THE CONSEQUENCES OF RESIDENTIAL AND SCHOOL MOBILITY FOR ADOLESCENTS

DISSERTATION

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By

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ABSTRACT

About fifteen percent of high school students change residences each year and I explore the role that this mobility plays in our stratification system. Past studies demonstrate that moving is associated with declines in school performance. Using the National Education Longitudinal Study of 1988, I replicate this pattern and then test whether it is a function of the moving process negatively affecting children's psychological well being (e.g., locus of control, self-esteem). I also explore whether there are specific conditions (if any) where youths are better off after a move and whether adolescents benefit from moving from "bad" to "good" schools. My results offer some evidence that part of the reason moving is associated with poor school performance is due to the loss of control youths feel over their lives (locus of control) after a move. With modest exceptions, I found little evidence that youths ever benefit from moving. Even students moving from "bad" to "good" schools show virtually no improvement in school performance, at least in the short-run (i.e., two years). I discuss the implications of these patterns for understanding stratification in the United States.

Dedicated to my family

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CHAPTER 1

WHY RESIDENTIAL AND SCHOOL MOBILITY RESEARCH IS IMPORTANT

Children in the United States change schools and residences often. Approximately 15 percent of high school aged children change residences and 30 percent change schools each year (U.S. Census 2001, U.S. Department of Education 2002). The numbers are even greater for younger children as well as for certain minority and economically disadvantaged populations. And because measuring residential and school mobility is difficult, we have reason to believe that children move at even greater rates than those reported.

The negative consequences of moving have caught the attention of politicians, policy makers, and educators. The No Child Left Behind Act of 2001 (NCLB), possibly the most comprehensive educational reform attempt in the past few decades, has components that may both exacerbate and alleviate the mobility problem. NCLB has a provision to address the problems of school mobility for the nation's homeless students. Under the McKinney-Vento Act of NCLB, homeless children can stay in their schools of origin or enroll in a new school with little of the red tape that used to hamper the school enrollment process. NCLB may increase school mobility, however, by requiring that school districts offer students alternative school choices if their schools are not meeting state-set standards.

The majority of mobile families are poor and move for economic reasons: they have been evicted, their apartments have become too expensive, the shelter or hotel limits lodging to one month or they have been asked by relatives or friends to move out of a 'doubling-up' situation. A recessive economy, lack of affordable housing, and the increase in personal bankruptcies are all factors that feed residential mobility. Although low interest rates during the last decade have allowed more people to own houses – typically a factor that ties them to a geographic location – homeowners that have the means are 'trading up' which also contributes to residential mobility.

The majority of school mobility is associated with residential mobility. As students change houses or apartments, often because of dire economic reasons, they often change schools as well. The continuous search for lodgings in economically challenged areas creates a 'churning' of students as they enter and exit neighborhood schools. Thus, schools that are located in economically depressed areas are faced with two challenges: they must serve an impoverished student body and one that has an especially high turnover rate (Holloway 2000).

School mobility is on the rise above and beyond reasons associated with residential mobility. Schools are becoming less tolerant of anti-social behavior. Students that bring weapons or drugs to school or who fight with other students are often immediately expelled. School choice programs have proliferated as parents and students demand choices in the educational marketplace and the political mechanisms are put in place to provide those choices. Thus, students are now changing schools not only because they have to but also because they want to change schools (Plank et al. 1993).

Schools with high mobility rates cause concern for several reasons. Mobile students demand attention from systems that are already strained. New students require diagnostic testing, placement and counseling. In the classroom they need to learn the rules and catch-up to the other students. Resources are needed to give them a space to work. It is not surprising that in schools with highly mobile student populations, teachers are often behind with the pacing of curriculum delivery because they have to continually stop and reteach material to new students or attend to the more mundane task of student orientation. High student mobility is also associated with poorly prepared staff and high teacher turnover. Teachers that serve the most economically disadvantaged populations, and the most mobile, are often the least experienced and prone to either switch to 'easier' teaching assignments, more lucrative jobs, or leave teaching entirely. Thus, mobile students may affect the learning of all students in a school.

What does this mean for our educational system? Promising educational reforms that are put forward: smaller class size and schools, nationally certified teachers, improved school facilities, and increased emphasis on testing and accountability, are all seriously undermined if the classroom is a revolving door. But barring substantial housing reform in the United States, we must be prepared to deal with high rates of residential and school mobility. That is why it is important to tease out the factors that link moving with poor educational performance.

In this dissertation, I examine three facets of moving and academic achievement. First, in Chapter 3 I study the mediating effect of psychological well being. My findings indicate that adolescents' sense of control over their lives, coupled with personal and family characteristics, explain most of the negative association between moving and

student achievement. I also identify some characteristics of good moves in Chapter 4. Common sense tells us that not all moves are bad. Many families move to take advantage of new and higher paying jobs, better housing, and more fulfilling relationships. My analyses show that changing schools appears to be especially beneficial for students who come from low-income families.

Finally, in Chapter 5 I test the notion that changing schools could offer academic benefits. My supposition is that students that leave dangerous or low performing schools should perform better in safer and academically focused schools. However, I do not find support for this. My research indicates that there may be an academic penalty associated with moving to a school where many students are absent daily or where few students go onto college. Moving from a 'bad' school to a 'good' school did not confer any significant benefits.

These findings, although illuminating, represent a small step forward in understanding the processes that underpin the linkages between mobility and educational performance. Much more research is needed. For example, South and Haynie (2004) are working to examine the ability of mobile students to break into new friendship networks – ones that could boost academic achievement. We need to know more about the coping mechanisms that mobile students develop and the consequences of missing parts of curricular sequences. Pressures from legislation such as NCLB will continue to heighten educators' awareness of the needs of mobile children. Research such as this is but a small part of that burgeoning awareness.

CHAPTER 2

RESIDENTIAL AND SCHOOL MOBILITY IN THE UNITED STATES: SOME UNANSWERED QUESTIONS

Roughly 15 percent of teenagers will change residences this year (U.S. Census 2001) and approximately 30 percent will switch schools (U.S. Department of Education. 2002). Over their lifetimes, 75 percent of all school aged children will move residences at least once and 10 percent will move at least 6 times (Wood et al. 1993). These rates of mobility are not new to this decade. Since the 1940's, U.S. residential mobility rates have varied between 15 and 21 percent per year (U.S. Census 1999 --See Figure 2.1). And although residential rates have declined slightly in recent decades (Hansen 1995), school mobility has increased (Plank et al. 1993) as parents and students take advantage of ever widening school choice programs (Cookson 1994, Schneider, Schiller and Coleman 1996).

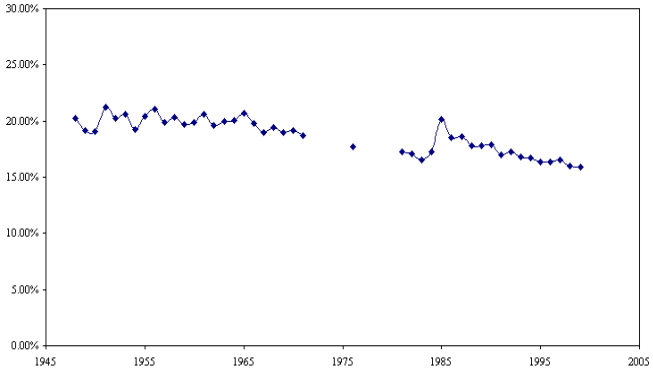

Figure 2.1. Annual U.S. Geographical Mobility Rates for Population Greater than One Year Old: 1947-1999
Source: U.S. Census Bureau, Internet Release July 12, 2000.

These rates of moving are large compared to children in other developed countries. In fact, compared to their European counterparts American children are hyper-mobile. Students in nations such as Great Britain, Japan, Belgium, and Ireland are half as likely to move in a year than their age peers in the United States (Long 1992). And young American movers may be undercounted. Chronic movers often change residences several times a year but are counted by the U.S. Census Bureau as having moved only once. Researchers such as Goldstein (1954) maintain that almost 10 percent of the U.S. population can be classified as chronic movers – moving three or more times in one year.

American students also change schools at rapid rates. Data from the National Education Longitudinal Survey: 1988 indicates that 31 percent of 8th graders in the U.S. had changed schools two or more times between the first and eighth grades excluding changes made for grade promotion. Once in high school, over 10 percent of students changed schools two or more times (Smith et al. 1995). The General Accounting Office (1994) found that the movement was even more intense with more than 40 percent of third graders having changed schools at least once since first grade. Seventeen percent of

these school switchers had changed two or more times. And, Rumberger and Larson (1998) found that over 25 percent of high school students changed schools between the eighth and twelfth grades excluding grade promotion. Although Rumberger and Thomas (2000) suggest that most school turnover can be linked to negative educational outcomes, there is mounting evidence that students are changing schools to take advantage of better academic programs and school environments. The bottom line is that students change schools often both for voluntary and involuntary reasons (Swanson and Schneider 1999, Lee and Burkam 1992, Fine 1991, Bowditch 1993, Riehl 1999, Wehlage and Rutter 1986, Kerbow 1996).

Why do American children move so often? Long (1992) suggests that it is easy to move in the United States because housing is available, schools accept transfer students, and the U.S. culture embraces mobility. The life course progression in the U.S. encourages mobility as adults pursue earning opportunities in cities and then move to suburbs to raise children (Leslie and Richardson 1961, Rossi 1955, Rossi and Schlay 1982, South and Crowder 1997). And, families in the United States are prone to dissolution that often requires residential relocation of family members (Speare and Goldscheider 1987, South, Crowder and Trent 1998).

In 1998, the Census added a "Reason for Moving" question to the March Current Population Survey. Between 1999 and 2000, 52 percent of residential movers reported moving because of housing related reasons. Specifically, 19 of that 52 percent said that they moved because they wanted a new or better house or apartment. Interestingly, the reasons for moving have changed very little over time. Housing related reasons for

moving were also the most popular response in 1955 when Rossi asked a national sample why they moved (Rossi 1955, U.S. Census 2001).

Twenty-six percent of household movers cited family related reasons for their residential move between 1999 and 2000. Most often, they changed marital status or established their own household. Classical economic theory views geographic mobility as an equilibrating mechanism that redistributes people and wealth. Thus, it is not surprising that 16 percent moved due to work related reasons (U.S. Census 2001).

One of the most common reasons for changing schools is changing residences. Families that move to seek better housing or jobs often move out of their neighborhood schools' catchments areas and have to enroll in different schools. Some students are forced to change schools because of their behaviors. However, in a growing environment of school choice, students are opting to change schools for better academic courses, teachers, or sports programs (Cookson 1994, Manno et al. 1998). And while residential moving rates have gradually declined over time, non-normative school changes are increasing (Plank et al. 1993).

Because parents move in response to lifecycle pushes and pulls, it is not surprising that children of different ages move at different rates. Families with young children move more often than families with young teens. The U.S. Census reports that the most mobile age group is adults aged 20-25 years--34 percent moved in 1997/98 (US Census 2000). Young parents are more likely to be at a life stage where they are poor, moving to labor market opportunities, experiencing marital reconfigurations, and/or living in rental housing. Later in life, families are more sedentary as they become

attached to permanent housing, family structures and jobs. In fact, only 7.1 percent of adults aged 45-54 years moved residences in 1997/98.

The poorer a family is, the more likely they are to change residences. For example, 30 percent of third graders whose families report incomes below $10,000 changed schools frequently compared to 10 percent from families reporting incomes of $25,000 to $49,000. Only eight percent of third graders whose families earned $50,000 or more changed schools (U.S. General Accounting Office 1994).

Moving rates vary not only by socio-economic status but also by race and ethnicity. Moving rates are much lower for non-Hispanic whites than for other racial groups. Hispanics move at the highest rates (21.2 percent in 1997/98). Blacks and Asian/Pacific Islander populations move at similar rates – 18.9 percent each. Whites are comparatively less mobile. Only 14.5 percent of non-Hispanic whites changed residences in 1997/98 (U.S. Census 2000). It is important to note that although non-whites are more likely to live in poverty than whites, their higher rates of mobility are due in part to different age structures of the racial groups. The median age for Hispanics, Asians, and blacks (26, 26 and 29.6 years respectively) is much younger than that of whites (36.7 years) (U.S. Census 2000). Persons in their twenties are more likely to move than those in their thirties due, in part, to the 'cumulative inertia' of home ownership (Myers et al. 1960).

Most moves, according the to U.S. Census Bureau, are local (Hansen 1995). In 1998-99, 64 percent of residential moves were made within the same county. Only 17 percent of movers changed counties and 15 percent moved to a different state. A small proportion, three percent, of moves is attributed to persons arriving from foreign

countries. The proportion of local to non-local moves has been relatively stable over recent decades (Hansen 1995).

2.1 Moving is Detrimental to Educational Performance

The relatively high level of moving in the United States would not be of such concern if research indicated that moving was beneficial for children. However, the literature suggests that moving is detrimental to students and their educational performance. Specifically, moving is associated with declines in grades, increased risk of being held back a grade, dropping out of high school and exhibiting discipline problems (Long 1975, Astone and McLanahan 1994, Hagan, MacMillan and Wheaton 1996, Simmons, Burgeson, and Carlton-Ford 1987, Straits 1987, Haveman, Wolfe and Spaulding 1991, Ingersoll, Scamman and Eckerling 1989, Reynolds 1991, Wood et al. 1993).

In the current climate of high stakes testing and accountability targets, some states are taking action to accommodate the perceived negative effects of moving. For instance, California and Texas do not include students' test scores in school assessment measures if the child has been enrolled in the school for less than a year (California State Board of Education 1999, Texas Educational Agency 1997). In addition, the Federal government compensates school districts through the Impact Aid program if they serve a highly mobile military population (Buddin, Gill and Zimmer 2001).

One of the most robust findings in mobility research is that educational performance declines after a move. Pribesh and Downey (1999) found that standardized test scores are lower for movers after changing residences and/or schools even when

previous test scores are taken into account. Larry Long's (1975) analysis of 1970 census data shows that frequent interstate migration increases the chance of age-grade retardation (except if parents' are college educated) and decreases age-grade acceleration. James Coleman, in his study of the production of social and human capital, linked students' mobility with the risk of dropping out of school (Coleman 1988). Since then, researchers have reinforced this finding using more contemporary data. Swanson and Schneider (1999) found that students who moved often before 8th grade and/or moved between the 8th and 10th grades were more likely to drop out of high school than students who did not move. And, even though students and parents are choosing to change or purposely select schools there is little evidence that choosing schools improves educational performance. This is due, in part, to the fact that families appear to be selecting schools for non-academic reasons (Driscoll 1993, Schneider, Schiller and Coleman 1996, Wells 1993, Witte 1993).

2.2 Suggested Reasons for Detrimental Effects of Moving

2.2.1 Differences Between Movers and Non-movers

Parsing out the effects of moving is difficult due to selectivity issues because movers and non-movers are different. Movers are more likely to be living in poverty, in a single-headed households or stepfamilies, and with parents with low educational attainment (Speare and Goldscheider 1987). Hispanic and black children move more often than white children, in part because their parents are younger (U.S. Census 2000).

Homeowners are more stable than renters. And, affluent families -- who are often white, homeowning, and well educated – are the least mobile (U.S. General Accounting Office 1994).

A large portion of the scholarly work done concerning the effects of mobility did not adequately consider the differences between the two groups. Often using cross-sectional data, researchers failed to rule out preexisting conditions as possible reasons for movers' later academic performance. In essence, the personal characteristics that differed between movers and non-movers and pre-dated moves were not fully considered. Thus, some analyses incorrectly attributed effects to moving and not to movers.

Pribesh and Downey (1999) used longitudinal data to isolate the change in academic performance linked to moving. Specifically, they examined a panel of high schools students that moved sometime between the 8^{th} and 12^{th} grades. In their analyses, they included measures of student and family characteristics that predated the moves. They found that approximately 90 percent of the decrease in test scores after a move is due to preexisting differences between movers and non-movers. These analyses highlight the need to consider personal characteristics of movers so that effects of moving are not inflated.

2.2.2 Loss of Social Capital

James S. Coleman (1988) suggested that moving severs social ties and that broken social connections contribute to the risk of dropping out of high school. Plainly put, information, values, obligations and trust are imbued in social connections. Coleman referred to these assets as social capital and suggested that social capital is critical for the

formation of human capital. Moving breaks established social connections through which social capital is transferred. And even though students who move may rebuild social networks in their new environments, the gap in these connections is costly to students' educational progress. Several researchers confounded the issue of social capital and moving by using residential and school mobility as measures of social connectedness (Coleman 1988, Teachman, Paasch, and Carver 1996). Pribesh and Downey (1999) attempted to clarify the issue by looking at six types of social capital and their effects on academic performance for students who moved during high school. Specifically, they examined social connections between the students and parents, students and peers, students and school, parents and parents, parents and peers, and students and community. They found that only five percent of the effect of moving can be traced to social capital – particularly to student/parent and student/peer relationships. Most of the negative effect of moving is due to preexisting differences between movers and non-movers.

2.2.3 Life stressors

Moving is often linked to a stressful life event such as divorce, remarriage, or death (South, Crowder and Trent 1998). Some scholars attribute the effects of moving not to moving itself but to the stressful circumstances precipitating a move. In the case of a divorce, a parent departs and often takes with him financial, emotional, and educational resources (Seltzer 1994). The smaller family size as well as income might necessitate a move to a smaller and/or less expensive dwelling. Astone and McLanahan (1991) assert that it is the stress associated with severed ties and decreased resources that impact educational performance – not moving per se. Again, Pribesh and Downey (1999)

examined the effect of four types of stressful life events: parents divorced, parents married or remarried, parent died, and parent lost job. They found that the only stressful life event that significantly affected academic performance, after controlling for previous academic performance as well as other student and family characteristics, was parents marrying or remarrying.

2.2.4 Curriculum Disruption

Proponents of a national curriculum point to mobility as one of the reasons the U.S. should implement a Federal curriculum. Currently, students who change schools often have to change curriculums. Even within school districts, where residential moves are considered local, schools may use vastly different curricular approaches. The shift from one curriculum to another poses several problems. Students may have to learn the format of the new curriculum (i.e., prescriptive text-driven versus project-based). Students may also miss key competencies depending on the order in which the curriculum presents the material.

Curriculum disruption may have short and long term effects. In the short term, students who miss certain competencies will score poorly on tests that assess the competencies. In the long term, students' moves may disrupt a sequence of cumulative learning that is crucial for subjects such as mathematics. Mobility and curriculum disruption have not been rigorously studied. In the most comprehensive study, Schneider, Swanson and Riegle-Crumb (1998) found that children who make non-routine school changes are more likely to be in lower math and science course sequences than students who do not transfer. They suggest that students who change schools in high

school give up a positional advantage in terms of course sequence and that it is very difficult to regain that advantage once it is relinquished. Students who take the most rigorous course sequences in math and science are most likely to go onto and graduate from college. Thus, dropping back to a weaker course sequence has consequences for students that may follow them for some time (Schneider, Swanson and Riegle-Crumb 1998).

2.2.5 School Rejection

Nearly half of all moves in the United States take place during June, July, August and September (U.S. Census 1998) ostensibly because the weather is amenable and children are out of school. However, almost half of school switches come after the start of the school year. Students who join classrooms mid-year disrupt the flow of the classroom. Lash and Kirkpatrick (1990) found that when students come and go from a school both the school and the students experience disruption. Teachers may be less receptive to students who arrive out-of-sync with the school year because rules need to be reinforced, diagnostics administered, and social networks nurtured.

Although no specific research addresses the effect of teacher and classmate hostility on incoming students, one might hypothesize that students' educational performance may falter as they learn how to navigate a new system of new rules and settings.

2.2.6 Environmental Changes/Neighborhood Effects

Children who move may change environs in the neighborhood as well as the school. Straits (1987), using the 1967 Survey of Economic Opportunity, found that the

detrimental effect of a move on students' educational performance is due in part to differences in culture between the previous and current place of residence – especially for teenagers with less educated parents. Students whose head of family had completed 8 to 10 years of schools did worse than other mobile students when they moved to neighborhoods with better-educated neighbors than ones in the neighborhood they left. These students tended to have an age-grade retardation of approximately .45 of a year. He framed this analysis broadly and did not specify what element that shifted was to blame.

South, Crowder, and Trent (1998) find that both parental divorce and remarriage is associated with higher mobility rates and changing residential neighborhoods. Children who experience divorce are much more likely to move into poorer neighborhoods than children in intact families. The change in neighborhoods can be linked to decreases in income attributed to divorce. Children who experience remarriage are likely to move into wealthier neighborhoods signaling their greater access to financial resources (Holden and Smock 1991).

To date, researchers have asserted that the presence of poor neighbors reduces students' educational attainment (Ainsworth 2002, Halpern-Felsher et al. 1997, Chase-Lansdale et al. 1997, Brooks-Gunn et al. 1993, Crane 1991, Duncan et al. 1994), cognitive development (Entwisle et al. 1994) and increases delinquent behavior (Elliott et al. 1996). However, new data may be challenging this position.

