Time Served

The High Cost, Low Return of Longer Prison Terms

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Executive Summary

Over the past four decades, criminal justice policy in the United States was guided largely by a central premise: the best way to protect the public was to put more people in prison. A corollary was that offenders should spend longer and longer time behind bars.

The logic of the strategy seemed inescapable—more inmates serving more time surely equals less crime—and policy makers were stunningly effective at putting the approach into action. As the Pew Center on the States has documented, the state prison population spiked more than 700 percent between 1972 and 2011, and in 2008 the combined federal-state-local inmate count reached 2.3 million, or one in 100 adults. Annual state spending on corrections now tops $51 billion and prisons account for the vast majority of the cost, even though offenders on parole and probation dramatically outnumber those behind bars.

Indeed, prison expansion has delivered some public safety payoff. Serious crime has been declining for the past two decades, and imprisonment deserves some of the credit. Experts differ on precise figures, but they generally conclude that the increased use of incarceration accounted for one-quarter to one-third of the crime drop in the 1990s. Beyond the crime control benefit, most Americans support long prison terms for serious, chronic, and violent offenders as a means of exacting retribution for reprehensible behavior.

But criminologists and policy makers increasingly agree that we have reached a "tipping point" with incarceration, where additional imprisonment will have little if any effect on crime. Research also has identified new offender supervision strategies and technologies that can help break the cycle of recidivism.

Across the nation, these developments, combined with tight state budgets, have prompted a significant shift toward alternatives to prison for lower-level offenders. Policy makers in several states have worked across party lines to reform sentencing and release laws, including reducing prison time served by non-violent offenders. The analysis in this study shows that longer prison terms have been a key driver of prison populations

and costs, and the study highlights new opportunities for state leaders to generate greater public safety with fewer taxpayer dollars.

A State-Level Portrait of Time Served

Prison populations rise and fall according to two principal forces: 1) how many offenders are admitted to prison, and 2) how long those offenders remain behind bars. In this report, Pew seeks to help policy makers better understand the second factor—time served in prison.

Historically, published statistics on offenders' length of stay in prison consisted only of national estimates by the U.S. Department of Justice's Bureau of Justice Statistics. The goal of this Pew report is to go beyond the national numbers and present a state-level portrait of how time served has changed during

> "   We must change the way in which our laws work, change the way in which the system works, so that we can make a clear distinction between those who need to stay in prison to keep the public safe versus those who present little risk."
>
> —Hawaii Governor Neil Abercrombie (D), January 23, 2012

the past 20 years, how it has impacted prison populations and costs, and how policy makers can adjust it to generate a better public safety return on taxpayer dollars.

Toward that end, the study identifies trends in time served by state and by type of crime from 1990 to 2009, using National Corrections Reporting Program data collected from 35 states by the U.S. Census Bureau and the Bureau of Justice Statistics. States not included in the study had not reported sufficient data over the 1990–2009 study period. Pew also worked with external researchers to analyze data from three states to assess the relationship between time served and public safety.

A Longer Stay in Prison

According to Pew's analysis of state data reported to the federal government, offenders released in 2009 served an average of almost three years in custody, nine months or 36 percent longer than offenders released in 1990. The cost of that extra nine months totals an average of $23,300 per offender. When multiplied by the hundreds of thousands of inmates released each year, the financial impact of longer length of stay is considerable. For offenders released from their original commitment in 2009 alone, the additional time behind bars cost states over $10 billion, with more than half of this cost attributable to non-violent offenders.

Although nearly every state increased length of stay during the past two decades, the overall change varied widely among states. In a few states, time served grew rapidly between 1990 and 2009, among them Florida (166 percent), Virginia (91 percent), North Carolina (86 percent), Oklahoma (83 percent), Michigan (79 percent), and Georgia (75 percent). Eight states reduced time served, including Illinois (down 25 percent) and South Dakota (down 24 percent). Among prisoners released from reporting states in 2009, Michigan had the longest average time served, at 4.3 years, followed closely by Pennsylvania (3.8 years). South Dakota had the lowest average time served at 1.3 years, followed by Tennessee (1.9 years).

The growth in time served was remarkably similar across crime types. Offenders released in 2009 served:

- **For drug crimes:** 2.2 years, up from 1.6 years in 1990 (a 36 percent increase)

- **For property crimes:** 2.3 years up from 1.8 years in 1990 (a 24 percent increase)

- **For violent crimes:** 5.0 years up from 3.7 years in 1990 (a 37 percent increase)

Again, the national numbers mask large interstate variation. For violent crimes, Florida led the way among states with

Time Served for Drug and Violent Crimes Grew At Similar Pace

Percent Increase in Average Time Served, 1990 to 2009
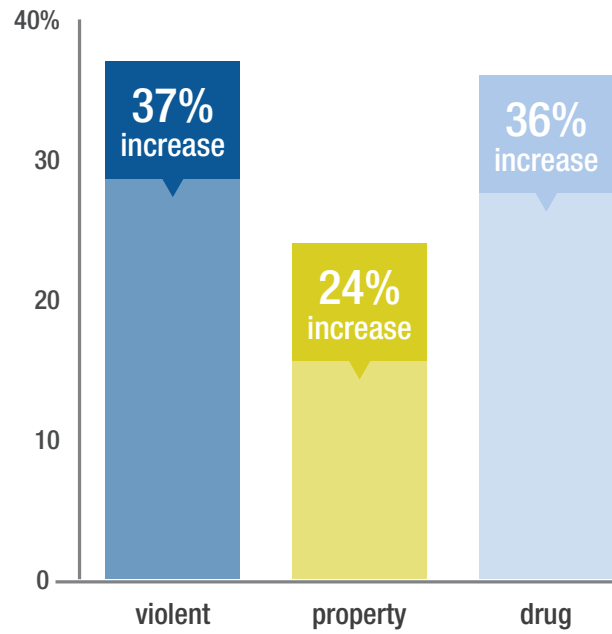
SOURCE: Pew Center on the States, 2012

a 137 percent increase in length of stay, while prison stays for New York's violent inmates rose only 24 percent. Property offenders in nine of 35 states served less time on average in the last available year of data compared with 1990, even as those in Georgia, Florida, Virginia, Oklahoma, and West Virginia saw average increases of more than a year. States such as Arkansas, Florida, and Oklahoma more than doubled average time served by drug offenders, even as Illinois, Missouri, New York, Tennessee, and Nevada cut average time served for the same group.

A Questionable Impact on Public Safety

Despite the strong pattern of increasing length of stay, the relationship between time served in prison and public safety has proven to be complicated. For a substantial number of offenders, there is little or no evidence that keeping them locked up longer prevents additional crime.

A new Pew analysis conducted by external researchers using data from three states—Florida, Maryland, and Michigan—found that a significant proportion of non-violent offenders who were released in 2004 could have served shorter prison terms without impacting public safety. The analysis identifies how much sooner offenders could have been released, based on a risk assessment that considers multiple factors including criminal history, the amount of time each person has already served in prison, and other data. Looking only at non-violent offenders, the analysis identified 14 percent of the offenders in the Florida release cohort, 18 percent of the offenders in the Maryland release cohort, and 24 percent of the Michigan release cohort who could have served prison terms shorter by between three months and two years without jeopardizing public safety.

Using this type of empirical analysis to inform release policies could reduce state prison populations and costs. If the reductions in length of stay identified by the risk analysis had been applied to non-violent offenders in Florida, Maryland, and Michigan in 2004, the average daily prison population in those states would have been reduced by as much as 2,600 (3 percent), 800 (5 percent), and 3,300 (6 percent) respectively. These reductions represent substantial cost savings in each state: $54 million in Florida, $30 million in Maryland, and $92 million in Michigan.

> " As we reserve more of our expensive [prison] bed space for truly dangerous criminals [we] free up revenue to deal with those who are not necessarily dangerous but are in many ways in trouble because of various addictions."
>
> —Georgia Governor Nathan Deal (R), May 1, 2012

States Begin to Moderate Time Served

Policy makers in all three branches of government can pull a variety of levers to adjust the amount of time offenders serve in prison. Prison time is influenced by both front-end (sentencing) and back-end (release) policy decisions. In several states, policy makers have undertaken reforms

intended to stem the growth in time served, or actually reverse it, for certain offense types. These initiatives include:

- Raising the threshold dollar amount required to trigger certain felony property crime classifications. States include Alabama, Arkansas, California, Delaware, Montana, South Carolina, and Washington.

- Revising drug offense classification in the criminal code to ensure the most serious offenders receive the most severe penalties. States include Arkansas, Colorado, and Kentucky.

- Rolling back mandatory minimum sentencing provisions. States include Delaware, Indiana, Michigan, Minnesota, and New York.

- Increasing opportunities to earn reductions in time served by completing prison-based programs. States include Colorado, Kansas, Pennsylvania, and Wisconsin.

- Revising eligibility standards for parole consideration. States include Mississippi and South Carolina.

Strong Public Support for Reform

Recent opinion polling suggests that these reforms are being received well by the public. A national January 2012 poll of 1,200 likely voters revealed that the public is broadly supportive of reductions in time served for non-violent offenders as long as the twin goals of holding offenders accountable and protecting public safety still can be achieved. Voters overwhelmingly prioritize preventing recidivism over requiring non-violent offenders to serve longer prison terms. Nearly 90 percent support shortening prison terms by up to a year for low-risk, non-violent offenders if they have behaved well in prison or completed programming, and voters also support reinvesting prison savings into alternatives to incarceration.

* * * * *

The past five years have seen significant shifts in corrections policy across the nation, prompted both by tight budgets and by increasing understanding that there are more effective, less expensive ways to handle non-violent offenders than lengthy spells of incarceration. Public opinion, long concerned with controlling crime, is now focused more on cost-effectiveness and recidivism reduction than on traditional measures of "toughness."

Today, policy makers have a much better idea of what works to increase public safety than they did in the 1980s and early 1990s. Research clearly shows there is little return on public dollars for locking up low-risk offenders for increasingly long periods of time and, in the case of certain non-violent offenders, there is little return on locking them up at all. In addition, actors at both sentencing and release stages of the system have increasingly sophisticated tools to help them identify these lower-risk offenders.

States have been using this new information to improve results and reduce costs, and the analysis in this report shows that more savings can be garnered by thoughtfully calibrating time served, and thus ensuring there is adequate prison space for the most serious offenders. These promising practices and many others can serve as models for states looking to conserve precious public dollars while keeping communities safe.

Introduction

Between 1991 and 1995 the number of media reports on crime in the United States more than tripled, coinciding with a jump in public concern about the issue.[1] Federal and state lawmakers saw the reports and responded quickly. Reasoning that harsher sentences enacted in the 1970s and 1980s had been responsible for the declining crime rates of the early 1990s, they decided the answer was to go still further. At the time, little attention was paid to the impacts extending prison terms might have on public safety, or on costs to taxpayers.

The consequences are now well known. By 2008, the American prison population had soared—one out of every 100 adults was behind bars (see Figure 1). With this growth in prison population has brought rising costs. Across states, investment in corrections has jumped more than 300 percent in the past two decades, with expenditures now totaling more than $51 billion annually, or 7.3 percent of all state general fund spending.[2]

Greater imprisonment clearly has yielded public safety dividends, accounting for an estimated one-quarter to one-third of the crime drop during the 1990s.[3] And in some cases, longer sentences were not only warranted to serve justice but also necessary to protect the public.

Although few Americans would question the wisdom of tough sentences for violent, chronic offenders, most criminologists now consider the increased use of prison for non-violent offenders a questionable public expenditure, producing little additional crime control benefit for each dollar spent.[4] During the past decade, all 17 states that cut their imprisonment rates also experienced a decline in crime rates.[5] And a 2006 legislative analysis in Washington State found that while incarcerating violent offenders provides a net public benefit by saving the state more than it costs, imprisonment of property and drug offenders leads to negative returns.[6]

Policy makers, anxious to conserve taxpayer dollars without sacrificing public safety, are now rethinking the "longer is better" approach to punishment. In the past five years more than a dozen states, starting with Texas and Kansas in 2007, have enacted comprehensive sentencing

Figure 1

Prison Populations Double Over Past 20 Years

State and federal prison population has more than doubled in the past two decades.

Dec. 31, 2010:
1,543,206 prisoners

1990:
739,980 prisoners

1990 to 2010
+109%

*1977

1925:
91,669 prisoners
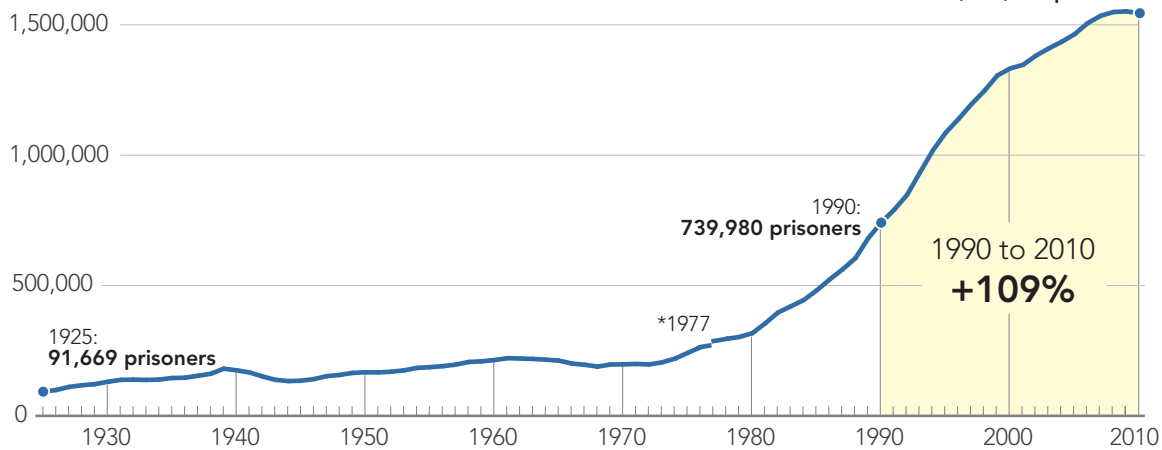
*Annual figures prior to 1977 reflect the total number of sentenced prisoners in state custody. Beginning in 1977, all figures reflect the state jurisdictional population as reported in the Bureau of Justice Statistics' "Prisoners" series. Data for both sentenced prisoners in custody and jurisdictional population are reported for 1977 to illustrate the transition.

SOURCE: U.S. Department of Justice, Bureau of Justice Statistics; Pew Center on the States, Public Safety Performance Project.

and corrections reforms, typically shifting non-violent offenders from prison and using the savings to fund more effective, less expensive alternatives. Partly due to these and other policy changes, 2009 was the first year in nearly four decades during which the state prison population declined.[7]

A New Focus on Time Served

The prison population is driven by two factors: first, how many offenders are admitted to prison, and second, how long they stay. This report focuses on the second mechanism—time served, or length of stay (LOS), in prison. Understanding the length of time offenders

are being held in prison, and how and why the time period has changed over time, is a critical first step toward helping state leaders factor LOS into their assessments of state crime and punishment policies.

Earlier research identified national trends in how long offenders stay in prison, but little is known about how LOS varies at the state level. The U.S. Department of Justice's Bureau of Justice Statistics publishes an annual estimate of average LOS nationally, but there is no such resource for state numbers. A search of state Departments of Corrections websites revealed that fewer than half of the states publish publicly available numbers on LOS, with only five states providing such data going back more than 10 years. And

each state uses its own definitions and measures, which hampers comparability. Thus the first section of this report presents state-level estimates of how much time offenders spend in prison and how this has changed since 1990.

Beyond that snapshot, it is also essential to understand how and why LOS varies among states. Time served is influenced by both front-end (sentencing) and back-end (release) policy decisions—and to a lesser extent by policies and practices within prisons. Since the 1980s, states have adopted a wide variety of both front-end and back-end changes that have lengthened LOS for the average offender.

In the second section of this report, we explore the factors that affect time served. We offer case studies of three states— California, Florida, and Pennsylvania—to demonstrate the complexity of the issues and the need for policy makers to look

beyond the big picture trends to uncover the specific factors at play in their states.

We conclude the report by exploring how time served relates to public safety. We present new research on whether current levels of time served are promoting safe communities in the most cost-effective way. It is important to note that higher cost is not necessarily a concern in itself. Longer prison terms may well be justified if policy makers believe that prior punishments simply were inadequate to reflect society's need for retribution for the crime. But penalties typically are enhanced with public safety in mind, and an expectation that longer prison terms will reduce the total number of crimes that offenders will commit. When these are the goals, cost takes center stage and the key question becomes not whether increasing time served will reduce crime but rather, "What is the best way to achieve the greatest reduction in crime."

