FEDERAL DEFENDER FACT SHEET on USSC's "Length of Incarceration and Recidivism" Report

Summary and Introduction

In June 2022, the U. S. Sentencing Commission issued a report entitled "Length of Incarceration and Recidivism" (the USSC 2022 Report). In this report, the Commission claimed to have "found a statistically significant preventative effect for offenders sentenced to more than 60 months incarceration."[1] No effect was found for sentences of 60 months or less.[2] The USSC 2022 Report is largely a repeat of its 2020 report of the same name, which followed a group of federally incarcerated individuals released into the community in 2005.[3] The 2022 analysis used a sample of individuals released in 2010.

Like the findings in the predecessor report, from 2020, the findings in the USSC 2022 Report are flawed, and their conclusions should not be used by judges, legislators, or the Commission to make policy.[4] The report misrepresents the research literature, both in biased summations and omission of relevant literature (Section I). It uses poorly-defined variables (Section II) and a weak methodology for inferring causation (in part because it fails to control for a variety of factors that are known to impact recidivism) (Section III). The report states its findings in a misleading form, using odds ratios, which are prone to misunderstanding and inflated interpretations. (Section IV). And the results are likely biased in other ways, such as choices that led to a significant loss of data (about 30%). Further, it is unlikely the report's findings would replicate or withstand tests for robustness, but because the Commission did not release data underlying the report, independent evaluation is impossible (Section V).

As a bipartisan agency charged with being a "clearinghouse" for information on the effectiveness of sentencing practices,[5] the Commission should provide a neutral perspective on the current state of knowledge regarding important policy questions. Indeed, the Commission states that the purpose of the USSC 2022 Report was to inform policymakers on how the length of incarceration affects recidivism.[6] Unfortunately, the report takes a policy stance toward increasing prison time, but without a sufficiently supportive empirical basis.

Prepared by the Federal Public and Community Defenders
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I. Literature Review

The USSC 2022 Report states its intent to provide a review of relevant literature on the effects of sentence length on recidivism, but does not acknowledge some key criticisms, gaps, and limitations of the studies it cites. It acknowledges that "[e]mpirical research on the relationship between length of incarceration and recidivism is limited and presents mixed results." However, viewed collectively, existing research does not support the Commission's position that lengthy prison sentences are preventative.

A. The Presentation of External Research

The USSC 2022 Report does not provide a neutral and fair representation of existing research on the effects of sentence length on recidivism. As laid out below, the Commission's interpretation of the relevant literature in the field gives an incomplete picture, potentially encouraging readers to assume that the Commission's conclusions in the USSC 2022 Report are generally supported in the field, when in fact they are not.

The Commission's conclusions in this report and its 2020 report that very long terms of imprisonment act as specific deterrence stand as a relative outlier when one engages in an in-depth review of the relevant literature.[7] Indeed, the Commission cites to several articles that found no statistically significant associations between longer terms of incarceration and recidivism, which seems to contradict the Commission's position.[8] But the Commission neither directly acknowledges these inconsistencies nor attempts to explain why its conclusions should be considered reliable despite these contradictions. The Commission's two publications are not convincing enough on their own to counter the conclusions of other literature reviews or of other studies that tend to show a null or criminogenic effect of longer prison sentences.

In addition to failing to explain the reliability of its report, despite its inconsistencies with other literature, the Commission provides a stilted representation of existing research. As one respected expert commented, the Commission's "negative tone and ongoing preference for imprisonment indicate that the Commission continues to adhere to its role as guardians of the pro-imprisonment guidelines."[9]

For example, as the Commission acknowledges, a review in 2009 (Nagin et al.) of then-existing research concluded that "there [was] little convincing evidence on the dose-response relationship between time spent in confinement and reoffending rate."[10] Yet the Commission omits the review's primary takeaway:

> [A] key finding of our review is that ***the great majority of studies point to a null or criminogenic effect of the prison experience on subsequent offending.*** This reading of the evidence should, at least, caution against wild claims—at times found in "get tough" rhetoric voiced in recent decades—that prisons have special powers to scare offenders straight.[11]

The USSC 2022 Report literature review of existing evidence about the effects of sentence length on recidivism is largely misleading and incomplete.[12] The following table summarizes how the Commission conveys the import of each study cited (in *italics*) and then provides a more nuanced explanation from the authors themselves (in plain type). In some instances, we offer additional commentary.

Berecochea & Jaman (1981)[13]

From the Commission: This study found offenders receiving longer prison sentences had lower recidivism rates, though the effect was not statistically significant.

From the authors: "The conclusion from this project is that prison terms can be reduced without affecting recidivism to a significant and practical degree. **This conclusion lends strength to the argument that severity of punishment is not related to recidivism (among those sent to prison)**."[14]

Comments: It is not clear that this study is strongly relevant considering it relies upon a sample of men who had been convicted of felonies released on parole in California in 1970 and the experimental method was designed to reduce time served by six months (by randomly setting parole hearings ahead six months). The findings thus do not appear to answer the question of the potential effect of assigning multi-year prison sentences.

Deschenes et al. (1995)[15]

From the Commission: In a study comparing two groups of offenders who had been incarcerated, one which served their full sentences and the other were released early and placed on intensive community supervision, there were similar rates of rearrest between the two.

From the authors: This study did not focus on differences in sentencing lengths, rather this study compared those diverted from prison early to those who were not diverted. The researchers highlighted that individuals could be released early to intensive supervision programs with "no greater risk to public safety in terms of new arrests."."[16]

Loughran et al. (2009)[17]

From the Commission: this study found no evidence that length of incarceration has either a criminogenic or preventative consequence.

From the authors: **"[I]t is apparent that little or no marginal benefit exists for longer lengths of stay, in terms of reducing rates of rearrest or self-reported offending**."[18] Further: "Our research shows a general lack of support for lengthy periods of placement and indirectly underscores the movement toward increased use of non-placement/community-based alternatives, especially for those offenders who do not evince the highest risk."[19]

Comments: It is not evident that this study of juveniles is informative since there are significant risk-relevant differences between adults and juveniles in reoffending.[20]

Green & Winik (2010)[21]

From the Commission: Findings from this study indicate that incarceration has little net effect on rearrest.

From the authors: "Although the criminogenic effect remains somewhat speculative, **these simulation results certainly cast doubt on the hypothesis that punishment exerts a specific deterrent effect**."[22]

Comments: The study has limited appeal because it only included individuals with drug-related offenses and may not be equally applicable to the broader range of federal crimes.

Snodgrass et al. (2011)[23]

From the Commission: This study finds that low-dose offenders were convicted of 0.033 more felonies per year compared to high-dose offenders, "however, the observed preventative effect was not statistically significant."[24]

From the authors: "[W]e find little evidence of a relationship between time served and future offending. No evidence is found that longer periods of incarceration either increase or decrease the proportion of offenders who would be reconvicted in the next 3 years [and] no evidence is found that longer periods of incarceration alter the rate of future conviction."[25]

Comments: The authors' policy recommendations are not in line with the Commission's:

> [A] trend in empirical literature is beginning to emerge. **The stricter the control of preexisting differences, the less evidence that**

incarceration offers a strong specific deterrent. Although the literature is too nascent to generate policy recommendations, if the current trend continues, then we may need to very seriously reexamine the role that incarceration plays in contemporary justice policy.[26]

Kuziemko (2012)[27]

From the Commission: This study "found that lengthier sentences were associated with a decrease in recidivism of 1.3 percent per additional month of incarceration served." An independent researcher (Roodman (2017)),[28] in a reanalysis of Kuziemko's data regarding the 1.3% statistic, instead "found a trivial impact of length of incarceration on recidivism." Kuziemko, in a separate analysis involving a subsample released early to curb overcrowding, found there was "a 3.2 percent decrease in return to prison for each additional month served."[29]

From the author: Kuziemko, according to Roodman, "agreed fully" with two errors he raised which undermined the validity of the 1.3% reduction statistic.[30] Kuziemko performed a separate analysis and noted that a policy reform in Georgia that required individuals serve at least 90% of their sentences substantially increased recidivism rates, arguably because there were few incentives to make rehabilitative efforts. The author concludes that the results advocate for a parole system rather than a fixed sentence system and that lower risk inmates should be released earlier than their sentence lengths would dictate. Thus, this article argues that a system (like the federal system) with strict limits on early release is itself criminogenic.