The Moving to Opportunity for Fair Housing Demonstration Project (MTO) sponsored by the U.S. Department of Housing and Urban Development is an innovative mobility relocation program that seeks to experimentally test the impact of

neighborhoods on student and family well being. MTO began operations in 1994 in five cities: Baltimore, Boston, Chicago, Los Angeles and New York. To date, 4,610 low-income families have been randomly assigned into one of three residential relocation 'treatment' groups. The experimental group was offered Section 8 rental subsidies that had to be used for private-market housing in Census tracts with less than 10 percent of residents living in poverty (according to 1990 Census figures). This group received counseling and relocation assistance from a non-profit agency. The Section 8 comparison group was offered similar rental subsidies but were not required to move to low-poverty neighborhoods, nor did they receive any additional services. The third group, the control group, received no rental subsidies or additional services.

The experimental nature of the MTO allows researchers to look at the effect of neighborhoods without the self-selection bias that hindered other relocation programs such as the Gautreux Program (see Rosenbaum et al. 1991 for details on this program). Without randomized placement, researchers could not rule out family preferences in the selection of neighborhoods. And, although the MTO program is a relatively small initiative that enlisted volunteer families, it significantly enhances the knowledge base we have about the impact of neighborhoods.

Initial findings indicate that previous non-experimental estimates of neighborhood effects were flawed (Liebman, Katz, and Kling 2004). Sanbonmatsu et al. (2004) expected to find that children whose families received vouchers and moved to low-poverty neighborhoods and schools would show increases in educational performance. However, they found that reading and math scores were not significantly different among the treatment groups (Sanbonmatsu et al. 2004). Kling and Liebman (2004) found that

boys and girls reacted differently to the relocation. Girls whose families use vouchers showed increases in mental health and were less likely to engage in risky behaviors. However, their brothers did not glean these gains and short-term reductions in delinquency were gone within three to four years (Kling, Ludwig, and Katz 2004). A review of the four to seven years of data after the MTO baseline reveals that boys' behavior that moved to low poverty neighborhoods may have actually worsened (Duncan, Clark-Kauffman, and Snell 2004). The mental health gains may have impacted a significant reduction in obesity but had no effect on four other aspects of physical health (general, asthma, physical limitations, and hypertension) (Orr et al. 2003).

Scholars are now faced with considering the notion that neighborhoods do not affect student performance to the degree previously thought. The effect of disadvantaged neighborhoods wherein children are deprived of positive peer and adult influences as well as community resources (Sampson et al. 1997) has not been supported by the MTO data. The 'relative deprivation' models – ones that argue that poor families fare better in poor neighborhoods due to the lack of resentment and discrimination they may encounter in richer neighborhoods – may hold promise (Wood 1989, Marsh and Parker 1984, Collins 1996).

These findings must be considered carefully because there might have been intervening factors that diluted the neighborhood effects and the resulting impact on educational performance. Although families in the experimental group moved to better quality neighborhoods, the schools their children attended were only modestly better than the ones left behind in terms of students living in poverty, percent minority and test scores. Only 16 percent were in schools ranked above the state median in test scores

(Sanbonmatsu et al. 2004). Popkin et al. (2001) notes that some parents took advantage of school choice programs to send their children to schools close to their original neighborhoods.

Also, the distribution of families to low-income neighborhoods was not entirely successful. Less than half of the eligible experimental families actually 'leased –up' using the program vouchers. Many of the neighborhoods chosen by the experimental and Section 8 movers either were above the specified poverty rates or increased in the four to seven years after randomization so that fewer than 50 percent of the treatment group and 30 percent of the Section 8 group actually were living in the specified neighborhood poverty ranges. The experimental group was only constrained to live in the program voucher housing for one year. Subsequently, at the time of the interim report only 60 percent of the experimental group and 30 percent the Section 8 group remained in census tracts with poverty rates lower than 20 percent (U.S. Department of Housing and Urban Development 2004).

It is also noteworthy that although families moved, they did not necessarily move to neighborhoods with lower minority occupancy rates. Seventy five percent of the Section 8 group was residing in census tracts that were 80 percent minority – the same minority composition as the control group. Minority families that moved as part of the experimental group (with program vouchers and counseling) reduced their average neighborhood percent minority by less than 10 percentage points (U.S. Department of Housing and Urban Development 2004).

2.3 The Role of Psychological Well being and Moving on Educational Outcomes

One area of mobility research that remains largely unexplored is the effect of moving on psychological well being, and, in turn, the ramifications on educational performance.

2.3.1 Psychological Well being and Learning

Researchers and practitioners alike assert that psychological well being affects students' abilities to achieve academically. Psychological well being is a broad term that encompasses various indicators of self concept. Two domains of self concept, self esteem and sense of control, have been linked to academic success (Covington 1984, Liu, Kaplan and Risser 1992, Hersey and Blanchard 1993). Self esteem is "the perception of oneself as a person of worth" and is a function of reflected appraisals of close family members and friends (Ross and Broh 2000, Rosenberg 1979, 1989). Theoretically, students who feel good about themselves do better than students who do not (Battle 1981). This supposition has resulted in a bevy of educational programs aimed at boosting student self esteem in an attempt to boost educational performance.

Sense of control is "the perception of oneself as an effective person." (Ross and Broh 2000). This self efficacy, or locus of control, is a learned behavior stemming from successful behaviors, achievements, and accomplishments (Mirowsky and Ross 1989, Rosenberg 1989). Locus of control has been positively associated with educational outcomes (Finch, Shanahan, Mortimer and Ryu 1991, Mone, Baker and Jeffries 1995, Lewis, Ross and Mirowsky 1999). Lewis et al. (1999) found that higher levels of sense of control lowered the odds that students would drop out of school due to pregnancy.

Students with feelings of powerlessness are less motivated and are more likely to 'give up' on problem solving and school because they believe important decisions are out of their hands and it is pointless to persist in the education system. Although self esteem and sense of control go hand-in-hand, they are conceptually distinct. A student may feel good about herself but still may feel out of control of important life outcomes.
Until Ross and Broh's (2000) work, the two concepts were thought to impact educational outcomes in tandem. However, these researchers found that the mediating effect on academic performance centered on sense of control and not self esteem.

2.3.2 Research on Psychological Well being, Moving and Educational Performance

Both self esteem and sense of control are socially constructed (Rosenberg 1989). Self esteem grows out of reflected appraisals from ones immediate social network. Thus, it relies on close social attachments that provide feedback and support. In adolescence, peers and parents primarily populate these networks. Locus of control is based in one's perceptions of success. The more one senses that she has crafted success through her own actions, the more one feels empowered. On the other hand, perceived powerlessness is the "belief that outcomes of situations are determined by forces external to oneself, such as powerful others, luck, fate, or chance, and that one has little control over meaningful events and circumstances in one's life." (Ross and Broh 2000, pg. 272).

Although there has been a fair amount of research on the linkages of psychological well being and academic performance, very little research has included moving as a mediator. Moving may imperil personal relationships that feed the social

construction of self esteem and locus of control. Students move away from their friends in neighborhoods and schools. This may distance them from established reflective appraisal networks that are key to forming and maintaining self esteem. Relationships within families become strained during moves (Pribesh and Downey 1999). And, adolescents may feel out-of-control of the decisions concerning moving. This feeling of powerlessness caused by being uprooted may then in turn affect academic performance.

In Chapter 3, I examine the interplay between self esteem, sense of control and mobility as it relates to academic achievement. I hypothesize that moving lowers both self esteem and self-concept and, in turn, lowers educational performance.

2.4 Moves that Benefit Students

The preponderance of evidence indicates that changing schools and residences negatively affects students' performance. However, a few researchers have asserted that there are positive consequences associated with moving.

2.4.1 Increased Resources

Neo-classical economic theory asserts that the labor force redistributes itself through mobility. Relocating for employment involves a cost-benefit decision making process that weighs advantages and disadvantages. Rational choice theory suggests that employees will relocate if there is an economic benefit. Ultimately, heads of households may move to end unemployment or to increase salaries. The escalation of economic resources associated with some moves may be linked to better educational outcomes after the move.

An older set of studies suggest that children who move from educationally disadvantaged places to areas that are rich in cultural and educational resources will benefit proportionally to the length of exposure to the new environment (Lee 1951, Brawner 1973). The Moving to Opportunity for Fair Housing Demonstration offers a newer test of this assertion. Leventhal and Brooks-Gunn (2004) found that adolescent boys who moved from high to low poverty neighborhoods did better on achievement tests than did their peers in high poverty neighborhoods. Part of the reason for this moving benefit was that schools were safer in the low poverty neighborhood. Although these results have not been replicated in other MTO research. Other researchers have found that benefits did not accrue from changing neighborhoods (Sanbonmatsu et al. 2004).

Parents' education level may offset adverse effects of moving. Several researchers have suggested that children of well-educated parents already have an academic advantage over children whose parents are not as well educated. This academic advantage may carry over when students move. Thus, children whose parents are well educated may be better prepared to move because they are performing well academically. Students whose parents are not well educated, thus are lacking this resource, cannot draw on their academic excellence to buffer the consequences of moving (Long 1975, Straits 1987).

2.4.2 Increased Social Ties

A move to a new neighborhood and school may present the opportunity for richer and more numerous social ties. Although moving is most often associated with breaking of ties, we forget that stronger and/or wide-ranging ties can be struck at the destination.

Many students who move do so because of reasons associated with poverty. Persons living in poverty often live in neighborhoods imbued with mistrust and feelings of powerlessness (Ross, Mirowsky and Pribesh 2001). A move to a neighborhood with greater feelings of trust may offer rich social and economic connections for the student and her family members. Likewise, a student who attends a school where she is treated with hostility and is bullied may grow isolated and depressed. A move to a new school may offer relief from the hostility and opportunities to foster beneficial social ties.

2.4.3 Decreased Stressors

Moving is stressful to adults and children alike. However, moving can also remove persons from stressful situations. Children living in abusive households may perform better in school once they are removed from the source of the abuse. Likewise, students whose parents fight with each other or the student may benefit once the household is separated.

2.4.4 Honed Coping Mechanisms

Coping with residential and school mobility may be a skill that can be learned. Coping strategies are adaptive processes formulated in response to stressful situations (Cramer 1998). Children learn coping strategies when living under stressful conditions such as cohabiting with an alcoholic or abuse parent, living with guardians in conflict, or existing with an illness (Scavnicky-Mylant 1990, Altshuler and Ruble 1989). Repetitive moving is another type of stressor.

Although children in the U.S. are considered hyper-mobile compared to children in other developed countries, there is a set of movers within the U.S. that are can be

considered hyper-mobile even for the U.S. Called 'chronic movers,' these children move repeatedly both within and over years time. The U.S. Census estimates that 10 percent of 18 year olds and 18 percent of 16 year olds have moved more than six times in their lives. (Wood et al. 1993). And, it is likely that chronic movers are undercounted. The CPS moving data merely measures those persons who were at different addresses at time 1 and time 2. This fails to capture the children who lived at two, three, or more addresses in-between the data collections (Tucker and Urton 1987).

Children who are, as Goldstein puts it (1954) 'nomadic movers,' often live in families with parents whose occupations require moving. Certainly, serving in the military is linked with high occupational mobility. Military families are three times as likely to make an out of county move than civilian families in a year (Hosek, Asch, Fair, Martin and Mattock 2002)[1]. Other professional positions that often require relocation are sales, higher level managerial posts, and some civil service jobs.

Regardless of the reason behind chronic movement, children who move often may acquire a unique skill set that allows them to shake off the effects of moving either quicker than other students or not experience them at all. Students who have learned to deal with moves may be able to revel in the opportunities they afford. Moving offers students a 'fresh start' in terms of friendships networks, reputation, relationships with teachers, learning opportunities and romantic conquests.

However, coping is seated in social capital and may hindered by the severance of social ties that accompanies mobility. Coping strategies include three dimensions:

[1] These authors also find that military families make longer distance moves and wives tend to be in the workforce for 2.6 weeks less per year than civilian wives. They found support for the hypothesis that military wives take lower paying jobs because they know they will be moving and do not have time to search for higher wages as well as the fact that employers expect high mobility and offer low wages.

innovation, networking, and formation of identity. While developing and utilizing a coping strategy, children rely on social capital as an asset in terms of developing appropriate normative behavior in the context of safe social bonds (Baerenholdt and Aarsaether 2002). Although this is in interesting avenue for study, no one yet has explored the specific coping strategies, or lack thereof, for students who move.

2.4.5 Lagged Effects

As with other stressful events, children and adults may experience beneficial effects only after a period of time has elapsed. Therefore, positive moving effects may be lagged and appear after a recovery period. However, we do not know what period of time must pass before these lagged effects surface.

2.4.6 Paucity of Research about Good Moves

In Chapter 4, I examine a group of high school students who changed houses and/or schools. I assert that some moves are beneficial to academic performance. Specifically, I suggest that students who are the most disadvantaged and move to new surroundings with greater resources will benefit from the change. Essentially, I hypothesize that those with little or nothing have the most to gain from any increase in income, education, or other resources. Students who start with resource buffers do not reap the same benefits from moving to new situations with incrementally greater resources. This research will extend the nascent work on the benefits of moving.

2.5 The Effect of School Context

U.S. children change schools at rapid rates. School mobility can reach rates of 30 percent or higher for annual student turnover in schools that serve migrant and high poverty populations. Plank et al. (1993) find that school mobility is increasing in part due to greater participation in school choice programs. Families and students are selecting schools and exercising their rights to change schools if not satisfied. And the No Child Left Behind regulations might increase school choosers when families are offered district-wide school choice after schools miss annual yearly progress targets. However, there is mixed evidence that school context affects academic performance or alters behavior.

2.5.1 School Effects

A recent body of research suggests that school context does matter. Gamoran (1992) and Willms (1985) found that schools that contain a large population of advantaged students enhance the learning environment and achievement for all students in the school regardless of individual characteristics. Lee and Bryk (1989) found that schools with large proportions of academically at risk students and minority populations had a negative effect on individual academic achievement. Other researchers have 'controlled' for school characteristics but concentrated on student characteristics because of the weak effect of school context.

In 1998, Suet-ling Pong examined the school compositional effect of single parenthood on 10th grade achievement. In her study, she found a direct and negative effect of being in a school with other kids from single parent families – regardless of the

individuals' family context. Using the NELS data and multivariate, multilevel analysis techniques, she moved the school effects literature forward in a dramatic way by providing strong evidence that school context does matter.

Although Swanson and Schneider (1999) do not examine school effects per se, they find that there is a long-term benefit to changing schools early in high school. They found that a student who changed schools between 8th and 10th grade with D average and behavioral problems was 20 percent likely to drop out of high school. However, a student who did not move but had a similar academic and behavioral profile was 70 percent more likely to leave school than that of 'good' student. They suggest that students who change schools and survive the transition have a renewed commitment to obtaining a high school diploma.

2.5.2 Moving and School Context

In Chapter 5, I advance the study of school effects by examining groups of students who make dramatic changes in school contexts. Specifically, I look at the academic performance of a sample of high school students who changed schools between 10th and 12th grades. I compare students who moved from markedly positive to negative environments and vice versa. I expect to find that students who move from positive school contexts to negative school contexts will suffer academically. I also expect to find that students who move from negative to positive school contexts will accrue academic benefits.

2.6 Conclusion

This dissertation targets little explored areas of student mobility in order to better understand the mobility process. By examining the effect of moving on psychological well being, I hope to shed light on the reasons why so many children have declines in academic performance after a move. As such, in Chapter 3 I ask, "How does moving affect psychological well being and, in turn, academic performance?"

Mobility research paints a bleak picture for children who have to move. However, I suggest that not all moves are detrimental. My research presented in Chapter 4 will highlight beneficial moves. Although policy makers seek to minimize mobility for students, there may be a population for which mobility is the key to success. Specifically, I ask, What are the characteristics of movers who benefit from mobility?

Finally, in Chapter 5 I test the supposition that 'schools matter' by examining the effect of school context for a sample of school changers. The sample members' mobility offers an alternate method to determine if school context can affect students' academic performance. This research question can be stated as thus, Does school context affect students' educational achievement?

CHAPTER 3

MOVING, PSYCHOLOGICAL WELL BEING, AND ACADEMIC PERFORMANCE

3.1 Abstract

Residential and school mobility have been linked to declines in academic performance. Most of the association has to do with preexisting differences between movers and non-movers, social capital and stressful life events. However, some of the effect of moving on educational performance remains unexplained (Pribesh and Downey 1999). In this chapter, I examine the role of psychological well being in the relationship between moving and academic achievement. I hypothesize that moving lowers both locus of control and self esteem, which, in turn, decreases educational performance.

Using the National Education Longitudinal Study of 1988, I find that changes in locus of control explains the effect of combined residential and school moves on standardized math test scores even after adjusting for previous levels of psychological well being, academic performance, school and family characteristics and changes in social capital. Psychological well being did not mediate the effect of moving and reading test scores – the entire effect is explained by movers' characteristics including their levels of social capital. Similar to Ross and Broh's (2000) study, I find that self esteem is not significantly related to math or reading test scores.

MOVING, PSYCHOLOGICAL WELL BEING, AND ACADEMIC PERFORMANCE

Students in the United States move often and empirical evidence indicates that moving may hurt academic performance. Movers are more likely to have poor grades, stay back a grade, and drop out of high school (Coleman 1988; Hagan, McMillan and Wheaton 1996; Teachman, Carver and Paasch 1997; Pribesh and Downey 1999; Benson, Haycraft, Stayeart and Weigel 1979; Benson and Weigel 1981). Pribesh and Downey (1999) used longitudinal data from the National Education Longitudinal Study of 1988 to illuminate the relationship between moving and educational performance. They found that approximately 90 percent of the effect of moving can be traced to pre-existing differences between movers and non-movers. An additional five percent of the effect was linked to broken social ties and declines in social capital. However, approximately five percent of the effect of moving on academic performance remains unexplained. In this study, I expand Pribesh and Downey's (1999) work by examining the influence of moving on psychological well being and, in turn, academic performance.

3.2 Psychological Well Being and Academic Performance

Psychological well being refers to various mental, emotional, and personality domains that combine to form a person's self concept. Some scholars believe that self concept plays a critical role in academic achievement. They assert that how one feels about oneself and his or her place in the world impacts her/his ability to function in the classroom, complete academic tasks, and participate in the social aspect of school (Norford and Medway 2002).

In this study, I concentrate on two domains of psychological well being: self esteem and sense of control. These domains have been linked to academic success (Covington 1984, Liu, Kaplan and Risser 1992, Hersey and Blanchard 1993). Self esteem is "the perception of oneself as a person of worth" (Ross and Broh 2000, Rosenberg 1979, 1989). Theoretically, students who feel good about their own worth do better than students who do not (Battle 1981). This supposition has resulted in educational programs aimed at boosting student self esteem in an attempt to increase levels of educational performance. Sense of control is "the perception of oneself as an effective person." (Ross and Broh 2000). This self efficacy, or locus of control, is a learned behavior stemming from successful behaviors, achievements, and accomplishments (Mirowsky and Ross 1989, Rosenberg 1989).

3.2.1 Self Esteem

Self esteem is the perception of oneself as a person of worth (Rosenberg 1979). Students make inferences about their own abilities from these reflected appraisals (Bem 1972) and social comparisons (Festinger 1954). Reflected appraisals are other people's reactions to us and our interpretations of these reactions (Schauger and Schoemerman 1979). Social comparisons stem from our observations of how similar or different we are from others (Festinger 1954). Although the process of forming self esteem varies for certain subgroups such as women/men and blacks/whites, the suggested importance of self esteem for academic performance is equally important to all groups (Schwalbe and Staples 1991, Hughes and Demo 1989).

Academic performance and self esteem are positively correlated. However, the conceptual reasons underpinning that correlation are less than clear. Some scholars assert that self esteem and educational performance function in a feedback loop. Students who have confidence in their academic abilities strive to do well. When they succeed, they are rewarded with praise and admiration from teachers, parents and peers. This academic success then bolsters their self esteem and the cycle spirals up to higher levels of self esteem and achievement. It is this belief that has spawned education programs that actively and publicly reward students for performing well academically. Likewise, discipline issues in schools are often tackled by praising and rewarding non-violent behavior in the hopes of tapping into the strength of these reflected appraisals.

In contrast, others have argued that there is no reason that self esteem and academic performance should be linked. Hewitt (1998) suggests that feeling good about oneself only serves to heighten the 'slacker' mentality. Ross and Broh (2000) found that the effects of self esteem and locus of control are often confounded but that locus of control ultimately drives academic achievement, not self esteem. They used data from the National Education Longitudinal Study: 1988 and structural equation modeling to pinpoint the mediating role of both self esteem and locus of control on academic achievement. These data confirmed their hypothesis that locus of control was the mediating force while self esteem had no significant effect.

3.2.2 Sense of Control

Sense of control refers to a person's perception that he or she is effective. This perception grows out of his/her own behaviors that reinforce feelings of control over

decisions and forces in one's life. For example, students who attempt to solve problems and do so successfully learn that they are in control of their own academic mastery. Locus of control has been positively associated with educational and other important outcomes (Finch, Shanahan, Mortimer and Ryu 1991, Mone, Baker and Jeffries 1995, Lewis, Ross and Mirowsky 1999). Lewis et al. (1999) found that higher levels of sense of control lowered the odds that students would drop out of school due to pregnancy. Ross and Broh (2000) linked locus of control to a measure of academic achievement that included grades and standardized test scores. And, Dunifon and Duncan (1998) associated stronger senses of control with higher earnings 15 to 25 years after their original data collection.

