Residential Mobility and Prosocial Development Within a Single City

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Abstract Neighborhood social dynamics have been shown to impact behavioral development in residents, including levels of prosociality (i.e. positive social behavior). This study explores whether residential moves to neighborhoods with different social dynamics can influence further prosocial development. Prosociality, five domains of social support, and residential location were tracked between 2006 and 2009 in 397 adolescents across a small city in upstate New York. Analysis compared the role of the different forms of social support in prosocial development for movers versus non-movers. The effects of one's neighborhood of residence at Time 2 were also compared between movers and non-movers. Prosocial development in these two groups responded similarly to all forms of social support, including from neighbors. Movers experienced a greater increase in prosociality the more residentially stable the adolescent population of their new neighborhood of residence. Such neighborhood characteristics were not influential in the prosocial development of non-movers.

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Introduction

The role of neighborhood context in behavioral health has recently become a prominent focus of research and policy. Studies in the field of child development have found that prosociality (O'Brien et al. 2011; Wilson et al. 2009), aggressive behavior (Ingoldsby and Shaw 2002; Molnar et al. 2004), juvenile delinquency (Sampson et al. 1999), mental health (Xue et al. 2005), and conduct problems (Edwards and Bromfield 2009) are all associated with features of the neighborhood environment. These effects are found to be independent of a broad set of individual variables, ranging from demographics to family parenting practices, suggesting that neighborhoods contribute to the early life experiences that influence development. Such studies are often cross-sectional, however, and the patterns they illustrate may be dominated by individuals who have lived in the neighborhood for much of their lives. Meanwhile, they cannot address whether children moving into a neighborhood, who have already had critical social experiences in another environment, will be impacted by said features in the same way.

In an attempt to explore this question, the current study tracks the behavioral development of a single city's adolescents, some of whose families have moved within the city. We focus in particular on changes in prosociality, defined as those behaviors and attitudes that benefit others, or the group as a whole. Prosociality is essential in garnering social resources for oneself, and is central to the well-being of the community, providing for the

construction and maintenance of social networks, and the foundation for collective efforts (Coleman 1990; Putnam 2000). Previous work has demonstrated that aspects of a neighborhood can impact prosocial development, but it is unknown whether such characteristics will influence the behavior of an adolescent who has recently moved there. We attempt to answer this question by tracking prosociality, a set of its correlates, and residential location in a sample of adolescents. The sample covers the geographic and demographic range of Binghamton, a small city in upstate New York. Binghamton's population has substantial residential mobility, and a high proportion of families move within the city. Comparing the children of these families to their peers, we assess whether moving to a neighborhood with different characteristics during adolescence can influence further prosocial development.

Prosociality and Development

O'Brien et al. (2011) provide an evolutionary developmental model for prosociality, proposing that early life experiences are used to guide development towards a locally adaptive social strategy (Belsky et al. 1991). Evolutionary theorists have long maintained that the success of a prosocial strategy is dependent on the presence of social partners who are similarly prosocial, returning favors and engaging equally in cooperative ventures (Wilson and Wilson 2007). Thus, it would be adaptive for youth to condition their prosocial development on the quality of the local social environment. Using the same sample that acts as the basis for the current study, the authors tested this model in Binghamton by measuring prosociality and social support from a variety of sources (family, school, extracurricular activities, religion, and neighborhood). All forms of social support predicted prosociality cross-sectionally, adding to the collection of studies that show an association between quality relationships with adults and youth prosociality (Romano et al. 2005; Wilson and Csikszentmihalyi 2007; Wilson et al. 2009). In addition, changes in prosociality across time paralleled changes in all forms of social support.

This study and an earlier one (Wilson et al. 2009) included a multilevel analysis, nesting individuals within their neighborhood of residence. In both studies, those living in neighborhoods with greater cohesion between residents had higher levels of prosociality, an effect that was independent of individual characteristics, as well as the neighborhood's socioeconomic status (SES). However, the longitudinal analysis found that changes to a neighborhood's social cohesion did not have further impact on the adolescents living there. Instead, only changes in one's own interactions with neighbors predicted prosocial development. Combining these two results, it seems that, as

adolescents gain autonomy, their relationship with the neighborhood might become more personal. In turn, shifts in the global environment only impact prosocial development insofar as they affect one's direct social ties with neighbors. This leaves open the question, then, of whether these neighborhood characteristics can be influential in the development of children who move there at this later stage.

