Neighborhood Violence and Urban Youth

Anna Aizer
Brown University and NBER
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Introduction

In a 1997 survey nearly three quarters of American children reported having been exposed to neighborhood violence (Hill and Jones, 1997; Boney-McCoy and Finkelhor, 1997). These rates are highest among low-income urban youth. There have been numerous studies of the impact of exposure to violence on children that have linked exposure to violence with restricted emotional development, aggressive behavior, depression, anxiety, sleep disturbances, learning problems and truancy.

However, the existing literature on neighborhood violence is characterized by a number of shortcomings. In a review of the literature, psychiatrist Joy Osofsky identifies a number of these shortcomings and calls for future research to address them.[1] One shortcoming relates to the difficulty defining or characterizing neighborhood violence which leads to significant measurement error. Another is the fact that neighborhood violence is often correlated with high rates of domestic violence and other types of disadvantage (racial, income and parental education) which in turn have been shown to have deleterious effects on child outcomes.[2] As such, research documenting a relationship between neighborhood violence and poor child outcomes may overstate the relationship.

In this chapter we seek to answer the following questions: 1) In what other ways do violent neighborhoods differ from non-violent ones? 2) Who is exposed to

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[1] Osofsky, J. "The Impact of Violence on Children." *The Future of Children: Domestic Violence and Children* (1999) 9:33-49.

[2]Research conducted in the early 1990s concluded that three to ten million children witness assaults against a parent by an intimate partner each year (Straus, 1992).

neighborhood violence? Is exposure to violence random? and 3) Does exposure to violence affect child outcomes or does it reflect other poor circumstances or types of disadvantage?

This research contributes to the existing body of work on the impact of exposure to violence on child outcomes by examining this issue with new data that is well-suited to address many of the shortcomings of the existing work and using established econometric techniques that enable causal inference. The data come from the Los Angeles Family and Neighborhood Study (LA FANS), an individual survey of children and their families residing in 65 neighborhoods in Los Angeles, California. The survey contains information on child and parent characteristics including exposure to violence and association with violent peers as well as family characteristics and multiple measures of child well-being. Because all the children in the sample reside in one county, they are subject to the same macroeconomic conditions and government programs so that we can implicitly control for differences along these dimensions and focus on the impact of neighborhood differences on child well-being.

In addition, we develop an alternative measure of community or neighborhood violence. Measures of neighborhood violence typically consist of police or crime reports. They are problematic because they are often available only at an aggregate level such as the county or city that is not truly representative of a child's neighborhood or community nor do they reflect true violence or victimization but rather a combination of underlying violence and police response to that violence. Instead, we develop an alternative measure of violence that is measured at a more local level, is not subject to recall or self-reporting bias and does not reflect policing policies. This measure of neighborhood violence is a

rate of hospitalizations for assault developed from California Hospital Discharge data which is an administrative database consisting of all hospitalizations in the state. These data allow one to create measures of violence by age, race, and neighborhood defined by zipcode.

Combining the individual level data from the LAFANS survey with measures of neighborhood violence and other neighborhood characteristics from the 2000 Census yields a dataset with a wide range of information on child, family and neighborhood characteristics. These data enable one to explore both the effects of exposure to violence on child well-being and how individual, family and neighborhood characteristics affect one's exposure to violence. This research will help us to better understand the role of violence in the lives of disadvantaged children. It should be stressed that the focus of this work is estimating the impact of intermittent exposure to neighborhood violence on child outcomes. As such, these results are not generalizable to children who are the victims of repeated victimization such as child abuse.[3]

I. Literature Review

There have been numerous studies of the impact of exposure to violence on children, with most of the research conducted by psychologists, psychiatrists and social workers. This research has linked exposure to violence with restricted emotional development,

[3] For example, recent work by Currie and Tekin (2006) suggests that repeated child abuse and maltreatment leads to large and significant reductions in child well-being.

aggressive behavior, depression, anxiety, sleep disturbances, learning problems and truancy.[4]

The earliest studies focused on single nonrecurring acts of violence such as sniper shootings in school playgrounds (Pynoos et al, 1987). These studies generally found posttraumatic stress symptom responses related to internalizing problems (anxiety and depression) that varied with proximity to the actual violence. However, it has since been noted that the clinicians in these studies were not blind to the subjects' exposure to violence, which some believe may have biased the findings (Cooley-Quille et al, 1995).

More recently, researchers have focused on exposure to chronic community violence. These studies have, in general, linked exposure to community violence to externalizing behavioral problems (Bell and Jenkins, 1993). For example, in a study of 37 school children age seven through 12, Cooley-Quille et at (1995) found that exposure to high levels of community violence was not related to internalizing behavior and disorders, but was associated with externalizing behavior problems – restlessness, and impaired social and behavioral functioning. However, the authors also note that "families of children with high exposure to community violence were characterized by high conflict and lack of cohesiveness." This leads the authors to conclude that "An important caution is needed in interpreting the relationship between exposure to violence and behavior problems. Because of the study's correlational nature, it cannot be determined whether one variable causes the other or whether both are mediated by a third factor."

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[4] Fonagy, P., Target, M., Steele, M., and Steele, H, 1997; Gorman-Smith, D., and Tolan, P. 1998; Jenkins, E.J., 1995; Loeber, R., Wung, P., Keenan, K., et al. 1993; Schwab-Stone, M.E., Ayers, T.S., Kasprow, W., et al., 1995.

In another (larger) survey of 2248 6th, 8th and 10th graders in an urban public school system, Schwab-Stone et al (1995) find that 40% of youth reported exposure to a shooting or a stabbing in the past year. Children exposed to high levels of violence were more likely to be black and/or Latino and more likely to receive free lunch. Using one way ANOVA to examine differences in child outcomes, they found that violence exposure was associated with greater willingness to use physical aggression, diminished perception of risk, lowered personal expectations for the future, dysphoric mood, antisocial activity, alcohol use and diminished academic achievement. However, in their discussion, the authors also acknowledge the difficulty establishing a causal relationship, writing "from the current study one cannot say that violence exposure or feeling unsafe causes any of the attitudes or aspects of adaptation that are significantly related, statistically speaking, to them."

Few economists have studied the impact of exposure to violence on child outcomes. The little work that does exist explicitly recognizes the difficulty of making causal inference as exposure to violence may be correlated with other sources of disadvantage that may be responsible for the poor outcomes observed. Grogger (1998) estimates the impact of school violence on high school graduation rates based on a large survey of school children and their school administrators. School violence can affect graduation rates by reducing school attendance and/or the ability to concentrate when in school, thereby lowering the probability of graduation. A major problem estimating the impact of school violence on outcomes is that more violent schools may have lower graduation rates simply because violent students are less likely to complete high school. Grogger overcomes this problem by focusing on the high school graduation rates of non-

violent students. He found that higher rates of school violence as reported by principals among one's peers was related to lower rates of graduation among the *non-violent* students.

But this study is still subject to the criticism that non-violent children in violent schools differ in important ways from non-violent children in non-violent schools. Violent schools are more likely to be in poorer neighborhoods and parents who send their children to violent schools may suffer from other forms of disadvantage relative to parents who send their children to non-violent schools. It may be these differences, not differences in school violence per se, that are responsible for these differences.

More recent work by Kling, Liebman and Katz (2004) based on the Moving to Opportunity (MTO) demonstration provides experimental evidence of the impact of neighborhoods on child well-being. In this study, poor families were randomly selected to receive subsidies to move to higher income neighborhoods. The MTO study overcomes previous difficulties estimating the impact of environment on child well-being – because of the random assignment families living in poor and non-poor neighborhoods will not differ in significant ways. The analysis consisted of in-depth interviews with families followed by a quantitative analysis of how moving to a higher income neighborhood affected child outcomes. In the qualitative analysis, the authors found that fear of random violence caused parents to focus much of their time and energy on keeping their children safe and that parental monitoring declined when they moved to higher income neighborhoods.

