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John J. Donohue III

Steven D. Levitt

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THE IMPACT OF LEGALIZED ABORTION ON CRIME*

John J. Donohue III and Steven D. Levitt

Abstract

We offer evidence that legalized abortion has contributed significantly to recent crime reductions. Crime began to fall roughly 18 years after abortion legalization. The 5 states that allowed abortion in 1970 experienced declines earlier than the rest of the nation, which legalized in 1973 with *Roe v. Wade*. States with high abortion rates in the 1970s and 1980s experienced greater crime reductions in the 1990s. In high abortion states, only arrests of those born after abortion legalization fall relative to low abortion states. Legalized abortion appears to account for as much as 50 percent of the recent drop in crime.

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I. Introduction

Since 1991, the United States has experienced the sharpest drop in murder rates since the end of Prohibition in 1933. Homicide rates have fallen more than 40 percent. Violent crime and property crime have each declined more than 30 percent. Hundreds of articles discussing this change have appeared in the academic literature and popular press.¹ They have offered an array of explanations: the increasing use of incarceration, growth in the number of police, improved policing strategies such as those adopted in New York, declines in the crack cocaine trade, the strong economy, and increased expenditures on victim precautions such as security guards and alarms.

None of these factors, however, can provide an entirely satisfactory explanation for the large, widespread, and persistent drop in crime in the 1990's. Some of these trends, such as the increasing scale of imprisonment, the rise in police, and expenditures on victim precaution, have been ongoing for over two decades, and thus cannot plausibly explain the recent abrupt improvement in crime.

Moreover, the widespread nature of the crime drop argues against explanations such as improved policing techniques since many cities that have not improved their police forces (e.g. Los Angeles) have nonetheless seen enormous crime declines. A similar argument holds for crack cocaine. Many areas of the country that have never had a pronounced crack trade (for instance suburban and rural areas) have

¹ For a sampling of the academic literature, see the articles appearing in the 1998 Summer issue (Volume 88) of the Journal of Criminal Law and Criminology, especially Blumstein and Rosenfeld [1998], Kelling and Bratton [1998], and Donohue [1998]. See Butterfield [1997a, 1997b, 1998] for a selection of articles appearing in the New York Times and Fletcher [2000] for a recent article in the Washington Post.

nonetheless experienced substantial decreases in crime. Finally, although a strong economy is superficially consistent with the drop in crime since 1991, previous research has established only a weak link between economic performance and violent crime [Freeman 1995] and in one case even suggested that murder rates might vary procyclically [Ruhm 2000].

While acknowledging that all of these factors may have also served to dampen crime, we consider a novel explanation for the sudden crime drop of the 1990s: the decision to legalize abortion over a quarter century ago.² The Supreme Court's 1973 decision in *Roe v. Wade* legalizing abortion nationwide potentially fits the criteria for explaining a large, abrupt, and continuing decrease in crime. The sheer magnitude of the number of abortions performed satisfies the first criterion that any shock underlying the recent drop in crime must be substantial. Seven years after *Roe v. Wade*, over 1.6 million abortions were being performed annually – almost one abortion for every two live births. Moreover, the legalization of abortion in five states in 1970, and then for the nation as a whole in 1973, were abrupt legal developments that might plausibly have a similarly abrupt influence 15 – 20 years later when the cohorts born in the wake of liberalized abortion would start reaching their high-crime years. Finally, any influence of a change in abortion would impact crime cumulatively as successive affected cohorts entered into their high-crime late adolescent years, providing a reason why crime has continued to fall year after year.

² We are unaware of any scholarly article that has examined this effect. We have recently learned, however, that the former police chief of Minneapolis has written that abortion is “arguably the only effective crime-prevention device adopted in this nation since the late 1960s” [Bouza 1990]. In his subsequent 1994 gubernatorial campaign, Bouza was attacked for this opinion [Short 1994]. Immediately after Bouza's view was publicized just prior to the election, Bouza fell sharply in the polls.

Legalized abortion may lead to reduced crime either through reductions in cohort sizes or through lower per capita offending rates for affected cohorts. The smaller cohort that results from abortion legalization means that when that cohort reaches the late teens and twenties, there will be fewer young males in their highest-crime years, and thus less crime. More interesting and important is the possibility that children born after abortion legalization may on average have lower subsequent rates of criminality for either of two reasons. First, women who have abortions are those most at risk to give birth to children who would engage in criminal activity. Teenagers, unmarried women, and the economically disadvantaged are all substantially more likely to seek abortions [Levine et al. 1996]. Recent studies have found children born to these mothers to be at higher risk for committing crime in adolescence [Comanor and Phillips 1999]. Gruber et al. [1999], in the paper most similar to ours, document that the early life circumstances of those children on the margin of abortion are difficult along many dimensions: infant mortality, growing up in a single-parent family, and experiencing poverty. Second, women may use abortion to optimize the timing of childbearing. A given woman's ability to provide a nurturing environment to a child can fluctuate over time depending on the woman's age, education, and income, as well as the presence of a father in the child's life, whether the pregnancy is wanted, and any drug or alcohol abuse both in utero and after the birth. Consequently, legalized abortion provides a woman the opportunity to delay childbearing if the current conditions are sub-optimal. Even if lifetime fertility remains constant for all women, children are born into better environments, and future criminality is likely to be reduced.

