UCD SCHOOL OF APPLIED SOCIAL SCIENCE

WORKING PAPER SERIES
2009

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WP09/04

JANUARY 2009

UNIVERSITY COLLEGE DUBLIN
BELFIELD DUBLIN 4

Immigration Diffusion and Socio-Spatial Segregation in Dublin, 1996-2006

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Abstract:

Previous research on the impact of immigration on urban socio-spatial inequalities has focused on cities with long immigration histories where successive waves of new arrivals impacted on segregation patterns established by preceding waves, usually in a context where immigrants in each wave were poor and had low education. This paper focuses on Dublin as an example of a city where immigration is new and recent, is dominated by the well educated, and occurs against a backdrop of a mono-ethnic existing population. In that context, it examines the impact of immigrant settlement patterns on socio-spatial inequalities in the city in the years 1996-2006, a period of economic boom. It finds that, while immigrants in Dublin were segregated to a certain degree, with a slight tendency to cluster in disadvantaged areas, that clustering provided a small element of social lift to disadvantaged areas and generally contributed to a significant reduction in socio-spatial inequalities that occurred in the city in the period.

Introduction

As recently as the early 1990s Dublin was a mono-ethnic city with a non-indigenous population of about 2.8 per cent. There existed a strong spatial pattern of urban disadvantage but segregation occurred along income and social class lines within an indigenous population rather on the basis of ethnic or racial differences of the kind found in many other Western countries. Rapid economic growth from 1994 led to an overall rise in incomes and a rapid decline in unemployment. This occurred alongside the regeneration of run-down inner city areas brought about by tax incentives to promote development. Economic boom also led to a sudden and large rise in immigration. This occurred first in the form of return migration of Irish-born (often accompanied by family members born abroad, particularly the UK) and then of a large inflow of migrants from countries with which had little or no historical connection with Ireland, particularly in eastern Europe (especially Poland and Lithuania) and west Africa (of which Nigeria was the most important). By 2006, the migrant population from the latter regions (that is, counting only those born neither in Ireland nor the UK) amounted to 13.3 per cent of the population of Dublin, an almost five-fold increase over the previous decade. This article uses census data from 1996 and 2006 to examine the impact of the latter wave of immigration on socio-spatial inequalities in Dublin. It posits a hypothesis of social lift whereby immigrant inflow helps reduce socio-spatial inequalities by bringing high social capital into previously deprived areas. The main thrust of the findings is to confirm this hypothesis: while migrant segregation in Dublin is considerable (though not extreme) and shows a slight clustering in previously disadvantaged areas, the effect of that clustering is to

contribute modestly but in an unambiguously positive way to a narrowing of the gap between the worst-off and best-off areas of Dublin during the economic boom.

Immigrant Segregation and Diffusion

A large body of research on post-WW2 immigration reveals that immigrants and their descendants in the European Union have encountered disproportionate levels of social exclusion. In Britain, for example, low income, historical lack of access to local authority housing and racist discrimination contributed to first generation residential segregation on the basis of 'race' (Rex, 1981). In Britain and in a number of European countries such segregation has continued, with second and third generations of some migrant descended communities encountering disproportionate socio-spatial inequalities (Solomos and Back, 1996: 65). A United Kingdom Cabinet Office report in 2000 noted that minority ethnic groups are more likely to be poor and to be unemployed, regardless of their age, sex, qualifications and place of residence. It described the experiences of social exclusion of different ethnic minorities as 'mixed, but grim' (Cabinet Office, 2000: 35). Overall such literature suggests that risks of poverty and disadvantage on the basis of race and ethnicity are likely to combine with spatial forms of exclusion where minority ethnic groups predominantly reside in deprived areas. This literature is for the most part concerned with explaining a multi-generational scenario whereby present inequalities are explained in terms of past racialised discrimination.

In any context new patterns of immigration become superimposed upon pre-existing neighbourhood divisions (van Kempen, 2007: 13). The Irish case differs from that of European countries with histories of post-colonial immigration where prior cultural relationships as well as purely economic interdependencies pertain (Hooghe *et al*, 2008: 484). However, when it comes to recent immigration prompted by post-1990 global trends (Cohen, 1997: 162) and EU enlargement the Irish experience is not unique. For example, the United Kingdom with a history of colonial immigration has seen the establishment of post-EU enlargement communities in parts of Britain that have not previously been immigrant destinations (Drinkwater *et al*, 2006). Many Western countries, including Ireland, now attract immigrants with higher educational levels than host populations (OECD 2007). The Irish case is distinct in part because a large influx of immigrants has not been superimposed on pre-exiting patterns of ethnic segregation and in part because, as we shall see further below, the human capital advantage of immigrants is exceptionally strong.

Research by White *et* al (1999, 2002) on United States metropolitan areas, which distinguishes between older patterns of migration and racial-ethnic segregation on the one hand and the impact of new migrants on the other suggests a useful framework for considering the affect of migrants on socio-spatial segregation in Dublin. The United States encountered sequential waves of immigration that added new ethnic diversity to a society with pre-existing racial segregation and that left a legacy of persistent spatial segregation on the basis of race. Here, analyses of 1990 and 2000 US census suggests that recent immigration has had no impact on existing white-black segregation in metropolitan areas. White *et al* (2002) emphasise that this recent immigration does not seem to follow traditional urban ecological models of immigrant residential segregation identified from the early twentieth century.

They propose competing models of residential segregation that may result from an influx of immigrants. A polarisation model suggests that as the immigration

of diverse groups increases whites and non-whites will further separate from one another, using immigrants as a buffer between them. Here new immigration is understood as deepening existing spatial segregation where in addition to buffer zones newcomer spatial distribution will be influenced by racial, social capital and government policy factors (White *et al,* 1999). For instance black immigrants might be pushed into or seek out existing black communities, skilled immigrants might not move into enclaves at all.

By contrast, the diffusion model predicts that new immigration will 'stir the melting pot' and render past patterns of racial segregation obsolete. White and Glick found that the increase in foreign-born residents in US metropolitan areas worked to diffuse black-white residential segregation.. However, pre-new migration segregation in the United States was more complex than the black-white model suggests with by-now-longstanding patterns of spatial segregation also experienced by Asians and Latinos, these potentially enhanced by chain migration in both cases. As such the diffusion model pertains in the case of whites and blacks but not necessarily in the case of Latinos and Asians (White *et al,* 1999).

