

Philip S. Morrison

The Inequality Debate the neglected role of residential sorting

‘To seek “causes” of poverty ... is to enter an intellectual dead end because poverty has no causes. Only prosperity has causes.’

(Jacobs, 1969, p.118, cited in Piachaud, 2002, p.1)

One of the curious features of recent writing on income inequality is the scant attention paid to the geography of inequality, to the spatial separation of rich and poor. While it is recognised that social capital can be enhanced by residential sorting into more homogeneous groups, there is longstanding concern that this same residential sorting may exacerbate existing inequality by inhibiting the social mobility of the poor (Turner and Fortuny, 2009).¹ The perspective I want to advance here differs from the standard ‘neighbourhood effects’ literature by focusing not on those living in poor neighbourhoods, but instead on the benefits residential sorting may yield for the rich – the way in which location decisions redistribute income to the upper end of

the income distribution and hence further income (and wealth) inequality. The broader purpose is to suggest that the way we organise ourselves geographically may contribute to how unequal we are, as well as how more unequal we may become in the future.

What remains central in both the conventional ‘neighbourhood effects’ literature and in the perspective I advance here is the concept of externalities, or spillover effects: the unpriced consequences of the actions of proximate others. Externalities are particularly acute in urban settings because agglomeration builds on the advantages generated by

Philip Morrison is Professor of Human Geography in the School of Geography, Environment and Earth Sciences, Victoria University of Wellington.

positive externalities. At the same time, remarkably little attention has been paid to the possible influence the distribution of externalities has on the distribution of (real) incomes.² The neglect in the New Zealand case is surprising for at least two reasons. Firstly, there have been marked increases in income inequality in New Zealand since the 1970s, as the previous issue of *Policy Quarterly* has recounted. Secondly, repeated studies internationally have documented the way that rising income inequality has translated into increased levels of income segregation within the city.³

In the following discussion I refer to the relative lack of attention given to the spatial in recent writing on income inequality. I then turn to the geography of inequality in New Zealand, but instead of focusing on the geography of disadvantage I turn instead to the other end of the income distribution, to the geography of affluence.⁴ I then illustrate with reference to one mechanism, the choice of schools. At the end of the article I point to a new world of micro data and geographic identifiers and enhanced data access which may facilitate future testing of a number of hypotheses.

The neglect of residential sorting

The voluminous literature on 'neighbourhood effects' has been driven primarily by concerns over poverty, but has received relatively little attention from those trying to understand income inequality. For example, in one of the best known attempts to address the consequences of inequality, *The Spirit Level*, the authors devote less than 1% of their volume to the fact that the rich and poor live in quite different locations (Wilkinson and Pickett, 2009).⁵ A recent treatment of inequality in New Zealand also largely ignores the fact that we live in a spatially segmented society. While the editor of *Inequality: a New Zealand crisis* (Rashbrooke, 2013) began by recounting the geography of inequality in Wellington, the geography lesson ended as abruptly as it began, leaving each author in the collection recounting life in an aspatial world.

There are two persuasive reasons why the distributional implications of residential sorting have received

little attention (both in New Zealand and overseas). The first is the lack of consistent evidence of negative consequences. Despite the presence of elegant theoretical models of residential sorting, most researchers have found it very difficult to assemble the econometric evidence demonstrating consistent causal links between sorting, income inequality and social mobility. As a recent review delicately put it, 'Despite the important policy implications and a large theoretical literature that assumes the existence of human capital externalities, the empirical literature on the magnitude of these externalities is still young' and it is 'still too early to draw definitive conclusions on the size' (Moretti, 2003).⁶

disappointing: not only the lukewarm effects documented in the 'moving to opportunity' experiment (Ellen and Turner, 2003), but also the documented re-sorting that has taken place in projects specifically designed to cater for mixed income groups (Lupton and Fuller, 2009; Smith, 2002). There appear to be few well-documented benefits to either high or low income groups from attempts at income-mixing.

