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Migration selectivity and area-based regeneration in England

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Despite limited evidence there appears to be a widely held assumption that area-based regeneration programmes lead to selective migration. Many practitioners, policy-makers and evaluators believe that area-based regeneration programmes exacerbate a process whereby less deprived individuals move out of deprived neighbourhoods and disadvantaged individuals move into deprived neighbourhoods. This paper reviews existing evidence and provides an innovative approach to measuring net migration flows for regeneration areas using Pupil Level Annual School Census data for Neighbourhood Management Pathfinder Round 2 areas in England.

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Migration selectivity and area-based regeneration in England

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Abstract

Despite limited evidence there appears to be a widely held assumption that area-based regeneration programmes lead to selective migration. Many practitioners, policymakers and evaluators believe that area-based regeneration programmes exacerbate a process whereby less deprived individuals move out of deprived neighbourhoods and disadvantaged individuals move into deprived neighbourhoods. This paper reviews existing evidence and provides an innovative approach to measuring net migration flows for regeneration areas using Pupil Level Annual School Census data for Neighbourhood Management Pathfinder Round 2 areas in England. The results show that net migration flows actually reduced the concentration of poor pupils in Neighbourhood Management Pathfinder Round 2 areas before and during the regeneration programme. The effect of this process, however, was minor as migration only accounted for a 0.2 percent decrease of poor pupils in the regeneration areas as a whole. The aggregate results mask a variation between the individual regeneration areas in terms of the effect of migration. This suggests policy makers at the local and the national level should consider the effect of migration on the concentration of deprivation when evaluating the success of individual programmes. The ability to generalise the findings beyond the Pupil Level Annual School Census is discussed as an area for further research.

1 Introduction

The failure of UK area-based regeneration programmes to narrow the gap between deprived neighbourhoods and the national average on a number of socio-economic indicators is often attributed to the outward movement of less deprived individuals (Bailey and Livingston, 2007; 2008; Cole et al, 2007). Practitioners, policy-makers and academic evaluators have argued that if individuals experience an improvement in their situation as a result of a regeneration programme, they are likely to move out of a target area (ODPM Select Committee, 2003).

The academic evaluation team of the New Deal for Communities¹ (NDC) regeneration programme have detailed what they term as a 'moving escalator' in neighbourhood regeneration areas in England (Cole et al, 2007). They state that:

"Improving life chances, through education, health, training, job mentoring and so on, may help the job prospects and material circumstances of local residents. As a result, more may want, and be able to, leave the [regeneration] area." (Cole et al, 2007: p.5).

This 'selective migration' leads to benefits of area-based initiatives to leak out of target areas as those who 'get on', 'get out' (Bailey and Livingston, 2007: p.2). Moreover, if these out-movers are in turn replaced by relatively more disadvantaged individuals authors argue that regeneration programmes may find themselves working with steadily more deprived communities (Cheshire et al, 2003).

Others argue that economically segregated communities are an inevitable outcome of unrestricted movement and that regeneration programmes do little, either positive or negative, to change the social mix of an area (Meen et al, 2005). Economics literature suggests that attempts to achieve mixed communities are problematic because segregated communities are stochastically stable (Andrew and Meen, 2006). This idea originates from the work of Schelling (1971). An alternative strand of economics stresses cumulative processes of growth and decline which lead to increasing

¹ New Deal for Communities (NDC) is an earlier programme in the UK Labour government's strategy to tackle multiple deprivation in the most deprived neighbourhoods in the country, giving some of our poorest communities the resources to tackle their problems in an intensive and co-ordinated way. 17 pathfinder partnerships were announced in 1998, followed by a second round of 22 partnerships in 1999. Approximately £2bn has been committed to the 39 partnerships (NRU, 2002).

segregation between areas of wealth and poverty because of selective migration (Andrew and Meen, 2006). Meen et al (2005) summarise this theory:

"Observed patterns of segregation are the outcome of the changing location choices and constraints faced by individuals. The availability of suitable housing provides one constraint, but more general economic and neighbourhood conditions are of equal if not more importance. Low income households tend to be trapped in the worst locations, where high income households can escape more easily. Polarisation ensues." (Meen et al, 2005: p.2)

This paper aims to provide an innovative approach to measuring migratory flows for neighbourhood regeneration areas using data from the Pupil Level Annual School Census (PLASC). The PLASC is an administrative dataset created in 2002 and contains individual pupil records for all state educated school children in England including pupils' home postcode and free school meal (FSM) eligibility status (Harland and Stillwell, 2007a; 2007b).

The central research question of the study is:

Do migration flows act to reinforce area-based deprivation in regeneration areas?

