

NBER WORKING PAPER SERIES

AFTER THE EPIDEMIC:  
RECENT TRENDS IN YOUTH VIOLENCE IN THE UNITED STATES

Philip J. Cook  
John H. Laub

Working Paper 8571  
<http://www.nber.org/papers/w8571>

NATIONAL BUREAU OF ECONOMIC RESEARCH  
1050 Massachusetts Avenue  
Cambridge, MA 02138  
October 2001

Philip J. Cook is ITT/Terry Sanford Professor of Public Policy at Duke University, Durham, North Carolina. John H. Laub is Professor of Criminology and Criminal Justice at the University of Maryland, College Park and Affiliated Scholar, Henry A. Murray Center, The Radcliffe Institute for Advanced Study, Harvard University. We gratefully acknowledge the assistance of Michael Rand in providing unpublished NCVS statistics and James Alan Fox for his help with SHR data. Bob Malme, Cumbuka Ortez, and Elaine Eggleston provided excellent research assistance. Many thanks to all those who offered comments on an earlier draft, including Frank Cullen, John Donohue, Ted Joyce, Gary LaFree, Janet Lauritsen, Steve Levitt, Jens Ludwig, Roger Parks, Michael Tonry, and an anonymous referee – the final version is much improved for their efforts. The opinions and any remaining errors are ours alone. The views expressed herein are those of the authors and not necessarily those of the National Bureau of Economic Research.

© 2001 by Philip J. Cook and John H. Laub. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

After the Epidemic:  
Recent Trends in Youth Violence in the United States  
Philip J. Cook and John H. Laub  
NBER Working Paper No. 8571  
October 2001  
JEL No. K42

### **ABSTRACT**

The epidemic of youth violence in the United States peaked in 1993 and has been followed by a rapid, sustained drop. In parallel with our earlier treatment (Cook and Laub 1998), we assess two types of explanation for this drop -- those that focus on “cohort” effects (including the effects of abortion legalization) and those that focus on “period” effects (including the effects of the changing crack-cocaine trade). Once again we are able to reject the cohort-type explanations, yet also find contradictions with an account based on the dynamics of crack markets. The “way out” of this epidemic has not been the same as the “way in.” The relative importance in homicide of youths, racial minorities, and guns, all of which increased greatly during the epidemic, has remained high during the drop. Arrest patterns tell a somewhat different story, in part because of changing police practice with respect to aggravated assault. Finally, we demonstrate that the rise and fall of youth violence has been narrowly confined with respect to race, sex, and age, but not geography. Given the volatility in the rates of juvenile violence, forecasting rates is a risky business indeed. Effectively narrowing the range of plausible explanations for the recent ups and downs may require a long time horizon, consideration of a broader array of problem behaviors, and comparisons with trends in other countries.

Philip J. Cook  
Duke University  
and NBER

John H. Laub  
University of Maryland

## After the Epidemic

The epidemic of violence that began in the mid 1980s was of unprecedented intensity but narrowly channeled, like a flood in a canyon; most of those caught up in this epidemic, either as victims or perpetrators, were young black or Hispanic males. That flood peaked in 1993-4 and has receded since. The huge swing in rates – a tripling of the homicide commission rate by adolescents over just eight years – is a challenge to existing theories of the determinants of violence. The challenge for policymakers may be still more urgent: Has enough been learned from this epidemic to predict the next one, or to know what is needed to prevent it? To date both the upside and downside of the epidemic have received some systematic attention (see, e.g., Tonry and Moore 1998 and Blumstein and Wallman 2000), but there remains considerable uncertainty, not to mention disagreement, about what happened and why.

In our earlier analysis (Cook and Laub 1998), we characterized the major explanations as either “cohort” or “period.” Cohort explanations interpreted the increase in violence as the direct result of an increase in the prevalence of exceptionally violent individuals, who in one prominent account were labeled “super-predators” (Bennett, DiIulio, and Walters 1996). Although influential politically, that type of explanation did not fit the facts of the epidemic. The super-predator theory suggested a secular increase in violence-involvement rates from one birth cohort to the next, but in fact there was an upsurge for a number of birth cohorts simultaneously. Further, the birth cohorts that were on the front lines as the epidemic peaked during the early 1990s were not at all exceptional with respect to their involvement in violence during their younger years. These facts strongly favor explanations that focus on environmental factors during the epidemic period, rather than on trends in the violent propensities of youth cohorts.

The most widely accepted “period” explanation focused on the drug trade, especially crack cocaine, and the related increase in gun carrying and use by youths (Blumstein 1995). The importance of guns is evident from the homicide data: all of the increase in youth homicide was due to guns while the non-gun homicide rate remained essentially constant. Every category of homicide, including those associated with felonies, arguments, and gang conflict, experienced a relative increase in gun use (Cook and Laub 1998). Other studies have provided evidence that the timing of youth-homicide increases was closely linked to the introduction of crack (Cork 1999; Grogger and Willis 2000).

In this sequel, we extend our analysis to include an additional three or four years of data (through 1998 or 1999) in an effort to document the remarkable drop in youth violence that began around 1994. We are interested in assessing the two types of explanation for this drop, those that focus on "cohort" effects (the composition of the relevant cohorts with respect to violence proneness), and those that focus on "period" effects (contemporaneous environmental determinants of violence).

- The most prominent "cohort" explanation attributes falling crime rates to the legalization of abortion during the early 1970s (Donohue and Levitt 2001). But the facts of the epidemic increase and decline in youth violence do not fit this or any other cohort explanation.
- There are a variety of "period" explanations, but the most prominent is that the decline in violence followed the decline in conflict associated with the crack-cocaine trade, and a concomitant decline in gun carrying and use by young minority males (Blumstein 2000, 2001). That explanation is plausible, but does not account for the fact that non-gun homicide rates declined almost as rapidly as gun homicide rates following the epidemic peak.

Thus, the drop in youth violence has been something of a mystery, just as was the prior increase. Our purpose here is not to solve the mystery, but rather to bracket the domain of acceptable explanation.

A related issue is whether the "way out" of this epidemic has been the same as the "way in"; specifically, are the post-epidemic patterns of youth violence with respect to age, race, weapon use, and geography similar to those that prevailed in the pre-epidemic period of the mid 1980s? Or is there a hangover from this binge of violence? The most complete data are for homicide, where a hangover is indeed evident. First, the relative importance of youths in the national violence picture, which increased greatly during the epidemic, has remained relatively high by historical standards; killers under age 25 accounted for 60 percent of homicides in 1998, compared to 43 percent in 1982 (before the epidemic began). Second, the relative involvement of blacks in homicide, which increased during the epidemic, has remained high during the downturn. Third, while gun homicides accounted for all of the youth homicide increase, they have shared the decline with non-gun homicides; the result is that the gun percentage in youth killings was almost as high in 1998 as in 1993, and much higher than in 1985.

For the broader array of violent crimes, including aggravated assault and robbery, the primary indicators are based on arrest data, which reflect police practice as well as the underlying crime patterns. The arrest trends help document the rise and fall of youth crime over the course of the epidemic, and reveal some intriguing trends. In particular, for juveniles less than 18 the long-term trend toward parity (documented in

Cook and Laub 1998) in both the male-female violence-arrest-rate ratio and the black-white violence-arrest-rate ratio, has accelerated during the downturn.<sup>1</sup> In part this trend is due to a change in composition of juvenile arrests for serious violence – robbery has been declining relative to assault. (The predominance of males and blacks in assault is much less than in robbery.) And in part it is due to the intriguing fact that the composition of assault arrests has been approaching parity; the recent reduction in aggravated-assault arrests for juveniles has been greater for males than females, and for blacks than whites. But it is important to note that the trend toward greater parity in assault is not present in the homicide data, and most likely is a consequence of changing police procedures rather than a reflection of underlying crime patterns (see Zimring 1998, pp. 38-47).

The epidemic of youth violence is treated in all these analyses as national in scope, but that is not self-evidently the case. It is certainly possible that the large movements in national aggregates conceal important regional differences. As one check on this possibility, we tabulate homicide rates for youthful black males for the 15 jurisdictions that have the highest counts of such homicides. (These cities and counties collectively accounted for over half of all homicides involving young black male victims in the mid-1980s.) Every one of them experienced a substantial increase in homicide victimization for this group by the early 1990s; in all but two, that rate had fallen by 1997-8. This high degree of synchrony suggests that the epidemic was indeed nationwide.

The organization of this sequel follows the original article but with some omissions and additions. In particular, the discussion of data sources is not repeated here, and we relegate to an appendix some of the updated documentation of the “burden” of youthful violence on the criminal justice system. On the other hand, new material has been added to the analysis of homicide, including an analysis of birth cohorts and of synchrony among urban areas. The principal sections concern juvenile arrest and offending rates (I), homicide victim and offending patterns (II), and a review of the evidence concerning whether the epidemic was due primarily to cohort or period effects (III). A final section (IV) recaps the evidence that period effects are paramount, and discusses the implications for projecting future rates of youth violence.

Before setting out on this path, a note on the timing and age-group involvement of the epidemic is in order. With respect to age, the epidemic increase in violence was most concentrated on juveniles less

---

<sup>1</sup> Of course, a number of criminologists have analyzed trends in relative offending rates by gender and race. For a recent example on gender see O'Brien (1999) and on race see LaFree (1998a).

than 18, but also involved young adults ages 18-24. (In discussing juveniles, we usually focus on those ages 13-17 or 12-17, and refer to that group as "adolescents.") The relevant indicators all show that the epidemic of youth violence peaked in the early 1990s. The violent-crime arrest rate for adolescents peaked in 1994. For homicide, both the commission rate and the victimization rates peaked in 1993 for both adolescents and young adults ages 18-24. In what follows we use either 1993 or 1994 as the peak year.

## I. Juvenile Arrest and Offending Rates

Based on national statistics, the upswing in violence during the late 1980s appears quite mild. In particular, the homicide rate increased from 8.2 (in 1985) to 10.4 (in 1991) per 100,000, a high but not unprecedented level.<sup>2</sup> But this overall pattern conceals a remarkable disparity among age groups. In fact, the increase was concentrated among youths under age 25,<sup>3</sup> and was particularly intense for juveniles under age 18 (Blumstein 1995, 2000). This was an epidemic of youth violence of unprecedented intensity, largely isolated from broader trends.

We begin our account with a focus on serious violence committed by juveniles. Here we have two indicators of the underlying phenomenon, arrest data from the FBI's Uniform Crime Reports (UCR) and victim reports in the National Crime Victimization Survey (NCVS). Both of these indicators confirm the epidemic increase and subsequent reduction in violence rates. The next section then provides a more extensive account focused on homicide, for which more detailed and accurate data are available.

Figure 1 about here

For over two decades beginning in 1974, adolescent arrest rates for the property crimes included in the FBI Index (burglary, larceny, and auto theft) fluctuated in a relatively narrow band around 35 per 1,000 (Figure 1).<sup>4</sup> Arrest rates for the violent Index crimes (rape, robbery, aggravated assault, and criminal homicide) were also quite static during the first half of this period, but then doubled between 1984 and 1994. The decline in both the property and violence arrest rates since 1994 has been rapid, with the result that by 1999 the violence-arrest rates had returned near

---

<sup>2</sup> [webapp.cdc.gov/sasweb/ncipc/mortrate.html](http://webapp.cdc.gov/sasweb/ncipc/mortrate.html), accessed on June 5, 2001.

<sup>3</sup> Between 1985 and 1993, the homicide-victimization rate increased 74 percent for ages 20-24, 25 percent for ages 25-29, and just 11 percent for ages 30-34. For victims age 35 and over, the rate declined slightly.

<sup>4</sup> See Cook and Laub (1986) for a commentary on the surprising stability of arrest rates in the face of criminogenic trends in the socioeconomic and family status of children.

the pre-epidemic level, and the property-arrest rates declined to a level not seen since 1966.

Table 1 about here

While trends in arrest rates are mediated by police practice and do not necessarily track the underlying changes in criminal activity, evidence from the NCVS tells a similar story. In most cases respondents who report that they were victims of serious violent crime are able to estimate the age of the assailant. From these reports it is possible to estimate the rate of commission for broad age groups, including for adolescents ages 12-17. Commission rates for this group are reported in Table 1 for five 5-year periods through 1999. These commission rates are several times as high as the arrest rates, but exhibit roughly the same pattern, albeit in more muted form: As with the arrest rates, the commission rates are highest during the early 1990s, dropping back to the previous level (of about 23 per 1,000) after 1994.

Figure 2 about here

Figure 2 provides a broader context for the trends in adolescent violence arrests by depicting the age profiles of violence-arrest rates for males at three points in time. As expected the youthful end of the profile shifts up sharply between 1985 and 1994, and then drops back most of the way by 1999. But this dynamic is not limited to youths: By 1994 arrest rates had increased by 40 percent for men in their twenties and 63 percent for men in their thirties, and while the rates for these groups have declined since 1994, they have remained substantially higher than 1985.

Again it is important to ascertain whether these patterns are tracking an underlying reality in terms of violent crime, or rather reflect changes in police practice in making and recording arrests. In this case, police practice is most likely the answer. The elevated rates of arrest for violence in recent years are mostly due to higher rates for aggravated assault, a crime that is closely linked both logically and etiologically to homicide. Yet the trend in homicide arrests tells quite a different story than the trend for aggravated-assault arrests. Homicide arrest rates for those ages 25 and over were actually declining during the surge of youth violence, and have continued to decline since 1994 (Blumstein 2000, Fox 2000, and Rosenfeld 2000). It appears that the increases in adult arrests for aggravated assault are not the result of changes in offending but rather police practice in domestic-violence cases (Cook and Laub 1998, p. 42; Blumstein 2000, pp. 17-19). The trend has been for police to treat such cases with greater formality and seriousness in processing and reporting. Zimring (1998, p. 46) provides compelling evidence that

increases in aggravated-assault arrests were due to a downward shift in the line that separated aggravated from simple assaults rather than a change in violent behavior among youth and adult offenders.

#### *A. Sex and Race*

Arrests for violent crime are highly concentrated with respect to sex and race. In 1999, males constituted 83 percent of juvenile violence arrestees (defined as under 18); thus, almost five times as many boys as girls were arrested. With respect to race, 41 percent of all juvenile violence arrestees were black, while 57 percent of the juvenile violent arrestees were white. Per capita violent-arrest rates for blacks were almost four times as high as for whites.

Figure 3 about here

Figure 3 depicts arrest rates by race and sex for the two most common of the violent crimes, robbery and aggravated assault. Each bar in this chart represents both the 1994 and 1999 rates. Robbery has the greatest disparities by race and sex, and those disparities were largely preserved during the sharp drop in arrests during that 5-year period. (The “white” rate, which incidentally includes most Hispanics, did not drop quite as much proportionately as the black rate.) Arrest rates for aggravated assault did not drop nearly as much as robbery overall, and dropped hardly at all for whites and females.