Independent of neighborhood effects, residential moves have the potential to detrimentally impact prosocial development as they often disrupt the social relationships of all members of the family (Coleman 1990; Hagan et al. 1996; Hofferth et al. 1998; Pribesh and Downey 1999). Studies on adolescents have demonstrated that those who have recently moved report fewer friends and lower popularity (Pettit 2004; South and Haynie 2004). Further, they may lack in adult social support as their parents are less likely to have met the parents of their friends (South and Haynie 2004), an important component of intergenerational cohesion (Coleman 1990). This would suggest there should be a drop in prosociality for all movers, independent of the neighborhood they move into. Such an effect may be muted here, however, as the moves are short-distance (Magdol and Bessel 2003), and all students remained in the same school district. As a result, the home neighborhood is the only set of social relationships that are reliably disrupted, allowing us to measure the effect a new neighborhood can have on development without the confounding impact of relocating all aspects of one's life.

The Current Study

Our design is rare, if not unique, in that it tracks the effects of a naturalistic process of intra-city residential mobility on development, permitting us to combine the foci of two prominent literatures. On the one hand, the Movement to Opportunity (MTO) projects have given residents of high-poverty neighborhoods the opportunity to move to low-poverty neighborhoods (see Clark 2005 for a review). This is a strong design, providing an experimental measure of the effect of neighborhood environments on individual outcomes. However, it is somewhat artificial, placing members of the experimental group in neighborhoods where they would not otherwise have been able to live, potentially creating unforeseen cultural clashes. On the other hand, a substantial literature has examined child development within natural patterns of mobility (Agustin 1990; Haynie and South 2005; Pettit 2004; South and Haynie 2004), but this work has focused on the effect of the move itself, and only occasionally discusses how characteristics of the new environs act upon adolescents.

The current study includes the measures of prosociality and social support used in O'Brien et al. (2011) at two time points, allowing us to measure how a residential move

impacts prosociality, as well as the relationship it has with social support. Neighborhood of residence is also noted at both Times 1 and 2. Neighborhood-level measures include SES, social cohesion and residential stability. This last measure is included as some studies have suggested that mobility at the individual level can have different impacts depending on the residential stability of the destination (South and Haynie 2004). Following the argument that an adolescent's interaction with her neighborhood is centered around the personal relationships she has with other residents, we hypothesize that moving to a neighborhood with different social dynamics will influence prosociality, but only insofar as the individual becomes personally integrated into the new neighborhood's social networks. The effect, then, will not be realized in neighborhood-level measures of social dynamics, but at the level of individual reports of neighborhood social support. Because the movers are remaining within the same city, and are able to maintain many of their social ties, we do not expect the act of moving to have its own, independent effect on development.

A final consideration is the potentially confounding factor of selection bias. In observational studies like this one, a spurious neighborhood effect might arise because families with similar characteristics have settled in the same region. By including a measure of family-based social support, we can partially control for selection bias. This also allows us to test if more tightly-knit families do indeed seek out neighborhoods with better social dynamics.

Study Site

Binghamton sits at the intersection of the Chenango and Susquehanna Rivers in south-central New York State, comprising 10.4 sq. miles. Moderately dense ($\sim 4,000$ residents/sq. mile) and experiencing a multi-decade period of deindustrialization and recession, it is representative of the "rust belt" cities that span the northeastern US. As of 2009,[1] the median household income was less than 60% of the national average ($29,813 vs. $51,425). The city's residential stability was about average, with 31% of its residents establishing their current residence since 2005, and 16% moving in the past year (compared to national averages of 32 and 17%, respectively). Binghamton is predominantly white (79%) and lacks clearly defined minority neighborhoods (no Census block group is less than 48% white). Minorities tend to reside in neighborhoods that also house Binghamton's poorer whites. The study described here was done under the auspices of the Binghamton Neighborhood Project, an interdisciplinary collaboration

between the local University, community groups, and government agencies to study and improve urban life.

Methods

Participants

The study included students in the local public school district who responded to an in-school survey in both 2006 and 2009 ($N = 397$; see Table 1 for demographic information). As of 2008, the high school had 1,677 students, so our sample reflects just under 25% of the student population. This proportion is a consequence of a few circumstances: (1) the survey was initially intended not as a longitudinal study of individuals, but as a tracking of school conditions; (2) in 2006, the middle school sample, which provides our entire longitudinal sample, was derived from a randomly selected subset of classrooms; (3) given the rate of residential mobility, many of the students who participated in the 2009 survey (704 total) entered the district since 2006. The sample covers the geographic range of the city and is generally representative of the school's demographic profile, though black students and those eligible for free lunch are somewhat underrepresented (black: 17% vs. 24%; free lunch: 31% vs. 41%).