Length of Stay in States

Using National Corrections Reporting Program (NCRP) data collected by the U.S. Census Bureau and the Bureau of Justice Statistics, Pew estimated the average length of stay (LOS) for offenders released in each year from 1990 to 2009 (see Figure 2).

The NCRP gathers data from states on a voluntary basis. Thirty-five states, representing 89 percent of 2009 prison releases, submitted data in a sufficient number of years to allow estimates to be calculated. Details on the methodology are in the Appendix A.

Figure 2

Time Served Changes Vary Widely Across States, 1990 to 2009

Increases
- >50%
- 26–50%
- 0–25%

Decreases
- 0–25%
- No Data

WA +27%
OR +32%
MT
ND +54%
MN +38%
ME
ID
SD −24%
WI* +18%
NY +2%
WY
NE −6%
IA +11%
MI +79%
PA +32%
NV −14%
UT +17%
CO +33%
IL* −25%
IN
OH
WV +51%
VA +91%
VT
CA +51%
KS
MO −14%
KY* +12%
NH* +26%
MA
AZ
NM
OK +83%
AR +69%
TN −6%
NC +86%
SC +33%
RI
CT
MS* +7%
AL +28%
GA +75%
NJ* +8%
DE
MD
DC
AK
TX +32%
LA −9%
FL +166%
−15% HI

* The most recent year of available data is 2005.
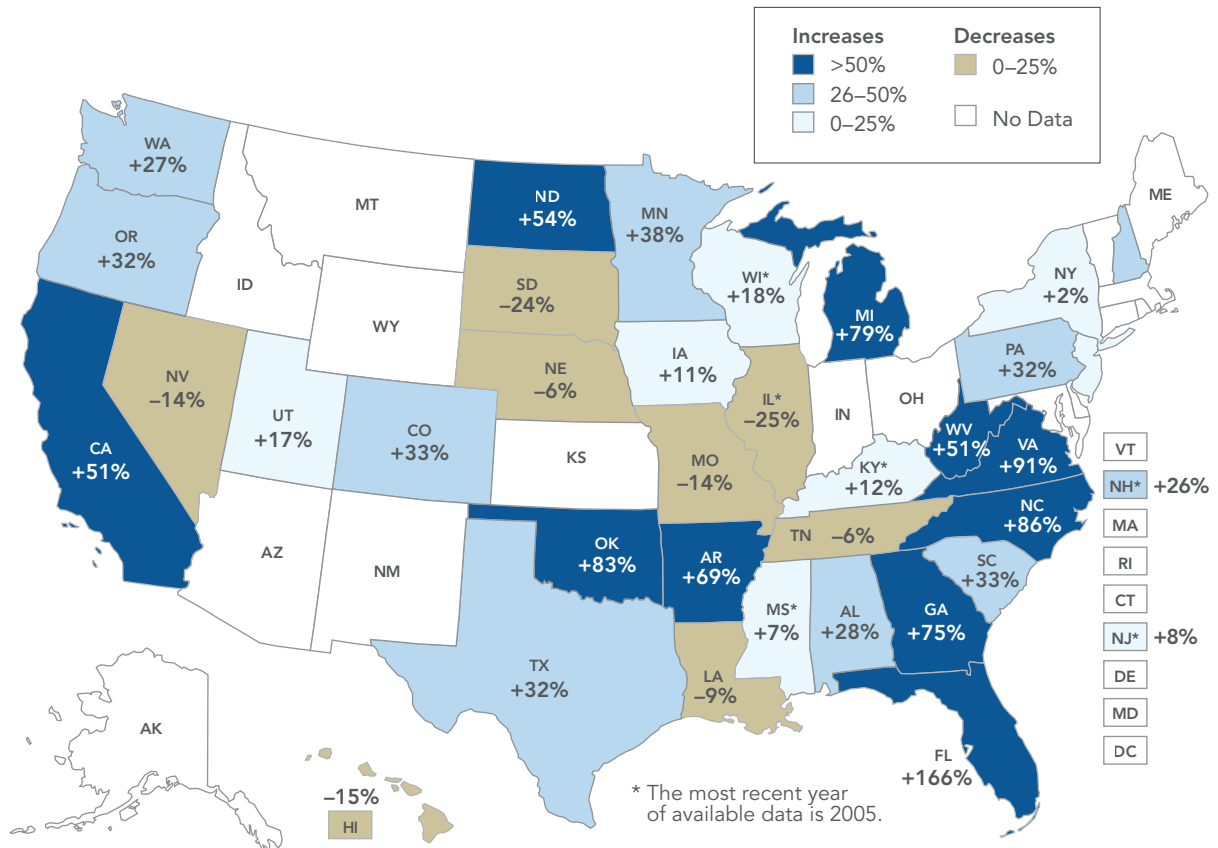
SOURCE: Pew Center on the States, 2012.

Defining Length of Stay

Length of stay can be measured in several ways. The most common is the "release cohort" measure, which we call the "average LOS," and that is the primary measure we use in this report. Considerations involved in measuring LOS include:

Average vs. Expected LOS: "Average LOS" measures the average time spent in custody for offenders released in a certain time period, usually one calendar year. A second measure we call "expected LOS" looks at the inmates in prison during a given year and estimates how long those inmates are likely to spend in custody based on what percentage of the population exits prison in that year. The expected LOS will differ from the average LOS if sentencing and release policies are changing and inmates admitted more recently will be serving shorter or longer terms than their predecessors.

All Releases vs. First Releases: Prison populations in many states include both offenders serving time on their original offenses and offenders who served time, were released, and were returned to prison for a violation of their parole or other supervised release. Because parole violators may serve shorter periods and it is more difficult to compare these groups accurately across states, we focus solely on "first releases"—that is, people released from their original sentence for the first time.

Prison Time vs. Total Custody Time: Most prison inmates have spent some period of time in jail before being convicted and transferred to state prison. Because this jail time counts toward an

Figure 3

Time Is Money
Cost of longer time served tops $10 billion for offenders released in 2009.

$2,593
Average cost of one month in prison, FY 2010

X

9 months
Additional time offenders released in 2009 served relative to 1990

=

$23,333
Average cost of keeping offenders in prison longer

X

*445,688
Offenders released in 2009 (50 states)

=

$10.4 billion
Total state cost of keeping offenders released in 2009 in prison longer

*First releases only.
SOURCE: Pew Center on the States, 2012.

offender's sentence, we also count it as part of an offender's total LOS. When data on an individual's jail time were unavailable, we estimated it based on the year and offense category.

All Offenders

Pew estimates that the average LOS for offenders released from prison in reporting states rose by 36 percent between 1990 and 2009 (see Table 1).[8] Offenders released in 2009 spent an average of 2.9 years in custody, nine months longer than those released in 1990. While nine months per inmate may not sound like a long time, even a relatively small difference in average time served can make a large difference for an overall population. For instance, considering only those offenders released in 2009, an average increase of nine months translates to cost increases of more than $10 billion (see Figure 3).[9] This impact is magnified by successive cohorts of offenders serving longer periods; each cohort stacks on top of the cohort before, leading to greater overall growth in the prison population.

Among prisoners released in 2009 from reporting states, Michigan had the longest average time served, at 4.3 years, followed closely by Pennsylvania (3.8 years), New York (3.6 years), and Virginia (3.3 years). South Dakota had the lowest average time served at 1.3 years, followed by Tennessee (1.9 years), and Missouri (2.1 years), and North Dakota (2.0 years).

Table 1

Avg. Time Served Estimates
ALL CRIMES

	1990	2009	Percentage change
ALABAMA	2.2	2.9	28%
ARKANSAS	1.9	3.2	69%
CALIFORNIA	1.9	2.9	51%
COLORADO	2.2	2.9	33%
FLORIDA	1.1	3.0	166%
GEORGIA	1.8	3.2	75%
HAWAII	3.7	3.1	–15%
ILLINOIS	2.2	1.7*	–25%
IOWA	2.2	2.4	11%
KENTUCKY	1.5	1.7*	12%
LOUISIANA	2.8	2.5	–9%
MICHIGAN	2.4	4.3	79%
MINNESOTA	1.7	2.3	38%
MISSISSIPPI	1.9	2.1*	7%
MISSOURI	2.4	2.1	–14%
NEBRASKA	2.2	2.1	–6%
NEVADA	2.8	2.5	–14%
NEW HAMPSHIRE	2.4	3.1*	26%
NEW JERSEY	2.4	2.6*	8%
NEW YORK	3.5	3.6	2%
N. CAROLINA	1.4	2.7	86%
N. DAKOTA	1.3	2.0	54%
OKLAHOMA	1.7	3.1	83%
OREGON	2.4	3.2	32%
PENNSYLVANIA	2.9	3.8	32%
S. CAROLINA	1.7	2.3	33%
S. DAKOTA	1.7	1.3	–24%
TENNESSEE	2.1	1.9	–6%
TEXAS	2.1	2.8	32%
UTAH	2.6	3.0	17%
VIRGINIA	1.7	3.3	91%
WASHINGTON	1.9	2.4	27%
WEST VIRGINIA	2.1	3.1	51%
WISCONSIN	2.5	2.9*	18%
NATIONAL	2.1	2.9	36%

* The most recent year of available data is 2005.
NOTES: Time Served estimates are in years. Ohio is omitted due to irregularities with 2002 data.
SOURCE: Pew Center on the States, 2012.

Overall Growth Hides Variation Among Offense Types
Percent Change in Average Time Served, 1990 to 2009
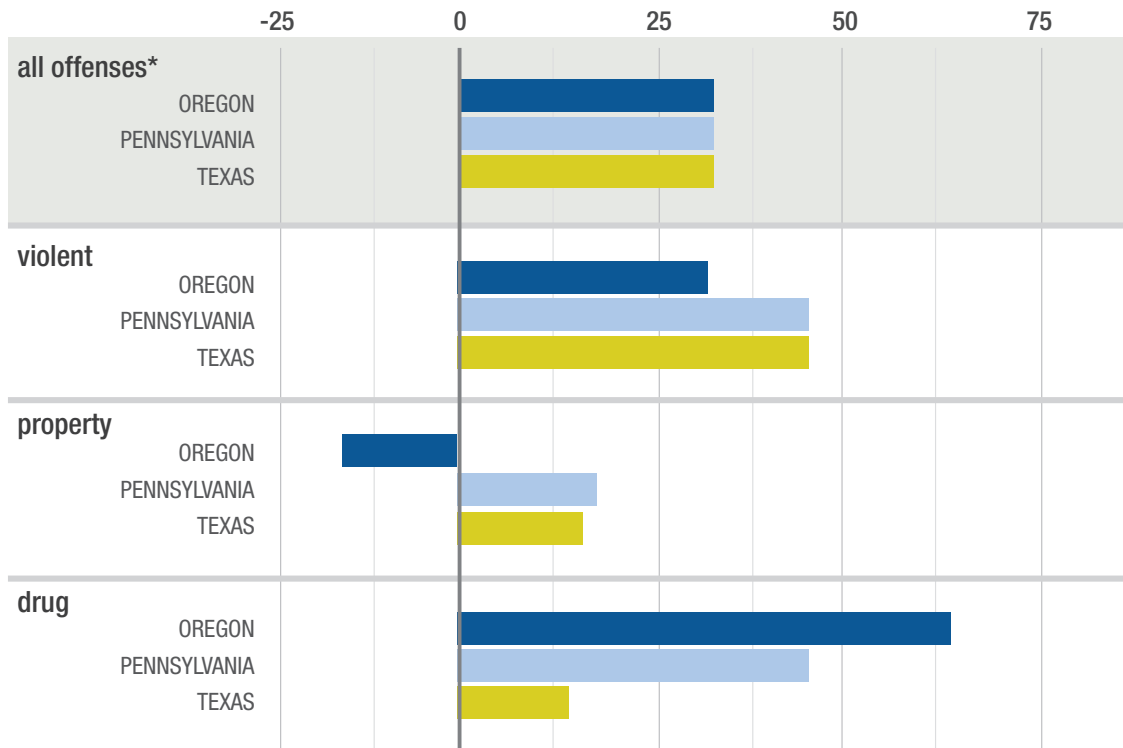
*Includes some offenses that are not counted in violent, property, or drug categories.
SOURCE: Pew Center on the States, 2012.

The overall change in LOS during the period from 1990 to 2009 varied widely among states (see Table 1). A few states saw very large increases, among them Florida (166 percent),Virginia (91 percent), North Carolina (86 percent), Oklahoma (83 percent), Michigan (79 percent), and Georgia (75 percent).[10] Time served actually dropped in eight states, including Illinois (down 25 percent), South Dakota (down 24 percent), Hawaii (down 15 percent), and Missouri and Nevada (down 14 percent).

Nationally, the fastest period of growth in time served came between 1995 and 2000. In that period, LOS rose 28 percent, compared with less than 5 percent in the five-year periods before and after. Most states mirrored this pattern, with rapid growth in the late 1990s followed by moderate growth or leveling off. The most variation between states occurred in the early 2000s, after some states had experienced rapid growth. The differences narrowed in the past five years, as the others caught up.

In order to explain the interstate variation in LOS, Pew classified offenders into three offense categories—violent, drug, and property—and created LOS estimates for each of these categories

DEFINING VIOLENT OFFENSES

For the purposes of classification across states, the broad offense definitions used in this study are based on the most serious offense for which an individual is currently serving time. Crimes in some of the violent offenses category include but are not limited to:

- aggravated assault
- armed robbery
- child endangerment
- child molestation
- domestic violence
- extortion
- homicide
- kidnapping
- manslaughter
- rape
- reckless endangerment
- robbery
- simple assault

in each state and year (see examples in Figure 4). Offenders not fitting into these categories (such as offenders convicted of quality of life and weapons offenses) were included in the total calculations but are not presented as a separate category.

Violent Offenders

Violent offenders released in 2009 served an average of five years in custody, an increase of 37 percent from 3.7 years in 1990. Some simple math shows the impact of that seemingly modest rise. Multiplied by the number of first releases of violent offenders in 2009, this cohort cost $4.7 billion more than had they served the 1990 average of 3.7 years in prison. This figure is less than half of the total cost of increased time served ($10 billion) between 1990 and 2009, with the balance comprised of an increase in LOS for non-violent offenders.

Time Served

Of all the violent offenders released in 2009, those in Michigan served the longest average time in custody, 7.6 years, followed by Hawaii at 6.2 years (see Table 2). Alabama, New York, and Virginia were close behind, with released violent offenders in those states serving an average of 6.0 years. Offenders in South Dakota had the shortest average length of stay among the reporting states at 2.5 years, followed by North Dakota (3.0 years), Minnesota (3.2 years), and Nebraska (3.3 years).

It is important to note that the violent crime category includes a wide range of offense types (see sidebar). The significant variation in sentence length and time served for the offenses comprising the violent crime category means that state averages will obscure important offense variation to a greater degree than among drug or property offenses. For example, the national average of time served for simple assault is 2.7 years, which is half the average for all violent offenses. On the other end of the offense severity spectrum, the time served for released offenders convicted of murder is nearly triple the figure for all violent offenders.

Table 2

Avg. Time Served Estimates
VIOLENT CRIMES

	1990	2009	Percentage change
ALABAMA	4.4	6.0	38%
ARKANSAS	3.6	5.1	41%
CALIFORNIA	2.8	4.6	63%
COLORADO	3.1	4.6	49%
FLORIDA	2.1	5.0	137%
GEORGIA	4.0	5.6	41%
HAWAII	5.5	6.2	13%
ILLINOIS	3.8	3.8*	0%
IOWA	3.5	3.9	12%
KENTUCKY	2.5	3.6*	43%
LOUISIANA	5.4	5.3	–2%
MICHIGAN	3.9	7.6	97%
MINNESOTA	2.4	3.2	34%
MISSISSIPPI	3.9	4.0*	3%
MISSOURI	4.9	4.8	–2%
NEBRASKA	3.9	3.3	–15%
NEVADA	5.8	4.4	–24%
NEW HAMPSHIRE	3.1	4.4*	45%
NEW JERSEY	3.5	4.7*	33%
NEW YORK	4.9	6.0	24%
N. CAROLINA	3.0	4.6	55%
N. DAKOTA	2.1	3.0	40%
OKLAHOMA	3.4	4.5	34%
OREGON	3.8	5.0	31%
PENNSYLVANIA	4.1	5.9	44%
S. CAROLINA	3.3	4.0	21%
S. DAKOTA	3.2	2.5	–21%
TENNESSEE	2.6	3.7	41%
TEXAS	3.7	5.3	44%
UTAH	4.2	5.5	32%
VIRGINIA	3.6	6.0	68%
WASHINGTON	2.6	4.2	60%
WEST VIRGINIA	3.0	4.7	55%
WISCONSIN	3.5	4.8*	36%
NATIONAL	3.7	5.0	37%

* The most recent year of available data is 2005.
NOTES: Time Served estimates are in years. Ohio is omitted due to irregularities with 2002 data.
SOURCE: Pew Center on the States, 2012.

