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ABSTRACT

Social Mixing as a Cure for Negative Neighbourhood Effects: Evidence Based Policy or Urban Myth?*

In this paper, we review the evidence base for social mixing in neighbourhoods, which is used as a strategy to tackle assumed negative neighbourhood effects. We discuss in detail the theoretical links between neighbourhood characteristics, and outcomes of individuals living in concentrations of poverty. Through this we identify the theoretical case for promoting socially mixed communities. We then review the empirical evidence base, focusing on outcomes of the American poverty deconcentration initiatives including the Moving to Opportunity and HOPE VI programs. We identify that the evidence from these programs is at best inconclusive. Turning to the European experience we identify problems associated with using observational data to assess individual outcomes in relation to their neighbourhood context. We conclude by suggesting that the evidence base for social mixing is far from robust, and that many of the current empirical papers suffer from serious analytical shortcomings. Ultimately, the process of creating more socially mixed neighbourhoods is unlikely to create more opportunities in life for the original residents. Socially mixing neighbourhoods through tenure mixing will only change the population composition of neighbourhoods, increasing average incomes because more affluent (and employed) residents will move into the owner occupied housing replacing social housing.

JEL Classification: I30, J60, R23

Keywords: neighbourhood effects, social mixing, tenure mix, evidence base, housing policy

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Introduction

There is a widely held belief by government, policy makers and academics that living in deprived neighbourhoods has a negative effect on residents' life chances over and above the effect of their individual characteristics. There is a large body of literature on these so-called neighbourhood effects and neighbourhood effects have been claimed in relation to a variety of outcomes: school dropout rates (Overman, 2002); childhood achievement (Galster *et al.*, 2007); transition rates from welfare to work (Van der Klaauw and Ours, 2003); deviant behaviour (Friedrichs and Blasius, 2003); social exclusion (Buck, 2001); and social mobility (Buck 2001). The current interest in the assumed negative effect of living in deprived neighbourhoods was stimulated by Wilson (1987, 1991) and several theoretical explanations of neighbourhood effects have been developed in the last two decades. These explanations include role model effects and peer group influences, social and physical disconnection from job-finding networks, a culture of poverty leading to dysfunctional values, discrimination by employers and other gatekeepers, access to low quality public services, and high exposure to criminal behaviour (for an overview see Van Ham M. and Manley D., forthcoming).

Policy makers embraced the concept of neighbourhood effects because if concentrations of poverty can make individuals poor(er), then reducing concentrations of poverty would solve the problem. Creating neighbourhoods with a balanced socio-economic mix of residents is an often used strategy to tackle assumed negative neighbourhood effects. Mixed housing tenure policies are frequently espoused as a vehicle to create more socially mixed neighbourhoods. The idea is that mixing homeowners with social renters will create a more diverse socio-economic mix in neighbourhoods, removing the potential of negative neighbourhood effects (Musterd and Anderson, 2005). Mixed housing strategies – often involving large scale demolition of social housing estates - have been explicitly adopted as part of neighbourhood improvement schemes by many governments including those in the Netherlands, the United Kingdom, Germany, France, Finland, and Sweden (Atkinson and Kintrea, 2002; Kearns, 2002; Musterd, 2002).

Despite the apparent consensus that neighbourhood effects exist, there is a growing body of literature that questions the status quo (see Oreopoulos, 2003; Bolster *et al.*, 2007; van Ham and Manley, 2010; van Ham *et al.*, forthcoming). This critical literature demonstrates that there is surprisingly little convincing evidence that living in deprived neighbourhoods really makes people poor(er) and concludes that policies designed to tackle poverty should target individuals rather than the areas within which they live (Cheshire, 2007). A key problem in the empirical investigation of neighbourhood effects is the (econometric) identification of causal relationships (Durlauf, 2004). Durlauf (2004) also reports that quasi-experimental studies, such as Gautreaux and the Moving to Opportunity program (Rosenbaum, 1995; Ludwig *et al.*, 2001; Goering *et al.* 2002) or randomised education studies (see Leventhal and Brooks-Gunn, 2004) find little impact of the neighbourhood on adult's life chances. Within a quasi-experimental setting, selection into neighbourhoods is largely randomised and the bias that selection mechanisms introduce into the analyses are less prevalent.

