Easily Overstated:

Estimating the Relationship Between State Justice Policy Environments and Falling Rates of Youth Confinement

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Douglas N. Evans
Gina Moreno
Kevin T. Wolff
Jeffrey A. Butts

JOHN JAY COLLEGE OF CRIMINAL JUSTICE
RESEARCH AND EVALUATION CENTER

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Abstract

Researchers used state-level data on youth justice policies and practices to explore the association between state policy environments and recent changes in the use of residential placements for adjudicated youth (i.e., confinement). The study assigned a score to each of the 50 states based on the extent to which their youth justice policy environments could be considered "progressive" as opposed to punitive or regressive. Using data from the National Center for Juvenile Justice's compendium of justice system characteristics, "Juvenile Justice, Geography, Policy, Practice & Statistics" (JJGPS), the research team created an index that accounts for 16 policies that are more or less progressive in terms of rehabilitative intent, compatibility with developmental science, focus on the use of "least restrictive" settings, and consistency with civil liberties and the need for balanced restraint on the powers of government to ensure public safety. The maximum score was 16, with higher scores reflecting more progressive policy environments. Researchers then used a series of latent growth curve analyses to estimate associations between this index and state confinement rates calculated with data from the Office of Juvenile Justice and Delinquency Prevention's "Census of Juveniles in Residential Placement" (CJRP). Covariates included annual per capita income data for each state, unemployment rates, political ideology scores, and lagged variables for youth confinement rates and violent crime arrest rates. Results of the study indicated little evidence of a relationship between state policy environments and changes in youth confinement rates between 1997 and 2015. Youth confinement declined significantly across the country (modeled by a function of time), but states with more progressive policy environments did not demonstrate significantly steeper declines. Of course, the 16 JJGPS indicators provide an incomplete measure of state policy environments and the study lacks any data about local policies and practices. Unfortunately, more complete data are not available for national analyses. Until more useful data are available, researchers will be unable to explain exactly how youth justice policies did or did not contribute to falling rates of youth confinement across the United States.

Introduction

State officials, policy advocates, and journalists often describe falling rates of youth confinement across the United States as the result of reform. Indeed, youth confinement (out-of-home placements ordered by juvenile justice authorities) began to decline in the 1990s after growing steadily during the 1970s and 1980s. By 2015, the rate of youth confinement per capita was less than half the rate of 1997 (Sickmund et al. 2017). During the same period, the number of adults in U.S. prisons and jails grew 23 percent (BJS 2019).

Periods of confinement in the youth justice system are much shorter, of course, than sentence lengths in the adult prison system. Youth confinement rates may react more quickly to a general decline in incarceration. But, what specific factors are involved?

Policymakers and advocates make ambitious claims about the effects of changes in policy and practice, suggesting that more progressive youth justice approaches are responsible for the declining rate of confinement. While the use of confinement often declines after the implementation of various policies, this is insufficient evidence of a causal relationship. Are youth justice policies actually responsible for creating declines in youth confinement, or do public officials and advocates overstate the association between policy reforms and reductions in confinement?

Why have youth confinement rates dropped sharply in the past two decades? Is it simply the result of falling youth crime, or may officials rightfully take credit for reducing confinement with policy reform? If so, which practices and policies are most effective in lowering the youth confinement rate and which states had the most success in reducing confinement? Is the youth justice policy environment a likely cause of recent changes in confinement rates?

In this study, researchers analyzed data about economic factors, crime rates, political ideology, and youth justice policy to test the association between state-level policy environments and recent changes in the use of confinement for adjudicated youth.

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Background

Surprisingly little research has examined fluctuations in rates of youth confinement and their relationship to policy structures. Research on adult incarceration is far more common. The discrepancy may be due to the limited range of data available on youth confinement—especially before the mid-1990s—as well as the fact that the confined youth population is very small relative to the number of incarcerated adults.[1] The national number of incarcerated adults is often 40 to 50 times larger than the population of youth in confinement, including those in long-term secure facilities, residential facilities, and group homes (Sawyer and Wagner 2019; Sawyer 2018).

Some factors shaping the use of confinement may be similar in both the youth system and adult system, including crime rates, financial factors, political climate, and the policies and decisions of police, prosecutors, and courts. Reviewing research literature on adult incarceration, therefore, may lead to sufficient understanding of confinement trends. Some factors, however, may be quite different in youth justice. Research focusing specifically on youth confinement is essential for policymakers and practitioners who need to identify the best methods for reducing unnecessary and ineffective uses of youth placements.

The declining use of confinement for youth began more than a decade before the decline in adult incarceration. Adult incarceration rates began to climb in the 1970s and continued for more than three decades, leaving the U.S. with the highest incarceration rate in the world (Carroll and Cornell 1985; Phelps and Pager 2016). The adult prison population dropped slightly beginning in 2010, down seven percent according to recent data (Carson 2018; Guerino, Harrison and Sabol 2011). Youth confinement numbers, on the other hand, began falling in the mid-1990s. Between 1997 and 2015, the national number of youth in residential placements decreased 54 percent—from 105,055 to 48,043 (Hockenberry 2018).

Many factors likely contribute to the declining use of confinement, including some of the reforms celebrated by advocates. Researchers, however, cannot test the direct effect of myriad reforms at state and local levels. First, the concept of justice reform is so broad it makes the term almost meaningless. Second, the detailed data required to study numerous state and local youth justice reforms do not exist.

The popular notion of reform in the context of justice policy could mean any intentional effort to improve the effectiveness and fairness of the justice process as well as the impact of any subsequent interventions. Typical reforms include reducing punitive sentences and expanding the use of alternatives, or limiting the influence of race and gender bias in sentencing decisions (Harmon 2013).

The term reform, however, could also describe changes in policy and practice of a very different type. Some policymakers could think of reform as increasing police surveillance, imposing stricter sentences, or making the terms of probation longer and more restrictive. In such a framework, reforms could contribute to increases in incarceration, such as mandatory minimum sentences and Three Strikes Laws, or they could be designed to reduce the ability of courts to impose non-incarcerative sanctions and limit access to diversion for broad categories of offenses. "Tough on crime" and "zero tolerance" policies during the 1980s and 1990s led to an expansion of secure facility space in the U.S. and increased the use of confinement (Scott and Saucedo 2013). Some officials may view these policies as "reform."

This study defined reform as the use of laws, policies, rules, and regulations to advance a more "progressive" approach to youth justice. In other words, the study focused on reforms designed to be rehabilitative and restorative rather than punitive, those that are compatible with the science of adolescent development, that promote the use of the "least restrictive" setting for adjudicated youth, and are generally respectful of civil liberties and maintain appropriate restraint on the power of government even when those policies purport to ensure public safety.

1. The Census of Public and Private Juvenile Detention, Correctional, and Shelter Facilities, also known as the Children in Custody census, was conducted from the early 1970s until the 1990s when the Census of Juveniles in Residential Placement (CJRP) became the nation's primary data series about juvenile confinement.

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Even narrowing the meaning of reform in this way, however, does not make a national analysis of youth justice policies simple or straightforward. To establish a statistical connection between progressive reforms and youth confinement rates, researchers would need detailed, historical measures about policies and practices implemented in states, counties, and cities over several decades. Anything less than a comprehensive, national database of reform measures organized at the local level would render such research a type of case study. Of course, some useful research derives from case studies focused on just one state or city (e.g., Fabelo et al. 2015). Case studies, however, fail to account for nationwide trends. Researchers examining one jurisdiction alone may be tempted to see causation in a finding that actually reflects a broader, national phenomenon (McDowall and Loftin 2009). To create more robust measures, researchers need comprehensive and reliable data about policies and practices in all states and for many years. Unfortunately, this kind of information does not exist, but it is possible to obtain a few key variables from data series managed by the U.S. Department of Justice and to use these data to model state-level characteristics pertaining to crime, justice processing, demographics, economics, and political ideology across all 50 states.

State-level data about law and policy will still produce a limited reflection of youth justice in practice. Removing a juvenile from home and placing them in a facility follows a complex series of policy decisions. Because long-term confinement facilities are often an endpoint in the justice process, the number of youth in these facilities depends on the decisions of many actors throughout the justice system. Police officers have the discretion to arrest someone (or not) for an offense. Prosecutors have the authority to file charges (or not). Judges and executive branch agencies usually decide whether a particular case merits the use of confinement. Manipulating any one of these factors may contribute to some change in the total rate of youth confinement, but no single factor is likely to drastically reduce the volume of placements. Many other social and political factors influence such decisions, from recent crime trends and public opinion to budget crises and even the lasting effects of one or two notorious cases that generate public anxiety (Butterfield 1995).

Most importantly, the United States (as with many other countries) has been experiencing falling crime for 25-years. Adult and youth arrests have decreased nearly every year since the mid-1990s. The per capita rate of violent crimes fell 29 percent between 1999 and 2018 (FBI 2019). When crime falls, especially serious and violent crime, policymakers are more willing and more able to implement reforms. If the rate of confinement continues to decline, officials are tempted to claim their reforms are responsible—even if rigorous research would show the two measures (reforms and confinement rates) are associated but not causally related. With fewer arrests coming to court, the demand for secure confinement may fall regardless what policies are being pursued to reduce confinement.

Popular Claims

Researchers, politicians, and advocates often claim incarceration rates fall due to the effects of intentional reform. Referencing the nationwide drop in adult incarceration rates, researchers Lofstrom and Raphael asserted that declines were "driven by sentencing reforms at the state level explicitly designed to reduce incarceration rates" (2016: 197). Governor John Bel Edwards of Louisiana was quick to celebrate his state's "significant decreases in prison populations and prison admissions following the first year of the state's historic criminal justice reforms" (Toohey 2018). Advocacy organizations are pleased to describe the declining use of incarceration for adults as the result of reform.

> "…South Carolina enacted a modest criminal justice reform package… intended to safely reduce the prison population, save taxpayer money, and produce a better public safety outcome. And it did just that" (Center for Criminal Justice Reform 2018).

Similarly, youth advocates credit an array of reforms for the declining number of youth held in secure facilities and other forms of placement. Typical reforms include funding for community-based alternatives, diversionary policies, policies requiring the least restrictive placement for adjudicated youth, bans on out-of-home placement for youth adjudicated for certain types of offenses (non-felony, non-violent

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misdemeanor, or low-level offenses, drug possession, prostitution), bans on confinement of foster care youth, and raising the age of juvenile jurisdiction overall. Some of these reforms may have contributed to reductions in the use of confinement for adjudicated youth, but without considering the effect of other factors it may be wrong to claim or even imply that reforms are entirely responsible. Making causal claims, however, is quite popular. Two authors of this study, in fact, published a John Jay College report in 2011 that identified policy choices as a key influence on youth confinement.

> "The scale of incarceration is not simply a reaction to crime. It is a policy choice. Some lawmakers invest heavily in youth confinement facilities. In their jurisdictions, incarceration is a key component of the youth justice system. Other lawmakers invest more in community-based programs" (Butts and Evans 2011).

Other organizations have been even more confident in their attributions of cause and effect. Nationally known organizations such as the Council of State Governments, the National Juvenile Justice Network, the National Center for Youth Law, the National Council on Crime and Delinquency, the Crime and Justice Institute, and Pew Charitable Trusts have published reports suggesting that policy and practice reforms were responsible for lowering the rate of secure confinement for adjudicated youth.

In 2019, the Crime and Justice Institute examined changes in the demand for secure youth confinement space in West Virginia and implied that a small amount of improvement was due to the recent passage of state legislation.