It is important to note that the method of estimating average time served in this report includes data only from released offenders. Inmates still in prison and serving long sentences, including life terms, are not included in the calculation. Thus, the average time served of released offenders may understate the average time served for all offenders in the system. This is a critical consideration when assessing time served for violent offenders, who typically serve longer sentences. See the sidebar on expected time served (pages 21–22) for more information on alternative methods of calculating time served for violent offenders.

Trends

Looking at how time served by violent offenders changed over time, Florida led the way among states with a 137 percent increase. Michigan followed with a 97 percent jump in LOS, while prison stays for Virginia's violent inmates rose 68 percent. Overall, time served for violent offenders rose steadily across the 20-year period, though some states saw sharp increases in the late 1990s and early 2000s.

Within the wide group of prisoners classified as violent offenders, trends over time also vary greatly by specific offense. While the national average LOS for all violent offenses increased by 37 percent between 1990 and 2009, the average for convicted murderers nearly doubled. For all offenses discussed in this report, it is critical for policy makers to keep in mind

that the categories presented are aggregates of many offense types and caution should be used in drawing policy conclusions about any specific sub-category without undertaking further investigation.

Policy Changes

The main mechanism states used to increase time served for violent offenders was to require that offenders serve a larger percentage of their sentences. Violent inmates released in 2009 from the reporting states served almost 80 percent of their sentences, up from about 50 percent in 1990.

In the early 1990s, both time served and percentage of sentence served were flat. However in 1994, when the federal government created an incentive for states to implement "truth in sentencing" statutes requiring violent offenders to serve a larger proportion of their sentences, both percentage of sentence served and time served began to rise and continued to increase at about the same rate for the next 15 years.

At the same time as violent offenders were serving a higher percentage of their sentences, average sentences were declining, from 7.4 years in 1990 to 6.4 years in 2009, somewhat offsetting the trend toward increasing time served.

But this dynamic varied by state. In New York, both sentencing and release policy changes contributed to longer time served. Violent offenders served 60 percent of their

sentences in 1990 and 68 percent in 2009, a 13 percent increase, while sentences grew from 8.1 years to 8.9 years, a 10 percent increase. Overall, in four states LOS was mainly driven by increases in sentence length, as opposed to 18 states where LOS was driven by increase in percentage of sentence served, and five states where the two drivers were roughly equal.[11] Accompanying state fact sheets, available online, explore state-specific patterns in more detail.

Property Offenders

Overall, length of stay for offenders serving time for property crimes grew from 1.8 years on average in 1990 to 2.3 years in 2009, costing an additional $1.8 billion.

DEFINING PROPERTY OFFENSES

For the purposes of classification across states, the broad offense definitions used in this study are based on the most serious offense for which an individual is currently serving time. Crimes in the property offenses category include but are not limited to:

- arson
- breaking and entering
- burglary
- embezzlement
- forgery
- fraud
- motor vehicle theft
- sale of stolen property
- shoplifting
- trespassing

Time Served

Property offenders released in West Virginia and Hawaii in 2009 served 3.2 and 3.3 years on average, a full year longer than the national average (see Table 3). South Dakota and Tennessee tied for the shortest average LOS for property offenders released in 2009, at 1.3 years in each state, a full year less than the average.

Trends

The highest rate of growth was in Florida, where the increase in LOS was 181 percent; Oklahoma (93 percent) and West Virginia (93 percent) also had high increases in LOS. But more than a quarter of states had an overall decrease in LOS for property offenders, including Tennessee (45 percent), South Dakota (23 percent), and Oregon (14 percent). The wide variation among states could reflect changing offense compositions, in which more low-level property offenders are imprisoned, or a deliberate shifting of resources within prisons to make more room for violent offenders. Both possibilities are discussed further below.

Policy Changes

Released property offenders served an average of 67 percent of their court-ordered sentences in 2009, a significant jump up from 43 percent in 1990. Average sentences dropped from 4.3 years to 3.4 years, illustrating that time served was

Table 3

Avg. Time Served Estimates
PROPERTY CRIMES

	1990	2009	Percentage change
ALABAMA	1.9	2.4	25%
ARKANSAS	1.7	2.5	44%
CALIFORNIA	1.9	2.2	16%
COLORADO	2.2	2.6	16%
FLORIDA	.9	2.7	181%
GEORGIA	1.5	2.5	68%
HAWAII	3.1	3.3	7%
ILLINOIS	1.9	1.4*	–24%
IOWA	2.0	2.3	12%
KENTUCKY	1.2	1.5*	20%
LOUISIANA	2.2	2.1	–5%
MICHIGAN	2.1	2.9	35%
MINNESOTA	1.4	1.6	16%
MISSISSIPPI	1.5	1.7*	17%
MISSOURI	1.9	1.7	–11%
NEBRASKA	1.7	1.7	0%
NEVADA	2.6	1.9	–26%
NEW HAMPSHIRE	2.5	2.6*	3%
NEW JERSEY	2.1	1.9*	–9%
NEW YORK	3	2.7	–11%
N. CAROLINA	1.4	1.7	20%
N. DAKOTA	1.1	1.6	41%
OKLAHOMA	1.5	2.9	93%
OREGON	2.2	1.9	–14%
PENNSYLVANIA	2.5	2.9	17%
S. CAROLINA	1.6	1.9	13%
S. DAKOTA	1.7	1.3	–23%
TENNESSEE	2.4	1.3	–45%
TEXAS	1.8	2.1	15%
UTAH	2.1	2.3	10%
VIRGINIA	1.6	2.7	62%
WASHINGTON	1.7	1.9	11%
WEST VIRGINIA	1.7	3.2	93%
WISCONSIN	2.3	3.2*	40%
NATIONAL	**1.8**	**2.3**	**24%**

* The most recent year of available data is 2005.

NOTES: Time Served estimates are in years. Ohio is omitted due to irregularities with 2002 data.

SOURCE: Pew Center on the States, 2012.

driven by changes in release policy rather than by increases in sentences.

These trends were not uniform across states; in 16 of the 32 states that reported sentencing data, sentences rose, including 12 in which average sentences grew while percentage of sentence served fell.

Drug Offenders

Drug offenders released in 1990 served an average of 1.6 years in custody, compared with 2.2 years in 2009, an increase of 36 percent. At the same time, the number of drug offenders sent to prison grew rapidly. Without accounting for the change in

DEFINING DRUG OFFENSES

For the purposes of classification across states, the broad offense definitions used in this study are based on the most serious offense for which an individual is currently serving time. Crimes in the drug offenses category include but are not limited to:

■ delivery, sale, trafficking, manufacturing, or importation of controlled substances

■ false prescription for a controlled substance or dangerous drug

■ possession of drug paraphernalia

■ possession/use of a controlled substance

admissions, the 2009 cohort cost around $2.3 billion due to the increased time served. Considering the cumulative effects of the change in LOS as well as the growth in the number of drug offenders admitted to and released from prison, the overall impact of drug policy changes on prison space used is significantly higher.

Time Served

Drug offenders released in Arkansas (3.0 years), Hawaii (2.9 years), and Michigan (2.9 years) in 2009 served the longest average period in custody (see Table 4). Meanwhile drug offenders released in South Dakota served an average of 1.1 years, the shortest term among the reporting states.

Trends

Arkansas also had one of the largest increases since 1990, with LOS rising by 122 percent for drug offenders. Florida's drug offenders served nearly three times as long in 2009 as in 1990—a 194 percent increase. Oklahoma also more than doubled its average LOS with a 122 percent increase. Demonstrating a small counter trend, five states saw time served for drug crimes decrease during the past two decades, with the largest decrease in Illinois (a 25 percent decline between 1990 and 2005).

The growth in LOS for drug crimes took place almost entirely in the 1990s, with 81

Table 4

Avg. Time Served Estimates
DRUG CRIMES

	1990	2009	Percentage change
ALABAMA	1.5	2.0	35%
ARKANSAS	1.4	3.0	122%
CALIFORNIA	1.6	2.3	41%
COLORADO	1.8	2.5	35%
FLORIDA	0.8	2.3	194%
GEORGIA	1.1	2.1	85%
HAWAII	2.6	2.9	12%
ILLINOIS	1.6	1.2*	−25%
IOWA	1.7	2.3	33%
KENTUCKY	.9	1.2*	34%
LOUISIANA	2.0	2.1	7%
MICHIGAN	1.7	2.9	74%
MINNESOTA	1.1	2.2	99%
MISSISSIPPI	1.2	1.8*	45%
MISSOURI	1.5	1.4	−10%
NEBRASKA	1.4	1.6	8%
NEVADA	2.1	1.8	−16%
NEW HAMPSHIRE	2.0	2.3*	14%
NEW JERSEY	1.8	2.1*	14%
NEW YORK	2.5	2.2	−9%
N. CAROLINA	1.3	1.7	38%
N. DAKOTA	1.0	1.8	86%
OKLAHOMA	1.2	2.6	122%
OREGON	1.0	1.7	62%
PENNSYLVANIA	2.0	2.8	44%
S. CAROLINA	1.4	2.2	57%
S. DAKOTA	1.0	1.1	15%
TENNESSEE	1.6	1.5	−9%
TEXAS	1.6	1.8	14%
UTAH	1.8	2.0	11%
VIRGINIA	1.3	2.2	72%
WASHINGTON	1.2	1.8	48%
WEST VIRGINIA	1.4	2.3	66%
WISCONSIN	1.6	2.3*	43%
NATIONAL	1.6	2.2	36%

* The most recent year of available data is 2005.

NOTES: Time Served estimates are in years. Ohio is omitted due to irregularities with 2002 data.

SOURCE: Pew Center on the States, 2012.

percent of states increasing LOS between 1990 and 2000. In the 2000s, 55 percent of states experienced an increase in LOS, while 45 percent saw LOS decrease (although the average generally still remained above 1990 levels).

Policy Changes

In 2009, released drug offenders served a larger percentage of their sentences than in 1990 (61 percent as opposed to 42 percent). Average sentences rose from 1990 to 2001 and then began to decline, leading to a small overall decline in sentence length from 3.8 years in 1990 to 3.6 years by 2009. This national decline was driven by Texas, Virginia, and North Carolina, where sentences for drug offenders decreased precipitously in the early 2000s.

EXPECTED TIME SERVED

The length of stay (LOS) measure used in this report, the most common method for calculating time served in prison, is the average time served for all inmates who were released in a particular year. However, this is only one means of measuring LOS in prison and, when there is wide variation in sentence length or when offenders are serving a very long time, this method may underrepresent certain types of offenders in any given release cohort. For instance offenders sentenced to 25 years to life in prison are not counted in the average until they are released, perhaps 30 or 40 years after entering prison.

The purest method of measuring LOS would involve tracking inmates over the full duration of their sentence. For instance, we could track every individual who enters prison in a given year from admission through release and count the total amount of time served. This would provide an accurate picture of how long everyone stayed in prison; however, the time horizon it would require to track every admission through their eventual release makes this approach prohibitive. Thus, statistical means are required to estimate LOS based on actual releases, attempting to account for offenders who have yet to be released.

One such approach involves estimating the expected LOS of individuals who are in prison during a particular year. This measure accounts for offenders serving longer sentences who are less likely to be released in a given year, such as serious, violent criminals. This is estimated using both the stock population (how many offenders are in prison at the end of the year) and the number of offenders released from prison during the same year. (See Appendix A for details on methodology.)

The expected LOS measure found that violent offenders entering or remaining in prison in 2009 could expect to spend about 7.1 years in custody, more than two years longer than the average LOS for violent criminals released in that year (see Table 5). This difference is more significant in states in which a larger portion of the prison population is made up of long-term inmates. For instance, in Louisiana and Pennsylvania the expected LOS for violent criminals in prison in 2009 is 9.1 and 11.1 years respectively, significantly longer than the 5.3 and 5.9 years served by offenders in the 2009 release cohorts for those states.

Looking at murder, Pew finds an even starker difference. The expected time served for murder in 2009 is 38 years, almost triple the 14 years served on

EXPECTED TIME SERVED (CONTINUED)

average by murderers released in that year. In California and Georgia, states with large populations serving life terms, expected time served for murderers is more than 50 years, compared with averages of 16 and 20 years in their release cohorts.

For property and drug offenders, who are already cycling through the system relatively quickly, the expected time served calculation makes less difference. In some states, with a few long-serving drug and property offenders and a large population serving short stays, the expected time served for offenders in these categories is lower than the release cohort estimate.

There is no perfect measure of LOS. The release cohort measure inspires confidence because it counts actual time served by actual people. But research has shown that the expected time served measure generally gets closer to the average we would find if we could track each individual into the future.[12] Unfortunately, states frequently do not collect the data necessary to conduct these analyses. States can improve their use of data-driven policy making by making sure they are collecting and publishing the information necessary to calculate different measures of LOS, thereby providing a better understanding of the sentencing and release policies in their jurisdictions.

Table 5

Average and Expected Time Served Estimates, All and Violent Crimes

	All Crimes				Violent Crimes			
	2005		2009		2005		2009	
	Average	Expected	Average	Expected	Average	Expected	Average	Expected
ARKANSAS	3.0	2.7	3.2	3.8	5.1	5.7	5.1	8.3
CALIFORNIA	2.8	4.2	2.9	4.4	4.2	6.7	4.6	7.0
GEORGIA	3.4	3.9	3.2	4.0	5.8	7.2	5.6	7.7
IOWA	2.2	2.5	2.4	3.6	3.8	4.4	3.9	6.3
LOUISIANA	2.6	3.7	2.5	3.4	5.3	9.0	5.3	9.1
MINNESOTA	2.3	2.6	2.3	2.5	3.1	3.6	3.2	3.7
MISSOURI	2.0	3.0	2.1	3.3	4.8	6.5	4.8	7.5
NEW YORK	3.5	5.1	3.6	4.8	5.6	7.7	6.0	7.0
NORTH CAROLINA	2.6	4.4	2.7	4.3	4.3	6.4	4.6	6.3
OKLAHOMA	3.2	3.4	3.1	3.7	5.0	7.3	4.5	6.4
OREGON	3.3	5.1	3.2	6.2	5.0	6.3	5.0	8.3
PENNSYLVANIA	3.7	6.2	3.8	7.3	5.9	9.3	5.9	11.1
SOUTH CAROLINA	2.2	3.1	2.3	3.3	4.0	6.0	4.0	6.2
TENNESSEE	1.9	3.0	1.9	2.8	3.7	5.1	3.7	4.9
TEXAS	2.6	3.5	2.8	3.2	4.8	6.8	5.3	6.2
AVERAGE	2.8	3.8	2.8	4.0	4.7	6.5	4.8	7.1

NOTES: Only states that submitted stock population data to the NCRP for both 2005 and 2009 were included in this analysis. Time served estimates are in years.
SOURCE: Pew Center on the States, 2012.

Unpacking the Numbers:
What Shapes Length of Stay?

Length of stay (LOS) is driven by a complicated interaction of crime and conviction rates and policies and practices within each of the three branches of government. These include criminal penalty statutes and the relative funding provided for prisons and alternatives by the legislature; sentencing policies and decisions by the courts; and release policies set by parole boards and corrections departments within the executive branch. States differ in terms of which factors are the most significant predictors of time served and how those factors interact. For these reasons, assessing the policies and practices that impact time served requires an examination of all stages of criminal case processing.

Crime and Conviction Rates Drive Mix of Prisoners

At the most basic level, the average time served by the overall state prison population is driven by who goes to prison. If a prison population is largely comprised of serious violent offenders, average time served will be longer than if the population is heavily weighted toward drug and property offenders. Rising rates of violent crime, accompanied by rising arrest and conviction rates, will therefore lead to longer overall

time served, assuming everything else remains the same. But a state's offender mix also can be affected by deliberate policing decisions, such as a sustained crackdown on drug and quality of life crimes. If drug offenders are arrested as a result of strategic policing crackdowns, and then convicted and sentenced to prison at a higher rate, the overall average time served might decline, even with no change in the underlying violent and property crime rate.

Legislators Take the Lead on Sentencing Policy

In most states, legislatures are responsible for creating and approving changes in sentencing policy. Statutes establish the baseline for all criminal sentences, including the minimum and maximum terms, requirements for the percentage of sentence that must be served, and whether offenders can earn credits toward sentence reduction.