It has been suggested that most existing 'evidence' from non-experimental observational (and often cross-sectional) studies suffers from reverse causality. The

argument made is that poor neighbourhoods do not make people poor(er), but poor people live in deprived neighbourhoods because they cannot afford to live in more expensive neighbourhoods (Cheshire, 2007). In other words, poor people self-select themselves into deprived neighbourhood (through the sorting process of the housing market) and the selection mechanism explains the positive association between deprivation on the neighbourhood level and individual level poverty. Residential location is an outcome largely determined at the level of the individual (or household) and is the result of individual level preferences, resources and restrictions, within a setting of macro level opportunities and constraints (Mulder and Hooimeijer, 1999). In the investigation of neighbourhood effects it is important to fully control for individual characteristics and not, as identified by Buck (2001), merely use neighbourhood difference as evidence of neighbourhood effects. For neighbourhood effects to exist there must be clear causal pathways identifiable. We suggest that the vast majority of the neighbourhood effects literature does not identify causality and therefore over emphasises the role of the neighbourhood in individual outcomes.

The question whether neighbourhood effects are the result of causation or of selection effects is not only of academic importance, but also has direct policy relevance. Social mixing through creating mixed tenure neighbourhoods obviously only has the desired outcome if neighbourhood effects exist in the first place. The discussion on neighbourhood effects is vital in the development of effective policies to tackle individual deprivation. If neighbourhood effects are not as pervasive as is suggested in the literature or if selection processes are behind the ‘neighbourhood effects’ found, tenure mix policies will not help the residents of deprived neighbourhoods. In which case, tenure mix policies will only replace poor residents (social renters) by more affluent residents (home owners). As a result the neighbourhood might improve, but not the lives of the original residents.

In this chapter we question the evidence base for social mix policies by examining the current evidence on neighbourhood effects. The structure of the chapter is as follows: The first section provides an overview of the key theoretical explanations of neighbourhood effects. The discussion continues by investigating the methodological challenges for the analysis of neighbourhood effects. The next section discusses the latest empirical evidence on neighbourhood effects. The final section draws together the threads running through the chapter and critically assesses the evidence base of the social mix project and whether current policies are based on an urban myth.

Theoretical Considerations

The literature suggests that certain neighbourhood characteristics (mainly deprivation) have a negative effect on a range of individual social, economic, and health outcomes. Wilson (1987; 1991) is generally regarded as the starting point of the neighbourhood effects debate, although there have been earlier contributions (see for instance Sarkissian, 1976). Wilson developed his notion of negative neighbourhood effects within the context of the labour market and the problem of long term unemployment. He suggested that concentrations of individuals experiencing long term unemployment in certain neighbourhoods can lead to outcomes that include “negative social dispositions, limited

aspirations, and casual work habits” (Wilson 1991 p.642). He posed the idea that certain neighbourhood contexts facilitate the development of an urban underclass whose central problem “is joblessness reinforced by increasing social isolation in impoverished neighbourhood” (Wilson, 1991, p.650). Other authors have also identified the potential effect of negative role models as a means through which residents of deprived neighbourhoods suffer disadvantage (Manski, 2000; Blume and Durlauf, 2001). Negative role models are thought to reinforce low expectations of employment, hinder access to job networks, and to encourage deviant behaviour. Following Wilson’s thesis, in extreme cases the combination of these effects can lead to the development of a ‘culture of poverty’ (Wilson, 1987), where continued unemployment is not the result of structural (economic or social) problems, but a consequence of the adoption of deviant norms following value systems counter to those adopted by wider society. Potentially, the culture of poverty argument can be seen as a structural neighbourhood effect when, for example, employers refuse to hire residents from certain neighbourhoods because of the reputation of that neighbourhood (see Wilson, 1991; Wacquant, 1993; 2008). Wilson’s concentration argument forms the basis of much of the neighbourhood effects debate.