> "One primary goal of the S.B. 393 policy changes was to reduce the number of West Virginia youth in secure facilities. Examining the number of youth admitted to restrictive settings versus the number referred to community alternatives like the YRCs is a quantifiable way to measure progress toward this goal. From 2015 through 2017, the overall number of BJS admissions decreased from 2,073 to 1,877. At the same time, the data show a steady increase in the percentage of juveniles referred to community-based interventions, from 37 percent in 2015 to 39 percent in 2017. The trend continued into 2018, with 42 percent of admissions referred to non-residential programs" (Crime and Justice Institute 2019: 4).

A 2012 report from the National Center for Youth Law and the National Council on Crime and Delinquency reviewed youth justice reforms implemented by the State of Arkansas and confidently declared them successful without investigating other explanations, such as the national crime decline and subsequent reductions in demand for secure space.

> "Arkansas leaders, like their counterparts in other states, have embarked on a planned course to transform the state's juvenile justice system. … In just a short period of time, Arkansas has achieved significant positive results from reform efforts. From 2008 to 2011, commitments to state custody have been reduced by 20%, including those for low-level, non-dangerous youthful misbehaviors; the average length of stay in state residential treatment centers has been shortened by 19%; and the number of beds at the state's largest juvenile secure facility, the Arkansas Juvenile Assessment and Treatment Center, was reduced by 30%" (Arthur and Hartney 2012: 1).

The National Juvenile Justice Network collaborated with the Texas Public Policy Foundation to publish a 2013 report on youth confinement trends. While the report acknowledged that declines in youth arrests "helped explain" the falling rate of youth confinement, it also asserted that state policies "shape" the changes leading to reduced confinement (National Juvenile Justice Network 2013: 2). In 2017, the Council of State Governments Justice Center described the nationwide drop in youth confinement as the result of efforts by "state and local leaders."

> "State and local leaders across the country have made concerted efforts to scale back juvenile incarceration, and their efforts have yielded significant results: the national juvenile incarceration rate has been cut in half over the last decade. As a result, a greater number of youth in the juvenile justice system are now being supervised in their communities, which research shows leads to lower re-arrest rates, and states are increasingly allocating the majority of their juvenile justice resources to community-based supervision and services" (CSG 2017).

Similarly, the enactment of youth justice reforms in Kentucky inspired the Pew Charitable Trusts to conclude the policies had a direct effect.

> "Juvenile justice reforms enacted by Kentucky in 2014 are creating substantial benefits for youth, families, and communities throughout the state. Between fiscal years 2014 and 2017, the number of youths held in Department of Juvenile Justice facilities fell 34 percent, reflecting a reduction in detentions and commitments for lower-level offenses" (Horowitz and Pheiffer 2018).

Researchers at Pew saw other causal connections in Georgia: "After Georgia enacted a 2013 reform package, the state's juvenile residential population fell 35 percent" (Horowitz and Carlock 2017). An assistant commissioner of the Georgia Department of Juvenile Justice joined the argument, saying "juvenile reform in Georgia has made it possible not only to avoid construction of new facilities, but to reduce the population in existing facilities" (Vignati and Edwards 2018).

An online data brief from Pew used federal data to depict changes in youth confinement from 2006 to 2015 and reported that all 50 states and Washington, DC showed decreases ranging from -1 percent to -83 percent. The Pew brief ended by implying that reforms were likely behind the change because the general trend of reduced youth confinement "comes as a growing number of states adopt policies that prioritize costly space in residential facilities for youths adjudicated for serious crimes" (Horowitz 2017).

A comprehensive report from Texas used data from 2007 to 2012 to claim that policy changes deserved credit for reduced confinement in that state: "the first of a series of reforms was enacted, and over the next five years, the number of youth incarcerated in state facilities did not grow as projected but instead plunged" (Fabelo et al. 2015: 30). The authors concluded that:

> "State efforts to reduce the number of youth in state juvenile correctional facilities have delivered on the promise made when they were enacted. Thousands more youth are living at home now (or are being supervised closer to home) than before the reforms" (Fabelo et al. 2015: 81).

Advocacy groups are often eager to report a connection between reforms and rates of confinement. The Vice President of the Advocates for Children of New Jersey (ACNJ) wrote that the "[Annie E. Casey Foundation's Juvenile Detention Alternatives Initiative] has resulted in far fewer youth being incarcerated in longer-term Juvenile Justice Commission facilities without risk to public safety" (Coogan 2017). ACNJ relied on a subtle turn of phrase to imply a causal relationship between reforms and reduced confinement, stating that "New Jersey is a national leader in a rapidly advancing juvenile justice reform movement. The state is locking up thousands fewer young offenders, while safely addressing their needs in their communities" (ACNJ 2018).

The 2014 Annual Report of the Annie E. Casey Foundation was less subtle, lauding a 43 percent drop in juvenile detention in several states as the "result" of its efforts to reduce detention in those states (Annie E. Casey Foundation 2014).

Journalists often endorse correlational claims by public officials and advocates. The Arkansas Times reported that "[statewide youth justice] reforms have reduced both the number of youths detained locally in juvenile detention centers and those committed to (state) facilities" (Hardy 2017). A Kansas news outlet noted that, "juvenile arrests and placement of youths in group homes or detention facilities declined at the same time Kansas moved to funnel budget savings into community-based therapy and intervention programs designed to keep families together" (Carpenter 2019).

Another article about Kansas opened with the following assertion: "Reforms to the Kansas juvenile justice system have slashed the number of young people in confinement by 63 percent over the past two years" (The Crime Report 2019).

A recent article about *Vice*, the HBO documentary about criminal justice reform, opened with this observation: "The U.S. has significantly reduced the amount of incarcerated youths via state reforms from 2001 to 2015" (Vice Impact 2018).

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Even celebrities join those seeing a direct, causal connection. Musician and justice advocate John Legend once observed:

> "When Illinois instituted comprehensive reforms over the past several years to build age-appropriate responses to crime, day-reporting centers, and community-based mental health services for youth in cities including Chicago, the state incarcerated 44 percent fewer youth, reserving incarceration only for those who were a public safety threat" (Spark Action 2017).

Policy reforms may contribute to confinement reductions, but other factors—social conditions, economic trends, cultural shifts—likely play a part. This study tested the claim that state policies are responsible for falling youth confinement rates and examined what happens to that relationship when other explanatory factors are included. If the study indicates that the effects of the policy environment are reduced or nullified by covariates, it would cast doubt on the widely assumed causal relationship between reforms and reductions in youth confinement.

The Changing Rate of Youth Confinement

The rise and fall of youth confinement occurred in the midst of America's wave of mass incarceration. The number of incarcerated adults surged in the U.S. during the past 50 years. The adult incarceration rate had been relatively stable until the early 1970s, when it started to increase exponentially. From 1972 to 2008 the rate of individuals incarcerated in jails and state or federal prisons increased from 161 inmates per 100,000 residents to nearly 756 per 100,000 residents (Travis, Western, and Redburn 2014; Maguire, n. d.). The incarceration boom affected people of all age groups, as adult crime and incarceration rates tend to affect youth confinement rates as well (Mears 2006).

Most research on incarceration continues to focus on adult populations, but this study concentrates on youth confinement and factors that influence it. The widespread decline in youth confinement that began in the mid-1990s followed a period of growth during the 1980s and early 1990s.

During periods of either increasing or decreasing confinement, nationwide trends obscure differences between states. In 1997, for example, rates of placement for juveniles age 10 and older varied from a low of 70 per 100,000 in Vermont to a high of 583 per 100,000 in Louisiana (Sickmund 2000). Sizeable disparities in confinement rates present an opportunity for researchers. By analyzing state variations, it may be possible to identify key factors affecting the use of youth confinement. Some factors, such as demographic shifts, economic changes, and the introduction of new policies, may be measurable. Others, such as the political climate and cultural norms, are more difficult to capture in national studies.

"Tough on crime" legislation, for example, certainly contributed to increasing confinement rates in the 1980s (Tonry 1999). Being "tough" became the standard for elected officials in the criminal (adult) justice arena and had spillover effects on youth justice policy as well (Wool and Stemen 2004; Mears 2006). Aggressive policies were also a response to sharp increases in youth violence during the 1980s and early 1990s (Butts and Mears 2001; Van Vleet 1999). News media at the time sensationalized crimes involving youth and some prominent academics even argued that certain juveniles were "superpredators... capable of committing the most heinous acts of physical violence for the most trivial reasons" (Dilulio 1995). Such claims likely motivated policymakers to implement more tough-on-crime policies aimed especially at youth.

After peaking in the mid-1990s, youth crime rates—especially violent crimes—began to fall. Youth confinement rates followed suit. The national number of confined youth decreased nearly every year since the late 1990s (Sickmund et al. 2015). The reduced demand for confinement was largely a response to falling youth crime. Juvenile courts placed fewer youth out-of-home in absolute terms, but the proportion of court cases resulting in out-of-home placement remained stable between 1996 and 2016 (Butts and Pfaff 2019). If the overall decline in youth confinement coincided with falling crime rates, is it still possible that some of the recent changes were also due to policy changes?

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Factors that Influence Incarceration

Incarceration rates respond to a combination of micro factors pertaining to individuals involved in the criminal justice process (defendants, police, prosecutors) and macro factors (societal changes potentially affecting the entire population) (Pfaff 2013). At the micro-level, police officers have the discretion to arrest someone suspected of committing a crime, or they can decide not to make an arrest. Prosecutors can charge an arrestee with a range of criminal offenses or they can decide not to file charges. Judges usually determine a convicted defendant's length of sentence, and parole boards determine if an inmate can leave prison before some pre-determined release date. Parole officers issue restrictions on their parolees and have the discretion to revoke parole and send them back to prison.

Micro factors affect the likelihood and severity/length of criminal sanctions and may explain some of the increase in incarceration that started in the 1970s and continued into the 2010s. Macro factors, of course, affect these micro factors, including efforts by lawmakers to restrict the discretion of justice officials to make decisions about individual cases. Other macro factors include the broad array of social policies, economic conditions, unemployment rates, demographic characteristics, and the political ideologies prevalent in a given area.

Disentangling how all these factors affect incarceration is difficult because changes in one factor may correlate with changes in others. The war on drugs was a macro-level policy that influenced police departments and officers to target people suspected of drug offenses, which helps to explain the increase in people incarcerated for drug offenses (Blumstein and Beck 1999). The likelihood of prison became more common as prosecutors recommended severe sentences more often and judges agreed with them more often (Travis, Western, and Redburn 2014). One study of prosecutions in 34 states (the only states for which felony filing data were available) indicated that while arrests fell about 10 percent between 1994 and 2008, felony court filings increased more than 37 percent (Pfaff 2013).

Other research shows that macro-economic factors, such as income and financial inequality, unemployment, and poverty, may also influence incarceration rates. Crime rates tend to be higher in communities beset by financial inequality and the association is consistent across multiple countries and time periods (Fajnzylber, Lederman and Loayza 2002). Although inequality may not have a direct effect on incarceration, its effect may operate through other factors. Even government assistance programs may be related to incarceration. A study exploring welfare recipients and incarceration rates found that states spending less on social welfare had higher incarceration rates (Beckett and Western 2001).