Beyond this baseline, states' approaches to shaping sentencing vary considerably. In Texas and Georgia, judges in most cases have the authority to sentence anywhere within broad statutory ranges, which can stretch from probation all the way to 20 years in prison and beyond. Some states,

such as Maryland, have voluntary guidelines that recommend sentences within wide ranges inside the statutory boundaries, and judges can depart from the guidelines without stating reasons. A few states, typified by North Carolina, have stricter guidelines that prescribe sentences within narrow bands unless the court finds and articulates special circumstances. Since the late 1980s, states have used sentencing policy changes both to drive up (California and Pennsylvania) and to restrict (Wisconsin, Oregon, and Minnesota) average time served.[13]

The U.S. Congress also has played a role at the state level, by creating incentives for certain types of sentencing policies. Specifically, the Violent Crime Control and Law Enforcement Act of 1994 provided federal Violent-Offender Incarceration and Truth-in-Sentencing (VOI/TIS) grants to states that require violent offenders serve 85 percent of their sentences. While there is evidence suggesting that states would have enacted such policies without federal intervention, these grants helped accelerate prison expansion.[14] Missouri is a good example of a state that overcame concerns about overcrowded prisons with the encouragement of the federal legislation, expanding capacity by 30 percent with the help of the grants.[15]

Courts, Prosecutors Decide Fate of Individual Cases

Decisions about how to charge a defendant after arrest and booking can have a profound impact on future LOS in prison. In most instances, prosecutors have significant discretion in determining which charges to file. Defendants are frequently booked for a host of crimes and prosecutors prioritize offenses, a choice influenced by factors such as severity of the offense and quality of the evidence. While some charging decisions are fairly cut-and-dried, others involve a process of deliberation within the prosecutor's office. The outcome of that deliberation—whether a drug offender is charged with trafficking, sales, or possession with intent to distribute, for instance—can have a substantial impact on plea negotiations, sentence length and, ultimately, on time served. Moreover, many states have habitual offender laws with sentence enhancements that can greatly boost time served in prison. For example, in California, prosecutors can choose whether or not to charge certain offenses as a "strike," making an offender eligible for prosecution under the "three strikes" law. (For more information, see the section on California.)

After the decision about what offenses to charge, prosecutors also have discretion to offer a plea package to the defendant. National estimates suggest that 94 percent of all criminal charges are disposed of through pleas.[16] Prosecutors have flexibility in negotiating these agreements, and, depending on court rules, may agree upon a sentence in the plea process without involving a judge at all. With nearly every felony case being disposed of by plea negotiation, the impact on sentence length and time served cannot be overstated.

While judicial discretion has been curtailed in many states during the past few decades, judges ultimately determine the disposition and duration of the vast majority of sentences.

In half of the states,[17] most felony criminal sentences are indeterminate, and judges retain significant discretion to hand down penalties that are defined by broad statutory ranges.[18] While the parole board retains ultimate release authority in an indeterminate system, eligibility dates for release are determined by the judge's initial sentence. In states with sentencing guidelines, courts sentence within smaller prescribed ranges of varying sizes, but can depart from those ranges when the case presents aggravating or mitigating circumstances. This can result in significant variation in sentence length and time served. Regardless of the specific sentencing system in each state, sentences typically vary, often widely, from district to district and from courtroom to courtroom.

Parole Boards Make Release Decisions

In terms of back-end policies that influence LOS, the use of parole—whether it is available and, if so, how it is granted—is a major contributor to the variations in time served among states. In many states, release from prison is discretionary, governed by a parole board that develops criteria to assess an inmate's readiness for release and sets a date. The parole board exerts significant influence on time served. Factors such as offense type, criminal history, program completion, conduct while in custody, and risk of re-offending are considered by parole boards when deciding whether to release an offender. In reviewing such factors, board members typically possess a substantial degree of discretion to determine the ultimate parole date.

In many states, year-to-year changes in parole policy, board membership, the board's release criteria, and type of inmates who come up for parole review can have a profound effect on grant rates, thereby driving time served up or down. In Texas, recent changes to parole guidelines that have redefined risk categories are thought to have resulted in an increase in parole grant rates. In September 2010, the parole grant rate was 29 percent. By February 2012, that figure had increased to 42 percent, resulting in 800 more offenders being released to parole in that month compared with September 2010.[19] In some cases, parole boards decide not to consider release until a certain percentage of the sentence has been served.

Board members' discretion is not the only dynamic that can influence the release date. If board members value programs that prepare inmates to return to life outside the walls, such as substance abuse treatment or literacy, they may postpone release until those programs can be completed. A recent survey of parole releasing authorities found that lack of inmate programming was the single biggest factor in delaying release.[20] Other common obstacles to release include an offender's inability to attend a review hearing; the lack of timely post-sentence and other investigative reports; and the absence of victim input.

Even basic administrative troubles related to parole boards can affect length of stay. Pennsylvania typifies this experience; at one point in late 2011 its board was short two members, leading to 800 fewer parole cases processed each month and a backlog of prisoners awaiting parole consideration.[21]

To help understand how the various factors influencing time served interact, it is helpful to look at the experience of individual states. **Florida, California**, and **Pennsylvania** all had large changes in length of stay (LOS) from 1990 to 2009. In each state, multiple policies and practices shaped the numbers in different ways and at different moments during the study period. Their stories illustrate the importance of looking beyond the overall figures.

Florida

Factors Driving LOS Changes

▸ 1995 truth-in-sentencing/85 percent rule

▸ Tougher penalties, including 10-20-Life

▸ Increasing incarceration of drug offenders and use of "Year and a Day" sentences

Florida stands out among the states for the dramatic increase—166 percent—in time served during Pew's tracking period and for the twists and turns in policy that influenced the numbers over time. In 1990, the average LOS by a Florida prisoner was just 1.1 years, the shortest among states (see Figure 5). It was easy to see why. Throughout the prior decade, a capacity crunch combined with court limits on prison overcrowding drove Florida to adopt generous policies on "gaintime" that reduced offenders' time in prison. These included some credits that were automatic, rather than awarded based on program participation or good behavior. "We called it 'walking around breathing time,' because the moment an offender entered the system, he got 30 percent off his sentence," recalled Amanda Cannon, staff director of the state's Senate Criminal Justice Committee. As a result, inmates in that era served only about 30 percent of their court-ordered terms.

By the mid-1990s, the national truth-in-sentencing movement was at full throttle, and Florida—where outrage lingered over the murders of two Miami police officers by an ex-offender released after serving only half his term—was ready for a pendulum swing. Prison capacity had increased, the 1993 killing of a British vacationer had stained the state's image as a tourist playground, and a group called Stop Turning Out Prisoners (STOP) was attracting a large following. STOP's push for a state constitutional amendment requiring offenders to serve 85 percent of their sentence was blocked by the Florida Supreme Court. But in early 1995, the state legislature voted unanimously to enact the 85 percent rule for all offenders, regardless of the crime.

Accompanying that step was a steady stream of bills that toughened penalties for specific felonies. These included longer sentences for sex offenders and murderers, mandatory minimum terms for home burglary, aggravated battery, and other crimes, as well as new penalties for violent habitual

offenders. Perhaps the highlight of Florida's escalating toughness was its 10-20-Life law, passed in 1999. The law imposed new penalties for possessing, pulling, or firing a gun during commission of a crime, and mandated terms of 25 years to life in prison for those who injured or killed someone with a firearm. Offenders sentenced under the law may not earn time credits to reduce their terms.

In addition to authorizing stiffer sentences, the Legislature in 1997 adopted the Criminal Punishment Code, which created greater discretion for judges in sentencing, increased penalties for many crimes, and made more felony offenders subject to mandatory prison terms. The revisions, along with the proliferation of longer sentences overall, gradually gave prosecutors greater leverage to negotiate plea bargains, which now make up about 98 percent of case dispositions in Florida.

As effects of the new penalties and time-served requirements percolated through the system, the average time served by offenders ticked upward. In 1995, the year the 85 percent rule passed, the average LOS for violent felons stood at 3.7 years, but by 2005, it had reached 5.0 years. Counteracting that trend, however, was an influx of offenders with comparatively short terms, whose arrival in the system helped push the overall LOS number down beginning in 1999. In fiscal year (FY) 1996-97, for example, drug offenders made up 22.6 percent of new admissions, but by FY

2006-07 the proportion was 30.6 percent.[22] Moreover, between 2003 and 2008, Florida experienced a big jump in the use of "year and a day" sentences. This is notable because offenders sentenced to a year or less serve their time in local jails rather than in state prisons. These "year-and-a-day" sentences often were imposed by courts under pressure to relieve crowding and costs in their local jails and included a large proportion of offenders snared by a Department of Corrections policy requiring "zero tolerance" for probation violations. The policy was revoked by 2008; but, while in effect, the number of violators sentenced to prison rose by nearly 12,000.

Figure 5

Time Served Trends
FLORIDA

Average length of stay, in years
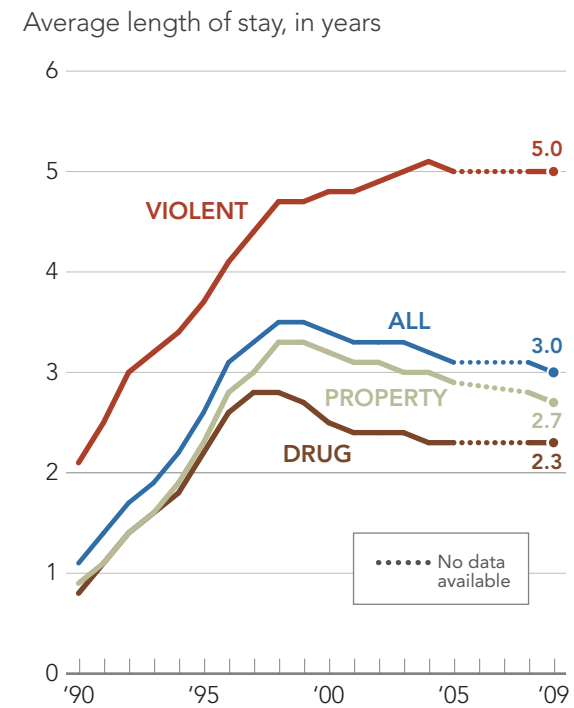
SOURCE: Pew Center on the States, 2012.

California
Factors Driving LOS Changes

▸ 1994 truth-in-sentencing requirements

▸ "Three Strikes and You're Out" initiative, including doubled sentences for second strikers

▸ Cuts to rehabilitation programs, curbing prisoners' ability to earn credits toward release

During the past two decades, the average time served in California prisons rose by 51 percent overall, but jumped 63 percent for violent offenders (see Figure 6). Multiple factors explain the increase, beginning with the legislature's adoption of increasingly tougher penalties for repeat offenders and crimes of violence, including numerous offenses involving gangs and the use of guns.

One study found that between 1976, when the state adopted its Determinate Sentencing Law, and 2006, legislators passed at least 80 substantive increases in sentence length.[23] These ranged from creating new offenses, such as carjacking, to adding a five-year enhancement for offenders whose victims are left paralyzed or with brain injuries. In addition, California in 1994 embraced truth-in-sentencing, requiring that most violent felons serve 85 percent of their terms and limiting their ability to earn release credits. The tougher penalties and minimum mandatory terms combined to push California's prison population from about 24,000 inmates in the early 1980s

to 170,000 in 2006, when then-Gov. Arnold Schwarzenegger declared a state-of-emergency in the state's 33 crowded prisons. Senate President Pro Tempore Darrell Steinberg, a legislator since 1998, said the crisis proves that, "We need to do a better job of distinguishing between violent offenders who should be in state prison for a long time to protect the public, and those who can serve their sentences in ways that are frankly less expensive to the taxpayer and consistent with public safety."

California voters also have had a hand in extending LOS, using the state's popular initiative process to pass a series of ballot measures. A few were crackdowns on sex offenders, but the most influential was the "Three Strikes and You're Out" initiative passed by 72 percent of voters in 1994. One of the first of its kind in the nation, the law also is among the toughest, because it carries the possibility of life in prison for any third felony, not just a violent crime. Today, California prisons house about 8,500 third strikers, who have sentences of 25 years to life and can be released only by the parole board. But a much larger, often overlooked group serving long terms are "second strikers" who, having already committed one felony when charged with a second strike, receive double the sentence for the second offense. Numbering 32,000—or about 20 percent of the prison population through 2011—second strikers must serve 80 percent of their imposed sentences and are limited in the amount of earned-time credits they may accrue. A

2010 report by the California State Auditor concluded that offenders sentenced under the three strikes law would serve, on average, nine years longer than they otherwise would have for their crimes.

Meanwhile, California has long struggled to provide sufficient rehabilitation and work programs in its prisons; participation in such programs is one way eligible offenders can earn a reduction in their time served. One study found that for offenders released in 2006, half had not attended a single rehabilitation program or work assignment while behind bars.[24] Budget troubles create one barrier, and overcrowding means competition for slots and a lack of space in prisons, where even the hallways have been filled with beds. Violence, exacerbated by the overcrowding, also has led to frequent lockdowns, during which programs are suspended.

With the largest state correctional system in the country, California is currently in the throes of a major policy shift that will substantially lengthen the average

time served by offenders in its prisons. Beginning in October 2011, the state began to divert thousands of incoming non-violent offenders from prison to county jails. This "realignment," developed by Gov. Edmund G. (Jerry) Brown Jr. and approved by the legislature as Assembly Bill 109, came in response to a U.S. Supreme Court order on overcrowding that requires the state to reduce its prison population by about 35,000 inmates by mid-2013. Because of the realignment, offenders' average stay in prison is roughly 12 months, mostly for drug and property crimes. Their absence from the population will create a heavier concentration of inmates serving longer terms.[25]
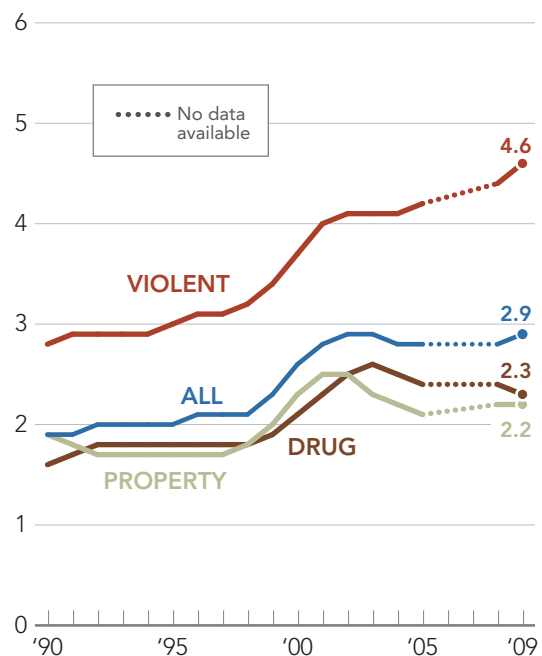
> I think if you had a list of all the potential factors that could drive up LOS in prison, California would have a check by every one of them."

—Joan Petersilia, co-director, Stanford Criminal Justice Center

Figure 6

Time Served Trends
CALIFORNIA
Average length of stay, in years

SOURCE: Pew Center on the States, 2012.

Pennsylvania
Factors Driving LOS Changes

▸ Use of jails to hold offenders with shorter sentences

▸ High-profile crimes leading to changes in parole board practices

▸ Alternatives for drug offenders

In Pennsylvania, the relatively long average time served by offenders in state prison reflects the Keystone State's heavy reliance on county jails. In 2010, jails represented 33 percent of all criminal sentences imposed in Pennsylvania, while state prisons accounted for just 13 percent and the balance went to probation or other alternatives, proportions that have held steady in recent decades.[26] "Clearly, that skews the offender mix in prison toward people serving longer terms, so the average length of time served is naturally longer," said Mark Bergstrom, executive director of the Pennsylvania Commission on Sentencing. In addition, offenders serving life terms in Pennsylvania—about 4,300 people, or 9.4 percent of the prison population—are not eligible for parole, and, until 2008, Pennsylvania inmates were unable to accumulate earned time, two factors that also increase time served. Like California and Florida, Pennsylvania adopted increasingly tough penalties for felons through the 1990s, steadily nudging the LOS average for violent crimes higher. But in contrast to those
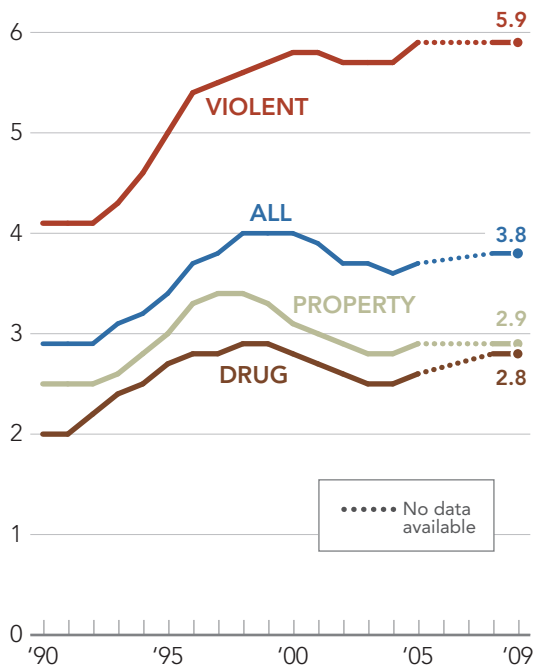
states, Pennsylvania operates under an indeterminate sentencing structure, so its experience also has been shaped heavily by actions of its parole board. In the 1980s, the governor-appointed board tended to grant parole to most offenders when they had served their minimum term, barring misbehavior behind bars. But periodically in the past two decades, high-profile crimes committed by parolees have caused spells of increased caution on the part of the board, triggering a drop in the parole rate and thereby increasing the average time served in prison.