Comments: The Roodman article revealed two foundational errors in Kuziemko's specification of the models that provided the 1.3% reduction statistic (errors which Roodman indicates in correspondence Kuziemko eventually agreed).[31] Roodman corrected the errors and ran the models again, finding there was no longer a statistically significant difference in recidivism based on sentence length.

The Kuziemko study was able to control for predicted risk, which sets this model apart from the Commission's methodologies. The second result with a 3.2% decrease was related to a small sample size of 519 and focused on a group convicted of nonviolent offenses released early who had a median sentence of 36 months and thus the import of the result to a population of individuals charged or convicted in federal court is relatively limited.

This study is not generalizable to the federal system for other reasons, too: releases were mostly tied to parole board discretion, almost half were convicted of violent crimes, and the outcome measured was return to prison after a conviction for a new offense (excluding technical violations). It also limited the sample to those sentenced to terms of incarceration from 7 months to 10 years, limited the sample to lower severity index offenses, and restricted the sample by excluding those outside a specified bound of risk

predictions. Moreover, the Kuziemko paper is about time served, whereas the Commission is focused on length of prison sentence regardless of time served.

Meade et al. (2012)[32]

From the Commission: Results indicated that "offenders confined for lengthier terms of incarceration had lower odds of recidivism" and individuals "serving at least 60 months had statistically significant lower odds of recidivism as compared to similar offenders serving less time."[33]

From the authors: Comments indicated the authors did not find their results very convincing because "the magnitude and substantive interpretation [of finding an inverse relationship between time served and recidivism] may not unilaterally support the specific deterrent hypothesis."[34] The authors felt that the differences in odds of recidivism for individuals who served the typical amount of time in prison (about two years) and those who served five years was statistically significant, but not very large in magnitude. Consequently, they wrote that "**the specific deterrent effect of prison sentences may be limited**."[35] Authors also noted that the relatively small reduction in recidivism for sentences over five years may not be worth the costs of such long-term incarceration.

Comments: The study is different than the Commission's sample for several reasons: the focus was on time served (rather than length of sentence), recidivism was defined to include only felonies, the follow-up period was 1-year, it controlled risk level, controlled security level of releasing institution, and all were released on supervision.

Roach & Schanzenbach (2015)[36]

From the Commission: Results indicate that "increased sentence length was associated with a decrease in recidivism rates. Specifically three-year felony recidivism rates decreased by approximately one percent for each additional month of incarceration imposed."[37]

From the authors: The authors warn that their results are "not predicting the effect of moving from a one-year sentence to a multi-year sentence, but rather the variation is in months around a fairly low sentencing level."[38] In the context of this prison system, the authors do not attribute the relationship to specific deterrence, but instead to the rehabilitative abilities of the Washington prison system when inmates have a longer ability to engage with productive programming.

Comments: The study is not generalizable to individuals charged or convicted in the federal system because the individuals studied had convictions for low-severity offenses, with a median sentence of four months (90% with less than two years), all had pled guilty, the outcome variable was felony convictions, and the authors stress that the Washington state prisons, where the study was conducted, are known for rehabilitative

programming and it could be that access to services in prison may be the explanation for the reduction. Further, this study cannot provide any evidence on sentences of over five years, the bottom limit of the Commission's assertions of a deterrent effect in the USSC 2022 Report.

Mears et al. (2016)[39]

From the Commission: This study reflects that incarceration lengths of six years or more were associated with a decline in recidivism.

From the authors: Mears et al. found a curvilinear relationship, with a decreasing recidivism rate after incarceration of 6 years, though with larger standard errors because only 2% of the sample had sentences of that length. The authors warn about the "highly uncertain" and unstable results for the relationship with prison time over 60 months. Indeed, the authors conclude that they believe that at some point "additional incarceration neither increases nor decreases the likelihood of recidivism."[40] Further, "**the results of this study suggest that lengthier terms of incarceration, beyond a few months, do not readily appear to reduce recidivism and, indeed, may increase it**."[41] To be clear, the authors reiterate that "[l]engthier prison terms of three years or more do not appear to appreciably reduce recidivism beyond that associated with shorter prison stays."[42] Still, this study is not generalizable to the Commission's analysis as it counted felony convictions in a three-year follow-up period, only a small subset had sentences of six years or more, and the focus was on time served.

Rhodes et al. (2018)[43]

From the Commission: This study found that longer prison terms were associated with a slight decrease in recidivism during a three-year follow-up period. Specifically, Rhodes and his coauthors found that a 7.5 month increase in incarceration length was associated with a one percent decrease in recidivism.

From the authors: The authors did not find the results sufficient to justify increasing prison sentences: "The findings produced from this study provide no evidence that an offender's criminal trajectory is much affected by a 7.5 month increase in the length of a prison term. If anything, longer prison terms modestly reduced rates of recidivism beyond what is attributable to incapacitation. This 'treatment effect' of a longer period of incarceration is small. The 3-year base rate of 20% recidivism is reduced to ~19% when prison length of stay increases by an average of 7.5 months. We are inclined to characterize this as a benign, close-to-neutral effect on recidivism. **From a policy perspective, prison length of stay can be reduced with no effects on recidivism**."[44]

Berger and Scheidegger (2022)[45]

From the Commission: This review "concluded that the literature on length of incarceration and recidivism continues to be somewhat inconsistent, with some studies finding no effect on recidivism, while other studies indicating increased prison length reduces recidivism, albeit in some studies only slightly."[46]

From the authors: In reviewing recent methodologically rigorous studies on the causal relationship between length of incarceration and recidivism, the authors conclude the "findings are still mixed, providing **little conclusive evidence for or against the specific deterrent effects of imprisonment**."[47] On the other hand, the authors mention that the empirical research does not support the idea that long prison sentences have criminogenic consequences. The authors warn about "cherry-picking" results from one or two studies to support one's position and that the research is not presently in a state to justify any sweeping policy reform on prison length.[48]

B. Missing Evidence

In addition to not adequately representing the prior literature it does cite, the USSC 2022 Report ignores other potentially relevant publications that might appear to contradict its findings.[49] A meta-analysis published in 1999 interpreted the collective knowledge at that time that: "[n]one of the analysis conducted produced any evidence that prison sentences reduce recidivism."[50] A comprehensive 2014 review led by the National Research Council concluded, contrary to the Commission's key findings here, that any deterrent effects are modest at best, and diminish, rather than increase, as sentence

lengths increase.[51] The USSC 2022 Report mentioned the Roodman study, in which Roodman reexamined Kuziemko's data, but the Commission neglected to refer to a key conclusion. Roodman undertook a comprehensive analysis of dozens of studies related to the impact of incarceration on crime, even obtaining the original datasets from multiple of them and tried to replicate the analyses, giving the following reflection on his perspective: "**Longer sentences do not clearly deter crime [and] claims that increasing the severity of incarceration even mildly deters appear weak**."[52]

The USSC 2022 Report also seemingly neglects writings of its own on recidivism from past years. The Commission has long issued papers concerning recidivism, often focused on an offense type and comparing recidivism rates between that offense type versus all other types. In several of these publications, the Commission reported that the association between sentence length and recidivism is not clear.[53] For example, a 2017 Commission publication states that "among all offenders sentenced to one year or more of imprisonment, there was no clear association between the length of sentence and the rearrest rate."[54]

The Commission, in a 2016 publication on recidivism that followed 25,431 individuals released in 2005, touted it as comprising a much larger sample than previously studied, which "provides an opportunity to develop statistically useful conclusions about many subgroups of federal offenders, including those sentenced under different provisions in the guidelines."[55] This document found:

