

Did Changes in Juvenile Sanctions Reduce Juvenile Crime Rates? A Natural Experiment

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I. ABSTRACT

This essay examines whether state statutory changes to the juvenile justice system during the 1990s contributed to the subsequent decline in juvenile homicide rates. Between 1985 and 1993, juvenile crime rates soared in the United States. Many prominent scholars and politicians argued that this uptick in youth crime was just the beginning of a forthcoming wave of juvenile violence. In response, between 1992 and 1997, forty-seven states enacted statutory changes that made the juvenile justice system more punitive. Between 1993 and 2010, juvenile crime declined markedly, leading some to conclude that that the punitive statutory changes caused the decline in youth violence. But, we show that the same downward thrust in homicide occurred for young adults (ages eighteen to twenty-four) who were not covered by the punitive changes in juvenile legislation. The correlation between juvenile and young adult homicide trends was .94 in the period when homicide rates increased and .97 during the era of decline. Whatever was pushing juvenile homicide rates down was pushing young adult rates down at the same time. That should not have been the proliferation of juvenile court transfer changes, which had no impact on the older group.

II. INTRODUCTION

Between 1985 and 1993, juvenile crime rates in the United States skyrocketed.¹ Various scholars, like John DiIulio, warned that juvenile crime would continue to increase. This increase would be fueled by a dangerous and burgeoning group of young “super-predators”—youth raised in “abject moral poverty,” surrounded by “deviant, delinquent, and criminal adults in abusive, violence-ridden, fatherless, Godless, and jobless settings.”² In 1995, James Q.

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¹ FEDERAL BUREAU OF INVESTIGATIONS, UNITED STATES DEPARTMENT OF JUSTICE, FBI UNIFORM CRIME REPORTS: SUPPLEMENTAL HOMICIDE REPORTS (1980–2009) available via ICPSR.

² John J. DiIulio, Jr., *The Coming of the Super-Predators*, THE WEEKLY STANDARD, Nov. 27, 1995, at 25.

Wilson predicted: “By the end of this decade, there will be a million more people between the ages of fourteen and seventeen than there are now . . . This extra million will be half male. 6 % of them will become high rate, repeat offenders— [30,000] more young muggers, killers and thieves than we have now. Get ready.”³ Politicians joined in the ominous forecasts of future violence. Perhaps the most prominent of these politicians was Bill McCollum, chair of the U.S. House Subcommittee on crime in the mid-1990s and Attorney General of Florida when *Graham v. Florida*⁴ was before the Supreme Court. In 1996, then-Congressman McCollum warned:

Today’s enormous cohort of five-year-olds will be tomorrow’s teenagers. This is ominous news given that most violent crime is committed by older juveniles . . . Put these demographic facts together and brace yourself for the coming generation of “super-predators.”⁵

During the early-to-mid-1990s, in response to the perceived threat of juvenile violence, all but three states passed new legislation designed to make the juvenile justice system more punitive.⁶ Subsequently, between 1993 and 2010, national violent crime rates amongst juveniles declined substantially.⁷ Some politicians and scholars have argued that juvenile criminal penalty enhancements caused the decline in juvenile violence. In this account, the nation was saved by the deterrent impact of the “get-tough” laws inspired by the warnings of DiIulio, Wilson, McCollum, and others. Of course, “th[is] prediction cannot be falsified, currently or ever.”⁸ If juvenile crime rates increase, then the pundits can claim this validates their predictions. And, if the crime rates fail to increase, then these alarmists can credit the strict policies implemented in response to their grave predictions.

Predictably, when the storm of youth violence never came to fruition, McCollum argued that the legislative response of the 1990s was the reason:

Florida, like over forty other states, purposefully confronted its juvenile violent crime problem . . . These deliberative and focused strategies worked; violent crime rates plummeted from their 1990s highs . . .

³ JAMES Q. WILSON, CRIME 507 (James Q. Wilson & Joan Petersilia, eds., 1995).

⁴ 130 S. Ct. 2011 (2010). In this case, the Supreme Court held that the Eighth Amendment’s Cruel and Unusual Punishment Clause bars states from sentencing juvenile offenders to life in prison without the possibility of parole for non-murder offenses.

⁵ *The Juvenile Justice and Delinquency Prevention Act: Hearing Before the House Subcomm. on Early Childhood, Youth and Families*, 104th Cong. 90 (1996) (statement of Bill McCollum, Chairman, S. Comm. on Crime, H. Judiciary Comm.).

⁶ Shay Bilchik, *Juvenile Justice: A Century of Change*, JUV. JUST. BULL., Dec. 1999, at 4.

