evidence of no effect*: authors concluded that tenure mix did not produce any effect on an outcome. For instance, Jupp (1999) reported that problems and benefits associated with mixing only appeared to have a slight impact on residents' neighbourhood satisfaction.
- *Absence of evidence*: a lack of evidence or insufficient evidence of an effect of tenure mix on an outcome. For instance, Cole & Shayer (1998) found that it was not possible to discern whether tenure mix had led to any particular form of social interaction. Camina & Wood (2009) could not reach definitive conclusions on the effects of tenure mix on place attachment.

Findings from the higher quality Group A papers that were further corroborated by Group B and/or C findings were judged *strongest evidence*. Findings from Group A papers that did not receive further support in Group B and/or C papers were judged *weaker evidence*, along with findings from Group B supported only by findings from Group C. Finally, when findings from either Group B or C were not further supported, evidence was considered *weakest evidence*.

Reviewing Secondary Studies

We used thematic analysis to extract the evidence on the outcomes from the secondary studies. The extracted evidence was then considered taking into account the quality of the studies. The study quality evaluation criteria included study areas characteristics, data characteristics, sample size, methods of data analysis, measure and definition of tenure mix, and any covariates included in analyses. The final assessment of tenure mix effects reported in the secondary studies involved taking into account study quality.

Findings

In the next sections, we present the findings from this systematic review. Findings from the review of primary studies are presented first, followed by findings from the review of studies using secondary data. We then integrate these findings in our discussion.

Overview of the Studies Included

The database search identified 240 potentially relevant references, 11 references were found from the authors' knowledge, 2 references were added following expert consultation and 6 were identified through hand searching papers' reference lists (total $N = 259$). From these 259 references, we excluded studies identified in the search which did not present any evidence of mixed tenure effects and correlates:

- studies presenting evidence on mixed use, social mix or housing issues ($N = 115$);
- policy discussions, policy reviews or policy guides ($N = 106$); and
- review papers of the evidence of mixed tenure ($N = 6$) which were included in our review of reviews (Bond *et al.*, 2011).

Therefore, 32 papers were included in this review:

- 10 peer-reviewed journal articles (Atkinson & Kintrea, 2000, 2001; Camina & Wood, 2009; Casey *et al.*, 2007; Graham *et al.*, 2009; Kearns & Mason, 2007; Manzi & Bowers, 2004; Middleton *et al.*, 2005; Thompson-Fawcett, 2004; van Ham & Manley, 2009);
- 2 books (Jupp, 1999; Ramwell & Saltburn, 1998);
- 20 reports (Allen *et al.*, 2005; Andrews & Reardon Smith, 2005; Atkinson & Kintrea, 1998; Beekman *et al.*, 2001; Bernstock & Baker, 2008; Cole *et al.*, 1997; Cole & Shayer, 1998; Doherty *et al.*, 2006; Groves *et al.*, 2003; Harding, 1997; Kintrea *et al.*, 1996; Knox & Alcock, 2002; Martin & Watkinson, 2003; Meen *et al.*, 2005; Page & Boughton, 1997; Pawson *et al.*, 2000; Rowlands *et al.*, 2006; Silverman *et al.*, 2005; Tunstall & Coulter, 2006; Wood & Vamplew, 1999).

Four of these papers were based on the analysis of routine data (Doherty *et al.*, 2006; Graham *et al.*, 2009; Kearns & Mason, 2007; van Ham & Manley, 2009), with the remaining 28 papers based on primary research. Four of the studies produced multiple publications so that the 32 papers resulted from 27 original research studies. The studies which produced multiple outputs were:

- Primary studies: report (Atkinson & Kintrea, 1998) and journal paper (Atkinson & Kintrea, 2000); report (Groves *et al.*, 2003) and journal paper (Middleton *et al.*, 2005); report (Allen *et al.*, 2005) and two journal papers (Camina & Wood, 2009; Casey *et al.*, 2007).
- Secondary study: report (Doherty *et al.*, 2006) and journal paper (Graham *et al.*, 2009).

Primary Studies

Therefore, the review of primary studies was based on 28 references corresponding to 24 studies. Because reports and papers presented complimentary information on the primary studies conducted, we reviewed all the available references.

In this section, we present an overview of the studies in terms of their aims, followed by a critical review of the studies' methods, providing an indication of the quality of the studies' evidence.

Overview of Study Aims and Outcomes

Considering the stated aims, three groups of studies were identified: studies examining the effects and correlates of mixed tenure ($N_{\text{studies}} = 15$, $N_{\text{references}} = 18$); studies focusing on the management of mixed tenure estates ($N_{\text{studies}} = 2$, $N_{\text{references}} = 2$); and studies examining a different issue (e.g. social capital, urban regeneration) but presenting evidence on mixed tenure effects ($N_{\text{studies}} = 7$, $N_{\text{references}} = 8$).⁷

Among 15 studies focussing on the question of what is achieved through tenure diversification, 10 studies aimed to look at ‘outcomes’, ‘effects’, ‘results’, ‘influence’ or ‘impact’ of tenure diversification (Andrews & Reardon Smith, 2005; Atkinson & Kintrea, 1998, 2000; Beekman *et al.*, 2001; Jupp, 1999; Kintrea *et al.*, 1996; Page & Boughton, 1997; Pawson *et al.*, 2000; Rowlands *et al.*, 2006; Tunstall & Coulter, 2006; Wood & Vamplew, 1999), and 5 studies aimed to focus on ‘perceptions’ or ‘experiences’ of mixed tenure, and the ‘contribution’ and ‘facilitating role’ of tenure diversification (Allen *et al.*, 2005; Camina & Wood, 2009; Casey *et al.*, 2007; Cole *et al.*, 1997; Harding, 1997; Meen *et al.*, 2005; Silverman *et al.*, 2005).

Despite differences in aims, studies covered similar outcomes: 20 studies reported on perceived crime; 18 on neighbourhood satisfaction; 17 studies reported on sense of community (social cohesion and integration); 14 reported on neighbourhood reputation and image; 12 looked at social interactions between renters and owners; 11 studies in each case examined residential turnover, satisfaction with services and amenities and employment rates; 10 studies in each case reported on place attachment and quality of physical environment; and 9 studies in each case looked at housing satisfaction and property values.⁸

Study Area Characteristics

The characteristics of study areas, such as geographical location, how and when they were created or adapted, area size, proportion of different tenures and spatial distribution of tenures, are important to consider as they represent a potential source of variation which may mediate or moderate any likely effects of mixed tenure.

A total of 97 small areas within the UK have been studied over the 15 years of research reviewed. The mean number of study areas per study was 5 ($SD = 4$; maximum 20 study areas). Study areas were situated in England (71 per cent) and Scotland (29 per cent). In England, the largest concentrations of study areas were in the London area (29 per cent), Birmingham (12 per cent), Manchester (7 per cent) and Middlesbrough and Newcastle (6 per cent each). In Scotland, 39 per cent of the study areas were located in Glasgow and 18 per cent in Edinburgh. Thirteen areas were included in more than one study.

Table 1 summarises the information on study areas. It presents information about area type and size, proportion of tenure mix and spatial configuration. There was heterogeneity in type and size of study areas. Nearly a half of studies ($n = 11$) examined areas that were a mixture of new-build estates, redeveloped areas or evolution of older areas without clearly discussing in the analysis the effects of any particular type of tenure mix.⁹ Six studies used a mixture of areas of different sizes and did not discuss the effects of area size. Four studies provided no information about the size of the areas they studied.

As stated previously, whether mixing tenures ‘works’ may depend on two aspects: the proportion of owner-occupiers and social renters in the area and the spatial configuration of tenures. Regarding the proportion of tenures, areas where owners are in a minority could differ from areas where social renters are in a minority and from areas where the two tenures exist in equal proportions as to social, economic, residential and other area characteristics. As can be seen in Table 1, five studies provided no information about the proportion of different tenures in the study areas, despite this being a crucial aspect of mixed tenure communities; a quarter of examined areas had

Table 1. Summary of information on study areas

Information on study areas	Studies	
	N	(%)
Location in UK		
England	17	(71)
Scotland	6	(25)
England and Scotland	1	(4)
Type of area		
New-build estate	3	(13)
Redevelopment of social housing area	8	(33)
Evolution of older area	2	(8)
Mixture of types of area	11	(46)
Size of area		
Small areas (under 650 dwellings)	7	(29)
Large areas (over 1000 dwellings)	7	(29)
Mixture of sizes	6	(25)
Information missing	4	(17)
Tenure mix (proportion of owner-occupiers) at the time of study		
30% or less of owner-occupiers	6	(25)
44–55% of owner-occupiers	1	(4)
70% or more of owner-occupiers	2	(8)
Mixture of the above types	10	(42)
Information missing	5	(21)
Spatial configuration of tenure mix		
Integrated tenures	1	(4)
Segregated tenures	2	(8)
Mixture of types (integrated, segmented, segregated)	12	(50)
Information missing	9	(38)
Comments on choice of study areas provided	22	(92)

less than 30 per cent owner occupation; and over a third included areas that varied in terms of these proportions. In the latter case, few studies provided any comparison or comment on how this heterogeneity across areas affected the study findings.