Unemployment and poverty are often positively related to incarceration rates (Sorensen and Stemen 2002). Poor and unemployed people do not necessarily commit more crime, but there is a relationship between the number of people living with limited financial means and the justice system's prioritization of incarceration. Researchers find that a rise in unemployment can affect increases in crime (Raphael and Winter-Ebmer 2001). The relative poverty rate in a neighborhood may be indicative of the extent of incarceration among residents from that neighborhood. The criminal justice system may disproportionately affect individuals from high poverty communities along with other social problems such as violent crime, mental illness, and substance abuse (Travis, Western, and Redburn 2014). On the other hand, unemployment could actually contribute to reductions in youth confinement. Unemployed parents may spend more time at home, allowing them to supervise their children directly, potentially leading to fewer delinquent acts and fewer youth confinements.

The political preferences and voting behavior of an area may also affect incarceration rates. Conservative politicians could use claims of "crime problems" to offer tough-on-crime solutions that result in political gains, or conservative citizens may demand harsher punishments for law violators (Jacobs and Carmichael 2001). Politically conservative states may adopt more punitive justice policies, perhaps in response to increases in populations of color in areas that were once predominantly white (McGarrel 1991; Tolbert and Grummel 2003). Conservative-leaning states

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also tend to adopt more severe sentences for some crimes, including rape, assault, and robbery (Bowers and Waltman 1993). Some researchers find a positive correlation between the number of conservative citizens and a state's incarceration rate (Sorensen and Stemen 2002; Greenberg and West 2001).

Policies in the criminal and juvenile justice systems are not easily comparable because criminal justice policies tend to be more punitive. However, criminal justice policies can demonstrate the effects of reforms on incarceration rates. Determinate criminal justice sentences, including mandatory minimums and three-strikes laws, are often cited as a driver of mass incarceration. Some argue that a shift toward determinate sentencing and longer sentences influenced the growth of incarceration (Mauer 2001). Others, however, suggest that determinate sentencing laws are not associated with increases in incarceration for most states and may actually decrease incarceration in some states (Marvell and Moody 1996). A study of sentencing practices in all 50 states, including voluntary sentencing, presumptive sentencing, three-strikes laws, parole abolition, and truth-in-sentencing laws, found that with the exception of parole abolition, sentencing practices were not strongly correlated with changes in prison populations (Zhang, Maxwell and Vaughn 2009).

One could assume that a rising crime rate would trigger punitive reactions that increase the number of people sentenced to jails and prisons, but prior research suggests the relationship is not direct (Greenberg and West 2001). Although crime rates in any given year affect crime rates in consecutive years (Field 1992), the relationship between crime and incarceration is less than robust. For the past 25 years, the two have often varied in opposite directions. After crime rates began to decline in the 1990s, incarceration continued to increase for 20 years. Patterns could be different in the youth justice system, but research has not fully explored relationships between delinquency and confinement.

Demographic trends play a role in incarceration. A large-scale analysis of incarceration trends found that demographic changes explained 20 percent of the growth in the prison population (Langan 1991). Race and gender in particular influence someone's likelihood of receiving a prison sentence. Black males have a one in three chance of going to prison in their lifetime compared to only one in 17 White males (Bonczar 2003). In 1972 men were incarcerated at a rate 24 times greater than women (Travis, Western, and Redburn 2014). Incarceration rates for females increased considerably since then. By 2011 males were incarcerated at a rate only 14 times greater than females (Carson and Sabol 2012).

Blacks and people from lower social classes have been incarcerated at disproportionate rates in the United States as long as such data existed (Western and Pettit 2010). There is also an inverse relationship between education and incarceration. Among high school dropouts, Black males are twice as likely as White males to spend some time in prison (Travis, Western, and Redburn 2014). Race, and particularly skin tone, may override all other demographic factors. A study of nearly 67,000 males incarcerated for the first time in Georgia between 1995 and 2002 found that after controlling for offense type, socioeconomic status, and other demographic factors, dark-skinned Black men received average sentences at least 18 months longer than those imposed on White men. In comparison, light-skinned Black men received average sentences that were just 3.5 months longer than the sentences of White men (Hochschild and Weaver 2007). Neighborhood factors also matter. Incarceration is more prevalent in communities that deal with family instability, poor health, and residential segregation (Travis, Western, and Redburn 2014).

Prior research suggests a number of factors affect confinement rates. It can be difficult to determine each factor's relative contribution to the actual rate of confinement and more research is needed to measure how micro and macro factors combine to affect confinement rates. The lack of research is even more apparent in the youth justice system, where very little is known about the key drivers of confinement rates. Policymakers, advocates, and journalists often celebrate the implementation of reforms designed to reduce confinement and then simply assume those reforms are responsible for changes in the number of youth confined out-of-home following the introduction of reform. There are many reasons to question such assumptions.

Research Questions and Objectives

This study explores how often confinement is used by youth justice systems in the United States, and statistical relationships among state-level youth justice policy environments and changes in rates of confinement since the 1990s. Given the lack of comprehensive data on the myriad of youth justice policies across the country, the study relies on a defined set of policy characteristics measured at the state level. The analysis assigns a score to each state based on the presence or absence of 16 progressive policies. A state scoring high on the scale is consistent with a progressive approach while a state scoring low is less progressive and may be more inclined to implement a punitive or retributive approach to youth justice.

Study Objectives

This study tests whether factors other than progressive policy environments could explain the nationwide decline in the rate of youth confinement during the past 20 years. The objectives are to understand state-level variations in juvenile justice policy environments, to improve knowledge about the relationship between such policies and changes in confinement rates, and to address a gap in research regarding factors that influence out-of-home placement rates in the juvenile justice system.

Hypothesis

If there is an association between progressive youth justice policies and reductions in youth confinement, states that have demonstrated the largest reductions in youth confinement should be those demonstrating the most progressive approaches to youth justice by taking aggressive actions to rehabilitate adjudicated youth, minimizing punitive interventions, restricting unnecessary placements, and relying on policies and practices that are consistent with developmental principles.

Research Questions

RQ1:
Were state policies generally related to youth confinement rates as of the mid-1990s?

RQ2:
Were specific youth justice policies associated with decreases in state-level youth confinement after the mid-1990s?

RQ3:
Did states with more progressive youth justice policy environments experience steeper declines in youth confinement since the 1990s when compared with less progressive states?

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Study Methods

This analysis explored the effects of progressive youth justice policies on youth confinement rates from 1997 to 2015. The dependent variable was the youth residential commitment rate across all 50 states expressed as a rate per 100,000 (excluding Washington, DC due to excessive missing data for political ideology and crime). Committed youth refers to youth placed in facilities as a result of court dispositions.

The Office of Juvenile Justice and Delinquency Prevention (OJJDP) publishes state counts of juveniles in residential placement in the Census of Juveniles in Residential Placement (CJRP), but the data are published intermittently: 1997, 1999, 2001, 2003, 2006, 2007, 2010, 2011, 2013, and 2015. To account for gap years, all annual data were grouped into waves. Each wave includes a three-year average for all data points.

Ten waves were generated for the following time periods: 1996-98, 1998-2000, 2000-02, 2002-04, 2005-07, 2006-08, 2009-11, 2010-12, 2012-14, and 2014-16. In addition to data on youth in residential placements, the study used data on demographic composition, arrests, and economic activity to control for differences between states. All data sources are described below.

Dependent Variable

The U.S. Census Bureau collects data for OJJDP on the number of juveniles in residential placement and OJJDP publishes the data online in the "Easy Access to the Census of Juveniles in Residential Placement: 1997-2015" (EZACJRP) data analysis tool. The data collection process starts with identification of all juvenile facilities in the United States. Officials send notification letters and requests for information to approximately 2,200 public and private residential facilities holding juveniles charged with or adjudicated for delinquency or status offenses.

Response rates are typically very high, approaching and sometimes exceeding 90 percent. CJRP data provide a snapshot (one-day count) of the total populations of all juvenile facilities in a given state.

The research team used CJRP data—specifically the number of delinquency commitments in each state—as the numerator in calculating a confinement rate for all states across the study time period. The denominator for the calculation of confinement rates was the juvenile population in each state and each time period as defined in OJJDP's "Easy Access to Juvenile Populations" (EZAPOP) data analytic tool. Confinement rates were expressed as the number of juveniles in resident placements due to court dispositions per 100,000 juveniles ages 10 to 17.[2]

Independent Variables

The National Center for Juvenile Justice maintains the Juvenile Justice, Geography, Policy, Practice, & Statistics (JJGPS) website. The site provides data on state-level juvenile justice policies and system characteristics. In this study, researchers compiled data about a range of indicators and dichotomized each according to whether it reflected a policy environment that was more punitive and retributive (scored as 0) or relatively progressive and developmental (scored as 1)[3]. The technique resulted in an index summarizing the policy environment of each state (Figure 1). The scoring approach built upon previous research about state variations in youth justice policy characteristics (Willison, Mears, and Butts 2011).[4]

2. The two sources of data used to calculate youth confinement rate did not have the same age group categories. The upper and lower age categories for EZACJRP data (upper age of 20 and lower age of "12 and under") and EZAPOP data (ages 10 through 17) do not align perfectly, and EZACJRP commitment data pulls do not allow for selection of individual states and specific age groups at the same time. Given the small number of youths under age 10 and young adults (above 18) expected to be confined in the juvenile justice system, the discrepancy should have little effect on the results, and EZACJRP does not publish state-level population data on specific ages. In this study, CJRP data were organized into 10 waves—i.e. 1 (1997), 2 (1999), 3 (2001), 4 (2003), 5 (2006), 6 (2007), 7 (2010), 8 (2011), 9 (2013), and 10 (2015).

3. See Table A2 in the Appendix for more information about the coding scheme used in this study.

4. The study team surveyed individuals in the nation's youth justice community (N=20), asking respondents to rank each of the indicators of juvenile justice policy environments in terms of its ability to have a major, considerable, minor, or no influence on juvenile placement rates. All policy indicators were scored as having some influence on juvenile placement rates, but the top-ranked items were diversion policies, community-based programming, and formal bans on out-of-home placement for non-felony offenses, which JJGPS does not track.

