Does Age or Poverty Level Best Predict Crime and Homicide Rates?

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Abstract

High criminal arrest and homicide mortality levels among young people are often attributed to biological and developmental flaws innate to adolescence and young adulthood. A special, detailed data run by the California Criminal Justice Statistics Center of arrests by offense, age, and race/ethnicity for 2006 provides a new opportunity to examine the relationship between demographic and socioeconomic factors and crime outcomes by age. Preliminary rate and bivariate regression analyses find that while poverty is much more concentrated in younger than older ages, low poverty status is strongly connected to higher levels of criminal arrest and homicide for every age group, and poverty level is a significantly larger predictor of arrest and homicide risk than is age. The conclusion that higher rates of crime and murder among young ages, like similarly high rates among African Americans and Hispanics, relate more to low socioeconomic status than to innate characteristics adhering to age or race challenges prevailing notions of the "crime proneness" of youths and young adults.

Keywords: crime, age, race, demographics, socioeconomic characteristics, public policy

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Introduction

Teenagers are "temporary sociopaths, impulsive and immature" (Fox, in Zoglin, 1996, p. 52), making demographics a "highly predictable… important contributor" to crime (Fox and Piquero, 2003, 348,354). "Adolescents, on average, engage in more reckless behavior than do individuals of other ages" and are "biologically driven" to risk-taking, including criminal offending (Steinberg, 2007, p. 56; National Research Council, 2006; Reyna and Rivers, 2008). Young age (usually ages 14-17 or 15-24) is the demographic variable most cited by authorities today. "More male teenagers, more crime. Period," Princeton politics professor and crime expert John DiIulio, Jr. believes (Easton, 1996, p. E7).

Criminologists have long associated young age with more crime, and the prediction of demographic rises in youth population have at the same time been used to increase penalties for youth crime and redirect the juvenile justice system towards a more punitive orientation (Brown, 2008). Age, however, is insufficient for understanding trends in crime and homicide rates, as many researchers have also called attention to how rates of violence are disproportionately concentrated amongst both black adults and youth, a fact not explained by the link between crime and age (Sampson and Lauritsen, 1997; Haynie et al., 2008). Instead of immutable factors like age, sociological factors like structural conditions and cultural adaptation are offered as explanations for the linkages between race and violence (Kaufman, 2005; Sampson and Lauritsen, 1997). Structural conditions like poverty, racial discrimination, and community mobility and cultural adaptations like the "code of

the streets" and family dysfunction have likewise explained how violent crime becomes concentrated in disadvantaged communities (e.g. Bellair and McNulty, 2005; Kaufman et al. 2008; Stewart and Simons, 2006).

Social scientists who believe individual level factors account for crime versus those who draw on socioeconomic explanations are often at odds. One explanation for this tension is the corresponding unit of analysis (Wright et al., 1999; Jarjoura et al., 2002). Individual explanations of delinquency, like verbal aptitude, and genetic markers, are often seen to reflect individual units of analysis (DeLisi et al., 2008; Bellair and McNulty, 2005). By contrast, sociological explanations, like poverty, racial discrimination, and cultural adaptation presume a group or community level (Sampson and Wilson, 1995). Age, by contrast, is an immutable, biological characteristic that is often proffered as an explanation for higher rates of crime amongst youth. This biological component of criminality, however, is a group dynamic—like an individual's socioeconomic status, age by itself does not predict future criminal behavior and is a rather weak correlate when viewed at the individual scale. By considering the linkages between poverty and age together, this paper tests whether immutable characteristics, like age, or changeable community contexts, such as poverty, better explain the prevalence of youth crime.

Youth, a higher proportion of whom live in poverty than do adults, thus might not have a greater propensity towards crime because of developmental or cognitive factors related to age. Instead, youths' greater propensity towards crime could also result from the impact of socioeconomic status, since a greater number of youth also live in poverty than do adults. The propensity of youth to commit more

crimes than their adult counterparts is hypothesized in this paper to result in larger account from the greater presence of children in poverty than the influence of age.

Literature Review

Competing theories: Socioeconomic status and demographics

Theories of youthful crime propensity. Despite a long history of sociological explanations of crime and delinquency, demographic characteristics are often used to demonstrate the immutable nature of crime. Demographic explanations for growing crime rates achieved prominence in the 1960s when several prominent academics reported that a growing subpopulation of young people would inevitably bring more crime (Wilson, 1975, pp. 17-18; Fox 1996). Several papers demonstrated that population structure influenced crime rates during the 1960s and 1970s, at the same time that the "Baby Boomer" population entered their teen and young adult years (Blumstein and Nagin, 1975; Wilson, 1975; Fox, 1978; Cohen, Felson, and Land, 1980; Wilson and Herrnstein, 1985; Cohen and Land, 1987; Steffensmeier and Harer, 1987).