⁷ See *supra* note 1.

⁸ FRANKLIN E. ZIMRING, AMERICAN YOUTH VIOLENCE 63 (1998).

serious violent offenses committed by juveniles ages 12–17 declined 61% from 1993 to 2005 nationwide.⁹

This Essay tests the theory that “deliberative and focused” juvenile strategies exerted an independent impact on juvenile homicide arrest (and presumably offense) rates. We take advantage of a natural control group—eighteen-to-twenty-four-year-old offenders with very similar homicide time trends to juveniles in the late 1980s and early 1990s.¹⁰ This natural control group should theoretically have been unaffected by the legislative measures targeted at juveniles throughout the period. If these juvenile penalty enhancements truly deterred juvenile offenders, we would expect that juvenile homicide offender rates would decline more rapidly or by a greater magnitude compared to their young adult counterparts. As the following data demonstrates, there is no such distinctive statistical fingerprint in the national statistics on homicide arrests. This finding calls into question the primary legal tactic used for fighting juvenile crime over the last two decades. We have divided this Essay into parts. In Part III, we detail the history of juvenile penalty enhancements over the last two decades. Part IV explains the natural experiment methodology used to test the effectiveness of increased juvenile sanctions on juvenile crime. And in Part V, we statistically examine the results of our natural experiment and offer some conclusions.

III. BACKGROUND AND LITERATURE REVIEW

During the 1990s, many politicians and academics concluded that the rise in youth violence was both historically exceptional and among the nation’s most pressing criminological problems. Near the end of the decade, Zimring identified three unique themes in the portrayal of juvenile crime during this decade. First, many have juxtaposed the increase in violent crimes by youth offenders with the stability or decline in rates of total violence. Second, various academics and politicians claimed that the number of violent crimes committed by juveniles would inevitably increase because of the growing teenage population. And third, many portrayed the continued increase in juvenile violence as all but inevitable.¹¹ In addition, many advocates for harsher juvenile sanctions portrayed the juvenile justice system as a “revolving door.”¹² Editorials in major newspapers, like the

⁹ Brief for Respondent at 2–5, *Graham v. Florida*, 130 S. Ct. 2011 (2010) (No. 08-7412) (footnotes omitted).

¹⁰ Philip J. Cook & John H. Laub, *The Unprecedented Epidemic in Youth Violence*, 24 *CRIME AND JUSTICE: A REVIEW OF RESEARCH* 27 (Michael Tonry ed., 1998).

¹¹ ZIMRING, *supra* note 8.

¹² Paul J. McNulty, *Natural Born Killers? Preventing the Coming Explosion of Teenage Crime*, 71 *POL’Y REV.* 84, 84 (1995).

Wall Street Journal, specifically linked the rise in juvenile violence to the fact that kids keep “getting away with it.”¹³

Advocates and policymakers continually linked the perceived epidemic in juvenile violence with lax juvenile justice policies. In order to address the supposed leniency of the juvenile justice system, forty-seven states across the country passed various legislative measures in the 1990s designed to deter youth violence by enhancing criminal penalties on juvenile offenders. These new laws took three primary forms: (1) forty-five states expanded juvenile eligibility for adult criminal court proceedings, (2) thirty states expanded sentencing authority in juvenile cases, and (3) forty-seven states removed traditional confidentiality provisions by making previously sealed juvenile records more open to public scrutiny.¹⁴ Only three states, Nebraska, New York, and Vermont, failed to enact laws making the juvenile justice system more punitive during this time. These statutes purported to increase the possible penalties against juvenile offenders in the hopes of incapacitating dangerous youths and deterring future young offenders. Indeed, numerous empirical studies showed that juvenile violent offenders transferred to adult criminal court received harsher sentences than if they had remained in the juvenile justice system.¹⁵

The actual effect of these punitive changes to the juvenile justice system remains an open empirical question. Cohn and Mialon provide an excellent summary of the available empirical work addressing this specific issue.¹⁶ We have divided the existent literature into two categories. First, a segment of the available literature suggests that increases in juvenile sanctions can successfully decrease juvenile crime. In 1998, Levitt argued that increases in the percentage of juveniles behind bars correlated significantly with a decrease in juvenile crime rates, leading Levitt to conclude that “juvenile offenders appear to be at least as responsive to criminal sanctions as adults.”¹⁷ Other quantitative studies similarly claimed that a juvenile’s experience of being arrested or temporarily incarcerated actually decreased the probability the juvenile would reoffend.¹⁸

¹³ ZIMRING, *supra* note 8, at 8.