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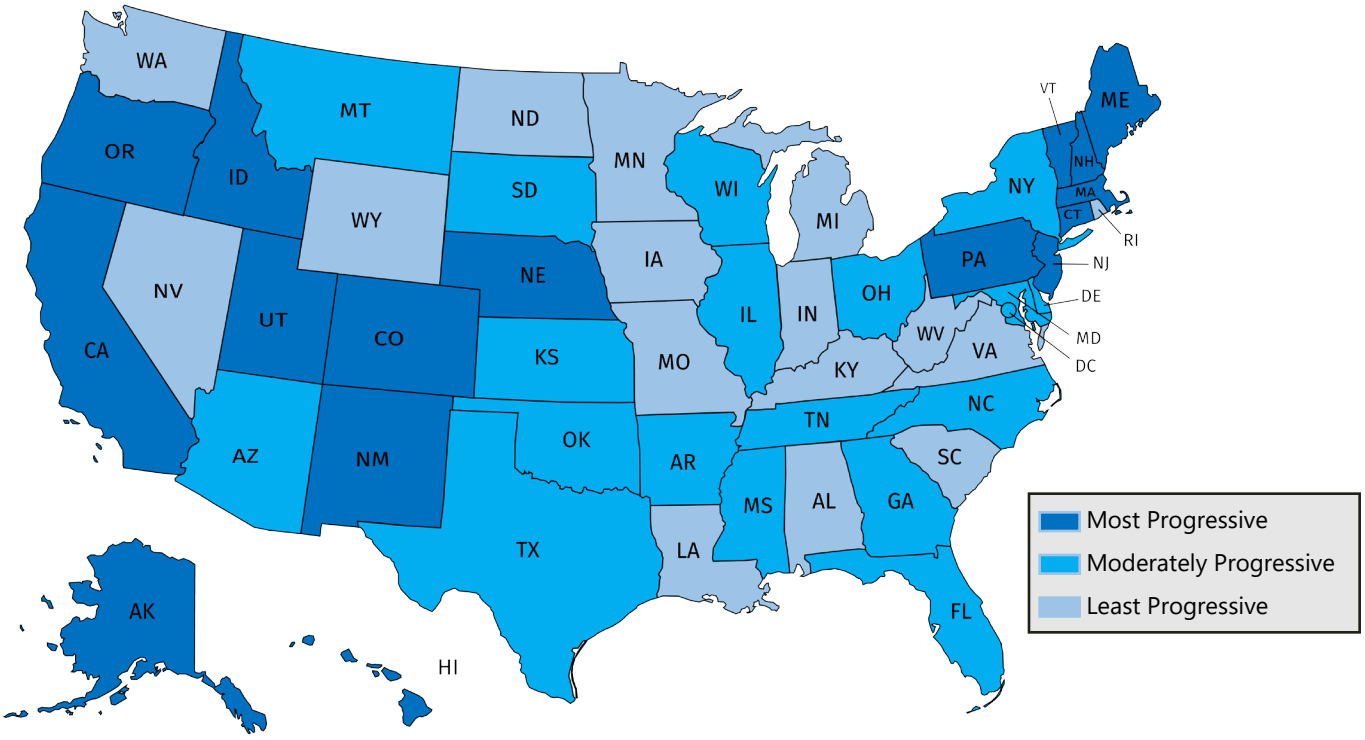
Figure 1:
State Scores on 16-Point Scale of Youth Justice Policy Environment



The study's index of progressive policy characteristics comprised 16 individual indicators (Table 1). For example, states that set no lower age limit for children subject to the delinquency jurisdiction received a score 0 on that particular indicator, as did those setting the upper age of delinquency jurisdiction at less than 17 and those allowing automatic, legislative transfer to criminal court for youth under age 18. States that terminate juvenile jurisdiction prior to age 21 were scored 0, while states that extend juvenile age to 21 and over were scored 1. States whose delinquency laws do not have a stated purpose clause scored 0 while those with purpose clauses supporting due process, balanced and restorative justice, *parens patriae*, or research on adolescent developmental scored 1. States without juvenile competency standards or those that apply the adult standard to juveniles scored 0, and states that have a separate juvenile competency standard scored 1. States that do not consider youth immaturity in competency standards scored 0; states that do consider immaturity scored 1.

Intake and diversion decisions are handled differently across states. Where prosecutors—either solely or in conjunction with juvenile court intake officers (JCIO)—make diversionary decisions or when such decisions are based on the offense in question, states were scored 0. States in which a JCIO solely decides were scored 1. States that have some or no limits were scored 0 and states that prohibit solitary confinement were scored 1. States that have no restriction on shackling juveniles in court scored 0 and states that have restrictions scored 1. States that register juveniles convicted of sex crimes scored 0 while states that do not scored 1.

States received another score of 0 if the agency charged with managing the administration and operations of juvenile corrections was the adult corrections authority or an independent agency (of equal stature to a state department of corrections), while states were scored 1 if their youth corrections agency was part of or under a family/child welfare or human services agency.

States with no mental health screening were scored 0 and states that use mental health screens from detention through probation and juvenile corrections were scored 1. States in which courts make the decisions to release juveniles from out-of-home placement scored 0 and states in which placement agencies make release decisions scored 1. States that do not track recidivism scored 0 and states that have a system for tracking recidivism (determined by the presence of at least two of the following: population specified for tracking, event indicating recidivism, follow-up period specified) scored 1.

States with statutory or regulatory support for the use of evidence-based programs scored 1 while states without such supports or those providing no information about their supports for evidence-based programs scored 0. States that allow prosecutorial discretion for waivers or have legislation for automatic transfer of juveniles to adult court scored 0 and states in which only judges have the authority to decide if a minor should be tried in adult court scored 1.

The final scale summed all scores for the 16 indicators, with higher scores reflecting more progressive characteristics. Two conceptualizations of the scale measure were used for the growth curve modeling analysis: a continuous scale measure and an ordinal measure where states were grouped into Least Progressive, Moderately Progressive, and Most Progressive based on their total scores. The scale is intended as a general measure of a state's youth justice policy environment. It does not reflect specific reforms or practices and it does not characterize policies that vary at the level of local (city or county) governments.

Covariates

The Bureau of Economic Analysis (BEA) provides information on annual per capita income for each state. Per capita income is the average income per person each year and is calculated by dividing a state's total income by its population. The Bureau of Labor Statistics (BLS) provides data on estimates of unemployment rates for each month and for each state, from 1996 to 2016. In BLS data, unemployment rates reflect the percentage of the labor force (i.e. persons age 16 and older) who are not employed.

Table 1:
Indicators of Progressive Youth Justice Policy Environments

Juvenile Justice Court Characteristics	
States that include a purpose clause in their juvenile delinquency laws	1 point
States where judicial or administrative actors (not prosecutor) make diversion decisions	1 point
States that restrict shackling of juveniles in court	1 point
States that have a juvenile-specific competency standard	1 point
States that consider immaturity in their competency standards	1 point
States that do not register juveniles convicted of sex crimes	1 point
Juvenile Justice Service Characteristics	
States that prohibit solitary confinement of juveniles	1 point
States in which family/child welfare or human services agency oversees juvenile placement system	1 point
States in which administrative agencies (not courts) determine when to release youth from out-of-home placements	1 point
States that use mental health screens for juvenile dispositions	1 point
States that track recidivism of juveniles processed by juvenile courts and placement agencies	1 point
States with statutory or regulatory supports for use of evidence-based programs	1 point
Juvenile Justice Jurisdictional Boundary Characteristics	
States that set lower age of juvenile delinquency jurisdiction	1 point
States that set upper age of juvenile delinquency jurisdiction at 17 or older	1 point
States that have an extended age of juvenile delinquency jurisdiction over age 20	1 point
States where only judges have authority to try juveniles as adults	1 point

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Ideological data reflect the political attitudes of residents and governments. Higher values indicate more liberal attitudes and lower values indicate more conservative attitudes. Each score was calculated using congressional election results, political parties of governors and state legislators, voting scores of state congressional delegations, and other assumptions about voters. Created by Berry and colleagues (1998), the measure has been found to be related to state incarceration rates (Jacobs and Carmichael 2001; Smith 2004; Stemen and Rengifo 2011).

Since 1930, the FBI has aggregated and published data from state, local, and tribal agencies and colleges/universities on arrests for crimes that come to their attention (FBI 2019). Arrests cover categories such as violent crimes (murder and non-negligent manslaughter, forcible rape[5], robbery, and aggravated assault), property crimes (burglary, larceny/theft, auto theft, and vandalism), financial (embezzlement, fraud, forgery), victimless (drugs, prostitution, gambling), domestic, and alcohol-related offenses among others. Data are organized as total arrests (all ages) or total juvenile (under age 18) arrests. Arrest counts indicate that a law enforcement agency made a custodial arrest of a person and recorded information about the arrest in an official police report. Police departments across the country send arrest data to the4 FBI for compilation in the annual report of crime statistics. This study used two principal measures: all youth arrests and youth arrests for violent crimes.[6] The research team also generated lagged variables for the under-age-18 violent crime arrest rate and the total under-age-18 arrest rate. Lagged variables accounted for the influence of these variables in the preceding year on juvenile confinement rates in the following year.

Researchers then took the square root of per capita income and of the lagged arrest rate and the natural log of the lagged under-18 violent crime arrest rate to account for their skewed distribution.

Analytic Technique

Two analyses estimated the effect of state-level progressive characteristics on changes in confinement rates. First, the research team conducted bivariate analyses to examine whether specific progressive characteristics were associated with significantly larger declines in youth confinement across the 10 waves (1996-2016). Next, growth curve modeling was used to measure the effect of youth justice policy environments on youth confinement rates across time while controlling for a number of theoretically relevant predictors of confinement drawn from past research.

In bivariate analyses, researchers tested the effects of greater or lesser progressive youth justice policies using *t*-tests to determine if state-level policy characteristics were associated with declines in youth confinement rates between Wave 1 (1996-1998) and Wave 10 (2014-2016). Declines in youth confinement rates were measured both as percentage change and absolute change over time. Latent growth curve models then estimated the impact of state-level policy characteristics on the dependent measure (change in youth confinement rates over time) while controlling for youth arrests, unemployment, per capita income, and state political ideology. Originally adapted from hierarchical linear modeling techniques designed to analyze cross-sectional data, growth curve modelling is a useful way to assess variability in outcomes across different states over time (Raudenbush and Bryk 2002). Given the small number of time periods in the analysis and the time-invariant independent variable (state policy environment), growth curve models are suitable for determining whether progressive policy characteristics are significantly related to state-level declines in youth confinement (Phillips and Greenberg 2008). The approach was used by Kubrin and Hearting (2003) to study trends in homicide across neighborhoods in St. Louis, and by Rosenfeld and colleagues (2007) to assess the impact of order maintenance arrests on precinct-level robbery and homicide trends in New York City.

5. The FBI's Uniform Crime Reporting program recently modified the definitions of forcible rape and sexual assaults, but this study uses data from the period prior to those changes taking effect.

6. Total arrests include: murder and non-negligent man slaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, arson, other assaults, forgery and counterfeiting, fraud, embezzlement, stolen property (buying, receiving, possessing), vandalism, weapons (carrying, possessing), prostitution and commercialized vice, other sex offenses, drug abuse violations, gambling, offenses against family and children, driving under the influence, liquor laws, drunkenness, disorderly conduct, vagrancy, all other non-traffic offenses, suspicion, and curfew and loitering law violations.

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FINDINGS

Bivariate Analyses

Researchers calculated the percentage decline in each state's youth confinement rate by dividing the difference in rates between the first and last waves over the initial rate in Wave 1, and multiplying the result by -1 to capture the decline. With the exception of Idaho and West Virginia, all states had lower out-of-home placement rates in Wave 10 (2014-2016) than in Wave 1 (1996-1998). States varied in the size of their percentage declines. The mean decline was 49 percent, while the greatest decline was 88 percent and the smallest was seven percent.

States were divided into 2 groups across all 16 dichotomized variables that comprised the progressive policy scale: those with more progressive youth justice environments and those with less progressive or punitive environments. An analysis using *t*-tests across each of the 16 policy variables revealed no significant differences between the two groups in their percentage declines in confinement rates from Waves 1 to 10. In other words, the rate of decline in youth confinement in states with more progressive youth justice policy environments did not differ significantly from states with less progressive environments (Table 2).

Researchers calculated the absolute change in youth confinement rate for each state by subtracting the confinement rate in the initial wave (1996-1998) from the rate during the final wave (2014-2016). Examining absolute change could provide additional information on the magnitude of decline in youth in confinement as states may have seen meaningful declines in absolute terms but not as a percentage of previous rates. Researchers conducted *t*-tests on all 16 policy environment indicators to test for significant differences in absolute change. Only juvenile competency standards showed a statistically significant difference in confinement. States with juvenile-specific competency standards experienced significantly larger declines in placement rates over time (t = 2.74, p = 0.0085) compared with those states without juvenile-specific competency standards (Table 3).