'Immigrant quality', the labour market 'quality' and levels of human capital possessed by immigrants on arrival, emerges as a crucial variable in the literature on immigrant spatial segregation. Earnings alone offer an inadequate measurement of immigrant quality because many immigrants are likely to enter the labour markets of host countries at levels not commensurable with their skills. Research in the United States on earnings convergence suggests that, controlling for human capital and skills transferability, immigrant earnings are likely to rise significantly over time from a low base. Overall a strong inverse relationship between entry earnings and earnings growth is likely (Duleep and Rogers, 2000: 17). Human capital, transferable education and skills emerge as strong predictors of immigrant socio-economic status that needs to be taken into account when modelling the likely impact of immigration on spatial segregation. For instance, different post-1970 immigrant ethnic minorities in the United Kingdom have had quite different experiences of social mobility over time with the comparatively well educated/high skilled African-Asians doing better than the comparatively low skilled/poorly educated Pakastanis and Bangladeshis Asian communities; the latter being spatially concentrated in deprived urban localities (Modood *et al,* 1997:343).

Immigrant population structures by level of education vary from one host country to another. A number of states select some immigrants according to their level of education (Australia, Canada, United States and New Zealand) resulting in a significantly smaller proportion of immigrants with low educational attainment. Some countries, including Ireland and the United Kingdom, do not operate a points system to screen for immigrant quality but nevertheless have managed to attract a significantly lower percentage of poorly educated immigrants and a significantly higher proportion of well educated ones (OECD, 2007: 132). Important here also is how the educational profile of immigrants relates to that of the host population – whether they are more qualified or less qualified by comparison. Immigrant quality is likely to be an important predictor of immigrant life chances over time (there is a need to acknowledge issues matching quality to economic status) and may be a predictor of initial and longer-term immigrant socio-spatial segregation.

Data and measures

The data on which the present paper is based are drawn from the census of population of Ireland of 1996 and 2006. These two time-points are chosen because they approximately bookend the period of exceptional growth in the economy and in immigration that occurred in Ireland in recent times and provide an effective basis for measuring trends of interest over the period. For the purposes of the paper, Dublin is defined as consisting of the traditional city and county of Dublin, which now comprises the four administrative areas of Dublin city, South Dublin, Fingal and Dun Laoghaire-Rathdown.

In addition to published data available from the census, two additional types of data compilation the census provides are used here. One is a micro-data set derived from an anonymised sample of five per cent of of records of individuals covered by the census (the 5% COPSAR – Census of Population Sample of Anonymised Records). For Dublin as defined above, the 5% COPSAR contains 52,915 records in 1996 and 59,360 records in 2006. This source is useful for profiling the social characteristics of the immigrant population in Dublin.The more central census-based data source for the paper is the Small Area Population Statistics (SAPS), which contains a wide range of indicators aggregated to various small-area levels. The level used here is the smallest available for both the 1996 and 2006 censuses – that of Electoral Divisions (EDs), area units which retained the same boundaries over the period we examine.[1] The mean ED population size in Dublin in 2006 was 3,664, though the variation around that mean was quite wide: nine of the 322 EDs had a population less than 1,000 while ten had a population greater than 10,000. The EDs with large population are generally found in areas that until recently were semi-rural and geographically large but have been rapidly developed for new housing.

The census collects two indicators that can be used to identify the immigrant population – country of birth and nationality.[2] For most immigrant groups, these two indicators more or less coincide – nationality and country of birth are the same. There is, however, one exception, in that many of those who are UK-born report themselves as of Irish nationality. In Dublin in 2006, for example, the 5% COPSAR reveals that 58 per cent of the UK-born classified themselves as Irish nationals. These are likely to consist either of those born in Britain of Irish parents or of those who originated in the nationalist community in Northern Ireland. Even of the UK-born who are not Irish nationals, it is likely that a portion have strong Irish connections, for example, as spouses of Irish emigrants returned from Britain. The UK-born living in Ireland, therefore, are strongly connected to Ireland and are not ethnically distinct in the same way as the new immigrants that arrived with the economic boom of recent years. Furthermore, in Dublin, although the UK-born are the largest foreign-born population and UK nationals are the second-largest foreign nationality group (after the Polish), they made little contribution to the recent immigrant wave – the UK-born constituted a slightly smaller share of the population of Dublin in 2006 (at 4.8 per cent) than in 1996 (5 per cent). Since the focus of this paper is on the ethnically distinct immigration of the economic boom, we therefore define the immigrant population for

[1] For the five main cities in Ireland, the 2006 SAPS provide data at a smaller area level – Enumeration Areas –. but since these are not provided for the 1996 SAPS they cannot be used for trend analysis over the period of interest to us and so are not utilised here.

[2] Two other variables are available from the census that also have some relevance to migration but are not central enough to be of concern to us here. One is place of residence a year ago, which is useful for examining short-term migratory movements, and the other is ‘ethnic or cultural background’ …

the purposes of the present paper as those who were born neither in Ireland nor the UK – a category which as already mentioned amounted to 13.3 per cent of the population of Dublin in 2006.

In using the SAPS to examine settlement patterns of immigrants so defined in Dublin over the period 1996-2006, one limitation is that although the 1996 census collected data on place of birth, the 1996 SAPS do not include these data (as is understandable since at the time the data were compiled, the foreign-born were few and not a topic of public interest in Ireland). We therefore have to focus on the 2006 data alone in examining the spatial distribution of immigrants at small area level and this means that we cannot examine trends in that distribution since 1996. In practice, however, this is less of a limitation than might appear since the presence of non-Irish/UK-born in Dublin in 1996 was small enough (at 2.8 per cent of total population) for us to proceed as if it did not exist at all. In other words, in empirical analyses presented later in the paper, we treat the count of immigrants at ED level in 2006 as a measure of the recent *growth* of immigrants in EDs and relate that to changes in other aspects of the small-area distribution of the population since 1996. This is a distortion which is forced on us by the data but we do not believe it is serious enough to invalidate the analysis or the conclusions reached.