To answer this question the following hypotheses are tested which summarise some of the largely untested claims about the effect of migration in regeneration areas:

- The net impact of migration on areas identified as requiring regeneration interventions because of their relative deprivation is to increase their deprivation through selective migration.
- Once a regeneration programme has started the net loss of less deprived individuals and net gain of disadvantaged individuals is exacerbated.

Despite the claims about the side-effects of area-based regeneration programmes, the evidence that has to date been used in the UK to illustrate the scale, composition and impact of migration flows for deprived neighbourhoods is very poor (Bailey and Livingston, 2008; Cole et al, 2007). The main reason is that such migratory flows are

very difficult to measure. Bailey and Livingston (2008) argue that while it is relatively easy to identify recent in-migrants to an area through surveys, it is much more difficult to obtain a representative sample of those who have left (Bailey and Livingston, 2008).

It is important to point out that this paper does not aim to discover whether neighbourhood regeneration areas are becoming more or less deprived as a result of area-based interventions. The paper does, however, assess the impact of migration on social segregation in neighbourhood regeneration areas. The paper is structured as follows. This section provides an introduction to the study. Section two provides a review of existing empirical evidence. Section three outlines the data and methods used in this study. Section four presents the research findings. Section five provides conclusions and identifies areas for further research.

2 Existing evidence and data sources

The most in-depth work to date of selective migration flows in the UK, with a focus on deprived areas, is Bailey and Livingston's (2005; 2007; 2008) Joseph Rowntree Foundation study. In a series of papers and reports they used 2001 Census data for England and Scotland at the neighbourhood level to measure migration. Using educational attainment as an indicator of individual deprivation Bailey and Livingston's analysis of the 2001 Census data suggests that migratory flows are leading to an increase in concentration of deprivation in deprived areas whilst reducing the concentration in less deprived areas. They do, however, point out that the effect is very marginal:

"For deprived areas in England, net migration flows in the year leading up to the Census effectively raised the proportion of people with lower qualifications from 72.2% to 72.3% – an increase of 0.11%. For the least deprived areas, net flows reduced the concentration of the same group by 0.05%. The average fell by 0.01% due to in-migration from other parts of the UK." (Bailey and Livingston, 2007: p.52).

They state another way of thinking about the scale of the migration effect is to look at what other changes might be needed to prevent the gap between deprived areas and the national average increasing:

[In England], the movement of 1.2 residents per 1,000 from lower to higher educational groups would be enough to offset this change [in deprived areas]. Alternatively, the attraction of 1.7 more in-migrants with higher educational qualifications per 1,000 residents [to deprived areas] would achieve the same result. (Bailey and Livingston, 2007: p.52).

Bailey and Livingston (2008) found that NDC regeneration areas were more likely to show a reduction in the concentration of deprivation through migration than nonintervention areas with similar levels of deprivation. This suggests that the idea that regeneration funding is responsible for selective migration is unfounded and that movement out of deprived areas more generally, is more likely, but also overstated. However, Bailey and Livingston's study suffers from a number of limitations. For example, although educational qualifications are a strong indicator of income and wealth, they do not represent all the issues faced by people living in deprived areas. Wheeler et al (2005) find that those with a degree level qualification in less affluent areas are less likely to be working in graduate level jobs compared with those living in affluent areas. Also, the 2001 Census data only records movement in one particular year which may not be representative of the movement between Censuses. This is particularly a problem for the point in time in which the migration took place (2000-2001) as this was very early on in the NDC programme. Most of the partnerships had only been running for less than a year, in which time they often spend deciding priorities and recruiting staff rather than implementing interventions.

Contrary to Bailey and Livingston's findings, the results of the NDC evaluation survey support the notion of selective migration in regeneration areas (Cole et al, 2007). The NDC evaluation team found that those groups moving out of NDC areas tended to be replaced by relatively more disadvantaged groups. Table 1 shows that the people leaving NDC areas in 2004 were more likely to be employed, higher earners, owner occupiers and better qualified than people moving into NDC areas and people remaining in NDC areas.