One of the reasons it has been so difficult to reverse residential sorting even at the scale of the neighbourhood is that in democratic societies the freedom to decide where to live, and hence who to live next to, is deeply engrained as a 'right', as freedom of choice. Free choice

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In one of the few longitudinal studies in which income growth over periods up to ten years was traced across the full range of neighbourhoods, its UK authors concluded that, far from 'otherwise-identical people living in different areas hav[ing] different prospects', we find 'no evidence of a negative relationship between neighbourhood and subsequent income growth' (Bolster et al., 2007, pp.1, 3). On the contrary, several studies point to the positive effects of the 'specialised neighbourhoods' that result from residential sorting, noting how social homogeneity facilitates communication and job-matching (Cheshire, 2007). Attention has also been drawn to the negative psychological effects of heightened income relativities present in mixed neighbourhoods (Luttmer, 2005).

Second, the experience with mixed neighbourhoods themselves has been

of residential location by those with the means forms an important part of the aspirational goals of New Zealanders, a majority of whom not only favour less (rather than more) redistribution of income, but do so to a higher degree today than people in most other comparable countries (Morrison, 2015).

At the same time, when we observe those who are actually able to exercise choice, we find they place considerable weight on spatial proximity to others like themselves, as well as the associated wealth and educational opportunities that more affluent locations provide. In their revealed preference, high-income households believe sorting into successively higher-priced sections of the housing market will be to their financial benefit, that it will help support their relative social position, will enhance personal safety and bolster the chances

that their children will continue to enjoy upward social mobility. By contrast, the poor rarely choose where they live. Sitting at the bottom of a rank-ordered distribution of neighbourhoods, any 'choice' is applied only to a residual set of leftovers discounted by higher household incomes or provided, in a small fraction of the housing stock, by the state.

In order to understand the distributional consequences of spatial sorting and the possible impact it might have on income inequality, we are, therefore, more likely to learn more by shifting our attention to the residential behaviour of higher-income households and to the net positive externalities they generate from their spatial sorting. I begin with the conventional geography

assertions about the underlying processes which generate the uneven geography of income: first, the way in which 'greater social distances become translated into greater geographical segregation between rich and poor in more unequal societies', and second, the way that 'these processes [of residential segregation] feed back into further reductions in social mobility' (Wilkinson and Pickett, 2009, pp.162-3).⁷ Their thesis, in other words, is that the more unequal the society, the greater the degree of spatial sorting by income and the more likely that sorting contributes to further income inequality.

The circular, cumulative intent of Wilkinson and Pickett's argument is persuasive. At its centre is the institution of private property and its ability to

superior amenities. Not only is their wealth enhanced, but ensures that local classrooms are inhabited by better-prepared students motivated by a shared set of values and behavioural norms, and taught in higher-quality facilities which can often attract superior teachers. As evidence, UK researchers found 'that higher levels of residential segregation do seem to encourage more unequal outcomes – but they do so primarily by boosting performance at the top end, while exerting a mildly positive influence also on achievements at the median level' (Gordon and Monastiriotis, 2006, pp.233-4). It is timely, therefore, to turn from the geography of deprivation to the geography of affluence.

The geography of affluence

Today more than ever the affluent are locating in metropolitan areas. From a recently developed index we learn that over half of all affluent area units were located in Auckland, which is a much higher proportion than the third of the population housed there.⁸ Well under a third of the affluent (28%) were located in Wellington, which is also higher than that city's share of the country's population.⁹ Under 10% were located in Christchurch. 90% of all affluent areas, therefore, are located in one of the three main urban centres of New Zealand, which is much higher than the share of all the high deprivation deciles (NZDep10) area units located in the same cities.¹⁰

A more recent attempt to monitor spatial patterns of income concentration in New Zealand has drawn on records of individual households, under confidentiality, from the New Zealand census (1996, 2001 and 2006). Specifically, Maré et al. applied a statistical measure of spatial concentration (within one kilometre) to three household income groups (below \$20,000, \$20–55,000 and above \$55,000) in Auckland (Maré, Coleman and Pinkerton, 2011). Figure 1 reproduces their map. The darker shading indicates the greater spatial concentration of the top third of the household income distribution in 2006.¹¹ As they observe, '[h]igh income earners and those in households with high equivalised household income displayed the greatest

