

*D O C U M E N T E D   B R I E F I N G*

**RAND**

*The Coming Wave of  
Violence in California*

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*Supported by the  
James Irvine Foundation*

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## PREFACE

This documented briefing, originally given at the June 1996 meeting of the Homicide Research Working Group, explores the question of whether California faces an impending wave of violence from its increasing number of young people. Behavior, not sheer numbers, is likely to hold the answer.

The study was supported by the James Irvine Foundation. It is part of the Police–Community project within RAND’s Criminal Justice Program.

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# The Coming Wave of Violence in California

Allan Abrahamse

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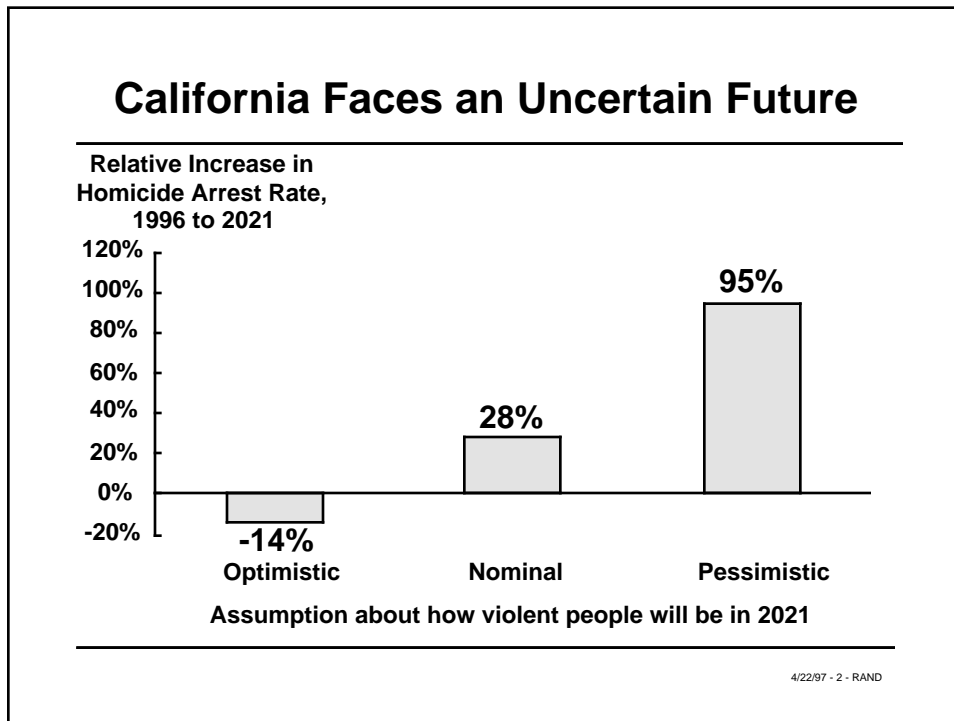
## INTRODUCTION

This briefing summarizes a paper presented at the June 1996 meeting of the Homicide Research Working Group. It addresses the question of whether California will experience a sharp increase in homicide arrests in the coming twenty-five years, and by extension, a corresponding rise in violence of all kinds. The short answer is: probably not, but the important point raised here is that whatever happens depends on the future behavior of today's children much more than it depends on the fact that there will be relatively more young people in the years to come. Demography is *not* destiny.

Some recent publications have projected *features* of the *national* homicide rate, and by pointing out ongoing demographic and social changes, have raised many reasons we should be concerned about the future.<sup>1</sup> This briefing, in contrast, projects only the *total* homicide arrest rate, and only for California. So it is somewhat limited in scope. But it goes further than most other recent publications in that it combines population projections with fully specified assumptions about future behavior, and makes specific estimates of what lies in store.

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<sup>1</sup>See, for example, James Alan Fox, *Trends in Juvenile Violence*, Northeastern University, Boston, 1996.



