THE LIMITED ROLE OF CHANGING AGE STRUCTURE IN EXPLAINING AGGREGATE CRIME RATES*

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Changes in the age structure are shown to have a limited impact on aggregate crime rates. Even the dramatic transformation of the age distribution accompanying the baby boom shifted crime rates by no more than 1% per year. Projected changes in the age distribution between 1995 and 2010 will lead to slight declines in per capita crime rates. These results are at odds with recent predictions of an impending demographically driven crime wave. Such predictions have focused exclusively on a rise in juvenile crime and ignored the offsetting decreases among adults.

The impact of demographic shifts on aggregate crime rates is an issue that has been receiving increased attention in recent years. Leading scholars, such as Fox (1996, 1997) and Wilson (1994), have noted that the period from 1980 to 1995 was one of favorable demographic change with respect to crime—the proportion of the population aged 15–24 fell from .187 to .137, or almost 20%. Despite this beneficial circumstance, per capita violent crime rates continued to rise.[1] While overall murder rates did decline, the aggregate statistics mask a large increase in homicide rates among teenagers (Bennett et al., 1996; Blumstein 1995). With demographic trends now reversing, dire predictions of a coming juvenile crime wave have become commonplace not only among academics (Fox, 1996; Wilson, 1994), but also in the popular press (Bennett et al., 1996; Scientific American, 1996; U.S. News and World Report, 1994; Walinsky, 1995), and even in the rhetoric of politicians, including President Clinton (New York Times, 1997). Typical of the message conveyed in these articles is the following passage from *Scientific American* (1996:40):

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1. This claim about rising crime, and all crime statistics quoted throughout the article, are based on reported crime data from the Federal Bureau of Investigation's *Uniform Crime Reports*. Victimization data, from the National Crime Victimization Survey, suggest that violent crime fell slightly over this period.

> The baby boom generation has produced 39 million people who are now under the age of 10. During the next decade, this "baby boomerang," as [Professor James Alan] Fox calls it, will enter their most crime-prone years. Unless steps are taken immediately, "the next crime wave will get so bad that it will make 1995 look like the good old days."

While the link between age and criminal involvement at the individual level is undeniable, I argue here that the substantive importance of demographic shifts on aggregate crime rates appears to be more limited than the preceding paragraph might suggest. Using a simple and straightforward method for decomposing changes in crime into those driven by demographic shifts and those due to all other sources, I demonstrate that changes in the age distribution resulting from the baby boom raised crime by roughly 20% over a 20-year period, or 1% per year. Thus, the changing age distribution can explain only 10–20% of the dramatic rise in crime observed between 1960 and 1980. Demographic impacts on crime between 1980 and 1995 were somewhat smaller than in the preceding decades. Because crime rates were more stable, however, demographic shifts explain a larger *fraction* of the overall variation in crime rates in the latter period.

In predicting a future demographically driven crime wave, analysts have dramatically overstated the magnitude of the anticipated changes. Although the projected increase in the population aged 15–24 between 1995 and 2010 is 7.5 million (roughly a 20% increase), the overall population is projected to increase 14% so that the proportion of the total population that is between the ages of 15 and 24 will actually rise by less than one percentage point (i.e., from 13.7% to 14.6%).[2] In addition, the population aged 25–39, an age group still relatively heavily involved in criminal activity, is actually projected to *fall* in absolute terms by more than 5 million. The population aged 65 and older, a group with extremely low crime rates, will increase almost as much as the population aged 15–24 in absolute numbers (6.5 million) and in percentage terms (19.6%). Factoring in the overall shifts in the age structure, my estimates suggest that demographic changes over the next 15 years will actually lead to slight *declines* in aggregate crime rates.[3]

The structure of this article is as follows. The first section documents the

2. Abrahamse (1997), in research conducted independently of this article, makes a similar observation. More generally, many of Abrahamse's conclusions about the importance of demographic factors in predicting future crime rates in California parallel those presented here.

3. As noted in the final section, changes in racial composition over the next 15 years will likely lead to slight increases in crime rates. The combined impact of changes in age and race are approximately zero.

major shifts in the U.S. age distribution since 1960, the projected trend through the year 2010, and the well-known relationship between age and criminal involvement. The second section outlines the methodology employed for determining the impact of shifts in the age distribution on aggregate crime rates. The third section presents the empirical estimates. The fourth section considers the evidence for a possible nonlinear relationship between cohort size and criminal involvement (Easterlin, 1973; O'Brien, 1989; Steffensmeier et al., 1987) that could lead the analytic approach to understate the true impact of age shifts. The final section offers a brief conclusion.