 Table 1. Characteristics of mobility populations for NDC areas, 2004

	% within	% In-	% Out-
	area stayer	mover	mover
Employed*	55	47	71
Household income $\leq f_{100}$ per week	11	20	8
Owner occupied housing	38	16	48
NVQ level 4+*	17	30	33

Base: All; Within area stayers (10,767), In-movers (2,225), Out-movers (330) *Working age only; Within area stayer (7,658), In-mover (2,136), Out-mover (288) Note: NVQ level 4 is an educational qualification equivalent to a degree in England Source: MORI/NOP (2004) cited in Cole et al (2007: p.10)

Another survey evaluating the success of a City Challenge² regeneration initiative in West London found that unemployment rates in the target area actually rose relative to other deprived areas over the five year life of the programme in spite of evidence of an effective programme of training and employment interventions (Cheshire et al,

² City Challenge allocated £37.5m each over five years to 31 Urban Programme authorities in England to achieve self-sustaining regeneration of their designated City Challenge areas on the basis of two competitions. In the first round, 17 local authorities covering 15 areas were invited to compete for City Challenge status. They were chosen to represent the wide range of circumstances across the country and their ability to work up imaginative plans quickly. Bids were submitted by cross-sectoral Partnerships. Eleven areas were selected as Pacemakers to pilot the initiative. For Round 2, starting in April 1993, all 57 of the then Urban Programme Authorities were invited to bid. There were twenty winners out of fifty tour bids.

2003). The evaluators of this programme attributed this to selective migration because the out-movers (who were more likely to be employed than stayers and in-movers) were much more likely to have been involved in the employment training courses which were funded by the regeneration programme (37% compared with 6% for in-movers and 13% for stayers).

Resident surveys, such as the one conducted for the NDC evaluation and the City Challenge area, often find it difficult and expensive to track out-movers with the danger that samples of this critical group tend to be small and suffer from bias (Bailey and Livingston, 2008). There were 330 out-movers in the NDC survey and only 48 in the City Challenge survey. There was also no control used for what went before in either survey, for example, to test whether there would have been the same effect if the regeneration programme had not been implemented.

Evidence of selective migration increasing the spatial concentration of social disadvantage is by no means limited to the UK. A study by Nord (1998) uses 1990 US Census data to examine differences in poverty specific migration flows between poor and non-poor areas. He shows that net flows act to reinforce spatial segregation as poor people move away from affluent areas and to poor areas, while the non-poor move in the opposite direction. The migration data Nord uses from the 1990 US Census is only available at US county level which is equivalent to UK local authority district level. Analysis at such a large geographical level will undoubtedly conceal differences between concentrations of poverty at the neighbourhood level and therefore limits the findings of Nord's study. Foulkes and Newbold (2005) used 2000 Census data for rural areas in Illinois, USA to explore factors associated with geographical mobility in both poor and non-poor areas. They state that it is necessary to choose a data source that offers migration data for areas smaller than a county if one is interested in geographic mobility of small areas. The 2000 US Census satisfies this criterion. They found that accessible housing in the form of rental tenure is strongly associated with high mobility and more so in non-poor places than poor places. They suggest that these findings, limited to rural areas in Illinois, raise questions regarding whether geographic mobility in impoverished places behaves according to long-standing migration theory.

In countries with a population register, measurement of internal migration is made easier with almost full population coverage by population group and geographical area. Two Scandinavian studies use such register-based datasets (Bailey and Livingston, 2008). Graversen et al (1997) examine migration into and out of 'problem housing estates' in Denmark in the early 1990s. Andersson and Brama (2004) look at migratory flows for deprived areas in the Stockholm region of Sweden targeted by an area-based urban policy initiative. Both studies show that net migration flows reinforce area-based deprivation. Graversen et al (1997) use a statistical model to identify factors important for out-migration from the problem housing estates. They found that individuals who are marginalised from the labour market have a mobility out of problem housing estates that is much lower than the mobility of people with a strong attachment to the labour market. Andersson and Brama (2004) show that selective migration patterns were consistent in two time periods with very different macro economic contexts. They found that in-movers were more likely to be unemployed and claiming social benefits and have lower levels of income compared with out-movers. This process, they suggest, has the effect of reproducing the deprived character of the targeted areas.

3 Data and methods

Neighbourhood Management Pathfinder Programme

The Neighbourhood Management Pathfinder Round 2 (NMP2) regeneration areas are the focus of this study. The Neighbourhood Management Pathfinder (NMP) programme is a long-term initiative in England, under which a neighbourhood partnership receives central government funding for seven years, subject to satisfactory performance and outcomes of future spending reviews (NRU, 2004). Following the creation of 20 Round 1 areas in 2001, the programme was rolled out to a further 15 Round 2 NMP areas in 2004. Table 2 provides a list of the NMP2 partnerships. The estimated 2004 population for all people in the NMP2 areas ranged from 2,800 in Pan Village to 17,300 in North Devon. The NMP2 partnerships will each receive a total of £2.5m over the lifetime of the programme. The Neighbourhood Renewal Unit (NRU), which is part of the Department for Communities and Local Government (DCLG) and responsible for overseeing the current Labour government's neighbourhood renewal strategy, states that the overall aim of each NMP programme:

must be to bring public resources to bear more efficiently and effectively, to make them responsive to the needs and priorities of the many elements within the community. And it must help deliver long term outcomes in the key 'floor target' areas of crime, health, education, worklessness and the physical environment. (NRU, 2004: p.11).