The logical corollary that involvement in crime diminishes with age is one of the oldest and most widely accepted in criminology. Beginning with the pioneering research by Adolphe Quetelet in the early nineteenth century, criminological research consistently has confirmed that (the proportion of) the population involved in crime tends to peak in adolescence or early adulthood and then decline with age. This age-crime relationship is remarkably similar across historical periods, geographic locations, and offense types (Steffensmeier and Ulmer, 2008). Age further often predicts criminality in important ways, with both the age of first arrest and the onset of puberty playing a role in the determination of future criminal

activity (Delisi, 2006; McCluskey et al., 2006; Najman et al., 2009). Age is thus an important example of how biological, and immutable characteristics are seen to shape crime and homicide rates.

Despite its wide acceptance, there are several reasons to question the linkage between age and crime. For instance, studies that employed multiple variables found at most only small effects of changing age structure on crime, and others find age effects overridden by socioeconomic variables (Marvell and Moody, 1991; Cohen and Land, 1985). One of the few studies to even partially examine multigenerational effects (Chilton, 1991) found little effect from changes in the race, age, and gender structure of the population as factors in increases in urban crime from 1960 to the 1980s.

The sharp urban crime decline after 1992 amidst a growing adolescent population further suggests that extending the study period would render many authors' conclusions considerably different. Steffensmeier and Harer (1987) for instance found a decline in property, but not violent crime, from 1980-1984 related to the aging of the population. However, the sharp increase in theft between 1984 and 1992, even as the population continued to age, would yield very different results. Steffensmeier and Harer again found an age effect on crime in 1999, but only for the decade of the 1980s and not the 1990s. Age based effects thus might be the result of short-term correlations or cohorts involving Baby Boom populations rather than a demographic linkage between age and crime (O'Brien and Stockard, 2009). Other studies examined limited time periods or selected crimes and find only weak age-structure effects on crime that are overshadowed by other factors (Steffensmeier and Harer, 1991; Cohen and Land, 1987). A review of 90 studies

(Marvell and Moody, 1991) found only a small fraction show significant effects of age structure on crime.

The limited, short-term, single-generation, univariate studies are inadequate to establish demographics as a causal factor. Documenting a broader demographic effect on crime requires large-scale, long-term, multigenerational, and multifactorial analyses, and it is here the literature is weak. One exception, Levitt (1999), examined peak-to-trough changes in age distribution by cohort size on crime rates from 1960 to 1995, with projections through 2010. Levitt's cohort analysis was flawed in its common assumption that the excessive level of arrest (used as the only surrogate measure for offending available) among young age groups relative to older ages was stable over time. Failure to incorporate the aging structure of offending over time—specifically, to include the large increase in crime rates among older age groups in the last 35 years—suggests that any relationship found between age structure and crime may result from temporary cohort and period effects.

The problematic nature of demographic theories is further demonstrated by the large divergence between actual crime trends (see FBI, 1960-2010; Bureau of Justice Statistics, 1973-2010) and demographically-based crime forecasts (Fox, 1978, 1996, 1997; Steffensmeier and Harer, 1987; Wilson, 1994; DiIulio, 1995; Bennett, DiIulio and Walters, 1996; Abrahamse, 1997; Fox and Piquero, 2003). For a typical example, Fox and Piquero (2003) attempted to predict youth (defined as ages 14-24) homicide offending through 2020, but their projection was more than 2,000 too high within four years. Rather than involving effects of an aging population, the crime decline over the

last 15 years reflects a large drop in offending among young age groups and a smaller

drop among older ones (FBI, 1960-2010; Bureau of Justice Statistics, 1973-2010).

The consistent failure of demographic analyses to forecast crime trends should

give pause to claims that demographics are a "highly predictable… important

contributor" to crime (Fox and Piquero 2003, pp. 348, 354). A number of authors do

acknowledge the continuing difficulties in using population projections to predict crime

rates (Abrahamse, 1997). Nevertheless, assertions that higher proportions of young

people in the population augur more crime and an aging population produces less crime

continue to be invoked in professional forums, law enforcement statements, and news

media reports. This is unfortunate, since post-1985 studies have not succeeded in linking

increases or declines in the youth population or the age structure of the population as a

whole to corresponding changes in crime. Despite many reasons to questions

demographics as a cause of crime, this age-crime connection remains one of the most

widely held beliefs in criminology.