CHANGES IN THE AGE STRUCTURE AND CRIMINAL INVOLVEMENT BY AGE

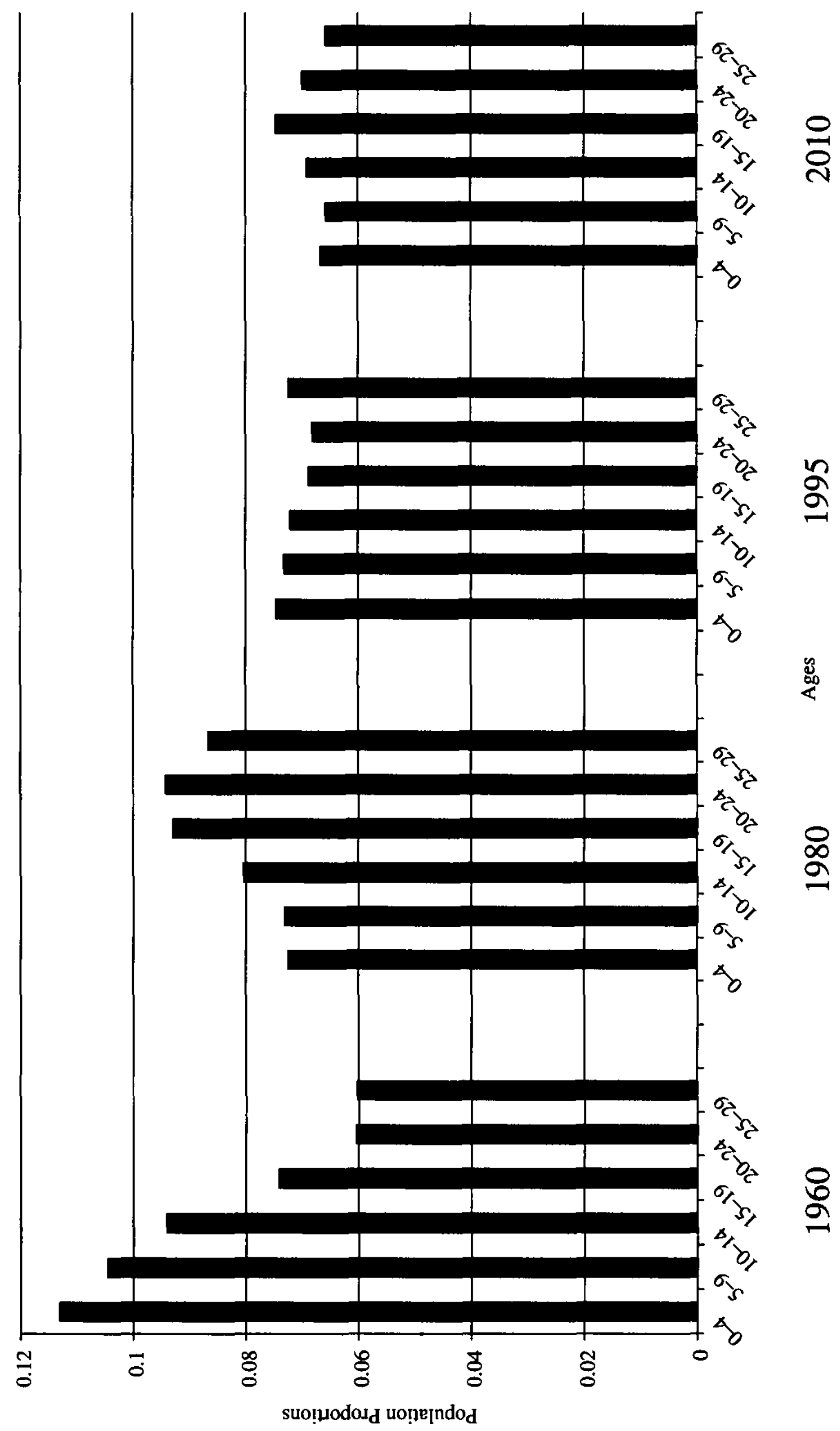
The profound demographic shifts associated with the baby boom generation and its subsequent aging are well documented (e.g., Caplow, 1991; Light, 1988). Figure 1 presents a breakdown of the proportion of the overall population in five-year age groups, up to age 29, for the years 1960, 1980, 1995, and 2010. These years correspond to the peaks (1980, 2010) and troughs (1960, 1995) of the fraction of young adults in the population. Between 1960 and 1980, the fraction of the population between the ages of 15 and 24 rose from 13.4% to 18.7%. The ensuing 15 years almost completely undid this rise. By 1995, the fraction aged 15–24 was 13.7%. Demographic projections to the year 2010 predict that the proportion of young adults will once again rise, although not nearly to the peak levels of 1980. The projected shifts in the age distribution over the next 20 years are far more muted than those of the baby boom. Also, because of the overall aging of the population, the fraction of the population under the age of 29 has been steadily declining over time.