Multivariate Analyses

To assess the impact of progressive policy characteristics on the dependent variable, the research team constructed two models. The ''Level 1'' model regressed the dependent variable (youth confinement) against a function of time (usually taken to be a polynomial). The ''Level 2'' model regressed the regression coefficients from the level one estimation against a vector of predictors that characterize the cases (i.e. state and policy environments). The Level 1 equation may be written as:

$$JC_{it} = \beta_{0i} + \beta_{1i} T_{1i} + \beta_{2i} X_{1i} + \varepsilon_{1i}$$

where JC_{it} is the youth confinement rate at time t for state i, β_{0i} is the youth confinement rate at Wave 1 (1996-1998) for state i, β_{1i} is the average linear change in the confinement rate between Wave 1 and Wave 10 for state i, T_{1i} is a linear time trend with Wave 1 equal to *0*, β_{2i} is the average effect of the mean-centered, time-varying covariate X_{1i} for state i, and ε_{1i} is the Level 1 error term at time t for state i. Given this specification, the annual youth confinement rate is a function of both a linear time trend and state-specific circumstances that fluctuate from wave to wave.

Level 2 equations treat the intercepts and slopes as dependent variables. For instance, suppose the analysis hypothesizes that a time-invariant characteristic (W_i) has an impact on states' youth confinement trajectories via their impact on the intercept (level of confinement) and slope (trend). The Level 2 equations may be written as:

$$\beta_{0i} = \gamma_{00} + \gamma_{01} W_i + u_{0i}$$
$$\beta_{1i} = \gamma_{10} + \gamma_{11} W_i + u_{1i}$$
$$\beta_{2i} = \gamma_{20}$$

In the first Level 2 equation γ_{00} represents the average confinement rate in Wave 1 (1996-1998) across states, γ_{01} is the effect of the state-specific, time-invariant covariate W_i on the initial confinement rate, and u_{0i} is the residual, or random-effect, for state i. In the second equation, γ_{10} represents the average linear trend in confinement rates between Wave 1 and Wave 10 (1996-2016) across states, γ_{11} is the effect of a state-

Table 2:

Percentage Change in Youth Confinement Rate, Wave 1 to 10 (*t*-test results)

Indicator of State Youth Justice Policy Environment	No (0) Yes (1)	N	Percentage Change in Confinement Rate	*t*-value	*p*-value
Sets a lower age of juvenile delinquency jurisdiction	0 1	33 18	-46.89% -54.49%	0.776	0.442
Sets the upper age of juvenile jurisdiction at 17 or older	0 1	9 42	-61.98% -46.91%	-1.240	0.221
Has an extended age of juvenile jurisdiction over age 20	0 1	42 9	-48.81% -53.13%	0.350	0.728
Includes purpose clause in juvenile delinquency laws	0 1	2 49	-40.06% -49.96%	0.409	0.684
Judicial / administrative actor makes diversion decisions	0 1	36 15	-50.35% -47.71%	-0.255	0.800
Prohibits solitary confinement of juveniles	0 1	20 31	-48.83% -50.05%	0.126	0.900
Restricts the shackling of juveniles in court	0 1	29 22	-51.47% -47.07%	-0.464	0.645
Has a juvenile-specific competency standard	0 1	19 32	-39.47% -55.57%	1.701	0.095
Considers immaturity in competency standards	0 1	48 3	-49.13% -56.63%	0.375	0.709
Does not register juveniles convicted of sex crimes	0 1	40 11	-51.58% -42.25%	-0.821	0.416
Family/child welfare agency oversees youth placement system	0 1	28 23	-48.27% -51.15%	0.305	0.762
Administrative agencies determine release of youth from placement	0 1	21 30	-42.31% -54.65%	1.313	0.195
Mental health screen used for juvenile dispositions	0 1	9 42	-44.04% -51.27%	0.655	0.516
Has system for tracking recidivism of youth released from placement	0 1	18 33	-42.75% -53.29%	1.084	0.284
Demonstrates support for evidence-based programs	0 1	16 35	-43.93% -52.15%	0.815	0.419
Does not provide prosecutorial / legislative criminal court transfers	0 1	43 8	-47.36% -61.43%	1.100	0.277

*p < 0.05 **p < 0.01 ***p < 0.001.

Source: Data on the 16 state-level indicators of youth justice policy environment are from the National Center for Juvenile Justice's compendium of justice system characteristics, Juvenile Justice, Geography, Policy, Practice & Statistics. Confinement rates are calculated with data from the federal Census of Juveniles in Residential Placement: 1997-2015.

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Table 3:

Absolute Change in Youth Confinement Rate, Wave 1 to 10 (*t*-test results)

Indicator of State Youth Justice Policy Environment	No (0) Yes (1)	N	Absolute Change in Confinement Rate	*t*-value	*p*-value	
Sets a lower age of juvenile delinquency jurisdiction	0 1	33 18	-116.00 -112.87	-0.152	0.880	
Sets the upper age of juvenile jurisdiction at 17 or older	0 1	9 42	-144.20 -108.62	-1.400	0.168	
Has an extended age of juvenile jurisdiction over age 20	0 1	42 9	-114.69 -115.90	0.047	0.963	
Includes purpose clause in juvenile delinquency laws	0 1	2 49	- 95.28 -115.70	0.402	0.689	
Judicial / administrative actor makes diversion decisions	0 1	36 15	-121.36 - 99.40	-1.024	0.311	
Prohibits solitary confinement of juveniles	0 1	20 31	-131.09 -104.45	-1.341	0.186	
Restricts the shackling of juveniles in court	0 1	29 22	-124.15 -102.71	-1.088	0.282	
Has a juvenile-specific competency standard	0 1	19 32	- 82.18 -134.32	2.741	0.009	**
Considers immaturity in competency standards	0 1	48 3	-114.66 -118.67	0.096	0.924	
Does not register juveniles convicted of sex crimes	0 1	40 11	-119.69 - 97.50	-0.932	0.356	
Family/child welfare agency oversees youth placement system	0 1	28 23	-120.56 -108.01	-0.635	0.528	
Administrative agencies determine release of youth from placement	0 1	21 30	-120.85 -110.74	-0.505	0.616	
Mental health screen used for juvenile dispositions	0 1	9 42	-120.89 -113.62	0.069	0.946	
Has system for tracking recidivism of youth released from placement	0 1	18 33	-101.12 -122.42	1.042	0.303	
Demonstrates support for evidence-based programs	0 1	16 35	-107.27 -118.39	0.524	0.603	
Does not provide prosecutorial / legislative criminal court transfers	0 1	43 8	-112.26 -129.10	0.623	0.536	

*p < 0.05 **p < 0.01 ***p < 0.001.

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specific, time-invariant covariate W_i on the linear trend in youth confinement, and u_{1i} is the random effect on the trend for state *i*. In the final equation, the within-state average effect of a time-varying covariate β_{2i} is estimated as γ_{20}. Nesting the four equations within a single equation, the full random coefficient model estimated in the current analysis is:

$$JC_{it} = \gamma_{00} + \gamma_{01} W_i + \gamma_{10} + \gamma_{11} W_i + \gamma_{20} X_{1i} + (\varepsilon_{1i} + u_{0i} + u_{1i} T_{1i})$$

This equation breaks down the annual youth confinement rate into its within-state and between-state components and allows the analysis to estimate the impact of progressive youth justice environments while controlling for other predictors of confinement. The various steps of the analysis are discussed in more detail below.

Variation in Youth Confinement

The first step of the growth-curve estimation procedure was to establish whether rates of confinement (at Wave 1) vary significantly across states as well as assess both the linear and curvilinear trends present in the data. To do this, researchers first estimated a model in which only the intercept was allowed to vary, and the only measures included in the model were the linear and curvilinear time trends (see Model 1 in Table 4). In Model 1, the average intercept (237.95) represents the mean level of confinement across all 50 states at Wave 1 (1996-1998). The coefficient for the linear time trend (-11.864) represents the average decline (trend) in youth confinement across all states over the entire period. The model indicates that on average, confinement rates declined in a linear fashion over the time period analyzed. In the case of confinement across the 50-state sample, adding the time-squared term did not substantially improve the fit of the model and therefore it was removed from the more complex models estimated later. Importantly, the variance component estimated for the first model suggests significant variation exists in the initial level of youth confinement across states. That is, rates of placement varied substantially and significantly from state to state during the first wave of data (1996-1998).

The second step was to assess whether variability exists between states in the slope (trend) of youth confinement—i.e. whether confinement was declining faster in some states compared with others. The research team estimated a model allowing the effect of time to vary across states (a random slope). Variance components in Model 2 indicate significant variation in confinement trends across states. Thus, states vary not only in initial levels of confinement (Model 1), but also in confinement trends since 1996. Researchers attempted to explain this variation using information on progressive youth justice policy characteristics and other predictors of youth confinement.

Model 3 includes the measure of progressive policy characteristics in each state (time-invariant) as a predictor of the intercept (levels of confinement). The coefficient shown indicates that states with more progressive policy characteristics, on average, had significantly lower rates of youth confinement at Wave 1 (1996-1998). Each unit increase in progressive policy characteristics was associated with a decrease of 11.75 confined youth per 100,000 population.

To assess whether state-level progressive policy environments were associated with trends in youth confinement, the research team included a cross-level interaction between the measure of time at Level 1 and state policies at Level 2. Adding this term to the regression equation produced an estimate of the effect of progressive characteristics on the slope of time, or the trend in confinement (see Model 4 in Table 4). Estimates suggest that progressive policy environments had a significant impact on the intercept (placement levels at Wave 1), but no evidence was found that progressive policies in general were associated with trajectories of youth confinement observed across states. In other words, states with varying levels of progressive policy characteristics did not see significantly different trends in youth confinement between 1996 and 2016.

Model 5 included each of the time-varying covariates defined above at Level 1. Each measure was group-mean-centered, allowing estimation of effects of within-state changes in each covariate independent from their average differences across states. Progressive policy characteristics were also included in this model at Level 2 as a predictor of both the intercept and the slope. The results in Model 5 are consistent with those

Table 4:

Youth Confinement Rate Regressed on Indicators of Youth Justice Policy Environment Using Continuous Measure of the Policy Scale (n=50)

	Model 1		Model 2		Model 3		Model 4		Model 5	
TIME-VARYING INDICATORS										
Intercept	237.950	***	245.732	***	337.843	***	342.292	***	304.426	***
	(12.889)		(13.03)		(48.494)		(52.851)		(72.856)	
Time	-11.864	**	-15.881	***	-15.877	***	-19.111	***	-17.262	***
	(4.308)		(1.147)		(1.147)		(5.012)		(4.886)	
$Time^2$	-0.393		-		-		-		-	
	(-0.387)		-		-		-		-	
Youth Violent Crime Arrest Rate $_{t-1}$	-		-		-		-		-3.055	
(Logged)									(6.69)	
Youth Arrest Rate $_{t-1}$	-		-		-		-		0.630	*
(Square root)									(0.274)	
Unemployment Rate	-		-		-		-		-3.199	**
									(1.104)	
Per Capita Income	-		-		-		-		0.117	
(Square root)									(0.362)	
State Ideology	-		-		-		-		0.190	
									(0.197)	
TIME-STATIC INDICATOR										
Scale	-		-		-11.750	*	-12.322	*	-14.087	*
	-		-		(5.851)		(6.416)		5.844	
CROSS-LEVEL INTERACTION										
Scale x Wave	-		-		-		0.413		0.411	
	-		-		-		(0.596)		(0.524)	
RANDOM-EFFECTS VARIANCES										
State	67.869	***	81.179	***	77.898	***	77.820	***	75.427	***
	(-10.647)		(12.197)		(11.511)		(11.526)		(8.378)	
Wave	-		6.283	***	6.253	***	6.202	***	5.964	***
	-		(0.940)		(0.930)		(0.986)		(0.878)	
Residual	34.959	***	29.824	***	29.842	***	29.846	***	29.512	***
	(2.624)		(2.513)		(2.516)		(2.516)		(1.169)	
State Sample	50		50		50		50		50	
State-period Sample	444		444		444		444		444	

*p < 0.05 **p < 0.01 ***p < 0.001. Note: Standard errors are in parentheses.