> Offenders with shorter lengths of imprisonment generally had lower recidivism rates. For instance, offenders with sentences of imprisonment of fewer than six months had the lowest rearrest rate at 37.5 percent, followed by offenders with sentences from six to 11 months (50.8 percent), and 12 to fewer than 24 months (50.8%). Conversely, the highest recidivism rates are generally found among offenders with longer sentences. Those with sentences from 60 months to fewer than 120 months had the highest rate (55.5%), followed closely by those with 24 to fewer than 60 months (54.0%), and 120 months or more (51.8%).[56]

Notably, the rates of reoffending for the two lower-sentenced groups in the 2016 publication (6-11 months and 12-24 months) and the highest (120+ months) were comparable. Still, the Commission did not attribute the differences to the specific deterrence effect of prison. Rather, the "guidelines are intended, in part, to incapacitate offenders whose criminal records indicate a greater risk of future criminality. . . . [T]hose receiving longer terms of incarceration as a result of their higher CHC's are also at greater risk of recidivism than those receiving . . . a shorter period of incarceration who generally had lower CHCs."[57]

The 2016 study found those receiving a sentence involving imprisonment recidivated at a significantly higher rate (52.5%) than those receiving probation (35.1%). Including this perspective on the potential effects of the in-out decision (the choice between probation

and incarceration) would have provided valuable information, but it is missing from the USSC 2022 Report.

C. Prison Length Reductions

The USSC 2022 Report evaluates only differences in recidivism among individuals who received different sentence lengths. **It does not indicate whether reductions in sentences already imposed and partially served would increase recidivism among the reductions' beneficiaries**. Previous Commission research—not cited in this report—found that post-sentencing reductions and early release did *not* lead to increased recidivism among beneficiaries of retroactive application of the Fair Sentencing Act,[58] the 2007 crack cocaine amendment,[59] or the drugs minus two amendment (i.e. lowering all base offense levels by two for all drug types and quantities).[60] The USSC 2022 Report does not attempt to reconcile these findings, nor does it caution against improperly generalizing its findings to early release decisions.

II. Variable Definitions

A. Defining Recidivism

The USSC 2022 Report uses a flawed operational definition of recidivism. **It defines recidivism to be any new arrest, which is a knowingly flawed proxy to actual crime.**[61] In many ways, rearrest does not respond to the issues with which policymakers are most interested.

- Low evidentiary bar for arrest. Arrest is a flawed proxy to criminal behavior because it is based only on probable cause, meaning that the recidivism outcome will include events where the individual did not actually commit the crime alleged. Therefore, the recidivism outcome will include an unknown (possibly large) number of false positives (i.e., recidivist events counted when the individuals did not in fact commit the crime alleged).

- Arrest bias. Arrests are more susceptible to gender/racial/ethnic bias and discrimination than other proxies (e.g., reconviction) on the part of other actors, including whether victims report or police arrest.[62] This means that this variable will contain an unknown amount of demographically biased data, which will in turn bias results.

- Minor offenses. The Commission counts the arrest for any crime, regardless of severity. As identified in the USSC 2022 Report, these include such low severity offenses or crimes of poverty such as failure to appear, obstruction of justice, drunkenness, vagrancy, disorderly conduct, curfew violation, truancy, and a liquor law violation.[63]

- Technical violations. The recidivism count will include events that actually do not rise to the level of a criminal act, such as a violation of the terms of probation, parole (such as a violation of state parole), or supervised release. The USSC 2022 Report fails to provide a breakdown of the type or severity of the recidivist events in its investigation.

- Low-level recidivist acts. Though the USSC 2022 Report does not provide a breakdown of types or severity of recidivist acts, we can glean information from other USSC publications. A recidivism study of individuals with drug trafficking convictions (compared to all others) suggested that most of the offenses of recidivism were not serious: for individuals convicted of other offenses, the crimes were 21.1% property, 28.5% low level (combination of immigration, administration of justice, supervised release violations, public order, and other), 21.1% drugs, and 34.3% violent (though 2/3 were for assault).[64] A 2016 USSC recidivism report had a similar breakdown, and more specifically the whole sample included rearrests on these low-level offenses: 7% DUI, 16% "other public order" crimes, and then 4% other or unspecified. A recidivism analysis of a retroactive reduction of base levels for drugs similarly indicates that one-third of recidivist events were for court or supervision violations.[65]

- Imminency of arrest after release. The eight-year follow-up period in the USSC 2022 Report means that the recidivist events did not need to be imminent to release. Indeed, for the 61-120 month and the above-120 months groups, the average time to (first) arrest was 2.4 and 2.5 years, respectively.[66] Considering this long follow-up period and that that many of the recidivist events were of low-severity level, it appears to be a poor policy decision to sentence more individuals to over five-year terms (as the Commission seems to suggest) just to prevent a possible misdemeanor arrest more than two years following release. Further, the longer the follow-up period, the more attenuated any purported causal effect gets from the treatment studied (here, prison length) and the greater the potential influence of other causal or correlative factors.

- Prerecidivism. The USSC 2022 Report fails to mention any attempts to exclude prerecidivism. "Prerecidivism" refers to criminal acts that actually preceded in time the commission of the index crime (i.e., the offense for which the person was sentenced). For example, an individual commits a crime in 2010 without consequence and then commits a new crime in 2011 for which the individual is adjudicated guilty and sentenced to prison. The individual serves the time and is released, after which he is arrested for the crime from 2010. This would constitute prerecidivism—even though the arrest occurred after the prison term for the latter offense, the crime preceded that offense in time. Prerecidivism counted as recidivism improperly inflates the numbers. This bias would more probably increase the recidivism rates of those sentenced to lesser time because of temporal restrictions from statutes of limitations and the reduced chance that police arrest individuals for offenses committed farther in the past.

- Frequency of reoffending. The study does not include information on frequency of reoffending. Presumably policymakers are more interested in individuals who commit repeat (and escalating or violent) offenses. This study does not provide important information relevant to these concerns.

- First-time, low-level offenses versus frequent serious offenses. Because the Commission counts the first recidivist act that occurs at any time before the end of the eight-year study period, regardless of severity or conviction, the report would count identically these two, arguably highly dissimilar, individuals: (a) the person who was arrested a single time for a technical violation seven years after release and adjudicated innocent, and (b) the person who immediately upon release began a serious crime spree involving repeated acts of violence over the duration of the eight-year period and was convicted for them.

The Commission's failure to account for some of the foregoing attributes in their study was likely not because of the unavailability of relevant data. Indeed, the Commission has, in its other studies, been able to track the type and severity of reoffending, the timing of the reoffending, and the number of new arrests per individual.[67] The Commission appears to have chosen not to address these issues.

B. The Problem of Career Offender Status

The variable used to match and control for differences in criminal history in the USSC 2022 Report was contaminated by the inclusion of individuals who received Career Offender and Armed Career Criminal enhancements. Along with age, criminal history is a major factor associated with recidivism.[68] Therefore, it is especially important that study and comparison groups be properly matched on criminal history, so that the risk-based effects of criminal history are not mistaken for a deterrent effect of lengthier incarceration. Because Congress mandated very long sentences for certain individuals with specified prior offenses, the guidelines contain special rules for individuals who receive so-called "career offender" and "armed career criminal" enhancements[69] (referred to herein jointly as "COs"). In addition to receiving increases to their offense levels, most of COs are automatically placed in Criminal History Category VI (CHC VI), even though they may not have a sufficiently extensive prior record to otherwise be placed in that category.