In the quantitative analysis that followed, the authors found a positive and significant impact of moving to a higher income neighborhood on girls but no impact on

boys (Kling and Liebman, 2005). Females experienced improvements in education and mental health and were less likely to engage in risky behaviors. While the focus of the MTO study is to evaluate the impact of poor neighborhoods on child outcomes and not violence specifically, the authors find that families that move to higher income neighborhoods report lower rates of victimization, especially for females, but the reductions are not statistically significant. There are, however, significant differences between poor and non-poor neighborhoods in the quality of the school environments, the presence of adult role models and the health of the environment. Thus while the qualitative analysis suggested that safety and lack of fear of random violence would explain improved outcomes associated with moving to a higher income neighborhood, the quantitative evidence does not appear to support this.

The existing literature on the impact of violence on child well-being appears to be mixed. While work by psychiatrists and psychologists has found an association between exposure to community violence and externalizing behavioral problems, there is also evidence that children exposed to more community violence are disadvantaged in other respects – they are poorer, more likely to be Black, and their families suffer from "lack of cohesiveness." As such, it is difficult to make causal inferences regarding the relationship between exposure to violence and child well-being. Work by economists that has sought to overcome this difficulty through randomized assignment to neighborhood has found that moving out of poor neighborhoods does improve outcomes for girls, but cannot attribute the improvements to reductions in violence.

In the work presented here, we attempt to distinguish the impact of violence from other forms of disadvantage by including multiple controls for disadvantage and using

econometric techniques designed to enable causal inference. In other words, we attempt to answer the question: does exposure to community violence cause child outcomes to worsen? Or rather, is it the case that disadvantaged youth are exposed to more violence, and it is the underlying disadvantage, not the violence, that is responsible for the worse child outcomes? The methodology that enables causal inference is described in greater detail later.

III. Data

The Los Angeles Family and Neighborhood Study (LA FANS)

The LA FANS is a panel study of a representative sample of all neighborhoods in LA. Poor neighborhoods and children are oversampled and all analyses presented here are weighted. While the survey is designed as a panel, only data for the first wave (conducted in 1999-2000) are currently available. In wave 1, an average of 41 household within each neighborhood were randomly selected for interview. Sampled adults were asked questions about household economic status, health insurance, participation in welfare programs, use of social services as well as questions about their neighborhoods. Caregivers provided information on the home environment, children's behavioral problems and school performance. Cognitive assessments were administered to children over three. Children older than nine were also asked about exposure to violence, their friends and social interaction; as such, the analysis sample is limited to this older group of 785 children.

To compare the analysis sample with the overall population of children in the US, we present descriptive statistics for this sample and for the sample of children living in

LA and the nation from the 2000 census in table 1. In column one are the unweighted means for the LA FANS sample, column two contains the weighted means. In column three are population means for families with at least one child between the ages of ten and nineteen in LA county from the 2000 census and in column four are means for the entire US population of families with at least one child between ten and nineteen.

The children included in this analysis are, on average, 15 years old. Thirty six percent of mothers are high school dropouts, 67 percent are married and 34 percent live below poverty. Eleven percent of the mothers receive cash welfare benefits. Given that the survey was conducted in Los Angeles, it is not surprising that 55 percent are Hispanic, ten percent Black, 27 percent white and eight percent Asian. If we compare the raw means in column 1 with the weighted means in column 2, we see that when we weight the sample means, the children appear slightly less disadvantaged. When we compare the weighted means to those from the 2000 Census, we conclude that the LA FANS sample is slightly more disadvantaged relative to the LA county population (column 3) in terms of race (LA FANS is more likely to include Black and Hispanic children as well as poor families and families that rely on welfare or SSI). However, when we compare the average characteristics of children sampled in the LA FANS with those in the nation more generally, we find that the LA FANS children are much more disadvantaged in terms of income, race, and maternal education (column 4). The fact that the analyses are based on a disadvantaged (and non-representative) population of children should be taken into account when interpreting our results.

Exposure to violence in this sample is somewhat common. Twenty one percent of children in this sample report having violent peers as measured by whether they know a

gang member (girls are as likely to report violent peers as boys in this sample). As for exposure to street violence, 11 percent reported being robbed and eight percent witnessed a shooting in the past year.[5]

California Hospital Discharge Data

The LA FANS data, which contain the household census tract, are merged with measures of neighborhood violence developed from California's hospital discharge database. A child's neighborhood is defined as a zipcode or group of zipcodes that encompass that census tract. A zipcode(s) is a far more precise measure of one's neighborhood than measures typically used (cities or counties) for the purpose of measuring neighborhood violence. Information on the number of individuals in each zipcode (to compute an assault rate) comes from the 2000 census. There is considerable variation in the number and rate of admissions for assault across LA's neighborhoods. For example, in South Central Los Angeles there were 501 admissions for assaults among those age 15-44 in 2000 (or 45 per 10,000). In Compton there were 213 admissions (36 per 10,000) and in Beverly Hills there were 5 (3 per 10,000). [6]

The main advantage of using hospital discharge data to calculate measures of neighborhood violence is that it enables one to calculate much more local measures than other datasets and does not rely on self-reports or police reports. But there are potential drawbacks to these data. First, they capture extreme acts of violence (though they are

[5] Eighteen percent report exposure to family violence, as measured by reports of family members "often hitting." However, the characteristics of the families of children who report family violence differ considerably from the characteristics of violent families reported in other data, suggesting that this measure may be unreliable in the LAFANS. For this reason, we do not use this measure in the analysis.

[6] South Central includes zipcodes 90001, 90002, 90003, 90047 and 90059; Compton 90220, 90221 and 90222; and Beverly Hills includes zipcodes 90210,90211, and 90212.

likely highly correlated with less severe violence). Second, because they are based on hospital utilization, they may capture violence perpetrated against those most likely to rely on hospitals as a source of medical care (those with fewer resources or those located closest to hospitals). However, the measure is based only on admission to the hospital, not emergency department utilization, and as there is less discretion in hospital admission, we believe that the potential for this measure to capture poverty is minimal and that it fairly accurately captures neighborhood violence. But in a conservative effort to limit any potential for bias we recalculate our measure of neighborhood violence not as a rate of assaults, but as the share of all hospitalizations for an injury that are due to assaults. The latter implicitly controls for greater reliance on hospitals for care in some zipcodes relative to others.

III. Descriptive Analysis: Children Exposed to Violence

In the first set of analyses we seek to answer the following questions: 1) what types of neighborhoods are most violent? 2) who is exposed to violence? and 3) what other types of disadvantage are correlated with exposure to violence?

What types of neighborhoods are violent?

As noted previously, our measure of neighborhood violence is the share of all hospitalizations for an injury in a zipcode that are the result of an assault. This measure should reduce, if not eliminate, any bias in the measures of violence that derives from one group's greater reliance on hospitals for care.[7]

[7] Results based on the assault rate are very similar but tend to yield more "outlier" observations.

In Figure 1 we present graphic evidence of a relationship between this measure of community violence and various community characteristics. As is evident from all graphs, there is a positive correlation between neighborhood violence among youths (those aged 15-19) and neighborhood measures of disadvantage. Zipcodes with higher levels of violence have a greater share of high school drop outs, individuals below poverty, households receiving welfare, black individuals and a higher unemployment rate. These relationships persist for adults (age 25-44) as well.

The two most important predictors of violence are the share below poverty and the share black in a neighborhood. Among youths, if the share below poverty increases by a standard deviation (.104) then the assault rate (as a ratio) increases 15 percent of a standard deviation. If the share black increases by a standard deviation, then violence increases by 28 percent of a standard deviation. Among adults, poverty appears to have a greater impact than race in predicting violence.

Overall, this preliminary analysis based on aggregate data suggests that community violence is correlated with multiple measures of disadvantage. This will affect our ability to attribute any negative relationship that we observe between violence and child well-being to violence and not the underlying disadvantage without adequately controlling for underlying sources of disadvantage.

Who is Exposed to Violence?

