



Concentrated affluence, concentrated disadvantage, and children's readiness for school: A population-based, multi-level investigation

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ABSTRACT

A number of studies demonstrates a relationship between neighbourhood concentration of affluence and disadvantage and the health and development of its residents. We contribute to this literature by testing hypotheses about the relationship between neighbourhood-level concentrated affluence/disadvantage and child-level developmental outcomes in a study population of 37,798 Kindergarten children residing in 433 neighbourhoods throughout the province of British Columbia, Canada. We utilise a previously-validated measure of neighbourhood socioeconomic composition—the *Index of Concentration at the Extremes (ICE)*—which not only allows for more precise estimation of the competing influences of concentrated affluence and disadvantage, but also facilitates examination of the potential impact of neighbourhood-level income inequality. Our findings show that increases in neighbourhood affluence are associated with increases in children's scores on the *Early Development Instrument (EDI)*, a holistic measure of Kindergarten children's readiness for school. Particularly noteworthy is that, for four of the five EDI scales (physical, social, emotional, and communication) and the total score, results indicate a significant *curvilinear* relationship – whereby the highest average child-level outcomes are not found in locations with the highest concentrations of affluence, but rather in locations with relatively equal proportions of affluent and disadvantaged families. This finding suggests, first, that concentrated affluence may have diminishing rates of return on contributing to enhanced child development, and, second, that children residing in mixed-income neighbourhoods may benefit both from the presence of affluent residents and from the presence of services and institutions aimed at assisting lower-income residents. Implications and future directions are discussed.

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Introduction

Extensive literature demonstrates that neighbourhood-level socioeconomic conditions impact residents' well-being via a variety of mechanisms (Diez-Roux, 2001; Macintyre, Ellaway, & Cummins, 2002; Robert, 1999; Sampson, Morenoff, & Gannon-Rowley, 2002). A significant portion of this “neighbourhood health effects” literature has focussed on investigating the links between a given neighbourhood's *concentrated disadvantage or poverty* – i.e., its proportion of socioeconomically-disadvantaged persons, households, or families – and the health and developmental outcomes of its residents (e.g., Carpiano, 2007; Eibner & Sturm, 2006; Haan, Kaplan, & Camacho, 1987; Ross & Mirowsky, 2001). Far fewer studies, however, have examined the influences of neighbourhood-

level concentrations of both affluence *and* disadvantage on these outcomes. The theoretical rationale for considering both affluence and disadvantage simultaneously is that the increased proportion of affluent residents provides greater availability of material and psychosocial resources that have distinct implications for health and well-being and that cannot be deduced by examining concentrated disadvantage alone (Massey, 1996; Wilson, 1987; see also Browning, Cagney, & Wen, 2003). To date, considerable evidence exists that neighbourhood affluence has a positive effect on health and development (e.g., Brooks-Gunn, Duncan, Klebanov, & Sealander, 1993; Weden, Carpiano, & Robert, 2008; Wen, Browning, & Cagney, 2003) which, as noted by Browning et al. (2003), calls into question the dominant focus in the neighbourhood effects literature on the prevalence of poverty and disadvantage.

In evaluating the influence of affluence, existing studies have included measures of both concentrated affluence and disadvantage in the same statistical models to determine which factor was more important empirically in predicting outcomes. A limitation of this analytic approach, however, is that proportions of affluent and

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poor families are highly correlated across neighbourhoods: As the proportion of affluent families reaches 1.0, the proportion of poor families necessarily approaches 0.0. This relationship is not completely singular due to the presence of middle class families; the relationship is, however, still strong enough to introduce problems related to multicollinearity into statistical estimates, thereby limiting inference (see Casciano & Massey, 2008).

In light of these issues, we utilise a previously-validated composite measure of neighbourhood socioeconomic composition to test two competing hypotheses about the relationship between concentrated affluence and disadvantage and child developmental outcomes. Specifically, we utilise the *Index of Concentration at the Extremes (ICE)* (Massey, 2001) to measure neighbourhood concentrated affluence and disadvantage and, in turn, explain variation in child-level scores on the *Early Development Instrument (EDI)*, a holistic measure of Kindergarten children's readiness for school (Janus & Offord, 2007; Janus et al., 2007). Our study population consisted of 37,798 children residing in 433 neighbourhoods throughout the province of British Columbia, Canada.

