

DISCUSSION PAPER SERIES

IZA DP No. 10544

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## ABSTRACT

# Mandatory Minimums and the Sentencing of Federal Drug Crimes\*

The United States federal mandatory minimums have been controversial not only because of the length of the mandatory sentences for even first-time offenders, but also because the eligibility quantities for crack are very small when compared to those for other drugs. This paper shows that the actual impact of these mandatory minimums on sentencing is quite nuanced. A large fraction of mandatory minimum eligible offenders, particularly first-time offenders, are able to avoid these mandatory minimums. Moreover, despite lower quantity eligibility thresholds for crack, a smaller fraction of crack offenders are eligible for mandatory minimums relative to other drugs. Furthermore, while being just eligible for a mandatory minimum increases sentence length on average, the impact is not uniform across drugs. Notably, sentences for crack offenders are generally sufficiently long such that, on average, sentences for crack offenders are not impacted by eligibility for a mandatory minimum. In summary, the discrepancy in federal sentencing between crack offenders and those convicted for other drugs does not appear to be driven by mandatory minimums, but rather other aspects of federal sentencing policy and norms.

**JEL Classification:** J15, K14, K40

**Keywords:** mandatory minimum sentencing, crack cocaine, sentencing guidelines

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## I - Introduction

One of the most prominent and controversial components of the United States federal judicial system is U.S. Federal law 21 U.S.C § 841, which prescribes mandatory minimum sentences for defendants convicted for trafficking quantities of illegal drugs over certain thresholds. This law is prominent and controversial for several reasons. First, it potentially applies to a very large population of defendants. Indeed, in fiscal year 2010, drug offenses made up almost 30 percent of all federal offenses (second only to immigration offenses), with almost 25,000 offenders convicted for a federal drug offense (U.S.S.C., 2011). Second, the mandatory minimums can be quite long (10 years) even for non-violent first-time offenders. Third, different drugs are treated quite differently with respect to eligibility for a mandatory minimum. Most notably, the quantity required to trigger mandatory minimum eligibility is twenty times larger for powder cocaine than for crack cocaine.

On its website, Families Against Mandatory Minimums (FAMM) posts a number of “Quick Facts,” highlighting the boom in prison populations, prison costs, and the high number of drug offenders serving long prison terms, with the implication being that the mandatory minimums for drug offenders are a primary contributor to these facts and trends. Relatedly, one of the primary motivations for the United States Congress to pass the Fair Sentencing Act of 2010 (FSA), which raised the mandatory minimum triggering quantity for crack offenders, was to lessen the sentencing disparity between crack offenders and those convicted for other drugs such as powder cocaine. In passing the FSA, Senator Patrick Leahy said "(a)fter more than 20 years, the Senate has finally acted on legislation to correct the crack-powder disparity and the harm to public confidence in our justice system it created." Despite all of these claims, the extent to which mandatory minimums for drug offenders are impacting sentencing, particularly for first-time offenders and for crack offenders relative to powder cocaine offenders, is still an open question. This paper aims to more fully evaluate how mandatory minimums are actually being implemented and how they are impacting sentencing for individuals convicted for federal drug crimes.

The primary findings of this paper are the following. First, despite the far lower quantity thresholds for mandatory minimum eligibility for crack offenders relative to those convicted for powder cocaine (even post-FSA), fewer crack offenders are actually eligible for mandatory minimums than those convicted for powder cocaine. Second, mandatory minimums appear to be far from mandatory, with less than half of those eligible for a mandatory minimum actually

receiving a sentence consistent with the ostensible mandatory minimum. First-time mandatory minimum eligible offenders are particularly likely to avoid a sentence consistent with the mandatory minimums, primarily because the most common way mandatory minimum eligible offenders avoid the mandatory minimum is through federal “safety-valve” relief, for which a minimal criminal history is necessary. Partially because crack offenders are less likely than those convicted for other drugs to be determined to have the requisite “minimal” criminal history (which in itself is partially based off the sentence length associated with previous convictions), a much smaller fraction of mandatory minimum eligible crack offenders receive sentences short of the mandatory minimum than mandatory minimum eligible offenders convicted for other drugs. However, the third and arguably most surprising finding in this paper is that while being convicted for a drug quantity just in excess of a mandatory minimum eligibility threshold is associated with a significant jump up in expected sentence length for powder cocaine, meth, marijuana, and heroin, this is not the case for crack offenders. Rather, regardless of mandatory minimum eligibility, it appears that crack offenders generally receive sufficiently long sentences (often due to how their criminal history is counted), that being convicted for a quantity just in excess of a mandatory minimum eligibility threshold does not impact sentence length. To put this another way, the way crack cocaine offenders are treated by the overall federal sentencing structure means that most of crack offenders would receive similar sentences even in the absence of the mandatory minimums.