The spatial configuration of tenure mix can be considered as: (1) integrated or pepper-potted, where tenures are located side by side, (2) segmented, where different tenures are in separate blocks or cul-de-sacs, and (3) segregated, where different tenures are in separate concentrations of blocks, perhaps divided by an access road (Bailey *et al.*, 2007). Each of these configurations, it is hypothesised, could have different effects on outcomes such as social cohesion, social capital and so on. Despite the likely importance of this, nine studies provided no information about spatial configuration, and of those that did only few took this information into account in their analysis and interpretation of findings.

Overall, studies included a wide range of study areas. Comments provided by authors of 22 studies were limited to noting that areas were chosen to reflect diversity in terms of area types, area sizes, proportions and configurations of tenure mix; however, they made little reference to how such choices influenced the studies' outcomes.

Study Designs

Table 2 summarises the study methods used, in terms of basic study design, methods of data collection and types of study participant. Most studies used a mixture of qualitative and quantitative methods.

A standard method of assessing the likely effects of an intervention is to use a control or comparison group or area, which is not receiving the 'treatment' under investigation. Three studies did this: Cole & Shayer (1998) compared areas where tenure mix was introduced with mono-tenure areas; Atkinson & Kintrea (2001) compared 'traditional', non-deprived estates with redeveloped social housing estates; and Andrews & Reardon Smith (2005) compared an integrated area with a segregated area and a segmented area. Third of studies included no comparison and the rest made comparisons across time and/or with the wider surrounding area using different types or sources of data (e.g. comparing primary data for one area with secondary data for another area). Importantly, none of the studies that used comparisons of any sort used these data to statistically test hypotheses on outcomes of mixed tenure.

All the primary studies that had collected quantitative data used cross-sectional designs, and thus none could infer causality. That is they could not state whether any social, environmental, economic or other findings could be attributed to the introduction of tenure mix. Therefore, there was a mismatch between many studies stated aims and the study design used to answer them. One study used a repeat cross-sectional design, collecting data on the same estates over four time periods (Tunstall & Coulter, 2006).

Table 2 also provides information about study participants and data collection. Two-thirds of the studies included both resident and professional participants and most used multi-methods.

Only five studies provided participant response rates for residents interviewed, and only half of the studies provided the proportion of participants who were social renters or owner-occupiers, which is a fairly essential piece of information given the aims of the studies.

For the 13 studies using surveys, we calculated that the number of residents surveyed per study area ranged from 3 to 600 (*median* = 43, *mean* = 87, *SD* = 130), indicating that over half the studies had sufficient sample sizes to undertake statistical analyses, but as we will see below, of these only three did so.

Regarding stakeholder and professional participants, 18 studies presented information on categories of professionals interviewed, but only two provided a rationale for why these professionals were included. Information on response rates was available for two studies only.

Information about how the data were collected was missing from nearly half of the studies. When given, this information was usually limited to mentioning who (i.e. company or researchers) had administered the questionnaire. Five studies presented questionnaires or topic guides. For the rest, the reviewers gleaned this information from the texts.

Overall, although the studies' samples tended to be large and balanced in terms of types of respondents, there was a lack of transparency in presenting information about participants and data collection tools, which made it difficult to fully assess the studies' methodological quality.

Table 2. Summary of information on studies' methods

Information on methods	Studies	
	N	(%)
Study methods		
Mixed ^a	17	(71)
Qualitative only	5	(21)
Quantitative only	2	(8)
Study design		
Cross-sectional	18	(95)
Repeat cross-sectional	1	(5)
Used control and comparison areas		
Control area(s)	3	(13)
Comparison between study areas, across time, or with wider area ^b	20	(83)
No control or comparison area(s) used	7	(29)
Resident participants	22	(92)
<i>Data collection methods^c</i>		
Surveys	13	(59)
Diaries	2	(9)
Interviews	13	(59)
Focus groups	8	(36)
<i>Information about sample</i>		
Sample size surveys provided	13	(100)
Sample size diaries provided	2	(100)
Sample size interviews provided	9	(69)
Number of focus groups provided	6	(75)
Sample size per study area provided	13	(59)
Proportions of owner/renter participants provided	11	(50)
Rationale for sampling provided	3	(14)
Response rates provided	5	(23)
Professional participants	22	(92)
<i>Data collection methods^c</i>		
Survey	1	(5)
Interviews	19	(86)
Focus groups	2	(9)
<i>Information about sample</i>		
Sample size survey provided	1	(100)
Sample size interviews provided	12	(63)
Number of focus groups provided	0	(0)
Categories of professionals interviewed presented	18	(82)
Rationale for selection provided	2	(9)
Response rates provided	2	(9)
Information on data collection		
How data was collected	11	(46)
Topics explored in the study provided (explicit or implicit)	23	(96)
Questionnaires, topic guides presented	5	(21)
Validity/reliability of data collection tools presented	0	(0)

^a These included a combination surveys, interviews and focus groups, secondary data ($N = 7$) and photos and observations ($N = 6$).

^b Multiple types of comparison were used: between study areas ($N = 13$), across time ($N = 9$) and with wider area ($N = 9$).

^c Multiple methods were often used.

Data Analysis

As stated above, most of the studies that used quantitative data had sufficiently large samples (14 studies had sample sizes $N \geq 100$ and 4 studies had sample sizes $N > 500$) to calculate associations between tenure mix and outcomes of interest and test statistically for any differences between social renters and owner-occupiers, and between study areas of different types. Many might have had the capacity to undertake multivariate analyses to control for confounders: they had sufficiently large sample sizes and had collected information on participants' characteristics such as age, gender, tenure and education.¹⁰ Three studies undertook statistical tests using correlations or reporting Chi-square (see Table 3). While the authors of 13 studies discussed the possibility that their findings might be attributable to factors other than tenure mix, none tested for this or adjusted for likely confounders. Therefore, the lack of statistical testing was a major limitation for all studies.

It was difficult to assess the quality of the qualitative data, as information about how the data were processed and analysed was very limited: no studies provided information on how themes were derived from interviews or focus groups, only one study provided information on coding procedures, and none on data interpretation; sources of data (i.e. methods used, respondent category) were often unclear and interpretations were unequally substantiated with extracts from interviews.

The majority of authors did not comment on the limitations of their studies—in terms of research design, sampling, methods of data collection and data analysis, or on the quality of evidence. Only five studies raised the question of the generalisability of their findings. And although half of all studies mentioned that the outcomes reported could result from other factors than tenure mix, authors did not generally discuss any further the difficulties or implications for their findings on mixed tenure outcomes of trying to disentangle the effects of urban regeneration, planning or the dilution of disadvantage through the introduction of ownership onto estates.

Table 3. Summary of information on studies' data analysis and discussion

Information on data analysis and discussion	Studies	
	N	(%)
Quantitative data analysis used	19	
Descriptive statistics used	19	(100)
Statistical tests used	3	(16)
Control for confounders used	0	(0)
Data summarised in tables, figures	17	(89)
Qualitative data analysis used	22	
Data analysis described	11	(50)
Coding procedures discussed	1	(5)
Limitations discussed	24	
Impact of research design discussed	2	(8)
Impact of sampling discussed	5	(21)
Impact of methods discussed	5	(21)
Impact of data analyses discussed	3	(13)
Generalisability of findings discussed	5	(21)
Discussion of potential confounding by regeneration, ownership introduction	13	(54)

In summary, our analysis shows that the study designs used could not answer the main research questions about impacts of mixed tenure, and this has implications for any conclusions that can be drawn about positive, negative, mixed or null effects of mixed tenure.