One notable episode came in 1995, when a paroled offender named Robert "Mudman" Simon shot and killed a police officer just three months after his release. During the previous year, 72 percent of prisoners who were eligible and applied for parole received it, and it took just one vote of the five-member board to authorize. The year after Simon's crime, however, the parole rate plunged to 38 percent, while subsequent reforms expanded the board to nine members and required five votes to parole violent offenders. Not surprisingly, the average LOS for violent offenders jumped five months (9 percent) in a single year from 1995 to 1996. The notorious case also prompted then-Gov. Tom Ridge to call a special legislative session on crime in 1995. Lawmakers substantially increased maximum terms for a wide range of felonies.

Time Served Trends
PENNSYLVANIA

Average length of stay, in years

SOURCE: Pew Center on the States, 2012.

by Pennsylvania drug offenders began to drop from an average high of 2.9 years in 1998 to a low of 2.5 years in 2003, a change of five months or 15 percent (see Figure 7).

Meanwhile, Pennsylvania's Commission on Sentencing adopted new guidelines in 1997 that continued the trend of escalating prison terms for violent felons, but also established alternative sanctions, such as treatment options, for many drug offenders. As a result, prison time served

With tougher criminal penalties on the books and political sensitivity over the "Mudman" case on the wane, Pennsylvania's parole rate eventually began to inch back up. But another highly publicized crime, in 2008, sparked another contraction. In this case, a convicted robber paroled after serving 10 years of a maximum 12-year sentence shot and killed a Philadelphia police officer. The killing by parolee Daniel Giddings, just one month after his release, created a widespread public outcry and prompted then-Gov. Ed Rendell to order a moratorium on parole. While in place, the moratorium cut the number of paroles by 800 a month, driving Pennsylvania's prison population up and extending the average LOS. The moratorium was fully lifted by spring of 2009, but it caused a backlog that slowed the processing of parole cases into early 2012.

What Do We Gain from Increased Time Served?

The accurate measurement and analysis of the length of time offenders stay in prison has significant implications for policy makers interested in the scale and cost of their state's prison system. Understanding length of stay (LOS) is critical for policy makers to answer two important questions. First, what policies help explain the current prison population and price tag? Second, how does the length of time an offender spends in prison affect crime rates?

As discussed above, increases in time served over recent decades have been a major driver of prison growth, and the cumulative effect of extending LOS even a few months for certain offenses has a substantial effect on the prison population. The average cost of a day in prison is $85, so an additional nine months equals almost $23,300 additional cost per prisoner.[27] The substantial impact on state prison budgets of additional months in prison is clear when multiplied out by thousands of prisoners.

However, the additional cost may be well worth it if longer prison terms effectively reduce the total number of crimes offenders will commit both through incapacitation and deterrence (see sidebar). The question for policy makers is not whether the total cost is high, but whether increasing time served is the most cost-effective means of promoting public safety.

The most common and accessible measure of how effectively imprisonment reduces crime is the recidivism rate. Holding everything constant, if increasing LOS has been a beneficial policy intervention, offenders serving more time in prison should have lower recidivism rates than those serving less time.

But this is surprisingly difficult to measure. Offenders with different levels of time served are different in terms of their criminal histories, the levels of seriousness of their crimes, and many other characteristics that affect their probability of reoffending. In addition, age has been shown to affect the likelihood of committing more crimes; offenders who spend longer in prison are more likely to have aged out of criminal behavior by the time they are released.[28] Because of these systematic differences between groups, it is very difficult to accurately identify whether differences in recidivism are based on the

INCAPACITATION, DETERRENCE, AND LENGTH OF STAY

*Incapacitation: Reducing **current** criminal involvement by holding offenders in prison where they cannot commit crimes against the public.*

*Deterrence: Reducing the likelihood of **future** criminal involvement by increasing the punishment for the current offense.*

There are two methods by which increasing time spent in prison could impact public safety: incapacitation and deterrence. Incapacitation is a guaranteed method of ensuring an individual offender does not commit additional crimes. However, incarcerating people comes at substantial cost and the number of crimes averted by locking someone up will vary greatly by offender and offense type. Deterrence, on the other hand, is a theory rather than a guarantee. Deterrence theory suggests that offenders who are punished more harshly are less likely to commit crimes in the future because they will want to avoid the prospect of repeat punishment.

The interaction between length of stay (LOS) and incapacitation and/or deterrence is complex. An increase in LOS will obviously result in an offender being incapacitated longer, but the additional weeks or months may be associated with a diminishing beneficial impact on crime rates. Additional time served also may be related to a declining deterrent effect and, in some cases, actually could contribute to criminal offending after release. This dynamic is the foundation of the argument that prisons are "schools of crime."[29] Thus, the return on investment becomes questionable. This underscores the need to subject LOS to a rigorous analysis, paying particular attention to key offender characteristics that may be correlated with an increased risk of re-offending.

amount of time offenders serve or on the underlying characteristics that lead them to serve different amounts of time.[30] While researchers have attempted to answer this question for years, they have not found any consistent effect.[31]

Several recent studies have attempted to account for these analytical problems by using sophisticated statistical techniques to identify offenders with similar characteristics who are serving different lengths of stay in prison. These more methodologically sophisticated studies still find no significant effect, positive or negative, of longer prison terms on recidivism rates.[32]

Figure 8

Thousands Could Serve Less Time

In three states, a large percentage of non-violent offenders experienced no incapacitation or deterrent effect from imprisonment. Many other offenders experienced some positive effect at the beginning of their prison terms but reached a point when additional LOS provided no future incapacitation or deterrent effect.

High-risk offenders

Prison provided no public safety benefit

No loss of additional public safety benefit from reduced LOS

MARYLAND
Non-violent release cohort 3,532

14% 497
19% 673
33%
67% 2,362

MICHIGAN
Non-violent release cohort 7,041

30% 2,119
57%
27% 1,914
43% 3,008

FLORIDA
Non-violent release cohort 20,790

1,771
9%
28%*
20% 4,072
72% 14,947
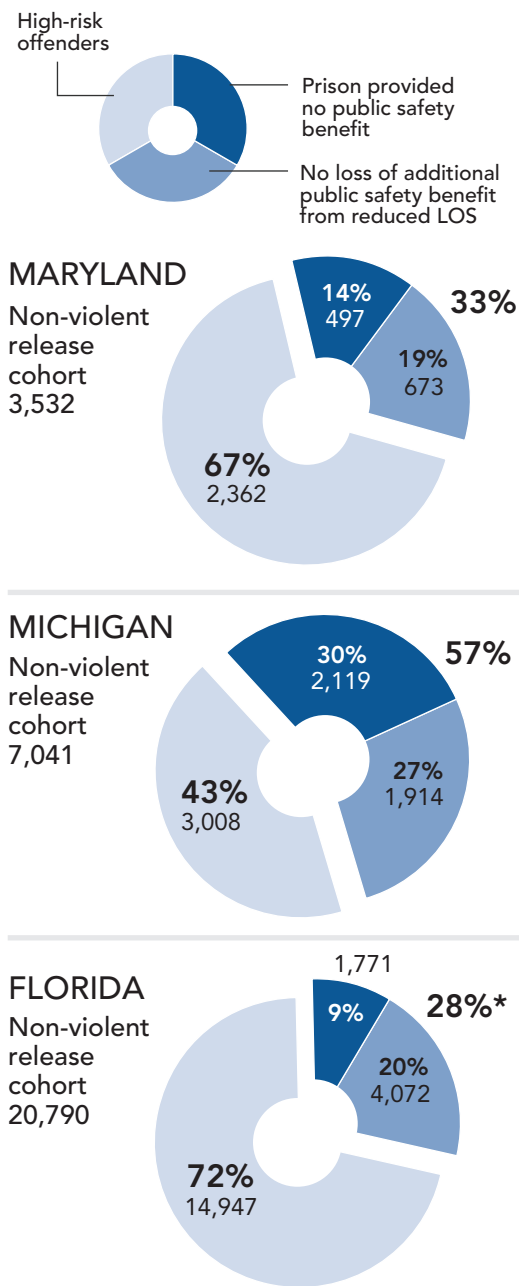
*Detail does not add to total because percentages are rounded.
SOURCE: Pew Center on the States, 2012.

The initial step was to identify offenders in the 2004 release cohort who posed low risk of rearrest upon release. For this step a traditional risk assessment instrument was developed and applied in each of the three states. Among the groups of low-risk offenders, the next step was to use the trajectory models to identify reductions in LOS that would not compromise public safety.

The analysis found that a significant portion of the state prison populations could have been released sooner with no impact on public safety. Looking at only non-violent offenders, 14 percent of the Florida release cohort, 18 percent of the Maryland cohort, and 24 percent of the Michigan cohort could have been safely released after serving between three months and two years less time behind bars.

As seen in Table 6, the model identifies different reductions in the LOS based on risk of re-offending. The amount of time suggested to be taken off an offender's sentence could be thought of as the point at which an offender tips into being low risk.

If the offenders in this analysis had been released on the schedule the model suggests, the prison populations would have been reduced by 2,640 in Florida, 770 in Maryland, and 3,280 in Michigan. Based on the 2004 populations as estimated from the size of the current release cohort and its average

LOS, these reductions amount to nearly 3 percent of the average daily population for Florida, 5 percent for Maryland, and 6 percent for Michigan.

These reductions represent substantial cost savings in each state. While this model was not available and actually could not have been applied in 2004, if it had been, Florida would have saved $54 million, Maryland would have saved $30 million, and Michigan would have saved $92 million.

No risk assessment is perfect. Some of these offenders, if released, would recidivate during the period before their original parole date.

However these numbers are predicted to be quite small, with 8 to 11 percent of each group of non-violent offenders rearrested in this time. Among the offenders suggested for release by the model, 1 to 2 percent would be rearrested for violent crimes, accounting for 0.04 percent of all violent crimes in Florida and Maryland and 0.2 percent of violent crimes in Michigan.

While the analysis indicates that some released offenders will commit crimes during the period immediately following release, that does not mean policy makers are powerless to stop them. Research shows that offenders are frequently at the greatest risk of reoffending

Table 6

Impact of Risk Analysis on Average Time Served, Average Daily Population

| | Maryland | | | | | Michigan | | | | | Florida | | | | |
	Number identified	Average LOS Current	Average LOS New	Reduced ADP	Percentage rearrested	Number identified	Average LOS Current	Average LOS New	Reduced ADP	Percentage rearrested	Number identified	Average LOS Current	Average LOS New	Reduced ADP	Percentage rearrested
24 months	48	77.8	53.8	96	4.2%	363	94.8	70.8	726	20.1%	224	129.3	105.3	448	21.4%
18 months	74	52.6	34.6	111	2.7%	709	40.6	22.6	1,064	16.9%	85	61.7	43.7	128	23.5%
12 months	144	33.6	21.6	144	6.9%	882	33.4	21.4	882	10.8%	264	45.1	33.1	264	22.0%
9 months	273	21.6	12.6	205	10.3%	456	20.1	11.1	342	8.3%	654	28.0	19.0	491	15.6%
6 months	371	11.6	5.6	186	10.5%	402	16.4	10.4	201	5.2%	2,022	17.1	11.1	1,011	11.3%
3 months	106	7.3	4.3	27	2.8%	234	9.8	6.8	59	3.8%	1,112	10.6	7.6	278	4.6%
2 months	6	2.5	0.0	1	0.0%	31	2.6	0.0	7	0.0%	63	2.5	0.0	13	6.3%
1 month	6	1.5	0.0	1	0.0%	1	2.0	0.0	0	0.0%	48	1.5	0.0	6	0.0%
< 1 month	8	0.6	0.0	0	0.0%	2	0.0	0.0	0	0.0%	72	0.2	0.0	1	2.8%
Total	1,036			770	8.1%	3,080			3,280	9.3%	4,544			2,640	11.3%

NOTES: Table 6 shows, for each group of offenders that the model identifies for release before their original parole dates, their current LOS, their average LOS after the model's proposed reduction, and how these changes would impact the Average Daily Population (ADP) of the prison system. As suggested by the model, 371 non-violent offenders in Maryland could have been released six months before their original parole dates, reducing their average LOS from 11.6 to 5.6 months. Because these offenders would have served six months less time, they would have reduced the ADP by half a year each, for a total change of 186 bed-years. The final column of Table 6 shows what percentage of these offenders would be rearrested within the period before their original release date.

SOURCE: Pew Center on the States, 2012.

in the early weeks and months after release. Any adjustments to time served should be made in concert with policies and practices shown to reduce recidivism. These include beginning release preparations early in an offender's prison term, providing comprehensive pre-release planning and support, linking the offender with services at the time of release, using a validated risk-needs instrument to target supervision levels appropriately in the community, and responding swiftly and certainly to violations of the supervision rules. The right mix of policy interventions coupled with a reduction in time served for selected offenders can be expected to reduce the already low risk of reoffending.[36]

If large numbers of inmates could serve shorter terms with little or no impact on public safety, policy makers would be wise to subject time served in their states to a rigorous analysis, focusing on identifying levels of time served that maximize crime prevention. For higher-risk offenders, analysis could indicate a need for longer terms. The research in this study underscores that there is a point when offenders become a low risk for release and more time served does not result in additional crimes prevented through either incapacitation or deterrence. At that point, greater time served begins to provide diminishing returns in crimes prevented at a substantial cost to taxpayers.

How States Are Modifying Length of Stay

During the past decade, a number of states have undertaken reforms intended to stem the growth in length of stay (LOS). Some have taken steps aggressive enough to actually reverse the direction of time served for certain offense types. Recent opinion polling suggests that these reforms are being received well by a public whose priority is preventing recidivism, rather than indiscriminately requiring offenders to serve longer prison terms (see sidebar).

Below we summarize a wide variety of recent changes to policy and practices that have been adopted by state legislatures; carried out within the executive branch by governors, parole boards, or corrections departments; or administered by judiciary branches.

STATE STRATEGIES FOR REDUCING PRISON TERMS

1 Reclassifying Offense Types

2 Amending Mandatory Minimum Sentencing Laws

3 Using Risk-Based Sentencing

4 Expanding Earned-Time Opportunities

5 Changing Parole Policy and Practice

6 Making Administrative Changes to Parole

7 Enacting Revocation Caps

1 Reclassifying Offense Types

Several states have reclassified or redefined criminal offenses in recent years; such changes impact sentence length and, ultimately, LOS in prison. In many states, the monetary value of stolen goods necessary to trigger a felony was established decades ago and has not been adjusted to keep pace with inflation. The result is that someone can have a longer sentence for a property crime today for the theft of less valuable material goods than in the past. In 2010, **South Carolina** revised several offense definitions and increased the monetary value threshold that triggers a felony charge for certain property offenses. A number of other states—including **Alabama** (2003), **Arkansas** (2011), **California** (2009), **Delaware** (2009), **Montana** (2009), and **Washington** (2009)—also have raised the felony threshold dollar amount for various theft offenses.

BROAD PUBLIC SUPPORT FOR REDUCED NON-VIOLENT PRISON STAYS

State policy makers seeking to reduce prison costs while maintaining public safety often look to reduced sentences for non-violent offenders as a policy remedy. In 2010 and again in 2012, Pew partnered with leading national public opinion research firms to assess public support for a variety of such reforms. The research found widespread support for shorter sentences and alternatives to incarceration for non-violent crimes, especially when prison savings are reinvested in less costly supervision options.

