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### **Executive Summary**

There has been long running interest in poverty and people's social networks, particularly whether there are causal links between the two. Possible causal mechanisms include: connections into the labour market and to better jobs through social contacts; connections to influential people that can affect change; social networks among alike people that can offer support-in-kind; or social networks that somehow transmit cultures of worklessness or other norms.

#### Key points

- Poverty is a key barrier to being part of wider social networks. It can act as a barrier to transport and also the reciprocal exchange of resources in networks. The stigma of poverty can also be a driver of self-exclusion from social networks.
- The social networks of people experiencing poverty do offer some financial, material and emotional support but this does not overcome socio-economic inequalities
- Evidence regarding whether social networks in deprived neighbourhoods reduce the chances of leaving poverty through negative role models and social norms is mixed: quantitative evidence tends not to find an effect while qualitative evidence sometimes does.
- Attempts to diversify networks by increasing social mix in deprived neighbourhoods have
  often not succeeded. New higher-income residents have networks outside the
  neighbourhood, enabled by education and employment and greater access to transport.
   Stigma and prejudice reduces social mixing.
- Ethnic diversity may reduce trust in neighbourhoods making collective action more difficult, reducing reciprocal trust and ultimately reducing support for tackling poverty.
- Passive interaction, at schools, libraries, community centres and parks is an effective way of developing social networks among diverse people, including different ethnic groups. This informal interaction allows trust and understanding to be developed. It may also help combat stigma.
- Large investments to create social networks through community engagement have minimal impact on increasing social networks or tackling poverty. However, active volunteers in organisations can act as bridges to wider social networks, helping alleviate poverty.
- Social media use can catalyse social networks but don't generally increase them. Social
  networks in cyberspace tend to replicate those offline. They can help people experiencing
  poverty organise collectively, rather than extend or diversify social networks.

#### 1. Introduction

#### 1.1 Understanding poverty and social networks

Common understanding of the links between socio-economic status, social mobility and social networks can be summed up in the colloquial phrase "it's not what you know, but who you know". There is a pervasive sense that there is a direct causal link in that if you know people with high socio-economic status it will help you get on in life. Conversely, if one is experiencing poverty and one's social networks are predominantly of people in poverty then this may reduce upward social mobility because you lack the support to get on. This basic theorisation of the importance of social networks in life chances suggests they function as *social capital*. As economic capital (money) can be converted into more useful things to improve life chances, so social capital – trustworthy social networks – can help people access useful opportunities (Portes, 2000).

In terms of a more indirect causation, there is a further concern that if one's social network is dominated by people in poverty then it may transmit norms and behaviours that lessen the chances of leaving poverty – that there are "cultures of worklessness" or an "underclass" disconnected from the rest of the society. This is becoming increasingly prevalent in current policy debates in the UK with a concern, for example, at the lack of positive male role models within social networks for young boys and men, although the idea has a much longer and more controversial history (Macdonald et al., 2014). Conversely there is also a view that living among a diverse population, including those experiencing poverty, may make people more understanding of difference and in the specific case of poverty, more supportive of policies to tackle socio-economic inequality (Bailey et al., 2013b).

Social capital suggests that these social network resources might not be evenly distributed in society and this unequal distribution mirrors socio-economic inequalities and might be similarly resistant to change. For example we know from analysis of social mobility studies that higher status people maintain their social networks even if they experience downward social mobility; conversely upward mobility does not lead to networks developing with higher status people (Li et al., 2003). We also know that more affluent people are more likely to be involved in organisations (a common measure of social network membership) and organisations that matter in getting things done — Parish Councils, school governing bodies etc. (Matthews & Hastings, 2013). Further, when less affluent people get involved in voluntary activity they tend to be more involved in informal activities — for example caring for kin or neighbours — compared to more affluent people who get involved in more focused formal voluntary activities, even though less affluent people spend more time overall on their volunteering (Egerton, 2002; Egerton & Mullan, 2008).

The Joseph Rowntree Foundation asked researchers at the School of the Built Environment, Heriot-Watt University, to explore the specific links between poverty and social networks. The evidence review has four aims:

- Review recent international evidence (defined as from the last five years) on the links between social capital and place and individual and household outcomes, particularly in deprived neighbourhoods;
- Review recent UK statistical data and international evidence on the links between equalities characteristics, place and social capital to provide a more nuanced account of the

intersection between social capital, neighbourhood and community, and other individual characteristics and their impact on life chances.

- Review recent evidence from grey literature and evaluations on the success of policy interventions in developing social capital to alleviate or tackle poverty;
- Review recent evidence on the capacity of online social networking to develop social capital and any specific barriers to digital inclusion people experiencing poverty may have.

In the rest of this report we report our evidence, firstly by introducing our methodology, and then presenting evidence on: poverty and social networks broadly; poverty, social networks and deprived neighbourhoods, with a particular focus on evidence on "neighbourhood effects"; poverty, social networks and equalities characteristics; and poverty and information communication technologies (ICTs). Finally we consider the evidence around "what works", or what interventions, both project-based and in terms of mainstream public services, could be made to maximise the social networks of those experiencing poverty and the positive impact of these.

#### 1.2 Methodology

This report presents the findings of an evidence review of existing research. The database Web of Knowledge was used to search for recent research (2008-2013) using an exhaustive combination of keywords. This was supplemented by targeted searches based on reference lists, author names and topics and suggestions from the research commissioners. The data was analysed inductively and framed within the broad theoretical debates in the various disciplines: sociology, economics and geography. Any errors or omissions in the literature review are the responsibility of the authors.

The data analysis uses the Poverty and Social Exclusion Living Standards Survey. The Living Standards survey was carried out between March and December 2012 by the National Centre for Social Research (NatCen) in Britain and by the Northern Ireland Statistics and Research Agency (NISRA) in Northern Ireland. The survey re-interviewed respondents to the 2010/11 Family Resources Survey (FRS) who said they could be contacted again providing a cross-sectional representative sample with an over-sampling of households experiencing poverty who may otherwise be under-represented. All adults living at each address was interviewed. Unless indicated otherwise, all data presented as part of the report is from this survey. The definition of poverty used by the survey is a consensual material measure, based on a list of items defined as essential by a representative sample of the UK population. A household is deemed to be experiencing poverty if it lacks three or more of these essential items.<sup>2</sup>

<sup>2</sup> See <a href="http://www.poverty.ac.uk/definitions-poverty/consensual-method">http://www.poverty.ac.uk/definitions-poverty/consensual-method</a> for further details of the methodology of this measure of poverty.

<sup>&</sup>lt;sup>1</sup> These were: poverty, low income, neighbourhood, community, social networks, social capital, and the equalities and diversity characteristics.

## 2. Social networks and poverty

The broader literature on social exclusion brings together concepts of social networks and poverty. At the most basic level, seeing other people and socialising with them is an activity that requires expense in money *or* time. Therefore there is a basic causal link between income poverty and social networks – having insufficient income can be a financial barrier to engaging in social activities. In their research on long-term unemployed people in Glasgow, Lindsay (2010) found they were far less likely to socialise with people than people who were recently unemployed or were in work. The low income New Zealand parents in Boon and Farnsworth's research (2011) similarly withdrew from social activities as they simply could not afford them.

In terms of time available to socialise, this has to be at discretion of the individual to be useful. If an individual has caring responsibilities then they need a sufficient income to pay for this care if they go out to work, or choose to use this time for socialising. Analysis of the UK Time Use Survey from 2000 showed that a lone mother with two school-aged children has discretionary time of 0 to -2000 minutes a week because of the high cost of childcare i.e. they have a negative amount of discretionary free time and struggle to carry out a range of non-discretionary activities, including work. This compares to a high-income male with no children, who has discretionary free time of 1000-5000 minutes a week as they can pay for activities such as cleaning to give them more free time. Thus, overall, people need a sufficient income to provide enough discretionary free time for social activities, such as paying for care, so time can be spent socialising (Burchardt, 2010).

Further, the stigma and shame of poverty is widely recognised as an exclusionary force on individuals. Qualitative research particularly highlights the deep emotional impact of the stigma of poverty. Boon and Farnsworth (Ibid.) found that parents were keen to protect their children from the public shame of poverty even when this was very difficult. For example, parents would not accept participation grants for sports activities as these were stigmatising even though the parents recognised the benefits of sports involvement and would stretch their meagre resources to encourage their children to participate in sport. This directly reduced their involvement in social networks.

However, there is evidence that people experiencing poverty rely on social networks of others in a similar situation for specific help in "getting-by", what has been referred to as economies of specialisation, an argument put forward by Cheshire (2009). This could be advice in using specific services such as the welfare benefits system, informal care or material and financial support. Evidence in this review does support this view. For example a wide range of evidence shows that lower income households have to rely on a mixed economy of childcare, with kin being a major care provider compared to higher income households (Bradshaw & Wasoff, 2009; Dex et al., 2005). In research with low-income single mothers in Ohio, Heflin et.al. (2011) found that they regularly relied on family and friends for housing and healthcare support. Research with long-term unemployed people in Glasgow found examples of people who cycled in and out of unemployment would use the temporary boost in income for short-term lending to those in greater need (Quinn & Seaman, 2008). This is also supported by unpublished analysis of the PSE survey which suggests that poor people living in deprived neighbourhoods feel a greater sense of support than those who do not, and this is only partly explained by family contact, suggesting they can call on the help of their similar neighbours at times of need (Bailey et al., 2013a). A study on ethnicity and social networks by Mccabe et al. (2013) showed that social contacts in the immediate neighbourhood were important for coping with financial crises, for accessing information on the welfare and benefit system and as an exchange of services. These examples do suggest that specific support can be offered through social networks. Cheshire suggests that if lower income people did not have this specialist support in these networks, for example if they were moved to a mixed neighbourhood or had social networks consisting of people who had not shared these experiences and learnt from them, then their material and social wellbeing may be worse (2009).

It is important not to romanticise these relationships and presume they offer people in poverty sufficient resilience or help, or can overcome broader socio-economic inequalities. The literature and evidence on reciprocity within social networks of people experiencing poverty highlights the burden network membership can place on individuals and households (Heflin, London et al., 2011; Offer, 2012). For example, in Boon and Farnsworth's (2011) research with families in New Zealand, one of the reasons parents were afraid of their children attending birthday parties was because of the burden of gift-giving this would place on them. Heflin et.al. found that the support in terms of housing and healthcare the lone mothers in their study required could lead to family breakdown and exclusion from social networks that simply could not support their needs, with lone parents becoming homeless in the most extreme cases. This "burden of reciprocity" for poor people in social networks can manifest itself as social exclusion in three ways: firstly people can withdraw from social networks to avoid having to reciprocate; secondly people can be excluded from social networks as they cannot reciprocate; finally people can exclude themselves because of the shame and stigma they feel about their situation (Offer, 2012).

This is important because the evidence shows that the strongest social networks, that people can make greatest use of, are those with high levels of trust. These levels of trust are developed from, and reflective of, high levels of generalised reciprocity: that is giving something to the network on the presumption that one will benefit somehow in the future (Offer, 2012; Putnam, 2000). In this review we found no evidence of the direction of causation between trust and generalised reciprocity. However, as we have discussed poverty causes people to leave or be excluded from networks of generalised reciprocity reducing their access to these benefits. Therefore if a social network is predominantly made up of people experiencing poverty and therefore has less generalised reciprocity, then it is likely to have less trust. As discussed in the next section, it is suggested that this is particularly the case in neighbourhoods of concentrated deprivation.

Our evidence from the PSE survey provides data on how these trends in social networks and support found in international research manifest themselves in the lives of poor people in the UK. Data from the PSE survey in table 1 shows differences in the nature and extent of social networks and social support for people experiencing poverty and those who are not experiencing poverty. It demonstrates that people experiencing poverty are significantly less likely to feel they are able to access support. Unpublished regression analysis supports this finding, with people in poverty feeling less able to access support, controlling for other factors (Bailey, Bramley et al., 2013a). This reflects the broader evidence base, with people experiencing poverty significantly less able to get support in a range of circumstances. Activities such as getting a lift in an emergency, or practical help around the home are likely to require an income high enough to offer such help in return. This indicates that, as mentioned above, generalised reciprocity involving material resources is likely to be harder to come by if you are poor.