A number of anecdotal empirical facts support the existence and magnitude of the crime-reducing impact of abortion. First, we see a broad consistency with the timing of legalization of

abortion and the subsequent drop in crime. For example, the peak ages for violent crime are roughly 18-24, and crime starts turning down around 1992, roughly the time at which the first cohort born following *Roe v. Wade* would hit its criminal prime. Second, as we later demonstrate, the five states that legalized abortion in 1970 saw drops in crime before the other 45 states and the District of Columbia, which did not allow abortions until the Supreme Court decision in 1973.

Third, our more formal analysis shows that higher rates of abortion in a state in the 1970s and early 1980s are strongly linked to lower crime over the period from 1985 to 1997. This finding is true after controlling for a variety of factors that influence crime, such as the level of incarceration, the number of police, and measures of the state's economic well-being (the unemployment rate, income per capita, and poverty rate). The estimated magnitude of the impact of legalized abortion on crime is large. According to our estimates, as shown on Table II, states with high rates of abortion have experienced a roughly 30 percent drop in crime relative to low-abortion regions since 1985. While one must be cautious in extrapolating our results out of sample, the estimates suggest that legalized abortion can account for about half the observed decline in crime in the United States between 1991 and 1997.

A number of factors lead us to believe that the link between abortion and crime is causal. First, there is no relationship between abortion rates in the mid-1970s and crime changes between 1972 and 1985 (prior to the point when the abortion-affected cohorts have reached the age of significant criminal involvement). Second, virtually all of the abortion-related crime decrease can be attributed to reductions in crime among the cohorts born after abortion legalization. There is little change in crime among older cohorts.

We should emphasize that our goal is to understand why crime has fallen sharply in the 1990s,

and to explore the contribution to this decline that may have come from the legalization of abortion in the 1970s. In attempting to identify a link between legalized abortion and crime, we do not mean to suggest that such a link is “good” or “just,” but rather, merely to show that such a relationship exists. In short, ours is a purely positive, not a normative analysis, although of course we recognize that there is an active debate about the moral and ethical implications of abortion.³

The structure of the paper is as follows: Section II reviews the literature and provides a brief history of abortion. Section III describes how the legalization of abortion can influence crime rates by changing the proportion of high-risk children entering the high-crime late adolescent years, and examines the likely magnitude of these effects based on past research findings. Section IV presents the basic empirical evidence that supports the proposed negative relationship between abortion and crime. Section V provides evidence that the reduction in crime comes predominantly from the lower crime rates of those born after the legalization of abortion. Section VI concludes. A data appendix with the sources of all variables used in the analysis is also provided.

II. Brief Overview of the History of Legalized Abortion

Under the governing principles of English common law, abortion prior to “quickening” (when the first movements of the fetus could be felt, usually around the 16th to 18th week of the pregnancy)

³ For example, Paulsen [1989: 49,76-77] considers legalized abortion to be worse than slavery (since it involves death) and the Holocaust (since the 34 million post-*Roe* abortions are numerically greater than the six million Jews killed in Europe). Despite these claims, the Supreme Court has ruled that women have a fundamental constitutional right of privacy to abort an early-term fetus and that the state cannot unduly burden this right.

was lawful. This common law rule was in force throughout America until the first law in the United States restricting abortions was adopted in New York in 1828 [David et al. 1988: 12-13]. Over the next 60 years, more and more states followed the lead of New York and by 1900, abortion was illegal throughout the country.

The first modest efforts at abortion liberalization began to emerge between 1967 and 1970 when a number of states began to allow abortion under limited circumstances.⁴ Legal abortion became broadly available in five states in 1970 when New York, Washington, Alaska, and Hawaii repealed their antiabortion laws, and the Supreme Court of California (ruling in late 1969) held that the state's law banning abortion was unconstitutional. Legalized abortion was suddenly extended to the entire United States on January 22, 1973 with the landmark ruling of the United States Supreme Court in *Roe v. Wade*.

The Supreme Court in *Roe* explicitly considered the consequences of its decision in stating:

The detriment that the State would impose upon the pregnant woman by denying this choice altogether is apparent. Specific and direct harm medically diagnosable even in early pregnancy may be involved. Maternity, or additional offspring, may force upon the woman a distressful life and future. Psychological harm may be imminent. Mental and physical health may be taxed by child care. There is also the distress, for all concerned, associated with the unwanted child, and there is the problem of bringing a child into a family already unable, psychologically and otherwise, to care for it.⁵

⁴ The 1962 amendments to the Model Penal Code provided for legal abortions to prevent the death or grave impairment of the physical and mental health of the woman, or if the fetus would be born with a grave physical or mental defect or in the case of rape or incest. These provisions were adopted in 1967 in Colorado, North Carolina, and California, in 1968 in Florida, Georgia, and Maryland, in 1969 in Arkansas, Kansas, New Mexico, and Oregon, and in 1970 in Delaware, South Carolina, and Virginia – a total of thirteen states. For an excellent review of state and federal abortions laws, see Merz, Jackson, and Klerman [1995].

⁵ *Roe v. Wade*, 410 U.S. 110, 153 (1973).