Procedures

In collaboration with the Binghamton City School District, we administered a modified version of the Developmental

Table 1 Demographic information for whole sample and for subsample that moved

	Whole sample	Movers
Gender		
Male	184 (46%)	43 (50%)
Female	213 (54%)	44 (50%)
Ethnicity***		
White	297 (75%)	49 (56%)
Black	66 (17%)	27 (31%)
Hispanic	14 (4%)	5 (6%)
Asian	20 (5%)	6 (7%)
Lunch status***		
Paid	239 (60%)	33 (37%)
Reduced	37 (9%)	7 (8%)
Free	121 (31%)	47 (55%)
Age[a]	16.29 ± 1.15	16.35 ± 1.11

*** Chi-square test indicated a difference in composition between movers and non-movers at $p < .001$

[a] Mean and standard deviation

Assets Profile (DAP) to 6th–12th grade students in May, 2006 (Time 1) and January, 2009 (Time 2). The DAP, developed by Search Institute (http://www.search-institute.org/; also see Scales et al. 2006), assesses the behavioral assets within an adolescent (e.g., "I think it is important to help other people") and the external assets available in his or her social environment (e.g., "I have good neighbors who help me succeed"). This procedure was approved by both the school district and the university's Human Subjects Research Review Committee.

Measures

DAP Measures

Scales were constructed by combining items from the DAP that reflected either prosociality or a specific form of social support. All scales are identical to those presented in Wilson et al. (2009), except where noted. Participants indicated their level of agreement with each item on a five-point Likert scale. We calculated scale scores by summing the responses to all scale items and standardizing so that the lowest (all 1's) and highest (all 5's) possible scores were assigned values of 0 and 100, respectively. For the six scales described below, we calculated change scores by subtracting the score at Time 1 from that at Time 2.

Prosociality. Prosociality was constructed by combining six items from the DAP that reflect putting the interests of others before one's self (e.g. "I am sensitive to the needs and feelings of others."). This scale had strong internal cohesion ($\alpha_{2006} = .81$, $\alpha_{2009} = .74$).

Social Support. We used items from the DAP to create scales measuring five forms of social support: *family* (8 items, e.g. "I have a family that gives love and support."), *school* (5 items, e.g. "I have a school that gives students clear rules."), *extra-curricular activities* (2 items, e.g. "I am involved in a sport, club or other group."), *religion* (2 items, e.g. "I am involved in a religious group or activity."), and *neighborhood* (3 items, e.g. "I have good neighbors who help me succeed."). The *neighborhood* scale closely resembles the measure of social cohesion used in Sampson et al. (1997). In the 2009 administration, one item was added to the *religion* scale to make it more robust ("How often do you attend religious services."). All scales had strong reliabilities (i.e. inter-correlation between items; α's = .71–.86), except in the case of extracurricular activities ($\alpha_{2006} = .31$, $\alpha_{2009} = .48$). This is in part an artifact of having a two-item scale (measuring involvement in sports or creative/performing arts). Given the theoretical similarity between the roles of these two activities in providing social support, we elected to maintain this as a scale during analysis. Additionally, replacing this variable with

alternate measures (e.g., the maximum of the two scores, or the two scores individually) produced identical results.

Demographics

The school district provided sex, birth date, ethnicity, and lunch status (full paying, reduced price, or free lunch),[2] at which time they replaced identifying information with arbitrary ID numbers, per Human Subjects Research Review Committee requirements. Sex was coded as a dummy variable ("1" = Female); birth date was used to calculate age at the time of administration; ethnicity was recoded as three different dichotomous variables (*Black, Hispanic,* and *Asian*; whites act as the reference category); and lunch status was converted to two dichotomous variables ("1" = reduced lunch, "0" = others; and "1" = free lunch "0" = others; those who have paid lunch act as the reference category). Students also reported how long they had resided at their current address (1 = less than a year, 2 = 1–3 years, 3 = 4–6 years, 4 = 7–9 years, 5 = 10 or more years).

Neighborhood Descriptors

We estimated neighborhoods using Census block groups (CBG) and mapped individual responses to their neighborhood of residence using ArcGIS v.9.6 software. Binghamton contains 63 CBGs and the longitudinal sample analyzed here includes individuals residing in 58 of the CBGs in 2009. The typical CBG has about 25 residents who are students in the public school district, though this does vary (*M* = 26.6, SD = 13.66).