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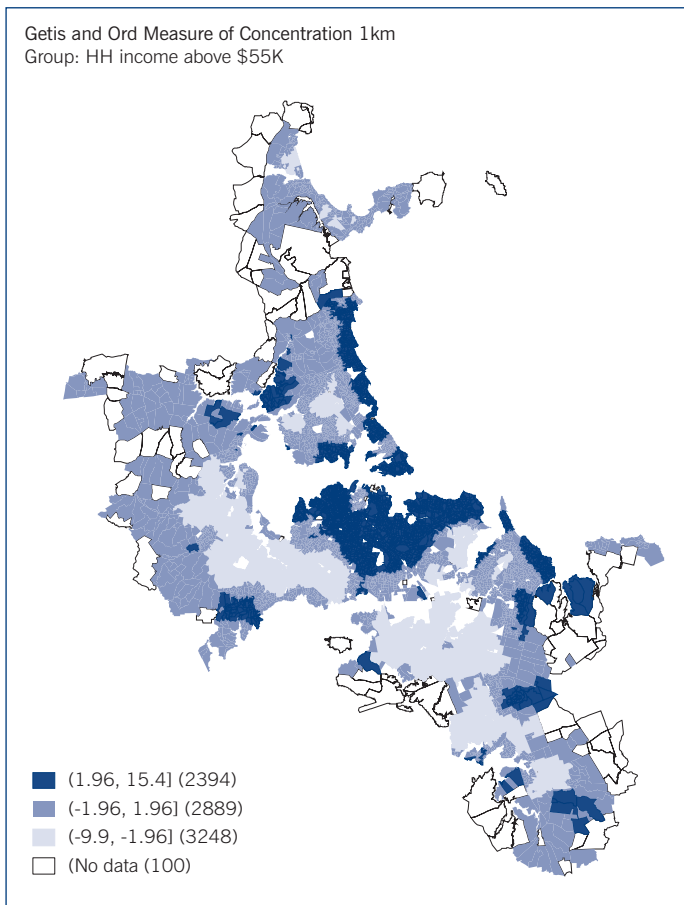
of deprivation, and then address the contemporary geography of affluence.

The geography of deprivation

Degrees of Deprivation in New Zealand: an atlas of socio-economic difference gave New Zealanders their first real appreciation of areal deprivation in their country (Crampton, Salmond and Kirkpatrick, 2004; Crampton et al., 2000; White et al., 2008), as did similar publications in the UK and the US (Dorling and Rees, 2003; Glasmeier, 2006). However, the New Zealand atlas was assembled not to understand either the *process* of residential sorting itself nor its *social consequences*. Instead, it was designed to assist in the delivery of services to disadvantaged areas (White et al., 2008, p.14). By contrast, in the short section of *The Spirit Level* in which Wilkinson and Pickett address the presence of residential sorting they make two quite central

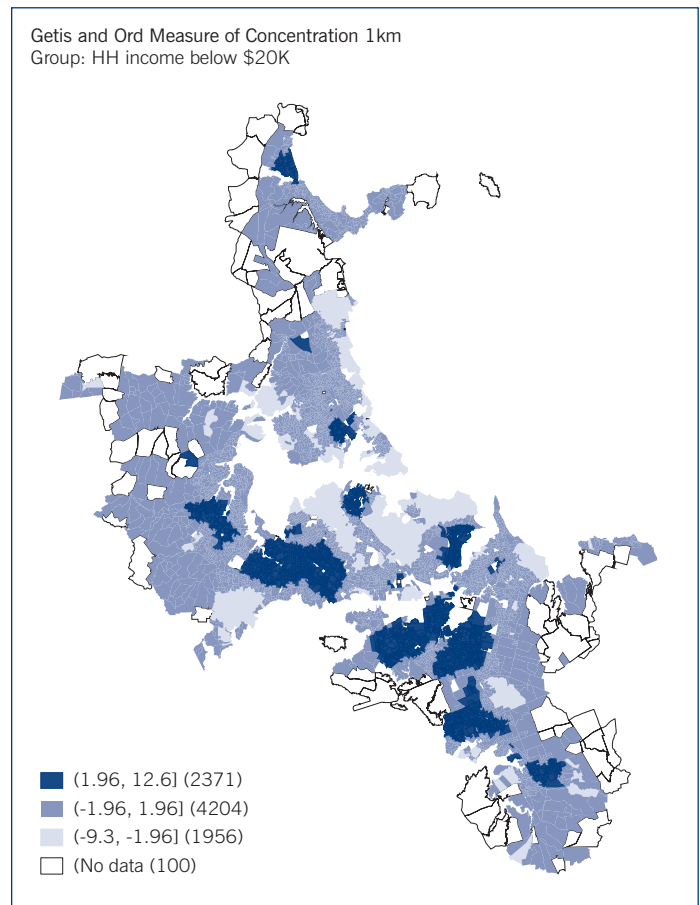
exclude. Property ownership enables the consumption of housing services at mutually-exclusive locations: my ownership and occupancy of space precludes yours (and vice versa). Few other forms of consumption are capable of such a high degree of exclusion; our cars share the road, much of our eating is done publicly, and a great deal of our recreation still takes place in public settings. It is this mutually-exclusive characteristic of housing consumption which makes housing and hence real estate particularly attractive to the rich, who exclude not simply because they can but because of the advantages they believe they will accrue as a result. In other words, the institution of private property allows those with choice to harvest a range of positive externalities to their exclusive benefit. The result is neighbourhoods with a more homogeneous local culture, higher-quality housing and