What determines personal exposure to violence? Is living in a violent neighborhood the most important factor? How much do family characteristics matter? We begin to answer these questions by comparing hospitalization rates across races and age groups. In Table

2 we see that hospitalization for assault is more common among youths age 15-19 than adults (age 25-44) and children (age 0-15, not shown). In addition, blacks have much higher rates of assault than other groups: nearly 4 per 1000 compared to .5 per 1000 for whites and 1.4 for Hispanics. But the higher rates for blacks reflect, in part, their greater reliance on hospitals for care. In column 2 of Table 2 we present the share of all hospitalizations for an injury that are the result of an assault. When we correct for the greater reliance on hospitals for care among some groups, we find that blacks still have the highest rate of assault (42 percent of all injuries are assaults as opposed to 8 percent for whites) but the gap is somewhat smaller. Interestingly, racial differences in assault rates are greater for youths than adults.

We follow the analysis based on aggregate data with an analysis of personal exposure to violence as reported in the LAFANS survey. In Table 3 we present the probabilities of exposure to different types of violence by neighborhood type (Columns 1-2). Personal exposure to violence consists of exposure to violent peers and exposure to street violence. The former is defined as whether the child knows any gang members and the latter is defined in one of two ways – whether the person witnessed a shooting or was robbed in the past year.

A violent neighborhood is defined as one in the top one third of the distribution of violence as measured by the hospitalization rate for assault and a non-violent neighborhood is in the bottom third of the distribution of violence. Living in a violent neighborhood increases one's exposure to violence: those in violent neighborhoods are more likely to know a gang member, witness a shooting or be robbed. However, certain parental characteristics are just as important in determining exposure to violence. For

example, whether a child's mother often knows his or her whereabouts is just as predictive of exposure to violence as a violent neighborhood (columns 3 and 4). In other words, watchful parents are just as protective as safe neighborhoods.

There is also considerable overlap in the types of violence to which children in this sample are exposed. Of the children who report knowing someone in a gang, 16.36 percent of them were also robbed, 20.12 percent witnessed a shooting and 28.48 percent reported that family members "often hit." Likewise for those who witness a shooting, 33.85 report being robbed and 50 percent know someone in a gang and for those who have been robbed, 25 percent witnessed a shooting and 31 percent knew someone in a gang (Table 4).

In table 5 we present evidence that the family characteristics of those exposed to violence are significantly different from those not exposed. The table includes three panels. The first is based on the full sample, the second and third are based on non-violent and violent neighborhoods, respectively. We find important differences in the family background characteristics of those who are exposed to violence in this sample, even when we control for the underlying level of neighborhood violence as we implicitly do in panels two and three. Those personally exposed to violence are more disadvantaged than those who are not, even conditional on the level of neighborhood violence. The largest differences are observed for those who witnessed a shooting (versus those who did not) and those who know gang members. We find considerably smaller differences for those who were robbed versus those who were not which we take as suggestive evidence that of the measures of violence considered here, being robbed

may be the least reflective of family disadvantage and may include a greater random or exogenous component than the other measures.

These descriptive analyses yield a number of interesting findings with respect to the role of violence in the lives of urban youth. First, violent neighborhoods are correlated with higher exposure to violence, but families living in violent neighborhoods are poorer, less educated and more likely to be Black or Hispanic than those living in non-violent neighborhoods. Second, violence does not appear to be random. Children exposed to street violence (shootings and robbery) often associate with violent peers. In addition, even within violent neighborhoods, only some children report personal exposure to violence and those who do are more disadvantaged than those who do not. Together this evidence suggests that other forms of disadvantage, not simply neighborhood violence, may be responsible for the negative child outcomes.

In order to determine whether it is exposure to violence itself or other characteristics that are correlated with violence and child outcomes, we must control for the underlying level of disadvantage as well as possible. For this we turn to regression analysis in the next section.

IV Regression Analyses: Impact of Neighborhood Violence on Children

OLS Estimation Strategy

In order to determine whether it is exposure to violence that negatively affects child well-being or whether other types of disadvantage (income, educational, racial) which may be correlated with violence that affect child outcomes, we pursue two empirical estimation strategies. In the first, we conduct ordinary least squares (OLS)

regression analysis of the impact of violence on child outcomes with and without controlling for other types of disadvantage. The equations estimated are:

$$Y = \beta_0 + \beta_1 \text{Violence} + \varepsilon \qquad (1A)$$

where Y is cognitive test scores for reading comprehension and math. The test scores are a percentile (0-100), normed against other children of the same age and sex. We focus on cognitive test scores because they are objective measures of child cognitive achievement which have been shown to significantly affect a child's future economic success (Currie and Thomas, 2001, Zax and Rees, 2001, Murname et al, 2005). Previous studies of the impact of violence on child outcomes have examined cognitive scores, GPAs, psychological evaluations and the Behavior Problems Index (BPI). However, both GPA and BPI have strong subjective components which can bias these measures. Because cognitive test scores suffer no such bias, they are the focus of this analysis.

Violence in the above equation is one of three measures of violence. The first is neighborhood violence which is defined as the rate of assaults among those aged 15-19 (or the ratio, as defined previously) in the neighborhood (zipcode) in which the child lives.[8] The second is peer violence which is defined as whether the child knows any gang members. The third measure of violence in the above equation is personal exposure to violence which is defined in one of two ways – whether the person witnessed a shooting or was robbed in the past year.

[8] The census tract of children in the LAFANS is known and matched to the corresponding zipcode. Of the 89 census tracts in the LAFANS, 58 matched to only one zipcode and 31 matched to two or three zipcodes. For children in census tracts with more than one zipcode, the average assault rate across all zipcodes that comprise the census tract was used.

In the above equation, the error term ε includes all child, family and neighborhood characteristics not included in the regression that influence child outcomes. These include all other types of disadvantage (racial, income, etc). If these omitted variables are correlated with violence, (that is, if otherwise disadvantaged children are also exposed to more violence) then our estimate of β_1 will suffer from omitted variable bias – capturing not only the impact of violence on child outcomes, but also other types of disadvantage that can negatively affect child outcomes independent of violence. The bias in this case will likely be upward and our estimate of β_1 will be an overestimate of the true impact of violence on child well being.

To correct for this bias, we include many detailed controls for locational, racial, income, and parental education disadvantage. As we control for these variables, the estimate of β_1 should decrease in magnitude. The second regression is:

$$Y= \beta_0 + \beta_1 \text{Violence} + \beta_2 \mathbf{Child} + \beta_3 \mathbf{Family} + \beta_4 \mathbf{Neighborhood} + \varepsilon \qquad (1B)$$

Where Child refers to a vector of child characteristics (sex, age, race and number of siblings) and Family refers to a vector of family characteristics which include income and parental education disadvantage (maternal education, maternal age marital status, family earnings and welfare receipt). Neighborhood refers to a vector of neighborhood characteristics (share receiving welfare, share below poverty, share with less than a high school degree, the unemployment rate and the share black) defined at the zipcode level and based on the 2000 census.

OLS Estimation Results

Given our findings that exposure to violence is correlated with other types of disadvantage, we turn to regression analysis which allows us to control for multiple child and parental characteristics in an attempt to isolate the impact of exposure to violence on child outcomes, separate from other forms of disadvantage. However, for comparison purposes, we show results of analyses with and without such controls to illustrate how estimates of the impact of violence on child outcomes can change, sometimes dramatically, once one controls for sources of underlying disadvantage.

In the top panel of Table 6A are regression estimates of the impact of violence (neighborhood, peer violence, and street violence) on child outcomes without any additional controls. It appears that neighborhood violence, as measured by the rate of hospitalizations for assaults, has a large negative and significant impact on both reading and math test scores, (columns 1 and 2). If the level of violence in one's neighborhood were to increase by one standard deviation (13 assaults per 10,000), then reading and math scores would decline by 7 and 6 points respectively (or 23 and 22 percent of a standard deviation).

Likewise, personal exposure to violence is also associated with worse test scores. Association with violent peers (columns 3 and 4) results in an 11 and 15 point drop in reading and math scores, respectively (37 and 54 percent of a standard deviation). Witnessing a shooting is associated with 14 and 17 point drops (49 and 61 percent of a standard deviation), being robbed in the past year with 10 and 6 point drops (35 and 23 percent of a standard deviation, respectively).