The relationship between age and criminal involvement at the level of the individual is one of the most well-known and robust relationships in all of criminology (Blumstein et al., 1986; Goring, 1913; Wilson and Herrnstein, 1985) and dates back to Quetelet (1831). There is a sharp rise in criminal involvement with the onset of adolescence followed by a steady decline with age. The prime ages for criminal involvement are roughly 15–24. Property crime typically peaks somewhat earlier than violent crime.[4]

Combining the observations in the preceding two paragraphs, it is easy to see how changes in the age distribution would be associated with fluctuations in crime: As the fraction of the population that has the highest propensities to engage in crime rises, aggregate crime is likely to rise.

4. This is less true in recent years due to a notable shift toward younger perpetrators of violent crime, especially homicide (Blumstein, 1995; Cook and Laub, 1998).

Figure 1 Proportion of the Population Ages 0–29, 1960–2010



Determining the actual magnitude of this impact, however, requires analyzing the age shifts and relative criminal propensities across the entire age range of the population, not just among young adults.

COMPUTING THE IMPACT OF CHANGES IN THE AGE DISTRIBUTION ON AGGREGATE CRIME RATES

There are at least two plausible approaches to determining the impact of changes in the age distribution on crime. One strategy is to run reduced-form regression equations with the aggregate crime rate as the dependent variable and with the age distribution of the population and other control variables as regressors. Using this approach, Cohen and Land (1987) find that the proportion aged 15–24 is highly statistically significant and accounts for a substantial fraction of the variation in murder and motor vehicle theft rates. Marvell and Moody (1991), however, survey 90 studies of this kind and find that only in a small minority of instances do the studies consistently uncover significant relationships. The primary shortcoming of this approach is the potential difficulty in properly accounting for other factors that change over time or across location that also influence crime (e.g., social cohesion, economic conditions, and the punitiveness of the criminal justice system). Also, in the case of Cohen and Land (1987), focusing exclusively on young adults misses potentially important variation in other parts of the age distribution.

In this analysis, a simpler approach is adopted, the aim of which is to decompose changes in crime rates into two parts: that which is attributable to shifts in the age structure, and that due to all other sources of variation (Kitagawa, 1964). In order to isolate the contribution of changes in the age distribution, the age-specific rates of offending in a particular year are taken as given. Hypothetical aggregate crime rates are then computed using the age structure from a different point in time, holding fixed the age-specific offense rates. For example, the impact of changes in age structure between 1960 and 1980 can be measured by comparing actual crime in 1960 to what crime would have been in 1960 if each person of a given age continued to commit the 1960 level of offenses, but the age distribution was that of 1980. A similar approach is utilized by Steffensmeier and Harer (1987), who find that two-thirds of the decline in auto theft between 1980 and 1984, but none of the decline in the homicide rate, is due to changes in the age structure.

Stated more formally, let C_{ay} equal the number of crimes committed per person of age a in year y and let P_{ay} denote the proportion of the population that is age a in year y. Then, total crime per capita in year y, C_y, is given by

$$C_y = \sum_a P_{ay} * C_{ay}. \quad (1)$$

In other words, total crime in year y is just the population-weighted sum of the age-specific crime rates.[5]

To gauge the impact of shifts in the age distribution on crime between two years (call these years y and z) holding age-specific rates of offending constant, one simply computes

$$C_y^z = \sum_a P_{az} * C_{ay}, \quad (2)$$

where C_y^z is the hypothetical crime rate in year y if the age distribution of the population was that of year z. The total change in crime per capita between years y and z is $C_z - C_y$. The change in crime attributable to differences in the age structure is $C_y^z - C_y$.