SES, individual factors, and crime. Another widely held belief amongst scholars

is that poverty is a key cause of crime. From early Chicago school theorists like Shaw

and McKay to researchers today, socioeconomic status has been posited as a key cause of

crime (Shaw and McKay, 1942: Sampson and Wilson, 1995; Jarjoura and Triplett, 1997;

Wright et al., 1999; Tapia, 2010). Perhaps one of the most ardent defenders of the crime-

poverty nexus, Loic Wacquant writes extensively on how today's systems of mass

incarceration are the result not of individual or group level deficiencies, but the work of

the continued influence of poverty, racial ghettoization, and economic forces (e.g.

Wacquant 2007, 2009).

Similarly, a long tradition of ethnographic studies demonstrates how delinquent pathways are often chosen as the result of socioeconomic exclusions from mainstream institutions, like public education, the legal employment market, and other mainstream institutions (Padilla, 1992; Anderson, 1999; Bourgois, 1995; Sanchez-Jankowski, 2008). This history led Sampson and Wilson (1995, p. 54) to conclude that understanding crime requires exploration of community-level factors such as the "ecological concentration of ghetto poverty, racial segregation, residential mobility and population turnover, family disruption, and the dimensions of local social organization…especially as they are affected by macrolevel public policies regarding housing, municipal services and employment".

Despite this consistency, poverty is often seen as an insufficient explanation for crime, particularly at the individual unit of analysis (Stiles, 2000; Jarjoura et al., 2002). Most people who live in poverty are never arrested and never officially recorded as perpetrating acts of crime and violence. Additionally, much of the empirical evidence that poverty affects delinquency stems from ethnographic studies of delinquent groups or from researchers' speculations (Jarjoura et al., 2002). As Laub and Sampson (2003, p. 277) conclude, the difficulty of linking poverty to crime is that "when thinking about a phenomenon like crime, there is a multiplicity of causal chains and pathways, all of which have a weak individual influence" (see also Lewontin, 2000).

The inability of community level factors to predict individual criminality has led to the rejection of poverty as a cause of crime and delinquency. Individual-aggregate studies of poverty and crime in particular result in the questioning of the poverty-crime relationship, since many studies show no effect of poverty on crime (Jarjoura et al.,

2002). Vazsony and Klanjsek (2009) for instance show that socioeconomic status had little effect on how individual self-control mediated delinquent behavior. While Stolzenberg and D'Alessio (2008) accept the age-crime connection, they argue that the propensity of youth to engage in crime is not the result of group dynamics at work, as researchers often suggest, but is actually the result of a greater number of individual youth choosing criminal activity. In these types of studies, demographic and individual factors account for crime over and above community factors such as SES status and group dynamics. Recently, there has been a resurgence in biological explanations of criminality, with some authors even going so far to suggest that the "nature-versus-nurture" question has been answered definitively on the nature side (Baschetti, 2008).

Despite these studies, however, Jarjoura et al (2002, pp. 164-165) wrote simply that "[t]here are many reasons why ethnographic and aggregate-level research would find more consistent evidence of a relationship between poverty and delinquency than empirical analyses at the individual level" and that "individual-level analyses have not in the past captured the persistent poor very well." Using a measure that accounted for persistent child poverty, and thus those most likely to experience the effects of the poverty crime connection, Jarjoura et al. showed how the exposure and timing of poverty led to increased rates of delinquency.

Community contexts, like poverty, also have been shown to be a key facilitator of individual development. Bellair and McNulty (2005) show that the development of verbal ability is not only related to community context, but that the relationship between verbal ability and rates of offending is also explained more consistently by community rather than individual level indicators. Ratchford and Beaver (2009) demonstrated that low

self-control, which is commonly thought to result in delinquent behavior, is actually the result of a complex process of many weak, indirect effects stemming from individual and community traits. Bersani et al (2009) further noted that the predictive ability of individual risk factors, particularly those identified in adolescence, provide little evidence of long term patterns in offending. Further still, the appearance of individual level characteristics—such as negative feelings or self-image—was affected by growing up in communities of relative deprivation (Stiles et al. 2000; Kaufman, 2005).

Wright et al. (1999) provided further evidence that the lack of correlation is best explained by simultaneous positive and negative effects of poverty on crime. Both high and low SES increased the individual's propensity towards delinquency, though through different mechanisms. Tapia (2010) also demonstrated that racial status and low SES results in increased rates of arrest and incarceration, but that minority status coupled with high SES also results in an "out of place effect" that greatly increases the risk of arrest even beyond that experienced by low SES youth. Community characteristics such as racial residential composition and poverty might have weak effects at the individual level but undoubtedly played key roles in mediating delinquency and crime.