Table 1 - Engagement in social activities and social support

Indicators of social networks	non- poor	poor
Speaks to relatives more than once a week	67%	67%
Speaks to friends more than once a week	68%	66%
Member of an organisation <sup>3</sup>	63%	41%
Would get "some" or "a lot of" support		
if ill in bed	92%	83%
$\dots$ if needed practical help around the home e.g. moving heavy furniture, DIY jobs	93%	82%
if needed advice about an important change in life, e.g. changing jobs, moving house	93%	82%
were upset because of relationship problems / feeling a bit depressed and needed someone to talk to	92%	81%
if needed someone to look after home when away	93%	82%
if had a serious personal crisis and needed someone to turn to for comfort and support	96%	88%
if needed a lift somewhere in an emergency	95%	84%

The evidence around emotional and caring support is much more mixed. The difference in levels of informal sociability (speaking to family and friends) between poor and non-poor people is negligible, suggesting that people experiencing poverty could easily call on networks of friendship and kin for support. However, poor people are significantly less likely to get "some" or "a lot of" support if: ill in

<sup>&</sup>lt;sup>3</sup> Organisational memberships included are as follows: Sports, leisure or social club (e.g. gym, choir, trades club), Youth group (e.g. Scouts, youth club), Health, disability or welfare group (e.g. AgeUK, Royal British Legion), Conservation or animal welfare group (e.g. The National Trust, RSPB), Environmental pressure group (e.g. Greenpeace), Humanitarian or peace group (e.g. Amnesty, CND, Trade union or staff association (e.g. UNISON), Political party, Neighbourhood or civic group (e.g. Residents Association, Rotary Club), Religious organisation, Minority ethnic organisation (e.g. British Pakistani Association), Women's group (e.g. Women's Institute) and "other groups" mentioned by interviewee.

bed; needing advice on major life changes; needing someone to look after their house; needing someone to talk to; or needing comfort and support. Without further contextual evidence we cannot say for certain, but these differences might be suggestive of lower levels of trust in social networks. This data also contradicts the idea that specific economies of specialised informal care exist among poorer people; in fact these people are less likely to be able to rely on informal support than non-poor people.

In line with the broader evidence base of poverty leading to exclusion from social networks, the difference in membership of organisation is over 20 percentage points less between poor (41 per cent) and non-poor adults (63 per cent). Evidence shows more affluent people are more likely to be members of groups (Egerton & Mullan, 2008) and groups that have policy and political influence (Matthews & Hastings, 2013). The difference is most likely caused by the cost of group membership (fees, equipment, discretionary time etc.) and the exclusionary nature of some of these groups making them unwelcome places for people from lower socio-economic backgrounds (Matthews & Hastings, 2013; Sturzaker, 2010).

In conclusion, although the evidence is mixed, the social networks of people experiencing poverty do offer some financial, material and emotional support but it appears this is not enough overcome broader socio-economic inequalities. What is more important is the experience of poverty limits people's ability to participate fully in social networks because of a lack of material resources and social exclusion.

#### 2.1 Social networks and accessing employment

A particularly important insight into social networks, social capital and socio-economic status was Granovetter's study of workers in Boston, USA, in the early 1970s. This suggested that professional workers had wider networks of weak social ties that enabled them to get on in their career. Manual workers relied on smaller networks of stronger ties that helped them find similar work. This has framed subsequent research on the use of social networks more broadly, and particularly research into labour market outcomes, suggesting that if people in low-paid, low-skilled work can develop broader, looser networks in the labour market, then this may enable them to get a better job and a higher income.

Social networks are still very important in job-search, with an analysis of UK labour force survey (2006-9) showing that 26% of people employed in a new job in the past three months had used a social connection at their new employer to help them get their job (Green et al., 2011). Wider research has added more nuance to Granovetter's original case study and a recent review of the extant evidence by Green et.al. and data analysis showed that overall, even with the development of web-based job search, concluding that 'the use of social networks varies according to the resources of the job seeker, the type of job being sought and the socio-economic context' (Green et.al. 2011: 42). The contextual factors that matter are:

- Rural or urban location: there is limited recent evidence on this (Matthews et al., 2009), however it suggests that people in traditional, low-skilled rural industries are more likely to rely on social networks to access employment in the same low-skilled sectors than similar people in urban locations.
- Age of job-seeker: younger people are more likely to rely on strong ties with family and friends to find work because of their limited networks into the labour market. This is particularly a cause of concern in areas with weak local labour markets (discussed below) (Green & White, 2007).

- Age of job-seeker as a cohort effect: the older someone is the more likely they are to use social networks to gain access to new employment opportunities. However, it is important to note that this is likely to be a cohort, not an age affect. People who are currently 55-65 use social networks to find employment as this is what they are used to doing. As they leave the labour market on retirement and are replaced by people used to using a wider variety of methods, this trend will cease (Green, de Hoyos et al., 2011).
- Industry growth: the evidence suggests that strong ties and social networks are important in very fast-growing new industries, such as the recent growth in technology companies. Here, labour markets are tight with certain skills in high demand, and companies taking on a lot of risk in new markets want employees they know will be suitable (Ibid.).
- Job status: strong networks based on face-to-face contact are more important for finding low-skilled work (Green, de Hoyos et al., 2011; Shildrick et al., 2010). Higher status, higher-paid and highly-skilled work tends to be accessed through online sources or weaker social networks. Higher paid people and those with more educational qualifications are likely to use many different ways to identify employment opportunities (Green et al., 2012).
- Employment status: those who are already in work, or are recently unemployed, are more likely to use social networks to seek out new employment opportunities. The longer the duration of unemployment, and the further people are from the labour market, the less likely they are to use social networks to find employment opportunities (Green, de Hoyos et al., 2011; Lindsay, 2010).
- A recent study found no evidence that worklessness was intergenerational. Households with two generations of unemployment were still committed to a work ethic (Shildrick et.al., 2012).

Overall, the higher use of social networks in the same industries to find work among low-skilled, low-paid employees is likely to exacerbate the "revolving door" of unemployment and in-work poverty. If people are unemployed for a longer period of time then they may even lose these networks, reducing their employment opportunities yet further and limiting their labour market choices to lower paid work. We cannot presume that employment is necessarily the only way someone might leave poverty. Indeed, the current economic conditions are resulting in an alarming rise of in-work poverty in the UK (Shildrick, MacDonald et al., 2010). Labour market interventions are discussed below.

## 3. Social networks and communities of place

Traditionally social networks were seen as an expression of place-based community; the limits of travel and technology and strong geographic links to large employers created strong urban working class communities of kin and friendship as recorded in the famous community studies of Willmott and Young in Bethnal Green, among others (Savage, 2010). However, the changing nature of the economy, widespread deindustrialisation, and growing concentrations of unemployment and broader deprivation in some neighbourhoods led to a concern that social networks in these neighbourhoods may have an overall negative impact creating specific place-based "cultures of worklessness" or "underclass" norms.

Growing spatial inequality (Dorling & Rees, 2003) and events such as the riots in summer 2011 have led to an increased concern of the impact of the spatial divisions between deprived and non-deprived neighbourhoods. However, it is important to recognise that the majority of people experiencing poverty do not live in deprived neighbourhoods. Research in Scotland found that only 29 per cent of households in the lowest income quintile lived in the most deprived 15 per cent of neighbourhoods, and three per cent of those in highest income quintile lived in these neighbourhoods (Matthews et al., 2012). Deprived neighbourhoods are thus more mixed than is ordinarily assumed (Dabinett et al., 2001; Matthews, Besemer et al., 2012). Further, deprived neighbourhoods have different "roles" within towns and cities and are not all "sink-estates" where people are isolated from broader social networks and remain for extended periods of their lives. Only a third of the most deprived 20 per cent of English Lower Super-Output Areas are such "isolate" neighbourhoods in which people remain for a long time with little movement to other neighbourhoods (Robson et al., 2008).

#### 3.1 Neighbourhood effects – background

Despite this there is on-going interest in whether living in neighbourhoods with high concentrations of people experiencing poverty lessens the chances of leaving poverty – i.e. the hypothesis that there is a *neighbourhood effect* on individual outcomes. Wilson's research on Chicago ghettos in *The Truly Disadvantaged* has led to a broad literature on neighbourhood effects much of it focused on the impact of social networks on individual outcomes (see also: Wilson, 1997; and: Galster, 2007 for a review of the European evidence base prior to the search limits for this review). While the neighbourhood effects literature does consider local "cultures", particularly in the extreme example of the US ghetto, it puts socio-economic structural changes at the forefront of causation: it argues housing policy, housing markets and changing industrial locations led to deprivation and poverty being concentrated in certain neighbourhoods. If there are different norms, then these are a response to these structural factors.

In terms of social networks there are two broad ways that neighbourhood effects are theorised to operate (Galster, 2007):

- Endogenous effects (in the neighbourhood):
  - Negative socialisation people experiencing poverty in deprived neighbourhoods are likely to have poor role models in their social networks and could learn "ghetto cultures" to get by. These effects might only begin after a specific threshold of concentrated poverty has been reached.
  - Social networks with few resources people's social networks in deprived neighbourhoods, although strong, might not offer "bridging" social capital to networks of influence or into the labour market (Forrest & Kearns, 2001).

- Exogenous effect (outwith the neighbourhood):
  - Physical isolation the distance of the neighbourhood from social opportunities or employment opportunities are often a barrier for lower-income households accessing them (Green & White, 2007).
  - Stigma the exaggerated notoriety of the neighbourhood means people are excluded from employment or wider social networks by people who do not live in the neighbourhood (see the evidence for this in the parallel review on regeneration and poverty).

The evidence of a neighbourhood effect on social networks is very mixed because of the difficulty in doing research and contextual variation. In quantitative studies there are a number of methodological challenges regarding neighbourhood selection and the scale and duration of any neighbourhood effect. In terms of neighbourhood selection, the challenge is that lower income households have a much greater likelihood of living in a deprived neighbourhoods because that is the only place they can afford housing. Research therefore has to separate out whether the person lives in the neighbourhood because of their low income, or their residence in the neighbourhood reduces their income. Further, it is difficult to get data at the right geographic scale for understanding behavioural neighbourhood effects on social networks, as these may be based on the individual street, or even residential block level (van Ham & Manley, 2010). Finally, the duration of residence matters in terms of the "dose" of neighbourhood effects received by the individual (Friedrichs & Blasius, 2003; Galster et al., 2000). To identify neighbourhood effects therefore requires datasets that follow individuals over time and records their residence. It is quite common for quantitative research to find no evidence of neighbourhood effects, whereas qualitative research with households and neighbourhood workers will produce evidence of the lived experience of neighbourhood effects (Atkinson & Kintrea, 2004).

In terms of context, much of the early evidence on neighbourhood effects come from the US, where income inequality is higher, and in the northern cities, the marginalisation of social housing in the "ghetto" makes the differences in neighbourhood visibly stark. In most European countries, including the UK, social housing is less marginalised and services in deprived neighbourhoods are of better quality so the visible difference between neighbourhoods is less marked (Atkinson & Kintrea, 2001; Galster, 2007). Finally, most measures of neighbourhood deprivation are cross-sectional and static, including indices of multiple deprivation and measures of tenure mix (Graham et al., 2009; Noble et al., 2006). Neighbourhood dynamics, such as isolation from housing and labour markets, are subsequently not captured by these measures, which mean neighbourhood effects might not be measured.

Despite these challenges there is a wide amount of recent research evidence. In considering possible neighbourhood effects we have focused on three key areas of research literature: social network extent and any socialization effects; social networks, social capital and collective efficacy; and labour market outcomes.

#### 3.2 Neighbourhood effects Social networks and socialization

Firstly, are the social networks of people in deprived networks different to those in more mixed or affluent neighbourhoods? Generally, social networks of residents of deprived neighbourhoods are focused on the neighbourhood and have high levels of bonding capital to help people get by (Forrest & Kearns, 2001; Pinkster & Völker, 2009). This is supported by research evidence from a study in the Netherlands that showed that low income residents in deprived neighbourhoods are more neighbourhood orientated in their social networks (Pinkster and Volke, 2009). However, we need to

differentiate between networks that just happen to be in the neighbourhoods but could have been made anywhere (local networks) and social networks that come from the neighbourhood and its residential mix itself (locality networks). A local network would be one of colleagues or school friends who just happen to live in the neighbourhood. A locality network would be one made up of neighbours or similar people you have become friends with solely because they live in the same neighbourhood as you. Evidence from the Netherlands again shows that across all people it is local networks that predominate and there is no major difference between resource-rich and resource-poor people and their neighbourhood networks (van Eijk, 2010). However, resource-rich people have the capacity to develop networks away from the neighbourhood through work and also through greater access to transport.