Figure 4 about here

Both the relative decline in robbery arrests, and the changing demographic composition of assault arrests, has had the effect of reducing the race and sex disparities in arrests for violent crime during the late 1990s. (Over 90 percent of juvenile violent-crime arrests are for aggravated assault or robbery. Also included are rape and homicide.) Figure 4 reveals that this trend has actually been evident for at least three decades. In 1970 both the male-female and the black-white arrest ratios for juveniles exceeded ten. By 1999 they had declined to approximately four. The male-female ratio has declined steadily, while most of the decline in the black-white ratio occurred in the early 1970s and again in the 1990s.

#### *B. Conclusion*

From both UCR and NCVS data, it appears that adolescents committed violent crimes at a substantially higher rate during the early 1990s than either before or since. Based on the UCR arrest data, the national epidemic of juvenile violence began in 1984 and peaked in 1994. It is



important to note that this epidemic did not reflect a general outbreak of lawlessness; while arrest rates for violence doubled, arrest rates for property crimes increased relatively little during this period.

Forty-one percent of juvenile violence arrests are for blacks, despite the fact that they constitute only about 14 percent of the relevant population. White or black, most of the violence arrestees are males. But these race and sex differences are less than half as large as they were during the 1960s. Thus arrests for violent offending are less concentrated demographically now than in previous decades. The epidemic did not interrupt that trend. But the trend in arrests for aggravated assaults probably have more to do with police practice than the underlying reality.

In any event, the story is quite different for homicide, as we shall see in the next section. For that important crime, the epidemic was to a remarkable degree limited to black males, and their role has remained elevated throughout the 1990s.

## II. Homicide Victims and Offenders

An adequate description of the epidemic of youth violence requires a detailed look at homicide. While relatively rare, it is both the most serious and the best documented of the violent crimes. And the homicide statistics suggest a somewhat different story about the epidemic than the arrest statistics for violence. The homicide epidemic appears more intense and more narrowly concentrated with respect to age and race than the epidemic of non-lethal youth violence.

There are two sources of detailed data on homicide (Wiersema, Loftin, and McDowall 2000). The Supplementary Homicide Reports (SHR) data compiled by the FBI from law-enforcement agencies provide information on individual homicides, including what is known about the victim, the killer or killers, and the circumstances. Because some agencies fail to send in these reports, the SHR only captures 80-90 percent of all homicides. The other source, the mortality data from the National Center for Health Statistics Vital Statistics Program, includes individual records on all of the known homicides each year compiled from medical examiners' or coroners' reports. These data are useful as a check on the SHR but lack information on circumstances of the homicides and characteristics of the killers.

Figure 5 about here

Figure 5 depicts the trend in homicide-commission rates and victimization rates in two age groups: adolescents (ages thirteen to

seventeen) and young adults (ages eighteen to twenty-four).<sup>5</sup> The commission rates are not based on arrest data but rather are based on the SHR data concerning demographic characteristics of suspects. We have adjusted these statistics for both the underreporting in the SHR, and the fact that there are no suspects in some homicides.<sup>6</sup> If the SHR lists more than one suspect, we include only one of them.<sup>7</sup> Thus our approach assigns one and only one suspect to each homicide. We prefer this approach to the use of arrest data, which include multiple suspects for some homicides and none for others. One attractive consequence of our approach is that the commission rates that we estimate for different demographic groups are directly comparable to the victimization rates.

Figure 5 and those that follow are limited to males since they account for most killings. In particular, in 1998 81.5 percent of victims ages 13-17 were male, while 92.5 percent of suspects in this age range were male. (The male percentages of victims and suspects for the 18-24 age group are 86 and 93 respectively.) Further, females were somewhat immune

---

<sup>5</sup> The choice of 1976 as the first year in these charts is a reflection of SHR data availability.

<sup>6</sup> Data are missing for two reasons: Some law-enforcement agencies did not submit their SHR data to the FBI, and some of the homicide reports that were submitted included no information on the killer – presumably because the investigation had failed to yield an arrest or even a description. We correct for the failure to report by use of the Vital Statistics Program data, as explained in Cook and Laub (1998). For SHR homicides in which no suspect is listed, we impute demographic characteristics based on the characteristics of the victim. Victims were placed in 16 categories based on sex, race (black or not), and age (0-12, 13-17, 18-24, 25 and over). The percentage distribution of suspect characteristics over these same 16 categories was calculated for each of the 16 victim groups, for each year. Those distributions were then treated as probability distributions in imputing suspect characteristics for cases in which no suspect was listed. It should be noted that this imputation procedure is more elaborate than used in Cook and Laub (1998); for that reason, and because we used somewhat different population estimates, the estimates presented here are slightly different from those presented in our earlier work. This imputation strategy is slightly different from that employed by Fox (2001). He infers the demographic characteristics of unidentified offenders from the known offender profiles based on age, race, and sex of the victim, the state in which the homicide occurred, and the year of the offense. Of course, as Maltz points out, “unknown offenders are not necessarily representative of the knowns” (1999, p. 39). For a general overview of the quality of police data and efforts to impute missing data see Maltz 1999.

<sup>7</sup> The Inter-university Consortium for Political and Social Research SHR data set used in the analysis (Study No. 3000vi) is a consolidated victim data set. Where there is more than one offender listed in the complementary offender data set (Study No. 3000of), only the characteristics of the first offender is listed in the victim data set. The concern is that the first offender listed is often chosen arbitrarily. Nevertheless, Maltz concludes that this is not a serious problem “since the great majority of homicides consist of one victim and one offender” (1999, p. 34).

from the epidemic, exhibiting a more muted increase through 1993, and subsequent fall, in comparison with males.<sup>8</sup>

As seen in Figure 5, male homicide rates were highly volatile during the epidemic period. For adolescents, homicide commission rates more than tripled between 1984 and 1993, while they doubled for young adults ages 18-24. Victimization rates followed the same intertemporal pattern, although at a lower level – youths are much more likely to kill than be killed. All rates fell sharply after 1994.

Figures 6 and 7 about here

Figure 6 depicts the victimization and commission rates for the younger age group, males only, for blacks and non-blacks. Figure 7 provides the same information for ages 18-24. Both age groups exhibit the same patterns as in Figure 5. In addition, the figures make evident the vast racial disparities in the average rates and the volatility of those rates over the course of the epidemic. For blacks ages 13-17, the homicide commission rate increased by a factor of five, and victimization rates increased by a factor of four. The rates for non-blacks (predominately whites) also increased during this period, but proportionately much less; for adolescents, the increase in the rate of killing was by a factor of two, and in victimization by two and a half.

Figure 8 about here

The remarkable run-up in homicide rates shown in these figures was largely confined to youths. As a logical result, the relative importance of youths in the homicide picture increased. Figure 8 shows that as a percentage of all male killers, youths under 25 accounted for about 43 percent in the early 1980s; that figure climbed over 20 percentage points by 1993, and has receded only marginally since then. Thus three out of every five homicides were committed by youths in 1998.

Table 2 about here

Given similar trends in commission and victimization rates, and the all-too-vivid images of the recent school rampage shootings, it seems natural to conclude that youths are killing each other.<sup>9</sup> But the data suggest

---

<sup>8</sup> The homicide-victimization rate for males ages 10-24 doubled between 1985 and 1993, while the rate only increased by one-third for females. Following the peak in 1993, male and female rates declined by the same proportion through 1998.

<sup>9</sup> The conventional wisdom conveyed in criminology and victimology textbooks is that there is substantial age homogeneity among offenders and victims (see, e.g., Siegel 1995 and Fattah 1991). For a recent study emphasizing age homogeneity in homicide see Maltz (1998).

substantial age disparities: In 1998, for example, only 33 percent of adolescent victims (ages 13-17) were killed by someone under age 18. In the other direction, only 28 percent of victims of adolescent killers were under age 18 (Table 2). While adolescents tend to fraternize and fight with schoolmates and others in their age group, homicide is a different story.

Table 3 about here

Tables 3 and 4 provide details regarding the age relationships between victims and killers. Starting with homicide victims ages 13 to 17 (Table 3), we see that the majority of the suspected killers were at least three years older than the victim. This pattern is evident before the epidemic, during its peak, and during the decline. While the age gap seems to have narrowed during the epidemic suggesting that conflicts among age peers became relatively more deadly, there has been some rebound since 1993. Nevertheless, 38 percent of the adolescent victims in 1998 were killed by someone five or more years older.

Table 4 about here

When we consider the ages of victims of adolescent killers a different portrait emerges. Table 4 indicates that most adolescent killers select older victims, and half select victims who are at least five years older. These patterns are suggestive of routine activities by violent adolescents that involve a good deal of conflict with people who are substantially older. But there has been little change over the course of the epidemic in the age distribution of those who are killed by adolescents, despite enormous changes in the underlying homicide rates over this time period.

Figure 9 about here

Figure 9 provides a look at the racial and ethnic composition of youth homicide, this time focusing on victims. Unfortunately the Vital Statistics data do not include information on ethnicity before 1990, so it is not possible before then to separate Hispanics from other whites. As shown, black representation among male victims increased by about 13 percentage points in the early years of the epidemic and remained near 60 percent thereafter. Of the remaining 40 percent, over half were white Hispanics during the 1990s. Thus in recent years, while the epidemic peaked and then receded, over 80 percent of youth homicide victims have been blacks or Hispanics.

It is an open question whether non-Hispanic whites were affected by the epidemic. Youthful victimization rates of whites did increase during the

late 1980s, but there is no precise way to apportion that increase between Hispanic and non-Hispanic whites. One approach is to compare white homicide trends in states that had relatively large Hispanic populations (the Southwest and Florida) with those that did not. The number of youthful white homicide victims nationwide increased by 37 percent between 1985 and 1993, but that increase was far from uniform; states with a high concentration of Hispanics experienced a 51 percent increase, while other states experienced only a 22 percent increase.<sup>10</sup>

To summarize, the homicide data confirm the existence of a great epidemic of youth violence, demonstrating that it was even more intense than indicated by trends in assault and robbery. As noted in the introduction, this epidemic was dominated by a particular demographic group – black males under age 25. The image that comes to mind is of a flood in a canyon (Cook 1998). That flood receded after 1993-4, but the rates remained substantially higher by 1998 than prior to the epidemic's onset. Further, the shift in the racial and age profile of homicide during the run-up in homicide rates has not reverted during the decline.

Table 5 about here

While the epidemic was narrowly confined with respect to demographic characteristics, it affected all regions of the nation. Table 5 lists the 15 jurisdictions with the highest homicide counts for black males ages 10-24 in the mid 1980s. Every one of these jurisdictions experienced a sharp increase in homicide rates for this group by the early 1990s; in 10 of these jurisdictions, the victimization rate more than doubled. In all but two of these jurisdictions (Cook County and Baltimore) the homicide rate declined again by 1997-8. The pervasiveness of this epidemic dictates that any satisfactory explanation be national in scope.<sup>11</sup>

It is also of interest that the decline in overall homicide rates in the 1990s has not been uniform, but rather has been concentrated in the largest cities. The remarkable result has been a violation of one of the empirical verities of criminology, namely that homicide rates tend to increase with the population size of the city (Fox and Zawitz 2000; Blumstein 2000). By 1999 the average homicide rate for cities with population of 250,000 to 500,000 was as high as for the largest cities.

---

<sup>10</sup> States included in the former group are CA, AZ, NM, TX, FL, NV, OK, UT and CO. In 1993, 74 percent of the 1,489 white male homicide victimizations in these states were Hispanic, compared with 37 percent of the 1,130 such victimizations in the remaining states. The age group for these computations is 10-24.

<sup>11</sup> This observation raises the question of what can be learned from international comparisons, an issue we revisit in the last section of our paper.

### III. Cohort vs. Period Explanations

When an adolescent commits criminal homicide, it is a natural presumption that the killer is a vicious, depraved, or psychologically disturbed individual. When an entire cohort of adolescents commits homicide at an unusually high rate, then it seems reasonable to conclude that such individuals are unusually prevalent in that cohort.

Explanations of this sort, that attribute trends in youth violence to underlying trends in the character of the youths, have been popular going back to the 1960s and probably long before (Cook 1985). The epidemic in youth violence that began in the mid 1980s was no exception. John DiIulio and his co-authors attributed that epidemic to the fact that “America is now home to thickening ranks of juvenile “super-predators” – radically impulsive, brutally remorseless youngsters” (Bennett, DiIulio and Walters 1996, p. 27), a trend caused by “moral poverty” – children growing up without love, care, and guidance from responsible adults” (p. 59). In our earlier article (Cook and Laub 1998) we pointed out a variety of ways in which this sort of explanation was contradicted by the facts.<sup>12</sup> Explanations that attributed rising violence rates to the character of the youths nonetheless proved influential with legislators, which in most states responded to the epidemic with more punitive policies for juvenile crime (Feld 1998).

The latest claim for the “cohort” explanation of the epidemic is from O’Brien, Stockard, and Isaacson (1999). This article attempts to distinguish between cohort and period effects in explaining age-specific homicide-arrest rates over the years 1960-1995; one remarkable conclusion is that the “period” effect was actually smaller in the 1990s than in previous years, and the increase in the youth homicide-arrest rate was largely the result of characteristics of the relevant cohorts. They arrive at this conclusion by use of a regression analysis. The dependent variable is the homicide-arrest rate, with data for each five-year interval in the 1960-95 period, and for each five-year cluster of birth cohorts. The independent variables include period and age indicators, and a two-variable characterization of each birth-cohort cluster. The two variables are the relative size of the cohort and the percent of the cohort born out of wedlock. The latter increases sharply for the birth cohorts that were on the front lines of the epidemic. O’Brien and his colleagues find that controlling for age and period, both cohort size and especially born-out-of-wedlock percentage are positively and significantly related to age-period-specific homicide rates. Moreover, the effect of non-marital births on homicide is considerably stronger compared with the effect of relative cohort size.

---

<sup>12</sup> John DiIulio has recanted his earlier views on this subject (Becker 2001).

The claim that the period effect was relatively small during the early 1990s is counterintuitive to say the least, given that youth homicide rates were at an all-time peak. The problem with their regression specification is that it forces the period effects to have the same proportional effect across all age groups. That assumption is not defensible in the recent epidemic, which, as we have seen, was concentrated among the youngest cohorts.<sup>13</sup> These same cohorts have had much more typical rates of homicide involvement before and after the epidemic, despite their high prevalence of out-of-wedlock births. A more flexible regression specification would be required to provide a valid characterization of the recent history of youth violence.

Rather than a change in the intrinsic violence-proneness of youth cohorts, it is more plausible that the upsurge in youth violence was the result of a youth-specific period effect, which is to say that something about the social, economic, or policy environment was more conducive to lethal violence by youths in the early 1990s than in previous or subsequent years.<sup>14</sup> In particular, there is a strong case that the introduction of crack cocaine in the mid-1980s in one city after another provided a new source of deadly conflict, and the resources and motivation for many young men to obtain guns (Blumstein 1995, 2000; Cork 1999; Grogger and Willis 2000). The subsequent drop in violence was in this account the result of reduced conflict over crack distribution as markets stabilized and became less lucrative. But that explanation is hypothetical and has not settled the matter.