Examining the Evidence Using Study Ratings

The results of primary studies ratings are presented in Table 4. Four out of 28 papers were rated A, achieving at least two A grades across the six assessment domains. These four papers had a higher overall quality in four main assessment categories, namely description of study areas, quantitative and qualitative methods used, and discussion of findings. In particular, two studies (Atkinson & Kintrea, 2001; Jupp, 1999) used surveys with large sample sizes ($N > 500$) and were the only studies, among the 28 reviewed to use statistical tests. Two studies (Page & Boughton, 1997; Silverman *et al.*, 2005) conducted high-quality analyses of qualitative data (e.g. described steps of analyses, substantiated interpretations with data, made data sources clear in relation to particular findings, interpretations or conclusions) and provided thorough discussions of findings, particularly in terms of the generalisation of findings and confounding of findings by other factors such as regeneration or ownership introduction. Three studies (Jupp, 1999; Page & Boughton, 1997; Silverman *et al.*, 2005) provided information on how the data were collected. All four papers also presented detailed descriptions of study areas and samples, and used comparisons between study areas and/or comparisons over time with the wider local area, regionally or nationally.

The remaining 24 papers were given the overall rates B or C. Seventeen papers were rated B, with no more than two out of six assessment categories having poor quality (rated C), i.e. information on study missing, poor quality of data analyses, no comparisons used and poor quality of discussion of findings. Seven papers were given the overall rate C because their quality was poor in at least three assessment categories.

In the next section, we present findings from the three groups of studies.

Primary Studies' Evidence on Outcomes

Table 5 presents the reviewers' summaries of evidence for each outcome within the study Groups A, B and C.¹¹ Below, the findings are summarised in terms of the strength of evidence.

The *strongest evidence* was found for the following outcomes: tenure mix supporting kinship networks (by enabling family members who wished to buy a house to continue living nearby); contributing to rises in property values in an area (i.e. ex-social housing and pre-existing owners as a minority tenure); and supporting cross-tenure social interactions where schools and public spaces are available to facilitate this. It must be noted, however, that in the case of kinship networks and property values, only one category A study provides evidence in each case, and the largest number of studies providing evidence of positive effects were of the lowest quality, category C.

There was *less strong* evidence that the degree of spatial integration affected cross-tenure interactions: five of the eight studies indicated a positive effect of spatial integration of housing tenures upon cross-tenure interactions (in two cases assisted by similar housing

Table 4. Summary of information on assessment of studies using primary data

Papers	Study assessment categories						
	Overall study rate	Study areas	Quantitative methods used	Qualitative methods used	Data collection	Comparisons used	Discussion
Page & Boughton (1997) ^a	A	A	B ^a	B ^a	B	B	A
Jupp (1999) ^b	A	A	A	N/A ^b	B	B	B
Atkinson & Kintrea (2001)	A	B	A	N/A	C	B	A
Silverman <i>et al.</i> (2005)	A	A	B	B	B	B	A
Kintrea <i>et al.</i> (1996)	B	B	B	B	C	B	C
Harding (1997)	B	B	B	C	B	A	C
Cole <i>et al.</i> (1997)	B	B	C	B	C	B	B
Atkinson & Kintrea (1998) ^c	B	B	B	B	B	C	A
Cole & Shayer (1998) ^d	B	B	C ^d	B	C	B	B
Wood & Vamplew (1999)	B	B	N/A	B	C	B	B
Pawson <i>et al.</i> (2000)	B	A	B	B	A	C	C
Atkinson & Kintrea (2000) ^c	B	A	B	B	C	C	B
Beekman <i>et al.</i> (2001)	B	A	B	B	C	C	C
Groves <i>et al.</i> (2003) ^c	B	A	C	C	B	A	B
Middleton <i>et al.</i> (2005) ^c	B	A	B	C	B	B	B
Andrews & Reardon Smith (2005)	B	A	C	B	B	B	B
Meen <i>et al.</i> (2005) ^d	B	B	B ^d	B	C	B	A
Rowlands <i>et al.</i> (2006)	B	A	B	B	B	B	B
Tunstall & Coulter (2006) ^d	B	B	B ^d	B	B	B	B
Bernstock & Baker (2008)	B	A	N/A	B	B	B	C
Camina & Wood (2009) ^c	B	A	B	B	B	B	C
Ramwell & Saltburn (1998)	C	C	N/A	C	C	B	C
Knox & Alcock (2002)	C	A	N/A	C	C	C	C
Martin & Watkinson (2003)	C	C	N/A	B	B	C	C
Manzi & Bowers (2004)	C	A	B	B	C	C	B
Thompson-Fawcett (2004)	C	B	N/A	C	C	C	C
Allen <i>et al.</i> (2005) ^c	C	A	C	B	C	A	C
Casey <i>et al.</i> (2007) ^c	C	A	C	C	C	C	C

^a(For Page & Boughton, 1997); appendix with a detailed description of their methodology could not be found.

^b(For Jupp, 1999, regarding qualitative data presented); study did not use interviews; survey was administered in person and 'The questionnaire was often followed by a less structured discussion'; quotes from these discussions are provided throughout the report.

^cData drawn from same studies.

^dMixed-method studies using routine data as the only source of quantitative data.

Table 5. Summary of evidence presented in the three groups of primary studies

	Summary of evidence from group A papers (<i>N</i> of studies reporting the effect)	Summary of evidence from group B papers (<i>N</i> of studies reporting the effect)	Summary of evidence from group C papers (<i>N</i> of studies reporting the effect)
Outcomes of tenure mix			
<i>Social outcomes</i>			
Promotes sense of community, social cohesion, integration	No effect: No effect (<i>N</i> = 3)	Mixed evidence: Mixed (<i>N</i> = 7), No effect (<i>N</i> = 5), Positive (<i>N</i> = 1), Absence of evidence (<i>N</i> = 1)	Mixed evidence: No effect (<i>N</i> = 2), Mixed (<i>N</i> = 1), Negative (<i>N</i> = 1)
Promotes positive attitudes to TM and interactions between renters and owners	Mixed evidence: Mixed (<i>N</i> = 2), No effect (<i>N</i> = 1)	Mixed evidence: No effect (<i>N</i> = 4), Mixed (<i>N</i> = 3)	Mixed evidence: Negative (<i>N</i> = 1), Mixed (<i>N</i> = 1)
Supports kinship networks	Positive effect: Positive (<i>N</i> = 1)	Positive effect: Positive (<i>N</i> = 1)	Positive effect: Positive (<i>N</i> = 3), Mixed (<i>N</i> = 1)
Spatial integration (peppercotting) promotes interaction between renters and owners ^a	Positive effect: No effect (<i>N</i> = 1), Positive in integrated, Negative in segregated (<i>N</i> = 1)	Mixed evidence: Mixed (<i>N</i> = 2), Positive in integrated; Negative in segregated (<i>N</i> = 1)	Positive effect: Positive when similar housing design, Negative when segregated (<i>N</i> = 1), Positive when similar housing design (<i>N</i> = 1)
Schools, public and shared spaces promote interaction between renters and owners ^a	Positive effect: Positive (<i>N</i> = 2)	Positive effect: Positive (<i>N</i> = 3), No effect (<i>N</i> = 1)	Positive effect: Positive (<i>N</i> = 2)
Encourages social capital, provides role models	No effect: No effect (<i>N</i> = 2)	No effect: No effect (<i>N</i> = 2)	No effect: No effect (<i>N</i> = 1)
Increases community participation	—	Mixed evidence: Mixed (<i>N</i> = 3), Negative (<i>N</i> = 2), Positive (<i>N</i> = 1)	Mixed evidence: Positive (<i>N</i> = 1), Mixed (<i>N</i> = 1)
Encourages place attachment, place identification, place identity	Mixed evidence: Mixed (<i>N</i> = 1), No effect (<i>N</i> = 1)	Mixed evidence: Mixed (<i>N</i> = 2), Positive (<i>N</i> = 2), Negative (<i>N</i> = 1), Absence of evidence (<i>N</i> = 1)	Mixed evidence: Positive (<i>N</i> = 1), Mixed (<i>N</i> = 1)
<i>Human capital outcomes</i>			
Promotes better health (less illness, disability, mortality rates)	No effect: No effect (<i>N</i> = 1)	Negative effect: Negative (<i>N</i> = 1)	—