In the next panel of Table 6A we include the following neighborhood controls: share on welfare, share below poverty, share with less than a high school degree, the unemployment rate and the share black. When we do, all previous estimates of the impact of violence on child outcomes fall considerably. The impact of neighborhood violence falls by more than 80 percent and is no longer significant. The impact of peer violence and witnessing a shooting both fall by approximately 30 percent. The impact of being robbed, however, falls the least once we control for neighborhood characteristics, falling only between 10 and 15 percent.

In the third panel, we include neighborhood and family controls. When we do, the impact of peer violence falls further still but is still significant and the impact of witnessing a shooting falls and is no longer statistically significantly different from zero. The impact of being robbed in the past year on child scores does not change when we control for family characteristics and is still significantly negatively associated with child test scores in reading and math. Panel four includes family controls and neighborhood (zipcode) fixed effects. By including zipcode fixed effects we control for all neighborhood characteristics (observed and unobserved) that might affect child outcomes. When we do, the impact of violence peers on reading scores falls further still and is no longer significant, while the impact on math score is still significant (5.4 points). Again, the inclusion of these controls does not affect the impact of being robbed on child test scores which is still negative and significant (9.5 and 4.4 points on reading and math, respectively).

In Table 6B we present estimated regression coefficients for the full set of family and neighborhood controls from the previous regression. Of particular note is the fact

that of all the neighborhood characteristics included, only the share of adults with less than a high school degree appears to largely, significantly and negatively affect child outcomes. Other neighborhood characteristics appear to have either smaller, insignificant or conflicting effects on child outcomes. As for personal or family characteristics, race (being Black or Hispanic), maternal education, family earnings and welfare receipt have the largest effects on child test scores.

IV Estimation Strategy

The results from the above OLS regressions suggest that once one controls for other forms of disadvantage, violent neighborhoods, violent peers and witnessing a shooting do not significantly negatively affect child cognitive achievement. The fact that the estimated impact of these types of violence on child outcomes falls as more child, family and neighborhood controls are included underscores the importance of controlling for underlying disadvantage that may be correlated with both exposure to violence and child test scores to produce unbiased estimates.

But this analysis is still subject to the criticism that not all variables that are correlated with violence and child well-being are included in the above equation in which case our estimate of β_1 may still be biased. To overcome this, we do two things. First, we focus on the outcome whether the child reported that he or she was robbed in the past year. We do this based on evidence that being robbed is somewhat more random or exogenous than the other measures of violence (knowing a gang member or witnessing a shooting). The argument is based on two pieces of evidence. First, that differences in family background characteristics between those who have been robbed and those who

have not are considerably smaller than they are for the other measures of violence – but they do still exist (Table 5). Second, once we control for differences in family or neighborhood characteristics, the impact of being robbed on child outcomes remains while the impact of the other measures fall considerably (in some cases the effects are very small and are not significantly different from zero). This suggests that differences in family background (eg, underlying sources of disadvantage) are not behind the relationship between being robbed and child outcomes. However, other evidence, namely that a mother's vigilance is highly correlated with whether a child is robbed (Table 3) and that being robbed is correlated with exposure to other sorts of violence (Table 4) suggests otherwise.

Second, because we cannot rule out that being robbed is at least partly endogenously determined, we also provide an instrumental variable (IV) estimate of the impact of being robbed on child outcomes. IV analysis requires an instrument - something that is correlated with violence but is not otherwise correlated with child outcomes. The instrument for this analysis is a measure of whether the child is overweight or obese. Evidence suggests that robbing people (especially children) is a common form of bullying behavior (Ireland and Ireland, 2003) and that children who are overweight or obese are much more likely to be "bullied" than otherwise normal weight children (Janssen, et al 2004, Griffths et al, 2007). As such, it is reasonable to assume that overweight or obese children will be more likely to report being robbed than other children (criteria one).

However, it is not clear that the second criteria for an instrument is met – namely that being overweight or obese is otherwise uncorrelated with child outcomes. The fact

that overweight and obese children tend to come from lower SES households suggests that child weight may affect child outcomes independent of its impact on bullying. For example, in the LA FANS, Black children, Hispanic Children, children of high school drop outs, and poor children are all more likely to have a higher BMI and be obese than other children (Table 7), consistent with other research (Anderson and Butcher, 2006). In addition, some existing research has found a negative relationship between obesity and child outcomes including academic performance, test scores, social functioning and behavioral problems (Datar and Sturm, 2006; Swallen et al 2005; Datar, Sturm and Magnabosco, 2003). Whether this relationship is causal, however, is not clearly established.[9] Therefore, before we implement this instrumental variable strategy, we provide some evidence in support of this second assumption.

The IV analysis itself consists of two steps. In the first, the instrument is included in a regression analysis to determine the level of violence in a child's life (in this case, whether the child was robbed in the last year):

$$\text{Robbed} = \delta_0 + \delta_1 \text{ Weight} + \delta_2 \text{ Child} + \delta_3 \text{ Family} + \delta_4 \text{ Neighborhood} + \mu \qquad (2)$$

In the above equation weight is measured as either the child's body mass index (BMI) or two indicators (for overweight, BMI between 25 and 30 and obese, BMI 30 and greater). In the second stage, the level of violence as predicted in the first stage (not the actual

[9] For example, Datar, Sturm and Magnabosco (2003) found that overweight children had lower test scores than others at the end of grade 1, but that when socioeconomic and behavioral variables were included, these differences became insignificant (with the exception of math scores for boys). Datar and Sturm (2006) examined changes over time (from K to third grade) and found that becoming overweight was associated with a 1.6-2.5 point drop in test scores and similarly small declines in socio-behavioral outcomes but only among girls.

level of violence) is included in a regression of violence on child outcomes. The predicted level of violence is not correlated with the term ε in equation (1) because it is solely a function of child weight and observable child, family and neighborhood characteristics and thus the estimate of the impact of violence on child outcomes is not biased by omitted variables.

IV Estimation Results

Before we perform the IV analysis, we provide two pieces of evidence to support our use of child weight as an instrument for being robbed. First, we show that BMI and being overweight or obese do predict whether one is robbed, but have no impact on the other measures of violence in the data (witnessing a shooting or knowing someone in a gang). If child weight simply reflected unobserved disadvantage, then one would expect it to affect these other forms of violence as well. This evidence is presented in Table 8. Columns 1-3 present estimates of the impact of a child's BMI on whether he was robbed in the past year, witnessed a shooting or knows someone in a gang, respectively, controlling for many family and neighborhood characteristics. As is evident from the table, BMI has a positive and significant impact on being robbed, but a negative and insignificant impact on witnessing a shooting and a positive, small and insignificant impact on knowing someone in a gang. Column 4-6 of Table 8 present regression estimates of the impact of being overweight or obese (a single indicator for each) on the same three measures of violence, respectively. The results are similar: being obese has a positive and significant impact on the probability of being robbed, but not the two other measures. Columns 1 and 4 also serve as the first stage of the IV regression.

The second piece of evidence that we provide is that child weight appears to have no direct effect on child outcomes once we control for family and neighborhood characteristics. In Table 9 columns 1-4 we present regression estimates of the impact of BMI on reading test scores. In column 1 we control only for gender and age and we find that BMI has a negative and significant impact on test scores: a ten point increase in one's BMI reduces reading scores by 4.5 points. However, once we control for race in column 2, the effect falls considerably and is no longer significant. In columns 3 and 4 when we include a full set of family and neighborhood controls, the effect of BMI on test scores is actually positive, but not significant. The same exercise for overweight/obese in columns 5-8 yields the same result: once we control for family and neighborhood characteristics, being overweight or obese does not appear to have any impact on reading test scores. In Appendix table 2, we provide estimates of the impact of BMI on other measures of child well-being (cognitive test scores on a letter word identification, math, and applied problems test and the child's BPI) and again find no significant effect.