The Commission used CHC as the primary matching and control variable for criminal history, despite this known flaw with CHC as a recidivism risk scale. It did not ensure the study and comparison groups contained the same number of the COs. Because these individuals receive very long sentences, it is likely that the study groups receiving the longest sentences (60+ months) contained a larger number of these COs than the comparisons groups.[70] Indeed, a different Commission study shows that of COs, more than 90% are sentenced to at least 60 months and 75% to 120 months or more.[71]

This limitation is real and the USSC was aware of the potential for contamination. In its recent publication on recidivism for drug traffickers, there is an implicit acknowledgement that the relationship between CHC and rearrest (higher CHC associated with a higher recidivism rate) may not apply to CHC VI when COs are included. The USSC separately compared the recidivism rates for those who were placed in CHC VI based on criminal history points with the COs. The recidivism rate for the COs combined was substantially lower than individuals placed in CHC VI on the basis of criminal history points alone.[72] Instead, the recidivism rates for the COs lay in between the rates of the CHC III and CHC IV groups.[73] In a separate publication, Commission staff reported that the recidivism rate of COs was closer to that of the points-based CHC III group.[74]

In another 2016 publication, the USSC recognized that the group of individuals who received career offender enhancements (here not including armed career criminal status) were not alike: those who were assigned career offender status for drug trafficking alone were significantly less likely to recidivate than those who were CHC VI assigned for prior crimes of violence.[75] In light of this difference, the Commission argued that "[c]areer offenders qualifying only on the basis of 'drug trafficking offenses' should not categorically be subject to the significant increases in penalties required by the career offender directive."[76]

As a result of this contamination: (a) each of the 61-120 month and 120-plus month study groups in the USSC 2022 Report may have had a *lower* risk of recidivism than their comparison group, regardless of the difference in length of incarceration, and (b) the regression model predicted (i.e., controlled for) a greater risk of recidivism in the study group than was in fact the case. It is impossible to assess, without more information from the Commission, whether the difference in recidivism that the USSC 2022 Report attributes to the deterrent effect of lengthier incarceration may, in fact, have been due to this uncontrolled pre-existing difference between the groups.

III. Methodological Issues

A. Study Design

The Commission used a "two-stage process" it claimed was "particularly powerful in that only one of the two models needs to be correctly specified to obtain unbiased estimates."[77] **This matching methodology and "doubly robust estimation" touted by the Commission cannot overcome missing data or flaws in the control variables.**

First, the Commission used matching and weighting to create roughly comparable groups; it then used multiple logistic regression to estimate the effects of differences in incarceration lengths after accounting for the effects of the control variables (the same variables used for matching). But this procedure "is robust to misspecification of one (*but*

not both) of these models."[78] In other words, the procedure cannot correct for missing variables or flaws in the controls. Moreover, when both the matching/weighting model and the multiple logistic regression models are misspecified, "the resulting effect estimate may be more biased than that of a single, misspecified maximum likelihood model."[79] A model is misspecified if it does not control for all relevant factors or contains a predictor that is ill-defined in measuring what is theoretically associated with the outcome predicted. For example, if the problem with the CHC control variable described above led to overestimation of the risk of recidivism for the longer-incarcerated study groups, the double estimation could not correct it, and could instead compound the problem.

Notably, there was a significant loss of cases from the original dataset to the samples studied. This could bias results because there is no information provided to negate the potential that the missing cases were nonrandom. From a beginning sample of 32,135, the final dataset was of 22,928 individuals, a loss of almost 30% of cases.[80] The proportional loss was not equally distributed amongst the comparison and study groups. The report indicates that the matching process led to a loss of between 8% to 25% between groups.[81] The report is not clear why these percentages are less than the overall loss of 30%, but in context, it is possible that the sample had already been winnowed by other criteria that the Commission deployed before the matching process that reduced the sample size further. The Commission required for cases to be included that the individuals must be: U.S. citizens; not reported dead, escaped, or detained; and be associated with an individual FBI number. Two of the last criteria could themselves have introduced bias specifically into the 120-month-plus study group. A disproportionate number of these individuals would have been incarcerated from before 1990, meaning they might have been more likely to have been excluded from the sample because of their increased likelihood of: (a) not having an available FBI number in criminal history records (e.g., older criminal history records may be missing for various reasons), and (b) having died during the study period. **In other words, the 120-month-plus study group could be biased by a greater proportional loss of subjects (which cannot be confirmed or refuted without access to relevant data).**

B. Issues in Inferring Causation

Determining whether differences in incarceration lengths is the *cause* of any differences in recidivism rates is a very difficult methodological problem. **The USSC 2022 Report used a relatively weak methodology for identifying causal effects, including the deterrent effect of lengthier incarceration.** Individuals receiving different sentences differ in many ways that can affect recidivism, other than incarceration length alone. For this reason, experiments using randomly created study and comparison groups are recognized throughout science as the gold standard for inferring causation. The deterrent effect of imprisonment has been studied using "natural experiments" (where randomly assigned judges impose different sentences), but this has been useful largely for studying the effects of differences among relatively short sentences, or between incarceration and

non-custodial alternatives.[82] The Rhodes (2018) study of federally sentenced individuals by non-Commission researchers used the logic of both regression discontinuity and instrumental variables to infer causation, which are considered by many methodologists as the next best thing to randomized experiments.[83] Rhodes found the differential of a 7.5 month increase in sentence practically insignificant.

The USSC 2022 Report used a different matching methodology in combination with statistical control. Study and comparison groups were created that differed in their lengths of prison sentences but were as similar as possible on several factors known to affect recidivism.[84] Any difference in recidivism between the groups was then attributed to a deterrent effect of the difference in sentence lengths. Both the matching and multiple logistic regression used in the Commission study are limited by the availability and reliability of data on other causes of recidivism. The Commission did not match or control for all potentially significant differences between the groups related to the federal sentencing structure, such as the portions sentenced under mandatory minimum statutes, acceptance of responsibility, receiving departures or variances other than for substantial assistance or safety valve, or the types of drugs involved in drug offenses.

The Commission's matching exercise also did not control for a host of other factors external to the sentencing system that strongly correlate with recidivism. **Overall, it is too much of a stretch to place a significant emphasis on the length of incarceration as the sole, or even prominent, causal factor. The most this type of study can suggest is correlation.** The length of the follow-up period here—8 years (many recidivism studies are about 2 to 3 years[85])—means that one or more other conditions may play a role, independently or in combination, with recidivism. The box below lists other possible contributors to recidivism that research has shown can compound any effect of incarceration as well as act independently (but are not addressed, directly or indirectly, in the Commission's models).

Additional Correlates to Recidivism[86]

There are two major issues with the inability to analyze, or to control, for such other correlates. One is the incorrect assumption that the model has all the necessary controls to isolate the impact of incarceration. Omitted variable bias is the term for not including relevant factors, which means biased results.[87] A model that excludes one or more factors that are associated with both prison length and recidivism will be contaminated and consequently the estimated effect of prison length will be biased and inconsistent.[88] Examples of circumstances related to prison length and rearrest, which could have been controlled for, are pre-prison drug problem, previous incarcerations, antisocial personality, or number of concurrent convictions. Further, incarceration is not a homogeneous experience. Assuming imprisonment is a single "treatment" for purposes of studying its effect on recidivism obscures the reality that the prison experience varies dramatically depending upon such things as the availability of rehabilitative programming, quality of healthcare, and safety of inmates.[89]

The second problem is that in the USSC 2022 Report, the study and comparison groups could differ in unknown and uncontrolled ways related to those external factors. Propensity score matching, while considered robust, does not eliminate the omitted variable bias.[90] Relatedly, statistical control through multiple regression is limited by the ability of models to properly specify relationships among the variables. And while the Commission also used weighting and distance matching to attempt to control for differences among the groups, this further complicated the statistical model, making it more vulnerable to statistical artifacts of various kinds.[91]

The National Institute of Justice (NIJ) expressly recognizes this problem. The NIJ website states that the "at-risk environment" must be considered when measuring recidivism, though lamenting that "[o]ne of the many difficulties with measuring