The reasons that sense of control appears to affect academic achievement center on feelings of power and powerlessness. Students who experience multiple failures after exerting effort learn to feel helpless and powerless. They also learn to become passive (Ross et al. 1983). Students who feel powerless are likely to be less motivated and are more likely to 'give up' because they believe important decisions are out of their hands. Some even come to the conclusion that it is pointless to persist in the education system when faced with forces that they feel are external, out of their control, and stacked against them.

Although self esteem and sense of control go hand-in-hand, they are conceptually distinct. The formation of self esteem relies on the reflected appraisals of others' observations. Sense of control, however, stems from personal experiences and the learned expectation that one has control over meaningful events in one's life. For example, a student may feel good about herself but still may feel out of control of

important life outcomes. Or, a student may feel that she controls the forces that affect her life but may feel worthless in her capability to tackle these decisions. Until Ross and Broh's 2000 work, the two concepts were thought to impact educational outcomes in tandem. However, these researchers found that the mediating effect on academic performance centered on sense of control and not self esteem.

3.3 Moving, Psychological Well being, and Educational Performance

Although there has been a fair amount of research on the linkages of psychological well being and academic performance, very little research has included moving as a mediator. However, there are good theoretical reasons why we should examine these relationships. Both self esteem and sense of control are socially constructed (Rosenberg 1989). Self esteem relies on reflected appraisals. Locus of control is based in one's perceptions of success. The more one senses that she has crafted success through her own actions, the more one feels empowered. On the other hand, perceived powerlessness is the "belief that outcomes of situations are determined by forces external to oneself, such as powerful others, luck, fate, or chance, and that one has little control over meaningful events and circumstances in one's life." (Ross and Broh 2000, pg. 272).

Moving breaks or strains personal relationships that feed the social construction of self esteem and locus of control (Hendershott 1989). Students who change residences or schools move away from their friends. The breaks in social relationships might distance them from established reflective appraisal networks that are key to forming and maintaining self esteem. Although students will likely form other networks that provide

reflective feedback, the time without peer feedback can be detrimental. Also, students who move tend to form new relationships with students who have weaker academic achievement orientations (South and Haynie 2004, Vernberg 1990). The reason for this is unclear. Students who are 'looked down on' in the school community may be more open to a new student who is also likely to be treated with hostility by teachers and students. Regardless, students who move lose valuable peer appraisals and are at risk of replacing them with ones that foster poor academic performance.

Students may gather reflected appraisals from peers and family. Thus, one might argue that families would fill in for peers during the transition between peer groups. However, relationships within families become strained surrounding a move (Lewis, Seigel and Lewis 1984, Pribesh and Downey 1999). Moving tests financial resources and is often precipitated by a stressful life event that changes family structure. These changes in family structure, either due to divorce or remarriage, are stressful for both parents and children (Wallerstein and Kelly 1980, Holmes and Rahe 1967, Hetherington et al. 1981, Visher and Visher 1989). The stresses associated with moves and family changes strains interpersonal relationships. In addition, parents also lose social relationships when they move. The loss of parental relationships threatens the intergenerational closure (parents knowing a child's friend's parents) that is critical for the formation of academic social capital (Coleman 1988, Carbonaro 1998).

The decision to change residences is one that is primarily made by adults. Therefore, it is often a decision that affects students' lives but is out of their control. Teenagers, who are asserting their own sense of individuality and independence at this stage of their personal development, may feel helpless when faced with a move

orchestrated by their parents. These feelings of powerlessness, or lowered sense of control, caused by being uprooted may then in turn affect academic performance.

In this chapter, I examine the interplay between self esteem, sense of control and mobility as it relates to academic achievement. I hypothesize that moving lowers both self esteem and sense of control and, in turn, lowers educational performance.

3.4 Hypotheses

Hypothesis 1: Moving decreases locus of control.
Hypothesis 2: Moving decreases self esteem.
Hypothesis 3: Moving decreases locus of control which in turn decreases academic achievement.
Hypothesis 4: Moving decreases self esteem which in turn decreases academic achievement.

3.5 Data

I use data from the National Education Longitudinal Study: 1988-94 (NELS) to investigate moving and psychological well being. NELS is a nationally representative sample of U.S. adolescents who were in the 8^{th} grade in 1988, the 10^{th} grade in 1990 and 12^{th} grade in 1992. The National Center for Education Statistics (NCES) worked with the National Opinion Research Center (NORC) to design and collect information from approximately 25,000 students and their parents, teachers, and administrators in 1988. In 1990 and 1992, the same students were reinterviewed when most of them were in the 10^{th} and 12^{th} grades respectively (Ingels, Scott, and Taylor 1988).

The NELS data are appropriate for this study because they contain information about students' academic history, psychological well being, mobility, social capital, schools, and families. The longitudinal design offers us the capability to examine

changes over time while controlling for other influential factors. NELS used a multi-stage sampling design that randomly selected students within approximately 1,000 public and private schools. In ensuing years, students and schools were added to ensure that the sample was representative of the national population of students.

3.6 Sample

I was interested in students who made school and residential moves between 8th and 12th grades and the effect of those moves on 12th grade academic performance. Thus, this sample includes all students who completed all three waves of student questionnaires: 14,882 students in all. Using data from the same students across a four-year period poses some problems. Students who did not remain in the sample had slightly higher moving rates between grades 1 and 8 than did the students who remained in the sample (1.3 versus 1.1 moves). This analysis most likely underrepresents the most mobile population and, thus, is a conservative test of the effects of moving.

I do not replace variable missing values and use listwise deletion of cases that had missing data (Cohen and Cohen 1983). To assure that this did not affect the analysis, I performed additional analyses to assess the impact of replacing missing data for parent income and education using a stratified mean replacement procedure. I included a variable that indicated if missing data had been replaced and found that the results were similar to those presented and that the missing data indicators were not significant[2].

This sample appears to be similar to the national student population at the time (See Table 3.1). Fifty-one percent of the sample was female, 62 percent lived with two

[2] The sample size drops from 14,882 because I do not replace missing data and use listwise deletion. The variables that largely contribute to this reduction in sample size are: 1992 standardized test scores, 1992 social capital measures, 1988-92 mobility status, and 1992 psychological well being measures.

biological parents, 72 percent was white, parents' income averaged just over $42,000 and their average education levels included some college. Mobility statistics also are similar to those collected by the U.S. Census for teenagers. In this sample, 17 percent of students changed residences-only, six percent changed schools-only and ten percent made combined residential and school moves. Approximately 67 percent of the sample made no moves at all.

3.7 Measures

In Tables 3.1 and 3.2, I describe the measures used in these analyses including means and standard deviations.

3.7.1 Academic Performance

Others have noted the relationship between residential moving and a range of educational outcomes including: high school dropout, educational aspirations, college completion, and years of education attained (Astone and McLanahan 1994, Hagan et al. 1996, Haveman et al. 1991). I measure academic performance with students' scores on standardized math and reading tests. NCES administered math and reading tests to all students in the sample in the Springs of 1998 and 1992. The test scores are based on item response theory (IRT) and are specifically designed for longitudinal analysis. Specifically, the test design guards against ceiling and floor effects that often complicate change models (U.S. Department of Education 1994). I standardized the test variables so that math and reading tests can be compared in terms of changes in standard deviations.

3.7.2 Moving Status

Students were asked about their residential and school moves made between 1988 and 1992. Moving status, for this analysis, is delineated into school-only moves, residential-only moves, combined school and residential moves and no moves that occurred sometime between the 8th and 12th grades. In 1992 NCES asked students, "How many times have you moved between January 1, 1998?" and "How many times have you changed schools since January 1, 1988?" They specifically asked students to not count school changes that were made as a result of normal grade promotion (i.e., the normal transition from middle to high school). I code students in a binary manner as having moved or not moved. It is possible that students moved more than once during this period, but these data do not capture the frequency of moves. In this sample, 17 percent of students changed residences-only between 1988 and 1992, six percent switched schools-only, 10 percent made a combined move, and 67 percent did not move.

3.7.3 Psychological Well Being

Measures of psychological well being from both 1988 and 1992 were used to measure changes in the levels of locus of control and self esteem as a function of moving. The National Education Longitudinal Study collected a battery of questions that measure two domains of psychological well being: self esteem and locus of control. Using these questions, NCES prepared composite self esteem and locus of control variables. Self esteem is based on responses to the following questions: How do you feel about the following statements….a) I feel good about myself; d) I feel I am a person of worth, the equal of other people; e) I am able to do things as well as most other people, h) On the

whole, I am satisfied with myself; i) I certainly feel useless at times; j) At times I think I am no good at all, l) I feel I do not have much to be proud of. Locus of Control was constructed using response to the questions, How do you feel about the following statements….b) I don't have enough control over the direction my life is taking; c) In my life, good luck is more important than hard work for success; f) Every time I try to get ahead, something or someone stops me, g) My plans hardly work out, so planning only makes me unhappy; k) When I make plans, I am almost certain I can make them work; m) Chance and luck are very important for what happens in my life. The items were coded and combined in such a manner that students with high locus of control scores are considered to have stronger internal senses of control – or feel that they are in control of the decisions impacting their lives. I used the NCES constructs for self esteem and locus of control but standardized the variables to a mean of zero and a standard deviation of one so I could compare effect sizes.

3.7.4 Social Capital and Stressful Life Events

Students' relationships with parents and peers are important for the generation of education-centered social capital (Coleman 1988, Carbonaro 1998, Hagan et al. 1996). Hypothetically, moving breaks or strains social relationships that are necessary for the transfer of important knowledge, values and norms. Therefore, Pribesh and Downey (1999) examined six types of social capital that are associated with intergenerational closure and their affect on academic performance when associated with a residential or school move. Pribesh and Downey (1999) and Teachman et al. (1997) found that student-to-parent and student-to-peer relationships were particularly important when

moving was involved. Therefore, I include measures of students' education-based relationships with parents and peers in both the 8th and 12th grades.

In 1988 and 1992, NCES asked students about the frequency with which they talked to their parents about school related topics. Specifically, they asked how often students talked with their parents or guardians about school courses, school activities, and things studied in class. Student responses ranged from not at all to three or more times in the past year.

Coleman (1988) stressed the importance of intergenerational closure that included students talking with other students about academic topics. Thus, student-to- peer relationships were, in part, gauged if the student consulted friends about their high school program. Also, student popularity is important for students who wish to gain entrée into academically oriented cliques. This becomes very important for students who move. Mobile students run the risk of 'slipping' in popularity as they reestablish friendship networks in their new schools and neighborhoods. Students that have mastered the skills necessary to be popular are better suited to access beneficial friendship networks in their new schools. Therefore, I include in the measure of student-to-peer relationships the perception of the student as to how popular he or she is perceived by other students.

Many stressful life events occur in conjunction with moving making it difficult to discern whether moving per se affects academic performance or it is the association with these events that affects educational achievement. Pribesh and Downey (1999) tested the effect of four stressful life events including: parents divorced, parents married or remarried, parent died, and parent lost job. They found that the only stressful life event that significantly affected academic performance, after controlling for previous academic

performance as well as other student and family characteristics, was parents marrying or remarrying. Thus, I include a measure that captures whether the parents of students married or remarried at some point in between 1988 and 1992.

3.7.5 Student, Family, and School Characteristics

I am interested in the independent effect of moving on school performance. Thus, I control for other factors that may vary by moving status and that may also be related to educational performance. Because previous academic performance is such a strong predictor of future academic performance, I include a measure of test scores in 8th grade in each of the models. Gender and race have been linked to academic performance so I include measures of both to control for those effects. In addition, the models take parents' socio-economic status and family composition into account.

I include a series of school related variables that have been linked to educational performance and/or mobile student populations. Urban and Western residents are the most mobile populations. Thus, schools that are located in the West or in urban settings are likely to have more mobile student populations. Likewise, schools that have high percentages of poor and minority students have, in general, lower levels of academic performance and higher rates of student mobility than schools with affluent, white students (Gamoran 1992). Large schools and, to some degree, public schools have been cited as lacking in community. Smaller schools and private schools that develop a sense of community tend to have higher levels of educational performance (Lee 2001). Thus, I include measures of school control (public or private), location, size, poverty status, and minority composition.

Insert Tables 3.1 and 3.2 about here

3.8 Analytic Strategy

I first evaluate how different types of moves affect psychological well being. Changes in locus of control and self esteem between 1988 and 1992 are predicted with moving history, social capital, a stressful life event and other background characteristics in ordinary least squares regression (OLS) analyses. To assess the mediating effect of psychological well being on moves and academic performance, I regress academic performance on moving history (model 1), previous academic performance (model 2), background characteristics, social capital and stressful life event (model 3), and psychological well being (model 4). The changes between moving coefficients across the models indicates the relative impact of each additional set of variables. I use measures of academic performance, social capital, and psychological well being from 1988 and 1992 – both pre-and post-move. Doing so creates a rigorous change model that controls for differences between movers and non-movers that may have existed prior to the move between 8^{th} and 12^{th} grade.

3.9 Results

Do residential and school moves result in declines in psychological well being? Table 3.3 presents the results of regressing locus of control and self esteem in 1992 on moving and background characteristics – and measures of locus of control and self esteem in 1988. Since I have included measures of prior psychological well being as a control, the coefficients for the other independent variables can be interpreted as the effect on changes in psychological well being between 1988 and 1992. I find that

residential and school moves combined are associated with decreases in locus of control even when other background characteristics are taken into account (b=-.087, p<.01). However, residential-only and school-only moves have no significant effect on levels of locus of control. This may be because students still remain connected – or in control of – their school or neighborhood life when changing schools or residences only. A combined school and residential move is the most disruptive type and, thus, could cause students to feel a loss of control.

Self esteem is negatively associated with combined residential and school moves (b=-.101, p<.001) until the model is adjusted for other background characteristics. Then, moving has no significant effect on self esteem. This indicates that even though moving breaks social ties that provide the reflected appraisals necessary for the formation of self esteem, these broken ties are not enough to affect levels of self esteem. Students may have a period of self esteem carryover until they can find peers that provide the same types of reflected appraisals that they had before they moved. Parents and families may help sustain levels of self esteem until they can be buttressed once more with friend appraisals.

Both locus of control and self esteem were affected by social capital and parents' marrying. If a student's parent married or remarried, that student was likely to experience a decline in locus of control and self esteem. Students' relationships with their parents were positively and significantly related to increases in locus of control. Whereas, students' relationships with their peers were positively related with levels of self esteem.

Insert Table 3.3 about here.

Do changes in psychological well being predict changes in educational performance? I test this by regressing test scores in the 12th grade on moving status, prior academic performance, background characteristics and psychological well being[3]. Table 3.4 presents the results for math. The evidence suggests that moving is associated with a decline in math performance that is, in part, due to the loss of locus of control. In Model 1, combined residential and school moves are related to more than a one-third of a standard deviation decline in math test scores (b=-.387, p<.001). When prior academic performance and other background characteristics are added, the effect of combined residential and school moves drops from -.387 to -.050. Another way of interpreting this is that preexisting characteristics of movers account for 87 percent of the decline in math achievement. This is in line with what previous research has shown (Pribesh and Downey 1999). However, a significant and independent effect of combined moves remains.

When psychological well being is added to the analysis (model 4), moving ceases to have a direct, significant effect on math test scores. Thus, psychological well being explains the heretofore unexplained remaining effect of moving on academic

[3] In separate analyses, I used grades as a measure of academic performance. When grades are regressed on mobility status, student and family characteristics, social capital and psychological well being, the results are slightly different than those for math and reading test scores. The effects of residential and school moving as well as for residential-only moves persist (b=-.135 p<.001 and b=-.045 p<.05 respectively). I believe that these results are predicated on grades being a poor measure of academic performance over time due to ceiling and floor effects. For instance, a straight-A student cannot do any better after a move than to maintain her excellent grades. Likewise, a failing student cannot fall any lower after a move. The persisting negative effect of moving on grades is most likely an artifact of being able to measure larger decreases than increases in grades.

performance. Similar to what Ross and Broh (2000) found, locus of control is significantly associated with educational performance but self esteem is not[4].

Table 3.5 presents the results for reading. It has been argued that math is cumulative in nature and, thus, is more sensitive to curricular disruptions stemming from moves than are other subjects. Reading is not only not strictly cumulative, but it is more likely to be strengthened in the home as well as in the school. Therefore, I am not surprised to find that when prior academic performance and background characteristics are taken into account, the significant and negative effect of moving disappears. Similar to performance in math, positive academic performance in reading can be tied higher levels in locus of control.

Insert Table 3.4 and 3.5 about here.

3.10 Discussion

Students in the United States change residences and schools at a rapid rate. Compared to European nations, children in the United States are considered hypermobile (Long 1972). Previous research has linked declines in academic performance to mobility. However, researchers are still uncertain about the mechanisms contributing to those declines. In this study, I build upon Pribesh and Downey's (1999) prior work and examine the role of psychological well being and mobility. I hypothesized that moving

[4] In these models, I enter measures of social capital prior to measures of psychological well being. However, one may argue that the order should be the opposite if psychological well being affects levels of student social capital. In supplementary analyses, I entered psychological well being measures prior social capital measures. For reading, the switch did not matter. Student, parent and school characteristics (other than psychological well being and social capital) explained the entire affect of moving on reading test scores. For math, measures of psychological well being explained the remaining effect when entered into the model prior to social capital. This strengthens the argument that it is locus of control that, in fact, mediates the effect of residential and school moves on math test scores.

lowers two domains of self concept: locus of control and self esteem. This, in turn, negatively affects student performance.

I found mixed support for my first hypothesis: that moving lowers levels of locus of control. Only the most disruptive kinds of moves, residential and school moves combined, impact sense of control. Changing houses and/or changing schools, even for positive reasons, is still viewed as a major life event. However, teenagers may retain feelings of mastery over their environments if they do not lose both house and school. A combined residential and school move -- one where they do lose both house and school -- may be instrumental in convincing a teenager that they have very little control over their lives.

My second hypothesis, that moving lowers self esteem, was not supported. Moves of all types were not significantly associated with changes in self esteem. Students may 'stock-up' on feelings of self esteem that are buttressed by previous academic performance and reflected appraisals of family. Thus, when they change schools or neighborhoods, students may take with them levels of self esteem that are relatively stable. At their new locations, these students may strive to find friendship networks that reinforce their existing perceptions of themselves. This is in line with other research noting that global self concept is not prone to sudden shifts (Owens et al. 1996). Vernberg (1990) found that students who thought of themselves as poor performers still held onto that perception even after scoring highly on a series of tests and assignments. They actively sought out groups that reinforced their images of themselves as poor performers. Therefore, it is likely that movers seek out new friends that confirm their self-attributed identities.

Math and reading are not affected by moving in the same manner. I found that pre-existing characteristics of students, including their attachments to parents and peers, accounted for almost 90 percent of the effect of moving for math and the entire effect for reading. For math achievement, the effect of moving was mediated by locus of control.

Why does the effect differ by subject area? Math and reading are taught in different manners. Math is a largely sequential and cumulative topic that builds on mastery of topics. For example, one cannot find the area of a triangle until one understands how to find the area of a square. When students move, they risk disrupting the sequential nature of the math curriculum. Rumberger (2003) calls this curricular incoherence. Studies of moving between schools with a standard curriculum indicate that a coherent curriculum prevents students from missing important concepts. For instance, Marchant and Medway (1987) found that military children who moved between DOD schools do better because the curriculum is standard across all DOD schools. Reading is not as strictly sequential and cumulative. Students can infer content of text passages even if they are not familiar with all the vocabulary. And, students are much more likely to practice reading at home than math. Thus, changing schools, although traumatic, may not set back reading skills if they are being taught at home as well as at school.

Ross and Broh (2000) found that locus of control, and not self esteem, is associated with educational performance. These analyses support their findings and indicate that locus of control mediates the effect of changing residences and schools. These findings have implications for policy makers and practitioners alike. Programs that are designed to buttress the self esteem of students may be missing the mark. Certainly, this might help explain why black students have higher levels of self esteem

yet continue to perform below the levels of white students. It appears that resources might be better spent instead trying to increase students' sense of control.

These analyses can be improved upon. I examined the academic outcomes for students who persisted in the longitudinal data collection. Because NCES did not track all movers to their new neighborhoods and schools, movers are under-represented in this sample. Furthermore, students that made long-distance moves were more likely to be 'lost' than those who made local moves. This is important because distance of move is correlated with the reason for moving. Most moves that are associated with poverty or school expulsion are local moves. Long distance movers are more likely to be white, middle-class and moving in search of better employment (South and Crowder 1997).

Likewise, I cannot identify the number of moves students made between 8th and 12th grades. Students who are chronic movers may develop coping strategies that make them relatively immune to change. In fact, chronic movers may learn to improve their psychological well being levels through change. However, research indicates that the reverse is more likely. Students who move often may not learn to cope, may experience cumulatively weaker social networks, and ultimately do worse in school than sporadic movers (Brown and Orthner 1990, Gibbs 1986, Vernberg 1990).

The results from these analyses indicate that strengthening students' levels of locus of control could protect them against academic declines when making combined residential and school moves. Schools can take an active role in encouraging increases in locus of control. They can use curricula imbued with problem solving opportunities, perhaps through project-based learning, to bolster students' feelings of academic mastery. Schools could provide counseling for mobile students that focuses on sense of control.