The available data suggest that the number of abortions increased dramatically following legalization, although there is little direct evidence on the number of illegal abortions performed in the 1960s. As Figure I illustrates, the total number of documented abortions rose sharply in the wake of *Roe*, from under 750,000 in 1973 (when live births totaled 3.1 million) to over 1.6 million in 1980 (when live births totaled 3.6 million).⁶ If illegal abortions were already being performed in equivalent numbers, one would not expect a seven-year lag in reaching a steady state. Moreover, the costs of an abortion – financial and otherwise– dropped considerably after legalization. Kaplan [1988, p. 164] notes that “an illegal abortion before *Roe v. Wade* cost \$400 to \$500, while today, thirteen years after the decision, the now legal procedure can be procured for as little as \$80.”⁷ The costs of finding and traveling to an illegal abortionist and any attendant cost of engaging in illegal and therefore riskier and socially disapproved conduct were also reduced by legalization.

Perhaps the most convincing evidence that legalization increased abortion comes from Michael [1999], who finds abortion rates to be roughly an order of magnitude higher after legalization using self-

⁶ In our analysis we use Alan Guttmacher Institute (AGI) data on abortions. Although Michael [1999] argues that the AGI may substantially overstate true abortion rates, “it is generally acknowledged [that AGI data provide] the most accurate count of induced abortions in the United States.” Apparently, “reporting is less complete for nonwhites than for whites, and overall reporting ... has declined over time.” Joyce and Kaestner [1996: 185].

⁷ The cost to the mother also depends on the availability of public funding, which was affected by the Hyde Amendment, which cut off federal funding of abortion for Medicaid recipients. The Hyde Amendment became law on September 30, 1976. The Hyde Amendment has been subject to a series of revisions and restraining orders since that time. No consensus exists as to the impact of the Hyde Amendment on the number of abortions or births, although most recent research suggests any impact is now small. [Joyce and Kaestner 1996, Kane and Staiger 1996].

reported data on pregnancy outcome histories. Thus, the first pre-requisite for legalization to have an impact on crime is met -- legalization increased the rate of abortion.

Consistent with this finding is a dramatic decline in the number of children put up for adoption after abortion became legal. According to Stolley [1993], almost 9 percent of premarital births were placed for adoption before 1973; that number fell to 4 percent for births occurring between 1973 and 1981. The total number of adoptions rose from 90,000 in 1957 to over 170,000 in 1970; by 1975 adoptions had fallen to 130,000.

III. The Mechanism By Which Abortion Legalization Lowers Crime Rates

In this section, we explore in detail the theoretical link between legalization of abortion in the early 1970s and subsequent drops in crime 15 to 20 years later. We identify a number of alternative pathways through which abortion can affect crime. We then generate “back of the envelope” calculations as to the likely magnitude of the various channels based on previous research findings.

The simplest way in which legalized abortion reduces crime is through smaller cohort sizes. When those smaller cohorts reach the high-crime late adolescent years, there are simply fewer people to commit crime. Levine et al. [1996] find that legalization is associated with roughly a 5 percent drop

in birth rates.⁸ Assuming that the fall in births is a random sample of all births, total crime committed by this cohort would be expected to fall commensurately.

Far more interesting from our perspective is the possibility that abortion has a disproportionate effect on the births of those who are most at risk of engaging in criminal behavior.⁹ To the extent that abortion is more frequent among those parents who are least willing or able to provide a nurturing home environment, as a large and growing body of evidence suggests, the impact of legalized abortion on crime might be far greater than its effect on fertility rates.¹⁰ This is particularly true given that 6 percent of any birth cohort will commit roughly half the crime [Wolfgang et al. 1972; Tracy et al. 1990].¹¹

⁸ This decline is broadly consistent with survey responses by mothers in 1973 who report that approximately 13 percent of lifetime births were unwanted [Statistical Abstract of the United States 1980, page 65, table 99]. Note, however, that the decline in births is far less than the number of abortions, suggesting that the number of conceptions increased substantially – an example of insurance leading to moral hazard. The insurance that abortion provides against unwanted pregnancy induces more sexual conduct or diminished protections against pregnancy in a way that substantially increases the number of pregnancies. Another possible explanation for the gap between abortion rates and fertility rate changes is that illegal abortion was already suppressing the birth rate by 15-20 percent and legalization reduced it another 5-10 percent, but this would imply a higher figure for the number of illegal abortions than we think is likely, as discussed above.

⁹ As noted earlier, this effect can occur either because of lower lifetime fertility rates among high risk groups, or because women delay childbearing until conditions are more favorable for successfully raising children.

¹⁰ In addition, with an estimated number of over 150,000 rapes in 1973 (often thought to be a conservative estimate), it is possible that 10,000 to 15,000 conceptions occurred that year as a result of rape, and one might expect a substantial proportion of these high-risk conceptions would end in abortion [Bureau of Justice Statistics 1985, p. 230, Table 3.2].

¹¹ The high concentration rates of crime among a relatively small number of offenders makes it more likely that legalized abortion would have larger effects on crime than on other social outcomes such as high school dropout rates or unemployment rates. A given child who has failed to complete school or secure a job counts as only one event in measuring school drop-out or unemployment rates. Conversely, a single child may commit hundreds of crimes and thereby contribute far more powerfully to a higher crime rate.