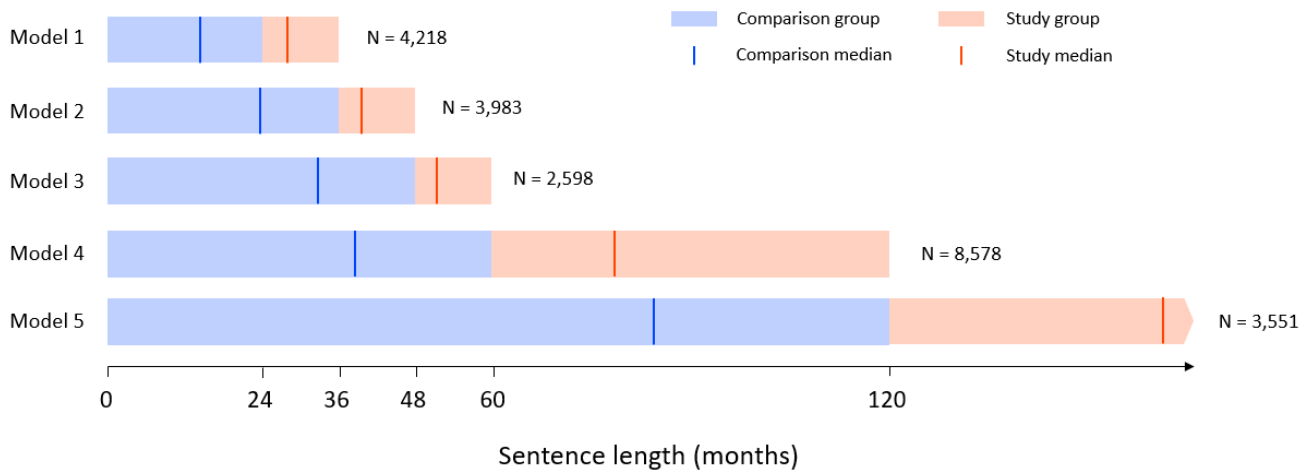
recidivism is that analysts tend to assume that the risk environment of re-arrest is the same for everyone who is being studied."[92] For example, the NIJ states that if one is trying to study the effect of an intervention but there are differences in the environments to which the individuals are released that are risk-relevant, then any observed differences in recidivism may be due to those risks rather than the intervention. In the case of the USSC 2022 Report, the relevant intervention is incarceration length, and the study makes the mistake that the NIJ references. The individuals reentered places and communities posing different risk profiles and thus, not all things were equal among them in terms of the probability of recidivism. For example, because the Commission defined recidivism to include any arrest, a person who lives in an overpoliced neighborhood is more likely to be arrested simply due to the higher rate of law enforcement activity there.

In a similar vein, the USSC 2022 Report fails to control for supervised release. Whereas the USSC's definition of recidivism includes arrests *and* technical violations, simply being supervised means the individual is on the radar and thus more likely to be subject to a new arrest (compared to an individual not being closely monitored by the criminal legal system) and, by definition, is uniquely situated to violate supervisory terms. Consequently, long periods of supervised release may increase the likelihood of recidivism that is defined in such a way, independent of incarceration time.

Finally, studies attempting to evaluate the dose-response impact (how changing the "dose" of prison time affects the "response" of recidivism)[93] rely heavily on static factors. This methodological gap ignores dynamic factors that are highly relevant to an individual's engagement in crime or desistence from crime. As humans with advanced executive brain functions (the criminal law presumes free will), we are only partly driven by our past. Many circumstances that might motivate individuals to engage in criminal behavior are mutable, such as antisocial attitude, jealousy, health, level of self-control, effects of trauma, or feeling coerced.

C. The Selection of the Comparison Group

Comparison groups for each model were composed of any individual with sentences below the study group's sentencing range. **Because sentencing length differences between study and comparison groups increase systemically across models, comparisons between the groups are less meaningful.** The comparison group sentencing lengths were not a fixed comparable range (e.g., if the study group was >48-60 months, the comparison group could include any sentence 48 months or below, rather than >36-48 months). Therefore, as the study groups increased in sentencing length, the range of sentencing lengths that the comparison group could pull from also increased (see figure below). This introduces a systematic difference between models and makes comparisons between them less meaningful.



IV. Results: The Confusing Odds Ratio

The USSC 2022 Report presents results in a way which may mislead decision-makers, exaggerate findings, and does not provide crucial data needed for interpretation. The Commission presents its results as "odds ratios"—a non-intuitive statistic known to distort findings and mislead non-statisticians. Changes in odds are commonly—though erroneously—interpreted as changes in probability, relative risk, or frequency.[94] **The odds ratio is not only confusing, it can appear to inflate results.**[95]

When considering recidivism, the discussion usually centers percentages or rates, such as a group having a 30% recidivism rate. This would mean that 30% of the group experienced some recidivism event, however defined. But to get from a percentage to an odds ratio, several calculations are required. The table below outlines these steps.

	Percentage	**Odds**	**Odds ratio**
Definition	The number of occurrences for an event compared to the total number of events that occurred	The probability of one event compared to the probability of not that event	The comparison of odds between two groups
Formula	$\frac{Frequency\ of\ event\ A}{Total\ events}$	$\frac{Probability\ of\ event\ A}{Probability\ of\ not\ event\ A}$	$\frac{Odds\ of\ event\ A\ for\ group\ 1}{Odds\ of\ event\ A\ for\ group\ 2}$

From the recidivism rate, the odds of recidivism can be calculated for each group:

$$\text{Odds of recidivism in a group} = \frac{Probability\ recidivist\ act\ \textbf{occurs}\ (p)}{Probability\ recidivist\ act\ does\ \textbf{not occur}\ (1-p)}$$

To highlight the difference between these metrics, let's imagine the study group includes 100 people, 30 of whom were defined as recidivists and 70 were not. The probability or recidivism rate would be 30% but the odds would be: $\frac{30}{70}$ = .43.

The odds ratio is derived from a comparison of odds. The USSC 2022 Report attempts to compare the odds of recidivism for each study group to the odds of recidivism for each comparison group. This creates the odds ratio:

$$\text{Odds ratio} = \frac{Odds\ of\ recidivism\ of\ study\ group}{Odds\ of\ recidivism\ of\ comparison\ group}$$

Unfortunately, knowing the odds ratio does not on its own allow us to ascertain the relative probability difference. The recidivism rate for at least one of the groups is needed. The formula for the study group recidivism rate is $\frac{OR\ x\ BR}{1+(OR\ x\ BR)-BR}$ where OR = the relevant odds ratio for the study group and BR = the base rate percentage of the comparison group.

Since the USSC 2022 Report does not provide base rates (i.e., the actual rates of recidivism) for any of the groups in the study, it is impossible to translate from the reported odds ratios to meaningful real-world differences in recidivism rates. As an illustration, the Commission states that the odds of recidivism for individuals in the 61-120 month group is 18% lower than the odds of recidivism for those sentenced to less time. But this does *not* mean that the recidivism rate for the group with longer incarceration was 18 percentage points lower!

The following table provides some insight into what the 18% lower odds might mean using various hypothetical base rates. (Note that 18% lower odds is an odds ratio expressed in decimals as 0.82 (see the line for Study vs. Comparison in Table C-4 of the USSC 2022 Report). An odds ratio of 1.00 means the odds of one group is 100% equal to the odds of the other group, meaning they share identical odds. When an odds ratio is less than 1.00, the interpretation is that the percentage of lower odds is calculated by the equation here of (100 - .82) = 18%).

Hypothetical If the base rate of recidivism for the comparison group is:	Given in Report With an odds ratio for 61-120 months of:	Calculated The recidivism rate for the 61-120 months group is:	Calculated The difference in percentage terms is:
30%	0.82	26%	4%
50%	0.82	45%	5%
70%	0.82	66%	4%

From the hypothetical base rates, it is clear that an 18% reduction in odds does not translate into anything close to an 18% difference in the recidivism rates, but instead 4-5%.

Likewise, the Commission states that the odds of recidivism for individuals incarcerated for more than 120 months is 29% lower than the odds of recidivism for those sentenced to less time. But this does *not* mean that the recidivism rate for the group with longer incarceration was 29% lower (calculated with an odds ratio of .71 (100 - .71 = 29%), as shown using the hypothetical base rates in the table below.