This evidence may appear contradictory. However, it suggests that the neighbourhood-focused social networks of low income households are a result of their limited housing choices and limits to their transport choices, both caused by lower incomes. Higher income individuals and households can afford to maintain networks at a distance; for example Pinkster and Völke (2009) found that as work prestige and education of residents increases, so does the geographic distance of their social networks. Similarly, Arthurson's (2010) research in Adelaide, Australia, found that social renters were more likely to have local networks, and private renters and owner-occupiers were more likely to have geographically dispersed social networks.

Although the social networks of people experiencing poverty might not be affected by their neighbourhood of residence, a further issue is whether the nature of sociability in the neighbourhood, and specifically neighbourhood disorder, could reduce peoples' social networks, or whether these social networks offer poor peer influences. Existing, historic US literature suggests that this is indeed the case but this is in the context of the massive racial and economic disparities in American cities that emerged from the 1960s onwards (Sampson & Groves, 1989; Wilson, 1997). The experience within Europe, including the UK, is widely acknowledged to be different due to more supportive welfare regimes and lower socio-economic inequality (Friedrichs et al., 2003; Galster et al., 2010). In our literature search we found very little new evidence of the impact of neighbourhood social networks on socialisation or social norms though this is not to discount earlier findings presenting mixed evidence (Galster, 2007). Qualitative evidence from ethnically mixed and deprived neighbourhoods in the Netherlands showed parents withdrawing from social networks to protect children, but from a fear of crime not a fear of negative socialisation (Pinkster & Fortuijn, 2009). This issue is discussed further in the section on ethnicity, neighbourhood and social networks below. Within the scope of the rest of the review and search, no recent substantial evidence was found as to neighbourhood social networks leading to negative socialisation and the development of different norms, particularly around criminal behaviour. The most recent research in the UK suggests the biggest determinants of crime in neighbourhoods is concentrated low income, as people with lower incomes are more likely to be the victims of, and perpetrators of crime, and the location of establishments selling alcohol. There was no evidence that an independent neighbourhood effect operated (Livingston et al., 2013). The evidence on any "cultures of worklessness" is presented in the section on labour markets, below.

#### 3.3 Social networks and collective efficacy

Secondly, a key role for good social networks is that they can increase the collective efficacy of groups (Putnam, 2000). There is broad evidence that more affluent neighbourhoods and more affluent people have greater collective efficacy, although the causal mechanisms identified in research on affluent people are at an individual level – education, status and income – not at a neighbourhood level (Matthews & Hastings, 2013; Mennis, Dayanim et al., 2013). As discussed above, trust and generalised reciprocity are important for developing social networks, and equally

this can lead to strong collective efficacy (Offer, 2012). Diversity and disorder in neighbourhoods can reduce trust among people and reduce the ability of communities to produce effective collective action – a neighbourhood effect for people living in these neighbourhoods (Curley, 2010b; Mennis et al., 2013). The Moving to Opportunity programme (see glossary) in the US provides evidence to support this further. This showed that people in more mixed neighbourhoods, or those who were given vouchers to live in less deprived neighbourhoods, had more generalised trust that would support collective action, than those who remained in deprived neighbourhoods (Curley, 2010b). The evidence on the impact of ethnic diversity in neighbourhoods is discussed below.

While people in deprived neighbourhoods are less likely to form groups for collective action, when they do the evidence is that they are likely to work together to tackle neighbourhood problems. In doing so, they build bridging social capital with wider networks outside their neighbourhood, often linked to place – such as connections with public authorities or politicians (Curley, 2010b). This aligns with international experience of regeneration programmes, where residents are most likely to get involved in in collective action on issues of housing renewal and environmental improvements (Agger & Larsen, 2009; Lawless, 2013; Matthews, 2012a). To develop such networks security and stability of tenancy is important. Evidence from the US suggests that home owners have greater social capital due to greater place attachment, and support for insecure homeowners to maintain their housing will improve collective action in neighbourhoods (Manturuk et al., 2010). Further evidence from the US demonstrates the importance of residential stability, showing that people in deprived neighbourhoods are less likely to engage in political activity, however, those who were given a voucher to move to a less-deprived neighbourhood had a permanent reduction in their political engagement that had not recovered from the disruption of their move five years later (Gay, 2012).

The evidence of a neighbourhood effect on social network formation and social capital is therefore inconclusive. Overall the evidence suggests that it is stable residence and place attachment that offers the greatest opportunities for effective social networks that are trusting and have greater collective efficacy to be developed. Major renewal programmes involving demolition, and work activation policies, such as pressure on people to move home to where there are better job opportunities could take people out of their neighbourhoods, disrupting those networks offering political voice and informal support.

#### 3.3 Social networks and "cultures of worklessness"

In terms of the impact of social norms in neighbourhoods, much early research on neighbourhood effects, particularly that by Wilson (1996; 1997) suggested that spatial mismatch - employers moving to distant suburban locations – led to long-term unemployment in US inner city areas and eventually different social norms regarding employment and work expectations. In looking for evidence of any neighbourhood effect on employment in Scotland, van Ham and Manley (2010) could use the "natural experiment" that the Right-To-Buy had created mixed neighbourhoods in contrast to more deprived neighbourhoods. They found that homeowners in deprived neighbourhoods were more likely to remain unemployed, controlling for individual characteristics, a neighbourhood effect. However their analysis suggests it was most likely to be a selection effect – lower income households have to buy housing in deprived neighbourhoods, it is not the neighbourhood that causes their poorer labour market outcomes. Evidence from Sweden does suggest there is some neighbourhood effect on income, with particularly negative effects of the neighbourhood on the income of young, low-skilled men and lone mothers, but this is a very weak effect overall (Galster, Andersson et al., 2010). Based on the groups affected, it is suggested this may be a behavioural effect as these people are likely to spend a long time in the neighbourhood to get a "dose" of the neighbourhood effect. However, as the study was based on administrative data it is impossible to provide a definite answer. Sari (2012), researching the labour market around Paris did find evidence of a neighbourhood effect, but could not actually identify what might be causing it. Therefore, the most recent evidence from European contexts continues to be inconclusive and the causal mechanisms remain obscure. We cannot say we confidence that "cultures of worklessness" exist in some neighbourhoods and have an impact employment status or income.

A further neighbourhood effect on employment may be the stigma of an address within a deprived neighbourhood lowering the chances of an employer hiring an individual. Residents often feel this and evidence shows that residents respond by managing their identity about where they live to avoid this stigma and ensure easy access into employment and social networks of people in work (Blokland, 2008; Curley, 2010a; Matthews, 2012b). However, the most recent research from the UK suggests that the use of the internet and websites for job search and job applications, and the geographical centralisation of HR functions in major employers have eliminated any neighbourhood effect. In their experiment to test whether post code or other geographical identifiers had an impact on the chances of an applicant being offered an interview Tunstall et.al. (2012) found no significant impact. However, importantly for this review, the research did find that, being overwhelmed with job applications from online systems, there was some evidence that employers might rely on social networks and word-of-mouth more.

As discussed above, whereas quantitative research often does not find a neighbourhood effect, qualitative research often does find one in the lived experience of residents. However, as already mentioned, qualitative research supported by the JRF did not find cultures of worklessness across generations in families (Shildrick et.al., 2012). However, recent evidence on the impact of local labour market strength, neighbourhood deprivation and jobseeker horizons among young people does suggest a neighbourhood effect on attitudes to work does exist (Green & White, 2007). In the context of a weak local labour market young people living in deprived neighbourhoods that were geographically distant from employers had an inward-looking mentality that shortened geographic and temporal horizons of job search — "spatial entrapment". The mental maps of these people were based on the immediate neighbourhood and contrasted with young people in neighbourhoods close to strong and diverse labour markets, who had geographically wide mental maps, including whole cities, which had a positive influence on their job-seeking. Similar evidence was found in research on long-term youth unemployment in Glasgow, with the social networks of young people being geographically confined and limited to people like themselves (Quinn & Seaman, 2008).

As rich, qualitative research, these studies could identify causal mechanisms. These focus on spatial mismatch – the weakness and nature of the local labour market – as lowering expectations and reducing geographic horizons. It is not the culture of the neighbourhood itself that has this impact. The response of young people to their situation, which was often to resign themselves to low-paid work, or to limit their job-search horizons, was often quite rational and realistic given an over-supply of low and semi-skilled labour in local labour markets. Overall, there is little convincing evidence that negative behaviours and norms are spread among social networks in deprived neighbourhoods. Any differences in social networks appear to be primarily caused by factors outwith the neighbourhood, such as: housing markets and housing policy sorting people into specific neighbourhoods; income limiting the geographical extent of social networks; or the spatial mismatch of labour markets reducing employment opportunities. It is these structural factors that lead to concentrations of deprivation. What limited evidence there is to support the existence of neighbourhood effects demonstrates the methodological challenges of studying the topic.

## 4. Social networks and equalities and diversity

There is broad evidence that specific equalities characteristics, such as gender, ethnicity and disability, are associated with an increased risk of poverty, as explored in other evidence reviews as part of this series. However, the evidence on links between equalities characteristics, social networks and poverty is not extensive. There is a typical tendency for people to mainly have contact with others like themselves, socio demographic characteristics such as gender, ethnicity and disability impact on the kind of people a person will associate with, and as a result, on a person's social networks (McPherson, et al., 2001). There is also a broad debate as to whether contact between people with different socio-demographic characteristics is associated with lower levels of mutual trust (Uslaner, 2011; Laurence, 2009).

The lower frequency of contact between people with different socio-demographic characteristics is also affected by the fact that equalities characteristics are often spatially concentrated (Matthews et al., 2012). The proximity of people of a similar ethnicity, sexual orientation or disability influences the social networks a person is likely to form through the effect of such clustering on the likelihood of spontaneous interaction, in other words, segregated neighbourhoods reduce the likelihood of people with different characteristics meeting naturally. Discussions about the long-term effects of such spatial clustering typically centre on ethnicity, but other forms of clustering also exist. Lesbian, gay and trans- people move to areas where they feel more accepted, or may be restricted from certain areas by constraints on access to housing (Doan & Higgins, 2011). These general social network trends frame the discussion of the evidence regarding specific equalities groups below.

#### 4.1 Sex and gender

In the scope of our evidence search we found limited evidence around gender, social networks and poverty. In terms of neighbourhood-based social networks, while gender is not in itself a characteristic associated with clustering, various gendered identities, such as lone parenthood and caring responsibilities, may limit housing choice, restrict ability to access social networks and may increase reliance on the local area as a source of social capital. Evidence from Sweden suggests that this means that when there is a negative neighbourhood effect on income, lone mothers are more likely to be affected by it as they spend longer in the neighbourhood and have social networks in the neighbourhood (Galster et al., 2010). As discussed above, evidence from Ohio, US, shows that lone mothers rely a great deal on social networks for material and non-material support, particularly in a context of restricted welfare provision (Heflin, et al., 2011).

Evidence from community engagement in regeneration initiatives highlights the key role women play in communities as activists, particularly in seeking improvements to environmental conditions and housing (Batty et al., 2010; Grimshaw, 2011). This reflects existing evidence that women are more likely to volunteer for gendered roles, often informal and with little recognition, particularly caring responsibilities (Egerton & Mullan, 2008). Women's roles within social networks are therefore important in offering support and local influence. This activism may be focused at tackling or alleviating poverty, such as through affordable housing improvements or offering informal childcare. These roles offer meaningful activity for women outwith the labour market, but they are not fully valued by policy interventions that focus on employability (Grimshaw, 2011; Quinn & Seaman, 2008). As a result they can become a further burden on the experience of poverty for these women (Grimshaw, 2011; Heflin et al., 2011).

#### 4.2 Race and ethnicity

The links between social networks, ethnicity and poverty have been the subject of a considerable body of academic work (see for instance Gilchrist & Kyprianou, 2011). Much of this discussion is beyond the scope of this report. In any discussion of the effects of ethnicity it is important to note that any form of ethnic classification is 'fraught with ambiguity' (Alesina et al., 2003). Furthermore, as societies become more heterogeneous and mixed, former ethnic differences are becoming more blurred as people identify with broader cultures – 'Everyone's mixed up colours' (Markkanen & Harrison, 2013).