Table 5. Continued

	Summary of evidence from group A papers (N of studies reporting the effect)	Summary of evidence from group B papers (N of studies reporting the effect)	Summary of evidence from group C papers (N of studies reporting the effect)
Outcomes of tenure mix	—	Mixed evidence: Positive (N = 1), Absence of evidence (N = 1)	—
Improves school attainment	—	Mixed evidence: Positive (N = 2), Mixed (N = 1), No effect (N = 1)	Positive effect: Positive (N = 1)
<i>Residential outcomes</i>			
Improves residential satisfaction	Mixed evidence: Mixed (N = 1)	Mixed evidence: Positive (N = 4), Mixed (N = 3)	Mixed evidence: Mixed (N = 1)
Improves housing satisfaction	Mixed evidence: Mixed (N = 1)	Mixed evidence: Positive (N = 3), Mixed (N = 2), Absence of evidence (N = 1)	Mixed evidence: Positive (N = 1), Mixed (N = 1)
Improves housing quality	—	Mixed evidence: Positive (N = 2), No effect (N = 2), Negative (N = 1)	Positive effect: Positive (N = 4)
Promotes property values rise in the area	Positive effect: Positive (N = 1)	Positive effect: Positive (N = 3), No effect (N = 1)	Positive effect: Positive (N = 2)
Promotes demand for social housing in the area	—	Mixed evidence: Mixed (N = 4), Negative (N = 2), Positive (N = 1)	Positive effect: Positive (N = 3)
Reduces residential turnover	Mixed evidence: Mixed (N = 1)	Mixed evidence: Mixed (N = 8), Positive (N = 5), No effect (N = 1), Absence of evidence (N = 1)	Mixed evidence: Positive (N = 3), Negative (N = 1)
<i>Environmental outcomes</i>			
Improves neighbourhood satisfaction	Mixed evidence: Mixed (N = 2), No effect (N = 1)	Mixed evidence: Positive (N = 3), Mixed (N = 2)	Positive effect: Positive (N = 4)
Improves quality of physical environment	Negative effect: Negative (N = 1)	Mixed evidence: Mixed (N = 6), Negative (N = 4), Positive (N = 1)	Mixed evidence: Negative (N = 2), Mixed (N = 1)
Improves satisfaction with services, amenities	Mixed evidence: Mixed (N = 1)	Mixed evidence: Mixed (N = 3)	Mixed evidence: Negative (N = 1), Mixed (N = 1)
Improves quality of local services, amenities	—		

Table 5. Continued

	Summary of evidence from group A papers (<i>N</i> of studies reporting the effect)	Summary of evidence from group B papers (<i>N</i> of studies reporting the effect)	Summary of evidence from group C papers (<i>N</i> of studies reporting the effect)
Outcomes of tenure mix			
Improves neighbourhood reputation and image	<i>Positive effect</i> : Positive effect (<i>N</i> = 2)	<i>Mixed evidence</i> : Mixed (<i>N</i> = 5), Positive (<i>N</i> = 3), Absence of evidence (<i>N</i> = 1)	<i>Mixed evidence</i> : Mixed (<i>N</i> = 2), Positive (<i>N</i> = 1), Negative (<i>N</i> = 1)
<i>Safety outcomes</i>			
Reduces fear of crime, perceived crime and anti-social behaviour	<i>Mixed evidence</i> : Mixed (<i>N</i> = 2), Negative (<i>N</i> = 1)	<i>Mixed evidence</i> : Mixed (<i>N</i> = 9), Negative (<i>N</i> = 3), Positive (<i>N</i> = 1)	<i>Mixed evidence</i> : Mixed (<i>N</i> = 3), Negative (<i>N</i> = 1), No effect (<i>N</i> = 1)
Reduces crime and anti-social behaviour	<i>Positive effect</i> : Positive (<i>N</i> = 1)	<i>Mixed evidence</i> : Mixed (<i>N</i> = 6), Negative (<i>N</i> = 1)	<i>Mixed evidence</i> : Mixed (<i>N</i> = 1)
<i>Economic outcomes</i>			
Increases income mix	<i>Mixed evidence</i> : Mixed (<i>N</i> = 1)	<i>Mixed evidence</i> : Mixed (<i>N</i> = 3), Positive (<i>N</i> = 2)	<i>Mixed evidence</i> : Mixed (<i>N</i> = 1)
Creates job opportunities	—	<i>Mixed evidence</i> : No effect (<i>N</i> = 2), Positive (<i>N</i> = 1)	<i>Positive effect</i> : Positive (<i>N</i> = 2)
Increases employment rates	<i>No effect</i> : No effect (<i>N</i> = 1)	<i>Mixed evidence</i> : Positive (<i>N</i> = 2), Mixed (<i>N</i> = 2), Negative (<i>N</i> = 1), No effect (<i>N</i> = 1)	<i>Mixed evidence</i> : Positive (<i>N</i> = 2), Negative (<i>N</i> = 1), No effect (<i>N</i> = 1)
Promotes local spending	—	<i>No effect</i> : No effect (<i>N</i> = 1)	<i>Mixed evidence</i> : Mixed (<i>N</i> = 1), Absence of evidence (<i>N</i> = 1)
Boosts local economy	—	<i>Mixed evidence</i> : Positive (<i>N</i> = 1), Mixed (<i>N</i> = 1)	<i>Absence of evidence</i> : Absence of evidence (<i>N</i> = 1)

^aSpatial integration (pepper-potting) and a sufficient number of public places such as community gardens, shared yards and schools have been said to promote social mixing in tenure-mixed areas.

design across tenures), and three did not. There was evidence of no effect of tenure mix on social capital and behavioural peer influences.

For nine of the outcomes examined in the studies, the evidence across all the categories of study from A to C was mixed. This was the case for the effects of mixed tenure upon cross-tenure attitudes and interactions, place attachment, residential satisfaction, housing satisfaction, residential turnover, neighbourhood satisfaction, satisfaction with services, perceived crime, and income mix.

We found *weaker evidence* that tenure mix promoted the demand for social housing in the area, although the findings here were consistent between study categories B and C, namely that mixed tenure could have this positive impact, but there was no better quality evidence from category A studies to further support this finding. Mixed tenure did not have an effect on sense of community or health (long-term illness, disability). Mixed evidence was found for relationships between tenure mix and community participation, housing quality, quality of the local physical environment, quality of services, improved neighbourhood image, crime reduction, and employment rates.

Finally, *evidence was weakest and mixed* regarding the effects of tenure mix on school attainment, job opportunities, local spending and the local economy in general.

In summary, for the majority of outcomes of tenure mix, we found mixed evidence. With caution suggested by the low quality of primary studies reviewed, we conclude that support to kinship networks, property value rise and a positive role of public spaces in cross-tenure interaction are the most likely outcomes of tenure mix. There was a high probability for positive and negative effects of tenure mix reported in studies to be confounded by other factors for which studies did not control—to mention but a few: socio-economic factors, urban regeneration, planning and housing policy and estate management. As none of the primary studies conducted was designed to measure the effects, i.e. the consequences of introducing mixed tenure, it would be incorrect to draw definitive conclusions from this set of studies alone.

Secondary Studies

We identified four papers that used routinely collected data to examine the effects of mixed tenure. Three were journal articles (Graham *et al.*, 2009; Kearns & Mason, 2007; van Ham & Manley, 2009) and one a report (Doherty *et al.*, 2006) on which the journal article by Graham *et al.* (2009) was based. Therefore, we review here the three journal papers: Kearns & Mason (2007), van Ham & Manley (2009) and Graham *et al.* (2009). Table 6 summarises information on these studies.

The studies examined the following outcomes of mixed tenure:

- perceived neighbourhood quality and problems (Kearns & Mason, 2007);
- employment status (Graham *et al.*, 2009; van Ham & Manley, 2009);
- long-term illness, mortality, premature death (Graham *et al.*, 2009).