Hypothesis regarding demographic theory

If demographic trends represent a valid, significant, and independent predictor of crime, we would expect to see: higher rates of crime among younger populations even after other relevant variables such as poverty rates and economic status are controlled. However, biological and developmental theories of adolescents' propensity to crime have been formulated without incorporating the fundamental contribution of socioeconomic conditions such as poverty. This omission is peculiar for two reasons. First, low

socioeconomic status, which typically overlaps with minority racial composition of a population, long has been recognized as a correlate with higher rates of certain types of offenses, especially homicide (see Shelden, Tracy, and Brown, 2001; Fox and Piquero, 2003). Thus, when assessing the large differences in risks among various racial, ethnic, and regional groups such as the high rates of homicide among African Americans or violent deaths among southern Americans, researchers typically pursue social and economic explanations (i.e., Fox and Piquero, 2003). However, conclusions about adolescent risk-taking and its causes have been reached without first controlling for the differing socioeconomic conditions in which adolescents and adults live (see Reyna and Rivers, 2008; National Research Council, 2006; Steinberg, 2007; for critique, see Males, 2009, 2010).

Second, that such environmental conditions might be important variables in what is called "adolescent risk-taking" is indicated by the fact that for every race and locale, youth ages 15-19 and 20-24 are two to three times more likely to live in households with incomes below federal poverty thresholds than are adults ages 45-64 (US Census Bureau, 2008, 2008a). Age-based income stratification is especially pronounced in California, the site of the present study. Poverty rates averaging below 10% are found for teenagers in only five of California's 58 counties, versus 32 counties for ages 45-54. Meanwhile average poverty rates of 20% or higher afflict teenagers in 18 counties, versus none for Californians ages 45-54.

That is, young populations differ substantially from older populations in more ways than just age. The contribution of demographic composition and socioeconomic status to teenagers' and young adults' higher criminal arrest and homicide risks compared to older

adults' deserves comprehensive attention, yet the authors can locate no studies that specifically address this issue. This study examines the associations between criminal arrest and homicide and sociodemographic factors among teenagers and adults in California for the purpose is of testing the hypothesis that higher levels of poverty more efficiently explain the variance between teenage and adult risks than does innate "adolescent risk-taking." The hypothesis is that a large proportion of the excessive rates of young ages' criminal arrest and homicide can be explained by the fact that their populations are not just younger, but are generally are poorer than are older adult populations.

Method

Data

The four outcome measures (criteria) evaluated here are rates of homicide, violent felony (homicide, rape, robbery, and aggravated assault), and total felony arrest and of homicide mortality. California's Criminal Justice Statistics Center (2008) provided a special data run for 2006 showing detailed statistics on arrests for each offense by race and Hispanic ethnicity by single years of age for ages 10 through 24, for the five-year age 25-29 age group, and by 10-year age groups for ages 30 and older. The CJSC (2008a) also provides homicide arrests for each race/ethnicity by five-year age groups. The California Department of Health Services' Center for Health Statistics (2010) and EPICenter (2010) provide homicide deaths for each race/ethnicity by single year of age by calendar year. This independent public health measure is used as a check to see if the same patterns apply as for arrest tabulations.

The first predictor, age, is calculated from population estimates by age, race/ethnicity (white not Hispanic, black not Hispanic, and Hispanic) for 2006. The California Department of Finance's Demographic Research Unit (2008) provides populations for each race/ethnicity, sex, and single year of age by calendar year. The second predictor, poverty rate, is provided for each California race/ethnicity by age group by the Bureau of the Census (2000) for 1999 and, in less detail, for 2006 by the Current Population Survey (2008a). These two variables are referred to as sociodemographic predictors.

To avoid incorporating limitations on criminal capacity imposed by very young and very old age, the ages chosen for analysis are 15 through 69. With this exclusion, 515,150 felony, 121,136 violent felony, and 1,933 homicide arrests and 2,357 homicide deaths among 26.3 million Californians in 2006 remained available for analysis.