In Table 10 are the results from the second stage of the IV regression of the impact of exposure to violence (being robbed) on child outcomes. In columns 1 and 2 we repeat the OLS estimates of the impact of being robbed on reading and math test sores for comparison purposes. In columns 3 and 4 are the IV estimates of the impact of being robbed on scores with BMI as the instrument and in columns 5 and 6 are the IV estimates using only an indicator for whether the child is obese as an instrument in the first stage. As is evident from the table, while the OLS estimates of the impact of being robbed on test scores are large, negative and statistically significant, once we instrument for being robbed with child weight, the estimated impact of being robbed on reading scores

switches signs and is no longer significant while the estimate of the impact being robbed on math score is roughly similar in magnitude as the OLS estimate, but is no longer statistically significantly different from zero.

Together these results suggest that great care should be taken in interpreting estimates of the impact of exposure to neighborhood violence on child outcomes. The evidence presented here suggests that children who are exposed to violence are considerably more disadvantaged than other children and that the underlying disadvantage is responsible for much if not all of the negative outcomes observed.

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Table 1 Comparison of LA FANS with 2000 Census

	LAFANS - Unweighted	LAFANS - Weighted	Census - LA County	Census - US
Family/Child Characteristics				
Maternal education (years)	11.99	12.37	11.14	12.77
Mother <HS	0.36	0.32	0.39	0.16
Black	0.10	0.12	0.08	0.11
Hispanic	0.55	0.51	0.49	0.12
White	0.27	0.27	0.34	0.65
Asian	0.08	0.11	0.14	0.04
Married	0.67	0.68	0.77	0.69
Family Earnings (in thousands)	43.53	46.62	47.87	52.57
Below Poverty	0.34	0.29	0.19	0.13
Welfare Participation	0.11	0.11	0.09	0.04
SSI receipt	0.04	0.04	0.01	0.02
Maternal Age	42.4	41.8	41.37	40.90
Child age	15.1	15.1	14.11	14.21
Male	0.51	0.51	0.51	0.51
Number of siblings	1.32	1.43	1.83	1.45
Violence Measures				
Know gang members	0.21	0.20		
Witnessed shooting in past year	0.08	0.06		
Robbed in past year	0.11	0.11		
Family often hits	0.18	0.17		

Table 2 Hospitalization for Assaults by Race and Age - LA County 2000

Age 15-19

	Assaults per 1,000	Assaults/Total Injuries	Population
White	0.456	0.083	179725
Black	3.913	0.415	70533
Hispanic	1.390	0.270	390588
Asian	0.374	0.131	85587
Other	0.081	0.217	222698
Total	1.002	0.221	949131

Age 25-44

	Assaults per 1,000	Assaults/Total Injuries	Population
White	0.323	0.055	1098897
Black	2.638	0.262	307807
Hispanic	0.698	0.150	1551054
Asian	0.133	0.063	419679
Other	0.037	0.100	839816
Total	0.554	0.115	4217253

Table 3 Personal Exposure to Violence Conditional on Neighborhood Violence and Maternal Vigilance

			All Neighborhoods	
	Non violent Neighborhood	Violent Neighborhood	Mother Knows	Mother Not Know
Know Gang Member	0.16	0.23	0.126	0.18
Family Hits	0.18	0.22	0.166	0.233
Witnessed Shooting	0.04	0.14	0.048	0.078
Robbed	0.07	0.15	0.09	0.161
Mother often knows whereabouts	0.698	0.609		
Father often knows whereabouts	0.43	0.299		

Table 4 The Overlap in Violence

	Know gang	Family Hits	Shooting	Robbed
Robbed	16.36	22.07	33.85	
Witnessed shooting	20.12	17.93		25
Family often hits	28.48		39.39	36.36
Know gang		33.33	50	31.03

16.36 % of those who know a gang member were robbed

Table 5 Personal Exposure to Violence and Underlying family Characteristics

	Witness Shooting			Robbed			Peers (know gang)		
All Neighborhoods	non violent	violent	Difference	non violent	violent	Difference	non violent	violent	Difference
Maternal education	12.32	10.05	2.27	12.26	11.76	0.51	12.31	11.22	1.09
Mother <HS	0.34	0.54	-0.21	0.34	0.39	-0.05	0.35	0.43	-0.09
Black	0.13	0.18	-0.05	0.13	0.16	-0.03	0.12	0.18	-0.05
White	0.29	0.13	0.16	0.28	0.29	-0.01	0.30	0.20	0.10
Hispanic	0.53	0.72	-0.19	0.54	0.54	0.00	0.52	0.66	-0.14
Asian	0.12	0.02	0.10	0.12	0.03	0.09	0.12	0.05	0.08
Male	0.51	0.59	-0.09	0.48	0.77	-0.29	0.54	0.52	0.02
Child age	15.05	15.24	-0.19	15.07	14.95	0.12	13.17	14.46	-1.28
Family Earnings (in 1000s)	46.92	15.59	31.33	46.20	36.35	9.85	45.88	32.87	13.01
Married	0.67	0.56	0.11	0.67	0.67	-0.01	0.69	0.55	0.14
Welfare receipt	0.10	0.33	-0.23	0.10	0.21	-0.11	0.10	0.24	-0.14
SSI receipt	0.04	0.06	-0.02	0.04	0.05	0.00	0.04	0.09	-0.05

	Witness Shooting			Robbed			Peers (know gang)		
Non-Violent Neigborhoods	non violent	violent	Difference	non violent	violent	Difference	non violent	violent	Difference
Maternal education	13.80	10.79	3.01	13.86	12.28	1.58	13.69	12.55	1.13
Mother <HS	0.20	0.47	-0.27	0.19	0.37	-0.18	0.21	0.27	-0.06
Black	0.09	0.07	0.03	0.09	0.10	-0.01	0.08	0.13	-0.04
White	0.45	0.14	0.31	0.43	0.51	-0.09	0.47	0.34	0.13
Hispanic	0.43	0.79	-0.36	0.46	0.36	0.10	0.40	0.62	-0.23
Asian	0.15	0.00	0.15	0.16	0.00	0.16	0.13	0.10	0.03
Male	0.52	0.50	0.03	0.49	0.80	-0.31	0.56	0.53	0.03
Child age	15.03	15.06	-0.03	15.07	14.72	0.35	13.29	13.98	-0.70
Family Earnings (in 1000s)	61.73	16.50	45.23	61.03	50.35	10.68	61.90	41.70	20.20
Married	0.71	0.78	-0.07	0.71	0.78	-0.07	0.77	0.54	0.23
Welfare receipt	0.03	0.41	-0.38	0.04	0.13	-0.09	0.04	0.19	-0.15
SSI receipt	0.03	0.03	0.00	0.03	0.04	-0.01	0.03	0.07	-0.05

	Witness Shooting			Robbed			Peers (know gang)		
Violent Neighborhoods	non violent	violent	Difference	non violent	violent	Difference	non violent	violent	Difference
Maternal education	9.29	9.30	-0.01	9.06	10.47	-1.42	9.52	9.87	-0.35
Mother <HS	0.61	0.60	0.01	0.64	0.43	0.21	0.60	0.59	0.01
Black	0.20	0.31	-0.10	0.20	0.29	-0.09	0.19	0.27	-0.08
White	0.04	0.02	0.01	0.04	0.01	0.03	0.05	0.02	0.03
Hispanic	0.76	0.69	0.07	0.75	0.75	0.00	0.77	0.71	0.07
Asian	0.01	0.01	0.00	0.01	0.00	0.00	0.02	0.00	0.02
Male	0.48	0.67	-0.19	0.43	0.80	-0.36	0.53	0.53	0.00
Child age	14.92	15.47	-0.55	15.04	14.71	0.33	12.77	14.72	-1.95
Family Earnings (in 1000s)	25.53	12.21	13.32	24.43	21.56	2.87	23.41	19.04	4.37
Married	0.61	0.40	0.22	0.58	0.63	-0.05	0.62	0.47	0.15
Welfare receipt	0.17	0.36	-0.19	0.18	0.24	-0.06	0.17	0.38	-0.21
SSI receipt	0.04	0.06	-0.02	0.04	0.04	0.00	0.02	0.07	-0.05