Source: Data on the 16 state-level indicators of youth justice policy environment are from the National Center for Juvenile Justice's compendium of justice system characteristics, Juvenile Justice, Geography, Policy, Practice & Statistics. Confinement rates are calculated with data from the federal Census of Juveniles in Residential Placement: 1997-2015.

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presented earlier. While states with more progressive youth justice policy environments tended to have lower rates of confined youth, progressive characteristics were not related to trends (i.e. the slope) in youth confinement between 1996 and 2016. Of the time-varying measures included at Level 1, the youth arrest rate was positively related and rates of unemployment were negatively related to placement rates.

Researchers repeated the analyses in Table 4 using a different operationalization of the key independent variable (Table 5). Instead of the 16-point scale, an ordinal measure was generated to categorize states as (1) least progressive, (2) moderately, or (3) most progressive in terms of the number of progressive policies in place. States scoring 4, 5, or 6 on the full scale were coded as least progressive (n=16), while those scoring 7 or 8 were coded as moderately progressive (n=18) and those scoring 9 or higher were coded as most progressive (n=16). The research team re-estimated each growth curve model and the results were consistent with previous analyses. Compared with the least progressive states, states coded most progressive exhibited lower confinement rates on average across 10 waves, but the lack of significance in cross-level interaction (scale and wave) indicates that states with more progressive policy environments did not experience greater declines in confinement during the period of the study.

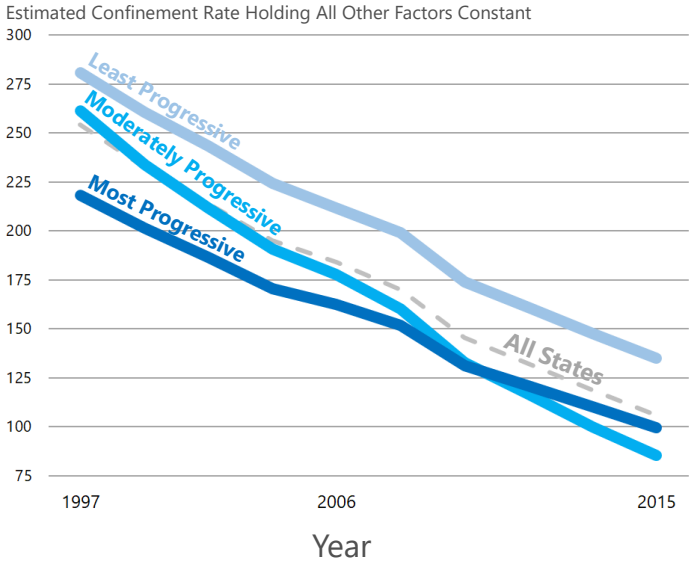
Finally, in order to assess the sensitivity of these results, states were grouped as least, moderate, and most progressive using other cut-off points, including the 25th and 75th percentiles of the full scale and one standard deviation above and below the scale mean. The statistical significance of the cross-level interaction term (scale and wave) was not sensitive to these other groupings of states and time (wave) lost significance in the full models using alternative criterion (See the Appendix).

Researchers created a data graphic to capture the nature of the long-term trends in youth confinement across states with varying degrees of progressive policy characteristics (Figure 2). States with a moderate extent of progressive policy characteristics exhibit slightly steeper declines than states categorized as low or high, but the overall trajectories are similar among all three groups.

The results of the analysis begin to answer to the key question explored in this study—i.e. do states with more progressive youth justice policies show greater declines in youth confinement? Can the remarkable and long-term decline in youth confinement during the last 20 years be attributed to the efforts of state policymakers and the extent to which states demonstrate more consistently progressive youth justice policy environments?

Figure 2:

Youth Confinement in States with Varying Degrees of Progressive Youth Justice Policy Environments



Note: Based on results from growth curve models. All controls held at their means. Results from growth curve modeling did not include estimates for juvenile confinement in Wave 1 (1996 - 1998) as data from this wave was used to create lagged measures. The research team extrapolated a value based on the average rate of decline between Waves 2 to 10.

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Table 5:

Youth Confinement Rates Regressed on Indicators of Youth Justice Policy Environment Using Ordinal Measure of the Policy Scale (n=50)

	Model 1		Model 2		Model 3		Model 4		Model 5	
TIME-VARYING INDICATORS										
Intercept	237.950	***	245.732	***	274.764	***	274.78	***	235.908	***
	(12.889)		(13.030)		(19.359)		(20.794)		(63.935)	
Time	-11.864	**	-15.881	***	-15.877	***	-15.889	***	-13.357	***
	(4.308)		(1.147)		(1.147)		(2.284)		(3.111)	
Time^2	-0.393		-		-		-		-	
	(-0.387)		-		-		-		-	
Youth Violent Crime Arrest Rate$_{t-1}$ (Logged)	-		-		-		-		-3.221	
									(7.854)	
Youth Arrest Rate$_{t-1}$ (Square root)	-		-		-		-		0.670	*
									(.327)	
Unemployment Rate	-		-		-		-		-3.235	**
									(1.071)	
Per Capita Income (Square root)	-		-		-		-		0.040	
									(.415)	
State Ideology	-		-		-		-		0.160	
									(.239)	
TIME-STATIC INDICATOR										
Moderately progressive	-		-		-28.746		-24.462		-22.828	
	-		-		(27.534)		(30.354)		(28.709)	
Most progressive	-		-		-58.468	*	-62.874	*	-68.114	*
	-		-		(27.630)		(30.299)		(30.529)	
CROSS-LEVEL INTERACTION										
Moderately progressive x wave	-		-				-2.840		-3.178	
	-		-				(2.737)		(2.556)	
Most progressive x wave							3.167		3.093	
							(2.956)		(2.997)	
RANDOM-EFFECTS VARIANCES										
State	67.869	***	81.179	***	77.729	***	77.143	***	74.494	***
	(10.647)		(12.197)		(11.455)		(11.345)		(10.751)	
Wave	-		6.283	***	6.277	***	5.800	***	5.525	***
	-		(0.940)		(0.932)		(0.973)		(0.978)	
Residual	34.959	***	29.824	***	29.827	***	29.847	***	29.535	***
	(2.624)		(2.513)		(2.515)		(2.515)		(2.565)	
State Sample	50		50		50		50		50	
State-period Sample	444		444		444		444		444	

*p < 0.05 **p < 0.01 ***p < 0.001. Note: Standard errors are in parentheses.

Source: Data on the 16 state-level indicators of youth justice policy environment are from the National Center for Juvenile Justice's compendium of justice system characteristics, Juvenile Justice, Geography, Policy, Practice & Statistics. Confinement rates are calculated with data from the federal Census of Juveniles in Residential Placement: 1997-2015.

CONCLUSIONS

Were state policies generally related to youth confinement rates in the 1990s?

YES. The number of state-level progressive policy characteristics had a significant effect on initial rates of youth confinement. States with higher scores on the 16-point scale (i.e. more progressive policy characteristics) had lower rates of youth confinement at wave 1 (1996-1998) than did states with lower scores. This could suggest that states with more progressive characteristics were less inclined to rely on confinement in the mid-1990s. On the other hand, states experiencing the greatest reductions in youth confinement before the mid-1990s may have been more able to create the budgetary space and political climate to implement targeted reforms that further reduced youth confinement. States may have adopted such reforms in response to confinement declines rather than as a means of creating declines. Due to data limitations, this study cannot rule out such a possibility.

Were specific youth justice policies associated with decreases in youth confinement after the mid-1990s?

NO. Progressive youth justice policy environments were not significantly associated with declines in youth confinement rates. Although nearly all states showed declines in youth confinement during the study period, the analysis could not attribute the extent of decline to specific policy characteristics.

Only one of the 16 policy characteristics tested in the study (i.e. juvenile-specific competency standards) was associated with an absolute decline (as opposed to percentage decline) in youth confinement rates. States with any of the remaining 15 progressive policy characteristics did not show significantly larger declines in youth confinement when compared with states not having those policies.

Of course, general policy environments are different than specific reforms and the study did not have the data to examine all possible youth justice policies and system reforms. A state's general policy environment, however, should be more or less conducive to the implementation of various reforms intended to reduce youth confinement. Given widespread claims that reform policies are responsible for recent reductions in youth confinement, states with more progressive policies in general should experience greater reductions in confinement. This analysis failed to produce such a finding.

Did states with more progressive policy environments experience steeper declines in youth confinement rates?

NO. States with more progressive youth justice policy characteristics did not see significantly larger declines in youth confinement after the 1990s than did states with fewer progressive characteristics. The analysis confirmed the significant decline in youth confinement over the study period, but progressive policy characteristics were not associated with the magnitude of decline. The progressive quality of youth justice policy environments across all states did not significantly affect state-level reductions in youth confinement during the years examined by the study.

Other factors did affect the decline in youth confinement. Youth arrest rates were positively associated with youth confinement trends, suggesting that decreases in arrests were related to decreases in confinement. Unemployment was negatively associated with confinement. Increased unemployment was related to lower rates of youth confinement.

Importantly, progressive policy characteristics were negatively associated with youth confinement in general, meaning that more progressive states had lower rates of youth confinement across time. The interaction between time and level of progressive policy characteristics, however, was not significant, suggesting that the extent of progressive youth justice policy did not affect the downward trend in youth confinement. In other words, every state benefited from the nationwide crime decline by experiencing reductions in youth confinement, but the pace of falling confinement was not associated with the progressive quality of youth justice policy.

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DISCUSSION

Confinement rates declined over time in all states except two (Idaho and West Virginia), but this was expected given the national decline in youth crime. Youth arrest rates in prior years and unemployment rates also significantly affected declines in youth confinement. The relationship between decreases in youth arrest rates for violent crimes in prior years and confinement rates could suggest that juveniles were involved in fewer violent crimes over time. There could be aggregate changes in youth behavior that are associated with a reduced likelihood of engaging in delinquency. It could also indicate law enforcement awareness of the drop in violent crime among juveniles. Even if such awareness was not overt, it could influence police behavior. Police could be arresting fewer juveniles for violent crimes or they could be reducing charges in cases with ambiguous severity.

The relationship between unemployment and confinement rates is noted. Prior research suggests that increases in unemployment are associated with increases in crime (Raphael and Winter-Ebmer 2001). Thus, higher unemployment could be linked to higher confinement rates. However, the findings indicate that increases in unemployment rates were associated with decreases in youth confinement. There are a number of possible explanations for this. Scholars have suggested financial resources are necessary to administer justice system punishment. When the economy is down and unemployment is high, costly punishment is unsustainable (Aviram 2015). An inverse relationship between unemployment and crime might also be explained by the guardianship effect— less time spent on work-related activities increases the availability of guardians of people and places which might in turn reduce opportunities for criminal activity to occur (Cantor and Land 1985). Finally, perhaps declines in youth confinement are so durable across states and over time that growth in unemployment rates has no appreciable effect. Notably, the violent youth crime drop continued nearly uninterrupted from the mid-1990s and into the 2010s, even during the period of recession that started in 2008.