#### A. Cohort Explanations for the Crime Drop

With the sustained drop in youth crime rates since 1993, there is renewed interest in cohort-type explanations. What might have happened to reduce the crime-proneness of recent cohorts? The most prominent hypothesis attributes a substantial portion of the crime drop to abortion legalization. Several states liberalized abortion restrictions in the late 1960s and five legalized abortion by 1970. In 1973 the Supreme

---

<sup>13</sup> One implication of the analysis in O'Brien, Stockard and Isaacson (1999) is that adolescent homicide rates should have continued to increase strongly during the late 1990s, since the non-marital birth rate continued to increase sharply during the relevant years (i.e., 15 years earlier). In fact the adolescent homicide rates have declined both absolutely and relative to that of older cohorts.

<sup>14</sup> Yet another possibility is that the epidemic increase and decline are the result of an endogenous, self-generating process, rather than exogenous environmental effects. For example, if youth violence is in some sense contagious, then the volatility of rates could be explained by the same internal dynamic as, say, a measles epidemic. While the possibility of contagion or other self-generating processes is entirely plausible in human behavior (Gladwell 2000), and has been discussed in the context of gun carrying and other aspects of youth violence (Hemenway *et al.* 1996; Fagan, Wilkinson, and Davies 2000), we limit our discussion to the more traditional cohort-period dichotomy.

Court's ruling in *Roe v. Wade* (410 U.S. 113 (1973)) declared state laws prohibiting abortion to be unconstitutional. The upsurge in legal abortions could plausibly have reduced the criminal involvement of the birth cohorts that were affected by these changes by reducing the size of these cohorts, or, more interestingly, by reducing the prevalence of children born into circumstances that placed them at risk for becoming violent offenders.

There is strong evidence that abortion when legal is used selectively, in the sense that women are more likely to abort pregnancies that would otherwise result in the birth of children who would be unwanted or for whom there would be few child-rearing resources available. It is entirely plausible, then, that unwanted children "at the margin of abortion" would be more likely to be at risk for a variety of problems (Gruber, Levine, and Staiger 1999; Brown and Eisenberg 1995), including violence and crime. Hence abortion legalization could have reduced the *per capita* crime involvement for the cohorts that were affected.

Donohue and Levitt (2001) conclude from their analysis that abortion legalization accounts for as much as half of the crime drop during the 1990s – a finding that has received considerable attention in the popular press (Holloway 1999). Their analysis exploits the large differences among states in post-legalization abortion rates. They find that states with high abortion rates have enjoyed greater reductions in crime beginning in the late 1980s (when the relevant cohorts are entering their adolescent years) than states with lower abortion rates. This is a robust finding. The conclusion has not gone unchallenged, however. Joyce (2001), using a somewhat different empirical strategy that focuses on the contrast between states that legalized early with states that only legalized after the Court's decision, concludes that there is no evidence that abortion affected crime.

Note that there are two questions here. The first question is whether abortion legalization reduced crime rates relative to what they would have been otherwise. The second is whether abortion legalization is a good candidate for explaining the observed drop in violent crime among adolescents. To answer yes to the second question, the answer to the first question must be affirmative, and the crime-reducing effect of legalization must not have been concealed by other historical (period) effects. Without drawing a firm conclusion on that first and more fundamental issue, we can nonetheless offer an opinion on the second question. The timing of the downturn is simply wrong for legalized abortion to be the driving force.<sup>15</sup> As shown in previous sections, the

---

<sup>15</sup> Donohue and Levitt (2001) use 1991 as the start of the crime drop. They write, "The year 1991 represents a local maximum for all three of the crime measures. Murder has



adolescent arrest rate for property crime did not turn down until 1994, about eight to eleven years after what we would expect if abortion legalization were responsible.<sup>16</sup> The violent-crime trends are still more out of synch with the abortion explanation, since adolescent arrest rates and other measures of violence involvement were actually increasing through 1993. Further, the increases were greatest for black youths, even though a larger percentage of pregnancies by black women were aborted following legalization than for women of other races (Levine *et al.* 1996).<sup>17</sup>

The abortion-legalization hypothesis is not the only “cohort” explanation for the crime drop. Another focuses on the reduction in serum lead levels in young children, resulting in part from the ban on use of lead paint in 1978, the ban of lead in gasoline in 1982, and regulations on lead in drinking water and consumer products. Epidemiological evidence suggests that ingesting even small quantities of lead may damage children in a variety of ways, including causing a reduction in IQ and emotional development (Nevin 2000). A recent study found a correlation across counties between lead in the air and homicide rates (Stretesky and Lynch 2001). Nationwide, serum lead levels in young children have declined at least since 1980 (Lutter and Mader 2001), suggesting the possibility that violence rates will decline as cohorts that have been less exposed reach adolescence and beyond. To illustrate this point, Nevin argues that “if the association between gasoline lead and social behavior continues into the future, then violent crime and unwed teen pregnancy could show dramatic declines over the next 5 to 10 years” (2000, p. 19). Yet while the “lead” hypothesis is certainly intriguing, and may, like liberalized abortion, have an effect on violence and other behavior, it does not account for the movements in cohort-specific homicide rates that have been observed since 1985.

---

fallen by 40 percent and the other two categories are down by more than 30 percent” (2001, p. 392). They also argue that ages 18 to 24 are crime prone years with age 20 being the peak of the age-crime profile. Thus, in 1991, the first cohort affected by *Roe v. Wade* would be 17-18 years old. In the early-legalizing states, the first cohort affected by legalized abortion would be 20-21 years old (2001, pp. 393-394). But for these age groups, we have seen that the homicide rate did not turn down until after 1993, so these cohorts were in fact two years older than that.

<sup>16</sup> The “seven to ten year” range is based on two dates for the liberalization of abortion: 1970, when California, New York, and several other states legalized abortion, and 1973, when the rest of the country legalized abortion. Then thirteen year olds in 1983 (given the early legalizers) or 1986 (given the later ones) should have had reduced crime involvement.

<sup>17</sup> It should be noted that Donohue and Levitt recognize that the “dampening effect” of abortion on crime “can be outweighed in the short term by factors that stimulate crime. Elevated youth homicide rates in this period [late 1980s and early 1990s] appear to be clearly linked to the rise of crack and the easy availability of guns (2001, p. 395).”

Figure 10 about here

Any “cohort” account of why violence rates have been dropping requires demonstration of a downward trend in violence involvement from one birth cohort to the next. To explore this possibility, we analyze homicide victimization rates for black males born in 1969, 1974, 1977, and 1981. (As we have seen, victimization rates have been highly correlated over time with rates of commission, and can be measured more accurately.) Figure 10 depicts annual victimization rates for each of these cohorts relative to average same-age victimization rates for a baseline period, 1976-1984. (This baseline period was chosen because it preceded the epidemic.) For example, the 1990-point on the graph for the 1969 birth cohort is the ratio of the homicide-victimization rate for 21-year olds in 1990 to the average victimization rate for 21-year olds during the baseline period. In that sense we have controlled for the effect of age, revealing the period effects and differences among the cohorts. If the age profiles for these four cohorts had been similar to the age profile during the baseline period, then all four lines would be flat and equal to 1.0 throughout.

What the data in Figure 10 reveal, however, is that all four cohorts have elevated rates during the epidemic period with peaks in the early 1990s. Note that the three younger cohorts were born after abortion was legalized, but there is no indication that they have been less likely to experience violence than the oldest cohort (born in 1969, before legalization); indeed, all three of these later cohorts have higher ratios than the 1969 birth cohort throughout the period depicted here. If there is a trend from one cohort to the next, it appears to be in the direction of greater violence rather than less.<sup>18</sup> In any case the period effects dominate this picture.<sup>19</sup>

These results do not rule out the possibility that abortion legalization or other influences on the violence-proneness of youth cohorts have had an ameliorative effect on youth violence rates, but do indicate that that effect, if it exists, has been well concealed by historical events. The evidence against the “super-predator” explanation for the upside of the epidemic is compelling (Cook and Laub 1998), and we find the evidence

---

<sup>18</sup> Another possibility is that the “period” effects were strongest for adolescents and declined across the age spectrum. That possibility accords with the economics of the crack trade, which recruited adolescents to sell crack in public places, thus putting them in harm’s way. An “age-differential period effect” cannot be logically distinguished from a trend in cohort effects.

<sup>19</sup> Again, it is very difficult to see how the period effect for homicide could be declining from 1970 to 1995, as the regression results in O’Brien, Stockard and Isaacson (1999, p. 1078) suggest.

against a cohort explanation for any substantial portion of the downside just as compelling.

### *B. Gun Use During the Crime Drop*

On the upside, the epidemic of youth homicide was entirely a gun-homicide epidemic – non-gun rates remained essentially unchanged. The conventional explanation attributes the increase in gun use to the introduction of crack cocaine, which recruited youths into the business and provided them with the means and motivation to acquire guns. That by itself would not explain why gun killings increased in domestic arguments and routine altercations, unless the habit of gun carrying spread beyond the drug trade as a matter of fashion or self-defense (Fagan and Wilkinson 1998).

Several commentators have suggested that the way out of the epidemic has been the same as the way in, with declining gun use leading the way (Blumstein 2001). But the data indicate that non-gun homicide rates have declined along with gun rates, an important difference with the upside of the epidemic. At the peak of the epidemic in 1993, the gun percentage in homicide victimization had reached 90 percent for males ages 13 to 17, and 88 percent for those ages 18 to 24. By 1997 each of those percentages had dropped by just one point.

Figure 11 about here

Figure 11 places recent trends in historical context, showing that the gun percentage in male-youth-homicide victimization increased about 17 percentage points during the period 1985 to 1993, and has remained near that very high level for the first few years of the drop. This figure also includes the trend line for the gun percentage in homicide commission by youths, which follows the same pattern but at a lower level.<sup>20</sup> Thus it appears that guns remained prevalent in deadly conflicts involving at-risk youths even while such conflicts were becoming less common.

Table 6 about here

---

<sup>20</sup> Cook (1991) found that the gun percentage in homicide was closely related to the physical strength and robustness of the victims. Thus the gun percentage is higher for males than females, and higher for young adults than for children or older people. Confirming the importance of the victim characteristics in influencing weapon type, we find that when young men kill each other, they are as likely to use a gun as are women or older men who kill young men. But when young men kill less robust victims, they (like other killers) are less likely to use a gun.

Some detail is provided in Table 6, which gives the percentage gun use in homicide by circumstance for three periods. On the upside of the epidemic, the prevalence of guns increased sharply in all types of homicide, including domestic, gang-related, felony-related, and so forth. (Technically the "domestic" category is not a circumstance as designated by the SHR. That line in Table 6 includes all cases of killings within the family, regardless of SHR-designated circumstance.) After the peak, the gun percentage dropped very little except in domestic cases, and for two categories -- felony-type and gang-related -- it actually increased. Thus the "hangover" from the epidemic appears to include a broader access to guns by violent youths.

#### *IV. Concluding Thoughts*

The epidemic of youth violence began in the mid 1980s, peaked in 1993-1994, and had subsided to near the original levels by 1999. This volatility has provided a profound challenge to criminologists. The scientific effort to explain why some individuals or groups or communities or nations have higher violence rates than others is well advanced, but provides little guidance to understanding how, for example, the homicide rate for black adolescents nationwide could triple in just a few years.

James Q. Wilson recently observed that "[s]ocial scientists have made great gains in explaining why some people are more likely than others to commit crimes but far smaller gains in understanding a nation's crime rate" (in press). As Wilson points out, the two tasks are not the same thing at all.<sup>21</sup> Yet there is a natural presumption among many criminologists that the first place to seek an explanation for a change in the nation's crime rate is in changes in the composition of the population. More crime suggests more crime-prone people; a vast increase in youth violence of the sort experienced in the late 1980s suggests a correspondingly vast increase in the number of violence-prone youth. And similarly for the downside.

As we have seen, this sort of "cohort" explanation for the epidemic increase or the subsequent decline has not squared with the facts. The same birth cohorts that appeared quite typical in their violence involvement before and after the epidemic were not at all typical during the peak years of the epidemic. The evidence seems to rule out cohort-type explanations as the primary source of the observed volatility. That

---

<sup>21</sup> Levitt and Lochner document a variety of determinants of juvenile crime from their multifaceted study, but conclude that "None of these determinants of crime ...do a particularly good job of explaining the time-series pattern of juvenile crime over the last two decades" (2001, p. 371).

does not mean that cohort size, being born out of wedlock, abortion availability, serum blood levels, and so forth are irrelevant to crime and violence rates. It does mean that such explanations cannot account for this epidemic.

That narrows the search to "period" or environmental effects as the primary driving force. We have attempted to narrow the search still further by documenting the structure of violence rates over time. The second most remarkable feature of the epidemic (after the sheer amplitude of the rate swings) has been the extent to which it was narrowly channeled demographically. Hispanic and most especially black males under age 25 did most of the additional killing and provided most of the additional victims. Young females and non-Hispanic whites, and adults in their 30s or older, were left on the sidelines for the most part. Yet within its demographic confines, the epidemic was national in scope. The appeal of what has become the conventional explanation, the introduction of crack cocaine in one city after another across the nation, is that it has the right timing and can accommodate all these facts.

To further limit the domain of acceptable explanations, it may be of value to compare trends in the U.S. with that in other countries, especially Canada and Europe. For example, Pfeiffer (1998), in a review of youth-violence trends in Europe, concludes that ten European countries experienced increases in youth violence beginning in the early to mid-1980s, suggesting that the U.S. experience is not unique in that respect (see also Killias and Aebi 2000). The shared trend may call into question the crack-market explanation for the U.S. epidemic, and in any event encourages a search for other underlying causal factors that are operating in parallel.

A consensus explanation for the downside of the epidemic has not yet emerged. We do know that the downside has not been a mirror image of the upside. The "way out" has not been the same as the "way in" with respect to sex, race and ethnicity, and perhaps most important, weapons. In each of those dimensions, the post-peak period has seen more balanced declines in the homicide rates. As a result, the youth homicide rate in 1998 was substantially lower than 1993 but was similar in composition with respect to sex, race and ethnicity, and weapon type. Thus the high concentration among minorities and males, and the prevalence of guns, may be long-lasting hangovers from the epidemic.

Also relevant in seeking a satisfactory explanation for the downside is that the declining rate for youths occurs in a context of overall declines in homicide. While the youth-violence epidemic was bucking the prevailing trend and hence requires a "youth only" explanation, that is not the case for the downside, where it may reasonably be supposed that

the youths are responding to the same environmental factors associated with law enforcement, the economy, cultural change, routine activities, drug and gun markets, and so forth as are older adults. But that observation does not provide much leverage, since the relative contribution of these factors to adult crime has not been well established (Blumstein and Wallman 2000), and is in any event likely to be different for youths than adults. For example, while Spelman (2001) estimates that the incapacitation effect of increased imprisonment could account for 25 percent of the overall crime drop, it is unlikely that incarceration of juvenile offenders played such an important role.