## THE FUTURE IS UNCERTAIN

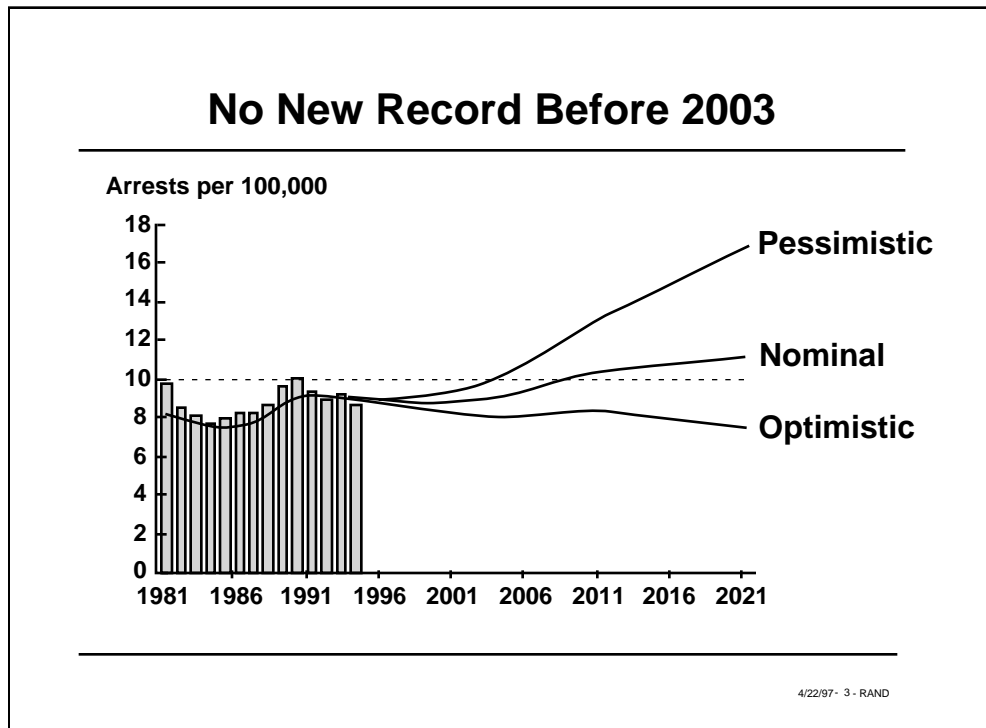
While California's homicide arrest rate could nearly double in the next twenty-five years, this is only one of several possibilities. The future depends on a key uncertainty: whether today's children will become more violent than today's adolescents. Any estimate of future homicide arrest rate depends heavily on assumptions about how violent future birth cohorts will be.

A *pessimistic* assumption is that from 1977 on, children born each year will face age-specific homicide arrest rates that are 3 percent higher than the preceding year's birth cohort. Such a 3 percent annual rise is not without precedent: it has occurred in particular cohorts for a few years at a time. But such a rise has never been seen in many cohorts for many years. This assumption can be regarded as a reasonable upper bound (even though a higher rate cannot be completely ruled out).

An alternative possibility points to a more *optimistic* future for California. If arrest rates *decline* by 1 percent in each successive birth cohort, the homicide arrest rate will be about 14 percent lower in 2021 than today. An annual 1 percent decline is not without precedent either, although it has never been sustained for long periods.

Splitting the difference would mean that, on average, each cohort will have an age-specific arrest rate that is about 1 percent higher than that of the preceding cohort. Under this *nominal* assumption, California's homicide arrest rate in 2021 will be about 28 percent higher than it is today.

Together, these three scenarios bracket a future that may be troubling, but is not hopeless. They underscore a key point: *What lies in store for California depends on the upbringing of young Californians — today.*