Beyond the work of Wilson, the literature offers a wide range of theoretical explanations of how the neighbourhood context might influence individual outcomes. As there are several excellent overviews, we only discuss these explanations very briefly (see Galster, 2008; Ioannides and Loury, 2004; Friedrichs, 1998; van Ham and Manley, forthcoming). Manski (1993) identified three categories into which the theoretical explanations can be grouped: correlated effects, endogenous effects, and exogenous effects. Correlated effects occur when individuals in the same neighbourhood “behave similarly because they have similar individual characteristics or face similar institutional environments” (Manski, 1993 p.533). Examples of these include spatial mismatch, external stigma, and sparse local institutional resources (Galster, 2008). Endogenous effects relate to the propensity of an individual to vary their behaviour in line with that of the neighbourhood group. Examples include epidemic/social norms, selective socialisation, and social network theory. Exogenous effects (also known as contextual effects), relate to the propensity of an individual to behave in some way which varies with the exogenous characteristics of the neighbourhood group. Examples of this include the propensity for ethnic minorities to favour neighbourhoods with high proportions of co-ethnic residents if they are seeking ethnic solidarity. More recently, Galster (forthcoming) offered a more comprehensive list of 15 potential causal pathways for neighbourhood effects, which can be grouped into four categories: social interactive mechanisms (social contagion, collective socialisation, social networks, social cohesion and control, competition, relative deprivation, and parental mediation), environmental mechanisms (exposure to violence; physical surroundings; and toxic exposure), geographical mechanisms (spatial mismatch of jobs and workers and a lack of quality public services) and institutional mechanisms (stigmatisation, local institutional resources, and local market actors).

If empirical studies find evidence for neighbourhood effects, then it follows that at least some, or a combination of, the above mechanism must be at work. Untangling which of the mechanisms is at work is empirically challenging and may even be impossible. At least theoretically, mixing social groups will introduce positive role models in a neighbourhood which other residents then start to copy. Whether this actually

works is contested in the literature; for example, research commissioned by the Joseph Rowntree Foundation to investigate the effectiveness of established mixed communities found little evidence that creating mixed communities helped the interaction between social groups within even very small neighbourhoods (Allen et al., 2005). Whilst an employed neighbour may theoretically set an example and even facilitate access to the labour market for an unemployed resident, the literature also identifies that relative disadvantage within the neighbourhood context can be deleterious and discouraging for residents; socially mixing neighbourhoods and increasing the average affluence in a neighbourhood could serve to highlight relative inequalities. Neighbourhood level interactions between different social groups, including households across different tenures, households with different levels of affluence, and households belonging to different ethnic groups, are a crucial element of neighbourhood effects explanations. However, without clear evidence that there are basic interactions between groups of residents it is difficult to conceptualise how any positive transmission processes would work.

To complicate matters, the literature has identified that the working of neighbourhood effects, if and where they exist, may not be linear. Galster (2008) identified that threshold levels are important, an idea that links directly back to Wilson's original thesis on *concentrations* of poverty. The idea is that below a certain threshold level, the socio-economic composition of the neighbourhood may not be of significance for individual outcomes. Only when the concentration of, for instance unemployment, reaches a certain threshold will the negative effects begin to accrue to individuals in the locale resulting in, as Wilson suggested, deviant behaviours moving away from societal norms. Building on this idea, Galster suggested that neighbourhood effects are likely to be non-linear, with increased concentrations of poverty linked to increasingly negative outcomes for individuals. The association between individual unemployment and the level of neighbourhood deprivation, for instance, supports this idea. However, associations between various factors is not the same as causation, and to understand the processes leading to assumed neighbourhood effects more fully we must move beyond the use of associative measures.

If we are to reject the notion of neighbourhood effects then we must identify an alternative framework to account for the apparent effects of neighbourhood concentration. Acknowledging that neighbourhoods are different and that geography of place does matter, Cheshire (2007) and others argue that the externalities that accrue to the residents of deprived neighbourhoods do not negatively alter their life chances above and beyond the level that their individual characteristics predict. Instead, concentrations of poverty are a consequence of unemployment, lower levels of education or structural deficiencies in the labour market. The concentration of these phenomena in deprived neighbourhoods is driven primarily by selection processes through which individuals and households enter neighbourhoods. Although Cheshire (2008) examines the role of economic access to neighbourhoods, whereby 'better' neighbourhoods cost more to access, there are other possible sorting mechanisms which include agglomeration effects and other social and cultural drivers that determine neighbourhood preference. Together these sorting mechanisms serve to create relatively homogenous groups of individuals and households organised in what we have termed neighbourhoods. As more affluent neighbourhoods cost more to access it follows that only those with relatively high

incomes or high levels of wealth will be able to enter. Individuals and households with lower economic means will 'select' neighbourhoods within their budgetary constraints. It can be debated whether using the term 'self-selection' can be justified for those who are selected into concentrations of social housing, as they generally have very little choice. Ultimately, the selection processes lead to the concentrations of similar individuals in space. It is easy to understand that concentrations of poverty are the result of these sorting processes, but it is more difficult to see how real causal neighbourhood effects would work.