For policymakers the lesson here is not very reassuring. If cohort characteristics reliably predicted violence involvement, then future trends in violence rates might at least be foreseeable.<sup>22</sup> At the most basic level the *size* of cohorts have long been used to predict rates of crime and violence, on the reasonable assumption that relatively large cohorts passing through the crime-prone years of adolescence and young adulthood will be associated with relatively high crime rates for the nation as a whole (Fox 2000). But even this common-sense observation has proven of little use in projecting violence rates, simply because the volatility in per-capita commission rates has dominated the picture for youths. In our earlier paper, we reported a *negative* correlation for the period 1965-1995 between the number of people ages 13-17 and the number of homicides in this age group (Cook and Laub 1998, p. 59). Unfortunately for forecasting purposes, demography is not destiny, and forecasts based on demographics and an assumption of constant age-specific offending rates have been notable for their large errors.<sup>23</sup> We agree with Land and McCall (2001), who suggest that analysts have tended to place too much faith in demographic-based forecasts, and should acknowledge the great uncertainty inherent in such efforts.

Forecast uncertainty of course increases as we attempt to look farther into the future. But our understanding of crime trends may improve if we look farther into the past. If we define the problem as understanding the crime drop during the 1990s, then that encourages a focus on policy innovations and other changes during that period. A longer historical perspective on crime “booms” and “busts” may encourage a deeper analysis (LaFree 1998a, 1998b, 1999, and 2001). For example, the most recent epidemic of youth violence was closely tied to a parallel epidemic of crack cocaine. If we look back to the 1960s, or all the way back to

---

<sup>22</sup> For example, Donohue and Levitt conclude that, “all else equal, legalized abortion will account for persistent declines of 1 percent a year in crime over the next two decades” (2001, p. 415).

<sup>23</sup> For documentation and discussion, see Zimring (1998), Levitt (1999), Steffensmeier and Harer (1999) and Cohen and Land (1987).

Prohibition, then the question arises of how other epidemics of illicit drug use have influenced violence rates, and why the market for some drugs, particularly marijuana, appears to be more benign than for others, including heroin, powder cocaine, and crack.<sup>24</sup>

We may also gain additional insight by casting a broader net, considering other forms of problematic behavior besides crime and violence. The fact that teen childbearing began a sustained decline after a peak in 1991, and that teen suicide rates declined substantially after 1994, invites speculation that there is more than mere coincidence with the downward trend in violence. If teenagers as a group became more hopeful and future-oriented over the course of this decade, that would account for a variety of healthy trends -- but leave us with a new question.

---

<sup>24</sup> Fagan, Zimring, and Kim point out that "homicide and drug epidemics have been closely phased, both temporally and spatially, in New York and nationwide, for nearly thirty years. Homicide peaks in 1972, 1979, and 1991 mirror three drug epidemics: heroin; cocaine hydrochloride (powder); and crack cocaine." (1998, p. 1306).

## References

- Becker, Elizabeth. 2001. "As Ex-Theorist on Young 'Superpredators,' Bush Aide Has Regrets." *New York Times* A19, Feb. 9.
- Bennett, William J., John J. DiIulio, and John P. Walters. 1996. *Body Count: Moral Poverty and How to Win America's War Against Crime and Drugs*. New York: Simon and Schuster.
- Blumstein, Alfred. 1995. "Youth Violence, Guns, and the Illicit-Drug Industry." *Journal of Criminal Law and Criminology* 86:10-36.
- Blumstein, Alfred. 2000. "Disaggregating the Violence Trends." In *The Crime Drop in America*, edited by Alfred Blumstein and Joel Wallman. New York: Cambridge University Press.
- Blumstein, Alfred. 2001. "Why is Crime Falling? – Or is It?" *Perspectives on Crime and Justice Lecture Series*. Washington, DC: National Institute of Justice.
- Blumstein, Alfred and Joel Wallman, editors. 2000. *The Crime Drop in America*. New York: Cambridge University Press.
- Brown, Sarah S. and Leon Eisenberg. 1995. *Unintended Pregnancy and the Well-Being of Children and Families*. Washington, DC: National Academy Press.
- Cohen, Lawrence E. and Kenneth C. Land. 1987. "Age Structure and Crime." *American Sociological Review* 52:170-183.
- Cook, Philip J. 1985. "Is Robbery Becoming More Violent? An Analysis of Robbery Murder Trends since 1968." *Journal of Criminal Law and Criminology* 76:480-89.
- Cook, Philip J. 1991. "The Technology of Personal Violence." In *Crime and Justice: A Review of Research, Vol. 14*, edited by Michael Tonry. Chicago: University of Chicago Press, 1-72.
- Cook, Philip J. 1998. "The Epidemic of Youth Gun Violence." In *Perspectives on Crime and Justice: 1997-1998 Lecture Series*. Washington, DC: National Institute of Justice, NCJ172851:107-116.
- Cook, Philip J. and John H. Laub. 1986. "The (Surprising) Stability of Youth Crime Rates." *Journal of Quantitative Criminology* 2:265-77.



Cook, Philip J. and John H. Laub. 1998. "The Unprecedented Epidemic in Youth Violence." In *Youth Violence: Crime and Justice: A Review of Research*, vol. 24, edited by Michael Tonry and Mark H. Moore. Chicago: University of Chicago Press, 27-64.

Cork, Daniel. 1999. "Examining Space-Time Interaction in City-Level Homicide Data: Crack Markets and the Diffusion of Guns Among Youth." *Journal of Quantitative Criminology* 15:379-406.

Donohue, John J. III and Steven D. Levitt. 2001. "The Impact of Legalized Abortion on Crime." *Quarterly Journal of Economics* CXVI: 379-420.

Fagan, Jeffrey, Deanna Wilkinson, and Garth Davies. 2000. "Social Contagion of Youth Violence." Presented at Urban Seminar Series on Children's Health and Safety, Urban Poverty Research Program, John F. Kennedy School of Government, Harvard University.

Fagan, Jeffrey and Deanna L. Wilkinson. 1998. "Guns, Youth Violence, and Social Identity in Inner Cities." In *Youth Violence: Crime and Justice: A Review of Research*, vol. 24, edited by Michael Tonry and Mark H. Moore. Chicago: University of Chicago Press, 105-188.

Fagan, Jeffrey, Franklin E. Zimring, and June Kim. 1998. "Declining Homicide in New York City: A Tale of Two Trends." *Journal of Criminal Law and Criminology* 88:1277-1323.

Fattah, Ezzat A. 1991. *Understanding Criminal Victimization: An Introduction to Theoretical Victimology*. Scarborough, Ontario: Prentice Hall Canada.

Federal Bureau of Investigation. 1966-2000. *Crime in the United States*. Washington, DC: US Government Printing Office.

Feld, Barry C. 1998. "Juvenile and Criminal Justice Systems' Response to Youth Violence." In *Youth Violence: Crime and Justice: A Review of Research*, vol. 24, edited by Michael Tonry and Mark H. Moore. Chicago: University of Chicago Press, 189-261.

Fox, James Alan. 2000. "Demographics and U.S. Homicide." In *The Crime Drop in America*, edited by Alfred Blumstein and Joel Wallman. New York: Cambridge University Press.

Fox, James Alan. 2001. "National and State Level Gun and Total Homicide Victimization and Offending Rates by Age, Sex, and Race, 1976-99." Boston, MA: Northeastern University.

Fox, James Alan and Marianne W. Zawitz. 2000. *Homicide Trends in the United States: 1998 Update*. Washington, DC: Bureau of Justice Statistics NCJ 179767.

Gladwell, Malcolm. 2000. *The Tipping Point: How Little Things Can Make a Big Difference*. Boston: Little Brown and Company.

Grogger, Jeffrey and Michael Willis. 2000. "The Emergence of Crack Cocaine and the Rise of Urban Crime Rates." *Review of Economics and Statistics* 82: 519-529.

Gruber, Jonathan, Phillip B. Levine, and Donald Staiger. 1999. "Abortion Legalization and Child Living Circumstances: Who Is the 'Marginal Child?'" *Quarterly Journal of Economics* CXIV: 263-291.

Hemenway, David, Deborah Prothrow-Stith, Jack M. Bergstein, Roseanna Ander, and Bruce P. Kennedy. 1996. "Gun Carrying Among Adolescents." *Law & Contemporary Problems* Winter: 39-54.

Holloway, Marguerite. 1999. "The Aborted Crime Wave?" *Scientific American* 281:23-4.

Joyce, Ted. 2001. "Did Legalized Abortion Lower Crime?" New York: National Bureau of Economic Research.

Killias, Martin and Marcelo F. Aebi. 2000. "Crime Trends in Europe from 1990 to 1996: How Europe Illustrates the Limits of the American Experience." *European Journal on Criminal Policy and Research* 8:43-63.

LaFree, Gary. 1998a. *Losing Legitimacy: Street Crime and the Decline of Social Institutions in America*. Boulder, CO: Westview.

LaFree, Gary. 1998b. "Social Institutions and the Crime "Bust" of the 1990s." *Journal of Criminal Law and Criminology* 88:1325-1368.

La Free, Gary. 1999. "Declining Violent Crime Rates in the 1990s: Predicting Crime Booms and Busts." *Annual Review of Sociology* 25:145-168.

LaFree, Gary. 2001. "Explaining the Crime Bust of the 1990s: A Review Essay of *The Crime Drop in America*." *Journal of Criminal Law and Criminology*, forthcoming.

Land, Kenneth C. and Patricia L. McCall. 2001. "The Indeterminacy of Forecasts of Crime Rates and Juvenile Offenses." In *Juvenile Crime, Juvenile Justice*, edited by Joan McCord, Cathy Spatz Widom, and Nancy A. Crowell. Washington, DC: National Academy Press.

Levine, Phillip B., D. Staiger, Thomas J. Kane, and D. J. Zimmerman. 1996. "Roe v. Wade and American Fertility." National Bureau of Economic Research Working Paper No. 5615, June.

Levitt, Steven D. 1999. "The Limited Role of Changing Age Structure in Explaining Aggregate Crime Rates." *Criminology* 37:581-598.

Levitt, Steven D. and Lance Lochner. 2001. "The Determinants of Juvenile Crime." In *Risky Behavior among Youths: An Economic Analysis*, edited by Jonathan Gruber. Chicago: University of Chicago Press, 327-374.

Lutter, Randall and Elizabeth Mader. 2001. "Litigating Lead-Based Paint Hazards: Is It a Solution?" Prepared for the American Enterprise Institute-Brookings Institution Joint Center Conference on Regulation through Litigation, April 26.

Maltz, Michael D. 1998. "Visualizing Homicide: A Research Note." *Journal of Quantitative Criminology* 14:397-410.

Maltz, Michael D. 1999. *Bridging Gaps in Police Crime Data*. Washington, DC: Bureau of Justice Statistics.

Nevin, Rick. 2000. "How Lead Exposure Relates to Temporal Changes in IQ, Violent Crime, and Unwed Pregnancy." *Environmental Research Section A* 83:1-22.

O'Brien, Robert M. 1999. "Measuring the Convergence/Divergence of "Serious Crime" Arrest Rates for Males and Females: 1960-1995." *Journal of Quantitative Criminology* 15:97-114.

O'Brien, Robert M., Jean Stockard, and Lynne Isaacson. 1999. "The Enduring Effects of Cohort Characteristics on Age-Specific Homicide Rates, 1960-1995." *American Journal of Sociology* 104:1061-95.

Pfeiffer, Christian. 1998. "Juvenile Crime and Violence in Europe." In *Crime and Justice: A Review of Research, Vol. 23*, edited by Michael Tonry. Chicago, University of Chicago Press.

Rosenfeld, Richard. 2000. "Patterns in Adult Homicide: 1980-1995." In *The Crime Drop in America*, edited by Alfred Blumstein and Joel Wallman. New York: Cambridge University Press.

Siegel, Larry J. 1995. *Criminology*. Minneapolis: West Publishing Co.

Spelman, William. 2001. "The Limited Importance of Prison Expansion." In *The Crime Drop in America*, edited by Alfred Blumstein and Joel Wallman. New York: Cambridge University Press.

Steffensmeier, Darrell and Miles D. Harer. 1999. "Making Sense of Recent U.S. Crime Trends, 1980 to 1996/1998: Age Composition Effects and Other Explanations." *Journal of Research in Crime and Delinquency* 36:235-274.

Stretesky, Paul B. and Michael J. Lynch. 2001. "The Relationship Between Lead Exposure and Homicide." *Archives of Pediatric and Adolescent Medicine* 155: 579-582.

Tonry, Michael and Mark H. Moore, editors. 1998. *Youth Violence: Crime and Justice A Review of Research, Volume 24*. Chicago: University of Chicago Press.

U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census. 1966-2000. *Statistical Abstract of the United States*. Washington, DC: US Government Printing Office.

Wiersema, Brian, Colin Loftin, and David McDowall. 2000. "A Comparison of Supplementary Homicide Reports and National Vital Statistics System Homicide Estimates for U.S. Counties." *Homicide Studies* 4:317-340.

Wilson, James Q. In press. "Crime and Public Policy." In *Crime, 2nd ed.*, edited by James Q. Wilson and Joan Petersilia. San Francisco: ICS Press.

Zimring, Franklin E. 1998. *American Youth Violence*. New York: Oxford University Press.

TABLE 1  
 Juvenile Perpetrators in Serious Violent Crime, Rates per  
 1,000  
 NCVS Data, 1975-99

| Period    | Commission Rate by Perpetrators Ages 12-17,<br>No. of Crimes (Thousands)/No. of Youths (Millions)<br>Rate per 1,000 |                       |
|-----------|---|-----------------------|
|           | Excluding Unknowns  | Apportioning Unknowns |
| 1975 - 79 | 505/25.0 = 20.2   | 599/25.0 = 24.0       |
| 1980 - 84 | 449/22.3 = 20.1   | 540/22.3 = 24.2       |
| 1985 - 89 | 376/21.0 = 17.9   | 464/21.0 = 22.1       |
| 1990 - 94 | 573/20.9 = 27.4   | 721/20.9 = 34.5       |
| 1995 - 99 | 471/22.8 = 20.6   | 524/22.8 = 23.0       |

Source: Unpublished data from National Crime Victimization Survey (1975 - 1999), provided by Michael Rand.

Note: NCVS = National Crime Victimization Survey. All statistics are for the crimes of rape, robbery, and aggravated assault. The NCVS statistics are based on respondents' reports of the age of the perpetrators. Crimes in which there are multiple perpetrators are counted as one.

TABLE 2  
Age Patterns of Homicide Victimization and Commission:  
SHR Data, 1994 and 1998

| Percent Distribution<br>of Victims<br>Ages 13 - 17* |       |      | Percent Distribution<br>of Killers<br>Ages 13 - 17 <sup>+</sup> |       |      |
|---|-------|------|---|-------|------|
| Age of<br>Killer<br>(Years)                         | 1994  | 1998 | Age of<br>Victim<br>(Years)                                     | 1994  | 1998 |
| <13   | .5    | .7   | <13   | 5.8   | 6.0  |
| 13 - 17   | 37.2  | 32.1 | 13 - 17   | 25.9  | 22.1 |
| 18 - 24   | 47.2  | 46.1 | 18 - 24   | 30.0  | 31.1 |
| >24   | 15.2  | 21.1 | >24   | 39.4  | 40.8 |
| <i>N</i>  | 1,036 | 549  | <i>N</i>  | 1,489 | 795  |

Source: FBI, Supplementary Homicide Reports for 1994 and 1998.