Given the interest of our analysis in socio-spatial inequalities, a further limitation of the census data is that the census in Ireland does not collect information on household incomes. Consequently, we have to rely on other indicators to measure social advantage and disadvantage at small-area level. In the analysis presented below, we focus on three such indicators – the male unemployment rate, the proportion of the population in households headed by unskilled or semi-skilled manual workers, and the proportion of the population with third level education. The versions of these indicators we use are taken from a national SAPS-based compilation of small-area indicators drawn from the censuses between 1991 and 2006 compiled by Trutz Haase and Jonathan Pratschke, and we are grateful to them for making this convenient compilation available for public use.[3]

Immigrant Settlement in Dublin

The population of Dublin rose by 12.2 percent between 1996 and 2006, going from 1.06 million to 1.19 million (Table 1). During the same period the population in Dublin born outside of Ireland or the UK rose more than four-fold, growing from 29,500 to 158,000 (that is, from 2.8 per cent of the city population to 13.3 per cent). The increase in the number of the non-Irish/UK born accounted almost exactly for all of the population growth in the city, meaning that natural increase among the pre-existing population was fully counter-balanced by out-migration , most of which is likely to have been directed to the surrounding commuter belt counties. Growth in the number of households, at 22.5 percent, was considerably greater than growth in population and was matched closely by a similar percentage (22 per cent) in the number of dwellings in the city that had been built since 1996. The growth in households and new dwellings signifies that in addition to inward movement of migrants there was likely to have been considerable residential movement among natives who remained in the city, so that potential effects on the pattern of socio-

[3] See Haase and Pratschke 2008 for an account. A full downloadable file of the indicators is available at http://www.pobal.ie/live/dep. For an analysis of national trends in the spatial distribution of deprivation up to 2002 based on these data, see Haase and Pratschke 2005. .

spatial segregation could come from both immigration and relocation of natives. The most striking change of all in Dublin was a 40 per cent increase in the numbers at work (the absolute increase was 164,000 workers). Some of this was driven by changes in unemployment, which dropped from 15.5 per cent to 8.9 per cent of the workforce,[4] but the larger part was due to an increase in the numbers available for work. Here again, immigrants played a major role: they accounted for some 83,000 of the extra workers, which was about half of the net increase in the number of workers in Dublin in the period 1996-2006.

Table 1. Socio-demographic change in Dublin[a] 1996-2006

	1996	2006	Change 1996-2006 Number	%
Population: number	1,058,264	1,187,176	+128,912	+12.2%
Of which: Non-Irish/UK	29,502	158,009	+128,507	+436%
(Non-Irish/UK as % of pop)	(2.8%)	(13.3%)		
Households: number	343,205	420,429	+77,224	+22.5%
% of dwellings built in previous ten years	N/a	22%		
At work: number	409,153	572,896	+163,743	+40%
Of which: Non-Irish/UK[b]	12,800[b]	95,700[b]	+82,900	650%
(Non-Irish/UK as % of number at work)	3.0%	16.7%		
Unemployed: number	74,926	56,105	-18,821	-25.1
Unemployment rate	15.5%	8.9%	-6.6%	-42.4

[a] The three administrative counties of Fingal, South County Dublin, Dub Laoghaire-Rathdown plus the administrative area of Dublin City Council.

[b] Estimated from 5% Census Sample of Anonymised Records (COPSAR), 1996 & 2006.

Sources: Census of Population, 1996 and 2006,

It is clear that immigrant settlement in Dublin is quite unevenly distributed across the city. As Table 2 shows, the quintile of EDs with proportionately the most immigrants has a median share of 23.2 per cent of the population who are non-Irish/UK-born. This was six times greater than the median share of non-Irish/UK-born in the quintile of EDs with the smallest non-national population (3.6 per cent). The Index of Dissimilarity (IOD) for this indicator across the 322 EDs was 0.31.[1]

Table 2. Median % of non-Irish/UK born in quintiles of Electoral Divisions in Dublin, 2006

Q1	23.2
Q2	13.4
Q3	8.5
Q4	5.8

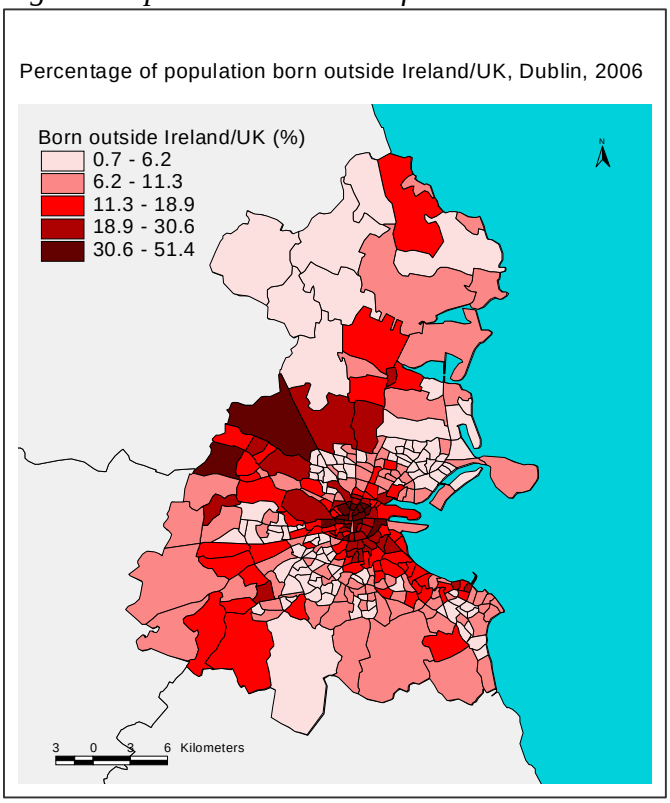
[4] Note that unemployment here is as measured on the basis of the 'principal economic status' approach used in the census of population, which is less rigorous and tends to produce higher unemployment estimates than the 'status last week' approach used in official labour force data.