The social networks of all ethnic groups are determined by a range of factors, including gender role expectations, social class and age. Ethnicity may interact with those other characteristics in a variety of ways. Research on the effect of ethnicity on social networks has shown that especially 'visible' ethnicity may make people vulnerable to racism and prejudice. For migrants and refugees, language problems can pose an additional barrier to participating and accessing influential networks. Language problems, prejudice and discrimination may form a barrier to accessing and participating in influential networks, and may thus make people more reliant on networks within their own ethnic group. Conversely, ethnicity may also enable access to various forms of membership and spaces for interaction, such as ethnic minority organisations, as well as other, cross-cultural voluntary, community and faith-based organisations (McCabe et al., 2013).

As detailed in previous sections, the experience of poverty among ethnic minorities is associated with low organisational membership due to the barriers that it produces. Due to sample size constraints we cannot compare the organisational membership levels of poor and non-poor ethnic minority groups. Looking at organisation membership across all people, shown in table 2, some ethnic groups have higher rates of organisational membership whereas others have lower rates. However, the differences are very small, and none of the minority ethnic groups have a significantly different rate of organisational membership than the 'White' majority group, even without correcting for other demographic characteristics, such as age, economic status and income. The table therefore mainly demonstrates that organisational membership does not significantly vary between ethnic groups. From this we can infer that there are likely to be no additional barriers to group membership for a person from an ethnic minority experiencing poverty beyond their poverty itself.

The long running inequality in employment and labour market participation among ethnic minorities in the UK, in terms of higher unemployment and lower paid work, persists (Nazroo & Kapadia, 2013). In terms of labour market access, qualitative research has also shown that employers may target specific social networks for jobs with low job security and low wages, using chain recruitment techniques within specific ethnic groups. Consequently, such social networks acted to trap people into poverty and disadvantage (McCabe et al, 2013).

Like any other aspects of identity, ethnicity impacts on the kind of people a person will associate with. Resulting ethnic segregation is a subject which has been given considerable political attention because of the possibility of neighbourhood effects operating to lower the life chances of ethnic minority individuals living in these neighbourhoods. However, it is important to note that between 2001 and 2011 there was a significant reduction in ethnic segregation across the UK (Catney, 2013). However, there remains a concern that the tendency of new immigrants to locate in areas with a high representation of their own ethic background may impede their subsequent social integration into the host country, especially in relation to access the labour market. Such concerns are also informed by wider debates concerning the exclusion and marginalisation of immigrants in countries with high levels of immigration (Andersson et al., 2013). As with the broader neighbourhood effects

literature there is a concern that these neighbourhoods have specific subcultures spread through social networks that act as a barrier to inclusion.

Table 2 - organisational membership and ethnicity

Rates of organisational membership, by ethnicity	
Asian or Asian British – Bangladeshi	39.1%
Any other Asian/Asian British background	39.2%
Asian or Asian British – Pakistani	42.4%
Asian or Asian British – Indian	43.9%
Chinese	49.1%
Total	52.1%
White	52.5%
Black or Black British – African	54.6%
Black or Black British – Caribbean	56.8%
Any other Black/Black British background	56.9%
Mixed	60.6%

Evidence from the census in England and Wales in 2011 demonstrates that a disproportionate number of ethnic minority individuals live in the most deprived ten per cent of neighbourhoods, particularly Bangladeshis and Pakistanis, and this is often associated with high levels of unemployment (Jivraj & Khan, 2013). Despite the frequent concurrence of ethnic segregation, low income and high unemployment in neighbourhoods with high ethnic minority population, there is little evidence that residential segregation itself causes barriers to labour market access. In fact, there is some empirical evidence from Sweden to suggest that ethnic clustering may have a positive effect on incomes in ethnically segregated areas (Andersson, Musterd et al., 2013). It is suggested that this is because local institutions, particularly the equivalent of Job Centre Plus, have specialist skills which enable their services to be tailored to the new migrant population. Ethnic minority groups therefore are not negatively affected by a neighbourhood effect in terms of their culture, and in fact the positive neighbourhood effect from economies of specialisation may be stronger for them.

A further mechanism by which neighbourhood effects may operate and interact with ethnicity is through lower collective efficacy in ethnically diverse neighbourhoods. There is some evidence that ethnically heterogeneous neighbourhoods are characterised by weaker social ties with neighbours (Guest et al., 2008), and wider ethnic segregation can reduce social cohesion, defined as trust between communities, and increase urban violence (Morenoff et al., 2001; Twigg et al., 2010; Van Bergeijk et al., 2008). In the last decade, a number of researchers have argued that neighbourhood diversity has an effect on trust, specifically in that dissimilarity may impede the building of a trusting relationship between people of different ethnicity and more generally that people living in areas with diverse populations are less likely to feel a general sense of trust in others. Evidence on this phenomenon has been mixed and inconclusive, and it appears that deprivation is in fact a much more important determinant of social trust (Gundelach & Freitag, 2013). In addition, some research shows that people who live in ethnically diverse neighbourhoods tend to have more heterogeneous social networks because of the greater opportunities provided for mixing with different people. This frequent social interaction creates more generalised social trust in diverse neighbourhoods and understanding of the needs of diverse individuals (Gundelach & Freitag, 2013; Laurence, 2009; Stolle et al., 2008). In conclusion there is not conclusive evidence that ethnic diversity has an in impact on collective efficacy, thus we can conclude that any negative impact on collective efficacy is more likely to be a result of poverty, not a cause of poverty. Indeed, neighbourhood diversity may increase trust and therefore collective efficacy which may in turn help alleviate poverty.

#### 4.3 Disability

Disability may interact with the formation of social networks and experience of poverty in four ways linked to the broader discussion so far. Firstly, the correlation and causal links between disability and poverty are clear with the employment rate in 2012 for working-age disabled people being 30 percentage points lower than for non-disabled people, at 46.1 per cent (Office for Disability Issues, 2014). As a result, disabled people will be more affected by the barriers to inclusion in social networks produced by income poverty discussed above. Secondly, the low income and specific needs of disabled people means that more than any other group they are concentrated in certain geographic areas through a process of physical restriction and housing supply (Matthews, Besemer et al., 2012). Thirdly, failures in planning, architecture and building control may render public spaces impossible to navigate for disabled people, for example through the absence of induction loops in civic buildings, shattered paving stones, or missing wheelchair access (Imrie, 1996). In this way, geographical barriers may prohibit access to spaces of and opportunities for interaction, narrowing the scope for building social networks. Lastly, researchers have described the importance of social and spatial context in shaping the exclusionary and inclusionary experiences of disabled people. Hall refers to a 'complex geography of exclusion and inclusion' in the experience of disabled people, ranging from 'avoidance, verbal taunts and physical abuse through to indifference, acceptance and incorporation' adding invisible barriers to inclusion (Hall, 2005: 108).

Tables 3 and 4 illustrate the impact of these barriers on disabled people. The first columns show that while disabled people are more likely to have frequent contact with relatives, they have less contact with friends than non-disabled people. The differences in these correlations are arguably small, but statistically significant. As social networks with friends are more likely to have bridging social capital than networks with kin, this could act as a barrier to disabled people accessing a broader range of support and resources, such as job opportunities. As can be seen in the bottom half of the table, disabled people are twice as likely to cite problems with transport as a reason to see less of their friends. Health problems are by far the most serious impediment, but disabled people are also more likely to be unable to afford to meet people. Finally the data shows that disabled people are less likely to feel that they see enough of their friends and relatives. The PSE survey did not ask whether

lack of time due to other reasons than paid work was a factor and other research has drawn attention to the measurable impact of disability on the amount of time people have available to spend on a range of activities, including social contact (Burchardt, 2010). However, clearly affordable and accessible transport is a key barrier.

Table 3 - social contact among disabled and non-disabled people

Contact with friends and relatives	Disabled	Not disabled
Speaks to relatives at least once a week	71%	66%
Speaks to friends at least once a week	64%	68%

What stops people from seeing more of their friends and / or relatives (question asked regardless of frequency of contact):

Difficulty with transport	12%	6%
Health problems	27%	1%
Can't afford to	16%	13%
They are too far away	32%	33%
Lack of time due to my paid work	6%	22%
"I see them as often as I want to "	39%	44%

Table 4 - Social support among disabled and non-disabled people

Would get some / a lot of support if	Disabled	Not disabled
if I was ill in bed and needed help	85%	91%
if I would need help with household or gardening jobs	85%	91%
if I needed advice	83%	91%
if I needed to talk about relationship problems	83%	90%
if I needed someone to look after my home	86%	90%
if I had a serious personal crisis	90%	94%
if I needed a lift somewhere in an emergency	88%	92%

Table 4 shows the amount of support people disabled and non-disabled people feel they could draw upon from their social network. Again, differences are small but consistent. Disabled people tend to expect less help from their social networks when they are experiencing difficulties, both emotional and practical. Comparing this data with that in table 1 and the broader trends around disability and poverty, we can see that disabled people experiencing poverty are likely to be doubly compounded in their access to help and resources in-kind from their social networks, by both disability and poverty. There is evidence that projects supporting disabled people and their specific needs also help support social networks. However, many such projects are grant funded, and the focus on inclusion through employability means that some projects have become limited in the support the can offer. Help in-kind to alleviate the experience of poverty and social support to overcome exclusion and harassment are less likely to receive funding (Edwards, 2009).

#### 4.4 Sexual orientation

While it may seem self-evident that sexual-orientation would be of great significance in determining the extent and nature of social networks, there is little research in this area and even less linking this directly to experiences of poverty. A key challenge in any research on sexual minorities is the relatively small numbers of people, and the challenges of asking people about their sexual orientation. Existing studies show that minority sexual orientations are associated with higher rates of mental illness, suicide or attempted suicide, addiction, ill health, obesity and a number of other poor health outcomes. Sexual Minority Stress Theory proposes that such negative health outcomes are due to a more stressful social environment a consequence of societal stigma, discrimination and prejudice associated with non-heterosexuality (Meyer, 2003). A number of researchers have reported high rates of homelessness among young LGBT people as a consequence of family conflict and societal stigma and discrimination (Frederick, 2014; Heath, 2008).

Many of the studies reviewing the effect of sexual orientation and economic outcomes focus on wage differentials. Such studies tend to find fairly large and significant effects of sexual orientation on income for both genders, but this effect seems to be a negative one for men and a positive one for women. It is interesting to note that this gender difference appears to be a consistent finding across all countries where such studies have been done, including the Netherlands (Plug & Berkhout, 2004), Sweden (Ahmed et al., 2013), France (Laurent & Mihoubi, 2012), the United Kingdom (Arabsheibani et al., 2005; Uhrig, 2014), Canada (Carpenter, 2008) and the United States (Baumle & Poston, 2011; Berg & Lien, 2002) despite the fact that each study uses slightly different measures of sexual orientation. A similar pattern was found for employment rates: gay men are less likely to be employed and lesbian women are more likely to be employed (Ahmed, Andersson et al., 2013; Arabsheibani, Marin et al., 2005). In the US, minority sexual orientation was also found to be associated with poverty (Albelda et al., 2009, updated 2013). Thus, if gay men or other non-heterosexual people have lower incomes or are more likely to experience poverty they will be excluded from social networks in the same way as heterosexuals experiencing poverty.

In conclusion, the evidence suggests that dimensions of equality and diversity do have an independent effect on poverty, and this in turn is likely to have an impact on the formation of, and utility of, social networks. There is no conclusive evidence that the specific nature of social networks among people who share characteristics compounds their poverty and has a specific negative impact; indeed the only evidence we have found suggests that they may offer specialised benefits. Rather, if these characteristics are likely to have an impact over and above poverty, it is more likely to be due to discrimination and exclusion by others.