Calculations

Arrests for three types of criminal offense—homicide, all violent felonies, and all felonies—for each race/ethnicity and single year of age are tabulated directly for ages 15 through 24 and are estimated for ages 25 through 69 by linear interpolation from grouped data (see Shyrock and Siegel, 1976). Homicide deaths for 2006 are tabulated by single year of age by race/ethnicity. Arrests and homicide deaths are divided by their corresponding populations to produce annual arrest rates per 100,000 population by single year of age for each offense and for homicide deaths for ages 15-69 for the whole population and for each race/ethnicity. The mean rates for outcome measures and percentages for sociodemographic factors by age group are shown in Table 1 and for violent crime arrest rates and poverty levels by race and age group in Table 2.

Analysis

Three analyses are presented. The first simply compares the distribution of the population and of violent crime arrest counts for each age group by poverty bracket (Table 3). The second analysis, shown in Table 4, averages arrest and homicide death rates for each year of age (15 through 69) crossed with poverty level (0-4% through 25-29%). Poverty level, in turn, is a function of the ages and races of the arrestees and murder victims. Thus, the low-poverty brackets (under 10%) tend to be dominated by older ages and White (not Hispanic) and Asian Americans, higher poverty brackets (20% and higher) primarily by younger ages and Hispanic and African Americans, and the middle poverty brackets (10-19%) by representations from all ages and races. The four racial categories and 55 single years of age produce 220 cells for each outcome measure. Single-year ages are combined into the age groups shown in Tables 1 through 4.

The third analysis consisted of a simple bivariate regression of the two sociodemographic predictors, age and poverty level, on the outcome criteria of arrest and homicide death rates. The stepwise procedure involved entering age and poverty in forward and reverse order, which produced identical results. The results, presented in Table 5, represent standard hierarchical multiple regressions (Zagumny, 2001) of each of the four outcome criteria with the two sociodemographic predictors. The table shows the significance and relative importance of each predictor in relationship to the other predictor, while the hierarchical regression quantifies the contribution each predictor makes to accounting for overall variance in arrest and homicide rates.

Results

Table 1 shows arrest and homicide death rates as they are typically presented, for populations in aggregate unadjusted to reflect differing racial and gender structures.

These weighted aggregates show teenagers and young adults have much higher arrest rates for homicide, violent crime, and felonies. However, young people differ from middle-agers and the elderly in significant ways other than age and crime rates. Compared to age 55-59 (an age thought to be crime-averse), Odds Ratios show 15-19 year-olds are 15% more likely to be male, 35% more likely to be black, three times more likely to be Hispanic, and twice as likely to live in poverty (Table 1).

Table 2 shows that controlling only for race does not solve the disparity. Within each race, teenagers are 50% to 75% more likely, and young adults around twice as likely, to live in poverty than are middle-agers. Table 2 also shows that the association of criminal arrest rate with race, which overlaps substantially with poverty level, is so profound that African Americans in their 50s and Hispanics in their 30s are more likely to be arrested for violent crimes than are White teens and young adults (Table 2). Homicide arrest and death and felony arrest rates show similar patterns.

Comparing violent crime arrest proportions to population proportions by poverty level and age group (Table 3) shows that while around half of California's teenage and 56% of its young-adult populations are concentrated in the highest-poverty (20%+) bracket, none of the population groups in the 35-54 age range occupy the highest poverty bracket. Conversely, while just one-third of teens and no young adults enjoy the lowest poverty level (<10%), more than 7 in 10 Californians aged 35-54 are in the wealthiest bracket. Poverty level bears a strong association with arrest risk at every age level. More than three-fourths of teenage violent crime arrests (along with 69% of teenage felony arrests, 82% of homicide arrests, and 84% of homicide deaths, not shown separately) are concentrated in the 49% of the teenage population occupying the highest poverty bracket;

just one in six teenage violence arrests (and 19% of teenage felony arrests and 9% of

homicide arrests and deaths) are in the lowest poverty bracket. The OR of teenage violent

crime arrest versus population proportions in the highest to the lowest poverty bracket is

3.3.

Similar arrest surpluses in high-poverty versus low-poverty brackets are evident for

older age groups. Even for ages 55-69, the 0.7% of the population occupying the highest

poverty bracket accounts for 3.3% of felony arrests in the senior age group. The

corresponding OR's for the other three ages with representation in all three poverty

brackets are 2.4 for age 25-29, 4.3 for age 30-34, and 4.5 for age 55-69.

Table 4 shows unweighted rates (that is, rates by race are averaged in equivalent

fashion for every age group) of arrest for felonies, violent offenses, and homicide, and for

homicide death by age group crossed with poverty level. As in Table 3, the pattern of

cells with missing values, indicating that no races for that age group were represented in

that poverty level, shows that younger ages are concentrated in higher poverty brackets.