Prior to the legalization of abortion, there was a very strong link between the number of unwanted births and low maternal education over the period from 1965 through 1970 [Commission on Population Growth and the American Future 1972, p. 98]. Levine et al. [1996] found that the drop in births associated with abortion legalization was not uniform across all groups. They estimated that the drop in births was roughly twice as great for teenage and nonwhite mothers as it was for the non-teen, white population.¹² In the years immediately following *Roe v. Wade*, data from the Centers for Disease Control indicate that almost one-third of abortions were performed on teenagers [Centers for Disease Control 1994]. Angrist and Evans [1996] found that while abortion reforms had relatively modest effects on the fertility of white women, “black women who were exposed to abortion reforms experienced large reductions in teen fertility and teen out-of-wedlock fertility.”

A number of studies have shown that the availability of abortion improves infant outcomes by reducing the number of low birthweight babies and neonatal mortality [Grossman and Jacobowitz 1981; Corman and Grossman 1985; Joyce 1987; Grossman and Joyce 1990]. Moreover, Gruber et al. [1999, p. 265] conclude that “the average living circumstances of cohorts born immediately after abortion became legalized improved substantially relative to preceding cohorts.” They go on to note that “the marginal children who were not born as a result of abortion legalization would have systematically been born into less favorable circumstances if the pregnancies had not been terminated: they would have been 60 percent more likely to live in a single-parent household, 50 percent more

¹² This is not surprising since in the late 1960s the “pill” and other birth control mechanisms were far more readily available to married, educated, and affluent women [Goldin and Katz 2000]

likely to live in poverty, 45 percent more likely to be in a household collecting welfare, and 40 percent more likely to die during the first year of life.”

Previous research has found that an adverse family environment is strongly linked to future criminality. Both Loeber and Stouthamer-Loeber [1986] and Sampson and Laub [1993] present evidence that a variety of unfavorable parental behaviors (*e.g.*, maternal rejection, erratic/harsh behavior on the part of parents, lack of parental supervision) are among the best predictors of juvenile delinquency. Raine et al. [1994, 1996] argue that birth complications combined with early maternal rejection predispose boys to violent crime at age 18. Rasanen et al. [1999] find that the risk of violent crime for Finnish males born in 1966 is a function of (in descending order of impact): mother’s low education, teenage mother, single-parent family, mother did not want pregnancy, and mother smoked during pregnancy. It is possible that abortion could reduce the number of children born under all these circumstances: teenagers who have abortions can get more education before they give birth and may delay childbearing until they are married and/or want a child. In addition, women who inadvertently become pregnant may have engaged in behavior such as smoking, drinking, or using drugs that elevate the prospect of future criminality of their offspring.

A number of studies have looked at cases of women, living in jurisdictions in which governmental approval to have an abortion was required, who sought to have an abortion, but were denied the right to do so [David et al. 1988; Posner 1992, p .283].¹³ Dagg [1991] reports that these women overwhelmingly kept their babies, rather than giving them up for adoption, but that they often

¹³ David et al [1988] reviews the findings of separate studies of the effects of denied abortion for cohorts born in Goteberg, Sweden in 1939-1942, Stockholm in 1948, all of Sweden in 1960, and Prague in 1961-63.

resented the unwanted children and were far less likely than other mothers to nurture, hold, and breastfeed these children. In an array of studies in Eastern Europe and Scandinavia, Dagg found that the children who were born because their mothers were denied an abortion were substantially more likely to be involved in crime and have poorer life prospects, even when controlling for the income, age, education, and health of the mother. This literature provides strong evidence that unwanted children are likely to be disproportionately involved in criminal activity, which may be the causal pathway from greater availability of abortion to lower rates of crime.

Evidence from prisoner surveys further reinforces the link between a difficult home environment as a child and later criminality [Beck et al. 1993]. In 1991, 14 percent of prisoners reported growing up with neither parent present and 43 percent reported having only one parent (compared to 3 percent and 24 percent respectively for the overall population). 38 percent of prisoners report that their parents or guardians abused alcohol or drugs; almost one-third of female inmates report being sexually abused before the age of 18.

A. The expected magnitude of the impact of abortion legalization on crime

Before presenting our empirical estimates in the next section, we present “back of the envelope” estimates of the plausible magnitude of the impact of legalized abortion on crime. Previous researchers have studied (1) how legalized abortion affects birth rates across different groups, and (2) crime rates across groups. By combining these two sets of estimates, we can obtain a crude prediction of the impact of legalized abortion on crime.