Pathfinder	District	Region	Population
North Devon	North Devon	South West	17,300
South Bermondsey	Southwark	London	16,600
East Blackburn	Blackburn with Darwen	North West	16,600
North Wisbech	Fenland	East	14,400
Crosby	North Lincolnshire	Yorkshire and Humberside	13,500
Team Leyton	Waltham Forest	London	12,900
Tranmere	Wirral	North West	12,800
Church Street	Westminster	London	12,100
Ovenden	Calderdale	Yorkshire and Humberside	11,600
Fordbridge	Solihull	West Midlands	10,100
Manton	Bassetlaw	East Midlands	6,200
Hawkinge	Shepway	South East	5,800
Oldington and Foley Park	Wyre Forest	West Midlands	5,300
Cowpen Quay	Blyth Valley	North East	4,800
Pan Village	Isle of Wight	South East	2.800

 Table 2. Neighbourhood Management Pathfinder Round 2 areas

Note: population estimated using ONS experimental 2004 lower level super output area (LSOA) midyear population estimates for LSOAs which contained more than 50 percent of their output area population centriods within a NMP2 area. Before funding was granted, each individual programme was required to submit a delivery plan to central government detailing the specific problems in each area and identifying relevant target outcomes and key interventions. The delivery plans were structured around the key floor target themes which emphasise both people-based and place-based interventions. The prescriptive nature of the floor targets themes, however, appears to have limited the diversity in terms of interventions. Moreover, given the small amount of funding available for each partnership, large-scale projects such as property redevelopment, were not directly part of the NMP programme. Rather, community warden schemes enhanced litter cleaning services and employment training courses feature most prominently as interventions identified in the individual NMP2 delivery plans (SQW Consulting, 2007).

Pupil Level Annual School Census (PLASC)

This study differs from previous research in its use of longitudinal data to explore the selectivity of migration flows for neighbourhood regeneration areas. The PLASC data used is derived from an electronic administrative form completed by each school in England to cover all enrolled pupils in January of each year (Machin et al, 2006). It is collated nationally by the Department for Children, Schools and Families through Local Education Authorities. Completion of the PLASC has been a statutory requirement for all state maintained primary, secondary and special schools since 2002 under section 537A of the Education Act 1996 (Harland and Stillwell, 2007a). The data source forms part of what is known as the National Pupil Database, which is a data warehouse of education data for key stage performance and information relating to schools and their staff. The PLASC, which provides a link to other data sources, consists of entries for every pupil on roll including information such as home postcode, ethnicity, Free School Meal (FSM) eligibility, gender and mother tongue language. Through the inclusion of a unique pupil number the data can be matched between years to form a longitudinal source. In fact, the data collection is no longer referred to as the PLASC because a tri-annual data collection procedure called the School Census was introduced in 2006 for secondary schools and in 2007 for primary schools (Harland and Stillwell, 2007b). The tri-annual collection coincides with the three school terms and will enable more effective tracking of pupil migration (Harland and Stillwell, 2007b).

The PLASC has advantages as a measure of migratory flows between neighbourhood areas compared with population censuses and surveys. The inclusion of the postcode for individual pupils in the PLASC enables the data to be matched to any higher level geography. This is useful when the geography is arbitrary and does not coincide with existing administrative boundaries, for example, regeneration areas. Bailey and Livingston (2008) relied on data for the NDC areas which contained more than 75 percent of a lower level super output area³ for England and a data zone⁴ for Scotland. Another major advantage of using the PLASC to monitor the interventions of relatively short-term regeneration programmes compared with the decennial Census of Population is that the data are available annually. The longitudinal nature of the PLASC also has the advantage that it can provide information which changes over time, for example, home location (Jones and Elias, 2006).

As the PLASC only includes state school pupils there are a number of disadvantages of using the data source to measure migration. First, the data may not reflect the movement of all people as families with school-aged children only account for approximately one sixth of the household population according to the 2001 Census. Moreover, families with school-aged children are less likely to migrate than most other household formations (Bailey and Livingston, 2005; Meen et al, 2005). Second, the PLASC data may not even reflect the movements of families with school-aged children, as there is no information for those in private education. It is estimated that state educated children, however, account for almost nine tenths of the pupil population in England (DfES, 2006a).

The relatively recent introduction of the PLASC means that it has not been used to any great extent as a source for measuring migration. As a result, there is little evidence which suggests how well the PLASC reflects the migration patterns of the total population and also its reliability as a measure of school-aged pupil migration. Marquis (2008) states, however, that it is possibly a better measure of migration than some existing data sources used to estimate internal migration, for example, the

³ Lower level super output areas are a relatively new geography created by the Office for National Statistics. They are created by combining a number of output areas in England & Wales which were created for the 2001 Census. They are small areas of broadly consistent population size across the country, each containing approximately 1,500 people.