The critical assumption underlying this decomposition approach is that shifts in the age structure are not systematically correlated with the rate of offending for a particular age group. If offense rates per person tend to be higher (lower) in large cohorts, this simple methodology will understate (overstate) the actual impact of changing age structure on crime rates. After presenting the basic results in the next section, I examine the empirical validity of this key assumption.

The primary empirical stumbling block to implementing this methodology is the absence of age-specific crime commission rates. When a crime is not solved, the age of the offender is unknown. Consequently, age-specific arrest rates are used as a proxy for age-specific crime rates under the assumption that arrests per crime are constant across age groups.[6] If that is the case, the estimated age-specific crime rate is

$$\hat{C}_{ay} = A_{ay} * (C_y / A_y), \quad (3)$$

where A_{ay} is the age-specific arrest rate for individuals of age a in year y, and the term in parentheses (the overall ratio of crimes to arrests for the

5. In the *Uniform Crime Report* data that are used in the analysis, there is some aggregation of data across ages. For instance, above the age of 24, arrest totals are available only for five-year age spans. Thus, the actual number of age groups is smaller than the total range of ages in the population.

6. It is important to note that the assumption that arrests per crime are constant across age groups cannot explain the small impact of changes in the age distribution presented in the next section. It is likely that young criminals are overrepresented in arrest statistics relative to the actual crimes they commit (Greenwood, 1995). If that is true, the crime proxy in Equation 3 overstates the amount of crime committed by the young and the magnitude of the increase or decrease as the proportion of the population that is young changes. Consequently, the estimated impact of age-structure changes will tend to be exaggeratedly large. Only if the relative proficiency of young criminals is positively correlated with the proportion of the population that is young might this assumption systematically understate the influence of the age structure.

population) is simply a scaling factor to take into account the fact that only a fraction of all crimes lead to an arrest.

EMPIRICAL ESTIMATES OF THE IMPACT OF CHANGING AGE STRUCTURE ON CRIME RATES

The decomposition approach of the preceding section is applied to aggregate U.S. data at five-year intervals beginning in 1960. All data on age-specific arrest rates and crime rates are taken from the Federal Bureau of Investigation's *Uniform Crime Reports* (UCR) and all historical population data are from the Bureau of the Census *Current Population Reports* (various years).[7] Future population projections are from the "middle series" of the most recent *Current Population Reports.* The overall age distribution is broken down into 17 categories corresponding to the limits of detail in the arrest data.[8]

Table 1 presents estimates of the impact of the age distribution on aggregate crime rates. The time periods chosen for the table represent peaks and troughs in the high-offending age groups. Between 1960 and 1980 there was a huge increase in the number of young adults as the baby boomers came of age. The period 1980 to 1995 was one of favorable demographic shifts for crime; 1995–2010 will see another rise in the number of young adults, although the swing will not be nearly so great as in the 1960s. For each of these three time periods, estimates are presented for three crime categories: murder, violent crime, and property crime.[9] There are three columns for each time period and crime category. The first column

7. The literature on reported crime statistics is extensive (Biderman and Lynch, 1991; Bottomley and Coleman, 1981; Kitsuse and Cicourel, 1963; Pelinsky and Jesilow, 1982; Sellin and Wolfgang, 1964), although there is disagreement over the extent to which the use of UCR data affects the results obtained (Gove et al., 1985; O'Brien, 1985). The UCR data, however, are the only source of age-specific arrest rates.

8. Both population and arrest data are available by year of age for the ages 15–24. Arrest data are only available in five-year age groups between the ages of 25 and 49. Due to changes over time in the groupings reported in the arrest data, those aged 0 to 14 are combined, as are those 50 years and older.

9. The standard FBI crime definitions are used here, except that larceny is excluded from property crime because of changes in the definition over the period covered. Thus, violent crime includes murder, rape, robbery, and aggravated assault; property crime is burglary and auto theft.

Although arrest statistics are not a perfect proxy for crime, they are the best age-specific measure available. If younger criminals are less effective at avoiding detection, the arrest data will overstate the relative criminal involvement of youths (see, for example, Marvell and Moody, 1991). Also, to the extent that juveniles tend to commit more crime in groups, leading to multiple arrests for a single crime, juvenile crime may be exaggerated by arrest data (Greenwood, 1995).

is the actual crime rate in the first year of the period. The second column presents the actual change in the crime rate per 100,000 over the time period. The third column represents the hypothetical change in crime allowing the age distribution to change, but holding age-specific offending rates constant at the level observed at the beginning of the period.[10] These values are the change in crime directly attributable to changes in the age distribution. They are computed using equations 2 and 3.