This analysis considers four factors: race, teenage motherhood, unmarried motherhood, and unwantedness. Beginning with the first three of these factors, we use the 1990 Census to determine

TABLE I
Crime Trends for States Legalizing Abortion Early vs. the Rest of the United States

| Crime category | Percent change in crime rate over the period | | | | Cumulative, 1982-97 |
|---|--|---------------|----------------|----------------|------------------------|
| | 1976-82 | 1982-88 | 1988-94 | 1994-97 | |
| Violent crime | | | | | |
| Early legalizers | 16.6 | 11.1 | 1.9 | -25.8 | -12.8 |
| Rest of U.S. | 20.9 | 13.2 | 15.4 | -11.0 | 17.6 |
| Difference | -4.3 (5.5) | -2.1 (5.4) | -13.4 (4.4) | -14.8 (3.3) | -30.4 (8.1) |
| Property crime | | | | | |
| Early legalizers | 1.7 | -8.3 | -14.3 | -21.5 | -44.1 |
| Rest of U.S. | 6.0 | 1.5 | -5.9 | -4.3 | -8.8 |
| Difference | -4.3 (2.9) | -9.8 (4.0) | -8.4 (4.2) | -17.2 (2.4) | -35.3 (5.8) |
| Murder | | | | | |
| Early legalizers | 6.3 | 0.5 | 2.7 | -44.0 | -40.8 |
| Rest of U.S. | 1.7 | -8.8 | 5.2 | -21.1 | -24.6 |
| Difference | 4.6 (7.4) | 9.3 (6.8) | -2.5 (8.6) | -22.9 (6.8) | -16.2 (10.7) |
| Effective abortion rate at end of period | | | | | |
| Early legalizers | 0.0 | 64.0 | 238.6 | 327.0 | 327.0 |
| Rest of U.S. | 0.0 | 10.4 | 87.7 | 141.0 | 141.0 |
| Difference | 0.0 | 53.6 | 150.9 | 186.0 | 186.0 |

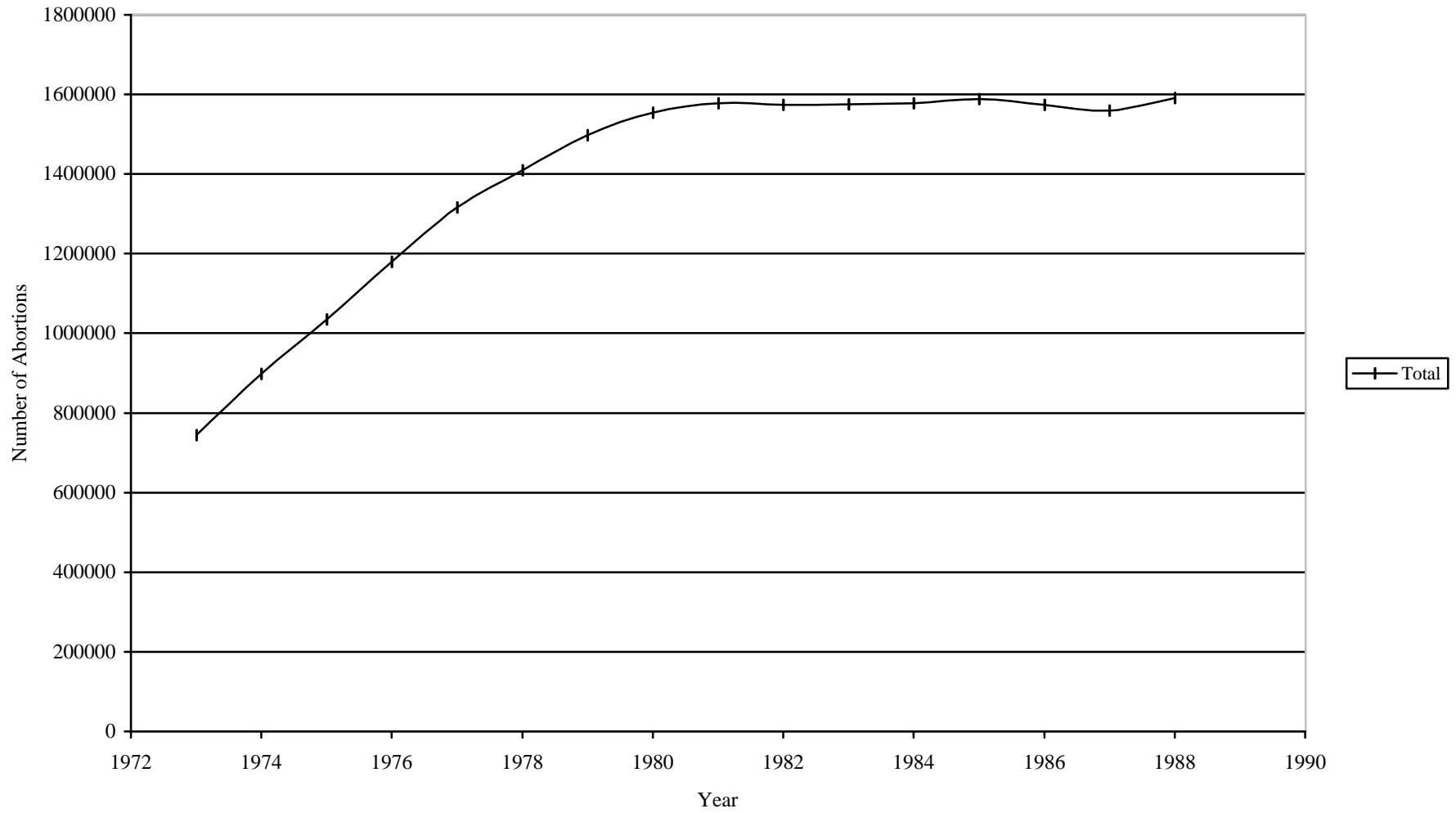
Notes: Early legalizing states are Alaska, California, Hawaii, New York, and Washington. These five states legalized abortion in late 1969 or 1970. In the remaining states, abortion became legal in 1973 after *Roe v. Wade*. Percent change in crime rate is calculated by subtracting the fixed 1985 population-weighted average of the natural log of the crime rate at the beginning of the period from the fixed 1985 population-weighted average of the natural log of the crime rate at the end of the period. The rows labeled "Difference" are the difference between early legalizers and the rest of the United States (standard errors are reported in parentheses). The bottom panel of the table presents the effective abortion rate for violent crime, as calculated using equation (1) in the text, based on the observed age distribution of national arrests for violent crime in 1985. Entries in the table are fixed 1985 population-weighted averages of the states. Abortion data is from the Alan Guttmacher Institute; crime data is from Uniform Crime Reports. Because of missing crime data for 1976, the 1976-82 calculations omit the District of Columbia. Precise data sources are provided in the data appendix.