Figure 1: Residential segregation in the Auckland urban area of the top third of household income distribution, 2006



Source: Mare et al., 2012, Figure 4, p.45

Figure 2: Residential segregation in the Auckland urban area by the bottom third of the household income distribution, 2006



Source: Mare et al., 2012, Figure 4, p.45

sorting, and the highest degree of spatial autocorrelation’ (Maré et al., 2012).¹²

By contrast, Figure 2 maps the concentration of low-income households (the bottom third), which is almost the photographic negative of Figure 1, for it shows the relatively poor households concentrating in quite separate parts of the Auckland urban area. Taken overall, the spatial clustering is U-shaped in income, with the greatest spatial concentration being experienced by the relatively rich and relatively poor households.¹³

It is one thing to quantify the degree of residential sorting using spatial statistics, and quite another to identify its consequences in distributional terms. What we cannot tell from Figures 1 and 2, for example, is how *much* clustering benefits those at the top of the income distribution. I now turn to this question, using the spatial relationship between the housing and education markets as an example.

Identifying distributional consequences of residential sorting

The affluent concentrate spatially within cities to do more than exploit the advantages of homogeneity.¹⁴ One of the main reasons is to gain access to higher-quality education through the local housing market. This has been increasingly possible since the New Zealand education ‘market’ was deregulated through the Tomorrow’s Schools reforms of the late 1980s, which gave local parents first choice for schools within their zone, while also enabling them to look elsewhere if they preferred (McCulloch, 1991, p.160). This effectively allowed quality education to be purchased through the housing market. These developments motivated Hugh Lauder and David Hughes, who had been researching Christchurch schools, to suggest a ‘more rigorous approach to zoning ... in order to help equalize the “social class mix” of different schools, and hence to improve education and equity outcomes’ (Lauder and Hughes, 1990).¹⁵

Several studies have now documented the impact of the education reforms on relative levels of access and the way the deregulation has allowed ‘communities of wealth seek to maintain a quality of life’ and ‘clear systems of privilege’ by controlling school district boundaries’ (Thomson, 2010, p.421). Thomson’s maps of schools with and without enrolment schemes (Figure 6, p.437) closely match Maré’s Figure 1 above showing the concentration of affluence, and the juxtaposition serves as a reminder of the intimate relationship between wealth and control over enrolment into higher-decile schools.

Machin’s recent review of the international evidence records a surprising degree of agreement over the effect proximity to higher performing schools has on housing prices: between 3 and 4% (Machin, 2011, Table 2, p.726). In a closer analysis of the Christchurch experience, Gibson and Boe-Gibson examine the relationship between school

performance and house prices, showing that 'a standard deviation increase in performance, as measured by pass rates in NCEA examinations, raises house prices by 6.4%, all else the same' (Gibson and Boe-Gibson, 2014, p.18). This higher price threshold apparent in New Zealand is, they argue, a reflection of 'special features of schools in New Zealand such as their ability to set their own attendance boundaries and the absence of locally-funded schools that aid sorting across communities'. Even though schools may nominally be 'free', students from poorer

inequality at the high-income end of the income distribution, and this is one of the reasons for looking more closely at the connection between geography and affluence.