As Lloyd and Hertzman (2009) describe, social epidemiological approaches to the life course and health (Kuh & Ben-Shlomo, 1997) have begun to be complemented by a human development approach, which emphasises the role of early experiences as determinants of health over the life course (Schoon, Sacker, & Bartley, 2003). Early physical, socioemotional, and language/cognitive development have been shown to be associated with mid-life health and well-being through a mixture of latent, pathway, and cumulative effects (Hertzman & Power, 2005; Hertzman, Power, Matthews, & Manor, 2001). These developmental domains, which we investigate herein, have been shown to be predictors of health and well-being over the life course and, consequently, demonstrate that early child development is a determinant of health (World Health Organization, 2007). Therefore, by more fully understanding the nature of the relationship between neighbourhood-level socioeconomic characteristics and child-level outcomes, population health researchers can investigate in a more focussed manner the mechanisms that connect variations in neighbourhoods' characteristics with the overall health and development of its young children.

Theoretical Background and Hypotheses

A variety of theoretical explanations have been offered for why neighbourhood socioeconomic composition matters for health and well-being (e.g., see Mayer & Jencks, 1989; Robert, 1999). Our study tests two competing hypotheses concerning the shape of relationship between concentrated affluence/disadvantage and child development. Below, we review these hypotheses in the context of the theories that motivate them, and discuss their conceptual and empirical implications for child development.

Hypothesis 1: Benefits of Affluent Neighbours for Development (BAND)

The first hypothesis, which we refer to here as the *Benefits of Affluent Neighbours for Development (BAND)* hypothesis, is based on the collective findings of prior literature that has examined neighbourhood concentrated affluence and individual health and well-being: that there is a positive relationship between a neighbourhood's concentration of affluence and its individual child-level development outcomes, such that the higher the concentration of affluence in a neighbourhood, the better a child's development (even after controlling for individual and family factors of the child). The rationale for this argument is that higher concentrations of neighbourhood affluence positively influence child development

through the beneficial effects of higher-quality public services (e.g., schools, parks, and police protection) and private services (e.g., sports and other activities), as well as neighbourhood monitoring of child behaviour and the increased presence of positive role models (Brooks-Gunn et al., 1993). Likewise, from the standpoint of collective socialisation, it has been argued that living among affluent neighbours encourages child competence, achievement in school, and avoidance of problem behaviours (Kohen, Hertzman, & Brooks-Gunn, 1998).

As argued by sociologist William Julius Wilson (1987) in his influential study of urban poverty, *The Truly Disadvantaged*, the poor derive benefits from the presence of more affluent residents in a neighbourhood. The prevalence of affluent residents is associated with material and social resources necessary for maintaining institutions such as the family, churches, schools, stores, and informal services. In addition to concentrated affluence, such institutions have been argued to help foster social cohesion and informal social control, which are key elements of collective efficacy for children—that is, a neighbourhood's “shared expectations and mutual engagement by adults in the active support and social control of children” (Sampson, Morenoff, & Earls, 1999, p. 635). In their study of neighbourhood-level influences on child outcomes, Brooks-Gunn et al. (1993) found that the presence of high income residents was more important in alleviating deleterious outcomes than the presence of low income residents was for generating them.

Thus, from a multi-level perspective, this BAND hypothesis argues that greater neighbourhood concentrated affluence is beneficial for a child's development. In light of this hypothesis, we would expect empirically to see a positive relationship between neighbourhood concentrated affluence and developmental outcomes of individual children.

Hypothesis 2: Competition

We also consider an alternative hypothesis—which we refer to here as the Competition hypothesis—which posits that increases in the neighbourhood prevalence of affluent residents may, in some instances, be disadvantageous for child development. This hypothesis is motivated by two theoretical streams: competition and relative deprivation theories.

Competition theories are based on the premise of limited resources, thereby suggesting that when there is competition for scarce resources, affluent neighbours can be seen as increasing competition among families (Kohen et al., 1998; Mayer & Jencks, 1989). Consistent with such theories, increasing concentrated affluence may also negatively impact trust and social engagement among neighbours, generating low levels of social capital and producing less nurturing social environments (Kawachi & Kennedy, 1997; Wilkinson, 1996), which, in turn, may contribute to worsened child-level outcomes in general.

Relative deprivation theory suggests that status differences among individuals may generate stress-inducing comparisons to others that, in turn, have potentially negative consequences for behaviours, attitudes, health and well-being (Wilkinson, 1996; see also Hou & Myles, 2005). Consistent with this theory, parents in neighbourhoods where either all families are affluent or all families are poor should experience less stress and consequently less deleterious consequences (for both parent and young child) from evaluating their situation or relative standing vis-à-vis their neighbours (Brooks-Gunn et al., 1993).

Although it has been typically argued that families are better off in more affluent neighbourhoods due to the availability of local resources, recent research conducted in the United States reveals that the number of childcare centres does not decrease as

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