Higher-poverty brackets, in turn, suffer substantially higher rates of arrest and homicide

at all age levels than do low-poverty brackets. For age 15-19, rates of felony arrest are 4.4

times higher, violent crime 7.4 times higher, homicide arrest nearly 10 times higher, and

homicide death rates 11 times higher in the highest poverty bracket (25-29%) compared

to the lowest for that age (5-9%). Similarly large discrepancies are evident for older age

groups. For age 60 and older, felony arrest rates are 5.8 times higher in the highest

poverty bracket for that age (15-19%) compared to the lowest (0-4%).

The most direct comparison is for the 10-14% and 15-19% poverty brackets, in

which all age groups have some representation (it should be noted that younger ages

suffer higher average poverty rates than older ages even within the same poverty

brackets). Still, at these reasonably equivalent poverty levels, the arrest rates for teens age

15-19 (which the aggregated lefthand column shows are four to 10 times higher than for

age 50-59 when poverty is not controlled) become similar to those of age 50-59.

Similarly, arrest and homicide death rates for age 20-24, two to five times higher than age

40-49 when poverty rates are uncontrolled, are similar to those for age 40-49 at

equivalent poverty levels. Arrest and murder risk rates drop off considerably after age 55

in every poverty bracket.

Table 5 presents a simple bivariate regression of the predictors of age and poverty

level on the criteria of arrest and homicide death rates. The results, shown in hierarchical

format, show that while both predictors are strongly significant and together predict

around half the variance in arrest rates and 40% of the variance in homicide rates, poverty

(in positive relationship) displays three to four times more explanatory power in

predicting arrest rates and eight times more in predicting homicide death rates than does

age (in inverse relationship).

Discussion

The detail available in California crime statistics, as provided by the state

Criminal Justice Statistics Center (2008) in a special data run, provide new opportunities

for analysis of arrests by age, race/ethnicity, and offense type and homicide risk. The

findings of this preliminary analysis suggest that high arrest and homicide rates found

among California's young age groups, and also among Hispanics and African Americans

into late middle age, are due much less to age or race per se than to high poverty rates

adhering to age and race. Poverty level also is strongly linked to higher arrest and murder rates among older age groups.

The evidence for the hypothesis that poverty, not age, best explains arrest and homicide rates is consistent across different measures. First, direct cross-tabulations of arrest and homicide rates by age group and poverty level reveal that where the sociodemographics of adults in their 30s, 40s, and 50s are similar to those of young people, middle and older adult ages also suffer sharply elevated rates of murder and arrest as well. California's patterns indicate that a population aged 35-44 or 45-54 whose characteristics were 51% male, 7% black, 43% Hispanic, and 16% in poverty, the typical characteristics of 15-24 year-olds-would display homicide mortality and violence and felony arrest rates much closer to those of 15-24 year-olds. Second, bivariate regression indicates that poverty level is associated with around 4 times more of the variance in arrest and homicide rates than is age.

Arrest rates do drop below expected levels for adults in their 60s and older (as well as for youths under age 15, not included in this analysis), perhaps reflecting diminished physical capacity to commit violent and serious crimes. This indicates the age-based dropoff in crime and violence risk does not occur after late teen and young adult years, as currently theorized, but after age 50. The "crime aversion" of middle agers, at least in terms of arrest and murder risk, is largely a feature of their concentration in low-poverty brackets, while the "crime proneness" of younger ages mostly is an artifact of their much greater presence in high-poverty categories.

With regard to the "ecological fallacy" and individual factors addressed in the literature review, it is important to note that this paper assesses not individual crime

tendencies based on levels of individual poverty (official tabulations do not specify the socioeconomic status of each arrestee or murder victim), but environments of poverty. The theoretical contribution is to suggest that the same mechanisms—social disorganization, strain, deviant subcultures, enhanced policing, etc.—by which higher levels of poverty are thought to create higher rates of homicide and criminal arrest among poorer races, ethnicities, and locales (see Donziger, 1996) may also apply to poorer age groups. The socioeconomic mechanisms contributing to teenagers' and young adults' higher homicide and arrest rates may be similar to those found for African Americans or Mississippians, or they may differ, but they would be likely to overlap given that poorer races have younger age structures.