How might we learn more? It is clear from recent examination of New Zealand work in the socio-economic sciences that we now have much greater access to data at the level of the individual, in large numbers and often, in the case of the population census, to all the enumerated population. These relatively new developments have been coupled

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households face more restricted schooling opportunities than do wealthier students, being constrained through the housing market. (ibid.)

Research implications

The point made early on in this article was that almost all studies of the impact of geographic sorting on welfare have involved attempts to measure the negative effects of living in poor neighbourhoods. Not only did this vast body of research not produce results that were convincing in their own terms, but many may have underemphasised the positive impacts of so-called 'specialised' or economically homogenous neighbourhoods regardless of income.

The approach I have taken here is quite different. Instead of being motivated by understanding poverty, I have approached the geography as a possible contributor to understanding growing income inequality. The rise in income inequality over the last two decades or so has been primarily due to increasing

with a much wider array of information on location, at a variety of scales which can be exploited via GIS technology. In addition, we now have a range of purposeful surveys that provide insight into behaviours we have not previously been able to document. Alesina and La Ferrara, for example, have demonstrated for the US an ability to combine the rich information on social connectivity and participation now collected through their country's General Social Surveys with specific geographically identified neighbourhoods (Alesina and La Ferrara, 2000), a linking which has recently been replicated in New Zealand (Torshizian and Grimes, 2014). Similar linkages have been carried out in work at the University of Canterbury (Clark and Kim, 2012a) and in a study of home ownership (Roskrug et al., 2010), to name but a few. What these examples illustrate is that it is now technically possible to gain a policy-relevant understanding of the behaviour of particular groups as they relate to location. There is no reason why these

data and the econometric methods used to analyse them should not be applied to the distributional issues raised in this article.

Conclusions

This article has addressed a paradox. On one hand researchers worldwide have found it extremely difficult to consistently identify the negative effects of living in poor neighbourhoods, over and above the personal difficulties faced by the residents who self-select into those neighbourhoods. On the other hand, neighbourhoods continue to matter immensely to those at the affluent end of the income spectrum. The revealed preference of high-income, high-wealth households for residing with others like themselves speaks to the substantial net benefits they expect to accrue from such decisions. There is every reason to expect that these geographic advantages, such as access to better schools and highly appreciating housing sub-markets, end up moving many households further up the income distribution and thereby contributing to greater inequality.

- 1 The classic studies advancing this view (in the US) are summarised in Kremer's introduction to his interrogation of the empirical evidence (Kremer, 1997). Kremer himself argues for minimal distributional implications of residential sorting based on narrow assumptions. However, once a wider set of behavioural implications of socio-economic positioning is recognised (the relationship between education and fertility for example), much stronger negative distributional and social mobility consequences of residential sorting emerge (Fernandez and Rogerson, 2001).
- 2 Treasury undertook some exploratory work along these lines in the early 2000s with a New Zealand-wide focus (Treasury, 2001a, 2001b, 2001c). Epidemiologists have explored spatial variations in health on several occasions, often concluding that neighbourhood deprivation plays a role (Blakely et al., 2003). By contrast, economists have only recently become interested in spatial variations in socio-economic conditions (Maré, Mawson and Timmins, 2001). Geographers have written on segregation for decades, but have tended to be more concerned with patterns than policy (Johnston, Poulsen and Forrest, 2005), as have sociologists (Grbic, Ishizawa and Crothers, 2010). What is salient about this literature in general is its disciplinary fragmentation. With some notable exceptions, authors from different disciplines rarely speak to each other, which makes it particularly difficult for policy analysts to assemble a coherent account of residential sorting and its possible consequences.
- 3 This argument is well documented, especially in new settler countries, including the US (Jargowsky, 1996, 1997), Canada (Hulchanski, 2007; Myles and Picot, 2000; Ross et al., 2004) and Australia (Hunter and Gregory, 1996; Hunter, 2003).
- 4 The spatial argument I advance parallels the aggregate historical argument (Piketty, 2014) in locating a major cause of increasing income inequality at the top end of the income distribution.
- 5 Only two of 331 pages of *The Spirit Level* are devoted to the geography of inequality and just over two pages to geographic segregation (Wilkinson and Pickett, 2009, pp.162-3).
- 6 Several other reviews come to similar conclusions (Durlauf, 2004; Slater, 2013)
- 7 In support of both points, they draw on UK research in the