Methodological considerations

The key problem in the empirical investigation of neighbourhood effects is the (econometric) identification of causal relationships (Durlauf, 2004). As mentioned in the introduction, ideally neighbourhood effects studies should use individual level longitudinal (quasi) experimental data. Unfortunately, such data are seldom available for research. Many studies use aggregated data for neighbourhoods (ecological data) instead of individual level data (see for example Graham et al., 2009). The problem with ecological data is that correlations between neighbourhood characteristics cannot automatically be translated into causal relationships for individuals. For example, there might be a high correlation between the percentage of social housing in a neighbourhood and the unemployment rate. It would be incorrect to conclude that concentrations of social housing cause people to be unemployed as this relationship might be spurious (this problem is known as the ecological fallacy, see Robinson, 1950). Using ecological data it is therefore not possible to gain useful insight into the causal effects of neighbourhood attributes on individual outcomes.

Many studies use individual level cross sectional data (data collected for a single point in time). Although this data is a major improvement compared to ecological data, cross sectional data does not allow the identification of the order of events, which is crucial for the identification of causal effects. For example, if cross sectional data shows that individuals in deprived neighbourhoods are more likely to be unemployed than individuals in non-deprived neighbourhoods, this does not mean that deprived neighbourhoods *cause* people to be unemployed. It is more likely that unemployed people moved to deprived neighbourhoods because they could not afford to live elsewhere.

To establish whether living in a deprived neighbourhood causes people to be unemployed it is necessary to follow people over time while they are in a variety of employment statuses and living in a variety of neighbourhoods. Recently individual level longitudinal data has become available with sufficient geographical detail for the analysis of neighbourhood effects. Such longitudinal data still has its problems, but is more suitable for the analysis of causal relationships than cross-sectional data. Even with longitudinal data it is almost impossible to rule out selection bias. People sort into neighbourhoods based on measured and unmeasured characteristics and this sorting process is typically non-random. The gold standard in neighbourhood effects research (and all social science research) is experimental data from randomised trials (see below for a discussion of randomised trials). In a randomised trial households are randomly

allocated to neighbourhoods and then followed over a period of time. Such a design theoretically allows researchers to measure the real effects of living in deprived neighbourhoods.

The methodological neighbourhood effects literature has identified several econometric issues in the identification of neighbourhood effects (see Manski, 1993; Moffitt 2001). The main issue is the simultaneity problem where neighbourhood composition is not only a cause of, but is simultaneously caused by, the characteristics of the individuals living there. A second problem is the endogenous membership problem which may lead to the misleading conclusion that neighbourhood effects really exist. The problem of omitted variable bias (OMV) can occur at both the neighbourhood and individual level. At the neighbourhood level important neighbourhood characteristics can be omitted from models and so any effect the neighbourhood context appears to have could be over- or under-estimated. A prime example of OMV comes from the related problem that households do not distribute themselves over neighbourhoods at random. Households select (themselves) into neighbourhoods based on a wide range of individual and household characteristics. It is likely that a number of these (hard to measure) characteristics will be unobserved and lead to biased model outcomes (Buck, 2001). At the individual level, OMV could refer to, for example, the willingness to take risks, or adaptability to new situations.

The econometric literature offers partial solutions for a number of the problems, mentioned above, using techniques such as the Instrumental Variable (IV) approach (Durlauf, 2004; Galster et al 2008), fixed effects models and the use of longitudinal data (see work by Musterd and Anderson 2005; Bolster et al 2007; Van Ham and Manley, 2010). However, these methods reduce but do not eliminate the possibility of alternative explanations of neighbourhood effects. The IV approach requires the identification of a variable that predicts an explanatory variable of interest (known as an instrument variable), say the level of neighbourhood tenure mix, whilst being completely unrelated to the modelled outcome variable, say employment. Only when there is complete independence between the instrument variable and the probability of being employed is there evidence that neighbourhood characteristics have an effect on the probability of being employed. Whilst this theoretically offers a good method, in practice it is very difficult to identify true instruments for use in modelling. Despite the advances in modelling techniques, quantitative studies struggle to adequately identify neighbourhood effects. In this chapter, we argue that neighbourhood effects cannot be fully understood without a broad and deep understanding of the neighbourhood context, neighbourhood change and crucially the selective mobilities of individuals and households into and out of neighbourhoods. Given the awareness of the (self) selection processes, the neighbourhood effects literature pays surprisingly little attention to the literature on selective residential mobility into and out of neighbourhoods.