¹⁴ Bilchik, *supra* note 6, at 4 *et seq.*

¹⁵ Aaron Kupchick, Jeffrey Fagan & Akiva Liberman, *Punishment, Proportionality, and Jurisdictional Transfer of Adolescent Offenders: A Test of the Leniency Gap Hypothesis*, 14 STAN. L. & POL’Y REV. 57 (2003).

¹⁶ Jacob M. Cohn & Hugo M. Mialon, *The Impact of Juvenile Transfer Laws on Juvenile Crime*, (EMORY UNIV. DEP’T OF ECON., 2011), http://userwww.service.emory.edu/~hmialon/Juvenile_Transfer_Laws_and_Juvenile_Crime_Rates.pdf.

¹⁷ Steven D. Levitt, *Juvenile Crime and Punishment*, 106 J. POLIT. ECON. 1156, 1156 (1998).

¹⁸ Raymond R. Corrado, Irwin M. Cohen, William Glackman & Candice Odgers, *Serious and Violent Young Offenders’ Decisions to Recidivate: An Assessment of Five Sentencing Models*, 49 CRIME AND DELINQ. 179 (2003).

Second, a majority of the available scholarship remains skeptical that punitive changes to the juvenile justice system decrease youth crime. Although not specifically aimed at juvenile sanctions, work by Lee and McCrary found that, in the aggregate, increases in the severity of punishment do not further deter criminal offenders.¹⁹ A large group of scholars have found that subjecting juveniles to adult criminal penalties does little to deter these juveniles from committing crimes in the future. In 2007, McGowen et al. compiled what may be the most comprehensive evaluation of the available literature on the effects of changes in the juvenile justice system on juvenile violence.²⁰ The authors argued that the available scientific evidence inadequately demonstrates that harsh policy changes to the juvenile justice system will specifically or generally deter young offenders.²¹ For example, Jeffrey Fagan compared similarly situated youth offenders in two states—one state that transferred youths to adult courts and one that retained youths in separate, juvenile courts.²² Fagan found that juveniles who were transferred to adult court were thirty-nine percent more likely to be rearrested than juveniles retained in juvenile court.²³ Other similar studies have found that juveniles subject to harsh transfer laws were, indeed, more likely to be rearrested than comparable juveniles not subject to such harsh adult penalties.²⁴ Several other studies have found that harsh alterations to the juvenile justice system fail to generally deter future youth criminals.²⁵

While the effect of these statutory changes on youth crime patterns remains an open empirical question, these laws did have several important legal consequences. Since many state laws gave discretion to prosecutors and judges to transfer

¹⁹ David S. Lee and Justin McCrary, *Crime, Punishment, and Myopia*, NAT'L BUREAU OF ECON. RESEARCH (June 2005), <http://www.nber.org/papers/w11491>.

²⁰ Angela McGowen et al., *Effects on Violence of Laws and Policies Facilitating the Transfer of Juveniles from the Juvenile Justice System to the Adult Justice System: A Systematic Review*, 32 AM. J. PREVENTATIVE. MED. S7 (2007).

²¹ *Id.*

²² Jeffrey Fagan, *Separating the Men from the Boys: The Comparative Advantage of Juvenile Versus Criminal Court Sanctions on Recidivism Among Adolescent Felony Offenders*, in A SOURCEBOOK: SERIOUS, VIOLENT, & CHRONIC JUVENILE OFFENDERS 238 (James C. Howell, Barry Krisberg, J. David Hawkins & John J. Wilson eds., 1995).

²³ *Id.*

²⁴ McGowen et al., *supra* note 20 (citing Marcy Rasmussen, Podkopacz & Barry C. Feld, *The End of the Line: An Empirical Study of Judicial Waiver*, 86 J. CRIM. L. & CRIMINOLOGY 449, 490–91 (1996); Lawrence Winner, Lonni Lanza-Kaduce, Donna M. Bishop & Charles E. Frazier, *The Transfer of Juveniles to Criminal Court: Reexamining Recidivism Over the Long Term*, 43 CRIME AND DELINQ. 548, 558–59 (1997); DAVID L. MYERS, EXCLUDING VIOLENT YOUTHS FROM JUVENILE COURT: THE EFFECTIVENESS OF LEGISLATIVE WAIVER 74, in CRIMINAL JUSTICE: RECENT SCHOLARSHIP (Marilyn McShane & Frank P. Williams III eds., 2001)).