The top row in Table 1 corresponds to the period 1960–1980. Actual murder rates rose from 5.08 to 10.22 per 100,000 over this time period, an increase of over 100%. Changes in the age structure are estimated to explain one-fifth of that total rise. In other words, if age-specific offending rates had not changed between 1960 and 1980, the murder rate would have risen from 5.08 to 6.08 due to changes in the age structure. For both violent and property crime, changes in the age distribution translate into a similar rise in crime (17–22%), but because these crime rates increased so much more than murder, the share of the overall increase explained by the age structure changes is less than 10%. To put the limited explanatory power of changes in the age distribution in perspective, even if the *entire* population in 1980 was between the ages of 15 and 24, the change in the age distribution could not by itself explain the observed rise in crime. In other words, the violent crime rate among 15–24 year olds in 1960 (roughly 480 per 100,000) was lower than the violent crime rate for the nation as a whole in 1980 (almost 600 per capita), even though the latter number includes many age groups, such as the elderly, who commit almost no crime.[11]

The second row of Table 1 presents changes between 1980 and 1995, when the changing age distribution worked toward lower crime rates. Although the absolute magnitude of crime changes driven by demographics was smaller than in the earlier period (8–18% versus 17–22% in the earlier period), crime rates were also more stable. Consequently, the improvements in the age structure account for a substantial proportion of the observed crime changes between 1980 and 1995. For example, 40% of the decline in murder over that period is attributable to

10. For instance, in row 1, the hypothetical changes are obtained by combining 1960 age-specific offending rates with the age distribution actually observed in 1980. For the period 1995–2010, the projected age distribution in 2010 is used.

11. Some caution is warranted in interpreting the results for the early period due to the poor quality of the UCR data in 1960. Jencks (1991) and O'Brien (1996) argue that much of the increase in reported crime over this period is due to improved data collection rather than actual increases in crime. If that is true, this analysis understates the relative importance of age structure in explaining changes in crime rates over this period. I thank a referee for bringing this point to my attention.

Table 1. The Contribution of Peak-to-Trough Changes in the Age Distribution to Aggregate Crime Rates

	Murder			Violent Crime			Property Crime		
Time Period	Actual Crime Rate per 100,000 at Start of Period	Actual Percent Change in Crime Rate	Estimated Percent Change in Crime Rate Due to Changes in the Age Structure	Actual Crime Rate per 100,000 at Start of Period	Actual Percent Change in Crime Rate	Estimated Percent Change in Crime Rate Due to Changes in the Age Structure	Actual Crime Rate per 100,000 at Start of Period	Actual Percent Change in Crime Rate	Estimated Percent Change in Crime Rate Due to Changes in the Age Structure
1960–1980	5.08	102.4	19.7	160.9	270.8	22.1	691.7	216.1	16.8
1980–1995	10.22	–19.6	–8.0	596.6	14.8	–12.0	2186.3	–29.2	–18.2
1995–2010	8.22	—	–1.0	684.6	—	–5.2	1548.1	—	–3.3

NOTES: Values in the first column of each crime category are reported crime rates in the first year of the period. The second column for each crime is the actual percentage change over the period, using the initial crime rate as the basis for the calculation. The third column is the estimated percentage change in per capita crime, holding age-specific offending rates constant, but allowing for actual changes in the age structure. In the last columns, age-specific offending rates in the first year of the period are used as the baseline (e.g., 1960 is the baseline in row 1 and 1980 is the baseline in row 2). Table entries are based on the author's calculations using data from *Current Population Reports* (various years) and *Uniform Crime Reports* (various years). Projections to the year 2010 use the "middle series" of the available population projections.

age shifts. Without the benefits of the aging population, increases in violent crime would have been almost twice as large.

The final row of Table 1 considers the projected demographic impact between the years 1995 and 2010. Actual changes in crime, of course, are not yet known. It is possible, however, to compute the predicted impact of the changing age structure over this period. Interestingly, shifts in the age structure over the next 15 years actually appear to work in the direction of lowering crime slightly (1–5%), in sharp contrast to the many predictions of a demographically driven crime wave. The key to this result is that although there will in fact be a higher proportion of young adults aged 15–24 in the year 2010, the increase in crime attributable to this group is more than offset by the sharp decline in the number of adults aged 25–39.