Hypothetical If the base rate of recidivism for the comparison group is:	Given in Report With an odds ratio for the over 120 months group of:	Calculated The recidivism rate for the over 120 months group is:	Calculated The difference in percentage terms is:
30%	0.71	23%	7%
50%	0.71	42%	8%
70%	0.71	62%	8%

Again, the 29% difference in odds translates in these examples to a 7-8% difference in recidivism rates.

The USSC 2022 Report is lax on correctly communicating the odds ratios, which might give readers the wrong impression about the magnitude of the differences alleged. For instance, Table 4 lists the "Likelihood of Recidivism" differences in each of the study groups (compared to each of their comparison group), but the numbers in the table do not comply with that title; instead, the table reports the variations in odds. The same erroneous characterization appears in Table 5. Indeed, the likelihood of misunderstanding this table is further exacerbated because its accompanying text erroneously states that the 61-120 months group was "18 percent less likely to recidivate relative to a comparison group receiving shorter lengths of incarceration" and that the group with more than 120 months were "29 percent less likely to recidivate relative to a comparison group receiving a shorter sentence of incarceration."[96] These statements are not true. **These statements reflect poor reporting practices from a statistical perspective and are misleading about the nature of the results from the models.**

Another troubling problem with the odds ratio impacts four of the models. Four of the logistic regression models (Tables C2 through C5) indicate that the age squared variable (represented therein as Age^2) was statistically significant.[97] Yet the odds ratio for that variable is reported as 1.00, and with a confidence interval of 1.00 and 1.00. By definition, such parameters are exactly a null finding. **An odds ratio of 1.00 means there is absolutely no difference between the groups being compared**, which the report itself acknowledges in its initial discussion of how a logistic regression model operates: "An

odds ratio of one indicates no difference in recidivism between the groups."[98] Without access to the Commission's underlying data, it is not possible to tell whether the listed ratios are some random, yet isolated errors, or if they suggest broader problems with reporting or understanding the statistical attributes.

Putting things in context: The odds ratio can lead readers to believe results are larger than they really are. As we saw in the prior examples: the increase in the odds of recidivism for the over 120 months group of 29% is far higher than the likely 8% greater recidivism rate. While 8% might still appear large, don't forget that the USSC 2022 Report defines recidivism as including any technical violation or misdemeanor event occurring at any time during an eight-year period after release. *See* Section II.

V. The Lack of Transparency

The lack of transparency in the USSC 2022 Report limits meaningful outside review, and **the Commission should release the data underlying the report.** Public release of data, particularly on important matters of public policy, is a hallmark of science and an important check on the validity of findings.[99] The Commission has previously committed to releasing data underlying its reports but has largely not done so.[100] The Commission did not respond to Defenders request to release the datasets for the USSC 2022 Report, and declined to release the datasets for its predecessor report in 2020.[101] The lack of access to this data (with appropriate safeguards to protect individual confidentiality) is particularly concerning given the profound policy issues involved, and the serious questions about the USSC 2022 Report's findings and methodology.

Additional transparency gaps in the USSC 2022 Report prevent outside review:

- Probation cases. The initial sample included those sentenced to probation. However, it is not clear whether the final sample studied also included probationary sentences, nor why probation was included in the initial sample. If probation cases are included, the report would conflate incarceration itself with length of incarceration.

- Racial disparity. The report discusses why each of the predictors were included, except for race. That might be because the document would then have to expressly admit that they included race as a control because prior studies indicate Black race increases recidivism. Indeed, in the regression models (see Tables C1-C5), Black race is associated with significantly higher odds of arrest even after controlling for many other relevant predictors. The USSC 2022 Report neglects to even mention this result.

- The one-day sentence appears as effective as five years. The USSC 2022 Report begins by specifying an intent to investigate if the potential for the relationship between incarceration and recidivism is preventative, criminogenic, or have no relationship. Yet the document only highlights the (asserted) deterrent effect of

sentences greater than 60 months. **The USSC 2022 Report does not equally emphasize that there are no effects on recidivism from 0 to 60 months, which suggests, according to the staff criteria, *no deterrence effect* of a sentence for any time from one day up to 60 months.**

- Downward departures. The text of report fails to mention that reducing sentences for substantial assistance or safety valve does not increase the risk of recidivism. The text fails to mention that the Guidelines-based increase in sentences for a weapon is not associated with an increase or reduction in recidivism, and thus is not justified (for deterrence purposes) by these results. The text also does not mention that the index offense being a violent crime is associated with an increased risk of recidivism (with statistical significance) in only one model, being the study group with sentences of 24 to 36 months.

- Recidivism type, severity, and frequency. The report fails to provide a breakdown of the type or severity of the recidivist outcomes or the number per person.

- Missing data. The report fails to mention other ways in which its methodology excluded subgroups and whether it analyzed if and how such exclusion may have biased results. For example, by using primary guideline as a control, this would exclude most individuals whose count of conviction was only 18 U.S.C. § 924(c) because, in our long experience with the Commission datasets, most of such cases are not assigned a primary guideline (though most are coded in the datasets into the offense category of firearms).

- The missing limitations section. It is normative in empirical studies to include a limitations section. This practice is considered a necessary component of scientific ethics. Typically, the researcher admits to potential flaws and weaknesses that may impact the results and any conclusions drawn from them. For example, a limitations section would explain the ways the results may not be generalizable. Unfortunately, the Commission has neglected to include any limitations section that would properly show that they were cognizant of, and attempted to ameliorate, any such flaws and reservations.

In sum, the study and conclusions contained in the USSC 2022 Report might be of interest for discussion in academic circles, but the flaws outlined herein discount their relevance to real-life sentencing practice or meaningful policy debates. The model design does not control for a host of factors known to correlate with recidivism, which undermines any attributions of recidivism rates solely to sentence length. Issues with transparency also plague the document, such as not comporting with best practices in providing a limitations section, subjecting the study to peer review, or allowing independent researchers to verify results.

Endnotes

[1] United States Sent'g Comm. (USSC), *Length of Incarceration and Recidivism* 26 (June 2022), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2022/20220621_Recidivsm-SentLength.pdf (the USSC 2022 Report). While the Federal Public and Community Defenders recognizes that each of our clients is a complex individual who is not defined by their conviction, the literature frequently employs the term "offender," and so that word will appear in this Fact Sheet.
[2] *See id.*
[3] *See* USSC, *Length of Incarceration and Recidivism* (Apr. 29, 2020), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2020/20200429_Recidivism-SentLength.pdf.
[4] *See* Sentencing Resource Counsel for the Federal Public and Community Defenders, *Federal Defender Fact Sheet: Flawed U.S. Sentencing Commission Report Misstates Current Knowledge* (2020), https://www.fd.org/sites/default/files/criminal_defense_topics/essential_topics/sentencing_resources/useful_reports/incarceration_and_recidivism_factsheet.pdf.
[5] 28 U.S.C. § 995(a)(12)(A).
[6] USSC 2022 Report, at 3.
[7] Nora V. Demleitner, *The U.S. Sentencing Commission's Recidivism Studies: Myopic Misleading, and Doubling Down on Punishment*, 33 FED. SENT'G REP. 11, 11 (2020) (arguing the Commission's "recidivism studies should not be consumed on their own").
[8] *See e.g.*, John Berecochea & Dorothy R. Jaman, *Time Served in Prison and Parole Outcome: An Experimental Study*, NCJRS (1981), https://www.ojp.gov/pdffiles1/Digitization/82800NCJRS.pdf; Thomas A. Loughran et al., *Estimating a Dose-Response Relationship Between Length of Stay and Future Recidivism in Serious Juvenile Offenders*, 47 CRIMINOLOGY 699 (2009), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2801446/.
[9] Demleitner, *supra* note 7, at 2.
[10] Daniel S. Nagin et al., *Imprisonment and Reoffending*, 38 CRIME & JUST. 115, 183 (2009). Here, a dose-response relationship means "examining how incremental increases in incarceration length affects the probability and timing of failure." *See also* Jason Rydberg & Kyleigh Clark, *Variation in the Incarceration Length-Recidivism Dose-Response Relationship*, 46 J. CRIM. JUST. 118, 118 (2016).
[11] Nagin et al., *supra* note 10, at 178.
[12] USSC, *supra* note 1, at 28-31.
[13] John Berecochea & Dorothy R. Jaman, *Time Served in Prison and Parole Outcome: An Experimental Study*, NCJRS (1981), https://www.ojp.gov/pdffiles1/Digitization/82800NCJRS.pdf
[14] *Id.* at 16 (emphasis added).
[15] Elizabeth Piper Deschenes et al., *A Dual Experiment in Intensive Community Supervision*, 75 PRISON J. 330 (1995).
[16] *Id.* at 108.
[17] Thomas A. Loughran et al., *Estimating a Dose-Response Relationship Between Length of Stay and Future Recidivism in Serious Juvenile Offenders*, 47 CRIMINOLOGY 699 (2009), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2801446/.
[18] *Id.* at 702.
[19] *Id.* at 729.
[20] Benjamin Meade et al., *Estimating a Dose-Response Relationship Between Time Served in Prison and Recidivism*, 50 J. RES. CRIME & DELINQUENCY 525, 529 (2012).