TABLE II
Crime Changes 1985-97 as a Function of Abortion Rates 1973-76

| Abortion frequency (Ranked by effective abortions rate in 1997) | Effective abortions per 1,000 live births, 1997 | % Change in crime rate, 1973-1985 | | | % Change in crime rate, 1985-1997 | | |
|---|---|--------------------------------------|-------------------|--------|--------------------------------------|-------------------|--------|
| | | Violent crime | Property crime | Murder | Violent crime | Property crime | Murder |
| Lowest | 67.5 | +31.8 | +29.8 | -21.1 | +29.2 | +9.3 | +4.1 |
| Medium | 135.0 | +28.8 | +31.1 | -19.7 | +18.0 | +2.2 | -12.6 |
| Highest | 257.1 | +32.2 | +15.2 | -9.7 | -2.4 | -23.1 | -25.9 |

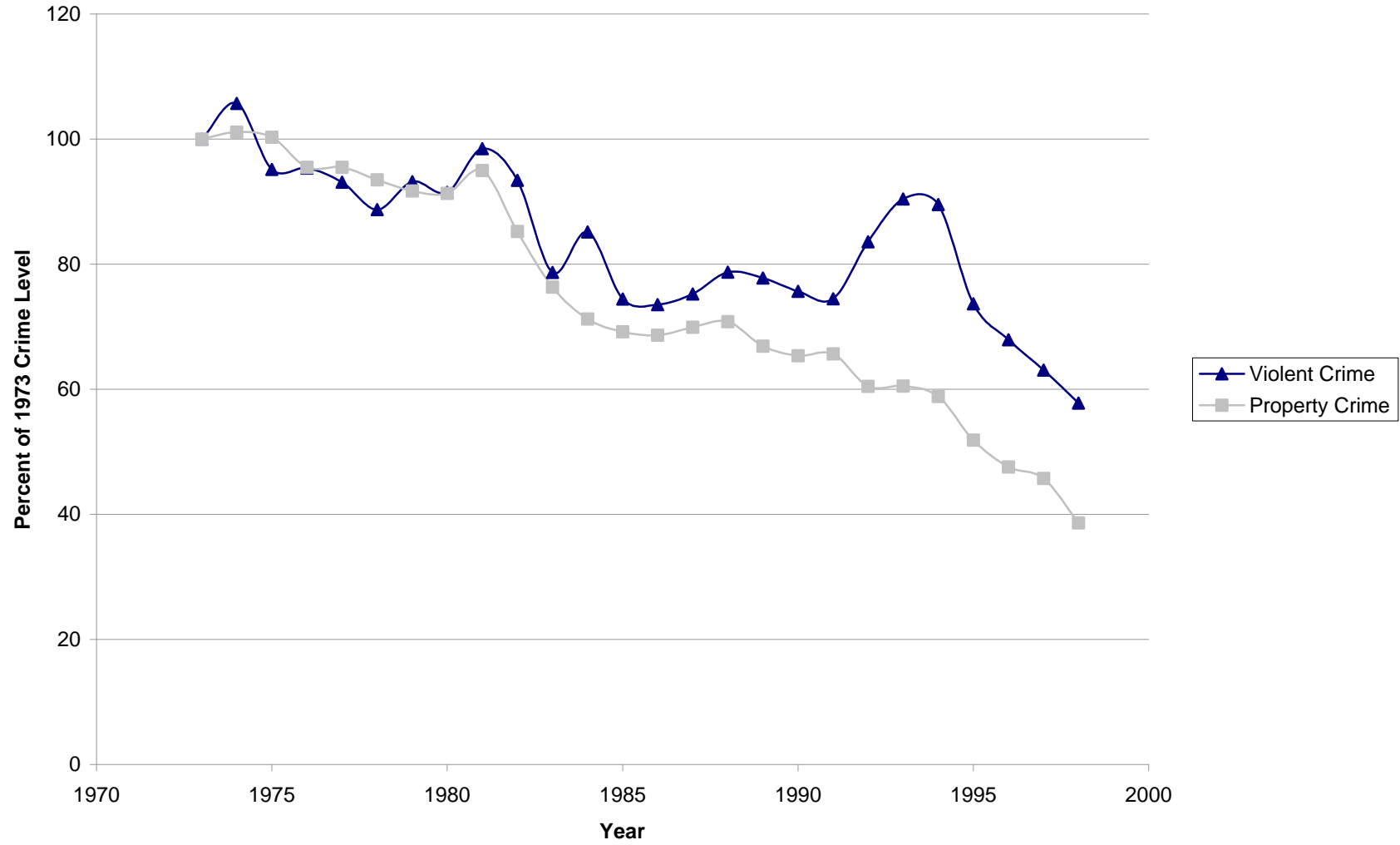
Notes: States are ranked by effective abortion rates for violent crime in 1997, with the 17 states with lowest abortion rates classified as “lowest,” the next 17 states classified as “medium,” and the highest 17 states (including District of Columbia) classified as “highest.” The effective abortion rate is the estimated average abortion rate per 1,000 live births for criminals in the state, as calculated using equation (1) in the text, based on the observed age distribution of national arrests for violent crime in 1985. All values in the table are weighted averages using 1985 state populations as weights. Percent change in crime per capita is calculated by subtracting the fixed 1985 population-weighted average of the natural log of the crime rate at the beginning of the period from the fixed 1985 population-weighted average of the natural log of the crime rate at the end of the period. Because crime rates are extremely low until the mid-teenage years, legalized abortion is not predicted to have had a substantial impact on crime over the period 1973-1985, but would be predicted to affect crime in the period 1985-1997. Abortion data is from the Alan Guttmacher Institute; crime data is from Uniform Crime Reports. Precise data sources are provided in the data appendix.