# 5. Information communication technologies (ICTs) poverty and social networks

The growth in use of ICTs and the internet has led many to see them as a means to increase social networks, and in terms of social capital, make social networks stronger, more trusting and more useful to individuals. Early adoption resulted in many commentators and sociologists seeing the technologies as leading to a transformation in society as networks between diverse people across the globe grew (Wellman, 2001). The reality, as technology has developed and become more normalised, has been more prosaic with much ICT-enabled social networking replicating behaviours offline. This highlights one of the challenges of understanding ICTs and social behaviour – the speed of technological change. For example, many social networking websites, such as Facebook, are in "perpetual beta" or prototype mode, with new features being tested and developed that transform the ways that people use them and the way the site develops and uses social networks (Whitfield et al., 2010). Further, today's Facebook could be tomorrow's Myspace; there is a litany of websites that were seen to transform social networking and engagement with the internet when they were created that have since ceased to be used at all. The newness and variability of the technology means the evidence-base is generally very thin. As with offline interactions, there are two important considerations; firstly does the experience of poverty or low income act as a barrier to social network development online; and secondly do social networks online offer particular support to people that may help them leave poverty or alleviate their poverty?<sup>4</sup>

Since ICTs have been adopted research evidence has consistently confirmed the existence of a digital divide, where those on lower incomes are unable to afford access to the hardware or on-going subscription costs of ICTs, particularly broadband internet access. These digital divides would act as a barrier to people gaining any benefits from social networks fostered online. The most up-to-date evidence on the take-up and use of ICTs and social media in the UK is the 2013 Ofcom Communications Market report (Ofcom, 2013). The surveys it relies on do not collect income data or other poverty data. Instead the Market Research Classification "social grade DE" (low-skilled employment or unemployment) is used as a proxy for poverty or low income in our analysis here, contrasted with "social grades A and B" (professional and managerial). The 2013 market analysis report shows a continuing digital divide with 65 per cent of households with the highest earner being social grade DE having access to the internet, compared to 92 per cent of households with a social grade A or B highest earner. However, the number of people who did not have access to the internet because of stated cost peaked at 35 per cent of those without access in 2010, since falling to 23 per cent in 2012.

The greatest divide in internet access is age, with people over 65 consistently much less likely to have internet access or want internet access. In 2013 only 56 per cent of people aged 65-74 had an internet connection at home, and only 31 per cent of those over 75 did so compared to 91 per cent of people aged 16-34. Only three and two per cent respectively of these groups planned to get internet access.

These trends are exacerbated if we look at internet access through mobile devices. Overall, in the UK, mobile internet use increased from 20 per cent in 2009 to 49 per cent in 2013. In 2013 57 per cent of AB individuals used the internet through a mobile device compared to 37 per cent of DE

<sup>&</sup>lt;sup>4</sup> For language clarification, many websites such as Facebook are known themselves as "social networks". In this report the terms "social media" and "web 2.0 technologies" will be used to describe the websites where social networks are used and developed online.

individuals. In terms of age, 75 per cent of 16-34 year olds had used a mobile device to access the internet, compared to just five per cent of those over 65. Ways of accessing the internet also vary depending on household status, for example DE households are as likely to own an internet-enabled games console as a laptop (46 per cent), whereas 75 per cent of AB households own a laptop and 50 per cent own an internet-enabled games console.

The limited recent evidence around the "digital divide" and deprived neighbourhoods also shows a persistent gap in access to ICTs. People in deprived US neighbourhoods were less likely to have internet access at home or work; however recognising the personal benefits of internet access, they would overcome barriers to access, for example by travelling to public libraries (Mossberger et al., 2008). Evidence from the City of Edinburgh shows that internet access by users in public libraries in deprived neighbourhoods is far higher than the rest of the city, and in geographically isolated neighbourhoods internet use in libraries is up to three-times higher than in similarly deprived but less isolated neighbourhoods (Matthews, 2014, in press). More problematically however, there is evidence from the US of a negative neighbourhood effect on internet access: that is, controlling for individual factors, people who live in deprived neighbourhoods were less likely to have access to the internet. The research does not demonstrate causality, but this lower access is theorised as a higher perceived cost of internet access among residents of deprived neighbourhoods (Mossberger et al., 2012).

From this evidence we can conclude that low income remains a barrier to accessing the internet and any related benefits of social networks there may be from internet access. If internet access is to afford people experiencing poverty greater access to social networks, then as with offline activity, there is a need to remove the basic barriers of low income and lack of capability. However, this is before we consider how people then behave online. As evidence is emerging it appears that, broadly, patterns of online behaviour and social networking simply replicate offline networks — the early net pioneers were highly socially connected offline and they replicated and grew these networks online. As internet access becomes ubiquitous, people with fewer existing social networks are now transferring these networks online, but network extent is not necessarily increasing (Hargittai, 2007). Therefore the online networks of people experiencing poverty are likely to be limited and offer less support than the online networks of people who are not experiencing poverty.

As with offline social networks, employment access may be one of the key ways that people experiencing poverty use virtual networks to leave poverty. However, the trends in internet use identified by Ofcom extends to job search behaviour, with young, highly qualified job-seekers most likely to use the internet in their job search and older, less-skilled job-seekers less likely to use the internet. Most problematically, economically inactive jobseekers, those furthest from the labour market, are 13 per cent less likely than those in employment to use the internet in their job search (Green, Li et al., 2012).

In terms of social media websites such as Facebook and Twitter that are increasingly popular and are seen as a key way to develop social capital, these demographic trends continue. Ofcom data from 2012 shows that 45 per cent of people had accessed social networking sites at home in the past week, varying from 77 per cent of 15-24 year-olds and 12 per cent of 65-74 year-olds; half of AB and C1 individuals had used social networking sites in the last week compared to 37 per cent of DE individuals. However, while much is made of social networking, the existing evidence base suggests that email remains the main reason why people want internet access and the key means of developing social networks online (Mossberger, Kaplan et al., 2008; Ofcom, 2013). Evidence also suggests that extensive cultural capital (knowing what to say and how to say it) is required to manage one's identity within social media and social networking website environments and further

research as to whether this is a barrier for people from lower-socio economic backgrounds successfully using the internet for social networking is required (Baym & boyd, 2012; Litt, 2012).

## 6. Policy interventions

So far we have considered how poverty and social networks are interrelated and focused on causal mechanisms between the two. Primarily this has been a focus on any possible problems: are the social networks of people experiencing poverty different, and if so do they act as an impediment to people leaving poverty? In the remainder of the report we consider policy interventions, many of which are based on implicit and incorrect assumptions about the social networks of people experiencing poverty, or those who live in deprived neighbourhoods. In turn we consider:

- neighbourhood mixing, through redevelopment and voucher schemes;
- labour market activation and access schemes;
- community development and community empowerment programmes;
- affordable internet access schemes.

Where it is readily available we provide information on the costs of these interventions.

#### 6.1 Neighbourhood mixing

As identified in a systematic review of the existing research literature on mixed communities:

'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.' (Sautkina et al., 2012: 749)

Many of these expected benefits are linked to the perception that neighbourhood effects, linked to social networks, as discussed above, exist in deprived neighbourhoods. However, the quoted systematic review found no links between tenure mixing and increased social capital (Sautkina et.al., 2012). More broadly, Graham et.al. (2009) found no evidence that mixed tenure leads to improved employment outcomes in Scotland through any means.

The Moving to Opportunity (MTO) programme in the US provides invaluable evidence as to the efficacy of interventions focused on residence to impact on social networks and in turn poverty. The MTO was a semi-randomised controlled trial where tenants living in very deprived neighbourhoods were offered vouchers to move to a more mixed neighbourhood. This produced "treatment" groups of: people who moved to very affluent neighbourhoods; those who moved to mixed neighbourhoods; those who were given a voucher but declined to move; and those who were not given a voucher.

The scepticism as to whether mixed communities strengthen social networks is supported by the research into the MTO. It demonstrated that poorer people who moved to affluent neighbourhoods often lost their social networks and felt isolated and lonely and many people who moved kept their social networks in their old neighbourhood (Curley, 2010b; Gay, 2012). Moving was associated with falls in activities associated with high social capital e.g. political participation (Gay, 2012). From the evidence above, social networks and extent of social capital are closely linked to place attachment and therefore household instability and neighbourhood restructuring are likely to diminish social networks. This is supported by evidence from a voucher scheme similar to MTO where those who remained in original units of regenerated areas had highest levels of organisational involvement.

Those who moved elsewhere in the private rented sectors lost their social networks and recognised their neighbours less than others (Rasinski et al., 2010).

The usual way mixed communities are delivered is through the demolition of areas of mono-tenure housing and their replacement with a greater mix of types and tenure of housing. Qualitative studies of residents of these mixed tenure areas suggest that poorer people in mixed communities often wanted social networks with their more affluent new neighbours, but as the latter have social networks outside the neighbourhood through geographic mobility and work, or more negatively do not wish to make social networks with poorer residents, this interaction does not take place (Arthurson, 2010; Curley, 2010b; Pinkster & Völker, 2009; van Eijk, 2010). Very simply, modern lifestyles, particularly of more affluent people, do not lend themselves to socialising within a neighbourhood context. Based on this evidence, it may be concluded that voucher schemes are expensive and offer little benefit and similarly redevelopment causes great cost in construction and upheaval to little evidenced benefit to broadening social networks (Sautkina et al., 2012). There may however be other reasons for demolition, such as to improve housing and neighbourhood quality.

Despite this critical evidence on mixed communities the systematic review by Sautkina et.al. (2012) did find that creating mixed tenure neighbourhoods can support social networks by allowing people to maintain local kinship ties as people who want to own their home can stay nearby. Further, evidence comparing the social networks of residents in deprived and more mixed communities in the Netherlands found that social housing residents in mixed neighbourhoods have a wider variety of occupations in their social networks which may offer some benefits, but the occupations are not of a higher prestige than those of residents in deprived neighbourhoods (Pinkster & Völker, 2009).

As already indicated above, one of the key problems in mixed neighbourhoods is the tensions between different people, often fostered by stigma and prejudice. In contexts where social housing is particularly marginalised, such as Australia, occasionally tensions can arise because of the extreme social and individual needs of residents of socially rented housing (Arthurson, 2010). However the research also revealed many tensions between all residents, irrespective of their tenure, with people who would ordinarily choose to remain socially isolated in their neighbourhoods being forced to interact with neighbours because of antisocial behaviour. Because of these challenges around mixing, the evidence suggests that mixed communities have to be designed and managed well to maximise any benefits that may accrue. The systematic review by Sautkina et.al. (2012) suggested that tenure-blind design – i.e. ensuring there are no obvious, visible differences between socially rented and owner-occupied housing - helps social mix to work on a day-to-day basis, as does high density design (Curley, 2010a). These allow trust to be developed through passive interactions and overcome any obvious and immediate stigma from housing. Supporting tenancies to prevent homelessness and ensure that the neighbourhood population remains stable is also shown to allow residents time to gain some of the benefits of mix, although specifically not in terms of social networks or social capital (Casciano & Massey, 2012).

In operationalising mixed neighbourhoods to create and foster social networks there is good evidence that neighbourhood infrastructure – good schools, libraries, community centres, good shops – provide spaces in both poor and mixed communities for people to build up passive 'public familiarity' (Curley, 2010a). Survey evidence from US neighbourhoods which have been redeveloped showed that living around people who were different allowed residents to build more generalised trust and subsequently social order and cohesion within neighbourhoods was strengthened. A review of the evidence on mixed communities suggested that good urban design combined with good infrastructure is more likely to create the sorts of shared spaces where passive familiarity takes place (Tunstall & Lupton, 2010). There is evidence from UK social attitudes surveys that this passive familiarity with poverty and deprivation makes higher-income groups more inclined to support anti-

poverty or redistributive policies (Bailey et al., 2013). Public places need to be managed carefully to encourage mixing — evidence from one mixed community in the US suggested that strict rules on using parks reduced the extent of social mixing as it put people off using it on a day-to-day basis for informal activities (Curley, 2010a).

Although mixed neighbourhood programmes are unlikely to overcome any neighbourhood effects on social networks, redevelopment of poor quality social housing as mixed-tenure neighbourhoods could provide broader policy aims such as improving housing quality and choice. The cost of any mixed community policy depends on the nature of development. With most local planning authorities in the UK requiring developer contributions in new developments for mixed tenure housing, these developments are going to become more common. This evidence review has shown that if mixed developments are implemented it is important that, to maximise any benefits, they are designed and managed well, designed as tenure-blind and with places and spaces which encourage socialisation. They are highly unlikely to provide short-term reductions in poverty, however the passive familiarity developed could, over the longer term, increase general support for poverty alleviation (Bailey, Gannon et al., 2013b).