Social Cohesion

A neighborhood's social cohesion was calculated by averaging the responses to the neighborhood social support scale in the DAP for all participants residing there. For each time point, this was calculated using all respondents, not just those included in the longitudinal analysis ($N_{2006} = 1,840$; $N_{2009} = 703$).

Residential Stability

We estimated a neighborhood's residential stability in two ways. The American Community Survey (ACS) provides the median year a resident entered his or her current residence for all CBG's. This provides an overall measure of

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[2] Students qualify for free lunch if they live in a household with gross income below \$300/week (\$15,600/year) and reduced lunch if the gross income is below \$20,000/year plus \$7,000/year per sibling in the house.

community stability, but is not specific to the stability of families. To account for this, we also estimated the residential stability of a neighborhood's adolescents by averaging the responses of all of a neighborhood's student participants regarding how long they had lived there. Another advantage of this latter measure was the ability to calculate at two time points (2006 and 2009).

Median Income

Median income of each CBG was accessed from the 2005–2009 ACS, meaning there is only one time point for this measure. It was log-transformed before analyses to adjust for outliers.

Analyses

For ease of interpretation, we standardized all neighborhood descriptors before analyses, setting mean to 0 and standard deviation to 1. All univariate manipulations and descriptive statistics, as well as all standard correlation and regression procedures, were performed with PASW Statistics 18.

Multilevel Analysis

Given our nested design (individuals within neighborhoods), we performed a series of analyses using Hierarchical Linear Modeling (HLM v. 6.06; Raudenbush et al. 2004), which partitions the variance associated with first- and second-level predictors. It does so by estimating these two sets of parameters simultaneously using maximum likelihood. The final sample for this analysis was distributed across 58 CBGs, with no CBG containing fewer than three individuals.

Results

Descriptive statistics for the social support change scores and correlations between them are reported in Table 2.

As one can see, changes in the different forms of social support featured some intercorrelation. Descriptive statistics and correlations between neighborhood variables in both 2006 and 2009 are available in Table 3. The four predictors feature strong correlations, particularly between median income and the measures of social cohesion and residential stability from the 2006 administration of the DAP. The measures of adolescent and overall residential stability in a neighborhood appear to be somewhat independent as they share only a moderate correlation ($r = .45$, $p < .001$).

Characteristics of Movers, Before and After

Of our full sample, 87 (22%) students moved from one CBG to another. As can be seen in Table 1, this subset had a different demographic composition than the broader sample, with blacks and those with free lunch status (the lowest individual SES classification) being over-represented. Chi-square tests verified that both racial ($\chi^2_{df=3} = 22.49$, $p < .001$) and lunch status composition ($\chi^2_{df=2} = 30.83$, $p < .001$) were significantly different between movers and non-movers.

To test whether movers had different levels of social support than their neighbors, we constructed five hierarchical models. In each, one of the five social support measures at Time 1 was predicted by ethnicity, sex, lunch status, and whether someone moved. The parameter for moving then indicates the extent to which those who moved experienced different levels of social support at Time 1 than members of the same neighborhood, while controlling for demographic characteristics. These parameters, presented in Table 4, indicate that movers only significantly differed from their neighbors in being less involved in extra-curricular activities. They reported neither higher nor lower levels of social support from within the neighborhood. However, one will note that all five parameters were negative, suggesting that children of families who chose to move were generally experiencing less social support than their neighbors.

Table 2 Descriptive statistics for changes in social support scales and correlations between them

	Δ Family	Δ School	Δ Religion	Δ E-C act	Δ Nbhd
Δ Family	–	.36***	−.01	.25***	.24***
Δ School		–	.08	.13*	.44***
Δ Religion			–	.07	.13*
Δ Extra-curricular activities				–	.12*
Δ Neighborhood					–
Mean (SD)	−11.09 (20.87)	−7.12 (23.89)	−8.98 (32.47)	−10.82 (31.81)	−9.61 (31.04)

$N = 397$

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 3 Descriptive statistics for neighborhood-level measures and correlations among them

	Social cohesion	Res stab (DAP)	Res stab (ACS)	Median income[a]
Social cohesion	.37**	.37**	.44***	.42**
Residential stability (DAP)	.71***	.66***	.45***	.50***
Residential stability (ACS)[a,b]	.43***	.58***	–	.52***
Median income[a,b]	.75***	.75***	–	–
Time 1 descriptive statistics				
Mean (SD)	55.69 (8.83)	3.03[c] (.57)	8.44 (4.22)	$29,426 ($14,563)
Range	36.56–80.56	1.71–4.39	4–20	$8,430–$73,000
Time 2 descriptive statistics				
Mean (SD)	48.72 (10.77)	3.24 (.69)	–	–
Range	17.86–70.24	1.67–5.00	–	–