⁴ The data zone geography covers the whole of Scotland and nests within local authority boundaries. Data zones are groups of Census output areas which have populations of between 500 and 1,000 household residents, and some effort has been made to respect physical boundaries.

Census of Population. She argues that the importance of updating the address of a pupil's record means that the PLASC is less likely to underestimate migration than the Census measure of migration which asks where you lived twelve months ago. Table 3 provides a comparison of the percentage of individuals aged 5 to 15 that moved within England between 2000 and 2001 according to the 2001 Census and the percentage of state school-aged pupils (aged 5 to 15) that moved within England between each year in the PLASC from 2002 to 2007 by move type. The results show that the PLASC does record a higher percentage of internal migrants compared with the 2001 Census suggesting that either the latter underestimates school-aged migration or that the difference between the datasets is a result of the discrepancy in the point in time the data was collected.

	Non-movers	Within ward	Within district, between wards	Between district
Census 2000-2001	91.5	2.2	3.7	2.6
PLASC 2002-2003	386.2	4.0	5.0	4.7
PLASC 2003-2004	87.6	3.8	4.8	3.8
PLASC 2004-2005	588.0	3.6	4.8	3.6
PLASC 2005-2006	588.7	3.2	4.4	3.7
PLASC 2006-2007	787.8	3.3	5.0	3.9
PLASC Average	87.7	3.6	4.8	3.9

Table 3. A comparison of migration of people aged 5 to 15 between 2001 Census and PLASC (%)

Note: Census data from 2001 Standard Table 08 Source: Marquis (2008)

The use of pupil data to measure migration is neither new nor restricted to the PLASC. Lowell (1975) details the then Office of Policy Research's analysis of pupil data to approximate movements of the general population within New York City. She found that the major population shifts thought to have occurred during the 1960s showed up in an analysis of pupil data between 1964 and 1965. Lowell therefore suggests that the data has great potential for shedding new light on the phenomenon of neighbourhood change.

Measuring migration

In this study, migration is operationalised as a change in a postcode of a school-aged pupil (aged 5 to 15) recorded in the PLASC. Migratory flows were measured for two separate time periods in order to judge the perceived impact of the NMP2 programme.

PLASC data was obtained for the years 2003 to 2004 (a year before the NMP2 programme commenced) and 2006 to 2007 (a year during which it was in operation). The data were matched to digitised boundaries for NMP2 programmes obtained from the Social Disadvantage Research Centre based at the University of Oxford. These boundaries were used to select geocoded postcode centroids from the February 2007 version of the National Statistics Postcode Directory that are located within the NMP2 areas. A list of NMP2 area postcodes were then matched to the postcodes of pupil records in the PLASC to determine if a pupil resided in a NMP2 area in at least one of the years in question.

In order to test whether the migratory flows were leading to increased concentration of poor pupils in NMP2 areas the free school meal (FSM) indicator for each pupil in the PLASC was used as a measure of individual pupil disadvantage. FSM eligibility is widely used as a proxy measure for pupil disadvantage in educational research (Hobbs and Vignoles, 2007; Machin et al, 2006; Styles, 2008). To be eligible for FSMs, a child must be in a household without a member working more than 24 hours a week, with a low income and limited capital assets (Hobbs and Vignoles, 2007). Hobbs and Vignoles (2007) found that most of the children claiming FSM will be dependents of those claiming Income Support benefit. Some authors argue that FSM status is limited as a measure of pupil disadvantage because its binary nature does not allow one to distinguish between different levels of deprivation (DfES, 2006b; Hobbs and Vignoles, 2007). Styles (2008) suggests that the measure may only represent the lower end of the social spectrum rather than all those experiencing disadvantage.

Figure 1 shows the percentage of pupils eligible for FSMs for the base year before the programme commenced (2003) and the base year during which the programme was in operation (2006). It shows that in the largely urban areas there are much higher concentrations of poor pupils, for example, Tranmere and Church Street, than in the more rural areas, for example, North Devon and Hawkinge. For most of the NMP2 areas the percentage of poor pupils remained stable between 2003 and 2006. The Pan Village NMP, which is located on the Isle of Wight, is an exception as there was a 10% point decrease between the 2003 and 2006.



Figure 1 – Pupils eligible for free school meals by NMP Round 2 area (%), **2003 and 2006** Base population: NMP2 areas school-aged FSM eligible pupils; 103-1,315 (2003), 110-1,106 (2006).