Q5	3.6
IoD	0.31

Source: Small Area Population Statistics Census 2006

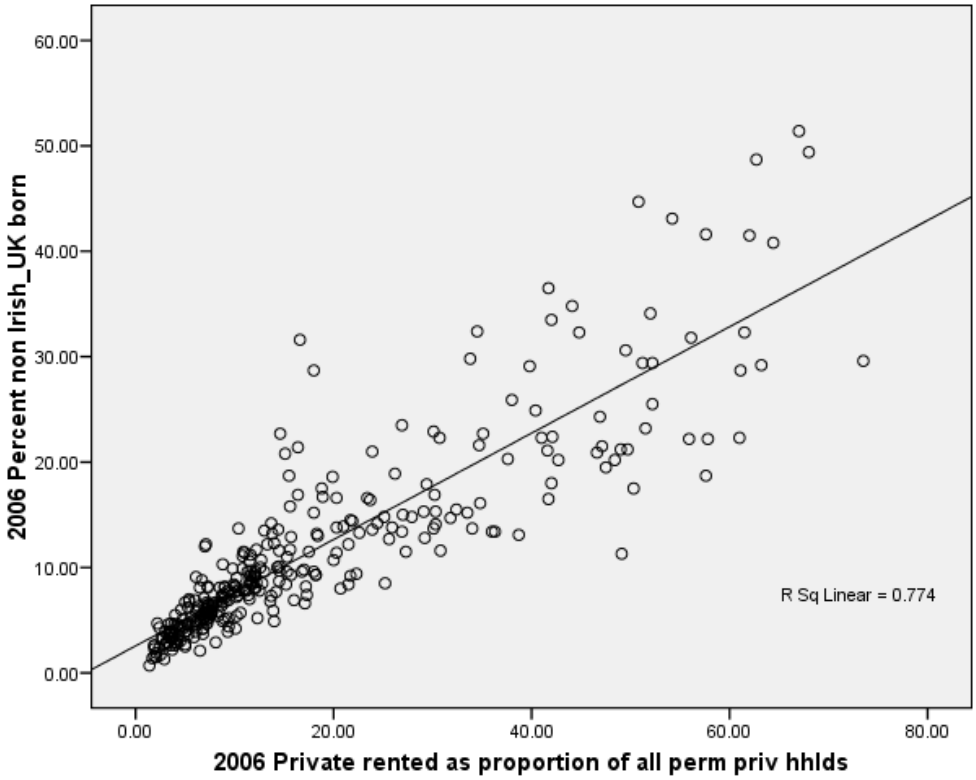
A mapped representation of immigrant concentration in Dublin is provided in Figure 5. This shows that the heaviest concentrations of non-Irish/UK born are found in two areas – the inner city and the north-west suburbs (the latter consisting broadly of Blanchardstown and its surrounds, an area of the city where population growth has been rapid). Low concentrations are found in the northern parts of county Dublin, much of which is still semi-rural, and in a ring of inner suburbs surrounding the inner city proper.

Figure 5. Spatial distribution of the non-Irish/UK born in Dublin, 2006



What accounts for this pattern of spatial distribution of immigrants? Analysis of the correlates of immigrant concentration across EDs shows that one promixate influence dominates: the location of private rented accommodation. In general, immigrants crowd into EDs where private rented accommodation is most available. Figure 6 shows how pronounced this pattern is: the share of private rented accommodation in the occupied housing stock across EDs accounted for a remarkable 77 per cent of the variance in the immigrant share in ED population in 2006. This pattern might best be understood as a reflection of the relative inaccessibility to recent immigrants of other two major housing tenures – home ownership (where cost barriers are paramount) and social rented housing (where eligibility criteria militate against recent arrivals).

Figure 6. Scatter-plot of percent of non-Irish/UK born in population and percent of housing units in private rented tenure in Electoral Divisions in Dublin, 2006 (N=322)



Source: Census of Population 5% Sample of Anonymised Records (COPSAR)

There are two other factors which might interact with the availability of private rented accommodation as influences on where immigrants live. Their relative influence, alongside that of private rented accommodation, is estimated in the regression model set out in Table 3. One of these factors is neighbourhood expansion, which in Table 3 is measured as ED-level population growth in the period 1996-2006. As the immigrant concentration in Blanchardstown just noted might suggest, immigrants might be channelled into areas where population growth was greatest. The other additional possible influence is the level of disadvantage in the neighbourhood at the beginning of the period of growth. Here the possibility to be considered is that immigrants crowded into areas that were relatively disadvantaged. Area disadvantage is measured in Table 3 by the proportion of households which were in local authority housing in 1996.

The relationship between immigrant concentration and population growth in the period 1996-2006 at ED level reported in Table 3 is statistically significant but not strong. This indicates that while some immigrant inflow occurred in rapidly expanding EDs, much of it did not – in which case the arrival of immigrants in many EDs must have been counterbalanced by decline in the local native population, either because of outflows to other areas or an excess of deaths over births. More detailed analysis not shown here reveals that the limited association between immigrant settlement and neighbourhood expansion continues to hold when we take new housing development rather than population growth as the indicator of neighbourhood expansion. For example, in 2006, while 22 per cent of dwellings in Dublin had been built in the previous ten years, the correlation between share of immigrants in the ED

population and the share of occupied dwellings in EDs that had been built since 1996 was significant but still relatively modest at 0.34.

Table 3. Regression analysis of predictors of immigrant settlement in Electoral Divisions in Dublin, 2006 (N=322)

Predictor variables	Dependent variable: 2006 Percent of population non-Irish/UK born	
	Unstandardised coefficients	t-statistic
Private rented households as % of all households, 2006	0.475***	35.1
% growth in population, 1996-2006	0.035***	9.7
% of households in local authority housing in 1996	0.046***	3.6
R^2	83%	

The effect of level of disadvantage in EDs, as measured by the proportion of households living in local authority housing in 1996, was also small but unambiguously present (we tested whether the same result held when other indicators of initial disadvantage were used, such as the proportion of unskilled and semi-skilled workers in the workforce in 1996 or the proportion of the adult population with low education, and found that it did so more or less completely). This indicates that immigrants had a slight tendency to settle in disadvantaged areas but that that pattern was not pronounced and certainly was much less significant than the draw exerted by private rented accommodation. As already mentioned, an important aspect of this pattern is that local authority housing itself is relatively closed to new immigrants and thus tends to act directly as a block to immigrant inflow in disadvantaged neighbourhoods, even though indirectly it may help ease immigrant entry to particular neighbourhoods by reducing the demand among natives for non-local authority housing in the same neighbourhoods.