NON-LINEAR RELATIONSHIPS BETWEEN OFFENDING RATES AND COHORT SIZE

As noted earlier, if large cohorts are systematically related to higher rates of offending *per individual*, the linear projections of the preceding section understate the true impact of the age distribution. For instance, it may be the case that in large cohorts there is greater competition for jobs in the legitimate sector, which leads to greater involvement in crime.[12] Alternatively, there may be network externalities in criminal behavior. When a cohort is larger, each individual may interact with a greater number of criminals, better learning the tricks of the trade. This hypothesis was first proposed by Easterlin (1973). Steffensmeier et al. (1987) find little empirical support for the hypothesis; O'Brien (1989) uncovers some evidence for property crime, but no evidence for violent crime.

I adopt a methodology that is very similar to that of Steffensmeier et al. (1987) and O'Brien (1989) in what follows. The most notable difference is that I allow for the possibility of an age-specific time trend.[13] This allows for younger age groups to have become relatively more criminal over time, as appears to be the case empirically with homicide (Cook and Laub, 1998). It is important to stress that I make no claims of originality for the

12. Of course, large cohorts may also lead to greater competition among potential thieves, offsetting this effect.

13. There are two further differences with the methodology of O'Brien (1989). First, he uses five-year rather than one-year age groupings. Second, he examines the entire life course, rather than just young adulthood. While those are undoubtably the correct choices to make for testing the Easterlin hypothesis in its more general form, they would not necessarily provide the most appropriate specification for the question I ask here: will nonlinearities in the relationship between cohort size and rates of offending invalidate the projections of the simple linear specification of the preceding section? Regardless, my conclusions are not materially affected if O'Brien's estimates are substituted for those presented in this section.

analysis that follows; rather, I report the results to demonstrate that by and large, the earlier research findings of Steffensmeier et al. (1987) and O'Brien (1989) continue to hold in my data set. In other words, empirically the Easterlin hypothesis does not undercut the results of the preceding section.

In order to test these hypotheses, I examine the relationship between cohort size and rates of offending over time using specifications of the following form:

$$\ln(\hat{C}_{ay}) = \beta \ln(P_{ay}) + \gamma_a + \lambda_y + \varepsilon_{ay}, \tag{4}$$

where $\hat{C}_{ay}$ and P_{ay}, as defined earlier, are, respectively, the estimated per capita age-specific crime rate and the proportion of the population in each age group.[14] γ and λ are age and year dummies. The age dummies capture systematic differences in criminal involvement across ages. The year dummies eliminate changes in crime rates that are common across all age groups in a given year. As noted above, in some specifications age-specific time trends are also added to the model to reflect systematic changes over time in the relative criminality of different age groups.[15] The dependent variable and population variables are logged in order to make interpretation of the coefficients straightforward: β is an elasticity, that is, the percentage increase in crime per capita for members of a cohort associated with each percentage change in that cohort's proportion of the population.[16] A coefficient of zero implies that there is no relationship between cohort size and per capita criminal involvement, and a positive (negative) coefficient means that criminal participation is a positive (negative) function of cohort size.

Equation 4 is estimated using U.S. crime data by age for individuals aged 15 to 24; for each year of data, there are 10 included observations corresponding to the different age groups.[17] The reported standard errors

14. As overall population in the country grows, all of the cohorts will also tend to grow. Such changes in cohort sizes will be captured by the year dummies; only the proportional differences in cohort size are reflected in the β term.

15. One could also imagine adding other covariates to the specification, although only interactions of such covariates with age groups are likely to affect the results. For instance, simply adding the unemployment rate to Equation 4 would not materially affect the results, although interacting the unemployment rate with each age group might if unemployment has a differential impact across age groups. One variable that might be particularly important to control for is the relative punitiveness of the juvenile and adult justice systems (Levitt, 1999), but data on juveniles in custody are not available for the early part of the sample.

16. The estimation results are not sensitive to the choice of functional form.

17. Estimation is limited to these age groups because they are the years of greatest crime involvement and because for all other age groups the available arrest data are aggregated across age groups (e.g., arrest rates are reported only for 25–29-year-olds as a whole).

are corrected using White's generalized method in order to take into account possible error correlation for different cohorts within a given year. Data begin in 1960, and run in five-year intervals to 1995, yielding a total of 80 observations. The method of estimation is ordinary least squares.