To answer the central research question of the study - whether the migratory flows for NMP2 areas are acting to reinforce area-based deprivation - analyses were conducted to show the movement of pupils considered poor (FSM eligible) and non-poor (non-FSM eligible). Pupil disadvantaged was compared for three groups, out-movers, in-movers and stayers, during two periods, 2003 to 2004 (a year before the programme commenced) and 2006 to 2007 (a year during which the programme was in operation). In order to determine the effect of these flows on the composition of pupil disadvantage in the NMP2 areas net migration rates were calculated by FSM status in both periods. Net migration rates were calculated by subtracting out-migration from in-migration divided by a base year (2003 or 2006) pupil population for each NMP2 area. The initial population is often the preferred denominator for migration rates based on data for fixed time periods (Rowland, 2003).

Analyses of the origin and destination of in-mover and out-mover pupils for NMP2 areas were also conducted to show whether pupils moved to or from a deprived or non-deprived areas. Areas ranked in the 10% most deprived in the Index of Multiple Deprivation 2007⁵ (IMD 2007) were considered deprived. Although this is a quite

⁵ IMD 2007 is a neighbourhood-based measure of multiple deprivation developed by the Social Disadvantage Research Centre based at the University of Oxford for all LSOAs in England (DCLG, 2007). The index is made up of seven domains including, income deprivation, employment deprivation,

arbitrary cut-off point it is a convenient point which is commonly used by policy makers, for example, in the selection of NDC areas and NMP areas.

Tables 4 and 5 show the percentage of pupils eligible for FSMs for those staying within, moving out of, and moving into NMP2 areas between 2003 and 2004 and between 2006 and 2007. The tables show a selectivity of the inflows and outflows in both periods for each NMP2 area, however, to a much lesser extent than the results of Cole et al's (2004) NDC survey. One would expect, if the selectivity of migration were removing the most affluent pupils and attracting the most disadvantaged pupils, that in-movers would have the highest percentage eligible for FSMs followed by stayers and then out-movers. However, there were only four out of the fifteen NMP2 areas where this was the case in the first period (Hawkinge, South Bermondsey, Church Street and Cowpen Quay) and just three out of the fifteen NMP2 areas in the second period (Manton, East Blackburn and Church Street) when one would expect the selectivity to be greater because of the regeneration programme. For NMP2 areas as a whole in both periods, the percentage of out-mover pupils eligible for FSMs and the percentage of in-mover pupils eligible for FSMs were similar. This suggests a balanced migration effect.

health deprivation and disability, education skills and training deprivation, barriers to housing and services, living environment deprivation, and crime (DCLG, 2007).

	Stayers (%)	Out-movers (%)	In-movers (%)
Manton	40	52	64
Ovenden	34	37	35
Crosby	35	47	34
East Blackburn	39	41	51
Hawkinge	15	13	17
Fordbridge	30	47	41
South Bermondsey	42	37	44
Tranmere	62	65	61
Leyton	40	44	47
Church Street	52	50	62
Cowpen Quay	29	29	30
Pan Village	39	38	38
Oldington & Foley Park	29	40	49
North Wisbech	22	24	15
North Devon	13	28	24
Total	36	42	41

Table 4. FSM rates for stayer, out-mover and in-mover pupils by NMP2 areas, 2003-04

Base population: NMP2 areas school-aged pupils; stayers (361-2,476), out-movers (34-264), in-movers (40-172); Total school-aged pupils; stayers (20,754), out-movers (1,960), in-movers (1,604)

	Stayers (%)	Out-movers (%)	In-movers (%)
Manton	36	35	43
Ovenden	29	30	33
Crosby	32	43	42
East Blackburn	38	36	50
Hawkinge	14	17	11
Fordbridge	33	37	39
South Bermondsey	38	44	36
Tranmere	60	58	58
Leyton	39	46	39
Church Street	53	39	67
Cowpen Quay	27	36	39
Pan Village	29	33	29
Oldington & Foley Park	29	34	32
North Wisbech	24	25	20
North Devon	14	21	15
Total	34	39	37

Table 5. FSM rates for stayer, out-mover and in-mover pupils by NMP2 areas, 2006-07

Base population: NMP2 areas school-aged pupils; stayers (347-2,491), out-movers (33-242), in-movers (28-147). Total school-aged pupils; stayers (19,766), out-movers (1,934), in-movers (1,470)

4 Effect of net migration

The analysis of the inflows and outflows by FSM status provides evidence of the selectivity of the migration flows for the NMP2 areas, however, the effect of these flows on the concentration of disadvantage are difficult to discern without calculating the net migration change. In the period 2003 to 2004, the average net change of school-aged pupils in NMP2 areas was negative. By the period 2006 to 2007, the net outflow of pupils was even greater for the NMP2 areas as a whole. Figure 2 shows that for all school-aged pupils in NMP2 areas the net out-migration rate was 1.6% between 2003 and 2004 compared with 2.1% between 2006 and 2007. More strikingly, the net out-migration rate in both periods was greater for poor pupils compared with non-poor pupils. This suggests that migration has the effect of reducing the concentration of disadvantage in the NMP2 areas as a whole which contradicts current thinking amongst many regeneration practitioners.