Table 6A Impact of Violence on Reading and Math Scores

	Reading	Math	Reading	Math	Reading	Math	Reading	Math
No Controls								
assault rate in zipcode	-5,228.18	-4,833.45						
	[785.132]	[750.602]						
know someone in a gang			-10.986	-15.21				
			[2.601]	[2.453]				
witnessed shooting last year					-14.339	-17.188		
					[4.519]	[4.290]		
robbed last year							-10.052	-6.432
							[3.296]	[3.157]
Observations	774	774	767	767	772	772	772	772
R-squared	0.05	0.05	0.02	0.05	0.01	0.02	0.01	0.01
Standard errors in brackets								
Neighborhood Controls								
assault rate in zipcode	-711.965	731.856						
	[1,195.893]	[1,133.770]						
know someone in a gang			-7.456	-11.686				
			[2.486]	[2.336]				
witnessed shooting last year					-9.035	-11.959		
					[4.297]	[4.055]		
robbed last year							-9.208	-5.558
							[3.107]	[2.956]
Observations	774	774	767	767	772	772	772	772
R-squared	0.13	0.14	0.14	0.17	0.14	0.15	0.14	0.15
Standard errors in brackets								
Neighborhood and Family Controls								
assault rate in zipcode	-606.191	740.287						
	[1,244.810]	[1,145.925]						
know someone in a gang			-4.56	-8.105				
			[2.539]	[2.326]				
witnessed shooting last year					-1.191	-5.522		
					[4.374]	[4.020]		
robbed last year							-10.814	-6.221
							[3.240]	[2.999]
Observations	689	689	682	682	687	687	687	687
R-squared	0.26	0.31	0.27	0.33	0.26	0.31	0.27	0.32
Standard errors in brackets								
Zipcode Fixed Effects and Family Controls								
know someone in a gang			-2.82	-5.383				
			[2.694]	[2.403]				
witnessed shooting last year					-1.706	-5.061		
					[4.622]	[4.119]		
robbed last year							-9.495	-4.417
							[3.325]	[2.980]
Observations			682	682	687	687	687	687
R-squared			0.36	0.44	0.35	0.43	0.36	0.44

Table 6B Impact of Violence on Reading and Math Scores - Full Set of Neighborhood and Individual Controls

	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
assault rate in zipcode	-606.191	740.287								
	[1,244.810]	[1,145.925]								
know someone in a gang			-4.56	-8.105						
			[2.539]	[2.326]						
Family often hits					-3.503	-6.652				
					[2.683]	[2.460]				
witnessed shooting last year							-1.191	-5.522		
							[4.374]	[4.020]		
robbed last year									-10.814	-6.221
									[3.240]	[2.999]
Community Characteristics										
share on welfare	32.876	-8.659	32.248	-6.419	31.042	-11.198	32.238	-7.709	32.468	-8.509
	[16.883]	[15.542]	[17.017]	[15.588]	[16.894]	[15.489]	[16.880]	[15.516]	[16.756]	[15.508]
share below poverty	17.061	-14.351	13.722	-2.063	12.203	-7.139	13.398	-5.713	6.204	-11.529
	[26.552]	[24.442]	[24.358]	[22.313]	[24.223]	[22.209]	[24.369]	[22.400]	[24.160]	[22.361]
Share <HS	-43.666	-71.672	-44.555	-69.472	-47.278	-70.702	-47.6	-68.112	-45.556	-68.278
	[26.926]	[24.787]	[26.536]	[24.309]	[26.413]	[24.217]	[26.466]	[24.327]	[26.243]	[24.289]
unemployment rate in zipcode	-0.819	0.957	-0.799	0.861	-0.746	0.977	-0.759	0.841	-0.625	1.015
	[0.711]	[0.655]	[0.707]	[0.648]	[0.707]	[0.648]	[0.709]	[0.651]	[0.704]	[0.652]
Share black	1.926	-1.48	1.783	0.533	1.527	1.807	0.37	0.207	3.491	1.685
	[9.970]	[9.178]	[9.628]	[8.820]	[9.622]	[8.822]	[9.614]	[8.837]	[9.578]	[8.865]
Family Characteristics										
Maternal education	1.241	1.41	1.286	1.457	1.224	1.369	1.313	1.364	1.205	1.38
	[0.323]	[0.297]	[0.324]	[0.297]	[0.323]	[0.296]	[0.327]	[0.300]	[0.322]	[0.298]
Black	-5.019	-10.691	-5.591	-10.329	-5.699	-11.088	-5.376	-10.36	-4.917	-10.143
	[4.196]	[3.863]	[4.170]	[3.820]	[4.161]	[3.815]	[4.157]	[3.821]	[4.129]	[3.821]
Hispanic	-10.995	-10.976	-10.427	-9.939	-11.38	-12.151	-10.436	-11.314	-10.78	-11.117
	[3.468]	[3.193]	[3.488]	[3.196]	[3.476]	[3.187]	[3.471]	[3.190]	[3.433]	[3.178]
White	0.974	-4.335	0.826	-4.625	0.575	-5.622	1.124	-4.481	1.889	-4.129
	[3.319]	[3.056]	[3.313]	[3.035]	[3.326]	[3.050]	[3.302]	[3.035]	[3.286]	[3.041]
married	-4.407	-0.696	-4.738	-1.416	-4.585	-1.064	-4.223	-0.631	-3.963	-0.432
	[2.422]	[2.230]	[2.432]	[2.228]	[2.424]	[2.222]	[2.428]	[2.232]	[2.411]	[2.231]
Family earnings in 1000s	0.068	0.097	0.069	0.098	0.07	0.099	0.067	0.094	0.064	0.094
	[0.027]	[0.025]	[0.027]	[0.025]	[0.027]	[0.025]	[0.027]	[0.025]	[0.027]	[0.025]
Welfare participation	-8.085	-7.061	-7.524	-6.702	-7.786	-7.023	-7.494	-6.523	-6.902	-6.738
	[3.537]	[3.256]	[3.526]	[3.230]	[3.517]	[3.225]	[3.574]	[3.285]	[3.523]	[3.260]
SSI receipt	-13.788	-13.542	-13.119	-12.647	-13.54	-13.335	-13.804	-13.851	-13.92	-13.429
	[4.994]	[4.598]	[5.002]	[4.583]	[4.987]	[4.573]	[4.995]	[4.592]	[4.994]	[4.622]
Maternal age	0.184	0.137	0.169	0.12	0.19	0.151	0.193	0.133	0.151	0.119
	[0.145]	[0.133]	[0.145]	[0.133]	[0.145]	[0.133]	[0.145]	[0.133]	[0.144]	[0.134]
Child age 10-12	1.792	2.459	0.868	1.581	1.83	2.836	2.012	1.92	2.431	2.963
	[3.224]	[2.968]	[3.237]	[2.965]	[3.216]	[2.949]	[3.243]	[2.981]	[3.206]	[2.967]
Child age 13-15	4.107	-2.915	4.387	-2.323	4.121	-2.73	3.947	-3.159	4.176	-2.82
	[2.971]	[2.735]	[2.984]	[2.733]	[2.967]	[2.720]	[2.979]	[2.738]	[2.951]	[2.732]
Child age 16-18	0.643	-3.519	0.818	-3.541	0.71	-3.394	0.52	-3.715	0.545	-3.623
	[2.305]	[2.122]	[2.309]	[2.116]	[2.303]	[2.111]	[2.312]	[2.125]	[2.292]	[2.121]
male	-1.308	6.888	-1.468	6.786	-1.143	7.286	-1.276	6.915	-0.074	7.682
	[1.953]	[1.798]	[1.961]	[1.796]	[1.956]	[1.793]	[1.959]	[1.800]	[1.982]	[1.834]
Number of siblings	-0.341	1.698	-0.46	1.546	-0.194	1.985	-0.263	1.705	-0.345	1.708
	[0.853]	[0.785]	[0.855]	[0.783]	[0.860]	[0.788]	[0.856]	[0.787]	[0.849]	[0.786]
Observations	689	689	682	682	689	689	687	687	687	687
R-squared	0.26	0.31	0.27	0.33	0.26	0.32	0.26	0.31	0.27	0.32