Two sets of regression results are reported for each of the three crime categories (murder, violent, property) in Table 2. The odd columns include only the cohort-size variable, age dummies, and year dummies as regressors; the even columns add age-specific trends to the specification. Looking first at columns 1–3, larger cohort sizes are correlated with *lower* per capita murder and violent crime rates. In both cases the coefficient is statistically significant at the .05 level. Property crime carries the opposite sign, but is not statistically significant. Taken at face value, this suggests a moderating effect of large cohorts relative to the assumptions of the previous section, since crime rises less than one-for-one with the cohort size. There is strong reason, however, to be suspicious of these results. Murder and violent crime rates among teenagers have risen relative to those of 20–24-year-olds over the past 15 years. This rise corresponds to a period of relatively small cohort sizes among teenagers. Thus, the link between cohort size and criminality may be spurious if other factors have driven the relative change in criminality across age groups.

Columns 4–6 correct for age-specific trends in criminal involvement, and thus should help to reduce the impact of any spurious correlation described in the preceding paragraph. In fact, after such trends are included, there does not appear to be any link at all between cohort size and either murder rates or violent crime rates, which mirrors the findings of Steffensmeier et al. (1987) and O'Brien (1989). A weak positive association remains between cohort size and property crime. None of the results in Table 2, however, supports the claim that increases in cohort size will be associated with disproportionate rises in overall crime.

CONCLUSION

This analysis examines the relationship between the age structure and aggregate crime rates using a simple decompositional approach. Peak-to-trough changes in the age distribution that take place over decades account for fluctuations of 15–20% in crime rates. In other words, changing age structure can explain crime fluctuations of no more than 1% per year. Changes in the age structure through the year 2010 will work very weakly in favor of lower crime, in stark contrast to the frequently made assertion that the United States is in the beginning stages of a demographically driven crime wave. No evidence is uncovered to support the claim that per capita criminal activity is an increasing function of cohort size.

Proponents of the view that a crime wave is imminent base these claims

Table 2. The Relationship Between Cohort Size and Per Capita Criminal Involvement

Variable	Excluding Age-Specific Trends: Murder	Excluding Age-Specific Trends: Violent Crime	Excluding Age-Specific Trends: Property Crime	Including Age-Specific Trends: Murder	Including Age-Specific Trends: Violent Crime	Including Age-Specific Trends: Property Crime
ln (Cohort Size)	–1.05	–0.59	0.15	0.00	–0.02	0.08
	(0.42)	(.095)	(0.12)	(0.24)	(.011)	(0.13)
Age = 16	0.56	0.25	0.07	0.57	0.28	0.06
	(0.03)	(0.05)	(0.04)	(0.11)	(0.09)	(0.06)
Age = 17	0.86	0.36	–0.05	0.88	0.36	–0.22
	(0.08)	(0.05)	(0.04)	(0.15)	(0.10)	(0.07)
Age = 18	1.10	0.43	–0.22	1.11	0.53	–0.47
	(0.05)	(0.04)	(0.05)	(0.15)	(0.10)	(0.08)
Age = 19	1.08	0.37	–0.46	1.30	0.63	–0.58
	(0.08)	(0.04)	(0.04)	(0.12)	(0.09)	(0.07)
Age = 20	1.04	0.31	–0.70	1.39	0.60	–0.80
	(0.09)	(0.04)	(0.04)	(0.14)	(0.09)	(0.07)
Age = 21	1.01	0.30	–0.84	1.41	0.63	–0.95
	(0.12)	(0.04)	(0.04)	(0.12)	(0.09)	(0.07)
Age = 22	0.96	0.23	–0.99	1.44	0.54	–1.14
	(0.12)	(0.04)	(0.04)	(0.12)	(0.09)	(0.07)
Age = 23	0.93	0.17	–1.12	1.56	0.48	–1.29
	(0.15)	(0.04)	(0.04)	(0.17)	(0.11)	(0.08)
Age = 24	0.90	0.14	–1.22	1.68	0.51	–1.37
	(0.16)	(0.05)	(0.04)	(0.18)	(0.10)	(0.08)
Year = 1965	0.18	0.27	0.12	0.08	0.23	0.10
	(0.06)	(0.04)	(0.03)	(0.06)	(0.03)	(0.03)
Year = 1970	0.84	0.96	0.58	0.67	0.88	0.54
	(0.11)	(0.05)	(0.04)	(0.08)	(0.05)	(0.04)
Year = 1975	1.07	1.24	0.79	0.88	1.17	0.73
	(0.14)	(0.06)	(0.05)	(0.11)	(0.06)	(0.05)
Year = 1980	1.11	1.43	0.93	0.97	1.40	0.85
	(0.14)	(0.05)	(0.05)	(0.12)	(0.07)	(0.06)
Year = 1985	0.77	1.28	0.80	0.81	1.35	0.68
	(0.09)	(0.05)	(0.05)	(0.12)	(0.08)	(0.07)
Year = 1990	1.18	1.55	0.92	1.140	1.73	0.77
	(0.04)	(0.04)	(0.03)	(0.13)	(0.09)	(0.07)
Year = 1995	1.12	1.44	0.69	1.48	1.71	0.51
	(0.04)	(0.05)	(0.03)	(0.13)	(0.10)	(0.09)
Constant	–14.54	–8.16	–2.45	–10.25	–5.83	–2.65
	(1.77)	(0.43)	(0.49)	(1.02)	(0.43)	(0.55)
R^2	.950	.988	.991	.973	.994	.995