#### 6.2 Labour market activation and access schemes

In terms of employment interventions, in their study of unemployed young people, Green etal. reported success among New Deal for Communities projects that took young people out of geographic comfort zone to extend horizons and start the process of looking outside the immediate neighbourhood for support into the labour market. This type of project was successful when it also recognised the context of local labour markets and possible skills mismatches (see also: Tran et al., 2013).

The Neighbourhood Animators programme developed by Glasgow City Council and partners in 2002 as part of their Full Employment Areas Initiative provides a good example of how developing social networks can assist employability by extending horizons and moving people out of their comfort zone (Lindsay, 2010). Compared to traditional methods of labour market activation, the animators scheme took a community development approach. An identified problem that the animators aimed to overcome was the lack of role models that allowed young long-term unemployed people to make the link between education, training and employment. Repeated negative labour market experiences among peoples' networks led them to self-exclude. Animators were in neighbourhoods and worked with local groups and on people's door steps to build up trust with a client-centred approach. Many unemployed people had lost trust in mainstream service through negative experiences with organisations such as schools, careers services and Job Centre Plus. They aimed to identify the strength in residents' bonding social capital and use their own bridging social capital to access a wide range of support and resources, not just employability support (Quinn & Seaman, 2008). The informal way animators worked with job-seekers enabled them to fit into the patterns of life associated with long-term unemployment, such as low self-confidence and a goal orientation associated with having lots of time to fill but no income with which to afford activities to fill it.

In the first phase of the FEAI scheme 60 per cent of those engaged on the doorstep continued to be involved in the scheme. Many people referred friends onto it. The interim evaluation showed that 42% of those who had engaged with the scheme were in work, but this was in the context of a growing economy with a strong labour market, so the counter-factual is difficult to prove. In 2006

the cost of an employment outcome (i.e. someone being in paid work) was estimated at £4,180 (Cambridge Policy Consultants, 20007).<sup>5</sup>

#### 6.3 Community development and community empowerment programmes

There is a broad neighbourhood organisation and community development literature which has not been fully canvassed by this review. Community engagement and empowerment has long been an aim for government in policies targeted at those experiencing poverty and living in deprived neighbourhoods (Taylor, 2003). The evaluation of the New Deal for Communities programme in England provides a substantial and robust evidence base on the challenges around community engagement to develop social networks. Across all the NDC partnerships, 18 per cent of total expenditure was on community involvement, second only to investment in housing and infrastructure. From this extensive investment, only 17 per cent of residents got involved in NDC activities and then mainly in passive activities such as attending fetes and other events. Only four per cent of all residents have been involved in some sort of voluntary activities (Batty, Beatty et al., 2010). The only benefit of this kind of community engagement for individuals was a greater commitment to the neighbourhood (Ibid.). The extensive research evidence on the NDC has pointed to a number of barriers to people becoming engaged, including: community activists only being interested in activities such as housing renewal (Lawless, 2013); the scepticism of residents towards local government based on previous experiences (Mathers et al., 2008); and individual challenges related to gender, ethnicity and faith (Beebeejaun & Grimshaw, 2011). The NDC evaluation found that older, working age women were most likely to be involved in NDC activities as volunteers, and as with broader patterns, involvement increased with educational qualifications.<sup>6</sup>

A key element in supporting community development through policy to strengthen networks is recognising the variability in community structures in different communities and building on strengths. The NDC and the Welsh Communities First programme both recognised the greatest community involvement occurred in neighbourhoods that had an existing structure of community organisations (Adamson & Bromiley, 2008; Batty et al., 2010). In the case of Communities First it was recognised that "careers" of community activists do result in the 'same faces' being at key meetings, but that this produces a strong infrastructure of community social capital.

The challenge in regeneration and similar project activities is sustaining good work beyond limited funding packages. Attention is increasingly focused on the coproduction of mainstream services as a means to develop networks and empower communities (Durose et al., 2013). The experience of the Big Lottery Funded Community Libraries Programme provides a good practical example of how policy could use mainstream neighbourhood institutions to develop social networks in this way, albeit in this case it was project funded. The programme invested £80 millions in 77 libraries across 58 local authorities spent on physical refurbishment and community development and engagement activities. Each library had to submit a community engagement plan. The programme of investment and management changes in local public libraries led to: increased use of resources (and more social mixing *per se*); people using infrastructure in new ways, particularly to use ICTs; new space for community activities, such as classes, informal groups, reading groups etc. all fostering social networks. The coproduction of services subsequently developed social capital and broader community influence (Museums Libraries & Archives Council, 2011). As with other forms of

<sup>&</sup>lt;sup>5</sup> Funding was initially from EU Objective 2 Structural Funds and then from the Scottish Executive Working for Families Fund.

<sup>&</sup>lt;sup>6</sup> See the associated evidence review on regeneration and poverty supported by the JRF for further details and discussion of this topic, including of the benefits to individuals of this engagement.

coproduction, this also meant that services could be tailored to local need, which could include specific measures to alleviate poverty.

#### **6.4** Affordable internet access schemes

Evidence is scarce on developing social networks through ICT interventions. In one study in the US Hampton (2010) found evidence that online interventions (in this case a platform for neighbourhood communication) enabled the sort of collective action in response to problems of social disorder that often emerges among communities, as discussed above. The programme, developed prior to the popularity of websites such as Facebook, was funded by research funding, and allowed people to create neighbourhood websites with email lists for quick communication. Of those neighbourhoods that engaged, 28 per cent were deprived, eight per cent higher than would be expected as only 20 per cent of total neighbourhoods in the area covered by the project were deprived. The biggest difference between deprived and non-deprived neighbourhoods was the content of what was discussed through the message boards, with crime and neighbourhood environmental problems being mentioned more in deprived neighbourhoods.

A qualitative study in Edinburgh sought to conduct a similar natural experiment (in this case a community history page about a deprived neighbourhood 'From There to Here') as a catalyst for community empowerment. The resources to run the page came from mainstream community development funded through the local community based housing association. This was supplemented with around £10,000 of investment by the Arts and Humanities Research Council on local infrastructure and £25,000 of investment by the Carnegie Trust. The direct benefits of the activities cannot be identified, however, among partners there was an agreed sense that the social network that emerged around reminiscence on the Facebook site indirectly lead to greater partnership working and the reinvigoration of community activism (Matthews, 2014, in press).

Outwith the existing academic research base this review found some evidence regarding internet provision by alternative providers to deliver affordable access. The Redbricks Intranet Collective in Manchester, for example, is a community organisation developed in response to poor broadband access in an area of social housing. It provides very cheap internet access and most importantly on flexible terms, allowing people to buy access as and when they can. With the Glasgow Housing Association rolling-out affordable internet access and free tablet devices to tenants, this could be a growing means to tackle the digital divide with £70,000 investment from the Scottish Government. This aims to tackle digital inclusion with a focus on online-only benefits, Universal Credit, and protecting income.

#### 6.5 What policy makers should not do

It was argued above, some support can be available within the social networks of people experiencing poverty, whether as support in-kind or material or monetary resources. Some more conditional welfare systems in North America have now begun to remove benefits if people are found to have received such support, even if this was support in-kind rather than direct financial assistance. Worryingly, research from Canada provided examples of lone parents having benefits cut if they had received monetary gifts or even support in-kind such as informal childcare (Gingrich, 2008). If such a policy trend emerged in the UK then it would act as a further barrier for poor people getting what help they can from their social networks.

#### 7. Conclusion

The working definition of poverty used by the JRF across their evidence reviews is:

"when a person's resources (mainly their material resources) are not sufficient to meet minimum needs (including social participation)."

The strongest evidence we found was that poverty acts as a barrier to engagement in social networks. Social networks might be important for tackling poverty in terms of accessing resources, either material or financial to help in the short term, or in terms of knowledge, such as job opportunities but they are unlikely to provide short-term help. The evidence thus broadly supports the view that poverty acts as a barrier to social participation, where this is considered a minimum need.

The more negative belief, that there are "cultures of worklessness" or other contagions spreading through the networks of people experiencing poverty, or those who live in deprived neighbourhoods, remains unproven. The evidence is too mixed and inconclusive, particularly from the neighbourhood effects research, to suggest it should be a priority for policy. What evidence there is suggests that any differences in behaviour reported are often a rational response to sociostructural inequalities and barriers; identifying and tackling these is likely to prove greater benefits.

A number of methodological challenges remain in the evidence base. Firstly, very few studies found in the evidence recorded data specifically on social networks – i.e. what other people an individual might know. This is primarily because of a lack of survey data at a sufficient scale. For example, most neighbourhood effects studies have to rely on administrative data or census data that does not include variables on membership of social networks. Data collected by the new Understanding Society survey should aid understanding here, and JRF is currently funding research to examine social networks across different ethnic groups and how they relate to poverty. As a result of the dearth of data, much of the impact of social networks on individuals has to be theorised or implied. Some of these theories have become the received wisdom in public debate – such as the impact of negative role models – yet the review was not able to identify evidence of a direct causal mechanism operating. However, as discussed in the section on neighbourhood effects, many small-scale qualitative studies, or policy interventions, do find causal mechanisms linking social networks and poverty, particularly around role models and shared cultural norms. However, we cannot with confidence extrapolate from this evidence to the population as a whole.

If an anti-poverty strategy was to include a focus on social networks, then the strength of the evidence from this review suggests this should only be a small part of the overall strategy. Income maximisation is the best way to ensure people can access and participate in social networks and gain any benefits in the longer term, be they specific material help or longer-term help such as access to job opportunities. Taking this into account, the policy implications of the evidence base in the short-term are:

- Build on successful examples of work activation policies based on community development methods and extending labour market horizons for those individuals who require them;
- Support community development activities in deprived neighbourhoods to create strong bonding networks that are bridged to networks of political influence;
- Support affordable internet access through cheap, flexible broadband, subsidised devices, and internet access in public libraries;
- Maintain facilities such as schools, libraries, parks and community centres that encourage social mixing and social networks, particularly in socially mixed neighbourhoods.

These interventions will have a minimal impact on tackling poverty, but they may help alleviate the impacts of poverty for some people. However, a longer-lasting impact may be to develop trust and understanding between different groups. Research based on the British Social Attitudes Survey found that, controlling for other factors, support for redistributive policy was stronger among affluent people who lived in mixed communities where they were likely to meet less affluent people – such as inner-city neighbourhoods (Bailey, Gannon et al., 2013b). If we can encourage social networks between different people at locations such as schools and public parks, then this may lead to greater political support for an anti-poverty policy.

## 8. Glossary of key terms

**Poverty** the report is based upon the JRF's definition of poverty used to frame the research programme:

"when a person's resources (mainly their material resources) are not sufficient to meet minimum needs (including social participation)."

In using this in data analysis we have chosen the consensual measure used in successive Poverty and Social Exclusion surveys in the UK: individuals in poverty are defined as people who lack three or more items considered by the majority of the UK population to be necessities, and who have indicated that they lack these items because they cannot afford them, although they would like to have them. In secondary data collected for this review various measures of poverty and low income have been used, with varying strengths and weaknesses, including income-based poverty measures of other countries (US, Netherlands, Norway). We have often had to rely on evidence using proxies for poverty or low income such as the Market Research Association's Social Grades; the National Statistics Socio-Economic Classification; and commonly tenure, or employment status.

**Social networks** across the literature there is no single definition of social networks, they can vary from knowing a neighbour to say "hello" to, to having strong ties to kin and friends that individuals can rely on.

**Social Capital** the concept of social capital is used widely in sociology and political science. It focuses attention on social networks that offer benefits for members. There are two key conceptions; firstly derived from Robert Putnam's work. This focuses on the extent of network membership and the amount of trust within networks. Societies with high levels of this sort of social capital are seen to be functioning more effectively than those without. The second is derived from the work of Pierre Bourdieu and critically aligns social capital with the unequal distribution of economic capital in society. It focuses on networks as means to gain influence and access to resources in society to accumulate further resources.

**Weak ties/strong ties** the research by Mark Granovetter in the 1970s focused attention on the strength of relationships within social networks. His early work identified large numbers of weak ties among professional employees that enabled them to access information about work opportunities and advancement. This has been contrasted with the limited networks of strong ties that people in less skilled labour markets rely on to change between similar level jobs.