Variables Used

Two studies used individual level and aggregated area level data (Kearns & Mason, 2007; van Ham & Manley, 2009), and one study used aggregated data only (Graham *et al.*,

Table 6. Characteristics of studies using routine data

	Studies	
Characteristics	Kearns & Mason (2007)	van Ham & Manley (2009)
Location	England	Scotland
Study design	Cross-sectional	Longitudinal
Data level type	Individual level and area level data	Individual level data and geo-coding—two levels CATT (~503 people) and OA (~119 people)
Source of data	Survey of English Housing: 2001/2002 and 2002/2003 data	Scottish Longitudinal Survey 1991, 2001
Sample size	39 175 respondents	3639 unemployed; 60 048 employed (1991)
Research questions	How does pattern of incidence (<i>sic</i>) of perceived neighbourhood quality vary according to tenure mix?	Does tenure mix in 1991 influence the probability of those unemployed in 1991 being employed in 2001? And those employed remaining employed?
Data analysis	Multivariate logistic regressions	Multivariate logistic regressions
Outcomes examined	Perceived problems in the neighbourhood; perceived required neighbourhood improvements	Unemployment 1991 to employment in 2001; remaining in employment from 1991 to 2001
Measure and definition of tenure mix	Equitability index (0–1)—higher indicates similar proportions of mix	Percentage of social renters - 8 categories, middle 6 considered 'mixed'
Covariates included	Age, sex, employment status, percentage of social renting	Level of deprivation (area), urban/rural area, education qualifications, tenure
		Graham et al. (2009)
		England, Wales, Scotland
		Cross-sectional
		Area level data—Ward and Other Area Output
		UK Census 1991, 2001 and mortality data, geo-coded data
		10 422 (1991); 8788 (2001) wards
		How do the level of mixing, the spatial distribution and size of neighbourhood affect social well-being?
		Multivariate regressions
		Percentage of unemployed, standardised long-term illness, mortality ratio and premature death rates
		(1) Percentage of social renting: areas with 10–69% of social renters defined as mixed; < 10% and > 69% of social renters defined as mono-tenure; (2) Index of dissimilarity: proportion of social renters would need to move from one output area to another to create an even distribution where 0 = fully integrated and 1 = fully segregated
		% social renting, % no central heating, overcrowding, % vacant housing, %age-group, % ethnicity, % social classes I and II, % no car, % unemployed

Table 6. Continued

		Studies	
Characteristics	Kearns & Mason (2007)	van Ham & Manley (2009)	Graham <i>et al.</i> (2009)
Study's strengths (reviewers' comments)	Large study; adjustment for social renters, integration and covariates	Large study; two time points	Large study; able to examine spatial distribution and area size at two time points
Study's limitations (reviewers' comments)	Multilevel model would have been more appropriate. Current model: the estimates are biased but the direction of the bias is unpredictable.	Probability of an excessive correlation of Carstairs Deprivation Index with the percentage of social renting. This might mean that the effect is not independent of deprivation.	Outcome data were counts or rates which would indicate the need to use Poisson regression. Authors used OLS/GLM, so their analysis might be questionable. Definition of areas changed between 1991 and 2001; therefore it is difficult to know if differences across years are due to this change. Query whether outcomes used are indicators of 'social' well-being.

2009). All studies used multivariate analyses adjusting for covariates, although choice of covariates was limited by what was available in the routine datasets.

Mixed tenure was defined by one study as the percentage of social renters (van Ham & Manley, 2009). The other two studies used a measure of integration as a marker of mixed tenure (Graham *et al.*, 2009; Kearns & Mason, 2007). Graham *et al.* (2009) used an index of dissimilarity measuring the proportion of social renters who would have to move from one area to another to create an even distribution of tenure (0 = full integration to 1 = full segregation).¹² Kearns & Mason (2007) used an equitability index (0 = mono-tenure to 1 = similar proportions of social renters, private renters and owner occupiers).

All secondary studies were of higher quality than the primary studies, namely in their description of data sources, quantitative methods used, statistical analysis and discussion of the limitations and strengths of their studies.

Secondary Studies' Evidence on Outcomes

Because the outcomes examined in the three studies differed (except for employment variables), it is not possible to compare conclusions across the studies. Table 7 provides a summary of the studies outcomes.

Neighbourhood perceived as requiring improvements. Tenure mix was related to perceptions of problems in the neighbourhood and to the need for neighbourhood improvements (Kearns & Mason, 2007). Adjusting for covariates, mixed tenure was significantly associated with increased odds of wanting improvements in housing, job opportunities available locally, and the physical environment but not for amenities, health services, youth facilities, public transport, schools or shopping. The study found that the absolute number of social renters in an area was a stronger predictor of these outcomes than tenure mix.

Neighbourhood problems including crime and anti-social behaviour. Adjusting for covariates, mixed tenure (ie the more equal the mix as measured by the equitability index) was significantly associated with perceptions of vandalism/hooliganism, graffiti, crime, litter and problems with neighbours. Again the percentage of social renters was more strongly associated with all problems than tenure mix (Kearns & Mason, 2007).

The evidence from this study indicates a negative effect of mixed tenure for the perception of neighbourhood problems and need for neighbourhood improvements, adjusting for the proportion of social renters in an area.

Unemployment. van Ham & Manley (2009) undertook a series of analyses examining the associations of tenure mix moving from unemployment to employment and remaining in employment (using data from 1991 and 2001 Scottish Longitudinal Survey). Simple models including only the measure of mixed tenure found as percentage of social renting increased, the likelihood of moving into employment decreased (ORs were 0.69 for 20–45 per cent social renting and 0.33 for 80–100 per cent social renting) with similar but not such strong associations for remaining in employment. Adjusting for deprivation (measured using Carstairs Deprivation Index) and individual level characteristics, mixed tenure was not independently significantly related to moving to employment, but there was

Table 7. Summary of findings from the studies using routine data

Studies	Outcomes examined	Findings	Authors' conclusions
Kearns & Mason (2007)	Perceived problems in the neighbourhood	Adjusting for covariates ^a mixed tenure is significantly associated with: Vandalism/hooliganism (OR = 6.0), Graffiti (OR = 4.0), Crime (OR = 6.0), Litter (OR = 5.6), neighbours (OR = 7.25). Percentage of social renting had stronger effects than tenure mix on crime, vandalism, dog nuisances and litter, and reduced effects on noise and traffic.	Findings indicate more support for dispersal rather than dilution policies.
	Perceived required neighbourhood improvements	Adjusting for covariates ^a mixed tenure was significantly associated with increased odds of wanting improvements in housing, jobs, and the environment but not amenities, health services, youth facilities, public transport, schools or shopping. Percentage of SR increased odds for all except health services, and decreased odds for housing.	
van Ham & Manley (2009)	Unemployment 1991 to employment in 2001	Social renters ($n = 1270$): No significant association between % social renting (ORs range from 0.88 to 1.15). ^b	Living in a deprived area is negatively correlated with labour market predominantly for home owners. Selection effects therefore explain neighbourhood effects.
	Remaining in employment 1991–2001	Owner occupiers ($n = 1991$): No significant associations between percentage of social renting (ORs range from 0.9 to 1.6); Significant association with deprivation categories 4 and 5 (i.e. high deprivation) (ORs: 0.7 and 0.3, respectively). ^b Social renters ($n = 13,717$): No significant association between percentage of social renting and remaining in employment (ORs: 0.9–1.1). ^b Owner occupiers ($n = 41,802$): Positive association with remaining in employment from 1991 to 2001 living in areas of <60% of social renters (ORs: 1.2–1.27) and less likely if living in areas of medium to high deprivation (deprivation categories 3–5). ^b	

Table 7. Continued

Studies	Outcomes examined	Findings	Authors' conclusions
Graham <i>et al.</i> (2009)	% of unemployed	No effect of tenure mix adjusting for covariates. ^c	Policy for mixing tenures to improve social well-being is largely unsupported by the research evidence.
	Long-term illness (standardised) LLTI	1991: Areas with higher levels of integration associated with more LLJ, i.e., mixed tenure disadvantage. 2001: Areas with high levels of segregation associated with more LLJ, i.e., mixed tenure advantage. ^c	
	Standardised mortality ratio (SMR)	1991: Areas with high levels of integration associated with lower SMR (mixed tenure advantage). 2001: Areas with high levels of segregation associated with decreased SMR (mixed tenure disadvantage). ^c	
	Premature death rates	Positive association with high levels of segregation in 1991 (mixed tenure advantage), more even distribution of social renting associated with premature death in 2001 (mixed tenure disadvantage). ^c	

^a Adjusting for age, sex, economic status.

^b Adjusting for Carstairs deprivation category, urban-rural, education qualifications, age, gender, ethnicity, partner working, change in health, change in presence of children, moved house and using Consistent Areas Through Time (CATT) as area unit; similar findings reported using Output Areas; Reported coefficients converted to Odd Ratios (expB) by reviewers.