²⁵ McGowen et al., *supra* note 20 (citing Simon I. Singer & David McDowall, *Criminalizing Delinquency: The Deterrent Effects of the New York Juvenile Offender Law*, 22 LAW & SOC'Y REV. 521, 532–33 (1988); Eric L. Jensen & Linda K. Metsger, *A Test of the Deterrent Effect of Legislative Waiver on Violent Juvenile Crime*, 40 CRIME & DELINQ. 96, 102 (1994)).

juvenile cases to adult criminal court, these laws increasingly exposed juveniles to adult sentences—including the death penalty for murder and life imprisonment for both murder and non-murder offenses. Between 1989 and 2004, six states executed prisoners for crimes committed as juveniles.²⁶ In *Roper v. Simmons*, 543 U.S. 551 (2005) the United States Supreme Court barred such executions as violative of the Eighth Amendment protection against Cruel and Unusual Punishments. In *Roper*, the State of Missouri defended the execution of offenders for crimes committed as juveniles by touting the value of deterrence.²⁷ But, the Court found this argument unpersuasive in light of the scientific evidence on juvenile brain development: “[T]he same characteristics that render juveniles less culpable than adults suggest . . . that juveniles will be less susceptible to deterrence.”²⁸

Despite the Court’s strong language in *Roper*, several states nonetheless continued to impose harsh adult sentences on juvenile offenders. By 2010, thirty-seven states permitted trial courts to sentence juveniles to life sentences without the possibility of parole [“JLWOP”] for nonhomicide offenses. States justified these JLWOP laws by appealing to the value of both incapacitation and deterrence.²⁹ But again, the Court in *Graham v. Florida* prohibited states from issuing JLWOP sentences for nonhomicide offenses.³⁰ Citing the same empirical evidence used in *Roper*, the Court concluded that juveniles are “less likely to take a possible punishment into consideration when making decisions.”³¹

The *Graham* case originated out of Florida’s Juvenile Justice Act of 1994, which permitted the easy transfer of juvenile offenders to adult criminal courts and “gave judges discretion to impose either juvenile or adult sanctions in some cases.”³² Florida Attorney General McCollum described this law as part of a multi-decade effort by states all across the country to increase criminal penalties, thereby “deter[ring] serious crime[.]”³³ According to McCollum, these “deliberate and focused strategies worked” because violent crime rates by juveniles declined significantly from their peak in 1993.³⁴ McCollum’s claim that harsh juvenile sanctions effectively deterred juvenile crime accounted for a substantial portion of the State of Florida’s legal justification for JLWOP.

²⁶ VICTOR L. STREIB, THE JUVENILE DEATH PENALTY TODAY: DEATH SENTENCES AND EXECUTIONS FOR JUVENILE CRIMES, JANUARY 1, 1973–APRIL 30, 2004 app. A (May 4, 2004), <http://www.internationaljusticeproject.org/pdfs/JuvDeathApril2004.pdf>.

²⁷ *Roper v. Simmons*, 543 U.S. 551, 571 (2005).

²⁸ *Id.*

²⁹ Bilchik, *supra* note 6, at 5.

³⁰ 130 S. Ct. 2011, 2034 (2010).

³¹ *Id.* at 2028–29.

³² Brief of Respondent at 3, *Graham v. Florida*, 130 S. Ct. 2011 (2010) (No. 08-7412).

³³ *Id.* at 4.

³⁴ *Id.*

We use this essay to respond in part to McCollum's causal argument in the *Graham* case and to add another voice to the existing literature on the possible deterrent effect of increased punitive sanctions in the juvenile justice system.

IV. METHODOLOGY

In this study, we take advantage of a natural experiment. While virtually every state across the country took some steps to increase the harshness of the juvenile justice system during the 1990s, there were no comparable, sweeping legislative efforts targeted at any other age groups. Thus, if these sweeping changes to the juvenile justice system had a specific effect in deterring juvenile crimes, we would expect to see a reduction in the rate of juvenile homicide commission rates over time, compared to other age cohorts. Put differently, if these legislative efforts exerted a unique deterrent impact on the juvenile age group, then the trend in juvenile homicide offender rates should differ from other age cohorts. The juvenile homicide commission rates should decrease more quickly or more significantly. We use young adults between the ages of eighteen and twenty-four years old as our comparison age cohort.

Other studies have used similar methodologies to measure the marginal deterrent effects of legislation across different liability classes. Zimring, Hawkins, and Kamin used this methodology to conclude that the California "Three Strikes" penalty enhancement law had a small deterrent effect.³⁵ Under the California Three Strikes Law, a three-time felony offender faces a sentence of twenty-five years to life—significantly higher than the previous penalty for many felony convictions.³⁶ The authors examined the proportion of felony offenders involving second and third strike eligible defendants. Although there was no change in the proportion of second-strike eligible defendants, the "market share" of these third-strike eligible defendants shrank from 4.3% to 3.5% after the passage of the law.³⁷ This is a modest but statistically significant indication that the California law had successfully deterred a certain number of recidivist offenders.