Figure 1
Total Abortions by Year



Source: Henshaw, Stanley K. and Jennifer Van Vort eds., Abortion Factbook 1992 Edition, The Alan Guttmacher Institute, New York, 1992.

Figure 3: National Crime Victimization Survey, 1973-1998



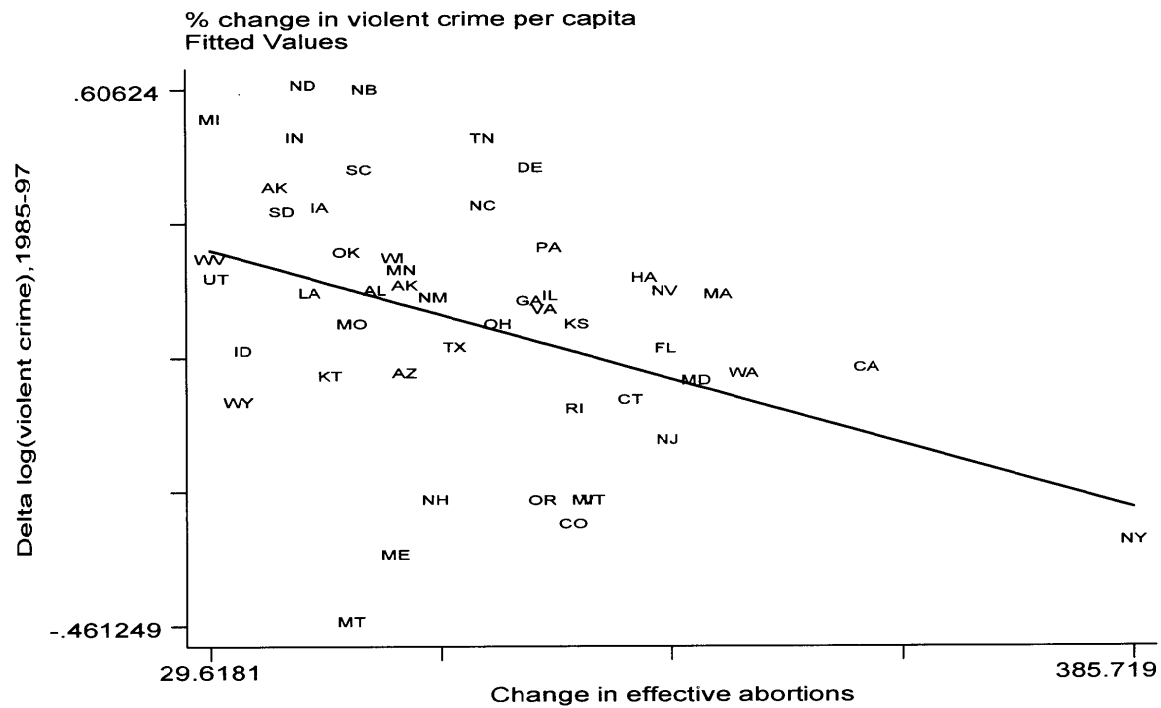