Note: SHR = Supplementary Homicide Reports. Excludes homicides not reported by local police agencies to the FBI as part of the SHR. Excludes negligent manslaughter and justifiable homicide. The total percent distribution for victims is 100.0 and for killers is 100.0.

\*There were an additional 535 victims ages 13-17 in 1994 and 304 victims in 1998, for whom no suspects were listed. The SHR's victim data set lists no more than one suspect.

<sup>+</sup>For 8 of the cases in 1994 and 14 in 1998 in which the suspect was 13-17 years old, the age of the victim was unknown. These cases were excluded.

TABLE 3  
Age Relationships between Victim and Killer  
Victims Ages 13–17  
1985, 1993, and 1998

|  | Percent of Homicide Victims |      |      |
|--|-----------------------------|------|------|
|  | 1985                        | 1993 | 1998 |
| Killer Older than victim                     | 79                          | 74   | 77   |
| Killer three or more years older than victim | 61                          | 50   | 56   |
| Killer five or more years older than victim  | 47                          | 32   | 38   |

Source: FBI, Supplementary Homicide Reports (1985, 1993, 1998)

Note: SHR = Supplementary Homicide Reports. Excludes homicides not reported by local police agencies to the FBI as part of the SHR. Excludes negligent manslaughter and justifiable homicide. Excludes cases in which no suspect was listed.

Table 4  
Age Relationship between Victim and Killer  
Killers Ages 13-17  
1985, 1993, 1998

|  | Percent of Killers |      |      |
|--|--------------------|------|------|
|  | 1985               | 1993 | 1998 |
| Killer younger than victim                     | 77                 | 78   | 77   |
| Killer three or more years younger than victim | 65                 | 64   | 62   |
| Killer five or more years younger than victim  | 55                 | 52   | 51   |

Source: FBI, Supplementary Homicide Reports for 1985, 1993, and 1998.

Note: SHR = Supplementary Homicide Reports. Excludes homicides not reported by local police agencies to the FBI as part of the SHR. Excludes negligent manslaughter and justifiable homicide. Excludes cases in which no suspect was listed.



Table 5  
Homicide Victimization Rates for Black Males age 10–24  
15 Large Counties, Three Periods.

| Top 15<br>Jurisdictions, by<br>Total Homicide<br>Count<br>1984-86 | 1984 - 86                      |  | 1991 - 94                      |  | 1997 - 98                      |  |
|---|--------------------------------|--|--------------------------------|--|--------------------------------|--|
|   | Average<br>Annual<br>Homicides | Annual<br>Homicide<br>Rate<br>(per<br>100,000) | Average<br>Annual<br>Homicides | Annual<br>Homicide<br>Rate<br>(Per<br>100,000) | Average<br>Annual<br>Homicides | Annual<br>Homicide<br>Rate<br>(Per<br>100,000) |
| New York City   | 213                            | 79.4   | 334                            | 124.9  | 133                            | 50.8   |
| Los Angeles<br>County, CA   | 168                            | 127.5  | 221                            | 183.4  | 121                            | 100.5  |
| Wayne County, MI  | 161                            | 146.7  | 199                            | 191.3  | 122                            | 117.0  |
| Cook County, IL   | 144                            | 78.6   | 238                            | 142.8  | 279                            | 170.8  |
| Baltimore (city),<br>MD   | 62                             | 109.3  | 109                            | 229.2  | 111                            | 245.7  |
| Philadelphia<br>County, PA  | 41                             | 49.8   | 121                            | 168.6  | 106                            | 155.3  |
| Orleans Parish, LA  | 40                             | 90.8   | 139                            | 346.6  | 82                             | 207.7  |
| Harris County, TX   | 38                             | 50.9   | 91                             | 125.4  | 38                             | 49.0   |
| St. Louis (city), MO  | 36                             | 133.8  | 101                            | 455.1  | 35                             | 160.0  |
| Dallas County, TX   | 36                             | 75.1   | 82                             | 166.8  | 48                             | 88.8   |
| District of<br>Columbia   | 34                             | 65.3   | 182                            | 512.0  | 93                             | 389.2  |
| Dade County, FL   | 34                             | 73.2   | 56                             | 107.3  | 47                             | 82.3   |
| Fulton County, GA   | 28                             | 66.7   | 93                             | 149.6  | 32                             | 67.8   |
| Shelby County, TN   | 28                             | 56.8   | 61                             | 125.3  | 37                             | 73.1   |
| Cuyahoga County,<br>OH  | 27                             | 54.9   | 50                             | 123.8  | 20                             | 46.8   |
| Total for Period  | 1,086                          |  | 2,047                          |  | 1,303                          |  |
| % of US Total   | 56.1                           |  | 47.0                           |  | 43.5                           |  |

Source: National Center for Health Statistics (1984-86, 1991-94, 1997-98). U.S. Department of Commerce, 1984-86. County populations for 1991-94 and 1997-98 from CDC Wonder database.

Table 6.  
Homicide Gun Percentage by Circumstance  
Male Killers ages 13-24  
1982-85, 1990-92, 1997-98

| Circumstances             | Percent With Guns |           |           |
|---------------------------|-------------------|-----------|-----------|
|                           | 1982 - 85         | 1990 - 92 | 1997 - 98 |
| Family and intimates      | 52.0              | 55.3      | 37.0      |
| Felony type               | 53.5              | 73.1      | 79.4      |
| Brawls and arguments      | 56.6              | 73.6      | 71.2      |
| Gang related              | 78.9              | 90.5      | 93.4      |
| Other known circumstances | 50.3              | 69.8      | 62.7      |
| Unknown circumstances     | 56.8              | 77.6      | 70.2      |
| All circumstances         | 54.7              | 72.3      | 70.7      |

Source: FBI, Supplementary Homicide Reports (1982-85, 1990-92, 1997-98)

Note: SHR = Supplementary Homicide Reports. Excludes homicides not reported by local police agencies to the FBI as part of the SHR. Excludes negligent manslaughter and justifiable homicide. "Family and Intimates" is not a circumstance, but was defined to supercede other categories in this list.

Table A1  
 Juvenile Perpetrators in Serious Violent Crime: Percentage of  
 Victimizations, 1975 - 1999.

| Period    | FBI Data,<br>Crimes<br>Cleared by<br>Juvenile<br>Arrests as a<br>Percentage of All<br>Crimes Cleared | NCVS Data, Victimization in<br>Which Perpetrators are Less<br>than Age 18 |  |
|-----------|--|---|--|
|           |  | Excluding<br>Unknowns   | Percentage of<br>All<br>Victimizations |
| 1975 - 79 | 12   | 25  | 23                                     |
| 1980 - 84 | 10   | 23  | 21                                     |
| 1985 - 89 | 9  | 22  | 20                                     |
| 1990 - 94 | 13   | 27  | 25                                     |
| 1995 - 99 | 13   | 27  | 25                                     |

Source: FBI data is from *Crime in the United States* (1976 - 2000).

Unpublished NCVS was provided by Michael Rand, Bureau of Justice Statistics.

Note: NCVS = National Crime Victimization Survey. Percentages are for the crimes of rape robbery, aggravated assault, and (for the FBI statistics only) criminal homicide. The NCVS statistics are based on respondents' reports of the age of the perpetrators. In the case when there was more than one perpetrator in the incident, the incident was included in the "juvenile" category if there was at least one perpetrator under 18.

Appendix  
*Source Information for Data Used to Generate Figures*

Homicide:

ICPSR 2001a: FBI, Supplementary Homicide Reports, 1976-1998. Obtained from the Inter-university Consortium for Political and Social Research web site; [www.icpsr.umich.edu](http://www.icpsr.umich.edu), Study No. 3000, dataset da3000vi.

Vital Statistics-Mortality:

ICPSR 2001b-National Center for Health Statistics, Vital Statistics Mortality, 1976-1991. Obtained from the Inter-university Consortium for Political and Social Research web site; [www.icpsr.umich.edu](http://www.icpsr.umich.edu), Study No. 7632, Mortality Detail files 1968-1991, datasets da7632.y76 to da7632.y91.

ICPSR 2001c: National Center for Health Statistics, Vital Statistics Mortality, 1992. Obtained from the Inter-university Consortium for Political and Social Research web site; [www.icpsr.umich.edu](http://www.icpsr.umich.edu), Study No. 6546, Multiple Causes of Death 1992, dataset da6546.

ICPSR 2001d: National Center for Health Statistics, Vital Statistics Mortality, 1993. Obtained from the Inter-university Consortium for Political and Social Research web site; [www.icpsr.umich.edu](http://www.icpsr.umich.edu), Study No. 6320, Multiple Causes of Death 1993, dataset da6320.

ICPSR 2001e: National Center for Health Statistics, Vital Statistics Mortality, 1994. Obtained from the Inter-university Consortium for Political and Social Research web site; [www.icpsr.umich.edu](http://www.icpsr.umich.edu), Study No. 2201, Multiple Causes of Death 1994, dataset da2201.

ICPSR 2001f: National Center for Health Statistics, Vital Statistics Mortality, 1995. Obtained from the Inter-university Consortium for Political and Social Research web site; [www.icpsr.umich.edu](http://www.icpsr.umich.edu), Study No. 2392, Multiple Causes of Death 1995, dataset da2392.

ICPSR 2001g: National Center for Health Statistics, Vital Statistics Mortality, 1996. Obtained from the Inter-university Consortium for Political and Social Research web site; [www.icpsr.umich.edu](http://www.icpsr.umich.edu), Study No. 2702, Multiple Causes of Death 1996, dataset da2702.

CDC 2001a: Centers for Disease Control, National Center for Injury Prevention and Control, WISQARS database

[www.cdc.gov/ncipc/wisqars/](http://www.cdc.gov/ncipc/wisqars/); U.S. gun and total homicide statistics, 1997-98.

CDC 2001b: Centers for Disease Control, National Center for Injury Prevention and Control, WISQARS database  
[www.cdc.gov/ncipc/wisqars/](http://www.cdc.gov/ncipc/wisqars/); U.S. gun and total homicide statistics, Hispanic males 13-24, 1990-98.

Population Estimates:

USDC 2001: U.S. Department of Commerce, U.S. Census Bureau, Quarterly Population estimates, by single year of age, race and sex, 1980-89. Data obtained from [www.census.gov/population/www/estimates/nat\\_80s\\_detail.html](http://www.census.gov/population/www/estimates/nat_80s_detail.html), files e8081rqi.zip through e8990rqi.zip.

CDC 2001c: Centers for Disease Control, National Center for Injury Prevention and Control, WISQARS database  
[www.cdc.gov/ncipc/wisqars/](http://www.cdc.gov/ncipc/wisqars/); Population totals, black, Hispanic and total U.S. males 13-24, 1990-98.

## CAPTIONS FOR FIGURES

Fig. 1. Arrest rates for youths ages 13-17. Source: FBI (1966-2000); U.S. Department of Commerce (1966-2000). Arrest rates have been adjusted to account for incomplete coverage by the Uniform Crime Reports.

Fig. 2. Age profiles of male violence arrest rates: 1985, 1994, and 1999. Source: FBI (1986, 1995, 2000); US Department of Commerce (1966-2000). Arrest rates have been adjusted to account for incomplete coverage by the Uniform Crime Reports.

Fig. 3. Arrest rates for aggravated assault and robbery of arrestees under 18, 1994 and 1999, by sex and race.  
Source: FBI (1995, 2000); US Department of Commerce (1966-2000). Arrest rates have been adjusted to account for incomplete coverage by the Uniform Crime Reports.

Fig. 4. Juvenile arrest rate ratios for violence, 1965-1999: Males and females, blacks and whites. Source: FBI (1966-2000); U.S. Department of Commerce (1966-2000).

Fig. 5. Homicide-commission and victimization rates, males only: Ages 13-17 and 18-24, 1976-1998. Source: ICPSR (2001a-f); CED (2001a). See Appendix for details. Adjusted for unknowns and underreporting by police to match homicide counts in the Vital Statistics.

Fig. 6. Homicide commission and victimization rates for black and non-black males ages 13-17, 1976-1998. Source: ICPSR (2001 a-f); CDC (2001a). See Appendix for details. Adjusted for unknowns and underreporting by police to match homicide counts in the Vital Statistics.

Fig. 7. Homicide commission and victimization rates for black and non-black males ages 18-24, 1976-1998. Source: ICPSR (2001 a-f); CDC (2001a). See Appendix for details. Adjusted for unknowns and underreporting by police to match homicide counts in the Vital Statistics.

Fig. 8. Age distribution of suspected male killers, 1976-1998. Source: ICPSR (2001a). See Appendix for details.

Fig. 9. Race and ethnicity of male victims, ages 13-24: Black and/or Hispanic, 1976-1998. Source: ICPSR (2001 a-f). See Appendix for details.

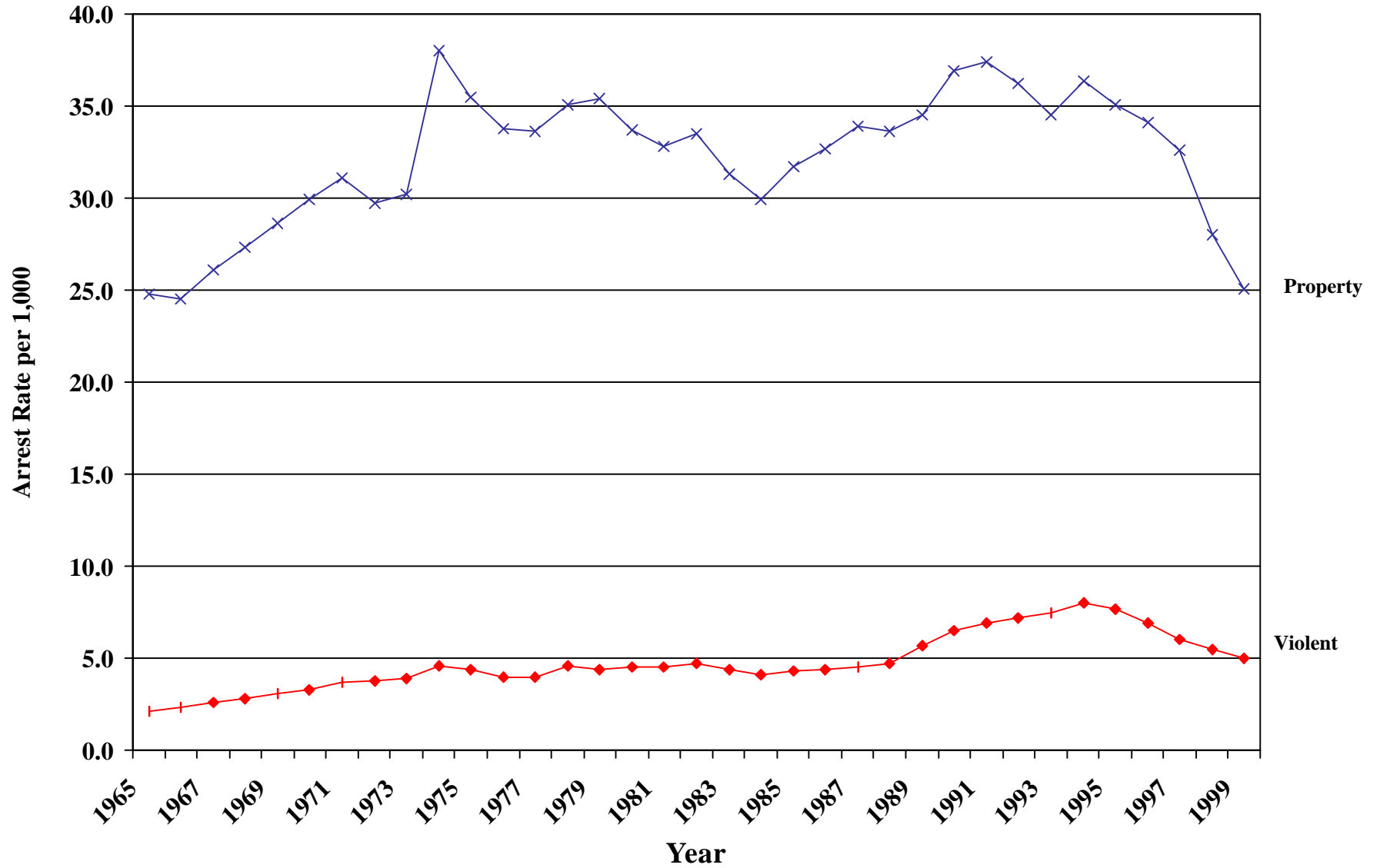
Fig. 10. Ratio of homicide-victimization rates to pre-epidemic base rate (1976-1984), four birth cohorts of black males. Source: ICPSR (2001a-f); CDC (2001a,c). See Appendix for details.