A second "market share" comparison study examined the effect of the death penalty. There, Fagan, Zimring, and Geller separated homicides that were eligible for the death penalty under modern statutes from all other killings included in the supplemental homicide reports ["SHR"].³⁸ If the death penalty acted as a deterrent, then the passage of laws authorizing the death penalty for a particular category of homicide (forcible felonies, multiple killings, killings of law

³⁵ FRANKLIN E. ZIMRING, GORDON HAWKINS & SAM KAMIN, PUNISHMENT AND DEMOCRACY: THREE STRIKES AND YOU'RE OUT IN CALIFORNIA (2001).

³⁶ *Id.*

³⁷ *Id.*

³⁸ Jeffrey Fagan, Franklin E. Zimring & Amanda Geller, *Capital Punishment and Capital Murder: Market Share and the Deterrent Effects of the Death Penalty*, 84 TEX. L. REV. 1803, 1817 (2006).

enforcement personnel) should have resulted in a relative decrease in the commission of that type of homicide. This analysis showed no special sensitivity of these death-eligible classes of homicide.³⁹

The analysis we present here uses the same basic strategy. We compare the change over time in the juvenile homicide rate to the change over time in the homicide rate for young adults between the ages of eighteen and twenty-four years old. We use SHR data for all homicides committed by these two groups between 1980 and 2009. We only collected SHR data for states that passed some statutory change that increased the harshness of the juvenile justice system between 1992 and 1997. We categorized a state as increasing the punitive nature of their juvenile justice system if the state expanded juvenile eligibility for adult court, expanded sentencing authority in juvenile court, or removed some confidentiality protection from juvenile proceedings.⁴⁰ This data set includes all states except Nebraska, New York, and Vermont. The majority of the jurisdictions in the data set (sixty percent) implemented all three of the changes to the juvenile justice system. An overwhelming majority (ninety-six percent) of jurisdictions implemented at least two of these changes during the stated time period.⁴¹

V. RESULTS

We find little evidence that increases in the harshness of the juvenile justice system exerted a unique deterrent effect on youth homicide rates. Juvenile and young adult homicide rates are highly correlated, and young adult homicide rates are highly predictive of juvenile homicide rates. Juvenile homicide rates show no unique decline after the passage of these harsh changes to the juvenile justice system when compared to their nearest legislatively unaffected age cohort.

We begin by comparing the raw homicide rates attributed to each age group. Figure 1 shows the rate of homicides attributed per 100,000 for these two age cohorts.⁴² We set the rate for each group equal to 100 in 1980, with the rate in each year thereafter represented as a percentage of the 1980 rate. This allows us to observe more accurately comparative trends over time.

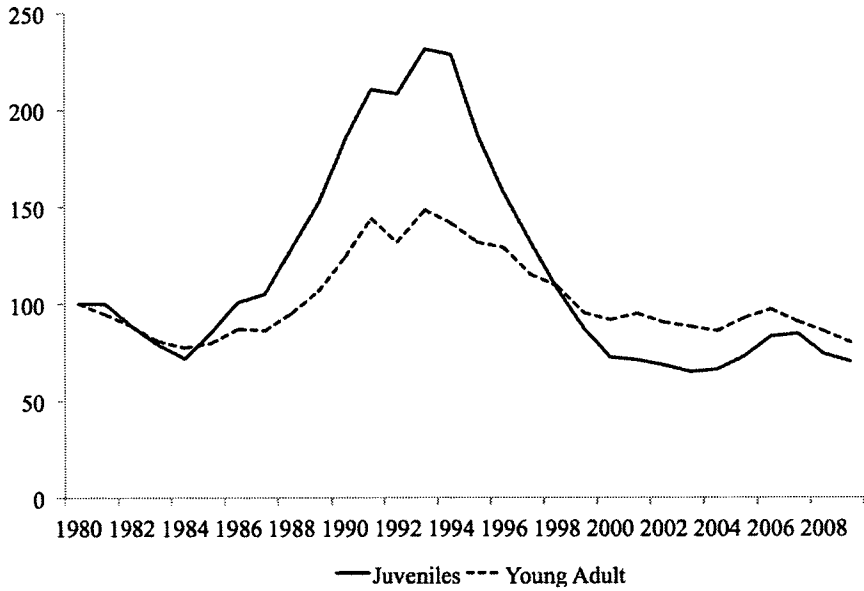
³⁹ *Id.* at 1822.