Any attempt to judge whether levels of immigrant segregation in Dublin are high or low depends on the standard of comparison. By the standards of black-white segregation found in US cities, which Massey and Denton (1989) refer to as 'hypersegregation', it is quite modest (see also Massey and Denton 1993). The average black person in American cities lives in a neighbourhood that is 57 per cent black (Cutler and Glaeser 1997: 827) and in the larger US cities large areas that are virtually 100 per cent black are common. The mean IoD score for black segregation in the 60 US cities examined by Massey and Denton (1989) was 0.69 and scores for major cities such as New York, Chicago, Miami and Los Angeles were higher still (thus, for example, the Chicago IoD score in Massey and Denton's data was 0.88). While no comprehensive picture of ethnic or racial segregation in European cities is available, those European cities that have been examined from this point of view show levels of segregation that are much lower than those found in American cities and are of a broadly similar magnitude to that found above for Dublin in 2006. In Britain, for example, Peach's (1996) study of ethnic minority concentration in urban

areas based on 1991 census data found that intense ethnic minority concentration at urban ward level was rare, and among ethnic minorities such as Bangladeshis which had the highest spatial concentration only one-third were living in wards in which they formed over 30 per cent of the population (Peach 1996: 221). An analysis of ethnic minority segregation in London found an IoD segregation score of 0.35, which is about half the mean score for American cities mentioned already (reference). Analysis of continental European cities similar to that carried out by Peach in Britain are hard to find, though Musterd and Ostendorf (1998) found relatively low levels of segregation in Amsterdam, while comparisons with four other European cities produced similar results (Musterd *et al*. 1997). By European standards, then, there would seem to be nothing highly exceptional about the degree of immigrant concentration now found in Dublin, though the picture for Europe is too unclear to place its relative position exactly.

Impact of immigrant settlement on socio-spatial inequalities

An important feature of the immigrant population in Ireland is its unusually strong human capital profile. Comparative OECD data show that only one other developed country (Canada) has a higher proportion of its foreign-born population with third-level educational qualifications (Figure 3). Except in a handful of Western countries (including the United States, Finland, Belgium, France and Germany) immigrants are now more likely to possess tertiary education than the native born population (though educational levels may differ between immigrant communities). Here again, however, Ireland is in a somewhat extreme position in that immigrant educational advantage over the native population is quite large. As Figure 3 shows, the percentage of foreign-born in Ireland with tertiary education is 1.8 times that of natives with tertiary education, a wider gap than in all other countries in Figure 3 bar Portugal and Hungary.

Figure 3 provides more detail on immigrant human capital compared to that of the native population in Dublin. Focusing on the non-Irish/UK born living in Dublin, over half (52.5 percent) have third level qualifications, compared with 34.6 percent among natives, and less than 15 per cent have low education (primary or lower secondary level only), compared with 37 per cent among natives (Figure 4, panel A). However, the true educational advantage of the non-Irish/UK born suggested by these comparisons is considerably overstated since non-nationals have a distinctively youthful age-profile – a large majority is aged between 20-39 years, an age-group in which education levels among natives are also quite high. When the comparison is restricted to this age-group, the educational superiority of the non-Irish/UK born reduces a great deal: 55.6 percent have third level qualifications compared with 50.6 percent for native Dubliners (Figure 4, panel B). Yet it is significant that even when age effects are taken into account immigrants still retain an educational advantage.

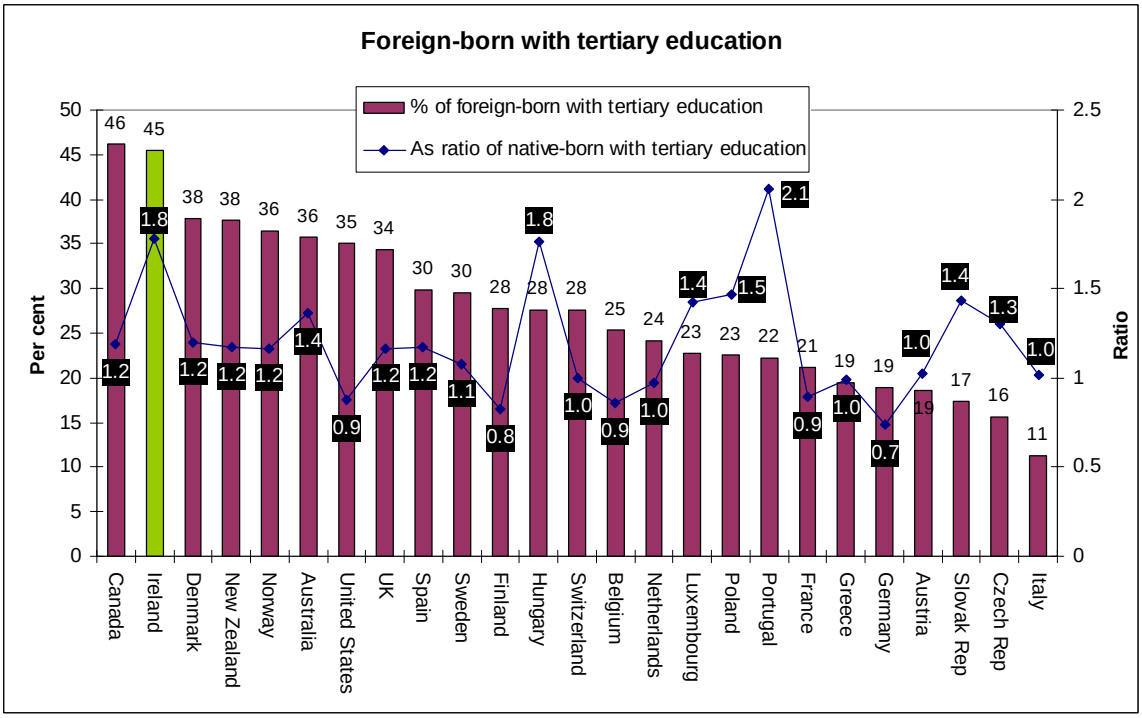


Figure 3. Educational qualifications of foreign-born in OECD countries around 2001 (Source: OECD 2007)