Figure 2. Net migration rate of school pupils by FSM status for all NMP Round 2 areas, 2003-04 and 2006-07

Note: migration rates are expressed as a percentage of population in either base year 2003 or base year 2006 and net rate calculated by subtracting out-migration from in-migration. Base population: All school-aged pupils 24,318 (2003), 23,170 (2006); FSM 8,882 (2003), 8,044 (2006); Non-FSM 15,436 (2003), 15,126 (2006)

In order to gain an understanding of the wider impact of migratory flows for NMP2 areas it is important to focus on the deprivation status of the origin and destination of these movements. Figure 3 shows the net flows of pupils in NMP2 areas to and from deprived areas and non deprived areas in the period 2003 to 2004 and the period 2006 to 2007 by FSM status. Between 2003 and 2004, the movement to and from deprived areas was fairly evenly balanced for both poor and non-poor pupils. However, there

was a net outflow to non-deprived areas of 2.1% for poor pupils and a net outflow of 1.1% for non-poor pupils. Between 2006 and 2007, the net population loss to nondeprived areas was also higher for poor pupils than non-poor pupils suggesting that the outward movement to a non-deprived area was not a right reserved for non-poor pupils. There was also a net outward movement to deprived areas for both poor and non-poor pupils in the period during which the NMP programme was in operation (2006 to 2007).



2003-04

2006-07



Figure 3. Net migration rate of pupils to and from deprived and non-deprived areas for NMP2 areas by FSM status, 2003-04 & 2006-07

Note: migration rates are expressed as a percentage of population in base year 2006 and net rate calculated by subtracting out-migration from in-migration. Base school-aged population 2003: FSM 8,044; Non-FSM 15,126; Base school-aged population 2006: FSM 8,882; Non-FSM 15,436

Although the aggregate findings appear to challenge the widely held selective migration hypothesis, variation between individual NMP2 areas shows that the effect of migration on the concentration of disadvantage is not consistent. Figure 4 shows the effect of migration on the concentration of poor pupils in each NMP2 area for the period 2003 to 2004 and the period 2006 to 2007. The effect is isolated by comparing the percentage of school-aged pupils eligible for free school meals in the base year (2003 or 2006) with the percentage in the following year (2004 or 2007) when only accounting for the net change in the pupil population as a result of migration. For the NMP2 areas as a whole, net migration decreased the proportion of poor pupils by 0.2% in the period 2003 to 2004 and by 0.2% in the period 2006 to 2007. This suggests that the effect of migration, on the whole, was minor.

Nonetheless, there was considerable variation in the effect of migration between each NMP2 area and within particular areas over time. Crosby NMP had the largest negative effect of migration on the concentration of poor pupils between 2003 and 2004. This suggests a contradiction of the widely held selective migration hypothesis for this area. There were also decreased concentrations of poor pupils as a result of migration in this period for North Wisbech, Fordbridge, Tranmere, Ovenden and Pan Village. There were a number of NMP2 areas, however, where the concentration of poor pupils in the regeneration area increased during the period 2003 to 2004 as a result of migration. This effect was greatest in the Church Street NMP which is located in the Westminster area of London. A number of the other areas with an increased concentration of poor pupils between 2003 and 2004 were located in large urban areas, for example, South Bermondsey (central London) and East Blackburn.

During the period in which the regeneration programme was in operation (2006 to 2007) a greater number of the NMP2 areas saw a negative effect on the concentration of poor pupils as a result of migration. This effect of migration was greatest in Leyton and South Bermondsey. The size of the effect in the areas where there was an increase in the concentration of poor pupils as a result of migration was marginal. The only exception was the Church Street NMP. In this area, migration flows had the effect of raising the percentage of poor pupils in the regeneration area by almost 2%. This was the biggest effect of migration during both periods across all NMP2 areas. It is probably the case that the competition for housing both public and private is very high

in this area leaving those with the least choice even fewer options than elsewhere in the country. This may explain the support for the selective migration hypothesis in the Church Street NMP.