	N	Mean	Std. Dev.
Moving Status			
Residence and School Move	13,054	.10	.302
School Move Only	13,046	.06	.237
Residence Move Only	13,051	.17	.377
No Move	13,043	.67	.471
Student, Family and School Characteristics			
Math Test Score, 8th Grade	14,371	.00	1.000
Math Test Score, 12th Grade	12,021	.00	1.000
Reading Test Score, 8th Grade	14,371	.00	1.000
Reading Test Score, 12th Grade	12,020	.00	1.000
Composite Math and Reading Test, 8th Grade	14,386	.00	1.000
Female	14,880	.51	.500
Family SES	14,880	.02	.782
Lives with Two Biological Parents	14,880	.62	.485
White	14,753	.72	.448
Public School	14,880	.81	.390
Urban	14,880	.26	.437
West	14,880	.19	.395
Percent Free & Reduced Lunch Eligible	14,627	2.91	2.049
Percent Minority in School	14,580	2.72	2.048
Enrollment in 8th Grade	14,880	3.30	1.558
Student and Parent Relationship, 8th Grade	14,630	.00	1.000
Student and Parent Relationship, 12th Grade	12,992	.00	1.000
Student and Peer Relationship, 8th Grade	14,205	.00	1.000
Student and Peer Relationship, 12th Grade	13,578	.00	1.000
Parent Married	14,242	.09	.285
Psychological Well Being			
Locus of Control, 8th Grade	14,790	.00	1.000
Locus of Control, 12th Grade	13,561	.00	1.000
Self Esteem, 8th Grade	14,796	.00	1.000
Self Esteem, 12th Grade	13,573	.00	1.000

Table 3.1. Descriptive Statistics for Variables in Analyses

Variables	Description	Range
Moving Status		
Residence Move Only	I created a series of moving variables that isolate moves between the base year and second follow-up data collections using combinations of a residential move and school move questions. In 1992 NCES asked students, How many times have you moved since January 1, 1988?; and How many times have you changed schools since January 1, 1988. Do not count changes that occurred as a result of a promotion to another grade level or a move from middle school building to a high school building in the same district.	1 = Moved 0 = Not
School Move Only	I created a series of moving variables that isolate moves between the base year and second follow-up data collections using combinations of a residential move and school move questions. In 1992 NCES asked students, How many times have you moved since January 1, 1988?; and How many times have you changed schools since January 1, 1988. Do not count changes that occurred as a result of a promotion to another grade level or a move from middle school building to a high school building in the same district.	1 = Moved 0 = Not
Residence and School Move	I created a series of moving variables that isolate moves between the base year and second follow-up data collections using combinations of a residential move and school move questions. In 1992 NCES asked students, How many times have you moved since January 1, 1988?; and How many times have you changed schools since January 1, 1988. Do not count changes that occurred as a result of a promotion to another grade level or a move from middle school building to a high school building in the same district.	1 = Moved 0 = Not

Continued

Table 3.2. Variables, Descriptions, and Ranges

Table 3.2 continued

Variables	Description	Range
No Move	I created a series of moving variables that isolate moves between the base year and second follow-up data collections using combinations of a residential move and school move questions. In 1992 NCES asked students, How many times have you moved since January 1, 1988?; and How many times have you changed schools since January 1, 1988. Do not count changes that occurred as a result of a promotion to another grade level or a move from middle school building to a high school building in the same district.	1 = Did not move 0 = Moved
Student and Family Characteristics		
Math Test Score, 8th Grade	IRT number correct of math cognitive test administered in the Spring of 1988. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-1.777 to 2.400
Math Test Score, 12th Grade	IRT number correct of math cognitive test administered in the Spring of 1992. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.319 to 1.956
Reading Test Score, 8th Grade	IRT number correct of reading cognitive test administered in the Spring of 1988. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.026 to 1.839
Reading Test Score, 8th Grade	IRT number correct of reading cognitive test administered in the Spring of 1992. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.327 to 1.706

Continued

Table 3.2. Variables, Descriptions, and Ranges

Table 3.2 continued

Variables	Description	Range
Composite Math and Reading Test Score, 8th Grade	NCES created a composite math and reading test score using the IRT number correct for both math and reading cognitive tests. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.127 to 2.301
Female	I created a variable reflecting the students' sex from the base year composite sex variable. Male is the omitted category.	1 = Female 0 = Male
Family SES	NCES created a socio-economic composite based on parents' reports of father's education, mother's education, father's occupation, mother's occupation, and family income in 1987. If parent data were missing, they used student reports of parents' education and occupation.	-2.894 to 2.560
Lives with Two Biological Parents	Based on the family composition in the base year, I created a binary variable reflecting with whom the student lives. Lives with others than two biological parents is the omitted category.	1 = Lives with two biological parents 0 = Lives with other guardian combinations
White	Using the base year racial composite variable, I created a variable reflecting the students' race. All other races is the omitted category.	1 = White 0 = All other races
Public School	Binary variable reflecting if the student attended a public school in 1988. Omitted category is all other types of schools.	1 = Public school 0 = Not public school
Urban	Binary variable reflecting if the student attended a school in an urban location. Urban location is defined as a central city metropolitan status at the time of the 1980 decennial census. Omitted category is all other metropolitan statuses.	1 = Urban 0 = Not urban
West	Binary variable reflecting if the student attended a school in the West. NCES created a geographic composite variable for sampled schools that placed schools into one of the four census regions. All mountain and pacific states are located in the West region.	1 = West 0 = Not in West

Continued

Table 3.2. Variables, Descriptions, and Ranges

Table 3.2 continued

Variables	Description	Range
Percent Free and Reduced Lunch Eligible	NCES calculated the percentage of students at each school who were eligible for free and reduced lunch based on responses from school administrators.	000 = none 001 = 1-5% 002 = 6-10% 003 = 11-20% 004 = 21-30% 005 = 31-50% 006 = 51-75% 007 = 76-100%
Percent Minority in School	School administrators reported the percent of minority students in their schools.	000 = none 001 = 1-5% 002 = 6-10% 003 = 11-20% 004 = 21-40% 005 = 41-60% 006 = 61-90% 007 = 91-100%
Enrollment in 8th Grade	School administrators reported the number of students who were enrolled in the entire 8th grade in 1988.	01 = 1-49 02 = 50-99 03 = 100-199 04 = 200-299 05 = 300-399 06 = 400+

Continued

Table 3.2. Variables, Descriptions, and Ranges

Table 3.2 continued

Variables	Descriptions	Range
Student and Parent Relationship, 8th Grade	NCES asked students, Since the beginning of the school year, how often have you discussed the following with either or both of your parents/or guardians?…a) Selecting courses or programs at school; b) School activities or events of particular interest to you; and c) things you've studied in class. I created an average interaction variable from these base year responses. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.961 to 1.174
Student and Parent Relationship, 12th Grade	NCES asked students, Since the beginning of the school year, how often have you discussed the following with either or both of your parents/or guardians?…a) school courses; b) School activities or events of particular interest to you; and c) things you've studied in class. I created an average interaction variable from these base year responses. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-1.773 to 1.884
Student and Peer Relationship, 8th Grade	Students in 1988 were asked, How often have you talked to the following people about planning your high school program?…f) friends or relatives about your own age and How do you think other students in your classes see you?…a) other students in class see you as popular. Based on responses to these two questions, I created an average peer connection variable. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.451 to 1.773

Continued

Table 3.2. Variables, Descriptions, and Ranges

Table 3.2 continued

Variables	Descriptions	Range
Student and Peer Relationship, 12th Grade	Students in 1992 were asked, How often have you talked to the following people about planning your high school program?…f) friends or relatives about your own age and How do you think other students in your classes see you?…a) other students in class see you as popular. Based on responses to these two questions, I created an average peer connection variable. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-3.128 to .784
Parent Married	This binary variable indicates if the student's parent married or remarried at some point between 1988 and 1992. Did not marry or remarry is the omitted category.	1= Married or remarried 0 = Did not
Psychological Well Being		
Locus of Control, 8th Grade	NCES prepared a composite base year Locus of Control variable using student responses when asked, How do you feel about the following statements….b) I don't have enough control over the direction my life is taking; c) In my life, good luck is more important than hard work for success; f) Every time I try to get ahead, something or someone stops me, g) My plans hardly work out, so planning only makes me unhappy; k) When I make plans, I am almost certain I can make them work; m) Chance and luck are very important for what happens in my life. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-4.739 to 2.447

Continued

Table 3.2. Variables, Descriptions, and Ranges

Table 3.2 continued

Variables	Description	Range
Locus of Control, 12th Grade	NCES prepared a composite second follow-up Locus of Control variable using student responses when asked, How do you feel about the following statements….b) I don't have enough control over the direction my life is taking; c) In my life, good luck is more important than hard work for success; f) Every time I try to get ahead, something or someone stops me, g) My plans hardly work out, so planning only makes me unhappy; k) When I make plans, I am almost certain I can make them work; m) Chance and luck are very important for what happens in my life. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-4.862 to 2.119
Self Esteem, 8th Grade	NCES prepared a composite base year Self Esteem variable using student responses when asked, How do you feel about the following statements….a) I feel good about myself; d) I feel I am a person of worth, the equal of other people; e) I am able to do things as well as most other people, h) On the whole, I am satisfied with myself; I) I certainly feel useless at times; j) At times I think I am no good at all, l) I feel I do not have much to be proud of. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-4.577 to 1.886
Self Esteem, 12th Grade	NCES prepared a composite second follow-up Self Esteem variable using student responses when asked, How do you feel about the following statements….a) I feel good about myself; d) I feel I am a person of worth, the equal of other people; e) I am able to do things as well as most other people, h) On the whole, I am satisfied with myself; I) I certainly feel useless at times; j) At times I think I am no good at all, l) I feel I do not have much to be proud of. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-5.276 to 1.733

Table 3.2. Variables, Descriptions, and Ranges

	Locus of Control				Self Esteem			
	Model 1		Model 2		Model 1		Model 2	
Variable	**b**	**Std. Error**	**b**	**Std. Error**	**b**	**Std. Error**	**b**	**Std. Error**
Moving Status								
Residence and School Move	**-.225**	**.034*** **	**-.087**	**.032** **	**-.101**	**.034*** **	**.002**	**.032**
School Move Only	**-.028**	**.042**	**.002**	**.039**	**-.011**	**.043**	**-.032**	**.039**
Residence Move Only	**-.025**	**.026**	**.031**	**.024**	**-.034**	**.026**	**.005**	**.024**
Student, Family and School Characteristics								
Composite Math & Reading Test Score			.120	.011***			.052	.011***
Female			.184	.018***			-.143	.018***
Family SES			.028	.014			.026	.014
Lives with Two Biological Parents			.019	.020			-.011	.020
White			.042	.025			-.069	.025**
Public School			-.037	.033			-.042	.034
Urban			.061	.023**			.013	.023
West			.095	.024***			-.004	.024
Percent Free & Reduced Lunch Eligible			.006	.006			.008	.006
Percent Minority in School			.002	.006			.025	.006***
Enrollment in 8th Grade			.003	.008			.002	.008
Student and Parent Relationship			.023	.010*			.014	.010
Student and Peer Relationship			.007	.009			.041	.009***
Parent Married			-.112	.033**			-.075	.033*
Psychological Well Being								
Locus of Control			**.245**	**.011*** **			**.068**	**0.011*** **
Self Esteem			**.123**	**.011*** **			**.332**	**0.011*** **
Constant	.058	.011	-.158	.041	.024	.012	.074	.041
N	10,795		10,795		10,800		10,800	
R^2	.004		.170		.001		.185	

Table 3.3. Unstandardized OLS Regression Coefficients from the Regression of Psychological Well Being in Twelfth Grade on Moving, Adjusting for Student, Family, and School Characteristics as well as Previous Levels of Psychological Well Being

	Model 1		Model 2		Model 3		Model 4	
Variable	**b**	**Std. Error**	**b**	**Std. Error**	**b**	**Std. Error**	**b**	**Std. Error**
Moving Status								
Residence and School Move	**-.387**	**.041*** **	**-.103**	**.023*** **	**-.050**	**.023***	**-.036**	**.023**
School Move Only	**-.099**	**.049***	**-.009**	**.027**	**-.029**	**.027**	**-.030**	**.026**
Residence Move Only	**-.185**	**.028*** **	**-.062**	**.016*** **	**-.024**	**.015**	**-.027**	**.015**
Student, Family and School Characteristics								
Math Test Score, 8th Grade			.812	.006***	.746	.006***	.732	.007***
Female					-.098	.011***	-.102	.012***
Family SES					.123	.009***	.121	.009***
Lives with Two Biological Parents					.031	.013*	.029	.013*
White					-.009	.016	-.015	.016
Public School					-.100	.021***	-.097	.021***
Urban					.003	.015	-.002	.015
West					-.004	.016	-.011	.015
Percent Free & Reduced Lunch Eligible					-.002	.004	-.002	.004
Percent Minority in School					-.005	.004	-.005	.004
Enrollment in 8th Grade					.014	.005**	.015	.005**
Student and Parent Relationship, 8th Grade					.017	.006**	.008	.006
Student and Parent Relationship, 12th Grade					.023	.006***	.012	.006*
Student and Peer Relationship, 8th Grade					-.041	.006***	-.046	.006***
Student and Peer Relationship, 12th Grade					.036	.006***	.034	.006***
Parent Married					-.065	.022**	-.058	.021**
Psychological Well Being								
Locus of Control, 8th Grade							**.028**	**.007*** **
Locus of Control, 12th Grade							**.066**	**.007*** **
Self Esteem, 8th Grade							**.005**	**.007**
Self Esteem, 12th Grade							**-.011**	**.007**
Constant	.178	.012	.037	.007	.118	.026	.124	.026
N	8,852		8,852		8,852		8,852	
R^2	.013		.693		.712		.717	

Table 3.4. Unstandardized OLS Regression Coefficients from the Regression of Math Test Scores in Twelfth Grade on Moving, Adjusting for Student, Family and School Characteristics, Social Capital, Life Stressor, and Psychological Well Being

	Model 1		Model 2		Model 3		Model 4	
Variable	**b**	**Std. Error**	**b**	**Std. Error**	**b**	**Std. Error**	**b**	**Std. Error**
Moving Status								
Residence and School Move	**-.267**	**.041*** **	**-.059**	**.028***	**-.021**	**.028**	**.000**	**.028**
School Move Only	**-.092**	**.049**	**-.034**	**.033**	**-.049**	**.033**	**-.048**	**.032**
Residence Move Only	**-.132**	**.028*** **	**-.031**	**.019**	**-.003**	**.019**	**-.008**	**.019**
Student, Family and School Characteristics								
Reading Test Score, 8th Grade			.722	.007***	.657	.008***	.637	.008***
Female					.055	.014***	.051	.015**
Family SES					.122	.011***	.119	.011***
Lives with Two Biological Parents					.023	.016	.020	.015
White					.038	.019	.029	.019
Public School					-.084	.026**	-.083	.026**
Urban					.046	.018*	.038	.018*
West					.065	.019**	.052	.019**
Percent Free & Reduced Lunch Eligible					-.003	.005	-.003	.005
Percent Minority in School					-.007	.005	-.007	.005
Enrollment in 8th Grade					.023	.006***	.023	.006***
Student and Parent Relationship, 8th Grade					.019	.008*	.006	.008
Student and Parent Relationship, 12th Grade					.020	.008**	.005	.008
Student and Peer Relationship, 8th Grade					-.034	.007***	-.039	.007***
Student and Peer Relationship, 12th Grade					.040	.007***	.036	.007***
Parent Married					-.046	.027	-.037	.026
Psychological Well Being								
Locus of Control, 8th Grade							**.047**	**.009*** **
Locus of Control, 12th Grade							**.093**	**.009*** **
Self Esteem, 8th Grade							**-.004**	**.009**
Self Esteem, 12th Grade							**-.015**	**.009**
Constant	.160	.012	.026	.008	-.055	.032	-.044	.032
N	8,846		8,846		8,846		8,846	
R^2	.007		.540		.560		.571	

Table 3.5. Unstandardized OLS Regression Coefficients from the Regression of Reading Test Scores in Twelfth Grade on Moving, Adjusting for Student, Family and School Characteristics, Social Capital, Life Stressor, and Psychological Well Being

CHAPTER 4

WHO BENEFITS FROM RESIDENTIAL AND SCHOOL MOVES?

4.1 Abstract

In this paper, I examine characteristics of beneficial moves – those residential and school moves that predict increases, instead of decreases, in educational performance. This research concentrates on the most disadvantaged movers who have low levels of income, parental supervision, and parental education. I find that socio-economically disadvantaged students make greater strides after a move than their socioeconomically advantaged counterparts. Often, the most beneficial moves include a school change.

WHO BENEFITS FROM RESIDENTIAL AND SCHOOL MOVES?

Social scientists, policy makers and parents are concerned about the detrimental effects of residential and school moving. The movement patterns are clear: Almost 16 percent of teenagers change residences each year (U.S. Census 2000) and in the largest school districts, over 30 percent of students change schools (U.S. Department of Education 2001). Researchers attest that children who move are more likely to be held back a grade, do poorly in and drop out of school (Coleman 1988; Hagan, McMillan and Wheaton 1996; Teachman, Carver and Paasch 1997; Benson, Haycraft, Stayeart and Weigel 1979; Benson and Weigel 1981).

The concern about mobility stands in contrast to the functional concept of moving as a social equalizing mechanism. Most residential movers give reasons for moving that indicate upward social mobility. In 1999, over 30 percent of residential movers became homeowners or moved to a better home. One in six movers changed residences for better employment or retirement (U.S. Census 2000). In addition to residential moves, children are moving schools to take advantage of school choice programs (Plank et al. 1993).

The two patterns: negative mobility outcomes and positive reasons for moving, run counter to each other and illustrate the confusion concerning mobility. This confusion has spilled over into Federal legislation. The No Child Left Behind Act of 2001 may encourages both school mobility and stability. The legislation mandates that children who attend continually failing schools be given the means to change schools to attend non-failing schools. Within the same legislation, the McKinney-Vento Act specifies that children who experience homelessness be given the means to remain in

their schools of origin. In this chapter, I ask whether moving, versus not moving, provides any advantage to students.

4.2 Moving and Educational Performance

To date, most research concerning mobility and educational performance indicates that moving is not good for children. Children who move are more likely to show declines in grades, be held back a grade, do poorly in and drop out of school, and exhibit discipline problems (Ingersoll, Scamman and Eckerling 1989, Reynolds 1991, Wood et al. 1993; Coleman 1988; Hagan, McMillan and Wheaton 1996; Teachman, Carver and Paasch 1997; Benson, Haycraft, Stayeart and Weigel 1979; Benson and Weigel 1981).

The primary reason revolves around preexisting student characteristics (Pribesh and Downey 1999; Temple and Reynolds 1999, Astone and McLanahan 1994). Students who move are inherently different than those who stay put. Most notably, students who move are more likely to be of color, attend large, urban schools, and live in households headed by single mothers (U.S. Department of Education 2002, Kerbow 1995, Tucker et al. 1998).

Pribesh and Downey (1999) examined a nationally representative sample of 8th graders as they progressed to 12th grade. They found that 90 percent of the effect of moving on math and reading test scores could be linked to characteristics of the students, such as prior academic performance, that predated the move. Temple and Reynolds (1999) found similar results from their study of mobile students in Chicago. Alexander, Entwisle and Dauber (1996) found that most of the effect of mobility on tests scores,

grade retention, and placement in special education was explained for elementary students in Baltimore once the researchers controlled for family characteristics and academic performance in the first grade.

4.3 Disadvantaged Movers

The most disadvantaged movers change residences for the same broad reasons as advantaged movers: housing, employment and family reasons. However, residential moves made by low-income families are less likely to be made for positive reasons than moves made by middle and upper-income families (Scanlon and Devine 2001, Schachter 2001). Racial minorities are more often renters than homeowners (Dolbeare 2001). Renters are three times more likely to move than homeowners. In 1999, 32.5 percent of renters and 9.1 percent of homeowners moved (Schachter 2001). Again confounded with income, renters are more likely to suffer some form of housing deprivation due to eviction or lack of affordable housing.

Lack of access to affordable and safe housing has been associated with high mobility rates for children most at risk of educational failure. In 1999, 10 percent of movers claimed that they were looking for safer neighborhoods and/or cheaper housing. This translates into 2.3 million persons moving in one year to seek acceptable lodgings (Schachter 2001). And the supply of affordable housing is shrinking. The Joint Center on Housing Studies (2002) found that there are too few housing units available at prices low-ware earners and people with fixed incomes can afford. A worker would have to earn $14.66 per hour to afford a two-bedroom rental unit at the nationally weighted Fair Market Rent (FMR) (Pitcoff, Schaffer, Dolbeare and Crowley 2002). This is nearly three

times the federal minimum wage in a country where over two million persons make minimum wage or less (U.S. Bureau of Labor Statistics 2001).

The lack of affordable housing coupled with low incomes negatively impacts the educational system. Children who are most at risk are disproportionately concentrated in schools that serve neighborhoods with low-income housing. Researchers assert that high concentrations of poor children in schools negatively affect the educational performance of all students in the school (Gamoran 1992). This is, in part, due to the fact that schools with high percentages of at risk students fail to attract the best teachers, have fewer physical resources, and have high student mobility rates.