^c Adjusting for % of social renting, % no central heating, overcrowding, % vacant housing, %age-group, % ethnicity, % social classes I and II, % no car, % unemployed.

a small positive effect (OR = 1.18) for those in neighbourhoods of 20–40 per cent social renting for remaining in employment.

Graham *et al.* (2009) used small-area census and geocoded vital registration data for years 1991 and 2001 data to undertake a UK-wide ecological analysis of mixed tenure. Areas with high levels of segregation were associated with higher levels of unemployment, adjusting for percentage of social renting. However, these effects became non-significant when housing quality and socio-demographic variables were included in the models.

Health: limiting long-term illness, mortality and premature mortality. Only one study examined the health effects of mixed tenure (Graham *et al.*, 2009) and reported mixed results depending on the year of data (1991 versus 2001) and health outcome. Adjusting for percentage of social renters and a number of socio-demographic variables, for the 1991 data, higher levels of integration was associated with more limiting long-term illness (i.e. there was a mixed tenure disadvantage) whereas for the 2001 data areas with high levels of segregation was associated with more limiting long-term illness (a mixed tenure advantage). A similar pattern was found for standardised mortality ratio, but the opposite for premature death rate i.e. there was a positive association with high levels of segregation in 1991 (mixed tenure advantage) while a more even distribution of social renting was associated with premature death in 2001 (mixed tenure disadvantage). Given these mixed results the authors concluded that ‘... the policy of deliberately mixing tenures ... in order to improve social wellbeing remains largely unsupported ...’ (p. 162), although we would also query whether the outcomes included in this study are indicators of social wellbeing.

Secondary Studies’ Limitations

The common strength of the three studies was that they used large datasets representative of the populations of interest and adjusted for covariates although the choice of covariates was limited by the routinely collected data. For example income data, which is an important covariate, is not available from the Census.

For the studies by Kearns & Mason (2007) and van Ham & Manley (2009), multi-level regression analysis would have been more appropriate as both studies included individual and area level data. The implication of not using multi-level modelling techniques is that coefficients may be biased, but it is not possible to tell in which direction this might occur. The lack of effects found by van Ham & Manley (2009) may be due to collinearity between the proportion of social renters and indices of deprivation used in their models. The mixed effects across the two time periods reported by Graham *et al.* (2009) may have been partly explained by boundary changes for wards between 1991 and 2001.¹³

As noted by Graham *et al.* (2009), there are limitations in interpretation of their ecological study. That is, even where advantage of mixed tenure is found at the ward level, this does not necessarily mean that this advantage is experienced by social renters. Further, for their analyses Poisson regressions would have been more appropriate as the outcomes were counts or rates.

It has to be noted that all three studies highlight the difficulty of disentangling measures of tenure mix and that of deprivation, where it is difficult to determine how much common variance is shared between these constructs, and therefore, difficult to determine the

attribution appropriately. Some secondary studies also face a problem, where negative effects are identified, of ascertaining whether those negative effects are attributable to tenure mix, or to the ongoing impacts of elements of area disadvantage which prompted tenure mix interventions in the first place.

Overall, given the strengths and limitations of these three studies, we would concur with the authors' conclusions: there is no advantage of mixed tenure for health or employment outcomes (evidence of no effect) and some evidence of a negative effect in terms of neighbourhood problems and environmental quality.

It is also worth noting from the secondary studies that both the van Ham & Manley (2009) paper (studying employment and unemployment) and the Kearns & Mason (2007) paper (studying neighbourhood problems) indicate that better outcomes are more likely to occur where the balance between social renting and private housing/owner occupation is roughly 20:80. This finding is very similar to Galster's conclusion in the case of the US evidence that aggregate outcomes (on social equity and efficiency grounds) are maximised, and negative local externality effects minimised, where poverty rates within neighbourhoods are kept below the 15–20 per cent level (Galster, 2002, 2007b, forthcoming 2012; Galster *et al.*, 2006). However, it is not clear that the poverty rate measure, as used in the US, is equivalent to the level of social renting measure, as used in the UK. More generally, the evidence for such threshold effects is much more sparse in the UK case (and for Europe) than for the US.

Discussion

In this section we summarise the state of the UK evidence on the effects of mixed tenure, across both the primary and secondary studies; consider the problems with the evidence base and suggest a way forward for future research in this area; and draw out some implications for policy-makers.

Summary of Evidence on Effects of Mixed Tenure

Table 8 summarises the current state of UK evidence of the effects of mixed tenure as far as we have been able to ascertain it. The main evidence for positive effects from mixed tenure lies in the social and residential domains.

In the social domain, having mixed tenure neighbourhoods, by enabling relatives to remain local while moving into owner occupation, has a positive impact upon kinship networks. Social interaction between residents in different housing tenures is supported by other neighbourhood characteristics, such as the provision of local schools and public venues, as well as certain features of housing design, e.g. similar appearance or shared courtyards between tenures. There is evidence that tenure mix has no effects on social capital related outcomes (e.g. through role models or behavioural norms), nor on sense of community. Evidence on other social outcomes is mixed. Nonetheless, all the evidence on social outcomes from mixed tenure comes from primary case studies which, as we have reported, are generally of modest quality.

In the residential domain, tenure mix appears to have positive effects upon property values and on the demand for social housing, though both findings require better corroboration, e.g. from studies using routine data. The evidence for other residential and environment outcomes is mixed, including the effects on residential satisfaction, housing

Table 8. Summary of evidence for mixed tenure effects across primary and secondary studies

Outcome domain	Summary of evidence on mixed tenure effects
Social	<ul style="list-style-type: none"> ● There is stronger evidence that: <ul style="list-style-type: none"> ■ MT supports the maintenance of local kinship networks. ■ Interaction between owners and renters is supported through provision of schools, public and shared spaces. ■ Spatial integration, especially with similar housing design across tenures, supports cross-tenure interaction. ■ MT effects upon cross-tenure attitudes/interactions (irrespective of design or integration) and upon place attachment are mixed. ■ MT has no effect on social capital/peer behavioural influences ● There is a weaker evidence that: <ul style="list-style-type: none"> ■ MT has no effect on sense of community/social cohesion. ■ MT effects upon community participation are mixed. ● Evidence of the social impacts of MT is based on cross-sectional and qualitative case studies. There is a need for studies of social outcomes from MT using longitudinal community studies, large-scale surveys, secondary data sources and appropriate methods of quantitative data analysis.
Human capital	<ul style="list-style-type: none"> ● There is stronger evidence that: <ul style="list-style-type: none"> ■ MT has no effect on health outcomes, based on primary and secondary studies. ● There is weaker mixed evidence of: <ul style="list-style-type: none"> ■ MT effects on educational attainment. ● Generally, the evidence for MT effects on human capital outcomes is sparse and more high-quality research is needed.
Residential	<ul style="list-style-type: none"> ● There is stronger evidence that: <ul style="list-style-type: none"> ■ MT has a positive effect on property values, based on primary studies. ■ MT effects on housing satisfaction are mixed. Secondary studies report evidence of a negative effect, whereas primary studies suggest that evidence is mixed. ■ MT effects on residential satisfaction and residential turnover are mixed, based on primary studies. ● There is weaker evidence that: <ul style="list-style-type: none"> ■ MT has a positive effect on the demand for social housing. ■ MT effects on housing quality are mixed. ● In the case of the positive outcomes on property values and demand for social housing, there is a need for corroboration through large-scale studies of secondary data at a national level.
Environmental	<ul style="list-style-type: none"> ● There is stronger but mixed evidence for: <ul style="list-style-type: none"> ■ MT effects on neighbourhood satisfaction and satisfaction with services/amenities. Secondary studies report respectively a negative effect and evidence of no effect, whereas primary studies suggest the evidence is mixed for both outcomes. ● There is weaker but mixed evidence for MT effects on: <ul style="list-style-type: none"> ■ Neighbourhood reputation and quality of physical environment. The better quality primary studies report respectively a positive and a negative effect of MT, but these are outnumbered by lower quality studies which provide mixed evidence for such effects. ■ Quality of local services and amenities. ● More high-quality research is needed into the impacts of MT on environmental outcomes.