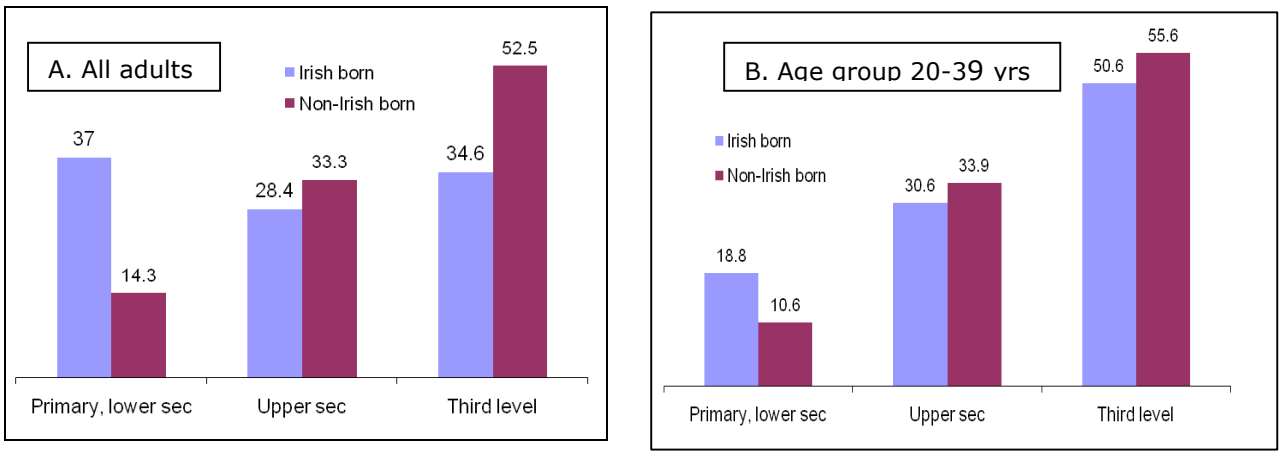


Figure 4. Educational profile of Irish/UK and non-Irish/UK born, Dublin 2006
Source: 2006 Census of Population 5% Sample of Anonymised Records (COPSAR)

However, there is a need for caution in presuming that immigrant quality alone can overcome initial wage penalty disadvantage. In Canada immigrant poverty levels have been only slightly ameliorated by the rising education levels amongst successive cohorts; immigrant quality rose following the introduction during the 1990s of selection criteria that favoured those with third level qualifications (Picot *et al*. 2008: 402). In 2000 some 40 percent of immigrants (aged 25-54) experiencing persistent poverty had a university degree, up from 12.6 percent from 1993. Amongst 1993 new

immigrants some 20.5 percent experienced a spell of 'chronic' poverty during their first five years in Canada compared with 16.2 percent for the 2000 cohort between 2000 and 2005. Explanatory factors for the small degree of decline due to a rise in immigrant quality include poor matching of specific qualifications amongst immigrants to actual skills gaps and economic downturn. The Canadian experience suggests that education levels alone have a negligible affect on the likelihood of immigrants escaping poverty. Those with a third level qualification were found to 1.02 times more likely to escape poverty than those with just high school qualifications in 1993, rising to 1.12 times more likely for the 2003 cohort of immigrants (Picot *et al,* 2008: 404). The Canadian experience suggests the need for caution in positing a social lift in the Irish case.

However, whilst immigrants in Canada are slightly more likely to have tertiary education than in the Irish case their position is considerably less favourable compared to the host population (fig 3). Over half the Canadian active population aged between 24 and 65 has a post-secondary college or university degree, with some 500,000 new undergraduates enrolling annually. Canadian survey data (2005) reveals that 79 percent of secondary school leavers go on to tertiary education (Statistics Canada, 2007). Canada attracts the most highly educated immigrants but it also has highest overall educational qualification ranking in the OECD (Statistics Canada: 2005). In Ireland the percentage of school leavers transferring to third level exceeded 50 percent for the first time 2005. In the Irish case, and in Dublin (fig.4) immigrants, have an overall educational advantage over the overall host population and the 20-39 years cohort within which most immigrants fall.

This educational advantage does not immediately translate fully into corresponding social and economic benefit, as new arrivals may often take up jobs that are below what their skills would warrant and suffer an earnings penalty on that account. In 2008 the Irish labour force participation rate for immigrant adults was in excess of 90 percent compared to 65 percent for the indigenous adult population (Minster of Integration, 2008: 7). In the case of immigrants from the EU's new member states, Barret, McGuiness and O'Brien (2008) estimate that on a like-for-like comparison with natives at similar skill levels, the immigrant wage penalty lies in the region of 10 to 18 per cent overall and is particularly pronounced in the higher levels of the skills and earnings distribution, with almost no immigrant penalty at lower skills and earnings levels (see also Barrett and Duffy, forthcoming 2008). On the other hand, immigrants are only half as likely as natives to rely on welfare (Barrett and McCarthy, 2007). This means that, in the short term at least, immigrants may have some difficulty attaining the full middle class occupational benefits that their educational levels would warrant. Nevertheless, they are distinctively middle class in their human capital assets, with corresponding potential to attain middle class occupational standards.

The economic boom in the 1990s sharply improved the socio-economic profile of many formerly deprived areas in Dublin, particularly in the inner city (Hasse and Pratschke, 2008). Some of this improvement arose from gentrification – the influx of middle class households (mainly young professionals) into new upmarket housing developments in previously rundown parts of the city. Much of this process was driven by government policy, which had provided generous tax incentives for development in the inner city (McGreal *et al,* 2002: 1826)**.** In addition, however, there were signs of improvement even in areas that lacked such an influx, reflecting factors such as the city-wide decline in unemployment and particularly long-term unemployment.