Children who move residences are five times more likely to change schools than children who do not move. Low-income students follow their families in the search of lodgings through shelters, motels (which usually only allow a 28-day stay), and short-term doubling up with family and friends. This creates a 'churning' of students as they move from one under-resourced school to another (Holloway 2000). In some poor schools, the mobility rate can reach 70 percent (Fowler-Finn 2001).

Transient students are often held accountable for creating fragile educational atmospheres at schools. Astone and McLanahan (1994) suggest that teachers are less likely to assert themselves for students that may be just passing through. Mobile students are less likely to have complete academic records, which has led to denial of enrollment and or poor placements (Fisher, Matthew, Stafford, Nakagawa and Durante 2002). Mobile students are also likely to have to repeat a grade and are disproportionately placed in special education.

4.4 Are All Moves Bad Moves?

Many moves for a disadvantaged population – both residential and school moves – are precipitated by dire circumstances such as bullying, divorce, death, domestic violence, eviction, expulsion, foreclosure, forced relocation, overcrowding, school closure or diminished financial resources from the loss of employment or benefits (Holloway 2000, Rumberger and Larson 1998). However, not all moves stem from inherently bad circumstances.

I hypothesize that lowest income students are the population that may benefit the most by moving. Residential instability and high rates of student mobility arguably contribute to the replication of inequality in the United States (Scanlon and Devine 2001). However, mobility, in some cases, offers the key to upward social mobility.

My expectation is that students who already live in resource rich environments will not reap great benefits from moving even if they move to even richer environments. Instead, I expect that students who start with the barest levels of resources and move to better environs will reap the greatest benefits. In other words, when the rich get richer it does not change their lives in the same manner as when the poor become less poor.

I also expect that certain groups of movers are better at moving, thus able to take advantage of opportunities that occur as a result of moving. Students who live in stressful environments – either caused by economic or emotional stress – may develop unique coping skills. These students are well suited to face a disruptive life event without faltering. Most people eventually adjust to life after a stressful life event. For example, it takes an average of two years for most custodial moms to get over the anxiety, depression

and anger associated with divorce. Although we do not know what the adjustment period is for moving, it stands to reason that students who are well versed in the experience or have lived in a stressful environment bounce back quicker than those who have not. Therefore, I hypothesize that students who have lived stressful lives because they are economically at risk are better prepared to turn a move into a positive experience. In this study, I expect to find that the most disadvantaged students will do significantly better in school after a move compared to relatively advantaged students.

4.5 Hypotheses

> *Hypothesis: For disadvantaged groups, some moves positively affect educational performance.*

4.6 Data, Sample, Measures

I employ the same data, sample and measures as used in Chapter 3. To avoid repetition, please see Chapter 3 for a complete discussion.

4.7 Analytic Strategy

To test the effect of moving on disadvantaged groups, I split the sample into advantaged and disadvantaged groups based on parents' education, family income and family composition. For each of these groups, I regressed academic performance on moving status, prior educational performance and student/family characteristics. I used ordinary least squares regression (OLS) to model the relationship between student descriptors and academic achievement. In these models, I include test scores in the 8th

grade as a control for previous academic performance. Thus, the unstandardized regression coefficients reflect the change in test scores between the 8th and 12th grades.

I separate the larger sample into smaller groups based on student and family circumstances in 1988. For example, I split the sample into income categories based the family income for the base year of the survey – 1988. When a group contained less than 30 members, I excluded it from the analysis. The baseline OLS regression results for analysis using the entire sample are included in Table 4.3.

4.8 Results

Analyses presented in Tables 4.1 and 4.2 suggest that students who are most at risk can benefit from certain types of moves. In particular, school moves appear to confer some benefit in particular circumstances. Children who live with parents or guardians whose highest level of education does not include a high school diploma appear to do better on standardized math tests if they made school changes yet remained in a stable residential setting ($b=1.413$, $p<.10$). The size of the coefficient is noteworthy. Even after controlling for prior performance on a similar standardized math test in 8th grade, students did better in 12th grade by a margin of 1.4 standard deviations.

Students who lived in families with low incomes also benefited from changing schools. I find that students whose family incomes were less than $3,000 were likely to increase math performance by 1.3 standard deviations and reading performance by 1.6 if they changed schools only ($b=1.363$, $p<.05$ and $b=1.633$, $p<.05$ respectively). Similarly, children whose parents' income was between $5,000 and $7,500 were likely see an increase in math competency if they made a combined residential and school change

(b=.258, p<.10). And, students whose families' income hovered around the poverty level ($15,000 to $20,000) were likely to see improvements in math performance if they changed schools between 8th and 12th grades (b=.373, p<.01).

Strong educational performance is often associated with a stable family life and households headed by two biological parents. Children who live with relatives that are not their parents or other guardians are particularly at risk because they have often suffered abuse or neglect, live in poverty, and live in large urban areas characterized by overcrowding. A disproportionate amount of these children in foster care are black (48 percent) and Hispanic (15 percent) (U.S. Department of Health and Human Services 2002). Between 1995 and 1999, 57 percent of children entering foster care transferred schools for non-educational reasons in the year following foster care placement (Conger and Rebeck 2001). However, some of these transfers have been linked to positive experiences. Conger and Rebeck (2001) found that children who entered foster care in New York City and made a school transfer had higher rates of attendance than those who did not transfer. I find similar empirical evidence with the NELS sample. Children who lived with a relative or other guardian in 1988 were likely to show improvements in reading and math test scores if they made both a residential and school move between 8th and 12th grades (b=.396, p<.05 and b=.375, p<.01 respectively).

Insert Tables 4.1 and 4.2 about here

4.9 Discussion

Most of the effect of residential and school moving can be linked to the types of persons who move and not to the act of moving (Pribesh and Downey 1999). However, I

assert that there is a direct, positive and significant effect of moving for some types of movers. From these analyses, I find evidence that for students who experience the most disadvantaged lives, school moves are often related to positive educational outcomes.

Residential and school mobility have been suggested as factors in the replication of social inequality (Scanlon and Devine 2001). A lack of affordable housing and a stagnant economy have contributed to a band of working poor and unemployed that is constantly on the move. This movement creates a 'churning' of transient students in schools that serve high proportions of poor students. Even though moving is stressful and creates a challenging environment to become upwardly socially mobile because economics, psychological resources and social relations are stressed, the strongest association of negative outcomes and moving is tied to the characteristics of the movers themselves.

I suggest that some moves do have a direct effect and that not all moves are bad moves. Moving, by definition, implies leaving one situation for another. It is plausible that the new situation is better than the one left behind and, thus, the move could benefit the movers regardless of the mover's characteristics. Changing residences and/or schools could afford students a fresh start in terms of new friendship networks, safer neighborhoods, better schools, more engaged guardians, and increased family financial resources.

These data suggest that for some students there is an association of school changes and improved educational performance. Students whose parents did not graduate from high school, had incomes below the poverty threshold, and/or lived with

persons other than their parents were likely to do better in school if they changed schools. Rumberger and Larson (1998) found that students who made 'strategic' school moves rather than 'reactive' school moves did better in school after the school change. Although we do not know why the group of students in this study moved, we do know that school changes did offer a benefit for some.

These findings offer some support for programs that encourage the most disadvantaged students to change schools in pursuit of better educational programs. The NCLB Act of 2001 offers one such opportunity. Schools that fail to make adequate yearly progress over three years time must release students to enroll in schools that are not failing. We know that schools that have the highest risk of not making adequate yearly progress serve a disproportionately poor and transient population. Transporting these students to schools that serve more affluent students and have better prepared teachers is a kind of move that offers underserved students a fresh start.

These analyses, although they offer some supportive evidence for school choice programs, are far from complete. The reader will notice that some students below the poverty threshold benefited from school moves. However, students in some income bands did not report benefits. I am not sure why school moves would benefit students whose parents made less than $3,000 but not those that made between $3,000 and $5,000. Likewise, one could argue that students whose parents did not have a high school diploma are similarly taxed as those who live with parents who just have a high school diploma. The average earning potential for those with and without a high school diploma

is practically the same. However, students who lived with parents with a high school diploma did not reap a benefit from making school changes.

The numbers of students in each analysis group are small. Only 35 students in the entire sample had parents with no high school diploma. The result for the group might have stemmed from a handful of students who made huge leaps in academic performance after a school move. Although the numbers of students in each group was relatively small, the analysis model was rigorous. I started with a model that explained the entire effect of moving for the sample as a whole.

One challenge to these analyses comes in the form of ceiling effects. Poor students were apt to start at the bottom of the standardized test score distribution and have plenty of room to increase in skill level over the four years time. Affluent students were more likely to have started near the top of the baseline measurement of reading and math competency and, thus, had less room to excel. NCES foresaw this problem and designed the standardized math and reading tests with longitudinal analyses in mind. They specifically took into account the limitations posed by ceiling and floor effects (U.S. Department of Education 1994). However, even with the instrument design and IRT construction, ceiling and floor effects do occur. Therefore, it is possible that with a different study design I might find that affluent students also reap some benefits if they make strategic school changes.

Variable	DN Graduate from HS		Family Income LT $3,000		Family Income $5,000-$7,499		Family Income $15,000-$19,999		Lives with Relative/Other	
	b	Std. Error	b	Std. Error	b	Std. Error	b	Std. Error	b	Std. Error
Moving Status										
Residence and School Move	.909	.562	.029	.217	.258	.141 +	-.126	.079	.375	.126 **
School Move Only	1.413	.714 +	1.363	.643 *	-.027	.202	.373	.118 **	-.167	.239
Residence Move Only	-.513	.436	.105	.154	-.108	.112	-.025	.058	-.026	.125
Student, Family and School Characteristics										
Math Test Score, 8th Grade	.599	.184 **	.867	.112 ***	.801	.065 ***	.782	.027 ***	.762	.063 ***
Female	.038	.319	.146	.142	.037	.099	-.054	.049	-.012	.101
Family SES	-.192	.235	-.004	.141	.242	.099 *	.159	.054 **	.028	.064
Lives with Two Biological Parents	1.864	1.029 +	.230	.170	.044	.108	.046	.048	na	na
White	-.760	.340 *	.007	.186	-.071	.139	-.002	.065	.017	.135
Public School	-1.823	.763 *	-.695	.683	-.098	.349	.007	.096	-.285	.228
Urban	-.948	.429 *	-.196	.183	.132	.132	.076	.063	.173	.137
West	-1.231	.538 *	.063	.207	.058	.135	.007	.059	-.072	.148
Percent Free & Reduced Lunch Eligible	.209	.087 *	.074	.044 +	-.024	.029	-.025	.014 +	-.021	.031
Percent Minority in School	-.313	.112 *	.030	.041	-.053	.033	.024	.016	-.035	.035
Enrollment in 8th Grade	.303	.207	-.002	.045	.006	.040	-.022	.018	.067	.037 +
Student and Parent Relationship, 8th Grade	-.210	.182	.003	.066	.096	.047 *	-.012	.025	-.098	.052 +

Continued

Table 4.1. Unstandardized Regression Coefficients from the Regression of Math Test Scores in Twelfth Grade on Moving Adjusting for Student, Family and School Characteristics

Variable	DN Graduate from HS		Family Income LT $3,000		Family Income $5,000-$7,499		Family Income $15,000-$19,999		Lives with Relative/Other	
	b	Std. Error	b	Std. Error	b	Std. Error	b	Std. Error	b	Std. Error
Student and Parent Relationship, 12th Grade	.438	.194 *	-.016	.064	-.017	.045	-.033	.024	.017	.055
Student and Peer Relationship, 8th Grade	.381	.167 *	-.178	.073 *	-.006	.047	-.057	.023 *	-.092	.053 +
Student and Peer Relationship, 12th Grade	.079	.130	-.029	.065	-.020	.044	.047	.023 *	.095	.044 *
Parent Married	1.126	.660	-.112	.202	.065	.129	-.099	.078	-.055	.130
Locus of Control, 8th Grade	.557	.217 *	.135	.087	-.062	.059	.001	.028	.149	.061 *
Locus of Control, 12th Grade	-.522	.269 +	.016	.077	.136	.051 **	.119	.030 ***	-.052	.057
Self Esteem, 8th Grade	-.077	.199	.047	.077	.094	.059	.047	.028	.086	.059
Self Esteem, 12th Grade	.224	.303	-.017	.078	-.008	.056	-.034	.029	.128	.062 *
Constant	1.772	.530	-.073	.693	.387	.359	.132	.115	-.007	.226
N	35		92		163		539		138	
R^2	.894		.611		.685		.712		.727	

Table 4.1. Unstandardized Regression Coefficients from the Regression of Math Test Scores in Twelfth Grade on Moving Adjusting for Student, Family and School Characteristics

Variable	Family Income LT $3,000 b	Std. Error	Lives with Relative/Other b	Std. Error
Moving Status				
Residence and School Move	.204	.266	.396	.160 *
School Move Only	1.633	.771 *	-.358	.306
Residence Move Only	.108	.188	-.068	.160
Student, Family and School Characteristics				
Reading Test Score, 8th Grade	.792	.132 ***	.590	.078 ***
Female	.003	.173	.218	.130 +
Family SES	.203	.169	-.094	.083
Lives with Two Biological Parents	.106	.203	na	na
White	-.104	.224	.146	.175
Public School	-.780	.800	-.596	.290 *
Urban	.013	.223	.083	.178
West	-.137	.251	.036	.190
Percent Free & Reduced Lunch Eligible	.076	.053	-.048	.039
Percent Minority in School	-.044	.049	-.025	.044
Enrollment in 8th Grade	.013	.054	.088	.047 +
Student and Parent Relationship, 8th Grade	.091	.077	-.105	.066
Student and Parent Relationship, 12th Grade	-.054	.076	.012	.069
Student and Peer Relationship, 8th Grade	-.050	.088	-.148	.069 *
Student and Peer Relationship, 12th Grade	.041	.080	.114	.056 *
Parent Married	-.325	.246	-.136	.166
Locus of Control, 8th Grade	.018	.105	.013	.079
Locus of Control, 12th Grade	.089	.100	.025	.073
Self Esteem, 8th Grade	-.056	.095	.184	.076 *
Self Esteem, 12th Grade	-.034	.095	.019	.080
Constant	.741	.826	.031	.288
N	92		137	
R^2	.617		.595	

Table 4.2. Unstandardized Regression Coefficients from the Regression of Reading Test Scores in Twelfth Grade on Moving Adjusting for Student, Family and School Characteristics

Variable	Math Test Scores b	Math Test Scores Std. Error	Reading Test Scores b	Reading Test Scores Std. Error
Moving Status				
Residence and School Move	-.036	.023	.000	.028
School Move Only	-.030	.026	-.048	.032
Residence Move Only	-.027	.015	-.008	.019
Student, Family and School Characteristics				
Test Score, 8th Grade	.732	.007 ***	.637	.008 ***
Female	-.102	.012 ***	.051	.015 **
Family SES	.121	.009 ***	.119	.011 ***
Lives with Two Biological Parents	.029	.013 *	.020	.015
White	-.015	.016	.029	.019
Public School	-.097	.021 ***	-.083	.026 **
Urban	-.002	.015	.038	.018 *
West	-.011	.015	.052	.019 **
Percent Free & Reduced Lunch Eligible	-.002	.004	-.003	.005
Percent Minority in School	-.005	.004	-.007	.005
Enrollment in 8th Grade	.015	.005 **	.023	.006 ***
Student and Parent Relationship, 8th Grade	.008	.006	.006	.008
Student and Parent Relationship, 12th Grade	.012	.006 *	.005	.008
Student and Peer Relationship, 8th Grade	-.046	.006 ***	-.039	.007 ***
Student and Peer Relationship, 12th Grade	.034	.006 ***	.036	.007 ***
Parent Married	-.058	.021 **	-.037	.026
Locus of Control, 8th Grade	.028	.007 ***	.047	.009 ***
Locus of Control, 12th Grade	.066	.007 ***	.093	.009 ***
Self Esteem, 8th Grade	.005	.007	-.004	.009
Self Esteem, 12th Grade	-.011	.007	-.015	.009
Constant	.124	.026	-.044	.032
N	8,852		8,846	
R^2	.717		.571	

Table 4.3. Unstandardized Regression Coefficients from the Regression of Math and Reading Test Scores in Twelfth Grade on Moving Adjusting for Student, Family and School Characteristics: Baseline

CHAPTER 5

GOOD MOVES/BAD MOVES: CHANGING SCHOOLS AS A TEST OF SCHOOL CONTEXT

5.1 Abstract

The relative importance of school context has been debated for decades with a large portion of scholarly research indicating that school context does not matter (Coleman et al. 1966). Recently, several researchers have argued that school context does matter, noting effects associated with attending Catholic schools or schools with high proportions of students living in single parent families or poverty (Pong 1998, Gamoran 1992). The school context debate is still active and is influenced by the advent of new statistical methods, data, and analytic approaches.

In this paper, I add to this debate by examining the effect of school context in a methodologically different manner than that typically used in the past. I study 406 high school students -- all of whom changed schools between 10^{th} and 12^{th} grades and, thus, changed school contexts. I compare students who made positive moves (bad school context to good school context) with those students who moved between similar contexts and those who made negative moves (good school context to bad school context).

I hypothesize that changing school context influences students' math and reading test scores. Specifically, I hypothesize that students' math and reading test scores would decrease for students who made negative moves and increase for those who made positive moves.

I measured school context several ways: percent average daily attendance, percent of students who have limited English proficiency, percent of school graduates that go to college, percent in college preparation programs, percent of students with single parents, and problems with weapons, alcohol or drugs at the school. Overall, the findings indicate that school context has little to no impact on school changers' test scores.

GOOD MOVES/BAD MOVES: CHANGING SCHOOLS AS A TEST OF SCHOOL CONTEXT

The Coleman Report noticeably stirred the school effects debate by suggesting that, based on a national study of U.S. school children, schools make little difference (Coleman et al. 1966). Shortly thereafter, Coleman and his colleagues modified their position and argued that Catholic schools have certain characteristics that do make a difference (Coleman and Hoffer 1987, Coleman, Hoffer, and Kilgore 1982, Hoffer, Greeley, and Coleman 1985). Thus, the school effects debate has proceeded in fits and starts as new statistics, measurement and data have been introduced to shed light on the question: Do schools affect students' educational performance?

In this paper, I introduce another approach to testing the effect of school context on student achievement. Specifically, I examine students who change schools and the resulting academic consequences of changing from one school context to another. I compare students who change schools to other students who change schools – not to students who stay put. This is an important distinction because just like students who choose to attend Catholic schools are different than those who choose to attend public schools, students who change schools are inherently different than those who do not.

Specifically, I compare students who made positive school moves (moved from a 'bad' to 'good' school context) with those students who moved between comparable school contexts and those who made negative school moves (moved from a 'good' to 'bad' school context). As with most mobility research, these analyses are vulnerable to selection bias. Students who make positive changes may not be like those who make

negative changes. I explore these differences as well as control for student characteristics that existed prior to the school changes.

This research is timely because No Child Left Behind Act of 2001 seeks to strengthen systems of accountability that, in turn, may lead to expanded school choice programs. An increase in school choice mechanisms could result in increased student mobility as students' exit failing schools. However, we currently have limited evidence as to whether school context has a significant effect on educational performance. It would be nice to know if moving to a different school can really help student achievement.

5.2 School Effects

Students, parent, teachers, politicians, real estate agents and policy makers alike seem to believe that schools, and the differences between them, impact students' educational performance. However, the evidence concerning school effects is mixed. Research conducted in the 1960s indicated that schools make little difference once ability and family background are considered (Coleman et al. 1966), but newer analyses suggest that school context may matter (Pong 1998).

Economic researchers have contributed greatly to this debate because they are often concerned with measuring the effectiveness of schools in terms of the amount of money invested in schools and the school resources available to students and teachers (Hanushek, Kain, and Rivkin 1999). However, most economic studies find that school level spending per pupil and teacher-pupil ratio provides very small returns to student outcomes. Peltzman (1998) notes that instead of increasing students later earnings by

reducing class size, administrators might be better off buying bonds for children at the start of their school careers and giving them the proceeds upon graduation.

However, with the advent of more sophisticated statistical techniques and appropriate data, other research has made a stronger case for the school environment. Willms (1985) and Gamoran (1992) found that schools that contain a large population of advantaged students enhance the learning environment and achievement for all students in the school regardless of individual characteristics. Lee and Bryk (1989) found that attending a school with a large proportion of academically at risk students and minority populations had a negative effect on individual academic achievement. Other researchers have 'controlled' for school characteristics but concentrated on student characteristics because of the typically weak effect of school context.

In 1998, Suet-ling Pong examined the school compositional effect of single parenthood on 10th grade achievement. She controlled for a broad range of student and family characteristics that are often linked to student performance as well as school composition. In her study, she found a direct and negative effect of attending a school with other students from single parent families – regardless of the individual students' characteristics and family context. Using the NELS data and multivariate, multilevel analysis techniques, she moved the school effects literature forward by providing strong evidence that school context does matter (Pong 1998).

In this chapter, I build on Pong's (1998) work by looking at the compositional effect of school context and it's independent effect on student achievement. If school context does matter, students will be more likely to do poorly in school as their school

contexts change from positive to negative learning environments or do well in school as their context changes from negative to positive.