Empirical Evidence: Causal neighbourhood effects or selection effects?

Ecological and Cross Sectional Evidence

Within the context of neighbourhood effects evidence in Great Britain, cross sectional ecological analysis has formed the basis for much of the empirical discussion over the

last three decades. The only nationally representative quantitative investigation of the association between neighbourhood level tenure mix and a range of other neighbourhood characteristics has been carried out by Graham and colleagues (2009). Graham and colleagues explicitly focussed on the question of what level of tenure mix provides the best outcomes by categorising neighbourhoods by several levels of mixing. Neighbourhoods with between 30 and 70 percent social renting were defined as mixed tenure (see also Tunstall, 2000). This approach is in line with the idea that thresholds exist and that neighbourhood effects might be non-linear (Galster, 2008). Thresholds are important to consider because prior to a given level a neighbourhood characteristic may not have a significant impact on individual outcomes. Above a critical level (the threshold) the characteristic could be thought to have a much greater and significant impact on individual outcomes. Consider an extreme example where an unemployment rate of 15% in a neighbourhood has no impact on the propensity of unemployed individuals to find a job, while at 30% there may be severe effects that result in unemployed individuals becoming very unlikely to find employment. The non-linearity issue is important as there is no reason to suspect that an increase in a neighbourhood characteristic (again say the neighbourhood unemployment rate) should lead to an equal decrease in the risk for an individual living in that neighbourhood to find a job. Galster (2008) argues that the relationship between neighbourhood characteristics and individual outcomes may be non-linear, taking the form of an exponential curve, or even a 'stepped curve'.

To address the question what is the most relevant spatial scale to study neighbourhood effects, Graham and colleagues used Census geography to define two neighbourhood scales: Wards, which are large neighbourhoods containing 5,000-6,000 people; and Output Areas, which are local neighbourhoods containing on average 150 people. The association between neighbourhood tenure mix and four neighbourhood level characteristics were investigated: unemployment and limiting long term illness (derived from the census), and overall mortality and premature mortality (derived from vital registrations). Regression models were used to test if the predicted outcomes were significantly different (better or worse) than those observed in the data. Only for those Wards with low levels of social renting (10-19%, 20-29%) were the observed correlations better than the expected correlations. For Wards with high levels of social renting the positive effect gave way to an increasingly significant negative correlation for all outcomes (see Graham et al, 2009). Analyses at the Output Area level showed similar results. The results do not provide any evidence in favour of mixed tenure neighbourhoods as neighbourhoods with 30 to 70 percent social renting do not perform much better than neighbourhoods with higher percentages of social renting. Separate analyses testing the so-called pepper potting hypothesis – that mixed tenure is most beneficial if social renters and owner-occupiers are thoroughly inter-mixed within neighbourhoods – did not show advantage. All-in-all, within a context of ecological data analysis the evidence base for social mixing as a way to counter negative neighbourhood effects looks distinctly weak.

Longitudinal Investigations in Neighbourhood Effects

The ecological analyses of Graham and colleagues, however, do not reveal anything at the level of the individual. Individual level data, and more specifically longitudinal

individual level data has the potential to move beyond identifying simple correlations and to identify causal effects of neighbourhood characteristics at the level of individual outcomes. Some of the best known studies of neighbourhood effects have used data from the Gautreaux and Moving To Opportunity programmes in the USA (Katz et al 2001; Orr et al., 2003). These programmes offer a quasi-experimental setting for research. Under the Gautreaux programme households in some of the most deprived neighbourhoods in Chicago were able to use housing vouchers to move to more affluent neighbourhoods. The outcomes for these households could then subsequently be compared to outcomes for households who stayed behind in the deprived neighbourhoods. The individual outcomes for participants of the Gautreaux program were largely positive with improvement seen in labour market outcomes and child school attainment. However, a number of authors have warned that these results need to be interpreted with caution (see Moffit, 2001; Musterd et al, 2003; Clark, 2008). Initial selection was determined by a set of stringent criteria which removed problematic households, or those with problems in paying rent. In other words, it is likely that self-selection into the program biased the outcomes. Also, confounding factors such as correlated environmental factors were not successfully removed from the studies so that whilst neighbourhood allocation may have been relatively random, a host of other important variables were not controlled for. These include varying labour market opportunities, school quality and the levels of crime. If any of these factors were correlated with the reported improved outcomes – and it is highly likely that they were – then evidence that the improved outcomes were the result of the improved neighbourhood context would be suspect.