These improvements are reflected in the three variables used here as indicators of socio-spatial inequality, all of which show substantial narrowing of inequalities across EDs in the period 1996-2006. The first of these is the male unemployment rate (Table 4). As might be expected, the fall in unemployment between 1996 and 2006 brought most benefit to EDs which had very high unemployment in 1996 – unemployment was already low in the better-off EDs in 1996 so there was little scope for improvement there. The median levels of male unemployment in the quintile of worst-off EDs fell from 35.6 percent in 1996 to 18.5 percent in 2006. This was paralleled by a decline in the IoD for male unemployment from 0.35 to 0.26. Similarly, the median levels of population categorised as skilled, semi-skilled or unskilled fell significantly in the worst-off quintile of EDs from 60.1 percent to 41.3 percent (Table 5). For the third indicator, the proportion of persons aged 24-64 who completed education at age 21 or higher, the scoring is reversed, in that low percentages indicate disadvantage. Change here is less dramatic than for the other two indicators but nevertheless shows the same broad pattern: education levels rose for all but the quintile that already had strongest educational profile in 1996. In the lowest quintile the rise, while significant, was from a very low base and was of modest extent (from 3.1 percent in 1996 to 7.7 percent in 2006). This suggests the persistence of educational disparities as a basis of spatial segregation, even though a certain improvement in those disparities was evident in the period 1996-2006.

Table 4. Male unemployment rate in quintiles of Electoral Divisions in Dublin, 2006

	1996	2006	Change
Q1	35.6	18.5	-17.1
Q2	21.9	11.9	-10
Q3	13.4	7.7	-5.7
Q4	8.3	5.7	-2.6
Q5	4.7	3.8	-0.9
IoD	*0.36*	*0.26*	

Table 5. Per cent in broad working class in quintiles of Electoral Areas in Dublin, 2006

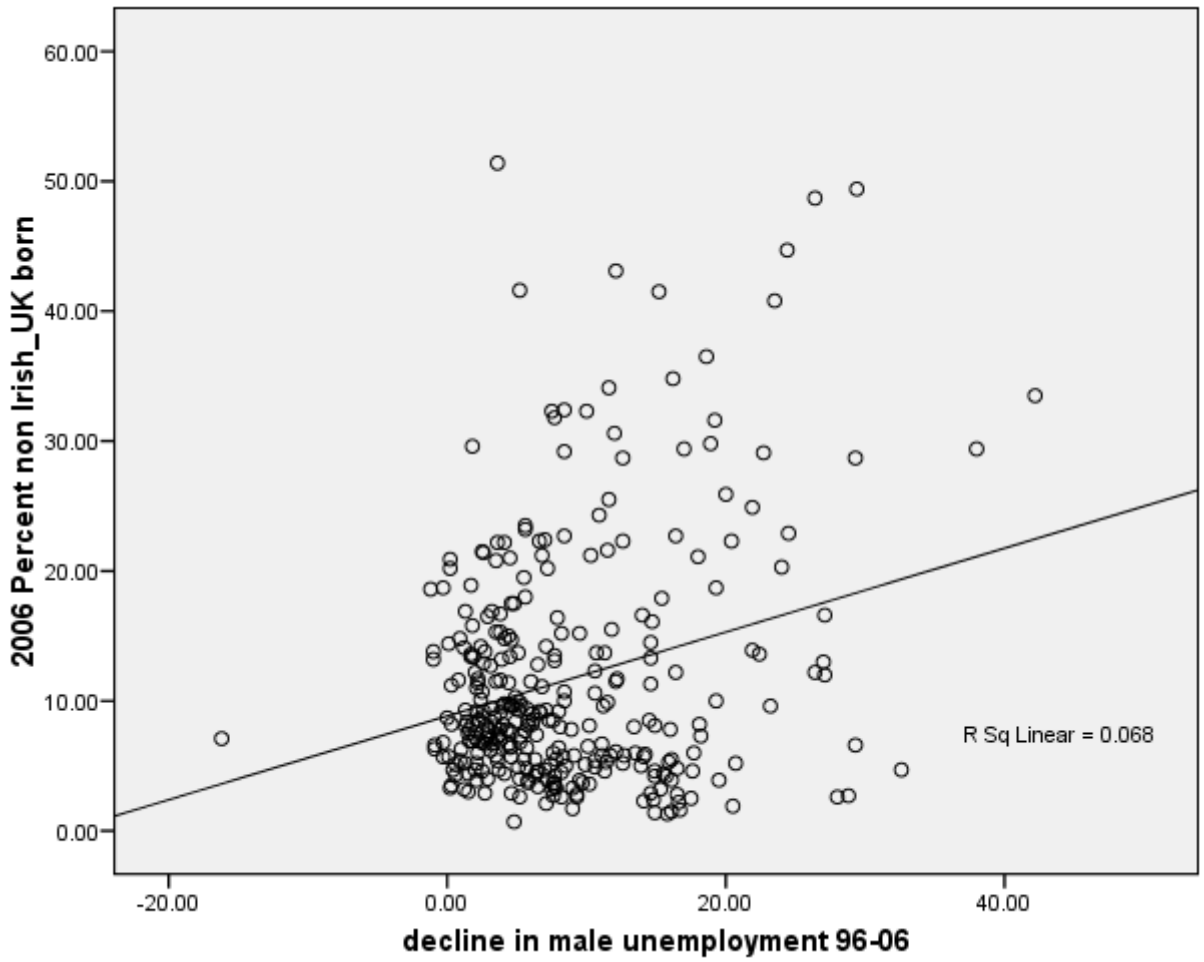
	1996	2006	Change
Q1	60.1	41.3	-18.8
Q2	46.7	32.5	-14.2
Q3	32.8	25.5	-7.3
Q4	21.7	18	-3.7
Q5	12.7	11.9	-0.8
IoD		*0.21*	

Table 6. Per cent with high education in quintiles of Electoral Areas in Dublin, 2006

	1996	2006	Change
Q1	3.1	7.7	4.6
Q2	9.4	16.3	6.9
Q3	18.4	25	6.6
Q4	29.4	34.3	4.9
Q5	47.9	45.6	-2.3
IoD	*0.4*	*0.3*	