The findings of this study suggest that states with more progressive youth justice policy environments did not demonstrate steeper reductions in youth confinement compared with other states. The confinement rate was already starting a downward trend in the mid-1990s, and there is no evidence that policies measured in the current study were significantly associated with variations in the decline across states. If progressive policy characteristics had an influence on youth confinement rates, one would expect states with more progressive policy environments to show steeper rates of decline. That is, states that scored higher on measures of progressive youth justice policy, should have seen steeper declines. Nearly all states experienced declines in youth confinement during the 20-year study period, but the rate of decline was not associated with the degree of progressive youth justice policies generally present in each state.

Study Limitations

This study did not identify or test the policy and practice reforms most likely to reduce youth confinement. Without comprehensive, time-stamped data on the implementation of state-level (or even better, local-level) justice reforms aimed at reducing youth confinement, analyzing the effect of reforms on confinement is not possible. More research on the effect of reforms and other drivers of increases and decreases in youth confinement is sorely needed. Moreover, the lack of continuous or at least annualized data on state-level residential placement rates for youth in the justice system required the research team to calculate multi-year waves. Each wave reflected a three-year average that covered all 20 years of the period under study, but the use of waves limits the statistical power of the analyses. In addition, not all residential facilities report to the CJRP. Missing values are imputed for both unit and item non-response, and imputation rates vary by collection year and state.

Other data limitations pertain to the timing of available indicators of the youth justice policy environment. The majority of indicators on the JJGPS website do not have associated dates so it is not possible to analyze how reforms affect youth placement rates by analyzing time periods before and after their enactment. Researchers can only code the presence of reforms using binary variables– whether a state has a policy or not. Analyses would be more robust with an array of policy measures coded according to their dates of enactment. Even knowing the year of enactment would allow for the use of complex analytic techniques, such as interrupted time-series or panel regression modeling.

JJGPS is limited in terms of the breadth of characteristics and policies it includes. Notably, this study surveyed a group of national youth justice experts and found that some of the policies most likely to drive the use of confinement are not represented in JJGPS. Even when the JJGPS database includes important variables, data are not always reported by every state. For example, some states do not report whether or not they use mental health screenings tools or if they have policies to support the use of evidence-based practices. Two states (AR, MO) did not respond to inquiries from JJGPS on the first domain and three states (MD, MO and NY) did not respond to the second domain. In these cases, states were coded as not having these policy measures (i.e. coded 0 on the scale), but their nonresponse could introduce error.*

A final limitation concerns the crime data disseminated by the FBI's Uniform Crime Reporting program (UCR). Federal crime data are the best source of information for youth justice research that is national in scope, but such research is necessarily restricted to information about arrests rather than all reported crimes. It is not possible to divide crime data according to the age of offenders until arrests are made, which means that youth justice research cannot account for crimes that do not result in arrest, a well-known limitation of the database for youth justice researchers. The UCR program is also voluntary, which results in some law enforcement agencies failing to report data on time, and this varies from year to year. For example, Washington, DC had several years of missing data during the study period and the District was removed from the study for most analyses.

* The research team re-estimated growth curve models, excluding Arkansas, Missouri, Maryland and New York. The estimates did not change substantively; direction and statistical significance of each estimate obtained remained unaltered. See tables the Appendix for ancillary growth curve model estimates.

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IMPLICATIONS FOR POLICY, PRACTICE, AND FUTURE RESEARCH

This study explored the relationship between state-level progressive policy environments and changes in youth confinement rates since the late 1990s. The findings suggest the need for more in-depth analyses. Many factors are likely to affect the use of confinement, including macro factors (e.g., social policies, economics, unemployment, racial and ethnic demographics, and the general political climate) and micro factors (e.g., justice system decisions and the actions of police, prosecutors, judges, and probation officers). The sheer number of potential influences on youth confinement make it vulnerable to changing politics and the ideology of crime control, which only increases the need for persuasive research on the costs and benefits of various policies.

Youth crime declined nearly every year since the mid-1990s. Falling crime rates provide an opportunity for lawmakers and other officials to experiment with progressive policies to limit incarceration, lower costs, and protect public safety by diverting and rehabilitating youth rather than relying on confinement. If crime rates rebound, however, what happens to these policies and practices? Unless they are already convinced that progressive policies are consistent with public safety, policymakers may be inclined to scale back on reforms when crime rises and instead renew their focus on punitive responses. Future studies on the factors actually shaping youth confinement are essential for sound policy development. The key issue: how and to what extent do progressive policies affect confinement rates, independently of other factors?

The current study is a small step in this direction, but more complete data are needed for a thorough analysis of policy effects on youth confinement. In addition to annual data on the number of youth arrested, adjudicated, and confined, researchers need detailed information regarding reforms and policy changes, including the goals of reforms, their purposes, dates of enactment, and other details about implementation. Until a new federal data series of state and local initiatives is launched, state agencies and youth justice advocates should make such information available in a central repository so that future claims about the impact of policy reforms may be rigorously evaluated.

With more detailed data, researchers could assess the impact of policy changes using appropriate statistical methods that account for other factors known to affect youth confinement. For example, with a national database of monthly rates of youth arrests and confinements at the local level as well as the dates on which various policy reforms were implemented, researchers could use a series of autoregressive integrated moving average (ARIMA) models to assess the ability of reforms to change youth confinement trends while accounting for existing trends and/or other sources of spuriousness. This approach has been used to evaluate the impact of programs designed to reduce gun violence (Roman, Klein, and Wolff 2018), and could be effective in assessing how policy changes/reforms impact youth confinement across the country.

Policymakers, advocates, and even some researchers claim that youth confinement rates across the United States dropped in recent years due to changes in policy and practice. Such claims remain unproven, but voters and elected officials are inclined to accept them as factual because they are offered by reputable agencies and repeated in news media sources. Without reliable evidence, however, the notion that state-level youth confinement rates fall primarily in response to progressive policy reforms is merely appealing rhetoric.

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Table A1: State Policy Characteristics

Policy Environment Scale: Juvenile Court Policies

	AL	AK	AZ	AR	CA	CO	CT	DC	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO
Laws include purpose clause	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Judicial/admin actor decides diversion	■	■					■					■	■			■				■			■			■
Restricts court shackling		■			■		■	■		■			■	■	■					■		■				
Has youth-specific competency standard	■		■	■	■	■	■	■	■	■	■		■				■		■	■	■		■	■		
Considers immaturity in competency standards																				■						
Does not register for sex crime convictions		■					■	■			■	■								■						

Policy Environment Scale: Juvenile Justice Service Policies

	AL	AK	AZ	AR	CA	CO	CT	DC	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO
Prohibits solitary confinement		■	■	■		■	■	■		■	■	■	■	■						■	■	■				■
Family/child welfare agency oversees placement system		■		■		■	■		■			■				■						■	■		■	■
Admin agencies determine release from out-of-home placements			■	■	■	■			■		■	■	■	■	■					■		■		■	■	
Mental health screen used for dispositions	■	■	■		■	■	■		■	■	■	■		■		■	■	■	■	■		■	■	■	■	
Tracks recidivism		■	■	■	■	■	■	■	■	■	■		■		■	■	■		■	■	■	■				■
Support for EBP	■		■		■	■	■	■	■	■	■	■	■	■	■			■	■		■	■			■	

Policy Environment Scale: Jurisdictional Boundary Policies

	AL	AK	AZ	AR	CA	CO	CT	DC	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO
Sets lower age of juvenile delinquency jurisdiction			■	■		■	■										■		■		■	■		■	■	
Sets upper age of juvenile delinquency jurisdiction at 17 or older	■	■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■		■	■	■		■	■	
Has extended age of juvenile delinquency jurisdiction over age 20					■	■						■					■									
Without prosecutorial / legislative adult transfer discretion					■							■					■			■						■

Table A1: State Policy Characteristics (continued)

Policy Environment Scale: Juvenile Court Policies

	MT	NE	NV	NH	NJ	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY
Laws include purpose clause	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Judicial/admin actor decides diversion	■							■					■	■			■		■						
Restricts court shackling		■	■	■		■		■	■			■	■		■				■	■		■			
Has youth-specific competency standard		■	■	■	■	■	■			■		■				■	■	■	■		■			■	■
Considers immaturity in competency standards				■												■									
Does not register for sex crime convictions		■				■	■													■			■		

Policy Environment Scale: Juvenile Justice Service Policies

	MT	NE	NV	NH	NJ	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY
Prohibits solitary confinement	■	■		■	■	■	■		■	■	■	■	■		■		■		■	■					■
Family/child welfare agency oversees placement system		■	■	■		■	■						■	■			■		■	■		■			■
Admin agencies determine release from out-of-home placements	■	■	■	■	■	■	■	■	■		■				■			■	■		■	■		■	
Mental health screen used for dispositions	■			■	■	■		■	■	■	■	■	■	■	■	■		■	■	■	■		■	■	
Tracks recidivism	■				■	■		■		■	■	■	■		■	■		■	■		■			■	
Support for EBP		■		■	■		■	■		■	■	■	■	■		■	■	■	■			■	■	■	

Policy Environment Scale: Jurisdictional Boundary Policies

	MT	NE	NV	NH	NJ	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY
Sets lower age of juvenile delinquency jurisdiction							■	■	■				■			■		■		■				■	
Sets upper age of juvenile delinquency jurisdiction at 17 or older	■	■	■	■	■	■			■	■	■	■	■	■		■	■		■	■	■	■	■		■
Has extended age of juvenile delinquency jurisdiction over age 20	■				■							■								■				■	
Without prosecutorial / legislative adult transfer discretion				■													■	■							

Table A2:
Coding Scheme for 16 Indicators of State Youth Justice Policy Environments

Jurisdictional Boundary Policies	Provisions	Scale Score
Lower Age	No age specified	0
	Age 6, 7, 8 or 10	1
Upper Age	Age 15 or 16	0
	Age 17 or older	1
Extended Age	Age 18, 19, or 20	0
	Age 21 or older	1
Discretion Over Criminal Court Transfer	Prosecutor, legislature, or both	0
	Juvenile/family court judge only	1
Juvenile Court Policies	**Provisions**	**Scale Score**
Purpose Clause	No purpose clause	0
	Purpose clause based on: balanced & restorative justice; developmental; due process; parens patriae	1
Discretion Over Intake Diversion	Determined by offense, by court, or by prosecutor	0
	Within the discretion of juvenile court intake officer	1
Courtroom Shackling of Juveniles	No restrictions on shackling use	0
	Judiciary or legislative restrictions	1
Competency Standard	No standard or adult standard used	0
	Juvenile-specific standard	1
Competency Standard Considers Youth Maturity	No	0
	Yes	1
Sex Offender Registry Includes Juveniles	Yes	0
	No	1
Juvenile Justice Service Policies	**Provisions**	**Scale Score**
Solitary Confinement of Juveniles	Permitted with or without limits	0
	Prohibited	1
Agency Overseeing Youth Confinement	Adult corrections or independent youth corrections agency	0
	Child welfare or human services agency	1
Authority Over Youth Releases from Placement	Court with or without agency concurrence	0
	Agency or parole board without court	1
Mental Health Screening	None or state provides no information	0
	Used by probation, detention or corrections, or multiple	1
Regular Tracking of Youth Recidivism	Does not track recidivism	0
	Tracks recidivism for at least some youth populations	1
Support for Evidence-Based Programs	No formal support for EBP or State provides no information	0
	Support for EBP through statute, administrative regulations, or the inclusion of an EBP support entity	1