⁴⁰ We acknowledge that change in confidentiality protections may be less deterrent than changes in eligibility and sentencing authority. But only one state (Maine) made changes in confidentiality protections only. So we do not believe that this skews our data. The rest of our sample made substantial changes to transfer eligibility, sentencing authority, or both. Bilchik, *supra* note 6, at 5.

⁴¹ For a breakdown of the juvenile statutes implemented by each state between 1992 and 1997, see Bilchik, *supra* note 6, at 5. Only Maine and South Dakota implemented just one of these three changes.

⁴² We use ages thirteen to seventeen in the population as the denominator for the under-eighteen killings. Individuals within this age range are responsible for virtually all of the homicides committed by the juvenile age cohort.

Figure 1. Arrest Rates for Juveniles (under age 18) and Young Adults (ages 18–24), United States, 1980–2009.⁴³



Note: 1980 = 100

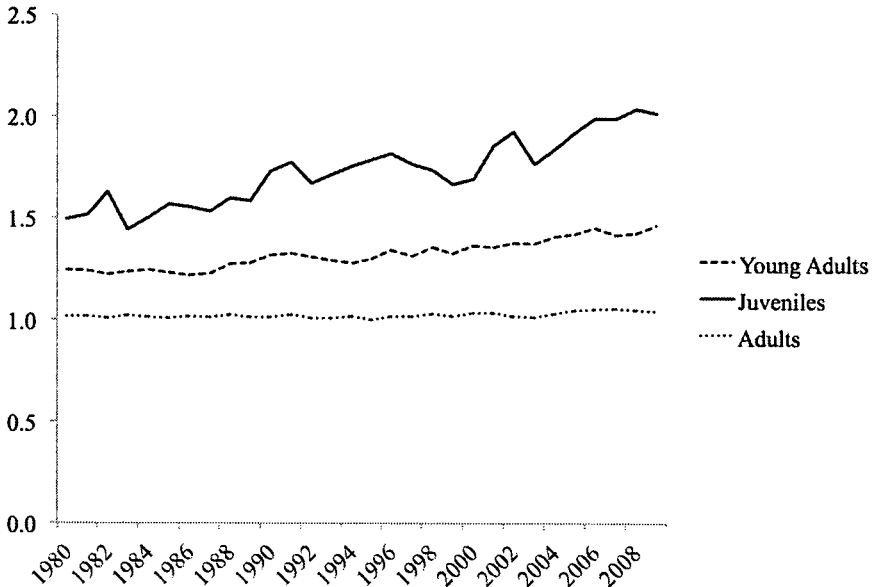
The rates presented in Figure 1 require one modest adjustment to correct for an age-related variation in number of arrests per homicide committed. Young persons are often arrested in groups while older adults are not.⁴⁴ Arrest patterns for eighteen to twenty-four year olds are somewhere in between those for juveniles and adults over the age of twenty-four, with a modestly higher percentage of group arrests than older adults.⁴⁵ Figure 2 shows the ratio of offenders within each age group to the number of homicides attributed to that age group. A higher ratio may indicate more group criminal activity. Both juveniles and young adults have a higher ratio of offenders to homicide victims created, compared to older cohorts.

⁴³ Source: Office of Juvenile Justice and Delinquency Prevention, Federal Bureau of Investigations, Uniform Crime Reports, 1980–2009.

⁴⁴ FRANKLIN E. ZIMRING, AMERICAN JUVENILE JUSTICE 60–61 (2005) (comparing the rate of group and lone offending among juveniles).

⁴⁵ *Id.* at 92–93 (comparing rate of arrests for juveniles and young adults).

Figure 2. Ratio of Homicide Arrests to Homicide Victims Created, by Age Group, United States, 1980–2009.⁴⁶



Because the key target of deterrence strategy is the prevention of criminal victimization, we correct the age-specific suspect rate by a deflator for each year, reducing the suspect rate to represent the homicides committed by each age category. This adjustment produces the pattern shown in Figure 3. There are two other corrections we do not make in this analysis. First, we do not adjust the SHR rates upward in each year to compensate for missing agencies that failed to properly report their data, as Cook and Laub⁴⁷ and Fox⁴⁸ have previously done. This adjustment is not necessary for any analysis that is primarily a comparison of the two age groups because the missing sites in any one-year period are missing for both groups. Second, we do not adjust our age-specific rates to exclude the seventeen-year-olds in several states and sixteen-year-olds in North Carolina and Connecticut who had aged out of the juvenile court. This might mute any differential deterrent impact that drives down the rates of the suddenly vulnerable

⁴⁶ Source: Office of Juvenile Justice and Delinquency Prevention, Federal Bureau of Investigations, Uniform Crime Reports, 1980–2009.