Figure 4. Change in concentration of pupils eligible for free school meals, 2003-04 & 2006-07

Note: change in concentration calculated by the difference between the percentage of pupils eligible for FSMs in 2003 or 2006 and the percentage of pupils eligible for FSMs in 2003 or 2006 plus net migration between 2003-04 or 2006-07. Base population: NMP2 areas school-aged FSM eligible pupils; 103-1,315 (2003), 110-1,106 (2006).

Private correspondence with staff from a number of the NMP2 programmes provided useful contextual information for explanation of the effects of migration. For example, the reversed effect in the Hawkinge NMP area from an increased concentration of poor pupils between 2003 and 2004 to a decreased concentration between 2006 and 2007 is probably as a result of a relatively large-scale private housing development that catered for middle income families which was completed during the early stages of the programme. The reversed effect of migration flows was also evident in the South Bermondsey NMP. The South Bermondsey Partnership ceased to function in the early stage of the NMP programme and therefore it is conceivable that any changes in migratory patterns would be the result of structural changes at the national or regional level rather than local interventions implemented by the regeneration programme.

The demolition of social housing by two Housing Market Renewal⁶ programmes within the Tranmere NMP area during the early stages of the NMP2 programme has led to a considerable number of residents being forced to move out of the area. This is reflected in a reduction in the concentration of poor pupils between 2003 and 2004 as a result of migration. A more recent large scale property redevelopment by a housing association within the Leyton NMP area is probably the cause of the reduction in the concentration of poor pupils between 2007. The relatively stable population in the Pan Village NMP, an area located on the Isle of Wight with a stable housing stock, seems to have resulted in little impact on the concentration of poor pupils in the area in either period as a result of migration. This situation may change with the development of approximately 1,000 properties scheduled to commence in April 2009.

⁶ Housing market renewal is a programme to rebuild housing markets and communities in parts of the North and the Midlands in England where demand for housing is relatively weak and which have seen a significant decline in population, dereliction, poor services and poor social conditions as a result. Its objective is to renew failing or weak housing markets and reconnect them to regional markets. $\pounds 1.2$ billion is being invested between 2002 and 2008 and the Government has committed a further $\pounds 1.038$ billion to the programme over the period 2008-2011.

6 Conclusions

The idea that the net impact of migration in regeneration areas is to increase deprivation through selective migration does not appear to be evident for Neighbourhood Management Pathfinder Round 2 (NMP2) areas. Analysis of the Pupil Level Annual School Census (PLASC) for two separate periods, one in a year before the programme commenced and another in a year during which the programme was in operation, shows that poor pupils are leaving NMP2 areas at a faster rate than non-poor pupils. This suggests that migration flows (of school-aged pupils) are actually reducing the deprivation levels in these regeneration areas. However, this effect was minor in both periods. These findings appear to support the results of Bailey and Livingston's (2008) analysis of the NDC regeneration areas, which suggests concentrations of deprivation are falling in regeneration areas relative to other deprived areas as a result of migration.

It would be unfair, nonetheless, to suggest that the aggregate results contradict the selective migration hypothesis because the impact of migration varied considerably between NMP2 areas. For example, in Church Street, East Blackburn and Manton the effect of the migration flows increased the concentration of disadvantage in both periods. It does seem, however, that the impact of the regeneration programme on the migratory flows for individual NMP2 areas is weak. This is because the differences between the two time periods for the NMP2 areas can be explained by ongoing developments in each area rather than the interventions of the NMP programme. For example, there appeared to be notable differences over time in particular areas undergoing large scale housing redevelopment which varied depending on the stage and type of development. This suggests there should be an involvement by neighbourhood regeneration partnerships in the public and private property developments which affect their target area to ensure that the effect of these changes are taken in account in their own performance monitoring. Moreover, the variation between areas, in terms of the effect of migration on the concentration of deprivation, should also be considered by national policy makers when evaluating the success of regeneration programmes.

This paper has provided an innovative approach to measuring migration flows using PLASC data. Further research could assess the limitations of PLASC data as a source for measuring migration. An understanding of how well the PLASC data represents migratory patterns of the population as whole as well as school-aged pupils is key. Comparison between different datasets used to measure migration (e.g. censuses, patient records, surveys) and the PLASC will help determine the ability to generalise findings from the data beyond those pupils included in the pupil data. Future work could also complement the data in the PLASC with information from other administrative records and census data. This would enable one to test factors more commonly associated with higher migration rates.

A further development of this study could include a measure of migration over a longer period of time. Long-term migration could be measured over the course of a regeneration programme to determine whether certain pupils in certain areas live for longer periods in one place or move around. The PLASC data might also enable the effect of a move to be measured in terms of whether a pupil changes their FSM eligibility status after a move. This is a widely citied limitation with the census data as it does not provide much information before a move making it difficult to determine the effect of a move.

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