Table 8. *Continued*

Outcome domain	Summary of evidence on mixed tenure effects
Safety	<ul style="list-style-type: none"> ● There is stronger but mixed evidence for TM effects on perceived crime/anti-social behaviour. Secondary studies suggest evidence of a negative effect, whereas primary studies suggest the evidence is mixed. ● There is a weaker mixed evidence for MT effects on actual crime/anti-social behaviour. The better quality primary study available reports a positive effect of MT, but this is outnumbered by lower quality studies which do not. ● More high-quality research is needed into the impacts of MT on crime and safety.
Economic	<ul style="list-style-type: none"> ● There is stronger but mixed evidence for MT effects on: <ul style="list-style-type: none"> ■ Employment rates. Both primary and secondary studies report mixed evidence. ■ Creation of job opportunities. While primary studies suggest that evidence is mixed, secondary studies report a negative effect of MT on residents' perceptions of local job opportunities. ■ Income mix, based on primary studies. ● There is weaker evidence for mixed TM effects on local spending and local economy. ● More high-quality UK-wide research is needed into the impacts of MT on employment and the local economy.

satisfaction, housing quality, residential turnover, neighbourhood satisfaction, quality of physical environment, satisfaction with services and amenities and quality thereof, and area reputation. Although the environmental outcomes of tenure mix were addressed by a large number of studies, these were mainly lower-quality case studies, suggesting a need for higher-quality research into tenure mix impacts on the environment, services and reputation.

In the other domains of human capital (health and education), safety (crime and perceptions of crime and anti-social behaviour), and economic impacts (the local economy and employment), the evidence which exists is mainly mixed and of lower quality, though in the case of many of these outcomes there are as yet very few relevant studies. In the case of health, the evidence suggests there is no effect of mixed tenure, although a limited number of health outcomes, including some which are unlikely to be readily affected by mixed tenure (such as mortality) have been examined. In the case of employment, evidence only exists for Scotland and suggests different impacts for seeking or retaining employment, and for renters and owners. Little or no evidence exists on the effects of mixed tenure on actual crime rates, rather than on perceptions of crime and antisocial behaviour, and in both cases the evidence is mixed. In general, for these three domains, there is a paucity of UK-wide evidence, despite relevant data sources existing for suitable secondary studies.

In summary, for many effects that tenure mix policies and strategies are believed to be achieving, our systematic review found either mixed evidence, evidence of no effect or lower quality evidence of positive effects needing further corroborations. Overall, it is difficult to make firm generalisations from the UK evidence base as, for most cases where a particular outcome has been identified, there are at most two relevant higher quality studies to support the conclusion in question. The variety of residential circumstances

which were covered by the studies (as detailed in Table 1), makes generalisation from such a small number of studies even more difficult.

Reflections on the Existing Research and Future Directions

In terms of how the existing research has been designed, conducted and reported, it has to be said that much of the evidence base is of poor quality. While we have categorised the research in three quality groups—stronger, weaker, weakest—in other disciplines we fear that very little of the available mixed tenure research would be considered even of medium never mind high quality; this would certainly be true of place-related health research for example. However, housing and urban researchers conducting policy-related research face a challenge in delivering better quality evidence as they are highly dependent on non-governmental research funders who are less interested in, and less keen to sponsor and wait for more robust, lengthy studies. This fundamental resource-base issue needs to change (see below). Some of the problems stem from the research designs, and others from poor analysis and reporting. There are some very basic lessons to be learned, by sponsors and researchers, about how to design research that can ascertain whether mixed tenure has any effects, and how to report that research in ways that allow the reader (or policy consumer) to identify its strengths and weaknesses, limitations, and the extent of its generalisability.

It is not hard to identify the improvements that have to be made—a cursory view of Tables 2 and 3 above will suffice—but to pick out a few things in relation to research design, conduct and reporting. To identify where mixed tenure has effects, case-study research should include comparison or control areas which are selected in such a way as to enable the researcher to control for major confounders of the effects of mixed tenure, such as physical renewal. Furthermore, in the absence of suitable control areas, and without the collection of base-line information, it is impossible to ascribe subsequent reported effects to the advent of mixed tenure. It is acknowledged however that this is both an expensive and a complex task, as it is difficult to identify entirely ‘non-treatment’ and reasonably comparable, deprived areas in the UK.

Often, the reporting of research methods was sparse, so that the reader could not tell what recruitment methods were used, and what level of response was achieved among the study groups, nor how precisely the information was collected—using what methods and tools. Without this type of information, it is hard to trust the reliability of what is being presented as valid findings. These difficulties are compounded where, as is often the case: the tenure breakdown within the resident samples is not provided; statistical tests are not applied to inter-group comparisons; the link between a research finding and its underlying empirical source is not made (e.g. on what basis—resident or professional opinion, or secondary data source, etc.—is it claimed that area reputation has improved following mixed tenure?); and the limitations to the research are not discussed.

The availability of a large number of low quality studies is in the end unhelpful to assembling an evidence base on mixed tenure. We have already seen that for some outcomes, having a large number of weaker studies with variable findings serves to confuse the totality of evidence, rather than contribute beneficially to it. As we noted, nearly 100 local areas have been studied in the mixed tenure research in the UK, with a great variety of types, sizes, tenure mixes and tenure configurations across areas. And yet, this variation between study areas has rarely been used as a variable in the analysis

conducted, either in the qualitative or quantitative research. Hence, we are no further forward in learning how the nature of the tenure mix (in terms of the levels and configurations of tenures) might matter for the outcomes. This represents a lost opportunity given the volume of research that has been conducted.

There are a few other things missing from the evidence base, which should form part of the future research agenda on mixed tenure. First, studies have not examined the potential negative effects of mixed tenure, being focused rather more on the search for positive impacts. Negative effects might include the physical and social disruption involved in restructuring social housing areas to become mixed tenure (e.g. Doff & Kleinhans, 2011), and the potential relative deprivation or negative effect on the psychosocial wellbeing of poorer households of making adverse social comparisons with more affluent neighbours (see Kawachi & Kennedy, 1999). Elsewhere, research has examined the potentially negative effects of movement to more mixed tenure areas, though it is hard to tell whether the negative impacts are due to enforced mobility itself, or the changed residential environment. In the US, negative effects identified have included health deterioration (Manjarrez *et al.*, 2007) and reduced social capital for child care and employment purposes (Clampet-Lundquist, 2004). In the Netherlands, there has been much interest in negative spillover, or so-called ‘waterbed effects’ of neighbourhood restructuring. In some cases, this has included negative impacts within areas restructured to become mixed tenure, most notably perceived increases in crime and anti-social behaviour (e.g. Veldboer *et al.*, 2007, cited in Kleinhans & Varaday, 2011). The flip-side of this issue is that research on mixed tenure should include, for comparison purposes, the examination of whether social housing areas that are comprehensively improved without significant tenure restructuring can also bring the same or similar benefits, an issue identified by Monk *et al.* (2011) in their recent review.

Second, mixed tenure research has not sought to examine the mechanisms at work, so that even where effects are found, it is not understood how or why they have come about, other than that they are coincident with mixed tenure. Thus, future research should consider whether it is interested in social, environmental, resource & institutional, or reputational mechanisms (see Galster, 2007a, 2010; Kearns & Mason, 2007; Silverman *et al.*, 2005), and construct research designs that would identify such mechanisms at work, as well as their effects. Therefore, the UK research would benefit from using a stronger theoretical framework, whether that is a theory of change model (Tunstall & Lupton, 2010) or a conceptualisation of neighbourhood exposures that includes both ‘dosage’ (Galster, 2010)—what level of tenure mix are residents exposed to; and duration—for how long?, before certain effects are seen at the individual or collective levels. In considering such exposures, it should be borne in mind that communities are dynamic so that the effects of tenure mix may change over a decade or two (Fordham & Cole, 2009; Monk *et al.*, 2011). The other advantage of using a firmer theoretical framework as the basis for future research is that it can help identify gaps where potential effects of mixed tenure have yet to be studied, such as psychological and psychosocial impacts.

The general message for future UK research on mixed tenure then, is to have a stronger theoretical framework upon which to base more carefully crafted research designs. Such research should include case study research, with both ‘treatment’ and ‘non-treatment’/control study areas (though fewer in number and more carefully selected), and research involving the analysis of routine and survey data. Both types of research need to be longer-term and longitudinal in nature, as the vast majority of the existing UK

evidence base is cross-sectional. In all research, the characteristics of the places and tenure mixes being studied need to be given more consideration as explanatory variables (so that mixed tenure is more than a simple crude category in the analysis). Tunstall *et al.* (2011) have begun to show how such an approach might be adopted in the analysis of survey data, using the British Cohort Study 1970, wherein they found that the tenure mix of teenagers' neighbourhoods of residence had some 'moderate association' with mental wellbeing outcomes at age 34 (depression and life satisfaction). Researchers need to be able to consider: 'what are the limits to what the research can say?'; 'what factors other than mixed tenure might be operating?'; and 'what other explanations might be plausible?' for any mixed tenure effects identified.