#### NEAR-TERM OUTLOOK

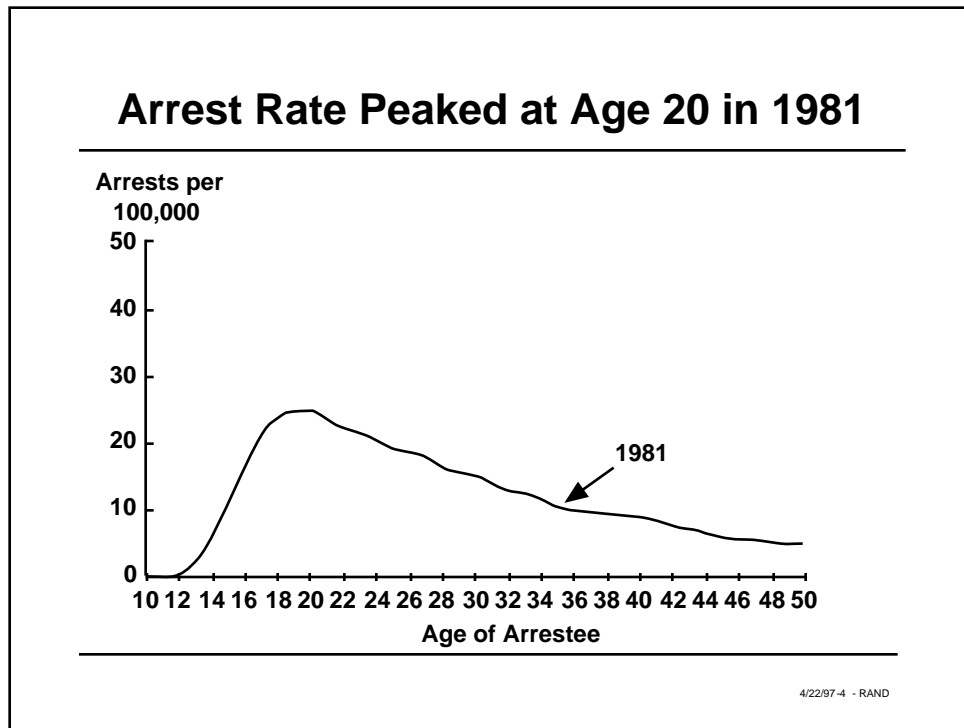
Over the next five to ten years, arrest rates reaching the near-record levels seen in 1990 do not appear likely. Even under the pessimistic assumption, the rate will not reach the 1990 level until about the year 2003. Under the nominal assumption, this will not happen until about 2006. Under the optimistic assumption, California may never again experience rates as high as those seen in 1990.

For at least the next five years, California should experience arrest rates no higher than those seen in the recent past, and perhaps much lower. There is time to prepare for whatever lies in store, and perhaps to prevent the worst from happening.

#### UNCERTAINTY

To gauge what may lie in store, this analysis started with observations from the last fifteen years and projected that world into the future. The best available estimates of future population trends were used, and future offending rates were projected as though they would change smoothly from one year to the next.

However, the projections cannot anticipate changes that may sharply affect future rates. The projection method produces a trend that will probably be much smoother than whatever materializes in reality, and we can only suggest what may be most likely to unfold. When the methodology is used to “predict the past,” results differ from past observations by as much as 15 percent in a particular year. At least that much difference in future trends can be anticipated.