All the approaches examined to reduce prison time served are broadly acceptable to voters.
Voters strongly support reducing prison time for low-risk, non-violent offenders for a variety of reasons:

	Strongly Accept	Total Accept
For completion of programs	63%	86%
To keep violent offenders locked up	62%	85%
To re-invest in alternatives	61%	85%
For good behavior	55%	83%
To close budget deficits	45%	78%
For age or illness	50%	77%
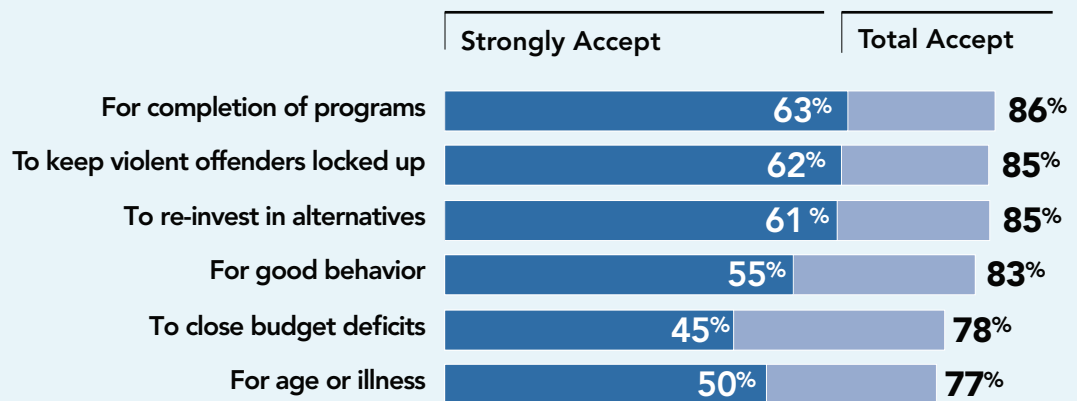
A large majority of voters favors shortening prison terms for non-violent offenders by a full year.
"Allow non-violent crime inmates to be released up to 6 [or] 12 months early if they have behaved well and are considered a low risk for committing another crime."

	Strongly Accept	Total Accept
Up to 6 months	64%	86%
Up to 12 months	58%	87%

Nearly all voters prioritize preventing recidivism over time served, even when prison time varies up to a year.

"It does not matter whether a non-violent offender is in prison for 18 or 24 or 30 months [or] 21 or 24 or 27 months. What really matters is that the system does a better job of making sure that when an offender does get out, he is less likely to commit another crime."

	Strongly Accept	Total Accept
18 or 24 or 30 months	66%	87%

SOURCE: On behalf of the Pew Center on the States, Public Opinion Strategies and the Mellman Group conducted phone interviews with 1,200 likely voters nationwide on January 10–15, 2012. The survey has a margin of error of ±2.8 percent.

Drug offenses also have been a target of recent legislative reform, as states revisit their criminal code with the goal of establishing proportionality in sentencing. Frequently, lawmakers implemented these changes by adjusting the quantities that trigger different levels of punishment. In many cases, lawmakers kept penalties the same or increased them for more serious drug offenses, but reduced sentences for lower-level sales and possession. **Arkansas** (2011), **Colorado** (2010), and **Kentucky** (2011) passed reforms to better distinguish among serious drug trafficking, lower-level sales, and drug possession. This was achieved by revising quantity triggers for certain felony definitions and classifications. While relaxing the penalties for lower-level offenses, these states retained or enhanced the penalties for more serious drug offenses. In Colorado, some offenses were reclassified as misdemeanors, while Kentucky modified the penalty for simple drug possession and now allows courts to divert first-and second-time drug possession offenders from prison through deferred prosecution or a presumptive probation sentence. Kentucky also eliminated sentence enhancements for second-time and subsequent drug offenses. The savings from modest changes to felony classifications can be substantial. In Colorado, these reforms were projected to save the state $1.5 million in FY 2010 and $6 million in FY 2011. The legislature earmarked the savings for reinvestment in the state's Drug Offender Treatment Fund.

VICTIM ADVOCATES SPEAK OUT ON TIME SERVED

More than 100 leading national and state crime victim advocates and survivors have signed on to a statement of guiding principles on sentencing, corrections, and public safety. One of the seven principles speaks directly to the issue of time served in prison:

> *"While it is important for offenders to receive just punishment, the quantity of time that convicted offenders serve under any form of correctional supervision must be balanced with the quality of evidence-based assessment, treatment, programming and supervision they receive that can change their criminal behavior and thinking and reduce the likelihood that they will commit future crimes. For many offenses and offenders, shorter prison terms are acceptable if the resulting cost savings are reinvested in evidence-based programs that reduce recidivism."*

The full text of the principles and a list of the signatories is available here. http://www.pewcenteronthestates. org/uploadedFiles/ wwwpewcenteronthestatesorg/ Initiatives/PSPP/Pew_Guiding_ Principles_for_Crime_Victims_and_ Survivors.pdf

2 Amending Mandatory Minimum Sentencing Laws

As discussed earlier in the report, mandatory minimum sentencing has been a hallmark of efforts to extend time served in recent decades. Legislatures that passed these laws were seeking to add both severity to sentence length and predictability to the sentencing process. More recently, some states have begun to roll back their mandatory minimum laws following criticism that they block appropriate judicial discretion and cost too much. **New York**'s "Rockefeller Drug Laws" are some of the oldest and most widely known mandatory sentencing laws, dating back to 1973. In 2009, the legislature eliminated mandatory minimums for certain first- and second-time non-violent drug offenses. The state also reduced minimum penalties for specific felonies and gave judges authority to retroactively modify sentences for about 1,500 offenders.

While the Rockefeller Drug Laws may represent the most high-profile reform of mandatory minimum sentences in the past decade, reforms in **Michigan** may have been the most far-reaching. In 2002, the legislature repealed most mandatory minimums for drug offenders, shifting drug sentencing to the state guidelines. This change was estimated to save $41 million in the year following passage. Approximately 1,200 offenders

in Michigan prisons became eligible for parole upon adoption of the law, while another 7,000 individuals were eligible for release from lifetime probation after completing five years of supervision. **Delaware** (2003), **Indiana** (2001), and **Minnesota** (2009) also have amended various mandatory minimum drug sentencing laws.

3 Using Risk-Based Sentencing

While many of the efforts to address LOS in prison occur within the legislature or executive branch, changes in court case processing also have influenced sentence length and time served. The **Virginia Criminal Sentencing Commission** (VCSC), for instance, developed a risk assessment instrument to identify candidates for diversion among non-violent offenders. The instrument helps the VCSC meet a statutory goal of diverting 25 percent of property and drug offenders who otherwise would have been incarcerated. These alternative sentences can include intensive probation, home incarceration, electronic monitoring, day reporting centers, and fines. The statistical risk assessment provides estimates of the likelihood an offender will commit future crimes based on a number of factors, including offender characteristics, details of the current offense, and adult and juvenile criminal history. An evaluation of the risk instrument by the National Center for State Courts and the

VCSC found that it has proven to be a reliable predictor of recidivism and that Virginia's approach has saved money by reducing the number of offenders who otherwise would have been sentenced to prison.[37] A number of other states also have established a risk-based sentencing system and are in various stages of implementation.[38]

4 Expanding Earned-Time Opportunities

In addition to focusing on laws that change the initial sentence length, states also are creating new opportunities for offenders to earn reductions in their time served in prison. **Kansas** (2007) and **Colorado** (2009) expanded earned time for offenders who participate in programs and avoid major disciplinary violations. In Colorado, during the first three years of implementation, the reform was expected to save $12 million, which will be reinvested in recidivism-reduction programs beginning in 2012. In **South Carolina** (2010), legislators required that non-violent offenders serving a minimum of two years in prison be released to mandatory supervision 180 days prior to release, rather than serving out every last day of their sentences and returning to the community with no supervision.

Pennsylvania took a different approach to reducing LOS, moving the certainty of a reduction in time served to the sentencing phase. The "recidivism risk-reduction incentive" (RRRI) law gives a judge the option of sentencing certain offenders to a shorter "risk reduction" term of incarceration if they participate in programming while in prison. A 2012 report by the Pennsylvania Department of Corrections found that 8,076 admissions (26 percent) were admitted with a RRRI minimum sentence and 3,466 have been subsequently released.[39] Of those persons released, 72 percent have fulfilled all of the obligations necessary to be released at the RRRI minimum sentence. The slight reduction in time served is estimated to have saved the state approximately $37.1 million, while reducing the prison population by an estimated 1,628 offenders.

5 Changing Parole Policy and Practice

In many states, the parole board has a significant impact on LOS, controlling the back-end release decision within parameters typically set by the legislature. In some states, policy makers are taking steps to amend parole policies in ways that can affect time served in prison. **Mississippi** (2008) lawmakers amended their "truth-in-sentencing" law to allow non-violent offenders to apply for parole release after serving 25 percent of their sentence. The prior law had required that all prisoners serve 85 percent of their sentence before becoming eligible for parole.

In **Georgia**, the State Board of Pardons and Paroles in 1998 established a rule that inmates convicted of any of 20 serious violent crimes must serve 90 percent of their court-ordered sentences. Seven years later, while revising its release guidelines and under legal challenges to the rule, the board shifted to a risk-based policy. The new release guidelines call for low-risk inmates to serve at least 65 percent of their sentences and medium-risk inmates to serve 75 percent, while high-risk prisoners remain at the 90 percent level.

6 Making Administrative Changes to Parole

Parole boards may lengthen time served for administrative rather than for policy reasons, as the number of offenders eligible for review sometimes can overwhelm the resources necessary to process cases. This logjam can make the parole review process highly inefficient, but there are steps state officials have taken to streamline the process. In 2003, **Alabama** temporarily created a second parole board to address a backlog in applications and help relieve prison overcrowding. **South Carolina** (2010) sought to professionalize its parole board

by increasing training requirements for board members. The state also increased standardization of the review process when it adopted a requirement that a validated risk and needs assessment be used for release decisions.

7 Enacting Revocation Caps

While time served usually is controlled on the back end by release decisions, how states address probation and parole revocations has a demonstrable impact on the prison population. Some states have taken steps to reduce time served by placing caps on how long someone can serve in prison due to a revocation of supervision. **Colorado** (2010) placed a 180-day cap on the length of time non-violent parolees can stay in prison for a technical violation. This reform is estimated to save the state $4.7 million annually, which will be reinvested in reentry services for parolees. **Alabama** (2010) took a similar step for probationers, capping the length of stay at 90 days for non-violent probationers who met the conditions of supervision for a six-month period but were subsequently revoked to prison. The reform was retroactive and estimated to impact 1,500 offenders in prison.

Conclusion

Twenty years ago, there was little evidence to counter the logic that longer prison sentences were the most effective way to combat crime and keep communities safe. As a result, states adopted increasingly tougher penalties for all categories of offenders, prison populations exploded, and correctional costs soared. Since that era, a wave of research has revealed the shortcomings of that strategy for lower-level offenders, and the public increasingly favors alternative approaches proven to reduce recidivism.

Fortunately, policy makers in every region of the country now have a long list of colleagues who have found solutions that help to balance their budgets without sacrificing public safety. These bipartisan efforts across the country are not wild experiments that put the public at risk. Rather, they are grounded in research, time-tested, and overdue.

The analysis in this study shows that there are more savings that can be garnered by thoughtfully addressing sentence length and release decisions. With the right risk assessment tools and a careful evaluation of the dynamics influencing their prison populations, states can move with confidence down this new path—one that recognizes that simply putting as many people in prison for as long as possible is not the best way to spend public dollars and protect public safety.

Appendix A: Estimating Length of Stay by State

Data

This study relies primarily on data from the National Corrections Reporting Program (NCRP) modules on prison releases and prison standing populations. The NCRP is a voluntary program through which states submit records for each admission and release from prison over the course of a calendar year. While each record represents a person, individuals are not identified in the record and may be present twice in an admission or release file. NCRP data are collected by the U.S. Census Bureau and cleaned and reviewed by the Bureau of Justice Statistics (BJS). They are housed for public use at the National Archive of Criminal Justice Data (NACJD), part of the Inter-University Consortium for Political and Social Research. Pew submitted a request to the NACJD and received NCRP data from 1985 through 2009, with the exception of a few years for which data were not available.

After cleaning the data and applying filters as discussed below, Pew identified 36 states with sufficient data in the NCRP to make estimates for the period 1990 to 2009 (35 states excluding Maryland, which, although it had full data, did not contain admissions data and therefore could not be directly compared with the others). A list of these states is available at pewstates.org/publicsafety.

To check the reliability of the NCRP data, Pew compared it to other published sources of information on prison populations and releases. NCRP reports custody counts, meaning that it includes records for all persons entering and exiting the state prison system, regardless of the jurisdiction under which they were sentenced. This may be partially responsible for substantial variation between the NCRP and other published state numbers (the most widely used source of aggregate numbers for state prison admissions, releases, and populations are the National Prisoner Statistics [NPS] series from the BJS, which report jurisdiction counts) identified by John F. Pfaff in his 2009 paper on time served in prison.[40]

Nevertheless, Pew compared total releases by state from the NCRP with release numbers published in the NPS for the years 1988 to 2009. In addition, Pew

compared stock population numbers to NPS population numbers from 2005 and 2009. Overall, states reporting in the 2009 NCRP provide 3 percent higher release numbers than are reported in the NPS, and 2 percent lower population numbers.

Pew found substantial variation between NCRP and NPS total release numbers by state. In four states (Alaska, Maryland, North Carolina, and South Carolina) these discrepancies were significantly reduced when individuals with sentences less than a year were removed from the release cohort, indicating that they were probably due to states submitting information from unified prison/jail systems to NCRP. Pew identified an additional four states (Arkansas, Minnesota, Mississippi, and Texas) in which the NPS 2005 Mid-Year Report showed substantial variation between prison population custody counts and jurisdiction counts, indicating that the structure of these state systems and/ or custody arrangements in the states may have contributed to variation in the custody and jurisdiction release numbers as well. Of the 36 states Pew used in the analysis, this left three with substantial variation between NCRP and NPS numbers (Georgia, Iowa, and Washington).

Washington was the only remaining problem state that also shows discrepancies in the stock population counts. When comparing NCRP population data from 2005 with NPS

custody and jurisdiction data, Pew confirmed that the NCRP counts in Texas and Minnesota more closely matched NPS custody counts than jurisdiction counts (with the Texas count matching very closely). Arkansas NCRP population counts showed discrepancies with both forms of NPS counts, and will bear further scrutiny as well. Mississippi did not report stock population data in 2005 and so cannot be directly compared.

In the early stages of the project, Pew surveyed state departments of corrections to determine whether gaps in the NCRP could be filled directly by states. While survey questions and definitions were written to match NCRP data collection, the aggregate data submitted were not, ultimately, comparable to NCRP results due to difficulty in precisely matching filters, queries, and offense categories.

Methodology

Pew estimated average (mean) sentence length, average time served, and average percentage of maximum sentence served by exit cohort for each available year of data from 1990 to 2009. These numbers were estimated by state and offense category.

Pew also calculated the expected time served for 2005 and 2009 using the reciprocal of the exit rate as suggested by Patterson and Preston.[41]

Pew was primarily interested in time served by people sentenced to state prison and released for the first time on the current sentence (as opposed to people who had served their sentence, been released, and were re-incarcerated for a parole violation). This group is generally referred to as "first releases." To limit the analysis to first releases, Pew:

- Dropped all records for which total sentence (variable 34) was shorter than 12 months in order to exclude offenders who served a jail sentence rather than a prison sentence but were submitted to NCRP because of unified jail/prison systems in some states.[42]

- Dropped all records in which admission type (variable 16) was **not** court commitment or probation revocation (for most years there are multiple codes for probation revocation including "Suspended sentence imposed" "Probation revocation with new sentence" "Probation revocation with no new sentence" "Probation revocation, no information regarding new sentence" and "Probation status, pending revocation").

Admission type was missing in certain states and years. In these states, Pew imputed admission type using a logit regression of admission type on offense category and time served in prison in a year with complete admissions data to predict whether individual records were likely to be new court commitments or parole commitments. The predicted value from the logit model was used to weight records when calculating time served and percentage of sentence served, so that records that were more likely to be first releases were given greater weight in the calculation than records that were more likely to be returned parolees. This imputation was completed for records in Mississippi, Nevada, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, and Texas. See jurisdiction notes for the specific years for which admissions data were imputed in these states. Admission type could not be imputed in Maryland because there were no years in which admission type was reported.

All records were then divided into four offense categories defined as: violent, property, drug, and other. Offenders were placed in an offense category based on the crime for which they received the longest sentence (variable 32). These offense categories were mutually exclusive, and were based on the NCRP codebooks for the years in question. A list of NCRP offense codes from the 2009 NCRP codebook, grouped by offense category, is available upon request. In addition, Pew created a flag for records in which the offense with the longest sentence was murder or homicide. This is a subset of the violent offense category.

Pew then did the following calculations for each record:

Total sentence length

- Sentence length refers to the maximum sentence that an offender may be required to serve for the most serious offense. In the NCRP data we used total sentence length as calculated by BJS (variable 34). This usually equals the maximum sentence for the offense with the longest possible sentence (variable 33). In some cases the total sentence is higher, presumably reflecting multiple offenses to be served consecutively.

- If variable 34 (total sentence) was missing, we replaced it with variable 33 (maximum sentence).