5.3 Moving

Data from the National Education Longitudinal Survey from 1988 indicates that 31 percent of 8th graders in the U.S. had changed schools two or more times between the first and eighth grades excluding changes made for grade promotion. Once in high school, over 10 percent of students changed schools two or more times (Smith et al. 1995). The General Accounting Office (1994) found that the movement was even more intense with more than 40 percent of third graders having changed schools at least once since first grade. Seventeen percent of these school switchers had changed two or more times. And, Rumberger and Larson (1998) found that over 25 percent of high school students changed schools between the eighth and twelfth grades excluding grade promotion.

Although Rumberger and Thomas (2000) suggest that most school turnover can be linked to negative educational outcomes, there is mounting evidence that students are changing schools to take advantage of better academic programs and school environments. Traditionally, students were assigned to a neighborhood school and remained in that school until graduation or expulsion. With the advent of magnet schools and other desegregation programs, parents and students were given choices about school attendance. Local choice programs have proliferated as parents and students demand a market place of selections in the education arena (Chubb and Moe 1990, Hoxby 1996, Neal 1997). The Supreme Court's recent support of the Cleveland Voucher Program

promises to open up private as well as public schools as viable alternatives for attendance (RAND 2003). In addition, the No Child Left Behind Act of 2001 offers federally mandated opportunities for students to seek effective schools.

Swanson and Schneider (1999) found that there is a long-term benefit to changing schools early in high school. They found that 20 percent of students who changed schools between 8th and 10th grade with D average and behavioral problems were likely to drop out of high school. However, students who did not move but had similar academic and behavioral profiles were 70 percent more likely to leave school than that of 'good' students. They suggest that students who change schools have a renewed commitment to obtaining a high school diploma.

The same researchers found no benefit associated with changing schools later in high school. However, they compared all school changers with non-changers. In other words, the effects of positive and negative school moves were lumped together and may have confounded the analyses. In this chapter, I examine positive and negative moves separately.

5.4 Moving and School Context

I advance the study of school context by examining the effect of changing schools. Specifically, I study a group of students that move from a positive to negative school environments—and vice versa. I expect to find that students who move from negative to positive environments will do better in school. Conversely, I expect that students who move from positive to negative environments will do worse.

Recent research on residential neighborhoods lends mixed support for this expectation. Leventhal and Brooks-Gunn (2004) studied school aged children who changed residential neighborhoods as part of the experimental Moving to Opportunity for Fair Housing Demonstration (MTO). They found that 11-18 year old boys did better in school after they moved to low-poverty neighborhoods as compared to their peers who persisted in high poverty neighborhoods. The change in neighborhoods was enough to close the gender gap in achievement scores.

These findings are encouraging, however, other researchers using data from the same program have not found the same benefits. Sanbonmatsu et al. (2004) found that reading and math scores were not significantly different among the treatment groups. Kling and Liebman (2004) found that boys and girls reacted differently to the relocation. Girls whose families used housing vouchers showed increases in mental health and were less likely to engage in risky behaviors. However, their brothers did not glean these gains and short-term reductions in delinquency were gone within three to four years (Kling, Ludwig, and Katz 2004).

One message from neighborhoods research is that measuring the effect of changing contexts can be tricky because the effects may not be easily isolated or immediate. Although the MTO program was heralded as a social experiment where families were randomly assigned to new living environments, the reality is that a large proportion of the families moved back to high poverty neighborhoods or did not take advantage of housing related services, confounding the experimental manipulation. Often students did not change schools or attend 'better' schools. Thus, the changes in neighborhood contexts were not as widespread or comprehensive as the program

administrators had planned. Unlike the MTO sample, the students I examine made pronounced school contextual changes.

Moving is a stressful transition that, like other stressors, requires an adjustment period. Even students who move to a positive school context must learn to navigate new school systems and establish friendship networks (Lash and Kirkpatrick 1990). Although each person's adjustment period is unique, students are usually integrated into a school system within weeks. I examine moves that occur between the 10^{th} and 12^{th} grades. And, although the precise timing of the moves is not certain, we can be assured that most students for which we have data had been in their new schools for months and were unlikely to be experiencing an acute adjustment period at the time of the student interview and test administration.

In this chapter, I examine students that change schools between the 10^{th} and 12^{th} grades to test of the influence of school context. These moves are not natural school transitions as one would expect between junior high school and high school. Rather, the moves are out of sequence from normal school transitions and may be accompanied by changes in residence. Even though motivations and circumstances surrounding the moves differ, I hypothesize that 'positive' moves will increase, whereas 'negative' moves will decrease, student test scores.

5.5 Hypotheses

Hypothesis 1: Changing schools – thus changing school contexts – affects student achievement.

- *Hypothesis 1a: Moving from a positive school environment to a negative school environment will have a negative effect on student achievement.*
- *Hypothesis 1b: Moving from a negative school environment to a positive school environment will have a positive effect on student achievement.*

5.6 Data

I use data from the National Education Longitudinal Study: 1988 (NELS) to investigate possible benefits from moving. NELS is a nationally representative sample of U.S. adolescents who were in the 8th grade in 1988, the 10th grade in 1990 and 12th grade in 1992. The National Center for Education Statistics (NCES) worked with the National Opinion Research Center (NORC) to design and collect information from approximately 25,000 students and their parents, teachers, and administrators in 1988. In 1990 and 1992, the same students were reinterviewed when most of them were in the 10th and 12th grades respectively (Ingels, Scott, and Taylor 1998).

The NELS data are appropriate for this study because they contain information about students' academic history, mobility, schools, and families. School administrators provided information about the schools so we can describe the school culture in some detail. The longitudinal design offers the capability to examine changes over time while controlling for other influential factors. NELS used a multi-stage sampling design that randomly selected students within approximately 1,000 public and private schools. In ensuing years, students and schools were added to ensure that the sample was representative of the national population of students.

5.7 Sample

I analyze data from 406 students who changed schools between the 10th grade and 12th grade and had completed student administrator surveys for both schools. The NELS 10th grade survey collection concentrated on 1,500 schools and collected information from 18,726 students. NCES's original intention was to follow each student from 10th to

12th grade. However, the students dispersed much more widely than NCES had anticipated. When dropouts, early graduates, institutionalized, and home study students were discounted, they found that students had scattered to 2,258 locations. NCES attempted to collect student data from all the students who had been in the 10th grade wave, but limited their school data collection to 1,500 schools. The end result was that they collected student administrator questionnaires describing 1,374 schools.

NCES identified 1,368 students who switched schools between the 10th and 12th grade data collection waves. Of those students, 406 attended schools that were targeted for the contextual analysis. Although the public use data does not include school identification codes for the new schools in 1992, they do contain a weight that indicates if the school was included in the contextual analysis. Using the school transfer flag, F2F1FLG, and the school context weight, F2CXTWT, I identified the 406 students. I do not replace variable missing values and use listwise deletion of cases that had missing data (Cohen and Cohen 1983)[5].

The reader should note that although the sample affords us a unique comparison, it also restricts the generalizability of these analyses. The 406 students who changed schools were not randomly selected from the study sample and, thus, are not similar to the national sample of students who persisted in the study from 1988 to 1992. The school changers were less likely to live with two biological parents (48 percent versus 62 percent) or be white (66 percent versus 72 percent) than the nationally representative

[5] In separate analyses, I replaced missing values using stratified mean replacement and linear interpolation replacement routines. The results did not vary from those presented without missing values replaced.

sample of 10th graders. On average, school changers lived in families with lower SES and they had lower test scores, self-esteem and locus of control.

A subset of the sample answered a series of questions about why they switched schools (259 of the 406 students). Most students (45 percent of the respondents) indicated that they changed schools because their family had moved. A large proportion of the students (41 percent) answered that they had requested a transfer to a new school. Transfers made as a result of disciplinary problems, academic problems and/or school closure were rare. Some students indicated that they switched to take advantage of special courses (15 percent) or programs (9 percent).

Not surprisingly, the sample was more mobile than the larger student population. Approximately 60 percent of the students reported having made a family residential move between 8th and 12th grade; 26 percent moved more than once during that time. Almost 24 percent of the sample had changed schools two or more times in the four-year period. Their parents reported that 32 percent of the students had changed schools three or more times between the 1st and 8th grades.

As I mentioned earlier, the timing of student moves is not exactly known. However, the follow-up sample procedures and data collection logistics required that students be identified in their new schools months before the actual data collection occurred. This gives us some assurance, but no certainty, that students had been in their new schools for at least a few months and perhaps for as long as two years. The relative longevity at a school could be important. Brand new students are likely to be enmeshed in a transition period that may impact educational performance. Students who moved two years prior, on the other hand, are likely to have had sufficient time to flourish or

flounder based in part on the school context. Given the timing of the data collection, these analyses are unlikely to be unduly influenced by students who made very recent (less than two months) school changes prior to the data collection.

5.8 Measures

In Tables 5.1, 5.2 and 5.3, I describe the measures used in these analyses including means and standard deviations.

5.8.1 School Context Changes

In 1990 and 1992, school administrators were asked to describe their schools' environments[6]. Using these responses, I constructed variables that indicate if schools were characterized as having 'high' or 'low' contextual dimensions. In Table 5.2, I describe the school contextual variables and the high/low demarcations in detail.

Average daily attendance impacts schools' budgets and learning environments. Schools with high levels of student absenteeism find that on a day-to-day basis they are servicing different groups of students. These schools often fall off the curricular pacing schedules as they attempt to teach their sporadically present student body. Students who do attend school regularly have to contend with the slower pace and the omission of material that has to be skipped to make up time. Education policy makers are concerned about student attendance and have started linking it to high stakes evaluation criteria. Under most state accreditation guidelines, 95 percent attendance rate is necessary for full accreditation. Less than 95 percent average student attendance rate will also jeopardize

[6] Although school administers may contribute to some measurement error by inflating positive measures (i.e., college going) and deflating negative measures (i.e., use of weapons), their measures are superior to those reported by the various states. Grogger (1996) found that state-level responses create an aggregation bias that contorts estimates of school effects more so than school-level measurement error.

schools' adequate yearly progress. Thus, I labeled school contexts in which on average less than 95 percent of the student body attends as having a low average daily attendance context.

Schools who serve student populations with high proportions of limited English proficient (LEP) students must allocate resources to language instruction. Some urban school systems must contend with issues surrounding a student body that collectively speaks over 30 different languages. The reallocation of resources coupled with LEP students' low English reading competency can depress educational performance school wide. I identify schools with more than 25 percent of their student population considered LEP as having high levels of LEP concentration.

Schools that have high percentages of students that graduate and continue on with post-secondary education have, ostensibly, the proper resources to prepare students for college entry. I assert that when more students than not graduate from a high school and attend a four-year college or university, the climate of the graduating school must be encouraging or supporting that path. Thus, schools with more than 50 percent of graduates going onto four-year college programs were labeled as having a high college going context. Similarly, schools with more than 50 percent of students enrolled in a college preparation curriculum were labeled as having a high college preparation context[7].

Pong (1998) found that 10th grade students who attended schools where 10 percent or more of other students were living in single parented households were likely to

[7] Fewer than 30 students made the transition between schools with low to schools with high levels of enrollment in college preparatory courses and college going. Thus, these categories were excluded from the analyses.

have lower levels of student achievement than those students attending schools with fewer single parented families regardless of students' individual family structures. She asserts that the density of single parent households may disrupt the production of positive education social capital that negatively affects the school context. Therefore, I include principals' estimates of the proportion of students who live in single parented households. Even though Pong (1998) found an effect at 10 percent, I conservatively increased the proportion to 25 percent to take into account the relative independence of adolescents from their parents in the latter versus early years of high school. Therefore, I term schools that have less than 25 percent of students living in single parent households as having low single parent household contexts.

Many school districts have 'zero tolerance' policies regarding students who are found with weapons, drugs or alcohol on campus. Students are often suspended if found in possession of contraband and risk expulsion repeat offenses occur. Some systems immediately remove students to an 'alternate' school upon the first offence. The seriousness of each instance of drug, alcohol, or weapons infraction prompts a low threshold when considering measures of school context. If principals answered that there were minor, moderate or serious drug, alcohol or weapon problems at the school, I labeled the schools as having a 'high' contraband school context.

5.9 Analytic Strategy

To assess the effect of school context on academic performance, I examine a panel of school changers and their school contexts in the 10th and 12th grades. Using longitudinal data allows me to control for external factors that were present prior to the change.

Specifically, I identified students who changed schools and classified them as having switched from a positive to negative environment (or vice versa). I did this by determining which students attended a school in 10th grade with a 'high' school context threshold (described in the previous School Context Measures section) and who then moved to a school with a 'low' threshold. I did the same for those who changed from a low to high threshold and those that changed schools but attended comparable schools. Depending on the school context measure, I labeled the groups as having made positive or 'good' moves, negative or 'bad' moves, or comparable moves.

School changers were compared to other school changers in an ordinary least squares regression (OLS) equation that controlled for prior academic achievement and family characteristics. Thus, the model measures changes student achievement between the 10th and 12th grades as a result of moves that occurred sometime in between. This is a rigorous change model because I consider academic achievement in the 10th grade.

NELS data were gathered using a stratified random sample of schools in the United States. Random samples were drawn from each of these schools with some over sampling of historically, underrepresented populations. Therefore, students in the NELS studies are clustered within schools. This is important because we are interested in the effect of different school contexts and these 406 students could be nested within a small

subset of schools that would, in essence, homogenize school context. Normally, one would use hierarchical linear modeling to control for students who are clustered in groups; however, we do not have a school identification code for the schools to which the students moved in the 12th grade. Thus, we cannot determine with certainty where students were enrolled in the 12th grade in terms of school identification code but do have the school administrators' responses describing the 12th grade schools linked to the student records.

A breakdown of the sample enrollment does indicate that students were not clustered in schools in a significant way in the 10th grade. Researchers commonly use a threshold of five students as a large enough group to form aggregate effects. In this sample, only two schools contained more than five analysis peers (9 students in one, 14 students in another). These 406 students then moved to other schools before the data collection in the 12th grade. Given their wide dispersal before moving, I expect that students did not cluster in a meaningful way in the 12th grade. Thus, OLS is an appropriate statistical technique for these analyses.

5.10 Results

Tables 5.4 to 5.11 contain the results of regressing student achievement in the 12th grade on school contextual changes and student/family characteristics. I highlight the significant school context effects so the reader can locate them easily.

Average daily attendance rates (ADA) are critical to broad student preparation, schools' budgets and accreditation status. A common acceptable threshold of student ADA is 95 percent of the student body in attendance. Therefore, I examined

students who changed schools from schools where more than 95 percent of students came to school every day to those where less than 95 percent attended. When students switched from higher ADA schools to lower ADA schools, their standardized math test scores declined ($B=-.137$, $p<.10$). Given that math is commonly taught in a sequential progression, teachers with chronically absent students may be forced to backtrack and reteach material as students reappear. However, the change in school context did not affect reading test scores. And, students who changed from low to high ADA schools did not realize any benefit. In some situations the level of significance ($p<.10$) could be considered low and unremarkable. However, with a modest sample size of 406 students, statistical significance is hard to achieve. Thus, it is appropriate for these analyses to highlight results that met this level of significance.

The findings concerning average daily attendance should not be considered robust. In additional analyses, I examined other daily attendance thresholds to determine optimum daily attendance school context. These analyses were limited because very few students moved in and out of schools with high levels of average daily attendance (97 percent or more). Most students attended schools that reported attendance rates between 92 and 96 percent. I examined the impact of average daily attendance on students who moved from schools with less than 90 percent to schools with more than 90 percent (and vice versa) and found no significant gains or decreases. Similarly, I looked at students who moved between schools with a 94 percent average daily attendance rate and found no significant results.

The 95 percent ADA threshold is one that is driven by accreditation policies and was the rate most commonly reported by school administrators. My findings concerning

changing to a school with less than a 95 percent average daily attendance rate are in some respects an artifact of those policies. And, schools that are reaching attendance thresholds are likely to be meeting other goals – such as teacher attendance rates, proportion of high qualified teachers, and proportion of students meeting proficiency levels. Thus, in these analyses, 95 percent average daily attendance rate may be a proxy for meeting accreditation thresholds and not, in fact, a true measure of the impact of daily attendance.

The proportion of limited English proficient (LEP) students in a school is often negatively correlated with reading proficiency levels for the school. As such, Table 5.5 reports the findings from regressing student performance on changes in proportions of LEP students. I find that moving between schools that have different levels of LEP students compared to moving between schools that have similar levels, is not likely to have a significant effect on students' math and reading test scores.

I hypothesized that high percentages of students who are enrolled in college preparatory curricula and the numbers of students who continue onto postsecondary education might shape the context of the school. When students move from schools where 50 percent or more of students are preparing to go to college to schools where less than 50 percent of students are preparing to go to college, they may shift from a school with high academic expectations to one with low expectations – and possibly – less challenging classes. Table 5.6 reports that students who moved from schools were high proportions of students attended postsecondary education to schools with a low proportions were likely to see a significant reduction in reading test scores ($B=-.218$, $p<.05$). However, my findings do not present strong support for college preparatory

context mattering for individual student performance. Changes in percent enrolled in college preparatory classes (see Table 5.7) had no significant effect on math and reading scores.

Again, the nominal finding that reading test scores may decline after moving to a school with fewer than 50 percent future college attendees are not robust. In additional analyses, I examined other thresholds and found that moving in and out of schools with college going rates of 25 percent and 75 percent did not impact test scores significantly[8]. I also studied students that moved from schools with 75 percent college going to 50 percent college going and found no negative impact on academic achievement. This does not lend support to the notion that significant school context changes have an impact on educational performance.

Pong (1998) found that students who attended schools with 10 percent or more students living in single parented households showed decreased educational performance regardless of individual students' family compositions. However, I find no statistically significant effect of moving to or from schools where 25 percent or more of students live in single parented households. Similarly, I find that students who moved to or away from schools where principals thought alcohol, drugs, or weapons were problems were not likely to do any worse or better than those students who moved between schools with similar contexts[9].

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[8] Due to small sample sizes, I could only examine students that made high to low moves. In each instance, fewer than 30 students moved from lower to higher college going contexts.

[9] Students did not necessarily have to change schools to change school contexts. In some schools, the environments in schools changed over the two-year period between 10th and 12th grades. I conducted additional analyses with the entire NELS 10th to 12th grade panel (approximately 11,200 students) to determine if changing school context, and not changing schools per se, impacted test scores. These analyses included school changers and school stayers and compared them to those students for whom their

Insert Tables 5.4 to 5.11 about here

5.11 Discussion

Does school context affect student achievement? Although students, parents, teachers and practitioners may commonly believe that school context does matter, the evidence to support this notion is mixed. This study attempted to examine the question from the perspective of school movers. Based on these findings, I note little systematic evidence to support the claim that school context matters. On the whole, changing from negative to positive school contexts, or the reverse, has no statistically significant impact on students' math and reading test scores.

There were some exceptions but these findings were not robust. Students who moved to schools with low average daily attendance rates were likely to have statistically significantly lower test scores than those students who switched to schools with similar or higher attendance rates as their originating schools. Ostensibly, this occurred because math is taught in a sequential manner and lower attendance rates tend to knock teachers off pace. Another potential contributor to the decrease in scores could be linked to teacher experience. Teachers that are employed by schools that struggle with attendance rates are often less experienced and/or qualified than those who teach in well attended schools. Regardless of the underpinning causes, the findings indicate the importance of encouraging students to attend school because student absence could be contributing to a climate of lower student achievement.

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school context did not vary in the two-year period. I found that, for the most part, school context changes had no significant impact on student test scores. There were some surprising exceptions. Students whose school contexts changed to include more drugs and alcohol were likely to do slightly better on reading tests (B=.080, p<.000 and B=.068, p<.001 respectively).

Interestingly, changing proportions of students enrolled in college preparatory classes had no statistically significant effect on student achievement, but changing proportions of students going on to postsecondary education did. I found that students who attended schools where high proportions of students enrolled in college or university programs after high school and then moved to schools where low proportions went on to post secondary education were likely to experience declines in their reading scores. It appears that offering and enrolling students in college preparatory courses is not enough to foster school climates that impact student achievement.

This study has limitations. One is that students who make positive school changes may be inherently different from those students who make negative school changes. Just like movers and non-movers are different, the motivations and life circumstances surrounding school moves may vary considerably. But in my study this concern is not easily observed. In additional analyses, I compared student and family characteristics of the 53 students who moved from schools with high concentrations of single parented families to low concentration schools with the 56 students who made the reverse move. The two groups had statistically similar means in terms of proportion white, percentage living with two biological parents, family SES, proportion female, levels of locus of control and self concept, and size of school attended. Therefore, for the most part the two groups were similar.

The two groups, however, differed at the $p<.10$ level on student achievement. Those who made negative school moves had significantly higher average 10^{th} grade math and reading test scores (standardized scores, averages: math =.141 and reading = .072) than students who made positive moves (standardized scores, averages: math = .009 and

reading = -.051). Ostensibly the difference is because students who made negative moves were attending schools in the 10th grade that were conducive to academic achievement. By the 12th grade, the achievement gap persisted but narrowed. Students who made negative moves still scored higher, on average, than did those who started in 'negative' school contexts and made positive moves (standardized scores, averages: negative movers – math=.109 and reading=.090, positive movers – math=.004 and reading = .039). Again, these differences in mean levels of student achievement were significant at the p<.10 level –but barely[10].