Implications for Policy and for Research Sponsors

Whether or not UK housing and regeneration policy continues to favour mixed tenure strategies in new developments and in the redevelopment and regeneration of existing social housing areas, policy-makers and associated research sponsors should develop a research strategy which seeks, over time, to fill the evidence gaps and address the weaknesses in the current evidence base for mixed tenure effects as set out above. At the moment, the evidence suggests that mixed tenure policies may be having some external-based effects, such as on property values and housing demand, but this needs further confirmation. Very few of the potential internal-based effects of mixed tenure (such as on social, human and economic capital) are currently supported by the evidence base. Thus, studies to date have not shown mixed tenure to be effective in addressing some of its key policy targets. However, because the evidence base with respect to many outcomes is absent or weak, we cannot yet conclude that mixed tenure is not working in the ways expected. This is where policy requires better research focused on the potential causal mechanisms involved, as otherwise mixed tenure represents a policy without well-founded causal- or intervention hypotheses (Knoepfel *et al.*, 2007).

Policy-makers should also consider whether positive residential, environmental, safety and other outcomes (for which the evidence on mixed tenure effects is mostly mixed) could be attained without the necessity for mixed tenure interventions, i.e. through physical and management renewal and social regeneration programmes. At the same time, policy-makers should also be interested to find out if there are any down-sides to mixed tenure, for example, social and residential disruption, or the impacts of negative social comparisons. Policy-makers need to know three things, namely: Does mixed tenure work (and in what ways, for which outcomes)? Does anything else work? And what are the side-effects of mixed tenure? Such knowledge should support a more balanced approach to the use of mixed tenure policies.

On the issue of mixed tenure, it would seem that UK policy is a long way from being 'evidence-based', 'evidence-informed' or evidence-inspired' (Duncan, 2005). Two types of risk arise from the fact that the 'conventional policy wisdom' of neighbourhood social mixing (to be achieved through mixed tenure in the UK case) is 'so dominant' (Galster, 2007b). First, sparse and poor quality research is used by policy entrepreneurs to advocate a policy which may be ineffectual. As Krizek *et al.* put it: '... planning has a rich history of initiating programmes or policies that are politically or socially acceptable but that often prove to be ineffective in advancing the cause they were originally intended to advance when evaluated' (2009, p. 474). So policy-makers may put most of their eggs in one basket

in an act of blind faith or group-think. To overcome the problems in the evidence base, and move towards the types of study we have outlined above, it seems fairly clear that policy sectors should avoid relying primarily on policy entrepreneur organisations to provide evidence in a particular policy field. A far better approach would be for government analysts to work in partnership with independent academic bodies such as the research councils and others to develop more robust approaches to the longer term production of relevant evidence.

The other danger, as pointed out in the US case, is that mixed tenure (or mixed income) policies may be seen as a panacea for economic problems (Joseph, 2006; Joseph *et al.*, 2006), or indeed for other social or environmental issues within deprived communities, while at the same time seemingly obviating the need for structural policies to address other influential factors for socio-economic outcomes such as income inequality (Cheshire, 2007) and household disadvantage (Tunstall *et al.*, 2011). There is no evidence yet that mixed tenure is a strategy for social mobility, for example, though longitudinal UK evidence on this issue is scant. Here, mixed tenure risks eclipsing other required policy responses to the problems facing disadvantaged communities. The policy community, as a sponsor and user of research, would be better heeding the advice of Noam Chomsky (quoted in Barsamian, n.d.) who argued that to bridge the ‘chasm’ between ‘standard versions of what goes on’ and the truth, you need to do two things: ‘learn by doing’, which we might take to mean properly studying current mixed tenure initiatives and their medium- to long-term effects; and ‘understand what’s happened in the past’, which we can take to mean using historic, longitudinal data to examine the effects of mixed tenure residence on eventual outcomes. In this way, policy-makers and researchers might ‘liberate the mind from orthodoxies’ (Barsamian, n.d.) such as mixed tenure policy.

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Notes

- ¹ The recent debate on community balance in the UK was started by a report in 1993 by David Page entitled *Building for Communities* (1993), which argued that housing association developments were in danger of becoming estates of welfare housing subject to instability and social exclusion. A subsequent study entitled *Communities in the Balance* examined similar issues of area-level social exclusion on council estates (Page, 2000). Page argued for a ‘better balance’ of households on estates to be achieved through a number of means, including dwelling mixture. A related study which built on the early Page work, entitled *Creating Communities or Welfare Housing*, argued that social housing providers should focus on ‘... mixed tenure programmes, as the rule rather than the exception ...’ (Cole *et al.*, 1997).

These reports were funded by the social policy organisation, the Joseph Rowntree Foundation, which pursued an interest in research on neighbourhood disadvantage and renewal, including many studies of mixed tenure, through its various research programmes, such as that on Area Regeneration which ran from 1996 to 2001 (Carley *et al.*, 2000). This research interest from a major policy advocacy organisation coincided with, and may have also informed, the New Labour government's own urban policy commitment to avoid mono-tenure situations in new housing developments and to use new development '... to bring balance into existing mono-tenure estates' (UTF, 1999, p. 71). This policy interest from the early days of New Labour has helped to sustain over the past 15 years a growing research effort in the UK to examine the need for, and effects of, mixed tenure housing policies, even though the net result has been more one of confusion than clarity, as we shall see.

- ² It should be noted that although the terms 'effects' or 'outputs' of mixed tenure are used throughout this paper, only the secondary studies available at the time of this review could actually claim to have focussed on cause-effect relationships, i.e. the impact, effect or influence of tenure mix on social, environmental, economical or other factors. The terms 'effects' or 'outputs' of mixed tenure are used nominally, for reasons of ease, to refer to findings in the field of studies evaluating mixed tenure policies and circumstances.
- ³ The 12 databases searched were Web of Knowledge, IBSS, SocIndex, Copac, OpenDOAR, SCIE, Sociological Abstracts, Assia, FRANCIS, Opensigle, OCLC WorldCat Dissertations and Theses, Planex-IDOX.
- ⁴ We have not used 'social mix' in the search term because while this could identify some tenure mix related literature, it would mainly produce results containing literature on class and ethnic relations which were beyond the scope of this review.
- ⁵ Full details of the assessment criteria used to review primary studies are given in a web-box, and the assessment findings for individual papers based on primary studies are available as Web-tables 1 and 2 at: <http://tinyurl.com/gowelljournals>
- ⁶ This procedure did not involve the reviewers overruling the evidence presented in the studies. Rather, it involved making a judgment across the piece on the evidence presented as the studies' authors may not have highlighted, for example in the executive summaries or in conclusions sections, evidence on some of the outcomes contained therein, and often did not report their findings in terms of 'effects'.
- ⁷ Details of individual primary studies' aims are given in Web-table 3 at: <http://tinyurl.com/gowelljournals>
- ⁸ The distribution of 28 outcomes across the reviewed primary studies is given in Web-table 4 at: <http://tinyurl.com/gowelljournals>
- ⁹ It could have been important to look at the different effects of mixed tenure area types, i.e. 'evolution of older areas' versus 'intervention' mixed tenure areas which have been redeveloped or newly built; however, a very small number of studies focusing on 'evolution of older areas' ($N = 2$) found for inclusion in this review.
- ¹⁰ However, because the information presented in the papers on the data collection tools (i.e. questionnaires, topic guides) was very sparse, it was difficult to evaluate how many studies had the actual capacities to conduct such analyses.
- ¹¹ Web-table 5 contains the reviewers' assessment of the evidence on each outcome from each of the reviewed papers on primary studies, at: <http://tinyurl.com/gowelljournals>
- ¹² They excluded private renters.
- ¹³ Graham *et al.* (2009) conducted a sub-analysis using smaller areas (OAO) in Scotland, which could have helped to answer this question of whether the mixed results were due to change in definition of Ward or changes over time. However, this sub-analysis was not comparable to those of the main analysis, so this question was not answered.

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