Figure 4a: Changes in Violent Crime and Abortion Rates, 1985-1997

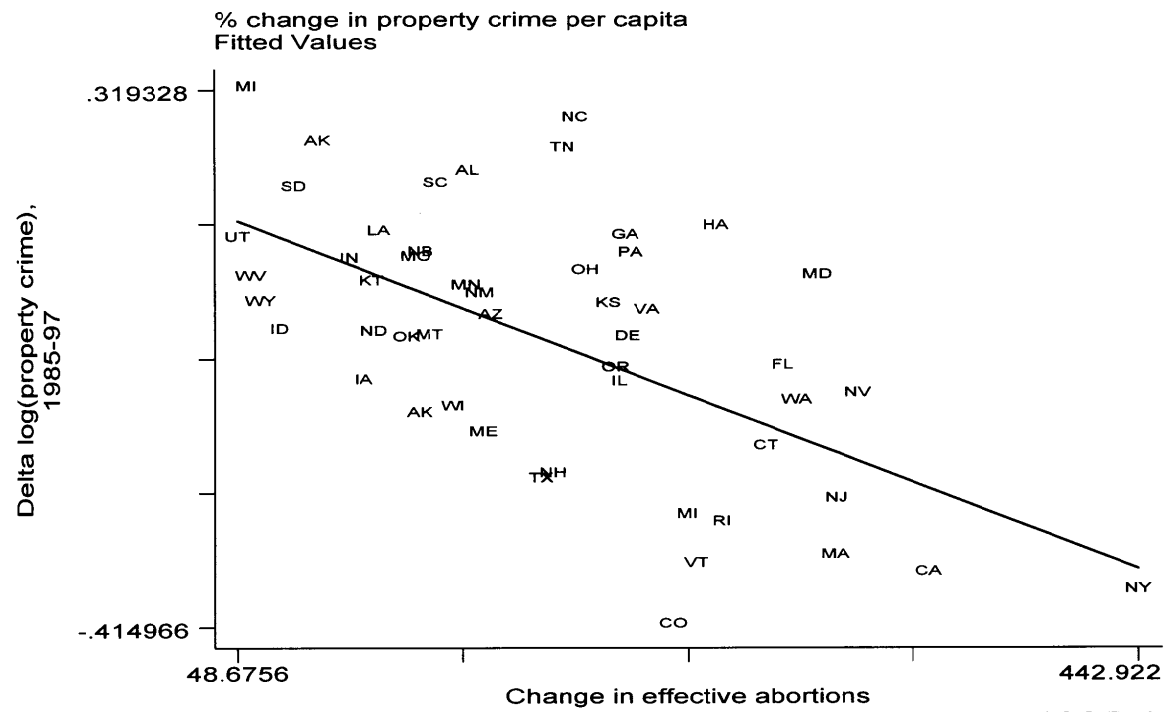


Figure 4b: Changes in Property Crime and Abortion Rates, 1985-1997

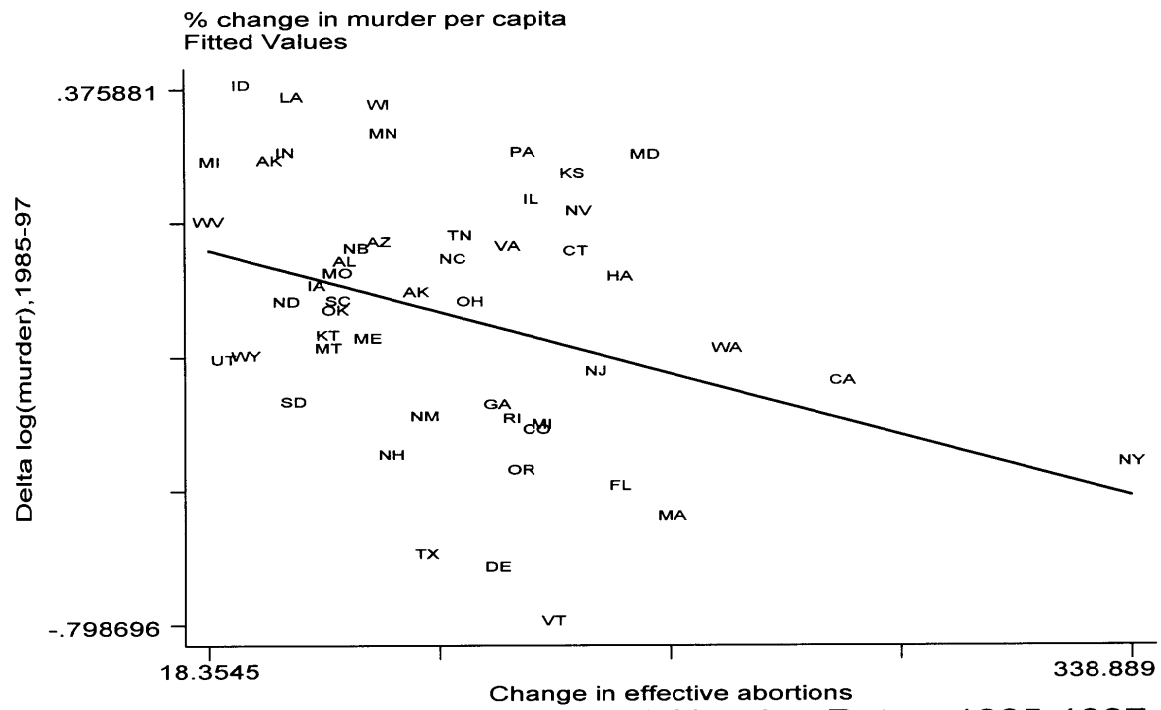


Figure 4c: Changes in Murder and Abortion Rates, 1985-1997