Investigating the mechanisms by which environments of poverty contribute to arrest rates by age is beyond the scope of this initial paper but is a key topic for study. Sociodemographic analysis including race, gender, age, and economic variables offers significant implications for crime policy. For more than a century, influential crime authorities have suggested that the mere presence of "crime-prone populations" characterized by immutable demographics is a major, if not the major, cause of crime levels and trends (Fox and Piquero, 2003). While efforts to predict crime trends based on demographic trends have proven notoriously unsuccessful, demographic notions of crime remain important informers of public policy, from the imposition of juvenile curfews to estimating police and prison staffing needs. That crime levels relate much more to mutable socioeconomic characteristics than to immutable demographics suggests a broader array of initiatives that include reducing poverty and mitigating its effects as important tools in reducing crime.

Limitations

California displays unique demographics and large populations in each age and race/ethnicity category, and the applicability of these findings to other locales requires assessment based on local statistics, where available. Data based on one year and limited numbers of values for each poverty-by-age cell require replication. A more comprehensive analysis of a larger body of California arrest and homicide statistics by race, age, and gender statewide and for large counties with differing demographic and poverty structures is planned using 2010 Census (reflecting actual population counts rather than intercensal estimates) and Criminal Justice Statistics Center arrest figures. Efforts to replicate or challenge these findings in other states and countries also are welcomed.

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Table 1. California arrest, homicide death, and sociodemographics by age group, 2006

Mean rates per 100,000 population (weighted):

Age group	Arrests for: Homicide	Violent crime	Felony	Homicide death	Percent of population that is: In poverty	Male	Black	Hispanic
15-19	18.49	792.6	3,237.1	15.8	16.1%	51.3%	7.4%	43.2%
20-24	19.81	903.4	3,890.7	20.0	18.7%	52.1%	7.0%	40.5%
25-29	13.36	793.2	3,357.7	16.2	13.8%	52.1%	6.5%	43.4%
30-34	6.53	588.0	2,474.9	9.3	11.3%	51.2%	5.9%	42.3%
35-39	3.58	432.4	1,834.7	6.7	10.1%	51.1%	6.1%	38.5%
40-44	3.64	388.5	1,724.6	5.4	9.3%	50.8%	6.4%	34.0%
45-49	3.01	316.0	1,426.5	5.8	8.2%	50.2%	6.4%	28.6%
50-54	2.10	179.0	774.9	4.8	8.2%	49.3%	6.0%	24.7%
55-59	1.52	110.6	464.7	3.3	8.1%	48.7%	5.7%	21.0%
60-64	0.88	59.6	221.5	2.7	9.5%	48.1%	5.5%	19.6%
65-69	0.55	29.8	95.4	1.1	8.0%	47.1%	5.9%	19.0%
All ages	6.68	417.6	1,773.0	8.3	11.0%	50.2%	6.3%	32.2%

Note: the values for crime and homicide rates represent total counts divided by total populations and are unadjusted for the differing racial compositions of each age group, shown in the righthand columns.

Table 2. California violent crime and poverty rates by age, race, 2006

Age group	Violent crime arrests per 100,000 population			Poverty rate		
	White	Black	Hispanic	White	Black	Hispanic
15-19	388.4	3,366.6	852.2	8.5%	25.6%	22.6%
20-24	542.2	2,827.5	1,137.3	14.4%	23.4%	20.4%
25-29	547.2	2,486.3	934.2	8.5%	20.5%	18.3%
30-34	464.2	1,848.3	656.6	6.8%	17.8%	15.9%
35-39	352.0	1,327.6	469.8	6.3%	14.5%	16.9%
40-44	336.5	1,409.2	361.1	5.9%	13.8%	15.8%
45-49	269.6	1,251.2	282.7	5.5%	14.4%	10.7%
50-54	146.1	778.5	166.4	5.5%	14.2%	12.5%
55-59	88.4	516.2	102.1	5.7%	15.4%	13.1%
60-64	47.4	240.2	62.2	6.6%	18.8%	14.8%
65-69	25.3	94.9	30.2	5.0%	15.0%	13.8%
All ages	291.6	1,467.8	459.5	7.2%	17.6%	15.9%

Table 3. Percent of population and violent crime arrests by age group and poverty bracket, California, 2006

	Percent of population by poverty bracket				Percent of violent crime arrests by poverty bracket			
Age	Population	0-9%	10-19%	20%+	Arrests	0-9%	10-19%	20%+
15-19	2,865,987	35%	16%	49%	22,585	16%	8%	76%
20-24	2,639,193		57%	43%	23,847		44%	56%
25-29	2,432,268	35%	48%	17%	19,310	24%	48%	27%
30-34	2,547,734	46%	51%	2%	14,940	32%	60%	7%
35-44	5,733,491	57%	43%		23,508	42%	58%	
45-54	5,269,455	70%	30%		13,334	57%	43%	
55-69	4,794,381	76%	23%	1%	3,613	59%	38%	3%
All	26,282,509	52%	37%	12%	121,137	27%	42%	31%

Note: empty cells indicate no races in that age group had average poverty levels represented in that poverty bracket.