In this study, I measured moves during a two-year period. However, the timing of the moves is uncertain. As I stated, I believe that there were fairly few very recent moves reflected in the sample. However, the inability to pinpoint the timing of the school changes introduces measurement error. It is conceivable, but not likely, that all the students changed schools over the summer and were absorbed into the new student bodies with relatively little fanfare. This smooth transition should shorten the adjustment period. However, it is equally conceivable that all the students sampled made unexpected moves in the final months of their senior year. These analyses would be stronger if I could specify the tenure of students at the schools.

Because NCES did not track all movers to their new neighborhoods and schools, it is likely that movers, specifically long-distance movers, are under-represented in this sample. Long-distance movers were more likely to be 'lost' than those who made local

[10] I chose single parent composition for this comparison because the numbers of students who made both positive and negative moves were similar in size. However, I conducted similar comparisons for the other groups. On the whole, the demographics of the groups were similar. I did find that students who moved to schools that had weapons problems were more likely have also moved to schools where drugs and alcohol were problems. This may reflect the true nature of the school environments or the biases of the school administrators that grouped the problems. Analysis available upon request.

moves. This is important because distance of move is often correlated with the reason for moving. Most moves that are associated with poverty or school expulsion are local moves. Long distance movers are more likely to be white, middle-class and moving in search of better employment (South and Crowder 1997).

Most school changes are accompanied by residential moves. Forty-five percent of students in this sample who were asked about the reason they switched schools said that their family had moved. Thus, these students were introduced not only to new school contexts, but also to new neighborhoods. The effects that I do find, as nominal as they are, may have stemmed from neighborhood effects and not school effects. Recent research from the MTO program indicates that neighborhood effects are not strong enough to influence student outcomes (Sanbonmatsu et al. 2004).

These findings merely remind us that the analyses presented in this paper inform us about the effect of school context on school changers and not on the student population as a whole. In fact, one might argue that school context affects movers and non-movers differently. Future research is needed to determine how the motivations and experiences associated with school moves and school context might impact educational performance differentially from school stayers.

Capturing school effects is difficult due to confounding factors and the non-experimental nature of the educational system. School effects could be better ascertained if students were randomly selected from the U.S. population and randomly assigned to schools while family mobility was restrained. In the U.S. society that type of experiment is not feasible. Instead, researchers should look to instances where populations might be manipulated. For example, students who attend schools-within-schools could be

randomly reassigned among the subunits to assess the impact of changing school contexts – albeit within a larger school structure.

This study highlights the need for a better understanding of the school changing process. Already, data collections such as the Adolescent Health Survey are illuminating adolescents' friendship networks and school-based lives (South and Haynie 2004). We need to go further and delve into the nature of adolescent transitions between school contexts as well as their adaptability and susceptibility to those contexts. Just as researchers are finding that adolescent romantic networks are not like adults, we may find that adolescent transition and coping strategies differ. In addition, researchers should examine change over a greater period of time. It is plausible that adolescents do not realize gains from changing schools in a two-year time frame, but do so over a longer period of time.

The collective public wants great schools for our children but these findings lend little credence to the idea that schools matter. Instead, these analyses urge us to consider what constitutes a good school. Does high daily attendance and proportion college going adequately capture what we want from our schools? Policy makers, through the NCLB Act of 2001, are focusing attention on teacher quality and engagement in addition student outcomes. Future research should take this cue and examine the role of teachers as well as students in the schooling process. If school context truly does not matter, the definition of a good school needs to be redesigned. Good schools might come to be defined as ones where students are actively engaged and learning even when they are absent. And, if one is to believe that school context does not matter, as these findings

appear to indicate, then valuable resources currently spent on policing zero tolerance policies can be redirected to cultivating students and teachers in a boundary-free educational experience.

	Samples					
	Changed Schools			1988 - 1992 Panels		
Variable	n	Mean	Stnd Dev	n	Mean	Stnd Dev
Student, Family and School Characteristics						
Math Test Score, 10th Grade	380	-.14	.938	14,301	.00	1.000
Math Test Score, 12th Grade	325	-.11	.953	12,021	.00	1.000
Reading Test Score, 10th Grade	380	-.11	.982	14,312	.00	1.000
Reading Test Score, 12th Grade	327	-.06	1.001	12,020	.00	1.000
Female	406	.52	.500	14,880	.51	.500
Family SES, 10th Grade	406	-.01	.818	14,880	.08	.805
Lives with Two Biological Parents, 10th Grade	406	.48	.500	14,880	.62	.485
White	402	.66	.473	14,753	.72	.448
Locus of Control, 10th Grade	386	-.05	.636	14,332	.06	.618
Self Concept, 10th Grade	387	-.05	.750	14,346	.02	.680
Attended Public School in 10th & 12th	406	.72	.448	14,880	.83	.373
Attended Private School in 10th & 12th	406	.07	.254	14,880	.14	.346
Attended Urban School in 10th & 12th	406	.30	.458	14,880	.27	.444
Attended Suburban School in 10th & 12th	406	.23	.422	14,880	.38	.486
Attended Rural School in 10th & 12th	406	.15	.360	14,880	.31	.461
Attended School in West in 10th & 12th	406	.25	.433	14,880	.19	.390
Tenth Grade Enrollment	402	3.59	1.942	14,850	3.38	1.840
School Context Change						
Change in ADA - Low to High	406	.11	.311			
Change in ADA - High to Low	406	.08	.277			
Change in Percent LEP-High to Low	406	.11	.314			
Change in Percent LEP-Low to High	406	.09	.285			
Change in Percent College Going-High to Low	406	.13	.332			
Change in Percent College Prep-High to Low	406	.12	.326			
Change in Percent Single Parent-High to Low	406	.13	.337			
Change in Percent Single Parent-Low to High	406	.14	.345			
Change in Weapon Problems-High to Low	406	.08	.270			
Change in Weapon Problems-Low to High	406	.20	.400			
Change in Alcohol Problems-High to Low	406	.11	.317			
Change in Alcohol Problems-Low to High	406	.14	.348			
Change in Drug Problems-High to Low	406	.12	.320			
Change in Drug Problems-Low to High	406	.16	.365			

Table 5.1. Variable Means and Standard Deviations.

VARIABLE	Wording of School Level Question: Tenth Grade	Wording of School Level Question: Twelfth Grade	High (H) /Low (L)
Percent Average Daily Attendance (ADA)	What is the average daily attendance rate for students in your school this year? (Include both excused absences and unexcused absences in figuring this rate.)	What is the average daily attendance (ADA) rate for 12th grade students in your school this year? Include both excused absences and unexcused absences in figuring this rate. [% Average daily attendance rate]	H: GTE 95% L: LT 95%
Percent LEP	What percentage of the tenth grade students is either Language Minority, or LEP/NEP? A Language Minority student is a fully English-proficient student in whose home a non-English language typically is spoken. This group includes students whose English is fluent enough to benefit from instruction offered in English.	What percentage of the current 12th grade students is LEP or NEP?	L: LT 10% H: GTE 10%
Percent College Going	What percentage of the 1988-1989 graduating class from your school is now enrolled in a regular four-year college or university? (If you do not know the exact percentage, please give your best estimate.)	Approximately, What percent of the 1990-91 graduating class went on to a four-year college? Please give your best estimate.	H: GTE 50% L: LT 50%

Continued

Table 5.2. Definition of School Contexts

Table 5.2 continued

VARIABLE	Wording of School Level Question: Tenth Grade	Wording of School Level Question: Twelfth Grade	High (H) /Low (L)
Percent College Prep	Approximately what percentage of your tenth grade students is in each of the following instructional programs?: College prep, academic, or specialized	Approximately what percentage of your 12th grade students is in each of the following instructional programs?: Percent of 12th grade student in college prep, academic, or specialized academic (such as science or math)	H: GTE 50% L: LT 50%
Percent Single Parents	What percentage of your tenth grade students would you estimate lives in a single parent home? (Please give your best estimate.)	What percentage of the current 12th grade students would you estimate lives in a single parent home? Please give your best estimate.	L: LT 25% H: GTE 25%
Problems with Weapons	Indicate the degree to which each of the following is a problem with students in your school: Possession of weapons	Indicate the degree to which possession of weapons is a problem with students at your school	L: Not a Problem H: Minor, Moderate or Serious Problem
Problems with Alcohol	Indicate the degree to which each of the following is a problem with students in your school: Use of alcohol	Indicate the degree to which use of alcohol is a problem with students at your school	L: Not a Problem H: Minor, Moderate or Serious Problem

Continued

Table 5.2. Definition of School Contexts

Table 5.2 continued

VARIABLE	Wording of School Level Question: Tenth Grade	Wording of School Level Question: Twelfth Grade	High (H) /Low (L)
Problems with Drugs	Indicate the degree to which each of the following is a problem with students in your school: Use of illegal drugs	Indicate the degree to which use of illegal drugs is a problem with students at your school	L: Not a Problem H: Minor, Moderate or Serious Problem

Table 5.2. Definition of School Contexts

Variables	Description	Range
School Context Change		
Change in School Context	I created a series of binary moving variables that describe school moves between the first and second follow-up data collections using a school transfer flag and a school context weight.	1 = Describes School Change 0 = Does Not
Student and Family Characteristics		
Math Test Score, 10th Grade	IRT number correct of math cognitive test administered in the Spring of 1988. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.05 to 1.89
Math Test Score, 12th Grade	IRT number correct of math cognitive test administered in the Spring of 1992. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.15 to 1.90
Reading Test Score, 10th Grade	IRT number correct of reading cognitive test administered in the Spring of 1988. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.16 to 1.73
Reading Test Score, 8th Grade	IRT number correct of reading cognitive test administered in the Spring of 1992. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.32 to 1.68
Female	I created a variable reflecting the students' sex from the base year composite sex variable. Male is the omitted category.	1 = Female 0 = Male

Continued

Table 5.3. Variable Names, Descriptions, and Ranges

Table 5.3 continued

Variables	Description	Range
Family SES	NCES created a socio-economic composite based on parents' reports of father's education, mother's education, father's occupation, mother's occupation, and family income in 1989. If parent data were missing, they used student reports of parents' education and occupation.	-1.97 to 2.01
Lives with Two Biological Parents	Based on the family composition in 1990, I created a binary variable reflecting with whom the student lives. Lives with other than two biological parents is the omitted category.	1 = Lives with two biological parents 0 = Lives with other guardian combinations
White	Using the base year racial composite variable, I created a variable reflecting the students' race. All other races is the omitted category.	1 = White 0 = All other races
Locus of Control, 10th Grade	NCES prepared a composite first follow-up Locus of Control variable using student responses when asked, How do you feel about the following statements….b) I don't have enough control over the direction my life is taking; c) In my life, good luck is more important than hard work for success; f) Every time I try to get ahead, something or someone stops me, g) My plans hardly work out, so planning only makes me unhappy; k) When I make plans, I am almost certain I can make them work; m) Chance and luck are very important for what happens in my life. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-1.94 to 1.43

Continued

Table 5.3. Variable Names, Descriptions, and Ranges

Table 5.3 continued

Variables	Description	Ramge
Self Esteem, 10th Grade	NCES prepared a composite first follow-up Self Esteem variable using student responses when asked, How do you feel about the following statements….a) I feel good about myself; d) I feel I am a person of worth, the equal of other people; e) I am able to do things as well as most other people, h) On the whole, I am satisfied with myself; I) I certainly feel useless at times; j) At times I think I am no good at all, l) I feel I do not have much to be proud of. I standardized the variable to a mean of zero and a standard deviation of one for the panel of students who participated in 1988, 1990, and 1992 data collections.	-2.56 to 1.33
Attended Public School in 10th & 12th	Binary variable reflecting if the student attended a public school in both 1990 and 1992.	1 = Yes 0 = No
Attended Private School in 10th & 12th	Binary variable reflecting if the student attended a private school in both 1990 and 1992.	1 = Yes 0 = No
Attended Urban School in 10th & 12th	Binary variable reflecting if the student attended a school in an urban location in both 1990 and 1992.	1 = Yes 0 = No
Attended Suburban School in 10th & 12th	Binary variable reflecting if the student attended a school in an suburban location in both 1990 and 1992.	1 = Yes 0 = No
Attended Rural School in 10th & 12th	Binary variable reflecting if the student attended a school in an rural location in both 1990 and 1992.	1 = Yes 0 = No
Attended School in West in 10th & 12th	Binary variable reflecting if the student attended a school in the West in both 1990 and 1992. NCES created a geographic composite variable for sampled schools that placed schools into one of the four census regions. All mountain and pacific states are located in the West region.	1 = Yes 0 = No

Continued

Table 5.3. Variable Names, Descriptions, and Ranges

Table 5.3 continued

Variables	Description	Range
Enrollment in 10th Grade	School administrators reported the number of students who were enrolled in the entire 10th grade in 199.	01 = 1-99 02 = 100-199 03 = 200-299 04 = 300-399 05 = 400-549 06 = 550-699 07 = 700+

Table 5.3. Variable Names, Descriptions, and Ranges

	Twelfth Grade			
	Math Test Scores		Reading Test Scores	
Variable	**b**	**Std. Error**	**b**	**Std. Error**
School Context Change				
Change in ADA - Low to High	.075	.073	.035	.116
Change in ADA - High to Low	**-.137**	**.077 +**	-.089	.121
Student, Family and School Characteristics				
Test Score, 10th Grade	.902	.028 ***	.687	.040 ***
Female	-.117	.047 *	.058	.076
Family SES, 10th Grade	.065	.034 +	.140	.053 **
Lives with Two Biological Parents, 10th Grade	-.050	.047	.079	.072
White	-.034	.053	-.105	.084
Locus of Control, 10th Grade	.009	.043	.046	.069
Self Concept, 10th Grade	-.018	.038	-.060	.060
Attended Public School in 10th & 12th	.060	.067	.074	.107
Attended Private School in 10th & 12th	.271	.098 **	.276	.157 +
Attended Urban School in 10th & 12th	-.108	.060 +	-.131	.094
Attended Suburban School in 10th & 12th	-.154	.066 *	-.024	.103
Attended Rural School in 10th & 12th	-.011	.073	.124	.116
Attended School in West in 10th & 12th	-.033	.054	.005	.085
Tenth Grade Enrollment	-.010	.014	.018	.022
Constant	.159	.085	-.051	.134
N	290		292	
R^2	.842		.625	

Table 5.4. Unstandardized OLS Regression Coefficients for the Regression of Math and Reading IRT Test Scores on Types of School Changers Adjusting for Student and School Characteristics: ADA

	Twelfth Grade			
	Math Test Scores		Reading Test Scores	
Variable	**b**	**Std. Error**	**b**	**Std. Error**
School Context Change				
Change in Percent LEP-High to Low	.084	.074	-.112	.116
Change in Percent LEP-Low to High	.096	.080	.091	.122
Student, Family and School Characteristics				
Test Score, 10th Grade	.899	.028 ***	.688	.040 ***
Female	-.113	.047 *	.065	.076
Family SES, 10th Grade	.070	.035 *	.135	.053 *
Lives with Two Biological Parents, 10th Grade	-.049	.046	.090	.071
White	-.013	.052	-.095	.082
Locus of Control, 10th Grade	.003	.044	.033	.069
Self Concept, 10th Grade	-.014	.038	-.055	.059
Attended Public School in 10th & 12th	.058	.067	.076	.106
Attended Private School in 10th & 12th	.275	.098 **	.279	.156 +
Attended Urban School in 10th & 12th	-.094	.061	-.144	.095
Attended Suburban School in 10th & 12th	-.126	.066 +	-.042	.103
Attended Rural School in 10th & 12th	.029	.074	.128	.116
Attended School in West in 10th & 12th	-.051	.055	.009	.086
Tenth Grade Enrollment	-.008	.015	.024	.023
Constant	.099	.084	-.088	.131
N	290		292	
R^2	.841		.626	

Table 5.5. Unstandardized OLS Regression Coefficients for the Regression of Math and Reading IRT Test Scores on Types of School Changers Adjusting for Student and School Characteristics: LEP

	Twelfth Grade			
	Math Test Scores		Reading Test Scores	
Variable	**b**	**Std. Error**	**b**	**Std. Error**
School Context Change				
Change in Percent College Going-High to Low	-.097	.069	**-.218**	**.108 ***
Student, Family and School Characteristics				
Test Score, 10th Grade	.897	.028 ***	.692	.039 ***
Female	-.118	.048 *	.044	.076
Family SES, 10th Grade	.061	.034 +	.132	.053 *
Lives with Two Biological Parents, 10th Grade	-.045	.046	.084	.071
White	-.016	.052	-.100	.082
Locus of Control, 10th Grade	.012	.044	.061	.069
Self Concept, 10th Grade	-.013	.038	-.060	.059
Attended Public School in 10th & 12th	.028	.070	.016	.109
Attended Private School in 10th & 12th	.262	.099 **	.235	.157
Attended Urban School in 10th & 12th	-.095	.060	-.125	.093
Attended Suburban School in 10th & 12th	-.132	.065 *	-.003	.100
Attended Rural School in 10th & 12th	.004	.073	.121	.114
Attended School in West in 10th & 12th	-.032	.054	.013	.083
Tenth Grade Enrollment	-.008	.014	.020	.022
Constant	.157	.086	.004	.134
N	290		292	
R^2	.841		.629	

Table 5.6. Unstandardized OLS Regression Coefficients for the Regression of Math and Reading IRT Test Scores on Types of School Changers Adjusting for Student and School Characteristics: College Going

	Twelfth Grade			
	Math Test Scores		Reading Test Scores	
Variable	**b**	**Std. Error**	**b**	**Std. Error**
School Context Change				
Change in Percent College Prep-High to Low	-.021	.066	-.089	.103
Student, Family and School Characteristics				
Test Score, 10th Grade	.897	.028 ***	.684	.040 ***
Female	-.111	.047 *	.062	.076
Family SES, 10th Grade	.062	.034 +	.136	.053 *
Lives with Two Biological Parents, 10th Grade	-.046	.046	.083	.071
White	-.013	.052	-.095	.082
Locus of Control, 10th Grade	.004	.044	.045	.068
Self Concept, 10th Grade	-.012	.038	-.054	.059
Attended Public School in 10th & 12th	.047	.070	.045	.110
Attended Private School in 10th & 12th	.280	.099 **	.267	.157 +
Attended Urban School in 10th & 12th	-.094	.060	-.124	.094
Attended Suburban School in 10th & 12th	-.138	.065 *	-.012	.101
Attended Rural School in 10th & 12th	.009	.073	.133	.115
Attended School in West in 10th & 12th	-.034	.054	.009	.084
Tenth Grade Enrollment	-.008	.014	.018	.022
Constant	.129	.086	-.043	.134
N	290		292	
R^2	.840		.625	

Table 5.7. Unstandardized OLS Regression Coefficients for the Regression of Math and Reading IRT Test Scores on Types of School Changers Adjusting for Student and School Characteristics: College Prep

	Twelfth Grade			
	Math Test Scores		Reading Test Scores	
Variable	**b**	**Std. Error**	**b**	**Std. Error**
School Context Change				
Change in Percent Single Parent-High to Low	-.024	.065	.048	.101
Change in Percent Single Parent-Low to High	-.026	.065	-.033	.100
Student, Family and School Characteristics				
Test Score, 10th Grade	.898	.028 ***	.686	.040 ***
Female	-.112	.048 *	.065	.076
Family SES, 10th Grade	.062	.035 +	.136	.053 *
Lives with Two Biological Parents, 10th Grade	-.045	.046	.082	.071
White	-.011	.052	-.092	.082
Locus of Control, 10th Grade	.001	.044	.050	.070
Self Concept, 10th Grade	-.011	.038	-.061	.060
Attended Public School in 10th & 12th	.051	.068	.071	.106
Attended Private School in 10th & 12th	.278	.099 **	.282	.157 *
Attended Urban School in 10th & 12th	-.092	.060	-.123	.094
Attended Suburban School in 10th & 12th	-.138	.065 *	-.019	.101
Attended Rural School in 10th & 12th	.011	.074	.128	.116
Attended School in West in 10th & 12th	-.032	.054	.004	.085
Tenth Grade Enrollment	-.008	.014	.017	.023
Constant	.129	.084	-.074	.131
N	290		292	
R^2	.840		.624	

Table 5.8. Unstandardized OLS Regression Coefficients for the Regression of Math and Reading IRT Test Scores on Types of School Changers Adjusting for Student and School Characteristics: Single Parent

	Twelfth Grade			
	Math Test Scores		Reading Test Scores	
Variable	**b**	**Std. Error**	**b**	**Std. Error**
School Context Change				
Change in Weapon Problems-High to Low	-.076	.098	-.069	.153
Change in Weapon Problems-Low to High	-.032	.057	-.043	.088
Student, Family and School Characteristics				
Test Score, 10th Grade	.897	.028 ***	.686	.040 ***
Female	-.109	.048 *	.063	.076
Family SES, 10th Grade	.061	.035 +	.137	.053 *
Lives with Two Biological Parents, 10th Grade	-.044	.046	.083	.071
White	-.012	.052	-.091	.082
Locus of Control, 10th Grade	.002	.044	.042	.070
Self Concept, 10th Grade	-.010	.038	-.055	.060
Attended Public School in 10th & 12th	.048	.068	.067	.107
Attended Private School in 10th & 12th	.273	.099 **	.270	.158 +
Attended Urban School in 10th & 12th	-.094	.060	-.122	.094
Attended Suburban School in 10th & 12th	-.142	.065 *	-.020	.101
Attended Rural School in 10th & 12th	.006	.075	.128	.117
Attended School in West in 10th & 12th	-.033	.054	.008	.085
Tenth Grade Enrollment	-.007	.015	.019	.023
Constant	.132	.084	-.062	.132
N	290		292	
R^2	.840		.624	