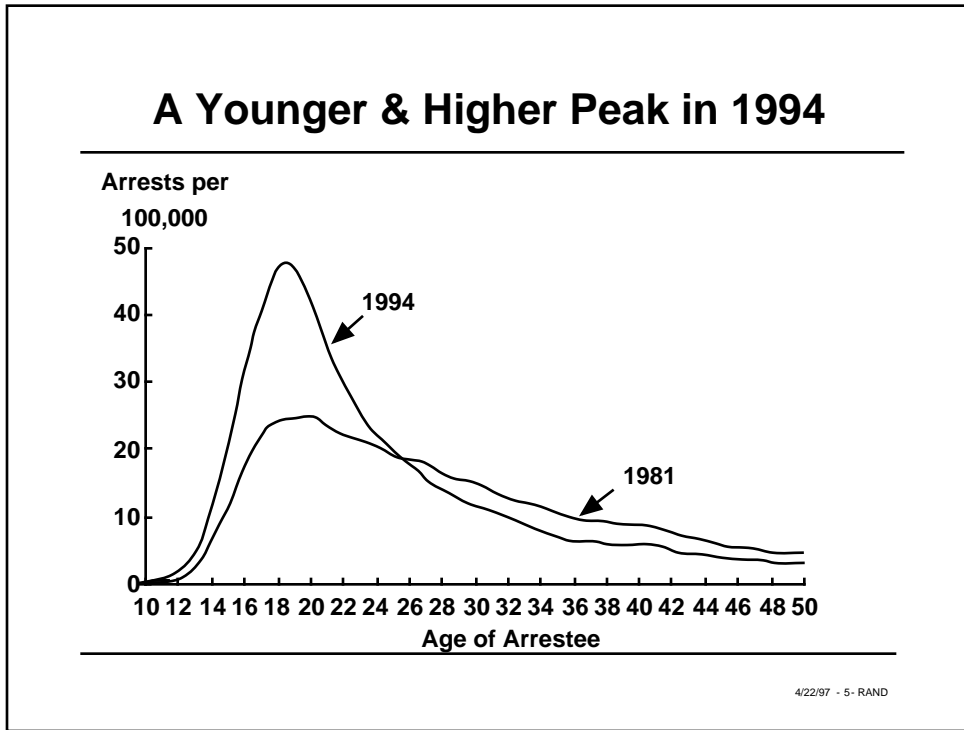
## METHODOLOGY

Some observers have called attention to an impending wave of violence as those at greatest risk of violence (15 to 24 year olds) expand proportionally in the entire population. This observation is, on the face of it, a plausible one, but the exact magnitude of this wave and how suddenly it may materialize are open to debate. The research upon which this briefing is based was carried out to resolve these uncertainties—to make precise the assumptions and methods needed to project future violence rates and see where they lead.

### AGE-SPECIFIC ARREST RATES DIFFER SHARPLY

Violence rates, however measured, are highly age specific. Relatively few young children and relatively few mature adults exhibit violent behavior with serious consequences. Maximum rates for most forms of violence center around the late teenage years and the early twenties. Homicide arrest rates reflect such violence correspondingly at each age.

The above chart plots the 1981 homicide arrest rate in California (expressed as usual as the number of arrests per 100,000) by age. The rate peaked at age 20: about 25 out of every 100,000 20 year olds were arrested for homicide.



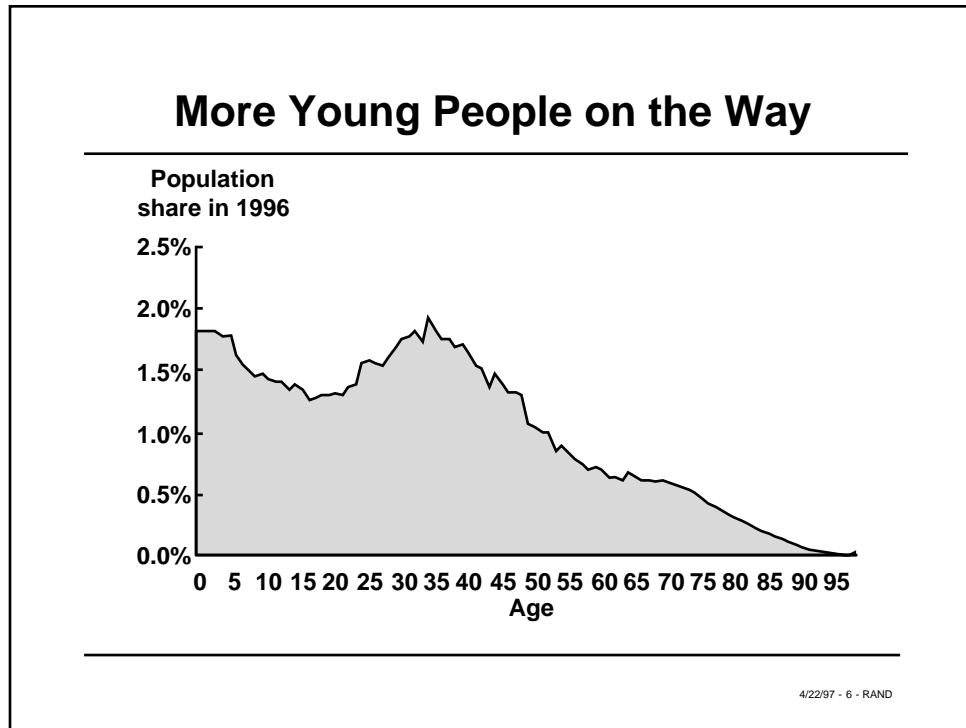
#### AGE-SPECIFIC HOMICIDE ARREST RATES IN 1994

Between 1981 and 1994, the age-specific pattern of homicide arrests changed dramatically. The peak was reached at a younger age (18 years) and reached an unprecedented high level. Nearly 48 out of every 100,000 18 year olds were arrested for homicide—nearly twice the level registered by 20 year olds in 1981.