NOTES: The dependent variable is ln(per capita crime) in the named crime category for a given age group in the United States. Cohort size is the proportion of the U.S. population that is of a given age. Age groups included in the regressions are 15–24, for eight years of data spanning the period 1960–1995, for a total number of observations equal to 80. The omitted age category is age equal to 15. The omitted year dummy is 1960. The last three columns include age-specific trends (coefficients not listed in the table). Per capita crime rates by age are computed using age-specific arrest rates and the ratio of arrests per crime for the population as a whole. Standard errors, in parentheses, are corrected for within-year correlations across cohorts using White's generalized method. The mean and standard deviation of (unlogged) per capita crime rates for murder, violent crime, and property crime in the sample are .00021 (.00010), .013 (.006), and .057 (.031). The mean and standard deviation of the (unlogged) proportion of the population in an age group is .016 (.002).

not only on the coming changes in age structure, but also on changes in racial composition. The methodology used here can easily be extended to incorporate race as well as age into the analysis. The only difficulty in doing so is the lack of readily available data on arrest by race and age (discussed in the footnote below).[18] Including changes in the racial distribution only marginally alters the conclusions of the analysis. For instance, for the period 1995–2010, the combined projected impact of race and age on crime rates is +1.1, –3.5, and –2.4% for murder, violent crime, and property crime, respectively (compared to –1.0, –5.2, and –3.3% when only changes in the age distribution are taken into account). Thus, the omission of race in this analysis does not account for the small observed effects of demographic factors on crime rates.

The proponents of a demographically driven crime wave, however, might reasonably argue that the results of this analysis are misleading because no differentiation is made between age and cohort effects. In other words, this analysis assumes that the predicted criminality of future generations is the same as the actual criminality of the current generation. In practice, it may be the case that each generation is progressively more criminally active than that which preceded it. I would argue, however, that there is relatively little basis for making such claims (e.g., the murder rate now is little higher than in the 1930s). Moreover, such claims are really statements about changes in the determinants of criminal involvement, not in the age distribution per se. As such, it is worthwhile to distinguish such claims from the more readily predicted changes in crime driven solely by changes in the age structure.

At a minimum, the results of this analysis suggest that caution should be exercised when making large investments in criminal justice resources in anticipation of rising crime rates. For instance, arguments for continued expansion of prison capacity to house the future wave of criminals would seem misplaced given the results of this analysis.

18. The FBI publishes arrest data by race and, separately, arrests by age. The most detailed published data by race, however, only classify the offenders as younger or older than 18. Assuming that within these two age groups (i.e., juveniles and adults) offending rates by race are proportional (e.g., if black 15-year-olds are X times as likely to commit violent crime as white 15-year-olds, black 17-year-olds are X times as likely to commit violent crime as white 17-year-olds), one can adjust for race as well as age.

I relegate these race estimates to a brief discussion because of the crudeness of the available data and the necessity of assuming that the ratio of crimes to arrests is constant across races. The results reported above divide the population into three categories: white, black, and other. Full results are available from the author on request.

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