The Moving To Opportunity (MTO) program had less stringent acceptance criteria. The outcomes of the MTO program were not as positive as those found for the Gautreaux program. Four and seven years after the MTO program started there was no evidence of improvement in adult earnings or employment levels, and no reduction in public assistance required (Jacob, 2004; Orr et al., 2003). If the neighbourhood context really influences individual outcomes, then it would be reasonable to presume that those households which moved into the most affluent areas would experience improvements in their overall social well-being, including employment and income. The lack of positive results observed in the MTO program, which came closest in design to a quasi-experiment in terms of selection and neighbourhood allocation mechanisms, provides additional material to question the neighbourhood effects evidence base. Unfortunately, quasi-experimental settings such as Gautreaux and MTO are rare, primarily due to the level of government intervention required and the costs associated with such programmes. As a result, most research on neighbourhood effects relies on secondary data from non-experimental observational studies.

The increasing availability of individual level longitudinal data provides potential to overcome some of the problems related to selection into neighbourhoods. One of the first studies using large scale longitudinal data to analyse the effect of neighbourhood social mix on individual outcomes was by Musterd and Andersson (2005). They used data from Sweden addressing two questions: does tenure mix leads to a genuine social mix? – as suggested by many policy implementations; and does social mix in neighbourhoods benefit individual social mobility? The study included all Swedish residents aged 16 to 65, between 1991 and 1999, and characterised neighbourhoods based on three measures: housing mix, income, and ethnic mix. Social mobility was measured

using employment outcomes in 1991, 1995 and 1999. First, the modelling results showed that tenure mix does not directly lead to social mix. In Sweden a policy of social mixing has been pursued since the 1970s, and the fact that tenure mixing has not led to social mixing takes away part of the evidence base for tenure mix policies. Second, the modelling results did not show any negative effects of concentrations of neighbourhood poverty on the probability to stay in employment, after controlling for level of education. Finally, Musterd and Anderson did find an advantage for residents in homogeneously high income areas.

Although Musterd and Andersson (2005) categorise neighbourhoods using tenure type and average household income they do not differentiate between homogeneous social renting or homogeneous owner-occupied neighbourhoods. Evidence from other studies (see van Ham and Manley, 2010) evaluating the effects of tenure mix suggests that this omission is unfortunate as living in these two types of neighbourhoods might lead to very different individual level outcomes. In addition, the selection of households into neighbourhoods is not controlled for in their models. In their conclusion, Musterd and Andersson are suitably cautious, noting that their “findings are ... a warning to those who tend to focus too much on the neighbourhood as a source of problems” (Musterd and Andersson, 2005, p.786).

Moving the debate forward substantially, Oreopoulos (2003) used Canadian register data from Toronto for adults who grew up in various neighbourhoods. He compared employment outcomes for adults who lived in private housing and adults who lived in social housing in the same neighbourhoods. Because social housing was assigned primarily on a needs basis the process of allocating households to neighbourhoods came close to that of a natural experiment. In contrast, households in private housing selected themselves into neighbourhoods, based on their preferences and resources within the choice set available. The modelling results showed significant neighbourhood effects on earnings, employment and welfare participation for adults who had grown up in private housing. By contrast, no effects were identified for the adults, from the same neighbourhoods, who had grown up in social rented housing. The absence of neighbourhood effects for those from social housing led Oreopoulos (2003) to the conclusion that the neighbourhood effects found for those in the private sector were in fact caused by neighbourhood selection processes.

Bolster and colleagues (2007) used data from the British Household Panel Survey (BHPS) to investigate the effect of neighbourhood disadvantage on income growth over a 1, 5 and 10 year period. Rather than using readily available administrative neighbourhoods they created ‘bespoke’ neighbourhoods based on the residential location of each individual for a number of different spatial scales. This enabled them to control for the fact that it is likely that various neighbourhood effects, if present, do not necessarily operate over a single scale (also see Manley et al., 2006; Galster, 2008). After controlling for individual characteristics, Bolster and colleagues found no additional negative effect of neighbourhood deprivation on a range of individual outcomes. Running separate analyses for home owners and social renters they found that there was evidence of small positive neighbourhood effects only for households who owned their property, but not for social renters. These findings are in line with those of Oreopoulos (2003) and strengthen the idea that neighbourhood selection is an important component explaining neighbourhood ‘effects’ reported in many other studies.