$N = 58$ census block groups. Correlations between 2009 measures visible above the diagonal, between 2006 measures beneath the diagonal. Correlations between corresponding 2006 and 2009 measures along diagonal

* $p < .05$; *** $p < .001$

[a] Only one time-point (2009 American Community Survey)

[b] Log-transformed before correlations

[c] Measured on a 5-point scale with 1 = less than a year, 2 = 1–3 years, 3 = 4–6 years, 4 = 7–9 years, 5 = 10 or more years

Table 4 Differences between movers and non-movers in social support at Time 1

	Difference in movers at time 1 (95% C.I.)
Family	−2.21 (−6.30, 1.88)
School	−1.92 (−7.35, 3.51)
Religion	−7.04 (−15.50, 1.41)
Extra-curricular activities	−9.52** (−16.42, −2.62)
Neighborhood	−5.80 (−12.50, .90)

Tests compare individuals to residents of the same CBG at Time 1, controlling for ethnicity, sex, age and lunch status. ($N = 397$)

** $p < .01$

Moving and Prosocial Development

In Table 5, we present two hierarchical models that use demographic variables, social support measures, and neighborhood characteristics to predict change in prosociality between Times 1 and 2. In Model 1, we measure a neighborhood's residential stability in terms of adolescents (derived from the DAP), in Model 2 we substitute the corresponding ACS measure. The strong relationship between changes in social support measures and changes in an individual's prosociality reflects the model of prosocial development described above. More germane to the focus of this analysis, interactions between social support variables and moving were non-significant. This indicates that prosocial development in those who moved was similarly sensitive to all forms of social support. Notably, this includes individual perception of one's own neighborhood. Movers could still derive less benefit from these neighborhood ties if, as hypothesized, they had lower ties within their new neighborhoods than non-movers. Using a technique similar to that reported above and in Table 4, we compared perceived neighborhood social support at Time 2 between those who had lived in the neighborhood at Time 1, and those who had moved there since. The outcome suggested that there was no difference in neighborhood social support between the two groups ($b = -5.64$, $p = n.s.$).

No neighborhood-level measure was associated with the prosocial development of those who lived there consistently from Time 1 to Time 2 (see Table 5). This was not the case for movers, however. Those who moved into neighborhoods with higher scores on the DAP measure of residential stability had significantly greater prosocial development between Times 1 and 2 ($b = 6.93$, effect size $= .29$, $p < .05$). In comparison, individuals who moved to neighborhoods with low residential stability experienced a drop in prosociality. The same was not the case when the Census measure of residential stability was used, as it had a non-significant relationship with prosocial development ($b = -5.57$, effect size $= .24$, $p = n.s.$).

Testing for Selection Bias

We tested whether families seek out neighborhoods with environments that are similar to or reinforce their own parenting techniques (i.e. selection bias) by focusing on the subsample of movers ($N = 87$). For these individuals, we calculated the difference in social cohesion, both measures of residential stability, and median income between one's former neighborhood of residence (using Time 1 measures)

Table 5 Parameter estimates from multilevel models using demographics, social support, and neighborhood descriptors to compare prosocial development between Times 1 and 2 in movers and non-movers