Table 5.9. Unstandardized OLS Regression Coefficients for the Regression of Math and Reading IRT Test Scores on Types of School Changers Adjusting for Student and School Characteristics: Weapons

	Twelfth Grade			
	Math Test Scores		Reading Test Scores	
Variable	**b**	**Std. Error**	**b**	**Std. Error**
School Context Change				
Change in Alcohol Problems-High to Low	-.003	.071	-.048	.111
Change in Alcohol Problems-Low to High	-.046	.063	-.115	.097
Student, Family and School Characteristics				
Test Score, 10th Grade	.898	.028 ***	.687	.040 ***
Female	-.110	.048 *	.063	.076
Family SES, 10th Grade	.059	.035 +	.130	.053 *
Lives with Two Biological Parents, 10th Grade	-.044	.046	.086	.071
White	-.012	.052	-.091	.082
Locus of Control, 10th Grade	.005	.044	.045	.068
Self Concept, 10th Grade	-.013	.038	-.058	.060
Attended Public School in 10th & 12th	.048	.069	.052	.108
Attended Private School in 10th & 12th	.288	.098 **	.292	.156 +
Attended Urban School in 10th & 12th	-.092	.060	-.122	.094
Attended Suburban School in 10th & 12th	-.139	.065 *	-.012	.101
Attended Rural School in 10th & 12th	.015	.074	.152	.116
Attended School in West in 10th & 12th	-.040	.054	-.012	.085
Tenth Grade Enrollment	-.008	.015	.021	.023
Constant	.130	.084	-.050	.131
N	290		292	
R^2	.840		.626	

Table 5.10. Unstandardized OLS Regression Coefficients for the Regression of Math and Reading IRT Test Scores on Types of School Changers Adjusting for Student and School Characteristics: Alcohol

	Twelfth Grade			
	Math Test Scores		Reading Test Scores	
Variable	**b**	**Std. Error**	**b**	**Std. Error**
School Context Change				
Change in Drug Problems-High to Low	-.003	.074	-.062	.116
Change in Drug Problems-Low to High	-.038	.061	-.065	.095
Student, Family and School Characteristics				
Test Score, 10th Grade	.898	.028 ***	.687	.040 ***
Female	-.109	.048 *	.064	.076
Family SES, 10th Grade	.060	.035 +	.133	.053 *
Lives with Two Biological Parents, 10th Grade	-.043	.047	.084	.072
White	-.013	.052	-.095	.082
Locus of Control, 10th Grade	.004	.044	.044	.069
Self Concept, 10th Grade	-.012	.038	-.055	.060
Attended Public School in 10th & 12th	.046	.070	.048	.110
Attended Private School in 10th & 12th	.283	.098 **	.278	.156 +
Attended Urban School in 10th & 12th	-.090	.060	-.121	.094
Attended Suburban School in 10th & 12th	-.140	.066 *	-.010	.102
Attended Rural School in 10th & 12th	.015	.075	.152	.117
Attended School in West in 10th & 12th	-.038	.055	-.009	.086
Tenth Grade Enrollment	-.009	.015	.020	.023
Constant	.131	.086	-.048	.134
N	290		292	
R^2	.840		.625	

Table 5.11. Unstandardized OLS Regression Coefficients for the Regression of Math and Reading IRT Test Scores on Types of School Changers Adjusting for Student and School Characteristics: Drugs

CHAPTER 6

DISCUSSION

Educators are being asked to account for their performance and the stakes are high. Under the No Child Left Behind Act of 2001, schools that do not meet adequate yearly achievement targets may be put on watch lists and risk being reconstituted. Principals and teachers may be fired if their students do not meet certain standards of performance.

The pressures to meet performance standards have prompted a fresh look at student mobility. Students who are mobile often do not perform as well academically as those who are not. Specifically, moving is associated with declines in grades, increased risk of being held back a grade, dropping out of high school and exhibiting discipline problems (Long 1975, Astone and McLanahan 1994, Hagan, MacMillan and Wheaton 1996, Simmons, Burgeson, and Carlton-Ford 1987, Straits 1987, Haveman, Wolfe and Spaulding 1991, Ingersoll, Scamman and Eckerling 1989, Reynolds 1991, Wood et al. 1993).

School systems have sought to minimize the impact mobile students have on schools' test results. The states of California and Texas have decided not to count test scores of mobile students towards schools' proficiency ratings if students have not been

enrolled in the schools for at least one year (California State Board of Education 1999, Texas Educational Agency 1997). Schools protesting that they were being measured on student outcomes they did not have time to influence prompted these decisions. Students also protested when they encountered resistance when attempting to enroll in schools near test administration dates. Other systems include mobile students in school performance measures, prompting practitioners to take a new look at mobile students and the mechanisms that trigger declines in educational performance.

To date, researchers have found evidence that most of the effect of moving stems from the personal characteristics of movers and not from moving per se. Movers are more likely to be poor, minority, renters, and young (U.S. Census 2000, U.S. General Accounting Office 1994). They are likely to live in urban areas and most are prompted to move for housing, family or employment reasons (Rossi 1955). Pribesh and Downey (1999) found that the personal attributes of movers accounted for 90 percent of the decline in academic performance stemming from a move in adolescence.

A lack of affordable housing and a stagnant economy may have contributed to a band of working poor and unemployed that is constantly on the move. This movement purportedly creates a 'churning' of transient students in schools that serve high proportions of poor students (Holloway 2000). Even though moving stresses economic, psychological resources and social relations, the strongest association of negative outcomes and moving is tied to the characteristics of the movers themselves. Thus, residential and school mobility have been suggested as factors in the replication of social inequality (Scanlon and Devine 2001).

In this dissertation, I addressed aspects of student mobility that remained largely unexplored. In Chapter 3, I built upon Pribesh and Downey's (1999) prior work and examined the role of psychological well being and mobility. I hypothesized that moving lowers two domains of self concept: locus of control and self esteem. This, in turn, negatively affects student performance.

I found mixed support for my first hypothesis: that moving lowers levels of locus of control. Only the most disruptive kinds of moves, residential and school moves combined, impact sense of control. Changing houses and/or changing schools, even for positive reasons, is still viewed as a major life event. However, teenagers may retain feelings of mastery over their environments if they do not lose both house and school. A combined residential and school move -- one where they do lose both house and school -- may be instrumental in convincing a teenager that they have very little control over their lives.

My second hypothesis, that moving lowers self esteem, was not supported. Moves of all types were not significantly associated with changes in self esteem. Students may 'stock-up' on feelings of self esteem that are buttressed by previous academic performance and reflected appraisals of family. Thus, when they change schools or neighborhoods, students may take with them levels of self esteem that are relatively stable. At their new locations, these students may strive to find friendship networks that reinforce their existing perceptions of themselves. This is in line with other research noting that global self concept is not prone to sudden shifts (Owens et al. 1996). Vernberg (1990) found that students who thought of themselves as poor performers still held onto that perception even after scoring highly on a series of tests and assignments.

They actively sought out groups that reinforced their images of themselves as poor performers. Therefore, it is likely that movers seek out new friends that confirm their self-attributed identities.

Ross and Broh (2000) found that locus of control, and not self esteem, is associated with educational performance. These analyses support their findings and indicate that locus of control mediates the effect of changing residences and schools. These findings have implications for policy makers and practitioners alike. Programs that are designed to buttress the self esteem of students may be missing the mark. Certainly, this might help explain why black students have higher levels of self esteem yet continue to perform below the levels of white students. It appears that resources might be better spent instead trying to increase students' sense of control.

One dimension of student mobility that was not yet fully addressed concerned the role of schools. Mobile students often change schools. However, we knew little about the effect of schools on mobile students. In other words, the question remained whether schools could absorb movers in a way that benefited mobile students. This is important because the No Child Left Behind Act of 2001 may encourage children, especially disadvantaged children, to move from poorly performing schools to ones that meet academic standards. If schools do not matter, then prompting children to change schools may be misguided.

In Chapter 4, the data suggested that for some students there is an association of school changes and improved educational performance. Students whose parents did not graduate from high school, had incomes below the poverty threshold, and/or lived with persons other than their parents were likely to do better in school if they changed schools.

These findings offer some support for programs that encourage the most disadvantaged students to change schools in pursuit of better educational programs. The NCLB Act of 2001 offers one such opportunity. Schools that fail to make adequate yearly progress over three years time must release students to enroll in schools that are not failing. We know that schools that have the highest risk of not making adequate yearly progress serve a disproportionately poor and transient population. Transporting these students to schools that serve more affluent students and have better prepared teachers is a kind of move that offers underserved students a fresh start[11].

However, results presented in Chapter 5 indicated that changes in school context have very little or no direct effect on students who changed schools. On the whole, changing from negative to positive school contexts, or the reverse, has no statistically significant impact on students' math and reading test scores. There were exceptions although these findings were not robust. Students who moved to schools with low average daily attendance rates were likely to have statistically significantly lower test scores than those students who switched to schools with similar or higher attendance rates as their originating schools. Also, I found that students who attended schools where high proportions of students enrolled in college or university programs after high school and then moved to schools where low proportions went on to post secondary education were likely to experience declines in their reading scores. These findings were not replicated when different thresholds of average daily attendance and proportion of

[11] These analyses are further weakened by small category sample sizes. In future analyses, I will test the interaction of mobility and mover characteristics. This will assess the interplay between mobility and student characteristics such as income, parental education, and psychological well being.

college going were examined. Therefore, I determined that changing schools contexts had no appreciable effect on the students studied[12].

Mobility is an inherently straightforward concept because it is defined simply as persons moving from one destination to another. However, the underpinning concept of mobility is complex and illustrative of the dichotomies between functional and conflict theories of social stratification. Functional and rational choice theorists view mobility as an equilibrating mechanism for labor distribution. Laborers move to employment opportunities and employers transfer labor to production openings. The market relies on transfer of capital in such a manner to foster competitiveness. School mobility is often conceptualized in the same manner. Market theorists posit that students and parents would enroll in the most promising schools given free choice and that market competition between schools would buoy the overall quality of American schools (Chubb and Moe 1990).

Although many moves are made for employment reasons or to access better schools, most are not. In reality, persons living in or near poverty that are seeking housing make the majority of moves. Those experiencing family dissolution and often some accompanying economic hardship make another large segment of moves. These non-employment related moves are associated with a 'churning' of movers in areas with high densities of low-income housing. To better understand the ramifications, if any, of this movement researchers might concentrate on experiments concerning the provision of

[12]A weakness of these analyses is that I use uni-dimensional measures of school context. One might surmise that schools that meet the 'good' context threshold on one dimension will meet the thresholds on other dimension. In future analysis, I will consider aggregate measures of 'good' and 'bad' context using cluster analysis to inform those measures.

stable and safe housing as well as adequate wages to student families as mechanisms to foster improved educational performance.

Mobility research faces challenges; one of which is selection bias. Because movers and non-movers are not alike, it is essential to parse out the effects of moving from movers. However, it is difficult to predict who is going to move and draw a study sample from a population of future movers. Instead, much of the early mobility research examined persons who had moved without taking into account personal characteristics and circumstances that predated the moves. As such, effects of moving were sometimes incorrectly attributed to the act of moving.

The use of longitudinal data that captures personal information prior to and after moves is one step towards dealing with selection bias. In other words, we can control for mover characteristics that might predict a move such as poverty, family dissolution, and minority status. These controls are often incomplete, however. We can rarely capture the motivations or context surrounding the move that may be associated with an effect on academic performance.

Most students who move do so to similar circumstances. In other words, the analyses examining changes in school context are weakened by the fact that most movers are not likely to experience dramatic shifts in types of schools. The Moving to Opportunity Program found that students whose families changed neighborhoods were still likely to attend schools that were similar in terms of academic performance on state tests as their schools of origin. Thus, identifying school effects based on changing school context is challenging given that there may be little variation in the contexts of schools.

Another challenge facing researchers is retaining mobile subjects in a sample. By definition, these respondents are harder and more expensive to track over time than sedentary subjects. Thus, research that is not intentionally designed to track mobile persons often realizes significant subject attrition. Long distance movers (often called migrators) are more likely to be lost than local movers, presenting another type of selection bias – one where we predominately study short distance movers in mobility studies. This is important because distance of move is correlated with the reason for moving. Most moves that are associated with poverty or school expulsion are local moves. Long distance movers are more likely to be white, middle-class and moving in search of better employment (South and Crowder 1997). One limitation of this research is that I do not know the descriptive characteristics of subjects that were lost from the sample due to mobility related reasons. However, since we know that movers are more likely to attrite, the findings presented here may be conservative. In other words, the smaller sample of movers may weaken the identification of statistically significant effects of moving.

Likewise, chronic movers may be undercounted. I could not identify the number of moves students made between 8^{th} and 12^{th} grades or between 10^{th} and 12^{th} grades. It is likely that up to 10 percent of the mobile students moved repeatedly and encountered different challenges than those students who moved once (Goldstein 1954). Students who are chronic movers may develop coping strategies that make them relatively immune to change. In fact, chronic movers may learn to improve their psychological well being levels through change. However, research indicates that the reverse is more likely. Students who move often may not learn to cope, may experience cumulatively weaker

social networks, and ultimately do worse in school than sporadic movers (Brown and Orthner 1990, Gibbs 1986, Vernberg 1990).

When examining school context, I looked at changes in educational outcomes between two time periods, tenth and twelfth grades. Examining change over a two-year period could be limiting because we may not capture lagged effects stemming from a school change. In fact, Swanson and Schneider (1999) found a lagged effect in that students who made moves in early high school (a mix of residential and school moves) were likely to experience positive educational outcomes by twelfth grades when compared to non-movers. Additional research is needed to determine if changing schools in the latter part of high school does have a significant effect on post-secondary outcomes such as labor force participation, earnings, and educational attainment.

The analyses presented in this dissertation are limited to adolescents. However, we may find that younger children do not experience moves in a similar manner. Young children, compared to teenagers, are more dependent on their parents for social support. Young children look to their parents for guidance and facilitation in terms of educational skills, friendship networks, and lifestyle issues. During the high school years, adolescents are likely to be experiencing a period of hyper-self awareness and growing independence from guardians. At this time, peer networks become more central to education and lifestyle decision making. Thus, feelings of self control and coping mechanisms may vary between elementary and secondary aged students. Young children may not experience the same feelings of loss of self concept because they expect parents to be in control. Likewise, their average adjustment period after a life stressor, such as a

move, may be shorter than that of adolescents because they draw on established bonds with parents instead peer networks.

Capturing the motivations of movers is complicated. In Chapter 5, I examined students who changed schools between 10^{th} and 12^{th} grades. Although a subset of these students were asked to give reasons why they switched schools, the answers may have been suspect due to social desirability. Very few students indicated that they switched schools due to behavioral problems while many said they asked for a school transfer. It is likely that behavioral problems precipitated the requests for school transfers. But, students may have been hesitant to admit that they were 'asked' to leave a school. In a similar manner, subjects that report moving because they wanted better housing may in fact have been forced to move because of eviction.

Ceiling and floor effects often challenge analyses that examine change. Poor students are apt to start at the bottom of standardized test score distributions and have plenty of room to increase in skill level over time. Affluent students are more likely to start near the top of reading and math competency and, thus, have less room to excel. NCES foresaw this problem and designed the standardized math and reading tests with longitudinal analyses in mind. They specifically took into account the limitations posed by ceiling and floor effects (U.S. Department of Education 1994). However, even with the instrument design and IRT construction, ceiling and floor effects do occur. Therefore, it is possible that ceiling and floor effects stymied the changes in academic performance I had hoped to measure throughout this dissertation.

Most school changes are accompanied by residential moves. Forty-five percent of students in this sample who were asked about the reason they switched schools said that

their family had moved. Thus, these students were introduced not only to new school contexts, but also to new neighborhoods. The effects that I do find may have stemmed from neighborhood effects and not school effects. Recent research from the Moving to Opportunity program indicates that neighborhood effects are not strong enough to influence student outcomes, however, the lack of adequate controls for neighborhood influences weakens these analyses (Sanbonmatsu et al. 2004).

In this dissertation, I focus on students who move and merely consider those who do not move as a comparison group. However, non-mobile children may also warrant attention. There may be costs as well as benefits associated with staying in one place as compared to moving. For example, stable students may not be exposed to as many different cultures, curricula, resources, and experiences as movers. Later in life, these diverse experiences may benefit mobile students as they navigate post-secondary education and employment. We do not know much about students who remain in schools and neighborhoods but experience turnover in their friendship networks due to others mobility. And, we know little about students who remain in schools that experience a high rate of student and teacher mobility. Additional research is needed to understand the consequences of moving for stayers as well as for movers.

Better research is needed to illuminate the mechanisms linking moving and educational performance. There are two potential avenues: experimental and exploratory research. One limiting factor in mobility research is the presence of uncontrolled variables. An experimental design would reduce the presence of confounding factors. However, conducting experimental research in a social setting is often not feasible because it requires the random selection of subjects and random assignment of

treatments. Conducting such research on a large scale, i.e., randomly assigning students and families to neighborhoods and schools across the United States would be prohibitively expensive and violate subjects' civil rights.

Experimental research on a small scale may, however, be feasible. Students could be randomly assigned to schools within a district. A treatment group could be forced to switch schools at separate points to ascertain adjustment mechanisms. More ambitious, yet plausible, would be the random assignment of families and students to housing and schools within a geographical area. When large companies relocate to undeveloped areas or foreign countries, they often build infrastructure/compounds to support their relocated employees. With sufficient scale, employees and children could be randomly located. Again, a subset could be forced to move according to a study protocol.

These experimental approaches could be a bit unnerving to families and students. Another approach is to delve deeply into the processes and mechanisms surrounding movers' experiences. Although this design would lose control and generalizability, it would be enhanced by the depth of knowledge we would gain about movers' motivations, coping skills, and adjustment periods. Researchers would have to track a set of students over time and interview movers as well as non-movers. This process would be intensive and exploratory, but could pave the way for a larger study of moving adjustment.

In order to understand better societal mechanisms for social reproduction, it is important that we understand moving and the consequences with which it is associated. Movers and non-movers are not alike and they often represent different economic strata. Movers are more likely to live in poverty, experience a family dissolution, rent, and be black or Hispanic than non-movers. My statistical analyses indicated that those attributes

alone account for most of the effect of moving on student achievement. However, what underpins this mobility process may not be an effect stemming from the relative attributes per se but the cumulative effect of living in the underclass and with the relative deprivation of affordable housing. If the unwillingly mobile were provided with stable, safe and affordable housing and their children attended schools with experienced teachers, would we still see the negative consequences associated with being poor?

Housing reform is certainly one avenue to explore. But there are others also. The results from these analyses indicate that strengthening students' levels of locus of control could protect them against academic declines when making combined residential and school moves. Schools, working with researchers, could help identify measures that increase student locus of control.

I concentrate on mobility as it relates to the educational process, but mobility is a much broader phenomenon. Markets depend on mobility to distribute labor as well as information, ideas, and human capital. To some degree, mobility is necessary for markets to function. This raises the question, to what degree is mobility beneficial for the education and other social systems?

Closed social systems – ones that do not allow for the free exchange of personnel – may by stymied by that closure. For example, schools often lament teacher turnover because it is expensive to find new teachers, train them, and monitor their progress. Teacher turnover disrupts continuity, introduces uncertainty, and is often associated with losses of institutional knowledge. However, new teachers may bring innovative teaching techniques, rejuvenating communication styles, and diverse perspectives. New teachers bring ties to other resources thus opening the system to information that flows through

weak ties. Closed systems with little teacher turnover may be efficient in that resources are rarely lost but may not be effective because it lacks exposure because all information flows through strong (or closed) ties.

How much mobility, however, is best for a social system? If there are benefits and costs associated with mobility, there may also be an optimal amount of mobility that maximizes the absorption of information and skills by an organization while still protects organizational resources. And, this optimal amount may differ based on the type of social institution. Currently, we know little about suggested tipping points of mobility for social organizations including educational systems. I suggest that future study examine optimal mixes of stability and mobility for schools and other social institutions.

The findings from this dissertation offer limited support for programs that encourage the most disadvantaged students to change schools in pursuit of better educational programs. The NCLB Act of 2001 offers one such opportunity. The provisions of this Act state that schools failing to make adequate yearly progress over three years time should release students to enroll in schools that are not failing. We expect that the schools that have the highest risk of not making adequate yearly progress serve a disproportionately poor and transient population. Transporting these students to schools that serve more affluent students and have better prepared teachers is a kind of move that may offer underserved students a fresh start.

In sum, the main conclusions from this dissertation are the following: The declines in educational performance associated with mobility largely stem from personal attributes of movers. Student and family characteristics, stressful life events, broken social ties, and feelings of powerlessness can explain the entire academic effect linked

with moving. And, although I found some evidence that changing schools may benefit the most disadvantaged students, other analyses indicated that school context did not appreciably impact student performance.

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