Similarly a distinction has been made between "bonding" social capital that helps people get by, for example, being able to call on people for childcare or emotional support, and "bridging" capital that helps people get on by, for example, being able to access work opportunities or advice. Deprived communities and people experiencing poverty tend to have more bonding capital and less access to bridging capital than less deprived communities and better-off individuals.

**Reciprocity** many social networks are based on reciprocity – the return of favours or resources granted. Reciprocity can be individualised or generalised. Individualised reciprocity is the giving of resources to an individual with an explicit agreement that there will be a reciprocal exchange. Generalised reciprocity is the provision of resources to individuals within a group with the knowledge that someone in that group will return resources in exchange at some point in the future. Networks of generalised reciprocity are thus high-trust networks.

**Neighbourhood effects** is the theory that there is an effect on an individual's outcomes from living in a neighbourhood with a concentration of people with a certain characteristic, above and beyond the individual's own characteristics. To put it simply in this case, it is the theory that experiencing

poverty in a deprived neighbourhood is worse as the neighbourhood itself reduces the chances of leaving poverty.

**Mixed community** there is no single definition of a mixed community, but across the literature reviewed mixed communities were either mixed in terms of tenure, particularly in the UK where this can be a proxy for household income; mixed in terms of the incomes of households; or mixed in terms of ethnic diversity, particularly in Netherlands and US context. "Mixing" can occur from neighbourhoods being built as mixed through regeneration programmes and similar; becoming mixed through tenure diversity as a result of the Right-to-Buy policies; or through housing voucher schemes.

**Digital divide** is a contested term, but is largely understood to be the divide between people who have ready access to information communications technologies and those who do not. Two digital divides are more commonly identified: a socio-economic divide where less well-off people cannot afford the up-front of on-going cost of internet access; and a cohort divide where older people are not comfortable using newer technologies.

**Web 2.0 and social networking** web 2.0 generally refers to websites and other resources that allow people to create their own content on the web include blogs, video-sharing sites, audio-sharing sites, noticeboards and micro-blogging. Social networking, through sites such as Facebook, LinkedIn and Twitter is a subset of web 2.0 technologies that specifically allow people to share information with social networks.

**Moving to Opportunity (MTO)** was a major US programme that provided residents of deprived neighbourhoods with vouchers to move to mixed or high income neighbourhoods. It specifically sought to change individuals' social networks through changing their residential location. MTO, similar voucher programmes, and other policies to change the residential mix of neighbourhoods, therefore provide invaluable evidence.

#### 9. References

Adamson, D. and R. Bromiley (2008). <u>Community Empowerment In Practice: Lessons from Community First</u>. York, Joseph Rowntree Foundation.

Agger, A. and J. N. Larsen (2009). "Exclusion in area-based urban policy programmes." <u>European Planning Studies</u> **17**(7): 1085 - 1099.

Ahmed, A., L. Andersson, et al. (2013). "Sexual orientation and full-time monthly earnings, by public and private sector: evidence from Swedish register data." Review of Economics of the Household **11**(1): 83-108.

Albelda, R., M. Badgett, et al. (2009, updated 2013). Poverty in the lesbian, gay, and bisexual community, The Williams Institute.

Alesina, A., A. Devleeschauwer, et al. (2003). "Fractionalization." <u>Journal of Economic growth</u> **8**(2): 155-194.

Andersson, R., S. Musterd, et al. (2013). "Neighbourhood Ethnic Composition and Employment Effects on Immigrant Incomes." <u>Journal of Ethnic and Migration Studies</u>(ahead-of-print): 1-27.

Arabsheibani, G. R., A. Marin, et al. (2005). "Gay pay in the UK." Economica 72(286): 333-347.

Arthurson, K. (2010). "Operationalising Social Mix: Spatial Scale, Lifestyle and Stigma as Mediating Points in Resident Interaction." <u>Urban Policy and Research</u> **28**(1): 49-63.

Atkinson, R. and K. Kintrea (2001). "Disentangling area effects: evidence from deprived and non-deprived neighbourhoods." Urban Studies 38(12): 2277-2298.

Atkinson, R. and K. Kintrea (2004). "'Opportunities and despair, it's all in there': practitioner experiences and explanations of area effects and life chances." <u>Sociology</u> **38**(3): 437-455.

Bailey, N., G. Bramley, et al. (2013a). "How neighbourhood context shapes poverty: some results from the Poverty and Social Exclusion UK Survey 2012." Paper presented to the "Poverty Neighbourhoods" workshop, European Network for Housing Research conference, (Tarragona, 19-22 June 2013).

Bailey, N., M. Gannon, et al. (2013). "Living apart, losing sympathy? How neighbourhood context affects attitudes to redistribution and to welfare recipients." <u>Environment and planning A</u> **45**(9): 2154-2175.

Batty, E., C. Beatty, et al. (2010). <u>Involving local people in regeneration: Evidence from the New Deal for Communities Programme</u>. The New Deal for Communities National Evaluation: Final report – <u>Volume 2</u>. London, Communities and Local Government.

Baumle, A. K. and D. L. Poston (2011). "The Economic Cost of Homosexuality: Multilevel Analyses." <u>Social Forces</u> **89**(3): 1005-1031.

Baym, N. K. and d. boyd (2012). "Socially Mediated Publicness: An Introduction." <u>Journal of Broadcasting & Electronic Media</u> **56**(3): 320-329.

Beebeejaun, Y. and L. Grimshaw (2011). "Is the "New Deal for Communities" a New Deal for Equality? Getting Women on Board in Neighbourhood Governance." <u>Urban Studies</u> **48**(10): 1997-2011.

Berg, N. and D. Lien (2002). "Measuring the Effect of Sexual Orientation on Income: Evidence of Discrimination?" <u>Contemporary economic policy</u> **20**(4): 394-414.

Bradshaw, P. and F. Wasoff (2009). Growing Up in Scotland: Multiple Childcare Provision and its Effect on Child Outcomes. Edinburgh, The Scottish Government.

Blokland, T. (2008). ""You Got to Remember you Live in Public Housing": Place-Making in an American Housing Project." Housing, Theory and Society **25**(1): 31-46.

Boon, B. and J. Farnsworth (2011). "Social Exclusion and Poverty: Translating Social Capital into Accessible Resources." <u>Social Policy & Administration</u> **45**(5): 507-524.

Bowen, G. A. (2009). "Social Capital, Social Funds and Poor Communities: An Exploratory Analysis." <u>Social Policy & Administration</u> **43**(3): 245-269.

Burchardt, T. (2010). "Time, income and substantive freedom: A capability approach." <u>Time & Society</u> **19**(3): 318-344.

Cambridge Policy Consultants (20007). Full Employment Areas Initiative - Mid Term Progress Review: Executive Summary. Cambridge, CPC.

Carpenter, C. S. (2008). "Sexual orientation, work, and income in Canada." <u>Canadian Journal of Economics - Revue Canadienne D' Economique</u> **41**(4): 1239-1261.

Casciano, R. and D. S. Massey (2012). "Neighborhood disorder and individual economic self-sufficiency: New evidence from a quasi-experimental study." <u>Social Science Research</u> **41**(4): 802-819.

Catney, G. (2013). Has neighbourhood ethnic segregation decreased? Dynamics of Diversity: Evidence from the 2011 Census. Manchester, University of Manchester.

Cheshire, P. (2007). <u>Segregated Neighbourhoods and Mixed Communities: A Critical Analysis</u>. York, Joseph Rowntree Foundation.

Cheshire, P. (2009). "Policies for Mixed Communities." International Regional Science Review 32(3): 343-375.

Curley, A. M. (2010a). "Neighborhood Institutions, Facilities, and Public Space: A Missing Link for HOPE VI Residents' Development of Social Capital?" <u>Cityscape: A Journal of Policy Development and Research</u> **12**(1): 33-64.

Curley, A. M. (2010b). "Relocating the poor: Social capital and neighbourhood resources." <u>Journal of Urban Affairs</u> **32**(1): 79-103.

Dabinett, G., P. Lawless, et al. (2001). A Review of the Evidence Base for Regeneration Policy and Practice. London, Department of the Environment, Transport and the Regions.

Dex, S., D. Hawkes, et al. (2005). Parent's employment and childcare. . Children of the 21st century: From birth to nine months. Dex, S. and Joshi, H. Bristol, The Policy Press.

Doan, P. L. and H. Higgins (2011). "The Demise of Queer Space? Resurgent Gentrification and the Assimilation of LGBT Neighborhoods." Journal of Planning Education and Research 31(1): 6-25.

Dorling, D. and P. Rees (2003). "A nation still dividing: the British census and social polarisation 1971 - 2001." Environment and Planning A 35(7): 1287-1313.

Durose, C., C. Mangan, et al. (2013). AHRC Connected Communities Policy Review: Towards transformative co-production of local public services. Birmingham, University of Birmingham.

Edwards, C. (2009). "Regeneration works? Disabled people and area-based urban renewal." Critical Social Policy 29(4): 613-633.

Egerton, M. (2002). "Higher Education and Civic Engagement." <u>The British Journal of Sociology</u> **53**(4): 603-621.

Egerton, M. and K. Mullan (2008). "Being a pretty good citizen: an analysis and monetary valuation of formal and informal voluntary work by gender and educational attainment." <u>British Journal of Sociology</u> **59**(1): 145-164.

Forrest, R. and A. Kearns (2001). "Social cohesion, social capital and the neighbourhood." <u>Urban Studies</u> **38**(12): 2125-2143.

Frederick, T. (2014). Diversity at the margins: The interconnections between homelessness, sex work, mental health, and substance use in the lives of sexual minority homeless young people. <u>Handbook of LGBT communities, crime, and justice</u>. Peterson, D. and Panfill, V. R. New York, Springer: 473-501.

Friedrichs, J. and J. Blasius (2003). "Social norms in distressed neighbourhoods: testing the Wilson hypothesis." Housing Studies V18(6): 807.

Galster, G., R. G. Quercia, et al. (2000). "Identifying neighborhood thresholds: an empirical exploration." Housing Policy Debate 11(3): 701-732.

Galster, G. (2007). "Neighbourhood Social Mix as a Goal of Housing Policy: A Theoretical Analysis." <u>International Journal of Housing Policy</u> **7**(1): 19-43.

Galster, G. (2007). "Should Policy Makers Strive for Neighborhood Social Mix? An Analysis of the Western European Evidence Base." Housing Studies 22(4): 523-545.

Galster, G., R. Andersson, et al. (2010). "Who Is Affected by Neighbourhood Income Mix? Gender, Age, Family, Employment and Income Differences." <u>Urban Studies</u> **47**(14): 2915-2944.

Gay, C. (2012). "Moving to Opportunity: The Political Effects of a Housing Mobility Experiment." <u>Urban Affairs Review</u> **48**(2): 147-179.

Gilchrist, A. and P. Kyprianou (2011). Social networks, poverty and ethnicity. <u>Poverty and ethnicity</u>. Foundation, J. R. York Joseph Rowntree Foundation.

Gingrich, L. G. (2008). "Social Exclusion and Double Jeopardy: The Management of Lone Mothers in the Market–State Social Field." <u>Social Policy & Administration</u> **42**(4): 379-395.

Graham, E., D. Manley, et al. (2009). "Mixing Housing Tenures: Is it Good for Social Well-being?" <u>Urban Studies</u> **46**(1): 139-165.

Green, A. and R. White (2007). <u>Attachment to Place: Social Mobility and Prospects of Young People</u>. York, Joseph Rowntree Foundation.

Green, A. E., M. de Hoyos, et al. (2011). <u>Job Search Study: Literature review and analysis of the Labour Force Survey</u>. London, Department for Work and Pensions.

Green, A. E., Y. Li, et al. (2012). "Inequalities in use of the Internet for job search: similarities and contrasts by economic status in Great Britain." Environment and Planning A **44**(10): 2344-2358.

Grimshaw, L. (2011). "Community work as women's work? The gendering of English neighbourhood partnerships." <u>Community Development Journal</u> **46**(3): 327-340.

Guest, A. M., C. E. Kubrin, et al. (2008). "Heterogeneity and Harmony: Neighbouring Relationships among Whites in Ethnically Diverse Neighbourhoods in Seattle." <u>Urban Studies</u> **45**(3): 501-526.

Gundelach, B. and M. Freitag (2013). "Neighbourhood Diversity and Social Trust: An Empirical Analysis of Interethnic Contact and Group-specific Effects." <u>Urban Studies</u>(Published online before print).