This pattern has caused considerable concern.<sup>2</sup> Some view it as ushering in an era of the “violent predator,” where the streets will be controlled by large numbers of young people committing murder and other violent crimes at high rates.

<sup>2</sup>See, for example, James Alan Fox, “The Calm Before the Juvenile Crime Storm?” *Population Today*, 1996, or the section entitled “The Super-Predators,” in William J. Bennett, John J. DiIulio, Jr., and John P. Walters, *Body Count*, Simon and Schuster, New York, 1996, pp. 26-29.





#### POPULATION DISTRIBUTION

The most numerous age group in California (and the nation) is persons in their mid-thirties, born during the post-World War II “baby boom.”

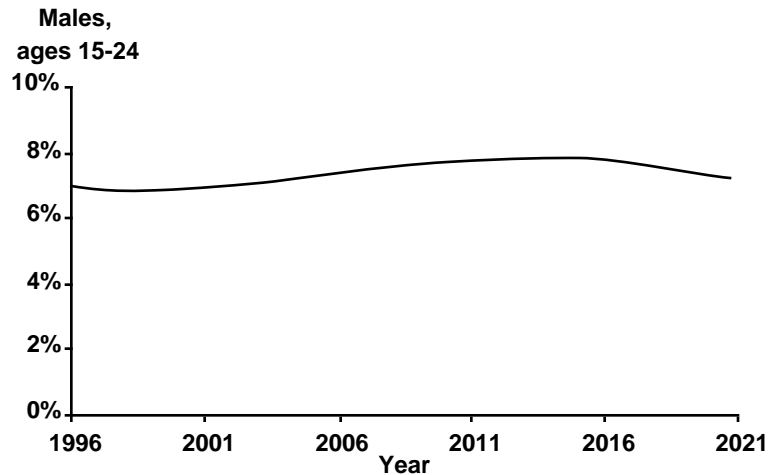
These baby boomers themselves bore fewer children than their parents, on average, and at a somewhat later age than their parents. These differences in the level and timing of reproduction have had two consequences.

The first consequence is that today California has a relative dearth of teenagers (children the boomers would have had if they had borne as many children as their parents, and as early). The second consequence is that in about ten years a noticeable increase in the number of teenagers will be observed. They are the late-born children of the boomers, but also (and perhaps mostly) the children of immigrants.

This rise in the number of young people has lead some observers to view the future with some alarm. For example, James Q. Wilson writes (of national trends) “just beyond the horizon, there lurks a cloud that the winds will soon bring over us. The population will start getting younger again. By the end of this decade there will be a million more people between the ages of fourteen and seventeen.... This extra million will be half male. Six percent of them will become high rate, repeat offenders.... Get ready.”<sup>3</sup> But while 30,000 additional “high rate, repeat offenders” indeed sounds scary, they will make up only about 0.01 percent of the population. Whether they commit enough additional violence to be noticed requires a calculation.

<sup>3</sup>James Q. Wilson, “Crime and Public Policy,” in James Q. Wilson and Joan Petersilia (eds.), *Crime*, ICS Press, San Francisco, 1995, page 507.

## But Only A Small Relative Increase



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### YOUTH SEGMENT INCREASE RELATIVELY SMALL

Despite the current dearth of young people, and the prospect for more of them in the future, the fraction of the population made up of young people will not increase dramatically.

Males aged 15 to 24 constitute the most violent segment of the population. They currently make up about 7 percent of the population. That share will increase—to about 8 percent of the population in about ten years. After that, their relative share is expected to drop.

What California faces, then, is not a “wave” of young people but rather a gradual demographic “impulse.” Whether this impulse becomes a wave of violence will depend on how pervasive violence is among the members of these future generations, not on their sheer numbers.