Table 4. Felony, violence, and homicide arrest and homicide death rates per 100,000 population by age group crossed with poverty level, California, 2006

Age group	All	0-4%	5-9%	10-14%	15-19%	20-24%	25%+
Felony arrest rates							
15-19	4,060.2		1,794.5	1,964.3	2,810.7	5,891.9	7,945.8
20-24	4,681.7			2,539.5	3,973.6	6,046.3	
25-29	4,123.1		2,746.0	2,384.5	4,183.5	7,228.5	
30-34	3,148.5	719.3	1,870.8	2,768.4	4,242.8	7,262.8	
35-44	2,401.5	622.6	1,321.8	3,672.0	3,301.8		
45-54	1,717.2	722.5	880.6	2,421.9	4,378.1		
55-69	470.6	145.2	196.0	703.8	907.4	1,376.2	
All	2,333.0	390.3	939.6	2,361.9	2,982.2	6,019.9	7,945.8
Violent crime arrest rates							
15-19	1,151.0		365.3	378.9	675.9	1,726.5	2,683.7
20-24	1,150.8			495.6	911.7	1,583.3	
25-29	1,008.2		547.2	563.0	1,042.8	1,871.5	
30-34	758.5	215.2	398.3	675.9	1,059.6	1,759.8	
35-44	544.6	198.6	305.6	807.8	762.5		
45-54	360.7	181.3	207.4	491.6	841.9		
55-69	101.5	47.5	56.0	140.5	172.4	262.3	
All	562.2	112.6	212.9	513.4	684.0	1,594.0	2,683.7
Homicide arrest rates							
15-19	27.0		5.9	6.6	17.9	44.8	58.0
20-24	27.7			7.4	20.4	40.9	
25-29	20.0		6.1	9.8	19.1	44.6	
30-34	10.1	2.9	3.5	8.9	14.9	27.2	
35-44	5.5	2.0	2.5	8.9	8.0		
45-54	4.0	1.5	2.1	5.6	9.7		
55-69	1.2	0.8	0.9	1.6	1.8	1.2	
All	9.8	1.3	2.3	6.5	11.3	38.7	58.0
Homicide death rates							
15-19	22.0		4.4	4.3	13.9	37.4	48.4
20-24	29.8			6.0	20.4	46.0	
25-29	25.6		6.0	11.6	25.7	58.0	
30-34	16.2	2.9	4.2	11.8	24.9	58.3	
35-44	9.8	0.9	3.9	15.1	17.0		
45-54	8.0	3.7	4.4	11.5	18.3		
55-69	3.3	1.8	2.2	4.5	4.5	11.5	
All	12.7	2.3	3.6	10.2	15.7	45.2	48.4

Note: empty cells indicate no races in that age group had average poverty levels represented in that poverty bracket. Arrest and homicide rates represent the averages of values by race in each age-by-poverty category. For values unadjusted by race, see Table 1.

Table 5. Stepwise regression of poverty and age as predictors of arrest and murder rates (forward and reverse variable entry)

| Variable | Regression coefficients | | | Multiple | Adjusted | Change* |
	Beta	T	p	R	R^2	in R^2
Felony arrest rate						
Poverty rate	0.469	8.726	0.000	0.606	0.365	0.365
Age (15-69)	-0.349	-6.493	0.000	0.686	0.465	0.101
(Constant)		3.524	0.001	Unexplained variance		0.535
Violent crime arrest rate						
Poverty rate	0.489	9.282	0.000	0.625	0.388	0.388
Age (15-69)	-0.346	-6.565	0.000	0.701	0.487	0.099
(Constant)		2.946	0.004	Unexplained variance		0.513
Homicide arrest rate						
Poverty rate	0.493	9.150	0.000	0.618	0.379	0.379
Age (15-69)	-0.317	-5.875	0.000	0.683	0.462	0.083
(Constant)		1.493	0.137	Unexplained variance		0.538
Homicide death rate						
Poverty rate	0.507	8.829	0.000	0.594	0.350	0.350
Age (15-69)	-0.221	-3.845	0.000	0.628	0.389	0.039
(Constant)		0.534	0.594	Unexplained variance		0.611

*Change in R^2" is the power of the predictor to explain variance in the criterion after controlling for the higher ranked predictor. "Unexplained variance" is the proportion of variance that remains unaccounted for by the predictors.