We now consider the extent to which the spatial distribution of immigrants accounts for the decline in socio-spatial inequality between 1996 and 2006 in Dublin. A preliminary indication of a positive immigration effect on the pattern of social disadvantage across EDs in Dublin is set out in Figure 7, which presents a scatterplot of the decline in ED male unemployment rates between 1996 and 2006 and the percentage of non-nationals in ED population in 2006. This shows, first, that in the vast majority of EDs, decline in male unemployment did occur (as indicated by positive scores on the vertical axis), though there is a small number of EDs where the score on the vertical axis is marginally negative. The second pattern revealed by this graph is that while the link between declining unemployment and proportion of non-Irish nationals in the population was not consistently present (there were many EDs with substantial declines in unemployment that had small non-national populations in 2006), it was nevertheless marginally positive overall (as indicated by modest upward slope of the regression line) and in a good number of EDs was very strongly positive.

Figure 7. Decline in male unemployment rates 1996-2006 and percentage of non-Irish immigrants in 2006 by EDs in Dublin



We can provide a more structured test of the degree of 'social lift' provided by immigrant settlement to neighbourhoods in Dublin by focusing on two indicators of social progress at Electoral Division level and using regression models to assess their relationship with immigrant population share, controlling for the effect of certain other confounding factors. One of these social progress indicators is that already examined at a bi-variate level, the decline in male unemployment in the period 1996-2006, and the other is the growth in human capital in the same period, as measured by the rise in the proportion of the population with third-level education. Again, the key issue here is whether and to what degree an influx of immigrants had positive effects on these indicators, taking account of other aspects of change at neighbourhood level in the city.

The results are presented in Table 7. Model 1 in this table, which takes the decline in male unemployment as the dependent variable, includes two control variables along with the share of the non-Irish/UK born in the population in 2006. The first control variable is neighbourhood social disadvantage, which is measured as the share of households living in local authority housing, and the second is neighbourhood expansion, which is measured as the share of new-build housing (i.e. built since 1996) in the housing stock. As suggested earlier, the results show that the level of disadvantage in the neighbourhood is a particularly strong predictor of decline in male

unemployment, since it was the worst-off neighbourhoods that had the greatest scope to benefit from the general reduction in unemployment during the economic boom. Neighbourhood expansion had no effect – EDs with large shares of new build in the housing stock did not have siginificantly greater falls in unemployment. The key point to note, however, is that taking account of these control variables, the impact of immigrant share of population in 2006, while not large, remains positive and highly significant. Within a general pattern of falling unemployment, therefore, areas that attracted larger shares of immigrants did slightly better than the norm.

Table 7. Regression models of the effect of immigrant settlement on indicators of social progress in Electoral Divisions in Dublin, 1996-2006, controlling for two other factors

Predictor variables	Model 1: Dependent variable=decline in ED male unemployment rate 1996-2006	Model 2: Dependent variable=rise in ED proportion of adult population with third level education 1996-2006
Non-Irish/UK born as % of population, 2006	0.161** (t=5.11)	0.245** (t=9.48)
Local authority housing as % of all housing, 2006	0.408** (t=19.37)	-0.054* (t=-3.14)
% of dwellings built 96-06	0.007 (t=0.41)	0.144** (t=10.7)
R^2	57%	49%

Turning to Model 2 in Table 7, where gain in human capital is the dependent variable, the effects of the control variables are different: initial social disadvantage recedes in significance as an influence on neighbourhood progress and in fact becomes slightly negative, while the effect of neighbourhood expansion becomes reasonably strong. This suggests that the greater reductions in unemployment associated with local authority housing areas as identified in Model 1 were an effect of the general increase in the labour demand rather than of an improvement in their human capital profile, while expanding neighbourhoods did draw in the better educated. Here again, however, the notable feature is the contribution of immigrant population share, which is strong and positive: neighbourhoods that attracted immigrants showed particularly strong improvements in their overall educational levels. In sum, then, the conclusion to be drawn from Table 7 is that immigrant population share had a slightly positive effect on the employment situation in neighbourhoods and had quite a strong positive effect on their human capital profile, thus confirming the hypothesis that immigrant settlement in neighbourhoods provided with real social lift, even if the degree of social lift it yielded varied somewhat across indicators.

Conclusions

Ireland is not unusual in currently attracting relatively skilled immigrants. However, the Irish experience is distinct from that of some other Western countries where new migrations are superimposed upon pre-existing histories of black and ethnic social and spatial deprivation. Evidence of immigrant social lift in the Irish case is of

considerable significance given that high-skilled immigration into other countries (e.g., Canada) has been found to compound social inequalities. Immigrant settlement in Dublin (1996-2006) impacted on earlier segregation based on socio-economic rather than racialised divisions. It is not proposed that immigration was *the* major driver of change in socio-spatial inequality in the Irish case. Although the immigrant population increased rapidly between 1996 and 2006 it nevertheless represented too small a share of total population at the end of the period to be considered a dominant influence on the socio-spatial structure of the city. However the overall immigration legacy of the pre-2006 boom is a positive one, yet to be squandered. Part of this positive legacy is the relative absence of the kinds of residential segregation depicted by classical ecological theory. Ireland has yet to acquire the kind of embedded patterns of racialised or ethnic socio-spatial deprivation characterisitic of longstanding diverse Western societies. Here (in theory at least) there is scope for social policy interventions that might prevent these from emerging. However, insofar as Ireland does have pronounced patterns of socio-spatial segregation (ameliorated but not ended by the economic boom) there is reason for concern.

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[1] The IoD was developed in the US in the mid-1950s (Duncan and Duncan 1955) and was used primarily in connection with the analysis of racial segregation in US cities based on census tract data (for a general review of a number of such indices, see Massey 1988). It measures the evenness with which two mutually exclusive groups (e.g. blacks and whites) are distributed across the geographic units that make up a larger geographic entity such as a city. Its minimum value is zero (no segregation) and its maximum value is 1 (complete segregation). It is often interpreted as a measure of the proportion of the population that would need to move in order to produce a completely even distribution of the two groups across the units being analysed.