In one of the most methodologically advanced attempts to eliminate the effects of omitted variable bias, Galster and colleagues (2008) used a fixed effects model to investigate the effect of the neighbourhood context on earnings for all working age adults between 1991 and 1999 in Sweden. They concluded that there is evidence of substantial and significant neighbourhood effects on the earnings of individuals. Their findings are in stark contrast to other work presented in this chapter which emphasise the importance of selection mechanism in explaining correlations of neighbourhood level characteristics and individual level outcomes. Galster and colleagues (2008) used a difference model in an attempt to eliminate all individual level omitted variable bias by controlling for all static individual characteristics. However, as Allison (2005) noted, such an approach (using a fixed effects model) still has the potential to over or under-estimate the true magnitude and significance of any apparent neighbourhood effect. Therefore, it cannot be automatically assumed that such an approach will provide unbiased results. Allison expresses a preference for presenting the outcomes of both a fixed effects model *and* a traditional random effects model; he suggests that the true relationship between neighbourhood level variables and individual outcomes would probably lie somewhere within the range of the coefficients provided. Although the work by Galster and colleagues (2008) is technically very sophisticated, fixed effects models are not capable of controlling for unmeasured individual level variables which are not constant over time. We therefore also conclude that this work cannot claim to be fully unbiased.

The final study discussed in this chapter also uses individual level longitudinal data. Van Ham and Manley (2010) used data from the Scottish Longitudinal Study (SLS) to investigate the relationship between individual labour market outcomes and neighbourhood tenure mix and levels of deprivation. They combined several innovations from the studies discussed above. They modelled neighbourhood effects on multiple spatial scales and they presented separate models for social renters and home owners. The SLS is based on the 1991 and 2001 Scottish Census and allows researchers to follow the same individuals over a ten year period (Boyle et al., 2009). To assess the direction of causality in the models it is important to determine the ordering of events and therefore the study by van Ham and Manley used 1991 neighbourhood characteristics to predict 2001 individual labour market outcomes. The neighbourhood level variables were measured at two levels: Consistent Areas Through Time (CATTs) with an average of 5,000 people and Output Areas with an average of 150 people. The dependent variables measured the transition from unemployment to employment and probability of staying in employment for those with a job in 1991.

Their models showed a clear negative correlation between the percentage of social housing in neighbourhoods, the level of neighbourhood deprivation and individual level labour market outcomes. The neighbourhood level coefficients were found to be larger for the smaller spatial units (Output Areas) than for the larger units (CATTs). This evidence is consistent with the results of Musterd and Andersson (2005) and Galster and colleagues (2008). Van Ham and Manley (2010) also found that neighbourhood level deprivation is a more significant predictor of labour market outcomes than neighbourhood tenure mix, a proxy for neighbourhood social mix. After controlling for a range of individual level characteristics the negative effect of living in a neighbourhood with a high percentage of social renting disappeared (the effect even became positive in some models). Separate models for social renters and homeowners showed that

neighbourhood characteristics only have a significant effect on labour market outcomes for owners. Those owners living in the most deprived neighbourhoods are also the most likely to remain unemployed or to lose their job. These findings are in line with the findings of Oreopoulos (2003) and Bolster and colleagues (2007). In all three studies, splitting the models by tenure caused the apparent negative neighbourhood effects for social renters to disappear.

Van Ham and Manley (2010) argue that in Scotland in the early 1990s housing applicants in social housing had very little choice in where to live as they were allocated a dwelling in a neighbourhood. Social housing was predominantly allocated based on needs without households having the option to express neighbourhood preferences (choice based letting was not introduced until 2001). Although it is acknowledged that the allocation process was not completely random (housing officers are known to have made choices based on the individual characteristics of applicants, see Malpass and Murie, 1994), it can still be argued that the allocation process was quasi-random and that biases introduced by ethnicity, household size and age have been accounted for in the models presented by van Ham and Manley. The allocation process of home owners to neighbourhoods was highly selective as homeowners were able to express neighbourhood preference, constrained not by administrative procedures and government housing policy but by their budgetary means (Cheshire, 2008). In line with Oreopoulos (2003), Van Ham and Manley conclude that neighbourhood *selection* and not causation are the driving forces behind the apparent neighbourhood effects.

Constructing the Evidence Base

This chapter investigated the evidence base for mixed tenure policies by asking the question whether neighbourhood effects found in the literature are the result of causation or selection. This is an important question as social mixing through creating mixed tenure neighbourhoods can only have the desired effect if causal neighbourhood effects exist in the first place. The chapter highlighted some of the methodological problems in modelling causal neighbourhood effects and highlighted some of the inconsistencies found in the recent empirical literature on neighbourhood effects.