## Projections Are Straightforward

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Number of arrests in 2021

EQUALS

Number of persons in 2021

TIMES

Arrests per person in 2021

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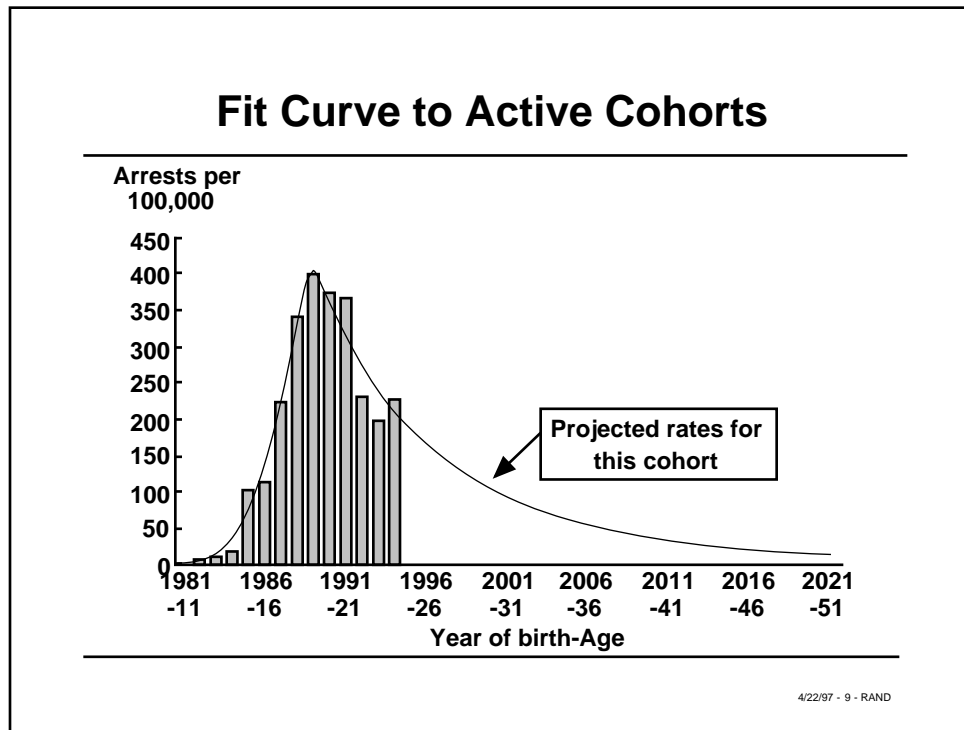
### PROJECTING ARREST RATES

The number of arrests in a future year is simple to calculate: multiply the number of people at risk of arrest by the assumed future arrest rate.

The projections of California's future population are the official California Department of Finance figures, which estimate population counts by sex, age, and for four race/ethnic groups: Hispanics (of any race), non-Hispanic whites, African-Americans, and "other races" (mostly Asians and Native Americans).

Future arrest rates were projected for "active age cohorts" (persons born before 1977, i.e., persons who would have been at least 18 years of age in 1994, which is the last year for which data are available to calculate their arrest rates) by fitting a "smooth curve" through the age-specific homicide arrest rates for years in which those rates have been measured.

For other cohorts, that is, for all who were, or will be, born after 1976, other assumptions about rates of increase in their arrest rates were made.