	Beta (95% C.I.)	Effect size[a]	Beta (95% C.I.)	Effect size[a]
Intercept	−4.70** (−8.14, −1.25)	–	−4.84** (−8.33, −1.35)	–
Demographic variables				
Black[b]	4.22 (−.71, 9.15)	.09	4.97* (.06, 9.89)	.10
Hispanic[b]	−1.5 (−10.01, 7.01)	.02	.15 (−8.32, 8.62)	.00
Asian[b]	3.73 (−3.62, 11.08)	.05	3.39 (−3.94, 10.72)	.05
Female[b]	4.29** (1.16, 7.42)	.14	3.98* (.85, 7.11)	.13
Free lunch[b]	−.32 (−4.65, 4.01)	.01	−.88 (−5.24, 3.48)	.02
Red. lunch[b]	−2.27 (−7.79, 3.25)	.04	−2.08 (−7.62, 3.46)	.04
Age	1.40* (.06, 2.74)	.11	1.26 (−.10, 2.62)	.10
Moved	4.39 (−.72, 9.50)	.09	3.38 (−1.32, 8.08)	.07
Social support measures				
Δ Family	.23*** (.11, .35)	.19	.22*** (.10, .34)	.20
Δ School	.19*** (.09, .29)	.19	.19*** (.10, .28)	.20
Δ Religion	.10** (.04, .16)	.17	.10** (.04, .16)	.17
Δ Extra-curricular activities	.17*** (.11, .23)	.28	.17*** (.11, .23)	.28
Δ Nbhd soc cohesion	.09** (.03, .15)	.15	.09** (.02, .16)	.14
Δ Family × moved	.03 (−.19, .25)	.01	.02 (−.19, .23)	.01
Δ School × moved	.08 (−.10, .26)	.05	.10 (−.09, .28)	.05
Δ Religion × moved	.01 (−.13, .15)	.01	.02 (−.12, .16)	.01
Δ Extra-curricular activities × moved	−.12 (−.24, .01)	.09	−.11 (−.24, .02)	.09
Δ Nbhd soc cohesion × moved	−.08 (−.24, .08)	.05	−.09 (−.24, .06)	.06
Neighborhood descriptors				
Soc cohesion	−1.07 (−3.64, 1.50)	.11	−1.50 (−4.28, 1.29)	.12
Res stab (DAP)	−2.33 (−5.21, .55)	.21	–	–
Res stab (ACS)	–	–	−.04 (−3.32, 3.23)	.00
Median income[c]	1.77 (−1.13, 4.68)	.16	.91 (−2.30, 4.13)	.08
Soc cohesion × moved	.03 (−6.18, 6.24)	.00	3.62 (−2.55, 9.79)	.16
Res stab (DAP) × moved	6.93* (.80, 13.05)	.29	–	–
Res stab (ACS) × moved	–	–	−5.57 (−11.55, .41)	.24
Median income[c] × moved	−4.71 (−10.33, .91)	.22	.46 (−5.06, 5.98)	.02
First-level variance (pseudo-R^2)[d]	.45		.45	
Second-level variance (pseudo-R^2)[d]	∼ .00		∼ .00	

$N = 397$ subjects in 58 CBG's. Neighborhood of residence and associated variables are those from Time 2

* $p < .05$; ** $p < .01$; *** $p < .001$

[a] Effect sizes calculated using $r = \sqrt{\frac{t^2}{(df+t^2)}}$. For individual-level effects and cross-level interactions, $df = 396$, for neighborhood-level predictors, $df = 57$

[b] Dichotomous variable with '1' equal to the variable's name

[c] Log-transformed to maintain normality

[d] First-level variance of the intercept-only model was 379.63. Second-level R^2 based on variance component when all first-level variables added ($\tau = 26.07$)

and current neighborhood of residence (using Time 2 measures).[3] The average mover experienced limited change in any of these neighborhood characteristics (all means ≈ 0), but there was a substantial amount of variation with individuals experiencing up to 3 standard deviations of change in either direction. The distribution across this range was normal (t value of kurtosis <.6 for all measures), indicating that a sizable proportion of individuals moved into neighborhoods with characteristics different from the one they left.

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[3] Measures were standardized before differences were taken, meaning that difference scores indicate how one's move altered their environs relative to change in the city over the same time period.

We ran four standard multiple regression models to evaluate the relationship between these changes and family characteristics. Each model used demographics and the measure of family social support at Time 1 to predict differences in median income, social cohesion, and residential stability between one's original and new neighborhood of residence. Because of the low number of Hispanic and Asian students in the subsample of movers, we do not distinguish them from white individuals in the analysis. The results suggest that families with more internal social support were more likely to relocate to a neighborhood with greater cohesion between neighbors ($\beta = .22$, $p < .05$). Family social support was not predictive, however, of whether individuals moved into neighborhoods with greater median income or residential stability (β's $= -.08$ and $.01$, p's $= n.s.$). Individuals with free lunch status were also likely to move into neighborhoods with higher levels of social cohesion ($B = .24$, $p < .05$) and residential stability as measured by the DAP ($\beta = .31$, $p < .05$) than their original neighborhood. Those with free lunch were not likely to move to neighborhoods with higher median income ($\beta = -.10$, $p = n.s.$) or Census-measured residential stability ($\beta = .04$, $p = n.s.$).

Given these results, we explored whether those low-income families who relocated to better neighborhoods may have been assisted by social resources. Limiting the analysis to those with free or reduced lunch status, we entered all five forms of social support into stepwise regressions predicting change in neighborhood characteristics. The only significant result was parallel to the one seen above, with more cohesive families moving to more socially cohesive neighborhoods ($\beta = .27$, $p < .05$). Apart from that, there was no evidence that other community connections (for example, ties through religious involvement) had an impact on the quality of the neighborhood to which a family moved.