Standard errors in brackets

Table 7 Child Weight and Socio Economic Status

	White	Black	Hispanic	Asian	Other
BMI	21.79	21.62	22.74	21.99	22.39
Overweight or obese	0.17	0.19	0.25	0.24	0.23
Overweight	0.12	0.16	0.14	0.21	0.18
Obese	0.05	0.03	0.11	0.04	0.05

	Mom>=HS	Mom <HS	Single	Married	No Welfare	Welfare	Below 100% poverty	Above 200% Poverty
BMI	21.80	22.56	22.29	21.97	22.04	22.32	23.28	21.60
Overweight or obese	0.20	0.24	0.22	0.21	0.22	0.22	0.32	0.17
Overweight	0.16	0.17	0.14	0.17	0.16	0.12	0.19	0.13
Obese	0.04	0.08	0.08	0.05	0.05	0.09	0.13	0.04

Table 8 Impact of Child Weight on Exposure to Violence

	robbed last year	witnessed shooting last year	know someone in a gang	robbed last year	witnessed shooting last year	know someone in a gang
BMI	0.006	-0.001	0.003			
	[0.003]	[0.002]	[0.003]			
Overweight				0.046	0.029	0.075
				[0.031]	[0.024]	[0.040]
Obese				0.123	-0.01	0.016
				[0.051]	[0.038]	[0.066]
Family and Child Characteristics						
Maternal education	-0.006	0	0.005	-0.007	0	0.006
	[0.004]	[0.003]	[0.005]	[0.004]	[0.003]	[0.005]
Black	0.042	0.003	-0.016	0.038	0.005	-0.022
	[0.049]	[0.037]	[0.064]	[0.049]	[0.036]	[0.063]
Hispanic	-0.003	0.026	0.167	-0.004	0.025	0.162
	[0.042]	[0.031]	[0.053]	[0.040]	[0.030]	[0.052]
White	0.069	0.009	0.003	0.066	0.01	0.004
	[0.039]	[0.029]	[0.050]	[0.038]	[0.029]	[0.050]
married	0.03	0.016	-0.084	0.028	0.017	-0.07
	[0.029]	[0.022]	[0.037]	[0.028]	[0.021]	[0.036]
Family earnings in 1000s	0	-0.001	0	0	0	0
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Welfare participation	0.064	0.106	0.079	0.072	0.112	0.106
	[0.042]	[0.032]	[0.054]	[0.042]	[0.031]	[0.053]
SSI receipt	0.012	-0.025	0.125	0.008	-0.024	0.131
	[0.060]	[0.045]	[0.077]	[0.058]	[0.043]	[0.074]
Maternal age	-0.003	0	-0.001	-0.003	0	-0.002
	[0.002]	[0.001]	[0.002]	[0.002]	[0.001]	[0.002]
Mother often knows whereabouts				-0.039	-0.006	
				[0.025]	[0.019]	
Child age 10-12	0.081	-0.026	-0.099	0.071	-0.028	-0.091
	[0.039]	[0.029]	[0.050]	[0.038]	[0.028]	[0.049]
Child age 13-15	0.012	-0.043	0.071	0.015	-0.045	0.065
	[0.036]	[0.027]	[0.046]	[0.035]	[0.026]	[0.045]
Child age 16-18	-0.016	-0.031	0.004	-0.013	-0.033	0.003
	[0.028]	[0.021]	[0.036]	[0.027]	[0.020]	[0.035]
male	0.123	0.022	-0.039	0.115	0.02	-0.051
	[0.023]	[0.018]	[0.030]	[0.023]	[0.017]	[0.030]
Number of siblings	-0.001	0.003	-0.017	-0.003	0.003	-0.013
	[0.010]	[0.008]	[0.013]	[0.010]	[0.008]	[0.013]
Neighborhood Characteristics						
share on welfare	0.002	0.057	0.21	0.013	0.046	0.143
	[0.202]	[0.151]	[0.260]	[0.196]	[0.147]	[0.255]
share below poverty	-0.617	0.548	0.563	-0.652	0.49	0.457
	[0.291]	[0.218]	[0.374]	[0.286]	[0.215]	[0.369]
Share <HS	-0.015	-0.145	-0.134	0.009	-0.138	-0.076
	[0.312]	[0.235]	[0.402]	[0.306]	[0.229]	[0.396]
unemployment rate in zipcode	0.016	-0.009	0.002	0.017	-0.008	0.005
	[0.008]	[0.006]	[0.011]	[0.008]	[0.006]	[0.011]
Share black	0.251	-0.023	-0.036	0.229	-0.026	0.01
	[0.114]	[0.085]	[0.146]	[0.111]	[0.083]	[0.143]
Observations	682	683	678	701	701	696
R-squared	0.09	0.07	0.11	0.1	0.07	0.12

Standard errors in brackets

Table 9 Impact of Child Weight on Reading Test Scores

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BMI	-0.447	-0.148	0.074	0.073				
	[0.240]	[0.223]	[0.226]	[0.227]				
Overweight					-1.942	-0.372	-0.274	-0.259
					[2.886]	[2.670]	[2.708]	[2.685]
Obese					-8.832	-5.366	-0.876	0.163
					[4.607]	[4.269]	[4.391]	[4.339]
male	-1.463	-1.027	-1.68	-1.475	-0.966	-0.79	-0.932	-0.815
	[2.116]	[1.952]	[2.003]	[1.992]	[2.088]	[1.929]	[1.993]	[1.967]
Child age	-0.301	-0.349	-0.069		-0.457	-0.409	-0.017	
	[0.641]	[0.591]	[0.604]		[0.623]	[0.575]	[0.587]	
Black		-7.38	-5.724	-4.849		-7.216	-5.613	-4.901
		[3.320]	[3.454]	[4.170]		[3.307]	[3.438]	[4.156]
Hispanic		-18.783	-9.334	-9.969		-18.383	-9.658	-10.577
		[2.650]	[2.962]	[3.509]		[2.620]	[2.911]	[3.453]
White		8.517	4.254	0.858		8.608	4.474	1.272
		[2.719]	[2.790]	[3.305]		[2.689]	[2.774]	[3.300]
Maternal education			1.666	1.38			1.56	1.248
			[0.303]	[0.331]			[0.297]	[0.322]
Family earnings in 1000s			0.103	0.068			0.101	0.066
			[0.026]	[0.028]			[0.026]	[0.027]
married			-2.555	-4.737			-2.29	-4.598
			[2.334]	[2.449]			[2.307]	[2.420]
momoften				4.468			2.974	4.582
				[2.204]			[2.160]	[2.169]
Child age 10-12				2.519				1.739
				[3.294]				[3.214]
Child age 13-15				4.107				4.145
				[3.024]				[2.965]
Child age 16-18				1.215				0.725
				[2.376]				[2.321]
Number of siblings				-0.531				-0.424
				[0.860]				[0.854]
share on welfare				31.909				33.055
				[17.129]				[16.865]
share below poverty				18.589				19.712
				[24.937]				[24.550]
Share <HS				-51.766				-50.525
				[26.838]				[26.527]
unemployment rate in zipcode				-0.837				-0.956
				[0.724]				[0.713]
Share black				1.358				0.895
				[9.757]				[9.601]
Welfare participation				-8.277				-8.829
				[3.572]				[3.540]
SSI receipt				-16.585				-14.328
				[5.180]				[4.992]
Maternal age				0.191				0.198
				[0.146]				[0.145]
Observations	754	754	671	671	773	773	689	689
R-squared	0.01	0.16	0.23	0.27	0.01	0.16	0.23	0.27