[21] Donald P. Green & Daniel Winik, *Using Random Judge Assignment to Estimate the Effects of Incarceration and Probation on Recidivism Among Drug Offenders*, 48 CRIMINOLOGY 357 (2010).
[22] *Id.* at 380.
[23] G. Matthew Snodgrass et al., *Does the Time Cause the Crime? An Examination of the Relationship Between Time Served and Reoffending in the Netherlands*, 49 CRIMINOLOGY 1149 (2011).
[24] USSC, *supra* note 1, at 30.
[25] *Id.* at 1151.
[26] *Id.* at 1179 (emphasis added).
[27] Ilyana Kuziemko, *How Should Inmates be Released from Prison? An Assessment of Parole Versus Fixed-Sentence Regimes*, 128 Q. J. ECON. 371 (2013), https://scholar.princeton.edu/sites/default/files/kuziemko/files/inmates_release.pdf.
[28] David Roodman, Open Philanthropy Project, *The Impacts of Incarceration on Crime*, 107 tbl. 17 (2017), https://arxiv.org/ftp/arxiv/papers/2007/2007.10268.pdf.
[29] USSC, *supra* note 1, at 30.
[30] *Id.* at 102.
[31] One problem was that Kuziemko's coding set the individual's placement on the sentencing grid based on the severity of the first-listed offense of conviction, whereas the appropriate offense would be the one with the highest severity, which meant this control variable was incorrectly calculated. The second major issue identified was using two control variables that were identical: grid recommendation and crime severity. Roodman mentions that because the variables were duplicates with an exact linear function, the reason the program ran anyway was because the grid recommendation had been incorrectly computed (i.e., the first problem). Roodman found additional errors but determined correcting them did not significantly change the results. *Id.* at 102-03.
[32] Benjamin Meade et al., *Estimating a Dose-Response Relationship Between Time Served in Prison and Recidivism*, 50 J. RES. CRIME & DELINQUENCY 525 (2012).
[33] USSC, *supra* note 1, at 30.
[34] *Id.* at 540.
[35] *Id.* at 526 (emphasis added).
[36] Michael Roach & Max Schanzenbach, *The Effect of Prison Sentence Length on Recidivism: Evidence from Random Judicial Assignment* (2015) (working paper), https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID2701549_code346044.pdf?abstractid=2701549&mirid=1.
[37] USSC, *supra* note 1, at 30-31.
[38] *Id.* at 12.
[39] Daniel P. Mears et al., *Recidivism and Time Served in Prison*, 106 J. CRIM. L. & CRIMINOLOGY 83 (2016).
[40] *Id.* at 119.
[41] *Id.* at 120 (emphasis added).
[42] *Id.* at 120.
[43] William Rhodes et al., *Relationship Between Prison Length of Stay and Recidivism: A Study Using Regression Discontinuity and Instrumental Variables with Multiple Break Points*, 17 CRIMINOLOGY & PUB. POL'Y 731 (2018).
[44] *Id.* at 758-59 (emphasis added).
[45] Elizabeth Berger & Kent S. Scheidegger, *Criminal Justice Legal Foundation, Sentence Length and Recidivism: A Review of the Research* (2022), https://www.researchgate.net/profile/Elizabeth-Berger-

6/publication/351764459_Sentence_Length_and_Recidivism_A_Review_of_the_Research/links/60a7fc04299bf1031fbd4966/Sentence-Length-and-Recidivism-A-Review-of-the-Research.pdf.
[46] USSC, *supra* note 1, at 28.
[47] *Id.* at 27 (emphasis added).
[48] *Id.* at 46.
[49] Charles E. Loeffler & Daniel S. Nagin, *The Impact of Incarceration on Recidivism*, 5 ANN. REV. CRIMINOLOGY 133, 147 (2022) (reviewing methodologically strong studies, concluding "[m]ost studies we review, in fact, find that the experience of postconviction imprisonment has little impact on the probability of recidivism"); Gary Goodley et al., *Predictors of Recidivism Following Release from Custody: A Meta-Analysis*, PSYCHOL. CRIME & L. (2021) (online first), (reporting meta-analysis results that "time served in custody . . . showed no relationship with recidivism across any of the analyses"); Melba Kuriakose, *Recidivism: Effect of Incarceration Length on Offenders: A Review of Literature*, 7 INT'L J. INDIAN PSYCHOL. 433, 437 (2019) (summarizing systematic review of the literature, concluding "overall findings of the review indicate that the effect of incarceration and sentence length on recidivism is complex and is more likely to be offender-specific"); Ellen A.C. Raaijmakers et al., *Why Longer Prison Terms Fail to Serve a Specific Deterrent Effect: An Empirical Assessment of the Remembered Severity of Imprisonment*, 23 PSYCH. CRIME & L. 32, 33 (2017) ("In general, the available evidence demonstrates that imprisonment exerts a null, or slightly criminogenic effect on future criminal activities, while clear support for the specific deterrence hypothesis remains sparse"); Daniel P. Mears et al., *Incarceration Heterogeneity and its Implications for Assessing the Effectiveness of Imprisonment on Recidivism*, 26 CRIM. JUST. POL'Y REV. 691, 692 (2015) (concluding "credible research evidence that incarceration reduces recidivism is scant").
[50] Paul Gandreau et al., *The Effects of Prison Sentences on Recidivism* 11 (1999) (a report from the Solicitor General of Canada), https://www.prisonpolicy.org/scans/gendreau.pdf.
[51] *See* Nat'l Res. Council, *The Growth of Incarceration in the United States: Exploring Causes and Consequences* 154 (Jeremy Travis et al., eds. 2014), https://academicworks.cuny.edu/cgi/viewcontent.cgi?article=1026&context=jj_pubs. Citing previous NRC studies, the report also noted that "insufficient evidence exists to justify predicating policy choices on the general assumption that harsher punishments yield measurable deterrent effects." And "[n]early every leading survey of the deterrence literature in the past three decades has reached the same conclusion" *Id.* at 90.
[52] Roodman, *supra* note 28, at 128.
[53] *See, e.g.*, USSC, *Recidivism Among Federal Firearms Offenders* 21 (2019); USSC, *Recidivism Among Federal Violent Offenders* (2019), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2019/20190124_Recidivism_Violence.pdf.
[54] USSC, *The Effects of Aging on Recidivism Among Federal Offenders* 3 (2017), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2017/20171207_Recidivism-Age.pdf
[55] USSC, *Recidivism Among Federal Offenders: A Comprehensive Overview* 3 (2016), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2016/recidivism_overview.pdf.
[56] *Id.* at 22.
[57] *Id.* at 22.
[58] USSC, *Recidivism Among Federal Offenders Receiving Retroactive Sentencing Reductions: The 2011 Fair Sentencing Act Guideline Amendment* 3, 7, 14 (2018), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2018/20180328_Recidivism_FSA-Retroactivity.pdf.