Fig. 11. Percent gun use in homicides involving males ages 13-24, 1976-1998. Source: ICPSR (2001 a-f); CDC (2001a). See Appendix for details.

Fig. A1. Arrests by age group as percent of total, 1999. Source: FBI (2000)

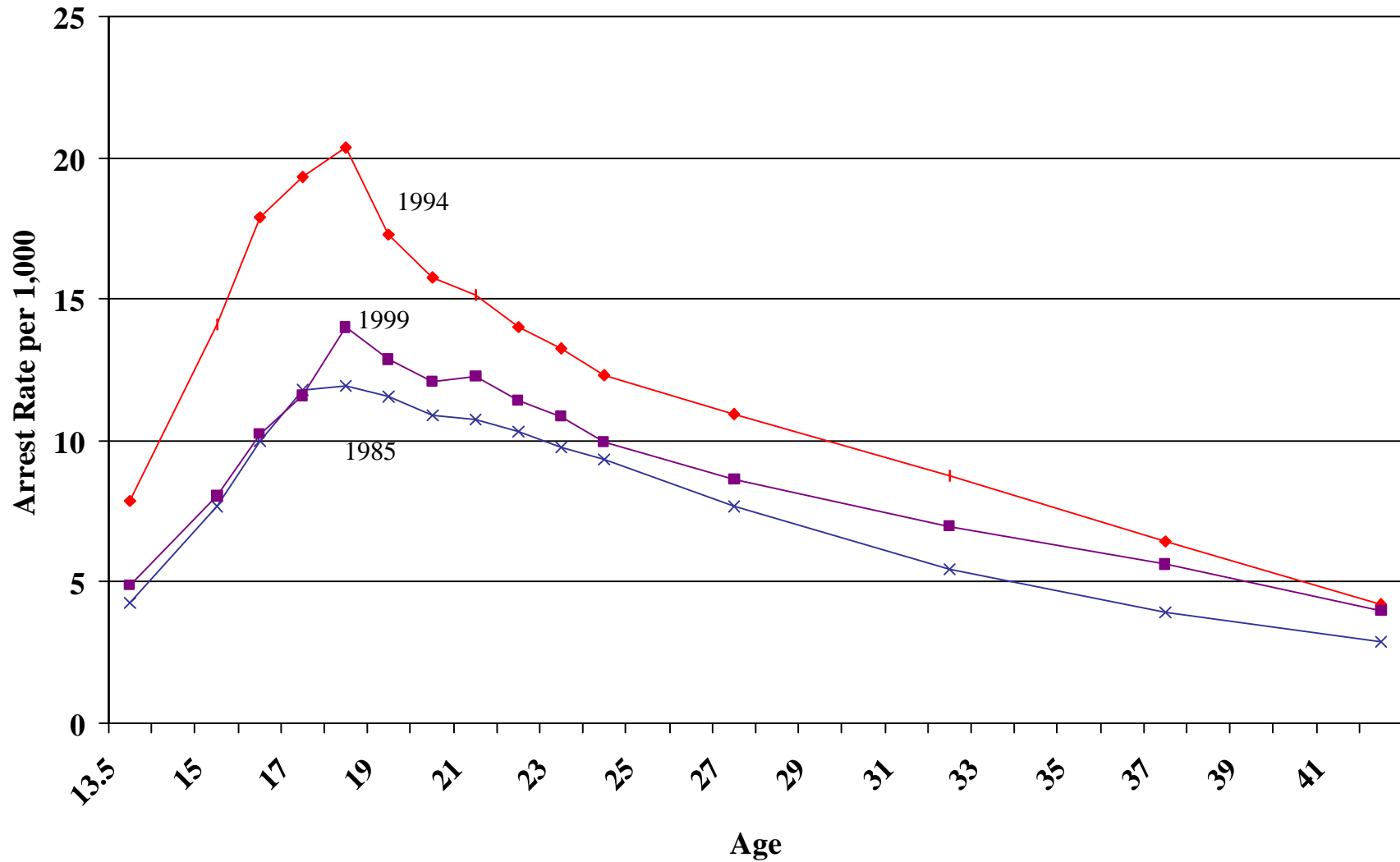
Fig. A2. Arrests for juveniles under 18 as percent of total, 1965-1999. Source: FBI (1966-2000).

**Figure 1. Arrest Rates for Youths Ages 13-17**

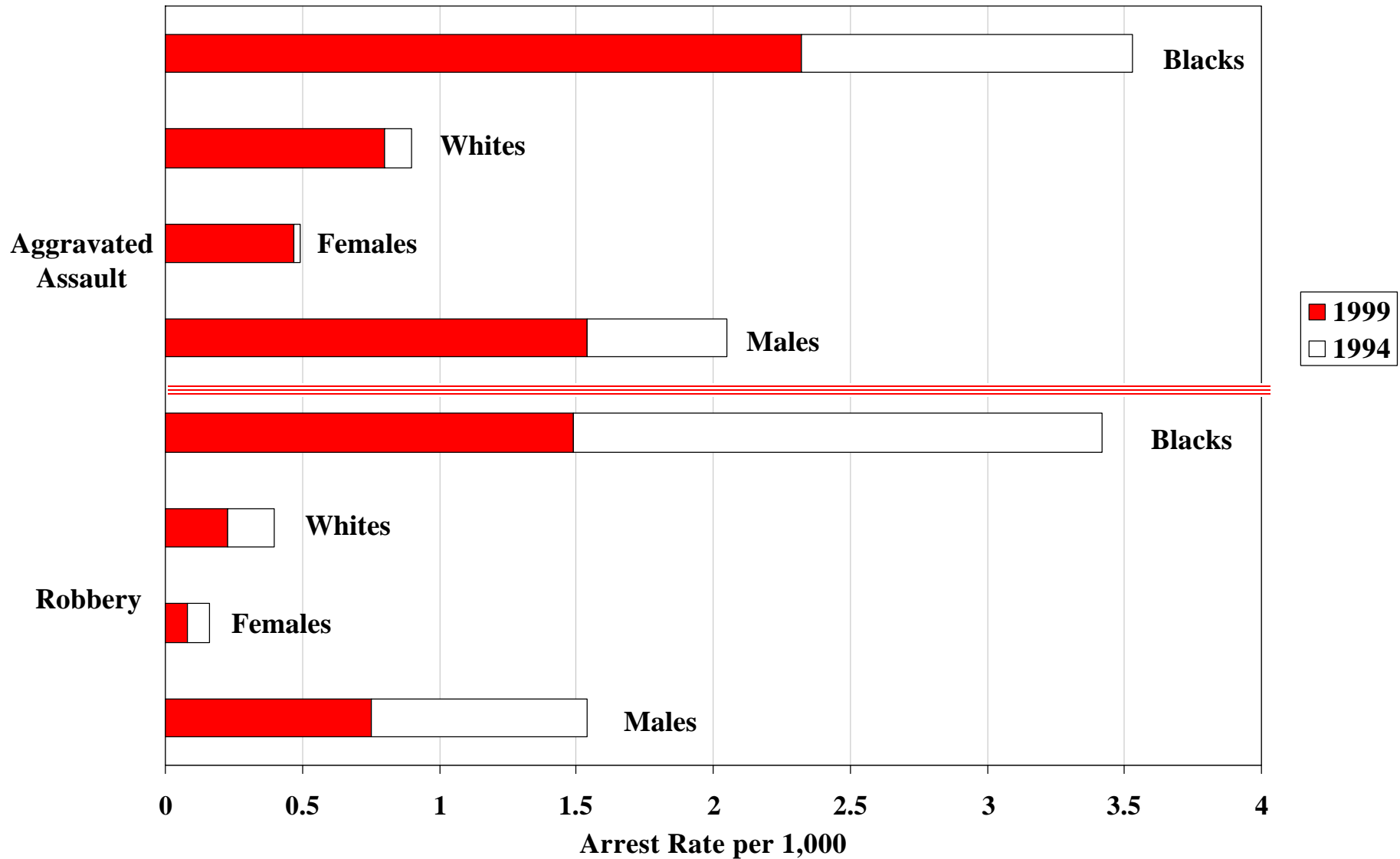




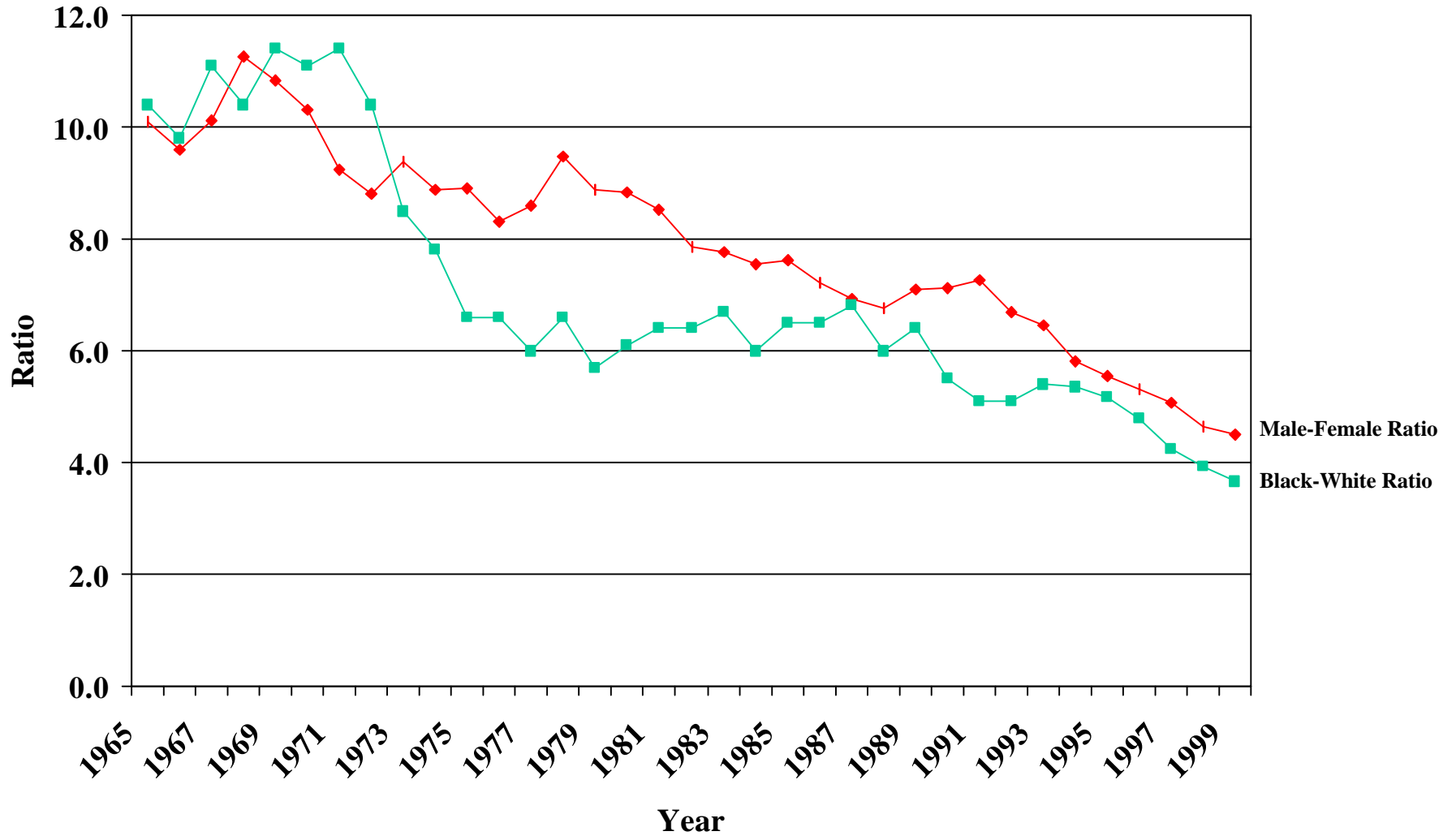
**Figure 2. Age Profiles of Male Violence Arrest Rates  
1985, 1994, and 1999**