Discussion

Here we see evidence that moving to a new neighborhood during adolescence can impact further prosocial development, and it manifests itself in two ways. First, at the level of individual reports, neighborhood social support was equally valuable to prosocial development in movers as in non-movers. Being that movers reported levels of within-neighborhood social support similar to that reported by their non-mover neighbors, it seems that movers adjusted appropriately to their new neighborhoods in terms of both perception and behavior. There was also an ecological effect of moving to a new neighborhood, with those relocating to neighborhoods whose adolescent population was more residentially stable experiencing an increase in prosociality.

Despite the fact that more direct measures of a neighborhood's social dynamics (e.g. social cohesion) have tended to be the primary ecological predictor of residents' social development in previous research (Edwards and Bromfield 2009; O'Brien et al. 2011; Sampson et al. 1999; Wilson et al. 2009; Xue et al. 2005), these findings show that residential stability was associated with change in prosociality in movers. We offer a two-pronged explanation for this finding, addressing the theoretical difference between a neighborhood's general cohesion and the stability of its adolescent population. In the case of neighborhood social cohesion, it can be argued that adolescents engage with adult social networks with greater autonomy than younger children, including those located in their neighborhood. Thus, the process by which these social resources influence development might shift from an ecological to an individual level during late childhood and adolescence. As hypothesized above, this means that individual reports of neighborhood social dynamics will absorb any cross-neighborhood variation in prosociality associated with said dynamics.

The increase of prosociality in those moving to neighborhoods with residentially stable adolescent populations (or decrease in those moving to neighborhoods with low residential stability among adolescents) may reflect the importance of peer interactions for youth socialization (Adler and Adler 1998; Anderson 1990). It is particularly intriguing because it implies that moving can have a positive effect on prosocial development, provided the neighborhood's youth population is otherwise quite stable. Considerable work has focused on how neighborhoods with high levels of residential turnover tend to harbor unstable and under-supervised peer groups that perpetuate deviant behavior (Sampson 1997; Sampson and Groves 1989; Shaw and McKay 1942/1969). Conversely, there is some evidence that a residentially stable neighborhood might be more likely to foster peer groups that are themselves socially cohesive. For example, South and Haynie (2004) found that schools with fewer movers had more interconnected populations, and both movers and non-movers attending them reported more friends.

Given the difficulty newly-arriving adolescents can have breaking into pre-existing social structures (Clampet-Lundquist 2004; Pettit 2004; South and Haynie 2004; Vernberg 1990), it is likely they need to be proactive in procuring social resources. This can be accomplished through either prosociality or aggression (both physical and coercive). Although often viewed as mutually exclusive behaviors, those who utilize a mixture of the two tend to be the most successful at gaining leverage within a social system (Hawley 2003). Such individuals employ whichever strategy is more appropriate to the immediate context. When entering an unstable social system, it might be

necessary to repress or eschew prosociality, while a stable one may require prosocial overtures. Taking this resource-based perspective, one can easily reconcile the findings here with studies that have shown movers to exhibit greater levels of violence (Haynie and South 2005). In both instances, the movers are adopting potentially beneficial social strategies, and focusing on those behaviors that might be successful in the immediate environment.

It is particularly notable that an increase in a mover's prosociality was only predicted by the residential stability of the neighborhood's adolescents. The Census measure of stability, which includes all neighborhood residents, did not predict the same outcome. This pattern may be specific to Binghamton, NY, or could be more broadly instructive. The studies on community stability and youth behavior summarized above all focus, either implicitly or explicitly, on family stability. The collective parenting of a neighborhood's youth will fall primarily to those who have children in the neighborhood, and only to a lesser extent to other residents. This distinction may be exaggerated in Binghamton, where deindustrialization has instigated an ongoing demographic shift across the city, with old social structures being replaced by new ones. Consequently, many neighborhoods are split between long-time residents and newer residents. Those in the first group are often the vestiges of bygone ethnic enclaves (e.g. Italian, Polish), while the latter group, which includes many families, is socially and demographically distinct. Work on gentrification suggests that this situation is commonplace in transitioning neighborhoods, where two demographically distinct communities will operate in parallel, while sharing the same space (Formoso et al. 2010). Because there is the potential for two independent social structures, it is necessary to have measures that reflect the one that is most relevant to the population and question of interest. If there is a distinction between the residential stability of the neighborhood as a whole and of the families that live there, then previous work would suggest that the latter will have a greater impact on youth socialization.