- early 2000s (Dorling and Rees, 2003) and on late 1990s research in the USA (Jargowsky, 1996) as well as the highly influential work of William Julius Wilson (Wilson, 1987). They also draw on the links other authors make between income inequality, residential segregation and its consequences (Lobmayer and Wilkinson, 2002; Mayer, 2001; Waitzman and Smith, 1998).
- 8 In an extension of his earlier spatial decomposition of income inequality (Martin, 1997), Barry Martin developed an 'affluence index', in which each of Statistics New Zealand's area units is characterised by the proportion of households with high income, income from investments, business or rents, or a household member having high qualifications or a managerial or professional occupation: <http://popbytes.co.nz/>. The affluence index uses households, as opposed to the deprivation index which uses spatial aggregates of individuals. Each census area unit is assigned an average composite score based on these four attributes and those in the top 10% of the 1800 area units, with the highest scores (the tenth decile), are deemed affluent. The scores are computed for the 13-year period covered by the 2001–13 censuses (Martin, 2008).
- 9 Such evidence is now common in many countries, as Moretti's discussion of recent trends in the geographic distribution of human capital across cities shows (Moretti, 2003). Several New Zealand scholars have also drawn attention to this concentration of the rich in metropolitan New Zealand (Alimi, Maré and Poot, 2013; Karagedikli, Maré and Poot, 2000; Market Economics Ltd, 2011). There is corresponding concern that regional policies being developed in New Zealand are unlikely to address 'the challenges of what seems to be growing regional inequality', for 'a significant loss is taking place in demographic terms across more than a third of the country's non-city local areas' (Nel, 2015, pp.12-15).
- 10 The distribution of high-deprivation areas in New Zealand is not the distribution of highly deprived individuals. The same is true of the affluent. In both cases the NZDep index is a measure of the area, not any given individual.
- 11 The purpose of the Getis G* statistic mapped in Figures 1 and 2 is to test whether a particular location and its surrounding areas (meshblocks in this instance) constitute a cluster of higher (or lower) than average values on the variable of interest, household income in this case (Rogerson, 2001, p.174).
- 12 Detailed results of spatial clustering for the three income groups, both personal and household incomes, are reported in their Table 2 and 3 for the Auckland urban area as a whole (global measures of concentration), as well as locally in shorter distance measures. They find that '[s]egregation was somewhat stronger for residents at the upper end of the [education ...] qualification and personal and household income distributions than for low income residents and those with no qualifications'. In an earlier paper they also found that 'high-income immigrants are more clustered than immigrants generally' (Pinkerton, Maré and Poot, 2011).
- 13 When household income is used there are actually two levels of sorting that take place, sorting into households (one- and two-person households, for example) and the sorting of households across neighbourhoods. These two levels of sorting are closely related (Callister, 2001; Russell et al., 2004). There is therefore some division in the literature over the degree to which it is appropriate to model residential sorting on the basis of individuals or households. As the Maré et al. paper notes, 'focusing on individuals is a common approach in studies of residential location' (Maré et al., 2012, p.33; Cutler and Glaeser, 1997; Reardon et al., 2008), but comparable studies based on the household reflect the relevance of household decision-making for location choice (Bayer and McMillan, 2012; Iceland et al., 2010; Jargowsky and Kim, 2005). In the Motu work, 'Household income was estimated by aggregating incomes within a dwelling and adjusting for the number of people, and was equalised by dividing total household income by the square root of the number of individuals' (Maré et al., 2012, p.32). The modelling of residential sorting by characteristic was done on the basis of individuals with household income treated as a (shared) characteristic of individuals within a household (ibid, p.33).
- 14 Recent New Zealand examples illustrate the positive effects of homogeneity on social capital formation, in terms of volunteering (Clark and Kim, 2012b) and contributions to local schools (Armstrong and Clark, 2013).
- 15 That different levels of access prevail when it comes to purchasing point-of-sale services such as education and health is well recognised by government, which has for many years funded programmes designed to compensate the poor living in specific locations for their lack of market-place demand in both health and education.

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