- Sentences longer than 1,500 months (125 years) in variable 34 were replaced by variable 33 if the value was different and less than 1,500 months. If variable 33 was also over 1,500 months or was missing, these sentences were marked as missing and were not used in calculations.

- Life sentences were counted as 30 years or 360 months.

Total time served

- **Total time served =** Time served on current admission (as measured by difference between admission date and release date) (variable 62) + Prior jail time served credited to the current sentence (variable 24).

- If prior jail time is missing, we imputed it as the mean of jail time for that year and offense category and flagged the record. The year with the most missing jail time records was 1990, when 32 percent of records had imputed jail time. This number went as low as 5 percent in 1998. On average across years, about 19 percent of records required this imputation.

Percentage of sentence served

- Percentage of sentence served was calculated as total time served divided by total sentence as defined above.

- Percentage of sentence served was allowed to be above 100 percent.

To create yearly estimates for each state/year/offense category combination from 1990 to 2009, we used a centered moving average within each state and offense category comprising one year before, the current year, and one year in the future. If one of these time periods was unavailable, the other two were still used. If two or more were unavailable, we used any periods available within two years on either side of the year in question. Though we created estimates only for 1990 on, we used 1989 data when available to create 1990 estimates.

The later years posed a problem because we had available only 2005, 2008, and 2009. To be as conservative as possible

APPENDIX A: ESTIMATING LENGTH OF STAY BY STATE

while bridging this gap, we calculated 2005 estimates using 2004, 2005, and 2008; 2008 estimates using 2005, 2008, and 2009; and 2009 estimates using 2008 and 2009.

Standard errors were calculated using the entire three-year period upon which the average was calculated. If fewer years were used in the calculation then the standard errors will be larger (because they rely on a smaller number of records).

These moving average estimates by state, year, and offense type were made for:

- Sentence length
- Time served
- Percentage of sentence served

We estimated the number of releases in each year by offense category and the stock population in each offense category at the end of year.

- **Count of releases =** The number of individual records in the release file of the NCRP that fit the above filters.

- **Stock population =** The number of individual records in the stock file of the NCRP that fit the above filters (available only for 2005 and 2009).

Finally, Pew reviewed each state's data looking for inconsistencies and outliers both in the individual-level data and in the aggregate counts and averages. Any problems with specific states, years, or variables were flagged for follow-up. In

cases where data were systematically unreliable within a particular state and year, the problem variable or state/year combination was discarded and when possible replaced with estimates from other years.

Expected Time Served

For the purposes of creating the expected time served measure, Pew weighted the total number of releases and stock to fit counts released through the NPS series. These may vary for the reasons discussed above (custody vs. jurisdiction) but because they have been independently validated, we believed they were more appropriate for the purpose of extrapolating totals. Thus we created a weight for each observation based on the ratio of the NPS total (either releases or stock population) and the NCRP total. These weights were created based on the total NCRP file (all releases) to match the NPS as closely as possible. NCRP files were then filtered as described above to include only "first releases" and releases and stock population totals were calculated using the weights created above. Because we looked at first releases, our totals do not equal the NPS totals, however ours were weighted to consistently fit with NPS reports.

Expected time served was calculated as the reciprocal of the exit rate, that is by dividing the weighted stock population by the weighted number of releases for each year and offense category. This measure

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can be adjusted for population growth; however, this adjustment does not make a significant difference in the results and therefore was not used.[43] To make it comparable to the average time served measure, which included jail time, Pew then adjusted the expected time served to include the average time spent in jail counted toward an individual's sentence by year and offense category.

Standard errors for the expected time served measure were calculated using the delta method, which uses a first-order Taylor series approximation to calculate the variances of a transformed variable.

Jurisdiction Notes

Maryland: Had no admission type data for any year, meaning Pew was unable to exclude parolees. We therefore report the trends for Maryland but not the absolute values of time served.

Missouri: There were no data on time served for 2004, so it was estimated from other available years.

Mississippi: Had no admission type information for the years 1994, 1995, 1996, 1997, 1998, 1999, 2000, and 2001. Each record in these years was assigned a probability of being a first release as described above based on data from 2002.

Nevada: Had no admission type information for the years 1994, 1995, 1996, 1997, 1998, 1999, 2000, and 2001. Each record in these years was assigned a probability of being a first release as described above based on data from 2002.

New York: Had no admission type information for the years 1989, 1990, 1991, 1992, 1993, and 1994. Each record in these years was assigned a probability of being a first release as described above based on data from 1995.

North Carolina: Had no admission type information for the years 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2008, and 2009. Each record in these years was assigned a probability of being a first release as described above based on data from 1992, 1993, and 1994. Three years were used for the imputation due to small sample sizes.

Ohio: Due to irregularities in the 2002 data, information from that year was dropped.

Oklahoma: Had no admission type information for the years 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, and 2002. Each record in these years was assigned a probability of being a first release as described above based on data from 2005, due to issues with 2003 and 2004 data.

Oregon: Had no admission type information for the years 1989, 1990, 1998, 1999, 2000, 2001, and 2008. Each record in these years was assigned a probability of being a first release as described above based on data from 1997 and 2002.

Pennsylvania: Had no admission type information for the years 1994, 1995, 1996, and 1997. Each record in these years was assigned a probability of being a first release as described above based on data from 1998.

South Carolina: Had no admission type information for the years 1994, 1995, 1996, 1997, 1998, 1999, 2000, and 2001. Each record in these years was assigned a probability of being a first release as described above based on data from 2002.

Tennessee: Had no admission type information for the years 1989, 1990, and 1991. Each record in these years was assigned a probability of being a first release as described above based on data from 1995 and 1996 due to issues with 1992, 1993, and 1994 data.

Texas: Had no admission type information for the years 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, and 1998. Each record in these years was assigned a probability of being a first release as described above based on data from 2001 due to issues with 1999 and 2000 data.

Tables A1, A2, A3, and A4 present estimates for every five years, by state and offense type. These estimates include 95 percent confidence intervals, calculated as described above. Expected time served also is included when it was calculable from available data.

Appendix Table A1

Confidence Intervals for Time Served Estimates, **ALL CRIMES**

	Average 1990		Average 1995		Average 2000		Average 2005		Average 2009		Expected 2005		Expected 2009	
	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−
ALABAMA	2.24	0.04	2.42	0.04	2.44	0.04	2.8	0.04	2.86	0.05				
ARKANSAS	1.88	0.05	2.05	0.04	2.14	0.04	3	0.05	3.18	0.04	2.69	0.06	3.82	0.1
CALIFORNIA	1.93	0.01	2.03	0.01	2.57	0.01	2.78	0.02	2.91	0.02	4.18	0.03	4.38	0.04
COLORADO	2.22	0.04	2.35	0.04	2.53	0.04	2.89	0.04	2.94	0.05			4.07	0.09
FLORIDA	1.13	0.01	2.64	0.02	3.37	0.02	3.12	0.02	3	0.03	2.33	0.02	3.09	0.03
GEORGIA	1.82	0.02	2.02	0.02	2.97	0.04	3.37	0.03	3.18	0.04	3.95	0.06	4.02	0.06
HAWAII	3.68	0.17	2.32	0.1	2.5	0.09	3.13	0.12	3.11	0.15				
ILLINOIS	2.21	0.02	1.98	0.02	1.69	0.02	1.66	0.03						
IOWA	2.19	0.04	2.23	0.04	2.41	0.04	2.22	0.04	2.44	0.06	2.52	0.06	3.59	0.12
KENTUCKY	1.52	0.04	1.73	0.03	1.94	0.03	1.71	0.03						
LOUISIANA	2.79	0.08	2.44	0.04	2.74	0.06	2.64	0.04	2.54	0.04	3.73	0.06	3.42	0.05
MICHIGAN	2.39	0.03	2.98	0.04	3.49	0.05	4.07	0.05	4.28	0.1	7.41	0.15		
MINNESOTA	1.69	0.05	1.91	0.05	1.87	0.04	2.28	0.04	2.34	0.05	2.63	0.06	2.51	0.06
MISSISSIPPI	1.94	0.05	2.06	0.05	2.37	0.05	2.07	0.07						
MISSOURI	2.42	0.04	1.84	0.04	1.56	0.03	1.99	0.04	2.08	0.04	3.01	0.05	3.26	0.05
NEBRASKA	2.21	0.09	1.83	0.07	2.09	0.07	2.01	0.07	2.08	0.08				
NEVADA	2.84	0.07	2.89	0.06	2.71	0.05	2.76	0.05	2.45	0.06				
NEW HAMPSHIRE	2.44	0.12	2.44	0.1	2.79	0.11	3.08	0.16						
NEW JERSEY	2.38	0.03	2.16	0.02	2.54	0.03	2.58	0.03			2.96	0.05		
NEW YORK	3.52	0.02	2.47	0.02	3.16	0.03	3.52	0.03	3.6	0.05	5.09	0.07	4.84	0.07
NORTH CAROLINA	1.44	0.02	1.44	0.02	2.35	0.03	2.55	0.04	2.68	0.05	4.38	0.08	4.26	0.07
NORTH DAKOTA	1.32	0.09	1.33	0.08	1.5	0.06	1.45	0.09	2.04	0.14			1.87	0.09
OHIO	1.93	0.02	1.78	0.02	5.45	0.06								
OKLAHOMA	1.67	0.04	2.07	0.04	3.17	0.05	3.25	0.05	3.06	0.05	3.38	0.06	3.7	0.07
OREGON	2.45	0.07	1.81	0.05	2.71	0.08	3.28	0.08	3.24	0.1	5.13	0.17	6.24	0.23
PENNSYLVANIA	2.87	0.05	3.44	0.05	4.01	0.05	3.72	0.05	3.8	0.06	6.18	0.12	7.34	0.15
SOUTH CAROLINA	1.74	0.03	1.94	0.03	2.3	0.03	2.24	0.03	2.32	0.04	3.12	0.06	3.32	0.06
SOUTH DAKOTA	1.72	0.21	1.76	0.1	1.88	0.09	1.42	0.05	1.31	0.06				
TENNESSEE	2.08	0.05	1.04	0.02	1.86	0.03	1.92	0.03	1.94	0.03	3.01	0.05	2.81	0.04
TEXAS	2.12	0.01	2.61	0.02	3.81	0.02	2.58	0.02	2.81	0.02	3.47	0.02	3.19	0.02
UTAH	2.57	0.08	2.24	0.07	2.7	0.1	2.64	0.07	2.99	0.1				
VIRGINIA	1.74	0.03	1.92	0.03	2.69	0.03	2.77	0.03	3.33	0.05			3.19	0.05
WASHINGTON	1.92	0.04	2.06	0.04	2.12	0.03	2.14	0.03	2.44	0.04	4.33	0.11	1.19	0.01
WEST VIRGINIA	2.05	0.1	1.79	0.1	2.04	0.1	2.66	0.08	3.1	0.09				
WISCONSIN	2.49	0.05	2.04	0.03	2.45	0.03	2.93	0.05			4.22	0.09		

SOURCE: Pew Center on the States, 2012.

Appendix Table A2

Confidence Intervals for Time Served Estimates, **VIOLENT CRIMES**

	Average 1990		Average 1995		Average 2000		Average 2005		Average 2009		Expected 2005		Expected 2009	
	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−
ALABAMA	4.37	0.16	4.34	0.16	4.45	0.16	5.84	0.18	6.03	0.23				
ARKANSAS	3.64	0.18	4.97	0.22	4.15	0.15	5.15	0.18	5.14	0.16	5.69	0.34	8.27	0.54
CALIFORNIA	2.83	0.03	3.03	0.02	3.73	0.04	4.2	0.04	4.61	0.06	6.7	0.11	7.05	0.11
COLORADO	3.07	0.13	3.5	0.13	3.8	0.12	4.4	0.13	4.57	0.17			7.12	0.34
FLORIDA	2.1	0.05	3.74	0.05	4.79	0.06	5.04	0.07	4.99	0.08	3.81	0.06	5.24	0.1
GEORGIA	4.01	0.08	3.86	0.08	4.75	0.1	5.79	0.1	5.64	0.11	7.22	0.22	7.69	0.23
HAWAII	5.46	0.46	5.14	0.34	4.36	0.35	5.91	0.44	6.17	0.6				
ILLINOIS	3.79	0.07	3.66	0.06	3.48	0.07	3.79	0.14						
IOWA	3.47	0.16	3.35	0.12	3.77	0.13	3.77	0.18	3.89	0.23	4.44	0.3	6.34	0.49
KENTUCKY	2.49	0.11	2.91	0.11	3.41	0.1	3.56	0.13						
LOUISIANA	5.36	0.27	4.56	0.14	6.54	0.32	5.31	0.18	5.28	0.22	8.97	0.43	9.06	0.41
MICHIGAN	3.85	0.08	4.75	0.09	5.91	0.11	7.29	0.13	7.57	0.22	12.17	0.48		
MINNESOTA	2.38	0.11	2.69	0.1	2.78	0.09	3.14	0.11	3.18	0.15	3.56	0.16	3.67	0.16
MISSISSIPPI	3.86	0.15	3.88	0.15	4.74	0.16	3.97	0.28						
MISSOURI	4.91	0.14	2.95	0.18	3.71	0.15	4.75	0.17	4.82	0.17	6.53	0.29	7.5	0.31
NEBRASKA	3.89	0.28	2.89	0.18	3.34	0.2	3.29	0.2	3.33	0.24				
NEVADA	5.78	0.24	5.1	0.2	4.83	0.18	4.72	0.16	4.37	0.19				
NEW HAMPSHIRE	3.06	0.37	3.5	0.27	4.06	0.23	4.43	0.39						
NEW JERSEY	3.53	0.07	3.45	0.07	4.33	0.08	4.68	0.12			5.58	0.22		
NEW YORK	4.88	0.05	3.61	0.05	5.04	0.07	5.63	0.08	6.04	0.12	7.74	0.21	6.99	0.19
NORTH CAROLINA	2.96	0.08	2.58	0.07	3.72	0.08	4.33	0.1	4.58	0.13	6.39	0.21	6.28	0.2
NORTH DAKOTA	2.11	0.31	2.01	0.24	2.14	0.18	2.18	0.28	2.95	0.45			2.66	0.27
OHIO	3.38	0.06	3.09	0.07	7.57	0.11								
OKLAHOMA	3.4	0.15	3.74	0.17	4.99	0.16	5.03	0.16	4.55	0.17	7.26	0.36	6.36	0.28
OREGON	3.84	0.13	2.82	0.1	4.15	0.16	4.97	0.14	5.03	0.17	6.28	0.3	8.31	0.45
PENNSYLVANIA	4.13	0.1	5	0.12	5.77	0.09	5.88	0.11	5.95	0.14	9.34	0.34	11.13	0.42
SOUTH CAROLINA	3.32	0.12	3.54	0.12	4.14	0.13	4.01	0.12	4	0.15	5.99	0.26	6.23	0.27
SOUTH DAKOTA	3.19	0.88	3.52	0.35	3.63	0.3	2.97	0.24	2.53	0.27				
TENNESSEE	2.63	0.13	1.43	0.05	3.56	0.09	3.74	0.09	3.71	0.11	5.11	0.17	4.93	0.16
TEXAS	3.67	0.05	4.81	0.08	5.25	0.05	4.83	0.05	5.27	0.07	6.84	0.1	6.23	0.1
UTAH	4.21	0.19	4.25	0.22	5.22	0.28	5.17	0.23	5.55	0.26				
VIRGINIA	3.58	0.12	3.41	0.1	4.63	0.12	4.82	0.12	6.01	0.17			5.8	0.17
WASHINGTON	2.62	0.08	3.01	0.1	3.44	0.09	3.78	0.11	4.19	0.14	7.78	0.45	2.14	0.05
WEST VIRGINIA	3.03	0.23	2.88	0.28	3.62	0.29	4.24	0.26	4.7	0.3				
WISCONSIN	3.53	0.13	2.92	0.09	3.96	0.1	4.79	0.15			8	0.4		

SOURCE: Pew Center on the States, 2012.