Selection Bias and Other Reasons for Moving

Families move for a variety of reasons. They may be forced to move by eviction, or may take an opportunity to live in a more desirable residence or neighborhood (Sabagh et al. 1969). Many other family moves are precipitated by a change in a parent's marital status, be it divorce or re-marriage (Spear and Goldschneider 1987). We are unable to directly assess which of these conditions was true for each mover in our sample, but a few intriguing trends stand out. First, it appears that the average mover is disadvantaged financially and socially. Members of disenfranchised populations—specifically, blacks and those beneath the poverty line (i.e. eligible for free lunch)—were more likely to move between Times 1 and 2, a finding that is consistent across studies of residential mobility (Crowder and South 2005; Haynie and South 2005; Magdol and Bessel 2003; Pettit 2004; South and Crowder 1997; South and Haynie 2004). In addition, independent of demographic factors the typical mover was experiencing less social support at Time 1 than peers, a novel finding.

That said, there is certainly variation in social support among movers, and that variation may have influenced moving decisions. Of the families that moved, those that were characterized as more supportive at Time 1 were more likely to relocate to neighborhoods with higher social cohesion, a trend that held across income levels. This could be taken as evidence for selection bias, in which parents seek out a neighborhood whose community reflects the amount of support they are providing for their children. Also, parents with such ideals for their own family may be more likely to perpetuate similar dynamics by being active within the community. It could also speak to the circumstances surrounding a move. If a family relocates in response to an eviction or divorce, choosing a suitable destination may be limited by the stress or immediacy of the overall situation. On the other hand, if a move is a measured attempt to improve one's residence, real consideration may go into the quality of the new neighborhood. The latter would likely be characterized by a more cohesive family life, especially in comparison to a move that arises from a divorce. Be the case selection bias or circumstance, it is interesting to note that family dynamics did not explain moves to regions of greater residential stability or median income, implying that concerned individuals place greater emphasis on a neighborhood's social dynamics—or indicators thereof—when making a move.

Limitations and Implications

This study adds to a growing literature on how residential moves between neighborhoods of differing social characteristics can influence the development of adolescents. The processes proposed to be responsible are currently in the stage of conjecture, and future research should explore them with more in-depth methodologies. In particular, the individual measures here focused on social support from adults, even though socialization during adolescence is closely tied to relationships with peers as well. Measuring how an individual interacts with others of all ages will provide a clearer view of the role each plays in prosocial development in general, and in the special case of movers. Also, future studies directly measuring both prosocial and aggressive behavior over time will give a clearer view of how movers go about procuring social resources upon arriving in a new environment. In addition, using a school

survey to measure residential stability in the adolescent population may be subject to sampling error. Typically, in-school surveys suffer from lower participation rates among those with low socioeconomic status. As we noted above, our survey is no different. One side-effect of this is that neighborhood-level measures are more subject to measurement error (our sample here averaged about 11 reports per CBG). A second is that students with lower residential stability may be less represented, skewing the estimate of stability in some neighborhoods.

It was mentioned above that this design pursues the relationship between natural mobility and adolescent development in a fashion that is uniquely capable of identifying neighborhood effects. An unfortunate consequence of this is that it addresses very specific questions at the cost of certain broader ones. The analysis of moves within a city means that no move forced a participant to attend a different school district, making complete social disruption unlikely. This probably made integration into a new neighborhood's social system easier because the new neighbors are old classmates. On the other hand, the focus on natural mobility limited the possibility of moves to drastically more affluent neighborhoods; no move resulted in a change of more than 3 standard deviations in either direction, which is about half the maximum possible change. Thus, there are a variety of potential moves as to whose consequences we cannot speak. These limitations aside, this study adds to and complements the work that has been done on these more general topics.

Neighborhood environments are an important and influential domain for adolescent behavior and development, and our study illustrates how moving to a new neighborhood can be seen as an effective intervention. Reporting a level of neighborhood social cohesion similar to their new neighbors, movers in our sample appear to have become integrated into their new social environment. Any such changes were also reflected appropriately in their level of prosociality. However, given the existing research, the positive effect of local residential stability on individuals who recently moved to a neighborhood was unexpected. It demonstrates that relocation itself is a complex phenomenon, and the processes that serve to socialize lifelong residents may not be the same ones that impact the social experiences of an adolescent who has recently arrived.

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