[59] USSC, *Recidivism Among Offenders Receiving Retroactive Sentence Reductions: The 2007 Crack Cocaine Amendment* (2014), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-projects-and-surveys/miscellaneous/20140527_Recidivism_2007_Crack_Cocaine_Amendment.pdf.
[60] USSC, *Retroactivity & Recidivism: The Drugs Minus Two Amendment* (2020), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2020/20200708_Recidivism-Drugs-Minus-Two.pdf
[61] USSC, *supra* note 1, at 6; *but see generally* Anna Roberts, *Arrests as Guilt*, 70 ALA. L. REV. 987 (2019).
[62] Cecelia Klingele, *Measuring Change: From Rates of Recidivism to Markers of Desistance*, 109 J. CRIM. L. & CRIMINOLOGY 769, 785 (2019), https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=7658&context=jclc.
[63] USSC 2022 Report, at Appx. B tbl. B-1. A footnote indicates that minor offenses were deleted but only give the example of speeding. *Id*. at 49 n. 109.
[64] USSC, *Recidivism of Federal Drug Trafficking Offenders Released in 2010* 27 (2022), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2022/20220112_Recidivism-Drugs.pdf.
[65] USSC, *Retroactivity & Recidivism: The Drugs Minus Two Amendment* (2020), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2020/20200708_Recidivism-Drugs-Minus-Two.pdf.
[66] USSC 2022 Report, at 19-20.
[67] *See* the Commission recidivism studies otherwise cited herein.
[68] *See* USSC, *Recidivism Among Federal Offenders: A Comprehensive Overview* 5 (2016), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2016/recidivism_overview.pdf
[69] *See* USSG §§ 4B1.1, 4B1.4.
[70] The 2020 report on sentence length and recidivism also failed to separate the COs from CHC VI. After that document was released, Commission staff refused, despite a request from the Federal Defenders, to reveal the portions of COs in the study and comparison groups. The Commission claimed it conducted a "confirmatory analysis" without COs that yielded substantially similar results as the published findings. This analysis is not mentioned in either report and the Commission has refused to release this analysis and other underlying data necessary for outside researchers to conduct replication or review of the relevant findings.
[71] USSC, *Recidivism of Federal Firearms Offenders Released in 2010* 44 (2021), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2021/20220209_Recidivism-Firearms.pdf
[72] USSC, *Recidivism of Federal Drug Trafficking Offenders Released in 2010* 31 (2022), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2022/20220112_Recidivism-Drugs.pdf.
[73] *Id*.
[74] USSC, *Recidivism of Federal Violent Offenders Released in 2010* 29 (2022), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/research-publications/2022/20220210_Recidivism-Violence.pdf.
[75] USSC, *Federal Sentencing of Career Offenders* (2016), https://www.ussc.gov/sites/default/files/pdf/research-and-publications/backgrounders/RG-career-offender-rpt.pdf.
[76] *Id*. at 2.
[77] USSC 2022 Report, at 10.

[78] Michele Jonsson Funk et al., *Doubly Robust Estimation of Causal Effects*, 173 AM. J. EPIDEMIOLOGY 761, 761 (2011) (emphasis supplied).
[79] *Id.* at 766.
[80] USSC 2022 Report, at 5, 16.
[81] USSC 2022 Report, at 16.
[82] *See, e.g.*, David Weisburd et al., *Specific Deterrence in a Sample of Offenders Convicted of White-Collar Crimes*, 33 CRIMINOLOGY 587 (1995) (using random assignment of judges and variation in sentencing to find no deterrent effect of imprisonment versus non-custodial sanctions among a sample of pre-guideline federal white-collar defendants).
[83] *See* Rhodes, *supra* note 28, at 733.
[84] The Commission matched the groups on these factors: age at release, high school completion, gender, race, criminal history category (CHC), primary sentencing guideline, whether the instant offense was violent or involved a weapon, and whether the defendant received a substantial assistance departure or safety valve adjustment.
[85] Klingele, *supra* note 62, at 788.
[86] Antonis Katsiyannis et al., *Adult Recidivism in United States: A Meta-Analysis 1994-2015*, 27 J. CHILD FAM. STUD. 686, 691 tbl. 3 (2018).
[87] Kevin A. Clarke, *The Phantom Menace: Omitted Variable Bias in Econometric Research*, 22 CONFLICT MGMT. PEACE SCI. 341, 341 (2005).
[88] William Rhodes, *Estimating Treatment Effects and Predicting Recidivism for Community Supervision Using Survival Analysis with Instrumental Variables*, 26 J. QUANT. CRIMINOLOGY 391, 392 (2010).
[89] Daniel P. Mears et al., *Incarceration Heterogeneity and its Implications for Assessing the Effectiveness of Imprisonment on Recidivism*, 26 CRIM. JUST. POL'Y REV. 691, 698 (2015).
[90] David S. Kirk, *Causal Inference via Natural Experiments and Instrumental Variables: The Effect of "Knifing Off" from the Past*, *in* MEASURING CRIME AND CRIMINALITY 245, 261 (2017), https://1library.net/document/ydergljq-causal-inference-natural-experiments-instrumental-variables-effect-knifing.html.
[91] For a review of the variety of problems that have plagued research in this area, *see* David Roodman, *Deterrence is De Minimis*, Open Philanthropy Project (Sept. 24, 2017), https://www.openphilanthropy.org/blog/deterrence-de-minimis.
[92] NIJ, *Measuring Recidivism* (2008), https://nij.ojp.gov/topics/articles/measuring-recidivism.
[93] *See supra* note 10.
[94] *See, e.g.*, COCHRANE, COCHRANE HANDBOOK FOR SYSTEMATIC REVIEWS OF INTERVENTIONS §6.4 (Julian Higgins et al. eds., 2022) (Version 6.3), https://training.cochrane.org/handbook/current/chapter-06.
[95] *See, e.g.*, Jason W. Osborne, *Bringing Balance and Technical Accuracy to Reporting Odds Ratios and the Results of Logistic Regression Analyses*, 11 PRAC. ASSESSMENT RES. & EVAL., Article 7 (2006), https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1193&context=pare; Huw Talfryn Oakley Davies et al., *When Can Odds Ratios Mislead*?, 316 BMJ 989 (1998), https://www.bmj.com/content/316/7136/989 ("the odds ratio will always exaggerate the size of the effect compared with a relative risk").
[96] USSC 2022 Report, at 22.
[97] *Id*. App'x C, at 38 – 41.
[98] USSC 2022 Report, at 13.
[99] *See* American Statistical Association, *Ethical Guidelines for Statistical Practice* (Apr. 2018), https://www.amstat.org/ASA/Your-Career/Ethical-Guidelines-for-Statistical-Practice.aspx (last visited May 26, 2020).

[100] Former Commission Vice Chair, William B. Carr announced at a National Seminar on Sentencing Guidelines that the Commission would begin releasing datafiles underlying Commission reports at the time the reports were published. In an April 24, 2014, letter from Glenn Schmitt, Director of the Commission's Office of Research and Data stated that "in the next few months we will be posting the datasets used in recent Commission publications." (On file with Sentencing Resource Counsel). Despite these statements, no such consistent practice has been established.

[101] E-mail from Tina Woehr, Sentencing Resource Counsel, to Ryan Cotter, Deputy Dir., Off. of Res. & Data, and Glenn Schmitt, Dir., Off. of Res. & Data (Jul. 12, 2022) (on file with authors); Personal communication between Paul J. Hofer, Ret. Sentencing Resource Counsel Policy Analyst, and Ryan Cotter, Deputy Dir., Off. of Res. & Data, and Glenn Schmitt, Dir., Off. of Res. & Data (May 2020).