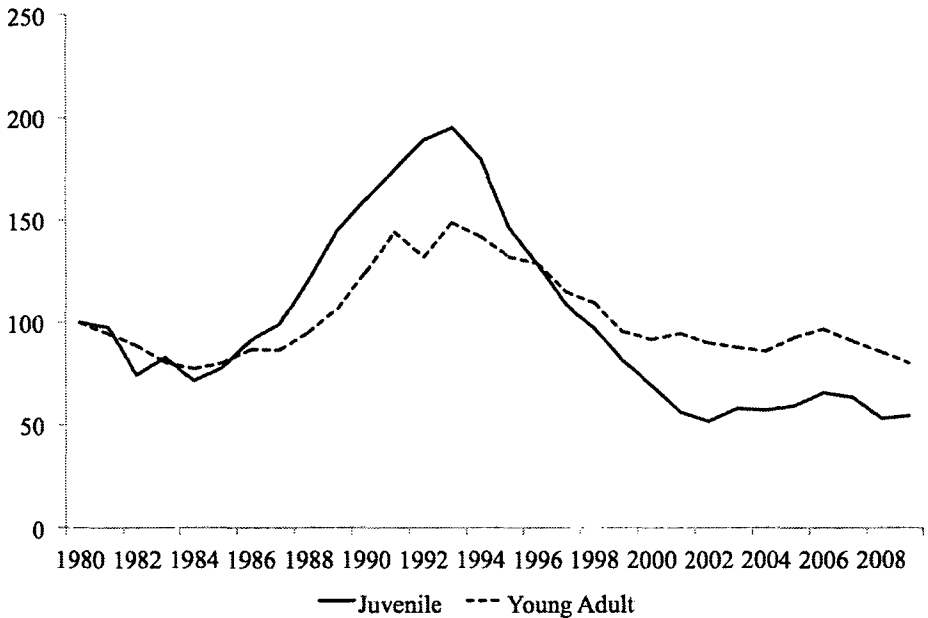
⁴⁷ Philip J. Cook & John H. Laub, *The Unprecedented Epidemic in Youth Violence*, 24 CRIME & JUST. 27, 45–46 (1998).

⁴⁸ JAMES ALAN FOX, TRENDS IN JUVENILE VIOLENCE: A REPORT TO THE UNITED STATES ATTORNEY GENERAL ON CURRENT AND FUTURE RATES OF JUVENILE OFFENDING Author's Note (1996), <http://bjs.gov/content/pub/pdf/tjvfox.pdf>.

juveniles by adding a few percentage points of young adults (at least according to those states' statutes) into the juvenile sample. If a close to significant difference comes from this undifferentiated mixture of thirteen- to seventeen-year-olds, we will consider the impact of the inclusion of this age group.

Figure 3 shows the adjusted homicide responsibility rates for the two age groups from 1980 to 2009. Again, we set the homicide responsibility rate in 1980 equal to 100, with the rate in successive years represented as a percentage of the 1980 rate.

Figure 3. Homicide Responsibility Rates for Two Age Groups, United States, 1980–2009.⁴⁹



Note: 1980 = 100

The two sets of homicide curves for juveniles and young adults show, visually, a similarity in trend over time that statistical analysis confirms. The two rates go up and down at approximately the same time. Admittedly, the juvenile curves in Figures 1 and 3 increase and drop by somewhat larger magnitudes than the young adult counterpart. But the overall trends are remarkably similar.

We used a simple Pearson product-moment correlation test to verify the seemingly tight relationship between the two trends.⁵⁰ This test measures the

⁴⁹ Source: Office of Juvenile Justice and Delinquency Prevention, Federal Bureau of Investigations, Uniform Crime Reports, 1980–2009.

linear relationship between two variables on a coefficient scale between -1 and +1. The closer the correlation coefficient is to +1, the more statistically significant the predictive relationship between the two variables. Since we are particularly interested in the correlation of the time-series trends before and after the national effort to increase the harshness of the juvenile justice system, we calculated three separate correlation coefficients: (1) the correlation coefficient between the homicide responsibility rate for both juveniles and young adults, (2) the correlation coefficient of the homicide responsibility rates before the national wave of juvenile justice laws, and (3) the correlation coefficient of the homicide rate during and after the national wave of juvenile justice legislation. Table 1 shows the results of these three correlation calculations.