To make mixed tenure policies work, empirical studies first have to provide the evidence that living in mono-tenure social housing concentrations has a negative effect on individual life chances above and beyond the effect of individual characteristics. At best the evidence that living in social housing estates makes people poor(er) is very thin, and many studies show no effect of concentrations of social housing at all. In addition, there is no evidence that tenure mixing automatically leads to social mixing. In studies where significant negative neighbourhood effects have been identified, there are substantial methodological questions which make the findings at best inconclusive. The most apparent methodological problems are omitted variable bias and selection bias. The best strategy to control for selection effects is to use quasi-experimental data from programs such as Gautreaux and Moving To Opportunity (Ludwig et al. 2001; Goering et al. 2002) or from randomised education studies (see Leventhal and Brooks-Gunn 2004). In general these studies have provided little convincing evidence that neighbourhood effects exist for adults, although some effects for children were found. But even in the

case of the quasi-experimental studies mentioned above some (self-)selection into the programs – and therefore into more affluent neighbourhoods – took place which is likely to have biased the outcomes of these studies. The bulk of the current neighbourhood effects evidence comes from non-experimental observational data and most of these studies are likely to suffer significantly from selection bias, especially studies based on cross-sectional data. Studies using longitudinal individual level data are more capable of controlling for selection effects as it is often possible to determine the order of events: do people first move into a deprived neighbourhood and subsequently suffer poor health and job loss, or did the fact that they lost their job cause them to move into social housing in a deprived neighbourhood? Recent studies using longitudinal data for Toronto, the UK, and Scotland showed that it is unlikely that individual outcomes are affected by the neighbourhood where people live (see Oreopoulos, 2003; Bolster et al. 2007; Van Ham and Manley, 2010). These studies concluded that selection effects are most likely responsible for the correlations found between neighbourhood characteristics and individual characteristics.

The consequences of the above conclusion for policy are significant. If there is no solid evidence that neighbourhood effects exist, there is no evidence base for mixed tenure policies, or more generally social mix policies. Creating more socially mixed neighbourhoods is unlikely to create more opportunities in life for the original residents. Socially mixing neighbourhoods through tenure mixing will only change the population composition of neighbourhoods, increasing average incomes because more affluent (and employed) residents will move into the owner occupied housing replacing social housing. The social renters who are subsequently displaced through tenure mix policies will most likely end up in other deprived social housing estates in the same urban area, and for them little will change for the good. The above does not mean that we see no reason to invest in neighbourhoods, but it means we do not see a reason to invest in neighbourhoods as a mechanism to directly improve the life chances of individuals. In line with Cheshire (2007) we think it is better to invest in the skills and health of individuals if you want to improve life chances. Investment in deprived neighbourhoods is still important to create better and safer living environments for the most vulnerable in society, with little other choice than to live where they live.

What is the future for neighbourhood effects research? First it is still important to show that there are correlations between neighbourhood characteristics and individual characteristics. Deprived neighbourhoods might not have an independent effect on individual outcomes, but that does not mean we should accept concentrations of poverty. Although existing quantitative research does not show conclusive evidence for neighbourhood effects, this does not mean that neighbourhood effects do not exist at all. Quantitative studies might not measure the right variables, or neighbourhood effects might only operate for certain groups, in certain areas, on certain spatial scales, or in certain national settings. One way in which neighbourhood effects might operate is through neighbourhood reputations where individuals are stigmatised based on the neighbourhood they live in (Permentier et al., 2007). Employers, for example, might not employ individuals from certain neighbourhoods because of where they live. Neighbourhoods with the same statistical characteristics might have very different reputations and quantitative studies are unlikely to pick up such subtle effects.

However, the fact that large scale, quantitative, nationally representative studies do not pick up neighbourhood effects does show that even if they exist, the effects are likely to be small compared to the effects of individual characteristics such as level of education. Also, those studies which produced some evidence for neighbourhood effects also showed that the effects found were relatively small compared to the effects of individual characteristics. The future for quantitative neighbourhood effects studies lies in the use of more sophisticated and tailored data which allows detailed geocoding of individuals and allows the modelling of selection mechanisms into neighbourhoods. Without information on how individuals sort into neighbourhoods it will be impossible to untangle the difference between causal effects and selection.

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