Hall, E. (2005). "The entangled geographies of social exclusion/inclusion for people with learning disabilities." Health & Place **11**(2): 107-115.

Halstead, M. and M. Reiss (2004). Values in sex education: From principles to practice, Routledge.

Hampton, K. N. (2010). "Internet Use and the Concentration of Disadvantage: Glocalization and the Urban Underclass." <u>American Behavioral Scientist</u> **53**(8): 1111-1132.

Hargittai, E. (2007). "Whose Space? Differences Among Users and Non-Users of Social Network Sites." <u>Journal of Computer-Mediated Communication</u> **13**(1): 276-297.

Heath, S. (2008). "Housing choices and issues for young people in the UK." <u>Joseph Rowntree</u> Foundation, York.

Heflin, C., A. S. London, et al. (2011). "Mitigating Material Hardship: The Strategies Low-Income Families Employ to Reduce the Consequences of Poverty\*." <u>Sociological Inquiry</u> **81**(2): 223-246.

Homes, A. and L. Murray (2008). <u>Cognitive question testing Scotland's census ethnicity classification [electronic resource]</u>. Edinburgh, Scottish Government.

Imrie, R. (1996). Disability and the city: International perspectives. London, Sage.

Jivraj, S. and O. Khan (2013). Ethnicity and deprivation in England: How likely are ethnic minorities to live in deprived neighbourhoods? Dynamics of Diversity: Evidence from the 2011 Census. Manchester, University of Manchester.

Laurence, J. (2009). "The Effect of Ethnic Diversity and Community Disadvantage on Social Cohesion: A Multi-Level Analysis of Social Capital and Interethnic Relations in UK Communities." European Sociological Review.

Laurent, T. and F. Mihoubi (2012). "Sexual Orientation and Wage Discrimination in France: The Hidden Side of the Rainbow." <u>Journal of Labor Research</u> **33**(4): 487-527.

Lawless, P. (2013). "Reconciling "Bottom-Up" Perspectives with "Top-Down" Change Data in Evaluating Area Regeneration Schemes." <u>European Planning Studies</u>: 1-16.

Li, Y., M. Savage, et al. (2003). "Social Capital and Social Exclusion in England and Wales (1972-1999)." British Journal of Sociology **54**(4): 497-526.

Lindsay, C. (2010). "In a Lonely Place? Social Networks, Job Seeking and the Experience of Long-Term Unemployment." <u>Social Policy and Society</u> **9**(01): 25-37.

Litt, E. (2012). "Knock, Knock. Who's There? The Imagined Audience." <u>Journal of Broadcasting & Electronic Media</u> **56**(3): 330-345.

Livingston, M., A. Kearns, et al. (2013). "Neighbourhood Structures and Crime: The Influence of Tenure Mix and Other Structural Factors upon Local Crime Rates." Housing Studies 29(1): 1-25.

McCabe, A., Gilchrist, A., Harris, K., Afridi, A., & Kyprianou, P. (2013). *Making the links: poverty, ethnicity and social networks* (Report): Joseph Rowntree Foundation.

Macdonald, R., T. Shildrick, et al. (2014). "In search of 'intergenerational cultures of worklessness': Hunting the Yeti and shooting zombies." Critical Social Policy 34(2): 199-220.

Manturuk, K. I. M., M. Lindblad, et al. (2010). "Friends and neighbors: home ownership and social capital among low- to moderate-income families." <u>Journal of Urban Affairs</u> **32**(4): 471-488.

Markkanen, S. and M. Harrison (2013). ""Race", Deprivation and the Research Agenda: Revisiting Housing, Ethnicity and Neighbourhoods." <u>Housing Studies</u> **28**(3): 409-428.

Mathers, J., J. Parry, et al. (2008). "Exploring Resident (Non-)participation in the UK New Deal for Communities Regeneration Programme." <u>Urban Studies</u> **45**(3): 591-606.

Matthews, P. (2014, in press). "Neighbourhood belonging, social class and social media – providing ladders to the cloud" Housing Studies.

Matthews, P. (2012a). "From area-based initiatives to strategic partnerships: have we lost the meaning of regeneration?" <u>Environment and Planning C: Government and Policy</u> **30**(1): 147-161.

Matthews, P. (2012b). "Problem definition and re-evaluating a policy: the real successes of a regeneration scheme." <u>Critical Policy Studies</u> **6**(3): 243-260.

Matthews, P., K. Besemer, et al. (2012). <u>'Hard-to-Reach' or 'Easy-to-Ignore'? A rapid review of place-based policies and equality Glasgow, Equalities and Human Rights Commission Scotland.</u>

Matthews, P. and A. Hastings (2013). "Middle-Class Political Activism and Middle-Class Advantage in Relation to Public Services: A Realist Synthesis of the Evidence Base." <u>Social Policy & Administration</u> **47**(1): 72-92.

Matthews, R., R. Pendakur, et al. (2009). "Social Capital, Labour Markets, and Job-Finding in Urban and Rural Regions: comparing paths to employment in prosperous cities and stressed rural communities in Canada1,2." <u>The Sociological Review</u> **57**(2): 306-330.

McPherson, M., L. Smith-Lovin, et al. (2001). "Birds of a feather: Homophily in social networks." Annual Review of Sociology: 415-444.

Mennis, J., S. L. Dayanim, et al. (2013). "Neighborhood collective efficacy and dimensions of diversity: a multilevel analysis." <u>Environment and Planning A</u> **45**(9): 2176-2193.

Meyer, I. H. (2003). "Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence." <u>Psychological Bulletin</u> **129**(5): 674-697.

Morenoff, J. D., R. J. Sampson, et al. (2001). "Neighborhood inequality, collective efficacy, and the spatial dynamics of urban violence." <u>Criminology</u> **39**(3): 517-558.

Mossberger, K., D. Kaplan, et al. (2008). "Going Online Without Easy Access: A tale of three cities." <u>Journal of Urban Affairs</u> **30**(5): 469-488.

Mossberger, K., C. J. Tolbert, et al. (2012). "Unraveling Different Barriers to Internet Use: Urban Residents and Neighborhood Effects." <u>Urban Affairs Review</u> **48**(6): 771-810.

Museums Libraries & Archives Council (2011). <u>Community engagement in public libraries: an evaluation update of the Big Lottery Fund's Community Libraries Programme</u>. Birmingham, Museums, Libraries & Archives Council.

Nazroo, J. and D. Kapadia (2013). <u>Ethnic inequalities in labour market participation?</u> Manchester, Centre on Dynamics of Ethnicity.

Noble, M., G. Wright, et al. (2006). "Measuring multiple deprivation at the small-area level." Environment and planning A 38(1): 169-185.

Ofcom (2013). Communications Market Report 2013. London, Ofcom.

Offer, S. (2012). "The burden of reciprocity: Processes of exclusion and withdrawal from personal networks among low-income families." Current Sociology.

Office for Disability Issues (2014). Disability Facts and Figures. http://odi.dwp.gov.uk/disability-statistics-and-research/disability-facts-and-figures.php Accessed 23 April 2014.

Pinkster, F. M. and J. D. Fortuijn (2009). "Watch out for the neighborhood trap! A case study on parental perceptions of and strategies to counter risks for children in a disadvantaged neighborhood." <u>Children's Geographies</u> **7**(3): 323-337.

Pinkster, F. M. and B. Völker (2009). "Local Social Networks and Social Resources in Two Dutch Neighbourhoods." <u>Housing Studies</u> **24**(2): 225-242.

Plug, E. and P. Berkhout (2004). "Effects of sexual preferences on earnings in the Netherlands." <u>Journal of Population Economics</u> **17**(1): 117-131.

Portes, A. (2000). "The two meanings of social capital." Sociological Forum 15(1): 1-12.

Putnam, R. (2000). <u>Bowling Alone: The Collapse and Revival of American Community</u>. New York, Touchstone.

Quinn, P. and P. Seaman (2008). Social Networks and Poverty. Glasgow, Glasgow Centre for Population Health.

Rasinski, K. A., L. Lee, et al. (2010). "Functional and social neighborhood integration of leaseholders relocated into public and private housing by the Chicago Housing Authority's Plan for Transformation." Housing Policy Debate **20**(1): 65-89.

Robson, B., K. Lymperopoulou, et al. (2008). "People on the move: exploring the functional roles of deprived neighbourhoods." Environment and Planning A 40(11): 2693-2714.

Sampson, R. J. and W. B. Groves (1989). "Community Structure and Crime: Testing Social-Disorganization Theory." <u>American Journal of Sociology</u> **94**(4): 774-802.

Sari, F. (2012). "Analysis of Neighbourhood Effects and Work Behaviour: Evidence from Paris." Housing Studies **27**(1): 45-76.

Sautkina, E., L. Bond, et al. (2012). "Mixed Evidence on Mixed Tenure Effects: Findings from a Systematic Review of UK Studies, 1995â€"2009." Housing Studies **27**(6): 748-782.

Savage, M. (2010). <u>Identities and Social Change in Britain Since 1940: the Politics of Method</u>. Oxford, Oxford University Press.

Shildrick, T., R. MacDonald, et al. (2010). <u>The Low-pay, No-pay Cycle: Understanding recurrent poverty</u>. York, Joseph Rowntree Foundation.

Shildrick, T., R. MacDonald, et.al. (2012) <u>Are Cultures of Worklessness Passed Down The Generations?</u> York, Joseph Rowntree Foundation.

Stolle, D., S. Soroka, et al. (2008). "When Does Diversity Erode Trust? Neighborhood Diversity, Interpersonal Trust and the Mediating Effect of Social Interactions." Political Studies **56**(1): 57-75.

Sturzaker, J. (2010). "The exercise of power to limit the development of new housing in the English countryside." Environment and planning A 42(4): 1001-1016.

Taylor, M. (2003). Public Policy in the Community. Basingstoke, Palgrave Macmillan.

Tillie, J. (2004). "Social capital of organisations and their members: explaining the political integration of immigrants in Amsterdam." <u>Journal of Ethnic and Migration Studies</u> **30**(3): 529-541.

Tran, V. C., C. Graif, et al. (2013). "Participation in Context: Neighborhood Diversity and Organizational Involvement in Boston." <u>City & Community</u> **12**(3): 187-210.

Tunstall, R. and R. Lupton (2010). <u>Mixed Communities: Evidence Review</u>. London, Communities and Local Government.

Tunstall, R., R. Lupton, et al. (2012). <u>Disadvantage Young People Looking For Work: A Job In Itself?</u> York, Joseph Rowntree Foundation.

Twigg, L., J. Taylor, et al. (2010). "Diversity or disadvantage? Putnam, Goodhart, ethnic heterogeneity, and collective efficacy." <u>Environment and planning</u> **42**(6): 1421.

Uhrig, S. (2014). An Examination of Poverty and Sexual Orientation in the UK. Essex, Institute for Social and Economic Research.

Uslaner, E. M. (2011). "Trust, Diversity, and Segregation in the United States and the United Kingdom1." Comparative Sociology **10**(2): 221-247.

van Bergeijk, E., G. Bolt, et al. (2008). <u>Social cohesion in deprived neighborhoods in the Netherlands:</u> <u>The effect of the use of neighborhood facilities</u>. Annual Meeting of the Housing Studies Association, York, United Kingdom.

van Eijk, G. (2010). "Does living in a poor neighbourhood result in network poverty? A study on local networks, locality-based relationships and neighbourhood settings." <u>Journal of Housing and the Built Environment</u> **25**(4): 467-480.

van Ham, M. and D. Manley (2010). "The effect of neighbourhood housing tenure mix on labour market outcomes: a longitudinal investigation of neighbourhood effects." <u>Journal of Economic Geography</u> **10**(2): 257-282.

Wellman, B. (2001). "Physical Place and Cyberplace: The Rise of Personalized Networking." <u>International Journal of Urban and Regional Research</u> **25**(2): 227-252.

Whitfield, G., K. Perren, et al. (2010). <u>Literature review to inform the future digitisation of Jobcentre Plus service delivery</u>. London, Department of Work and Pensions.

Wilson, W. J. (1996). The truly disadvantaged: The hidden agenda. <u>Readings in Urban Theory</u>. Fainstein, S. S. and Campbell, S. Oxford, Blackwell.

Wilson, W. J. (1997). When Work Disappears: The World of the New Urban Poor. New York, Knopf.

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