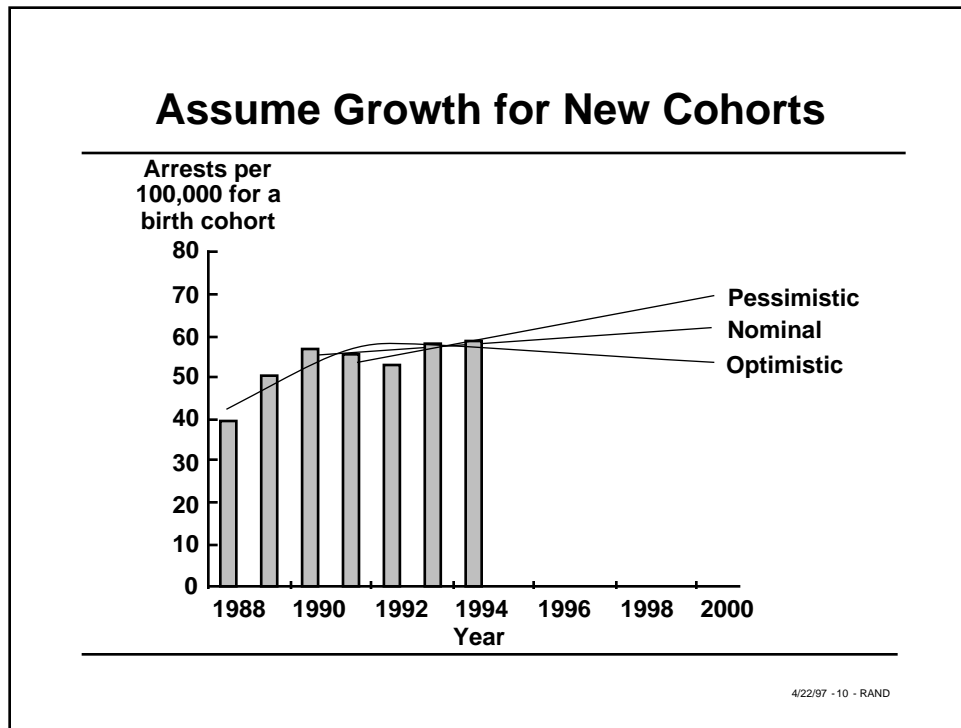
#### FUTURE RATES OF ACTIVE COHORTS

The above chart illustrates how future arrest rates were estimated for an active age cohort born in 1970. Members of this cohort were 11 years old in 1981, and 24 in 1994, the last year for which homicide arrest data were available at the time this study was carried out.

The curve fit through the data is a “double logit,” which offers a smooth rendition of the underlying data and enables us to project the declining rate of arrest as these 26 year olds mature. The arrest rate  $R(x)$  at age  $x$  was assumed to be of the form:

$$R(x) = \begin{cases} 100,000 / (1 + \exp(a + bx)) & \text{for } x < p \\ 100,000 / (1 + \exp(c + dx)) & \text{otherwise} \end{cases}$$

and ordinary least squares were used to estimate the unknown parameters  $a$ ,  $b$ ,  $c$ ,  $d$ , and  $p$  that best fit the data, with some constraints to make sure the curve tended toward zero at age 0 and at age 100.



#### FUTURE RATES OF FUTURE COHORTS

Children born after 1976 were at most 18 years old in 1994, the last year for which homicide arrest data were available for this study. While some of these children had been arrested by this time, their most active violent years lay ahead of them.

For younger cohorts, born after 1976, arrest rates were projected based on the behavior of earlier birth cohorts by assuming that these rates would increase or decrease at some constant rate. This was done instead of making projections based at best on only the first few years of their teenage lives. The three assumptions used are

- Nominal assumption: 1 percent increase every year
- Pessimistic assumption: 3 percent increase every year
- Optimistic assumption: 1 percent *decrease* every year.

The above chart shows the homicide arrest rates for males age 15-21, adjusted to a constant race and ethnicity composition, for each year from 1988 through 1994. (It is hard to discern any pattern from a single-year cohort, because the data are so variable.) The lines show how these rates would increase or fall in future years under these three assumptions.

These are no more than assumptions, neither “right” nor “wrong.” There is nothing in the data that would *firmly* rule any of them out, although as noted earlier, it seems unlikely that the extreme rates could be sustained for all population groups for a long time.

## A Wave of Violence?

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- Demographic change is slow and is by itself a relatively weak cause of changes in violence
  - Behavioral change can happen fast and can strongly influence changes in violence
  - What happens next depends on how today's children behave...tomorrow
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### CONCLUSION

Does California face a wave of violence in the next twenty-five years? The answer depends more on behavior than on demography.

Twenty-five years from now California will have more young people, and these young people will likely continue to account for a disproportionate share of all violence. But the projections indicate that the mere rise in the number of young people will not, by itself, greatly intensify violence. Demography will not prove to be destiny.

It is the *behavior* of the next generation that will largely shape the future. If from this time on every birth cohort is substantially more violent than the previous one, California is destined to experience a troubling wave of violence, commencing early in the next century.

Alternatively, if from this time on each birth cohort proves somewhat less violent than the previous one, violence rates could continue to drop for the next twenty-five years, even as young people grow more numerous.

In short, California may face an impending wave of violence, but not an inevitable one. One element in the equation that matters—the future behavior of today's children—is one that could be modified.