Table A3:
Grouped Youth Justice Policy Environment Scores

Least Progressive	
Score	**States**
4	KY
5	MI WV WY
6	AL IA IN LA MN MO NV ND RI SC VA WA

Moderately Progressive	
Score	**States**
7	IL MD MS OH OK
8	AR AZ DC DE FL GA KS MT NC NY SD TN TX WI

Most Progressive	
Score	**States**
9	AK ID NE NJ OR VT
10	CA MA NM PA
11	CO HI NH UT
12	CT ME

Table A4:

Youth Confinement Rates Regressed on Indicators of Juvenile Justice Policy Environment Using Ordinal Measure of Scale with States Grouped Based on 25th and 75th Percentiles of Scale Score (n=50)

	Model 1		Model 2		Model 3		Model 4		Model 5	
TIME-VARYING INDICATORS										
Intercept	237.950	***	245.732	***	286.736	***	281.763	***	247.532	**
	(12.889)		(13.030)		(64.428)		(69.741)		(81.343)	
Time	-11.864	**	-15.881	***	-15.882	***	-12.229	*	-10.618	
	(4.308)		(1.147)		(1.147)		(5.599)		(6.131)	
$Time^2$	-0.393		-		-		-		-	
	(.387)		-		-		-		-	
Youth Violent Crime Arrest Rate $_{t-1}$ (Logged)	-		-		-		-		-3.326	
									(7.706)	
Youth Arrest Rate $_{t-1}$ (Square root)	-		-		-		-		0.662	*
									(.331)	
Unemployment Rate	-		-		-		-		-3.166	**
									(1.072)	
Per Capita Income (Square root)	-		-		-		-		0.076	
									(.432)	
State Ideology	-		-		-		-		0.148	
									(.244)	
TIME-STATIC INDICATOR (SCALE)										
Moderately Progressive (25th-75th Percentile)	-		-		-30.746		-22.63		-31.831	
					(65.311)		(71.264)		(63.955)	
Most Progressive (Above 75th Percentile)	-		-		-70.456		-69.853		-84.254	
					(67.121)		(73.14)		(67.451)	
CROSS-LEVEL INTERACTION (SCALE*WAVE)										
Moderately Progressive x Wave	-		-		-		-5.846		-5.313	
	-		-		-		(5.749)		(5.902)	
Most Progressive x Wave							-0.494		0.077	
							(5.905)		(6.115)	
RANDOM-EFFECTS VARIANCES										
State	67.869	***	81.179	***	78.248	***	77.441	***	74.594	***
	(10.647)		(12.197)		(10.465)		(10.398)		(9.876)	
Wave	-		6.283	***	6.293	***	5.715	***	5.508	***
	-		(.940)		(.926)		(.849)		(.833)	
Residual	34.959	***	29.824	***	29.817	***	29.852	***	29.532	***
	(2.624)		(2.513)		(2.521)		(2.531)		(2.579)	
State Sample	50		50		50		50		50	
State-period Sample	444		444		444		444		444	

*p < 0.05 **p < 0.01 ***p < 0.001. Note: Standard errors are in parentheses.

Data Source: Data on the 16 state-level indicators of youth justice policy environment from the National Center for Juvenile Justice's compendium of justice system characteristics, Juvenile Justice, Geography, Policy, Practice & Statistics.

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Table A5:

Youth Confinement Rates Regressed on Indicators of Juvenile Justice Policy Environment Using Ordinal Measure of Scale with States Grouped based on Scale Score One Standard Deviation Above and Below the Mean Scale Score (n=50)

	Model 1		Model 2		Model 3		Model 4		Model 5	
TIME-VARYING INDICATORS										
Intercept	237.950	***	245.732	***	286.808	***	281.762	***	243.888	**
	(12.889)		(13.030)		(64.354)		(69.741)		(82.046)	
Time	-11.864	**	-15.881	***	-15.882	***	-12.229	*	-10.714	
	(4.308)		(1.147)		(1.147)		(5.599)		(6.094)	
$Time^2$	-0.393		-		-		-		-	
	(0.387)		-		-		-		-	
Youth Violent Crime Arrest Rate $_{t-1}$ (Logged)	-		-		-		-		-1.858	
									(7.905)	
Youth Arrest Rate $_{t-1}$ (Square root)	-		-		-		-		0.575	
									(.323)	
Unemployment Rate	-		-		-		-		-3.228	**
									(1.065)	
Per Capita Income (Square root)	-		-		-		-		0.082	
									(0.424)	
State Ideology	-		-		-		-		0.195	
									(0.240)	
TIME-STATIC INDICATOR (SCALE)										
Moderately Progressive (25th-75th Percentile)	-		-		-36.295		-29.991		-40.020	
					(65.151)		(71.172)		(65.209)	
Most Progressive (Above 75th Percentile)	-		-		-74.668		-71.803		-85.432	
					(67.969)		(74.233)		(69.297)	
CROSS-LEVEL INTERACTION (SCALE*WAVE)										
Moderately Progressive x Wave	-		-		-		-4.511		-3.951	
	-		-		-		(5.744)		(5.894)	
Most Progressive x Wave							-2.074		-1.681	
							(6.064)		(6.166)	
RANDOM-EFFECTS VARIANCES										
State	67.869	***	81.179	***	78.720	***	78.436	***	76.410	***
	(10.647)		(12.197)		(11.008)		(10.990)		(10.559)	
Wave	-		6.283	***	6.238	***	6.067	***	5.843	***
	-		(0.940)		(0.938)		(0.827)		(0.815)	
Residual	34.959	***	29.824	***	29.850	***	29.866	***	29.532	***
	(2.624)		(2.513)		(2.523)		(2.527)		(2.579)	
State Sample	50		50		50		50		50	
State-period Sample	444		444		444		444		444	

*p < 0.05 **p < 0.01 ***p < 0.001. Note: Standard errors are in parentheses.

Data Source: Data on the 16 state-level indicators of youth justice policy environment from the National Center for Juvenile Justice's compendium of justice system characteristics, Juvenile Justice, Geography, Policy, Practice & Statistics.

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Table A6:

Youth Confinement Rates Regressed on Indicators of Juvenile Justice Policy Environment Using Continuous Measure of Juvenile Justice Policy Environment Scale, Excluding Arkansas, Missouri, Maryland and New York (n=46)

	Model 1		Model 2		Model 3		Model 4		Model 5	
TIME-VARYING INDICATORS										
Intercept	244.614	***	251.496	***	355.771	***	362.65	***	309.568	***
	(13.554)		(13.757)		(48.988)		(53.705)		(74.725)	
Time	-12.886	**	-16.430	***	-16.426	***	-21.065	***	-19.241	***
	(4.574)		(1.188)		(1.187)		(5.108)		(4.990)	
$Time^2$	-0.347		-		-		-		-	
	(0.412)		-		-		-		-	
Youth Violent Crime Arrest Rate $_{t-1}$ (Logged)	-		-		-		-		-1.157	
									(6.932)	
Youth Arrest Rate $_{t-1}$ (Square root)	-		-		-		-		0.669	
									(0.282)	
Unemployment Rate	-		-		-		-		-3.529	**
									(1.161)	
Per Capita Income (Square root)	-		-		-		-		0.168	
									(0.382)	
State Ideology	-		-		-		-		0.145	
									(0.203)	
TIME-STATIC INDICATOR										
Scale	-		-		-13.217	*	-14.092	*	-16.250	**
					(5.878)		(6.486)		(5.825)	
CROSS-LEVEL INTERACTION										
Scale x Wave	-		-		-		0.588		0.595	
	-		-		-		(0.605)		(0.522)	
RANDOM-EFFECTS VARIANCES										
State	69.448	***	81.783	***	77.405	***	77.225	***	73.888	***
	(11.029)		(12.666)		(11.810)		(11.836)		(8.593)	
Wave	-		6.116	***	6.091	***	5.977	***	5.762	***
	-		(1.043)		(1.024)		(1.120)		(0.921)	
Residual	35.444	***	30.638	***	30.653	***	30.663	***	30.219	***
	(2.784)		(2.621)		(2.623)		(2.622)		(1.250)	
State Sample	46		46		46		46		46	
State-period Sample	408		408		408		408		408	

*p < 0.05 **p < 0.01 ***p < 0.001. Note: Standard errors are in parentheses.

Data Source: Data on the 16 state-level indicators of youth justice policy environment from the National Center for Juvenile Justice's compendium of justice system characteristics, Juvenile Justice, Geography, Policy, Practice & Statistics.

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Table A7:

Youth Confinement Rates Regressed on Indicators of Juvenile Justice Policy Environment Using Ordinal Measure of Scale, Excluding Arkansas, Missouri, Maryland and New York) (n=46)

	Model 1		Model 2		Model 3		Model 4		Model 5	
TIME-VARYING INDICATORS										
Intercept	244.614	***	251.496	***	282.478	***	282.986	***	233.932	***
	(13.554)		(13.757)		(19.104)		(20.480)		(64.704)	
Time	-12.866	**	-16.430	***	-16.428	***	-16.776	***	-13.838	***
	(4.574)		(1.188)		(1.188)		(2.256)		(3.297)	
$Time^2$	-0.347		-		-		-		-	
	(0.412)		-		-		-		-	
Youth Violent Crime Arrest Rate $_{t-1}$ (Logged)	-		-		-		-		-1.233	
									(7.958)	
Youth Arrest Rate $_{t-1}$ (Square root)	-		-		-		-		0.718	*
									(0.339)	
Unemployment Rate	-		-		-		-		-3.581	**
									(1.126)	
Per Capita Income (Square root)	-		-		-		-		-0.042	
									(0.433)	
State Ideology	-		-		-		-		0.091	
									(0.252)	
TIME-STATIC INDICATOR (SCALE)										
Moderately Progressive	-		-		-25.694		-20.144		-18.908	
					(29.451)		(32.385)		(30.282)	
Most Progressive	-		-		-65.017	*	-71.016	*	-76.750	*
					(27.383)		(30.083)		(30.082)	
CROSS-LEVEL INTERACTION (SCALE*WAVE)										
Moderately Progressive x Wave	-		-		-		-3.348		-3.881	
	-		-		-		(2.702)		(2.444)	
Most Progressive x Wave							4.044		3.974	
							(2.934)		(3.013)	
RANDOM-EFFECTS VARIANCES										
State	69.448	***	81.783	***	77.294	***	76.307	***	72.636	***
	(11.029)		(12.666)		(11.469)		(11.320)		(10.618)	
Wave	-		6.116	***	6.144	***	5.385	***	5.112	***
	-		(1.043)		(1.024)		(1.115)		(1.138)	
Residual	35.444	***	30.638	***	30.074	***	30.660	***	30.244	***
	(2.784)		(2.621)		(2.586)		(2.620)		(2.705)	
State Sample	46		46		46		46		46	
State-period Sample	408		408		408		408		408	

*p < 0.05 **p < 0.01 ***p < 0.001. Note: Standard errors are in parentheses.

Data Source: Data on the 16 state-level indicators of youth justice policy environment from the National Center for Juvenile Justice's compendium of justice system characteristics, Juvenile Justice, Geography, Policy, Practice & Statistics.

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JOHN JAY COLLEGE OF CRIMINAL JUSTICE
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