Table 1. Correlation between Juvenile and Young Adult Homicide Responsibility Rates, 1980–2009.

Aggregate (1980–2009)	Before the Juvenile Justice Law (1980–1991)	After the Juvenile Justice Laws (1992–2009)
0.90	0.94	0.97

We find that trends in juvenile and young adult homicide responsibility rates are highly correlated. This correlation is well beyond simple statistical significance. If the juvenile-specific legislative changes during the early- to mid-1990s were a unique deterrent to juvenile crime, we would not expect to see juvenile homicide rates correlate so closely with the homicide rates of other age cohorts. Theoretically, if these laws acted as a unique and effective deterrent to juvenile violence, the two trends should be least correlated after the national passage of “get-tough” juvenile justice reforms. As Table 1 shows, the two trends are actually more closely correlated *after* the passage of the juvenile-specific legislation. Thus, we conclude that these laws did little to uniquely deter juvenile offenders.

The method used here cannot test more diffuse deterrence theories. Perhaps a general increase in the punishment of offenders had non-specific marginal deterrent impact on juvenile and young adult offenders. But the specific influence that Florida proposed to justify its harsh treatment of young adolescents is a demonstrated failure.

⁵⁰ Although autocorrelation is always a concern when calculating the correlation coefficient for two time series variables, we do not believe it presents a problem in this case. See Lawrence E. Raffalovich, *Detrending Time Series: A Cautionary Note*, 22 SOC. METHODS & RES. 492 (1994). Here, we only purport to compare the two different trends over time. If any autocorrelation occurred, such an effect would equally impact both the juvenile and young adult time trends.

VI. CONCLUSION

Evidence is scarce that “deliberate and focused” strategies to increase the harshness of the juvenile justice system actually exerted a unique and independent influence in lowering juvenile homicide rates. Various scholars and politicians have touted the success of these measures in reducing crime—understandably so, given the fact that youth crime rates generally declined after their implementation. But, deeper statistical analysis suggests that the changes in juvenile homicide rates were highly similar to changes in young adult homicide rates, despite the national wave of legislation targeted at juvenile offenders. This undercuts the causal claim made by various policymakers, including McCollum during his defense of the Florida law permitting the JLWOP sentences for nonhomicide offenses.

This conclusion has significant policy importance. In 1991, before the national wave of “get-tough” juvenile justice measures, approximately 424,129 juveniles entered adult jail facilities. By the end of the wave of state legislation in 1998, an additional 160,243 juveniles had entered adult jail facilities: an increase of about thirty-eight percent.⁵¹ In recent years, the number of juveniles serving prison sentences in adult facilities has fallen significantly. A 2006 study found that the number of youth in adult prison had fallen forty-five percent between 1995 and 2005.⁵² This may demonstrate an increased recognition that juveniles are not cognitively, emotionally, or physically developed enough to survive in adult facilities.⁵³ Or, this may be a predictable result of declining juvenile crime rates. Either way, the cost of incarcerating the reduced number of juvenile offenders remains extremely high: in 2007, the states spent approximately \$5.7 billion to incarcerate youth offenders.⁵⁴ If harsh juvenile legislation does little to deter future juvenile offenders, states may be wise to reconsider their use of limited criminal justice resources to incarcerate certain juvenile offenders for lengthy, adult sentences. While proponents of these laws might defend their existence on the basis of retribution, their usefulness as a deterrent is highly questionable.

⁵¹ JAMES AUSTIN, KELLY DEDEL JOHNSON & MARIA GREGORIOU, BUREAU OF JUSTICE ASSISTANCE, NCJ 182503, *JUVENILES IN ADULT PRISONS AND JAILS: A NATIONAL ASSESSMENT* tbl.2 (2000).

⁵² HOWARD N. SNYDER & MELISSA SICKMUND, OFFICE OF JUV. JUST. AND DELINQ. PREVENTION, *JUVENILE OFFENDERS AND VICTIMS: 2006 NATIONAL REPORT* (2006).

⁵³ ZIMRING, *supra* note 44, at 58 (stating that “older children and younger adolescents may lack sufficiently fully developed cognitive abilities to comprehend the moral content of commands and to apply legal and moral rules to social situations”).

⁵⁴ MELISSA SICKMUND, T.J. SLADKY, WEI KANG & CHARLES PUZZANCHERA, OFFICE OF JUV. JUST. AND DELINQ. PREVENTION, *EASY ACCESS TO THE CENSUS OF JUVENILES IN RESIDENTIAL PLACEMENT* (2008).