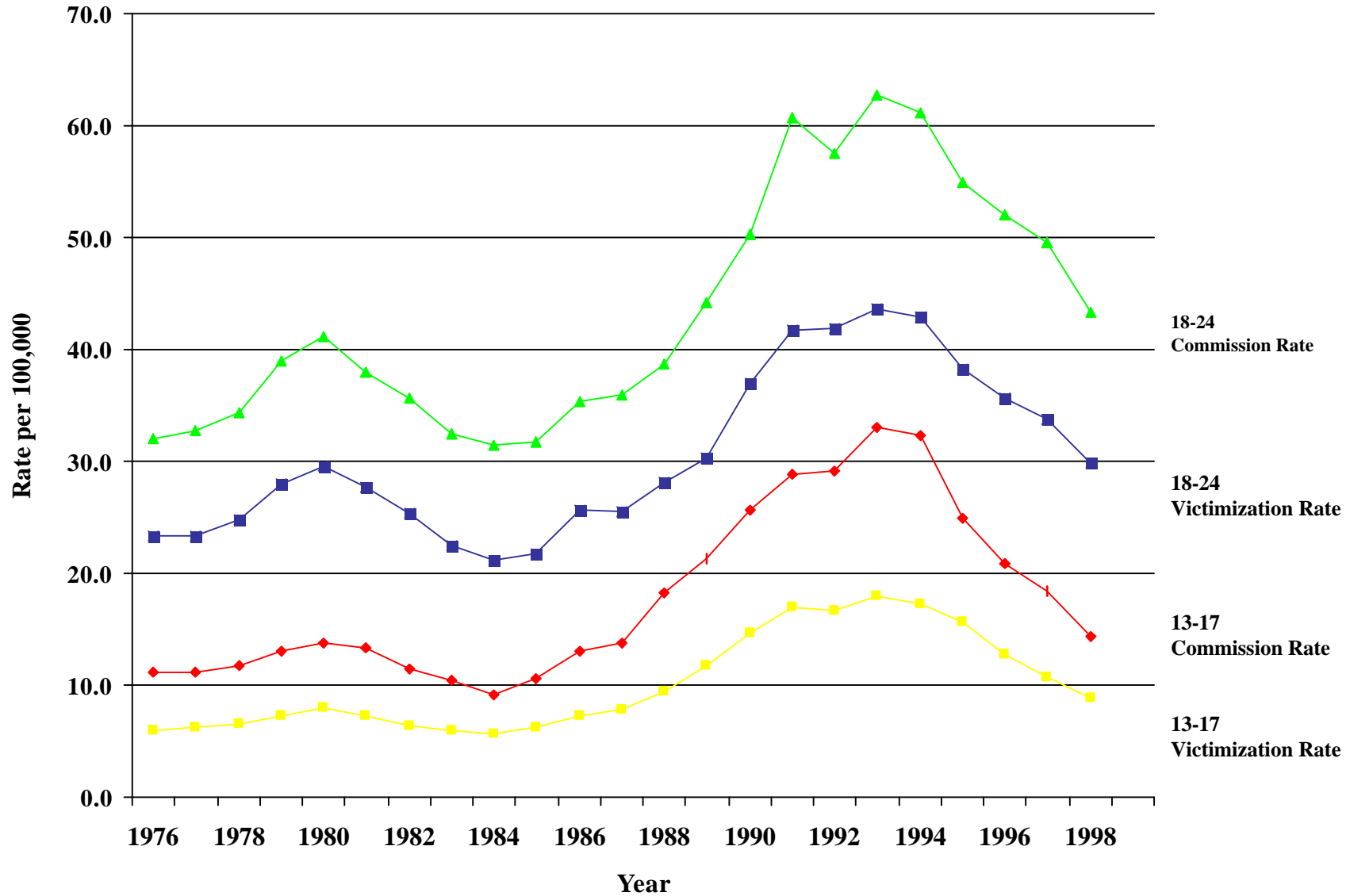
**Figure 3. Arrest Rates for Aggravated Assault & Robbery of Arrestees Under 18, 1994 and 1999 by Sex and Race**



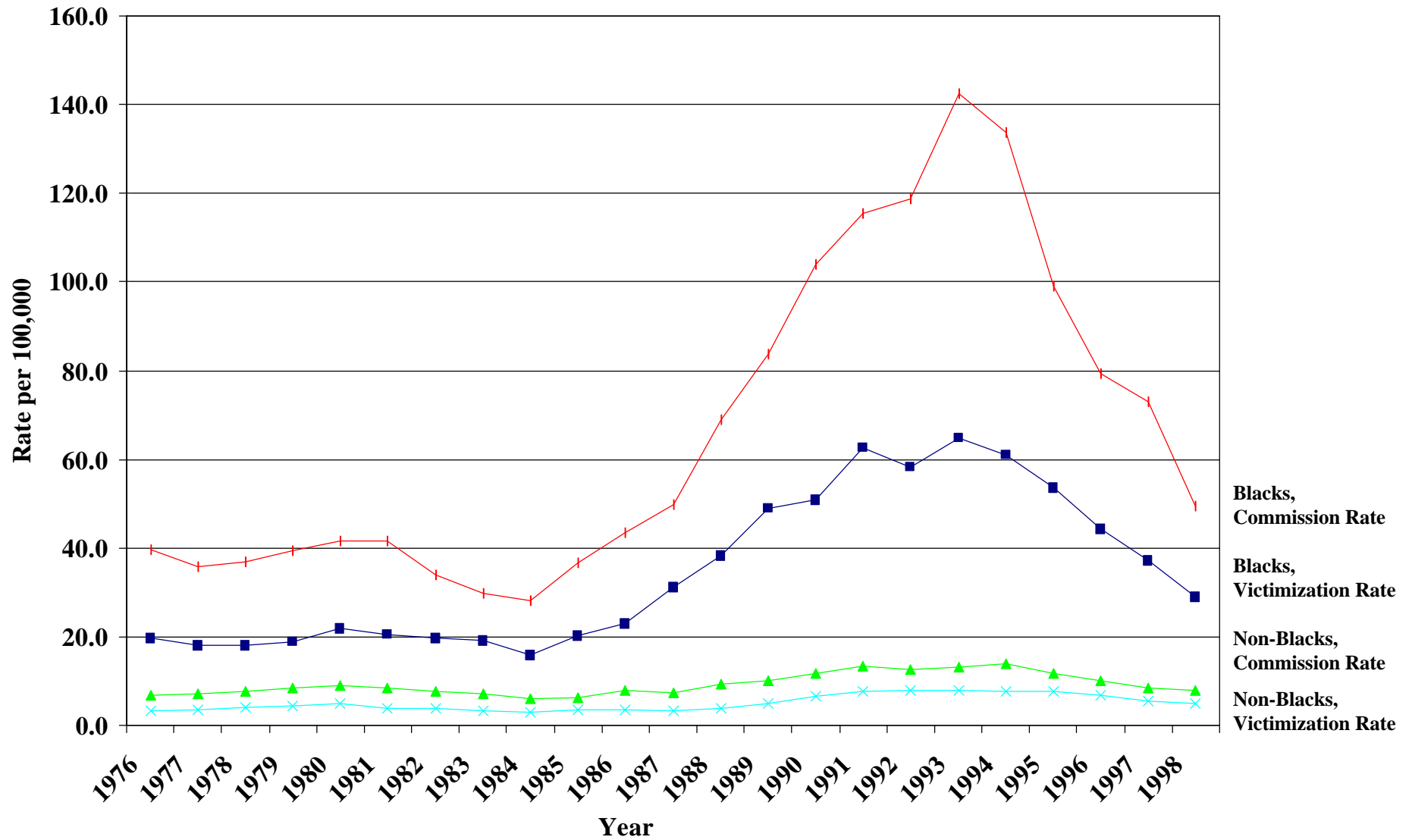
**Figure 4. Juvenile Arrest Rate Ratios for Violence, 1965-1999: Males and Females, Blacks and Whites**



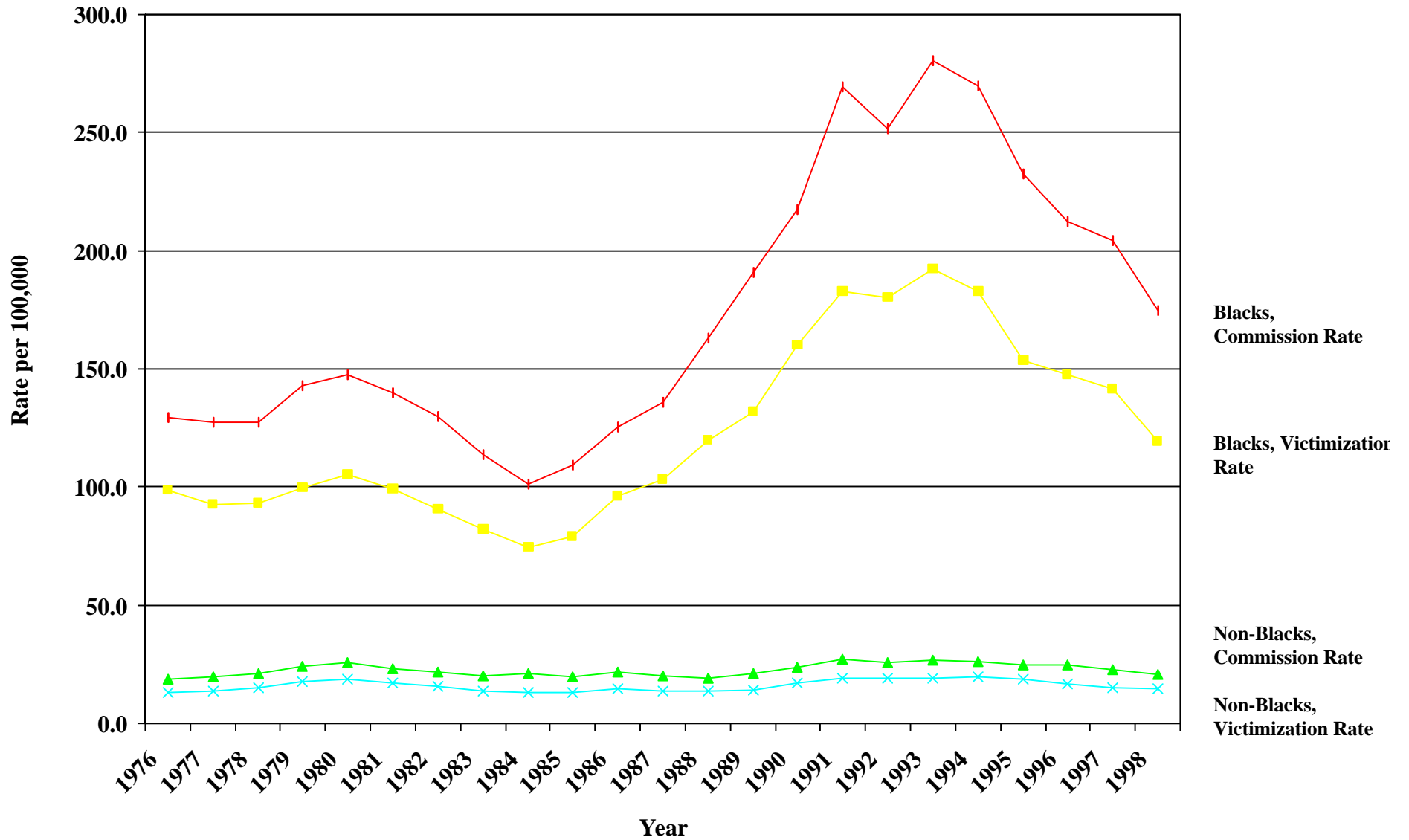
**Figure 5. Homicide-commission and Victimization Rates, Males Only. Ages 13-17 and 18-24, 1976-1998**



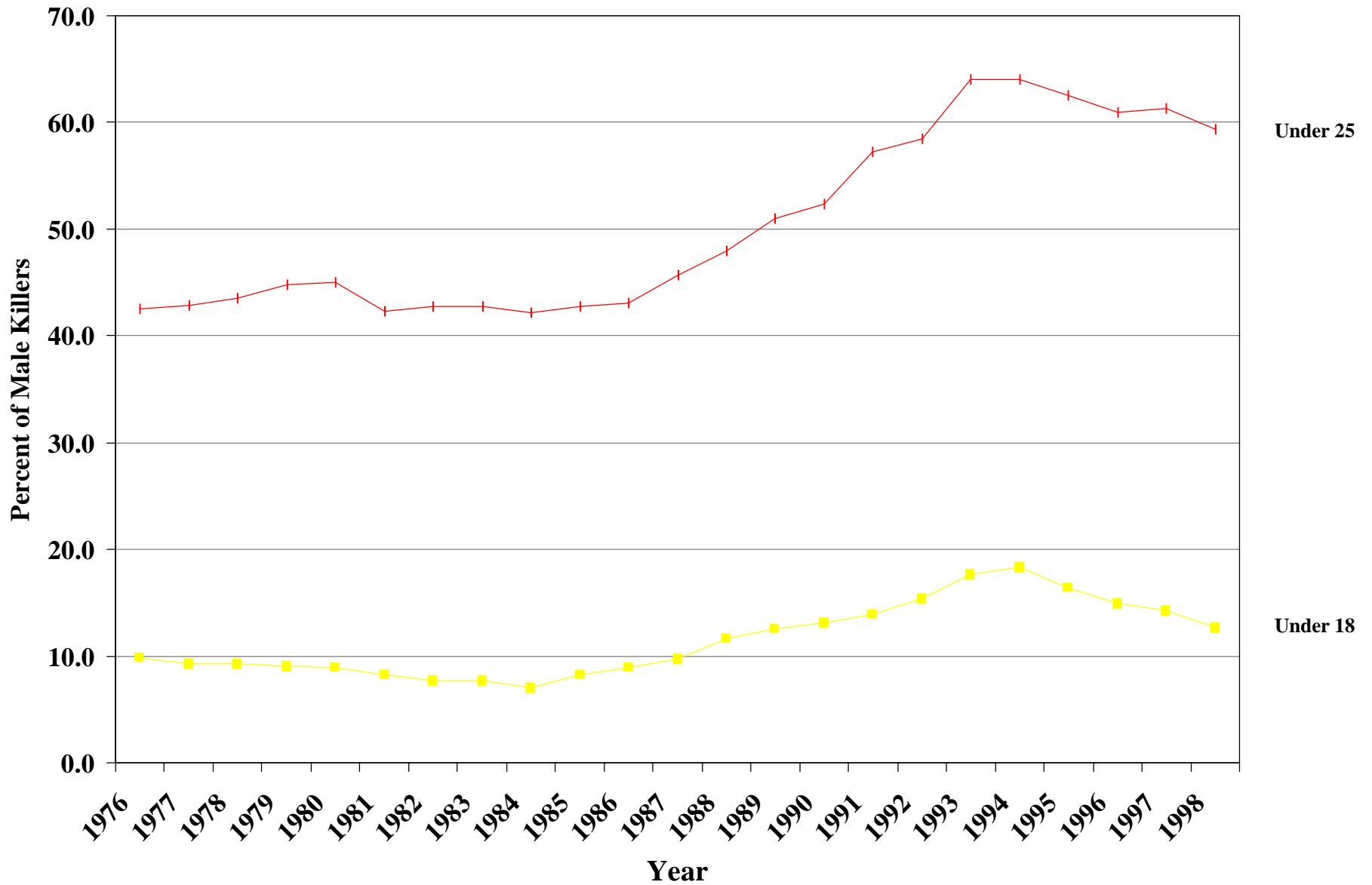
**Figure 6. Homicide Commission and Victimization Rates for Black and Non-Black Males Ages 13-17, 1976-1998.**