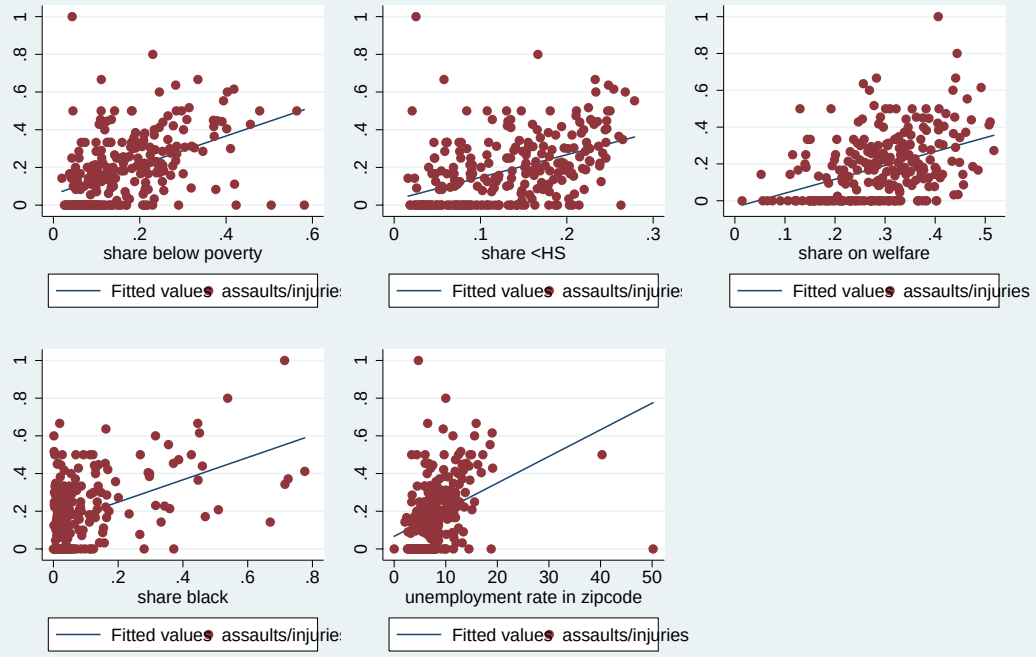
Standard errors in brackets

Table 10 IV Estimates of the Impact of Being Robbed on Child Outcomes

	OLS		BMI as IV		Obese as IV	
	Reading	Math	Reading	Math	Reading	Math
robbed last year	-10.814	-6.221	15.696	-5.973	4.809	-5.689
	[3.240]	[2.999]	[43.509]	[38.425]	[40.405]	[36.812]
Maternal education	1.205	1.38	1.504	1.364	1.441	1.361
	[0.322]	[0.298]	[0.427]	[0.378]	[0.409]	[0.372]
Black	-4.917	-10.143	-5.906	-10.418	-5.466	-10.393
	[4.129]	[3.821]	[4.694]	[4.146]	[4.524]	[4.122]
Hispanic	-10.78	-11.117	-9.999	-11.077	-10.007	-11.077
	[3.433]	[3.178]	[3.665]	[3.237]	[3.553]	[3.237]
White	1.889	-4.129	-0.439	-4.422	0.335	-4.378
	[3.286]	[3.041]	[4.632]	[4.091]	[4.408]	[4.016]
married	-3.963	-0.432	-4.972	-0.439	-4.604	-0.418
	[2.411]	[2.231]	[2.952]	[2.607]	[2.832]	[2.580]
Family earnings in 1000s	0.064	0.094	0.078	0.102	0.072	0.102
	[0.027]	[0.025]	[0.035]	[0.031]	[0.034]	[0.031]
Welfare participation	-6.902	-6.738	-7.973	-5.814	-7.324	-5.778
	[3.523]	[3.260]	[4.536]	[4.006]	[4.338]	[3.952]
SSI receipt	-13.92	-13.429	-16.761	-14.687	-16.583	-14.677
	[4.994]	[4.622]	[5.497]	[4.855]	[5.325]	[4.852]
Maternal age	0.151	0.119	0.231	0.085	0.197	0.084
	[0.144]	[0.134]	[0.205]	[0.181]	[0.195]	[0.178]
Child age 10-12	2.431	2.963	1.358	1.178	2.219	1.227
	[3.206]	[2.967]	[4.868]	[4.299]	[4.621]	[4.210]
Child age 13-15	4.176	-2.82	3.843	-3.328	4.022	-3.318
	[2.951]	[2.732]	[3.224]	[2.848]	[3.120]	[2.842]
Child age 16-18	0.545	-3.623	1.409	-3.494	1.324	-3.499
	[2.292]	[2.121]	[2.452]	[2.166]	[2.375]	[2.164]
male	-0.074	7.682	-4.047	7.285	-2.669	7.363
	[1.982]	[1.834]	[5.882]	[5.195]	[5.492]	[5.004]
Number of siblings	-0.345	1.708	-0.378	1.539	-0.408	1.537
	[0.849]	[0.786]	[0.906]	[0.800]	[0.877]	[0.799]
share on welfare	32.468	-8.509	32.197	-8.229	32.128	-8.233
	[16.756]	[15.508]	[17.889]	[15.799]	[17.342]	[15.800]
share below poverty	6.204	-11.529	21.194	-13.919	15.227	-14.255
	[24.160]	[22.361]	[34.954]	[30.870]	[33.230]	[30.275]
Share <HS	-45.556	-68.278	-48.336	-70.09	-47.666	-70.052
	[26.243]	[24.289]	[27.972]	[24.703]	[27.106]	[24.696]
unemployment rate in zipcode	-0.625	1.015	-0.91	1.056	-0.761	1.064
	[0.704]	[0.652]	[0.953]	[0.842]	[0.909]	[0.829]
Share black	3.491	1.685	-3.198	0.316	-0.262	0.481
	[9.578]	[8.865]	[15.538]	[13.723]	[14.705]	[13.398]
Observations	687	687	669	669	669	669
R-squared	0.27	0.32	0.21	0.32	0.25	0.32

Standard errors in brackets

Neighborhood Characteristics and Assaults / Total Injuries age 15 − 19



Appendix Table 1: Impact of Child Weight on Other Child Outcomes

	letter word identification	Math	applied prblms	Total BPI
BMI	-0.233	-0.035	-0.037	0.09
	[0.242]	[0.209]	[0.210]	[0.073]
Maternal education	0.586	1.389	1.392	-0.051
	[0.352]	[0.306]	[0.306]	[0.109]
Black	-14.697	-10.611	-10.679	0.384
	[4.442]	[3.847]	[3.851]	[1.325]
Hispanic	-8.311	-11.104	-11.171	1.22
	[3.737]	[3.240]	[3.243]	[1.119]
White	-5.438	-4.818	-4.867	2.173
	[3.522]	[3.051]	[3.054]	[1.042]
married	0.475	-0.698	-0.692	-0.382
	[2.614]	[2.260]	[2.262]	[0.787]
Family earnings in 1000s	0.074	0.105	0.105	-0.017
	[0.030]	[0.026]	[0.026]	[0.009]
Welfare participation	-7.288	-6.308	-6.317	4.866
	[3.774]	[3.271]	[3.275]	[1.169]
SSI receipt	-13.229	-14.945	-14.939	-4.721
	[5.378]	[4.779]	[4.784]	[1.797]
Maternal age	0.105	0.103	0.103	0.023
	[0.156]	[0.135]	[0.135]	[0.049]
Child age 10-12	2.026	0.777	0.778	-0.581
	[3.513]	[3.041]	[3.045]	[1.034]
Child age 13-15	-0.397	-3.316	-3.334	-1.059
	[3.214]	[2.792]	[2.795]	[0.977]
Child age 16-18	-4.446	-3.301	-3.304	-2.614
	[2.534]	[2.193]	[2.196]	[0.772]
male	-1.836	6.54	6.545	-0.321
	[2.106]	[1.826]	[1.828]	[0.638]
Number of siblings	-0.433	1.516	1.511	0.06
	[0.916]	[0.793]	[0.794]	[0.288]
share on welfare	-41.515	-7.971	-7.994	-3.044
	[18.181]	[15.818]	[15.835]	[5.509]
share below poverty	-20.162	-10.129	-9.993	19.516
	[26.280]	[22.755]	[22.779]	[7.877]
Share <HS	-15.554	-70.027	-69.787	10.845
	[28.523]	[24.732]	[24.758]	[8.601]
unemployment rate in zipcode	0.906	0.945	0.938	-0.547
	[0.767]	[0.664]	[0.665]	[0.223]
Share black	1.568	-1.253	-1.249	1.885
	[10.409]	[9.008]	[9.018]	[3.049]
Observations	671	671	671	637
R-squared	0.16	0.32	0.32	0.12

Standard errors in brackets