Appendix Table A3

Confidence Intervals for Time Served Estimates, PROPERTY CRIMES

	Average 1990		Average 1995		Average 2000		Average 2005		Average 2009		Expected 2005		Expected 2009	
	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−	Time served	+/−
ALABAMA	1.92	0.04	2.07	0.05	2.15	0.04	2.37	0.05	2.41	0.06				
ARKANSAS	1.7	0.06	1.8	0.09	1.65	0.04	2.37	0.06	2.45	0.06	1.84	0.06	2.23	0.09
CALIFORNIA	1.87	0.01	1.68	0.01	2.3	0.03	2.14	0.03	2.18	0.04	2.57	0.03	2.52	0.03
COLORADO	2.21	0.07	2.37	0.07	2.27	0.06	2.56	0.06	2.56	0.07			2.62	0.09
FLORIDA	0.95	0.01	2.34	0.02	3.22	0.04	2.88	0.04	2.66	0.04	2.19	0.03	2.15	0.03
GEORGIA	1.48	0.02	1.78	0.03	2.53	0.05	2.8	0.04	2.48	0.04	2.38	0.05	2.41	0.05
HAWAII	3.1	0.23	2.5	0.17	2.48	0.12	2.99	0.13	3.32	0.19				
ILLINOIS	1.88	0.02	1.75	0.02	1.44	0.02	1.43	0.04						
IOWA	2.01	0.05	2.13	0.05	2.13	0.05	2.03	0.06	2.25	0.08	1.84	0.07	2.4	0.12
KENTUCKY	1.23	0.04	1.51	0.04	1.74	0.04	1.48	0.04						
LOUISIANA	2.24	0.08	2.02	0.04	2.18	0.06	2.22	0.04	2.13	0.05	2.62	0.07	2.18	0.05
MICHIGAN	2.11	0.03	2.45	0.04	2.56	0.05	2.86	0.06	2.86	0.1	4.49	0.16		
MINNESOTA	1.39	0.04	1.38	0.04	1.32	0.04	1.57	0.05	1.6	0.06	1.28	0.04	1.31	0.04
MISSISSIPPI	1.46	0.04	1.69	0.05	1.75	0.05	1.71	0.08						
MISSOURI	1.88	0.04	1.76	0.05	1.38	0.04	1.64	0.04	1.67	0.04	2.28	0.06	2.14	0.05
NEBRASKA	1.68	0.07	1.4	0.08	1.75	0.09	1.69	0.09	1.69	0.11				
NEVADA	2.59	0.07	2.47	0.07	2.3	0.05	2.17	0.05	1.92	0.05				
NEW HAMPSHIRE	2.54	0.16	2.2	0.17	2.27	0.15	2.61	0.2						
NEW JERSEY	2.07	0.04	1.7	0.03	1.99	0.04	1.9	0.04			1.81	0.05		
NEW YORK	3.04	0.03	1.95	0.03	2.5	0.04	2.61	0.05	2.69	0.06	3.49	0.11	3.66	0.12
NORTH CAROLINA	1.4	0.02	1.47	0.03	2.42	0.06	1.82	0.06	1.68	0.06	2.54	0.08	2.38	0.07
NORTH DAKOTA	1.15	0.07	1.29	0.09	1.51	0.08	1.35	0.15	1.62	0.09			1.50	0.11
OHIO	1.67	0.03	1.73	0.03	4.89	0.08								
OKLAHOMA	1.48	0.04	1.86	0.07	3.49	0.1	3.1	0.08	2.85	0.09	2.43	0.08	2.66	0.09
OREGON	2.2	0.08	1.22	0.07	2.09	0.14	1.82	0.09	1.89	0.11	3.78	0.24	4.12	0.27
PENNSYLVANIA	2.49	0.06	3	0.08	3.15	0.08	2.85	0.08	2.92	0.1	3.57	0.15	4.49	0.20
SOUTH CAROLINA	1.65	0.03	1.83	0.04	1.97	0.04	1.87	0.04	1.87	0.05	2.01	0.05	2.07	0.05
SOUTH DAKOTA	1.7	0.19	1.72	0.11	1.89	0.12	1.48	0.09	1.31	0.1				
TENNESSEE	2.42	0.04	0.99	0.02	1.22	0.03	1.26	0.02	1.32	0.03	1.55	0.03	1.41	0.02
TEXAS	1.83	0.01	2.31	0.03	3.83	0.04	1.91	0.03	2.11	0.04	2.15	0.02	2.04	0.02
UTAH	2.08	0.07	1.74	0.07	2.03	0.1	2.02	0.07	2.3	0.1				
VIRGINIA	1.64	0.04	1.77	0.03	2.28	0.04	2.36	0.04	2.66	0.06			1.8	0.04
WASHINGTON	1.72	0.07	1.68	0.05	1.56	0.05	1.63	0.04	1.92	0.04	2.8	0.14		
WEST VIRGINIA	1.68	0.1	1.47	0.12	1.53	0.1	2.6	0.1	3.24	0.12				
WISCONSIN	2.29	0.05	2.18	0.05	2.78	0.05	3.22	0.08			3.56	0.16		

SOURCE: Pew Center on the States, 2012.

Appendix Table A4

Confidence Intervals for Time Served Estimates, **DRUG CRIMES**

	Average 1990		Average 1995		Average 2000		Average 2005		Average 2009		Expected 2005		Expected 2009	
	Time served	+/–	Time served	+/–	Time served	+/–	Time served	+/–	Time served	+/–	Time served	+/–	Time served	+/–
ALABAMA	1.52	0.05	1.93	0.05	2.05	0.05	2.02	0.04	2.04	0.04				
ARKANSAS	1.35	0.05	1.71	0.08	1.76	0.04	2.71	0.06	3	0.06	1.74	0.05	2.41	0.09
CALIFORNIA	1.65	0.01	1.8	0.01	2.08	0.02	2.39	0.03	2.33	0.03	2.43	0.03	2.26	0.03
COLORADO	1.84	0.07	1.77	0.07	2.05	0.05	2.44	0.05	2.48	0.07			2.44	0.1
FLORIDA	0.79	0.01	2.21	0.02	2.46	0.03	2.3	0.03	2.32	0.04	1.29	0.01	2.14	0.03
GEORGIA	1.12	0.02	1.52	0.03	2.1	0.04	2.19	0.03	2.08	0.03	2.11	0.05	2.1	0.05
HAWAII	2.62	0.28	2.55	0.18	2.34	0.11	2.79	0.18	2.95	0.22				
ILLINOIS	1.63	0.03	1.47	0.02	1.2	0.02	1.22	0.03						
IOWA	1.7	0.07	2.39	0.08	2.41	0.06	2.06	0.04	2.26	0.07	1.89	0.08	2.83	0.17
KENTUCKY	0.92	0.04	1.18	0.03	1.42	0.03	1.23	0.02						
LOUISIANA	2.01	0.07	2.01	0.03	2.27	0.05	2.27	0.04	2.14	0.05	2.47	0.06	2.2	0.04
MICHIGAN	1.66	0.03	2.35	0.06	2.69	0.08	2.8	0.09	2.88	0.17	3.9	0.18		
MINNESOTA	1.1	0.05	1.43	0.08	1.38	0.05	2.08	0.06	2.18	0.08	1.74	0.07	1.52	0.05
MISSISSIPPI	1.22	0.04	1.5	0.04	1.79	0.05	1.77	0.08						
MISSOURI	1.52	0.06	1.66	0.07	1.28	0.04	1.36	0.03	1.37	0.04	1.83	0.04	1.79	0.04
NEBRASKA	1.43	0.07	1.48	0.08	1.6	0.08	1.44	0.08	1.55	0.09				
NEVADA	2.11	0.08	2.47	0.08	2.24	0.06	2.27	0.07	1.76	0.07				
NEW HAMPSHIRE	2	0.12	2.03	0.11	2.02	0.15	2.28	0.18						
NEW JERSEY	1.83	0.02	1.79	0.02	2.02	0.02	2.09	0.03			1.92	0.04		
NEW YORK	2.46	0.03	2.06	0.02	2.41	0.02	2.56	0.03	2.24	0.03	2.61	0.05	2.23	0.05
NORTH CAROLINA	1.26	0.02	1.20	0.02	1.78	0.05	1.67	0.04	1.74	0.05	2.54	0.09	2.8	0.1
NORTH DAKOTA	0.96	0.09	0.99	0.13	1.19	0.09	1.2	0.1	1.79	0.12			1.3	0.07
OHIO	1.07	0.02	1.23	0.02	2.9	0.09								
OKLAHOMA	1.19	0.06	1.65	0.07	2.84	0.07	2.73	0.05	2.65	0.06	2.3	0.06	2.66	0.08
OREGON	1.04	0.05	1.08	0.05	1.49	0.05	1.67	0.08	1.68	0.1	2.7	0.22	3.07	0.26
PENNSYLVANIA	1.96	0.04	2.65	0.05	2.81	0.05	2.63	0.04	2.83	0.06	3.19	0.1	4.15	0.14
SOUTH CAROLINA	1.38	0.04	1.72	0.04	2.08	0.05	1.93	0.05	2.16	0.07	2.3	0.07	2.63	0.09
SOUTH DAKOTA	1	0.17	1.27	0.19	1.27	0.09	1.13	0.05	1.14	0.07				
TENNESSEE	1.61	0.04	0.91	0.03	1.35	0.03	1.37	0.03	1.46	0.03	2.04	0.06	1.88	0.05
TEXAS	1.6	0.01	2.12	0.02	3.29	0.03	1.78	0.02	1.82	0.02	1.7	0.02	1.53	0.01
UTAH	1.77	0.08	1.48	0.05	1.68	0.06	1.74	0.04	1.97	0.05				
VIRGINIA	1.28	0.03	1.65	0.03	2.16	0.04	2.28	0.04	2.2	0.05			1.68	0.04
WASHINGTON	1.21	0.02	1.64	0.03	1.71	0.03	1.6	0.03	1.79	0.04	2.32	0.09		
WEST VIRGINIA	1.36	0.13	1.16	0.09	1.44	0.1	1.91	0.09	2.26	0.11				
WISCONSIN	1.63	0.05	1.24	0.04	2.02	0.04	2.33	0.05			2.62	0.11		

SOURCE: Pew Center on the States, 2012.

Appendix B: Full Methodology Criminal History Accumulation Process (CHAP)

To calculate an offender trajectory, Pew's contractor Dr. Avinash Bhati collected all pre- and post-release arrest histories for three years for each individual released from state prison in 2004 in Florida, Maryland, and Michigan (these cohorts represent all releases, not first releases as in the findings above). This information included dated arrest histories for offenders with a recorded date of birth. These data tell the age of first, second, and subsequent arrests for an offender. This allows the measurement of elapsed time between successive arrests. Dr. Bhati also collected offender demographics, admission and release dates for the current incarceration, and outcome of the arrest (whether the arrest resulted in a probation term and/or an incarceration term). This allows him to develop a Criminal History Accumulation Process (CHAP), which is a means of linking the current risk of offending to age and criminal history—a better measure of criminal history than simply the number of prior arrests or even age at first arrest.

The *observed* arrest history can then be used to develop *estimated* future offending paths. This is done by adjusting arrest pattern data with the number of charges for each crime within an arrest, the crime clearance rate for various years during which arrest histories are observed, the crime reporting rate by age of offender and crime categories, co-offending rates specific to the offense category, and replacement rates. An adjustment, or *correction factor*, is employed to reflect the fact that not every crime is reported or cleared and that some incapacitated or deterred offenders are replaced in the community. For example, a person is arrested for drug sales and is simply replaced in the community by another individual selling drugs in the same market.

An offending trajectory is then calculated. The pre-incarceration offending trajectory is considered the counterfactual: the trajectory that an offender would have been on had s/he not been incarcerated. A second post-release trajectory is calculated reflecting how the offender's trajectory was deflected as a result of this incarceration. Comparing the counterfactual with the post-release offending trajectory allows an

assessment of the extent to which an offender's behavior has been modified by incarceration.

The example shown in Figure B1 involves a prisoner who was incarcerated at age 34 for a period of three years. Using this past criminal history accumulation process, Dr. Bhati first develops an arrest trajectory (termed here as the pre-incarceration offending trajectory). According to this trajectory, the offender has approximately 10 prior arrest records. Next, the pre-incarceration arrest trajectory is plotted out over the course of his incarceration and through the follow-up period (three years in this case). This constitutes the counterfactual offending trajectory.

The prisoner is then released from prison at age 37. Using the available rearrest data for the following three years, Dr. Bhati estimates a post-release arrest trajectory. Two scenarios are depicted in Figure B.1. If the prisoner is deterred then the offender should accumulate fewer post-release rearrests relative to what he would have after netting out the incapacitation effect—i.e., if he picked up his career where he left off upon release. This is indicated by marker B. If he accumulated rearrests at a quicker rate than anticipated then we have a

Figure B1

Calculating the Incapacitation, Specific Deterrence, or Criminogenic Effects of Incarceration
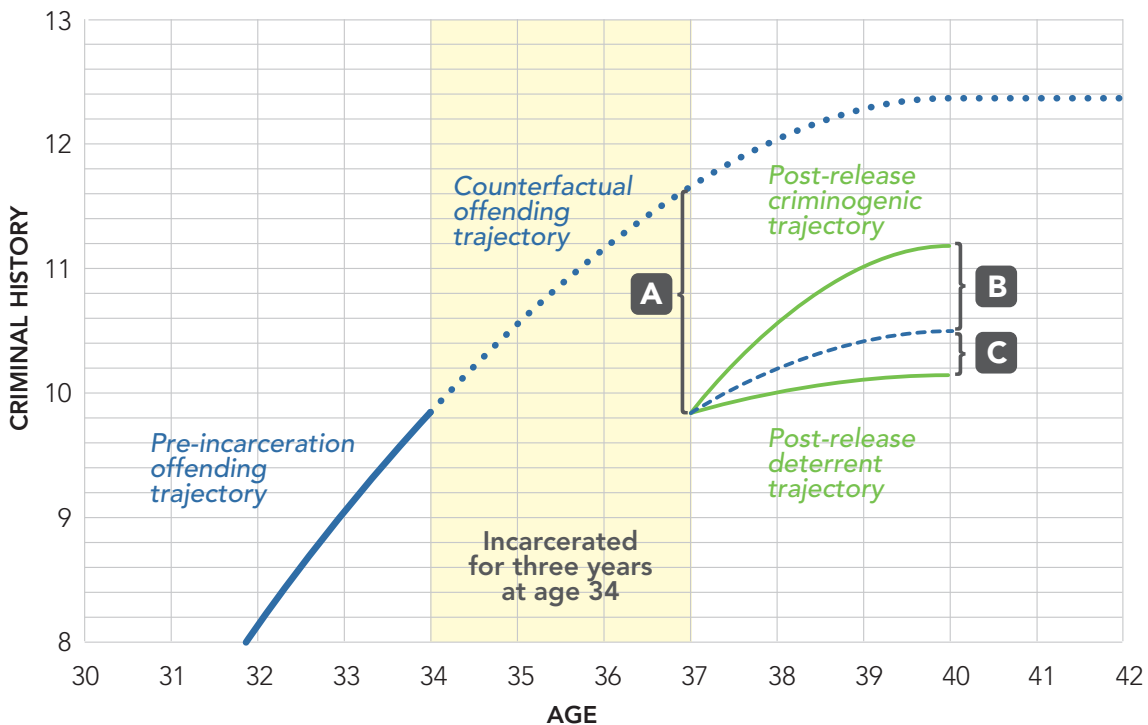
SOURCE: Pew Center on the States, 2012.

criminogenic post-release trajectory. This is indicated by the marker C. Finally, the difference between the number of rearrests he would have accumulated had he not been incarcerated—the incapacitation effect—is indicated by the marker A. The net effect of incarcerating this individual is computed using A, B, and C depending on whether he is deterred or not.

This method is not unlike more commonly known risk assessment instruments, but with a key difference. Risk instruments use aggregate outcomes to inform decisions about release and/or classification for individuals on a case-by-case basis. Criminal trajectory modeling adds the element of time to these models. Rather than simply noting that certain individuals are less likely to recidivate upon release based on the number of crimes committed in the past, trajectory modeling can provide guidance on when individuals tip from one risk category into the next. In adding the element of time, this approach provides policy makers with additional information on how to address the size and cost of their state's prison population.

The analysis conducted for this project is part of a series of papers that Dr. Bhati has produced on the topic of length of stay in prison and crime. His earlier work on this topic has been published in the *Journal of Quantitative Criminology* and the *Journal of Criminal Law and Criminology*. Dr. Bhati is the founding president of Maxarth LLC. He has over ten years of experience conducting applied empirical research addressing challenging public policy questions. Dr. Bhati earned a Ph.D. in Economics from the American University (Washington, DC) in 2001 and has since successfully led several research efforts supported by the U.S. National Science Foundation, the U.S. Department of Justice, the Court Services and Offender Supervision Agency for the District of Columbia, the American Statistical Association, and several foundations. He has consulted with several universities, research organizations, and practitioners. Dr. Bhati is the author of numerous articles and reports. His multi-disciplinary work can be found in such publications as *Criminology, Econometric Reviews, Journal of Quantitative Criminology, Journal of Criminal Law and Criminology, Sociological Methodology,* and *Criminal Justice Policy Review*. He serves on the editorial board of the *Journal of Quantitative Criminology*.

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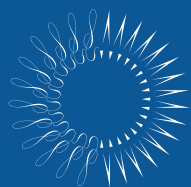41 Patterson and Preston, "Estimating Mean Length of Stay in Prison," (2008), 42.

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