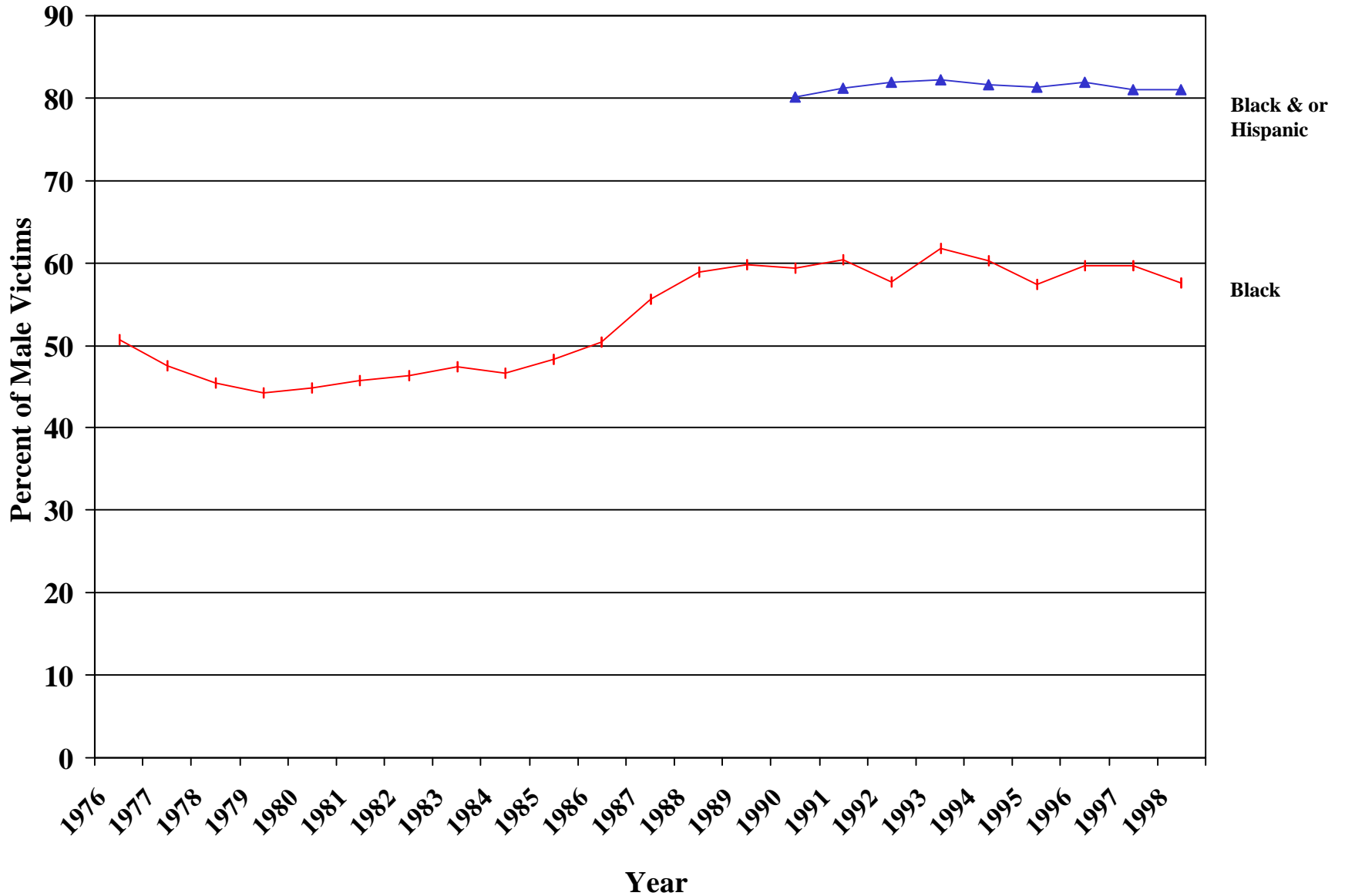
**Figure 7. Homicide Commission and Victimization Rates for Black and Non-Black Males Ages 18-24, 1976-1998**



**Figure 8. Age Distribution of Suspected Male Killers,  
1976-1998**

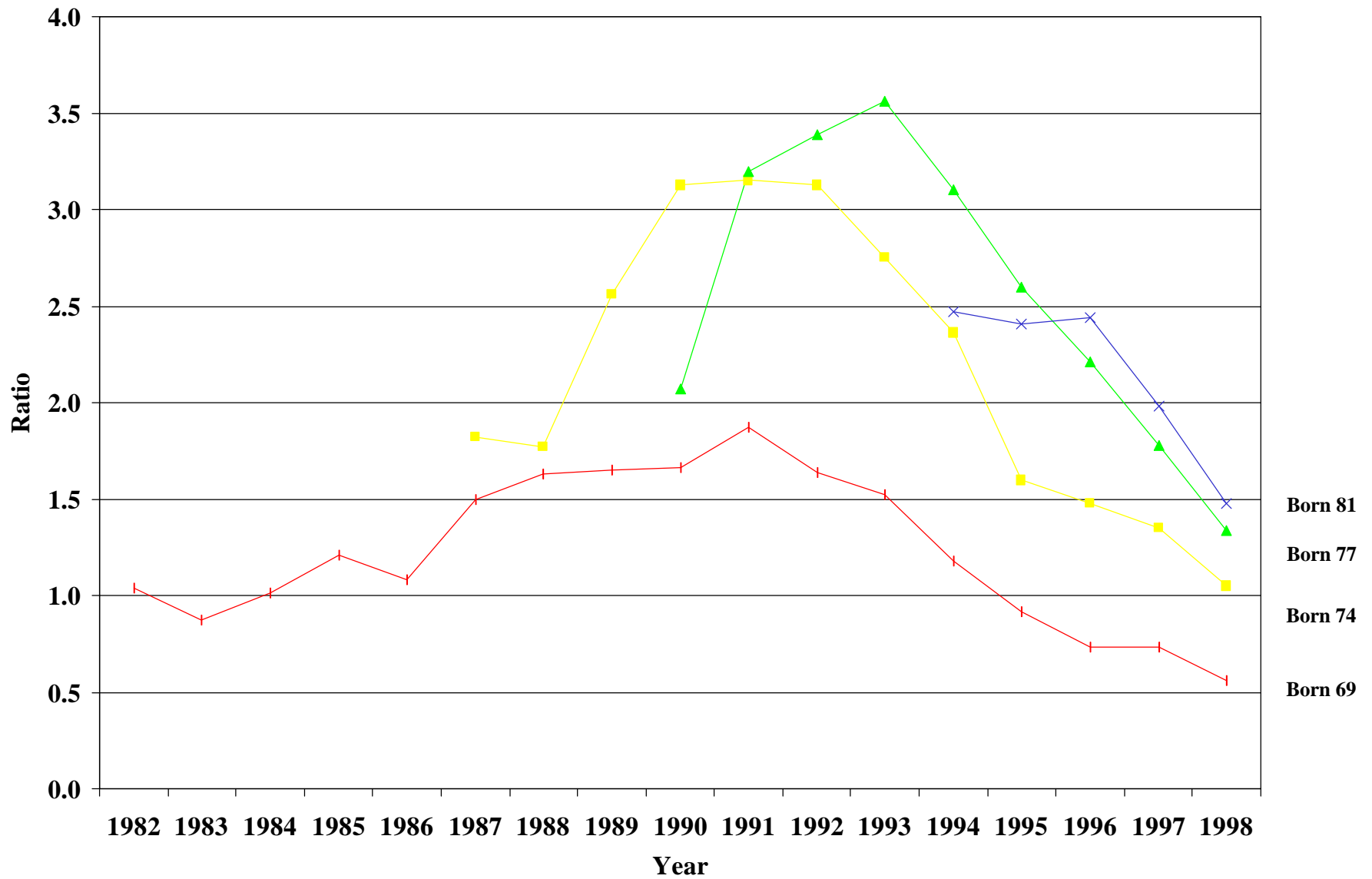


**Figure 9. Race and Ethnicity of Male Victims, Ages 13-24  
Black &/or Hispanic, 1976 - 1998**

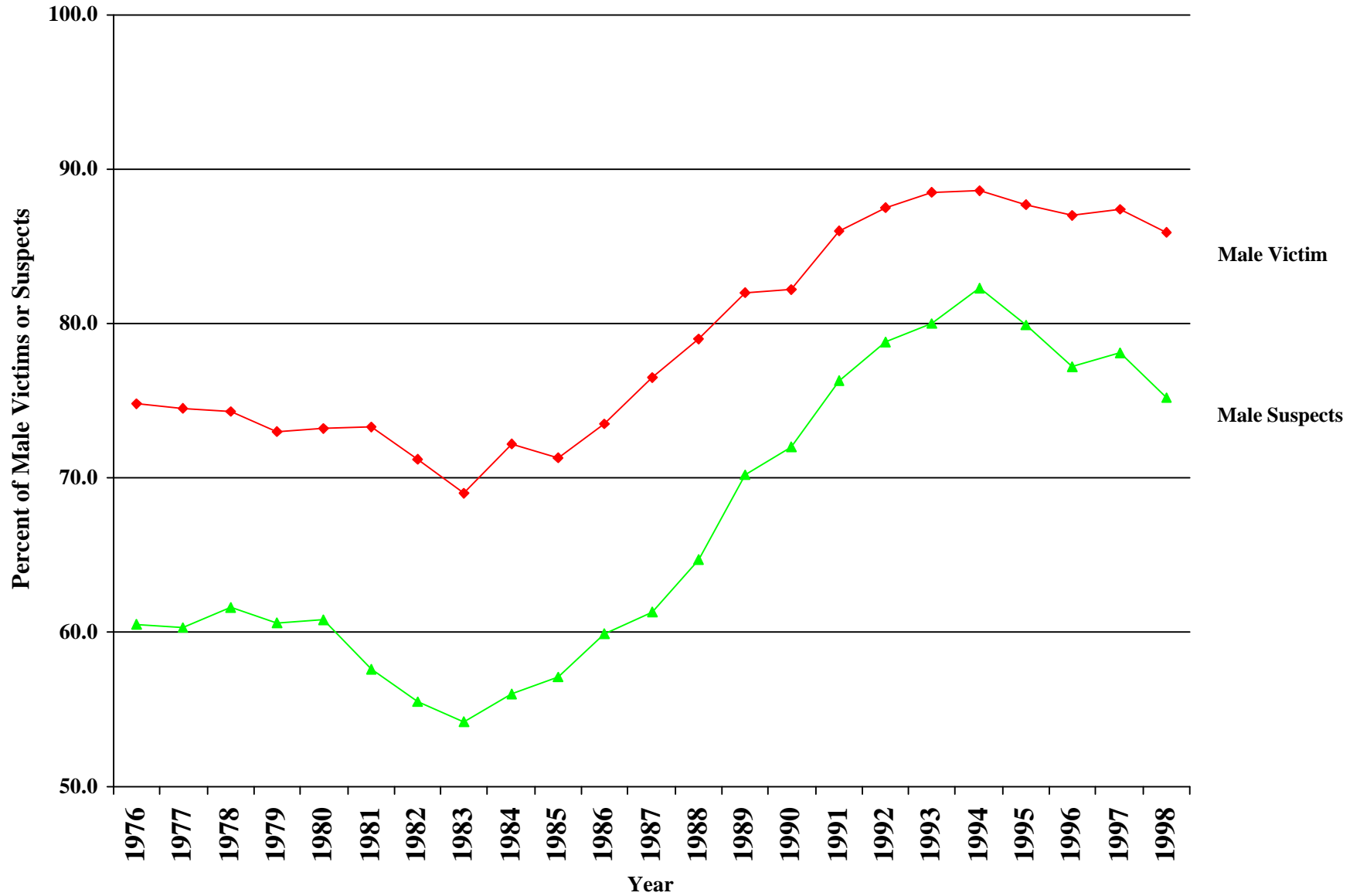




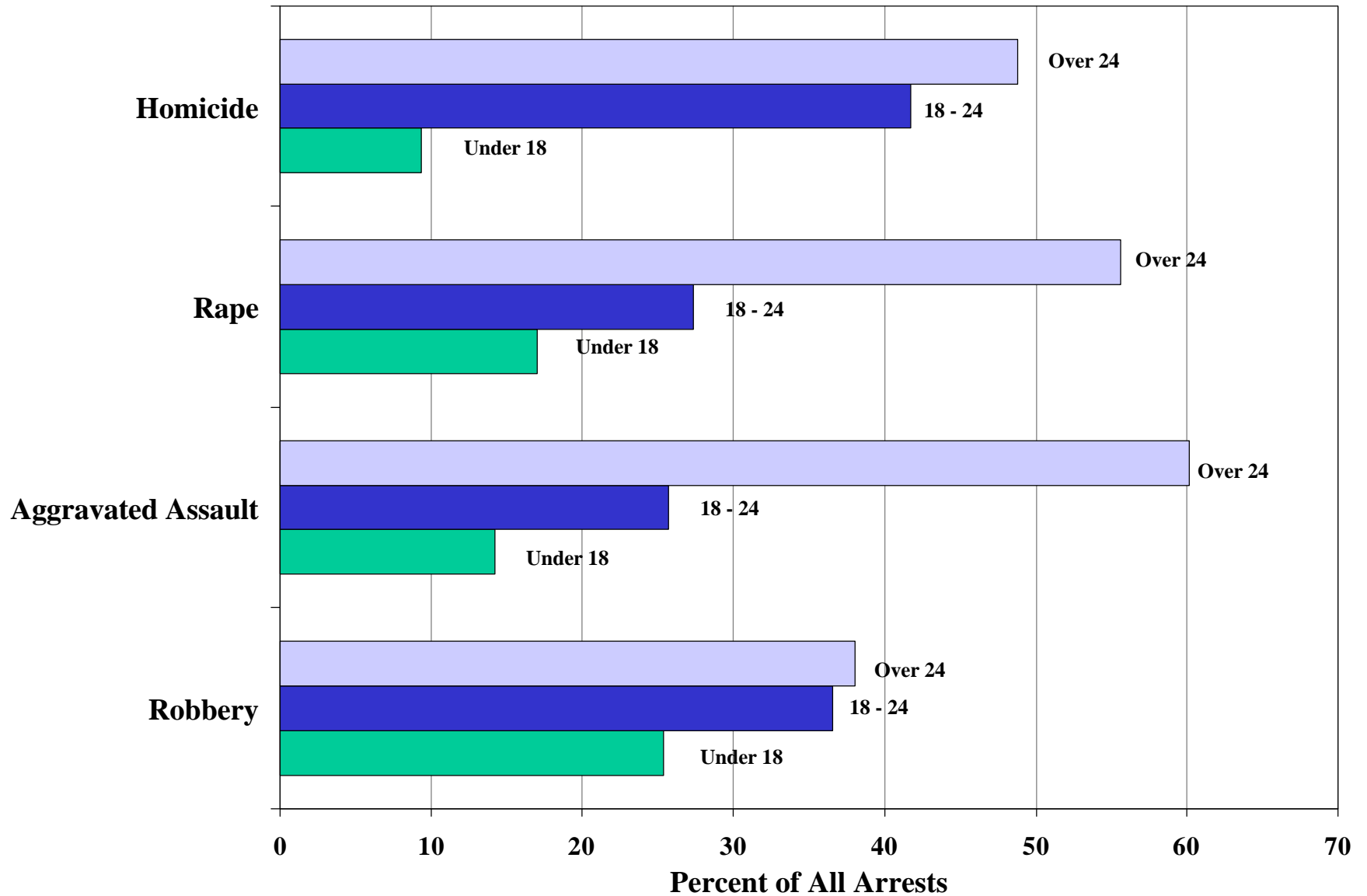
**Figure 10. Ratio of Homicide Victimization Rates to Base Rate (1976-1984), Four Cohorts of Black Males**



**Figure 11. Percent Gun Use in Homicides Involving Males  
Ages 13-24, 1976-1998**



**Figure A1. Arrests by Age Group as Percent of Total, 1999**



**Figure A2. Arrests for Juveniles Under 18 as  
Percent of Total, 1965-1999**