The overall conclusions coming from this paper are that mandatory minimums may be having less of an impact on sentencing overall, particularly for first-time non-violent offenders and crack offenders, than is often perceived. Therefore, to the extent to which policy makers and other interested parties want to reform sentencing practices for drug offenders and lessen the sentencing gap between crack offenders and those convicted for other drugs, it will not be sufficient to focus only on the mandatory minimum laws (for example as done by the Fair Sentencing Act of 2010), but rather focus more broadly on overall sentencing norms, the disparate treatment of crack versus other drugs under the United States sentencing guidelines, and the way in which criminal history is calculated in the federal system and how it impacts sentencing.

## **II - Background**

The sentencing of defendants convicted under United States federal drug statutes is guided by two overlaying systems---the United States Sentencing Commission (U.S.S.C.) sentencing

Guidelines and the United States mandatory minimums. Before discussing the mandatory minimums, it is important to first understand the sentencing Guidelines. The sentencing Guidelines are determined by the United States Sentencing Commission, which came out of the Sentencing Reform Act of 1984. The sentencing guidelines consist of a grid that gives a sentencing range associated with each *Criminal History Category* and a *Final Offense Level* pair for any given offender.

The offender's *Criminal History Category* ranges from I to VI, with VI being the most severe criminal history. *Criminal History Category* is determined by an offender's criminal history points, which are determined not by the number of previous convictions, but rather the sentences associated with previous convictions. For example, a defendant receives three criminal history points for each previous conviction that led to a sentence exceeding one year and one month, two criminal history points for each prior conviction that led to a sentence exceeding sixty days (but less than one year one month), and one point for each conviction that led to a sentence less than sixty days. On the other hand, a drug defendant's *Final Offense Level* starts with a *Base Offense Level*, which is primarily determined by the drug type and conviction quantity, and can range from 12 to 38 for most drugs. Notably, however, meth and particularly crack incur much higher *Base Offense Levels* by quantity than other drugs. A judge can then raise or lower this *Base Offense Level* when calculating the *Final Offense Level* based on whether he or she determines there to be "aggravating" or "mitigating" factors.<sup>1</sup>

Once a judge has determined a *Criminal History Category* and *Final Offense Level* for a convicted defendant, the judge finds the sentencing range on the U.S.S.C. Guideline grid. As initially implemented, these guidelines were by and large mandatory in that a judge was essentially required to sentence a defendant within the specified guidelines. However, following the U.S. Supreme Court's *Booker* decision in 2005, and the clarifying decisions in *Rita*, *Gall*, and *Kimborough* in 2007, the U.S.S.C. Guidelines became advisory rather than mandatory, with the judge being able to depart from the guidelines for essentially any reason as long as he or she

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<sup>1</sup> See USSC Guidelines Manual Chapter 2 D (<http://www.ussc.gov/guidelines/2015-guidelines-manual/archive/2014-chapter-2-d>) for a complete description of how base offense levels are determined for drug quantities and factors that impact final offense level.

provides a short written justification.<sup>2</sup> The analysis below focuses entirely on the current era, where the guidelines are advisory rather than mandatory.

As alluded to above, overlaying the U.S.S.C. sentencing Guidelines are the federal mandatory minimums. With the Anti-Drug Abuse Act of 1986, the United States Congress prescribed mandatory minimum sentences for drug trafficking based on drug type and quantity cutoff thresholds (21 U.S.C. §841). Table 1 summarizes the basic information regarding these federal mandatory minimum sentences. As can be seen, according to the law, defendants with no previous drug trafficking offenses who are convicted for drug quantities over certain quantity thresholds for each type of drug should receive a prison sentence of 5 years or more, or 10 years or more, depending on the drug type and quantity. For example, if convicted for 100 or more kilograms of marijuana, a defendant is ostensibly required to be given a sentence of 5 years or more. If convicted for one or more kilograms of heroin a defendant is ostensibly required to be given a sentence of 10 years or more. For defendants with one or more previous drug felony offenses, the quantity cutoffs remain the same, but the associated mandated minimums become longer.<sup>3</sup>

One of the key points of controversy regarding this law is that it ostensibly requires judges to give particular minimum sentences to defendants convicted for trafficking at or over the cutoff amounts of a drug, where the minimum sentence can be 10 years even for first-time non-violent offenders. While the law is indeed written such that judges generally have very little discretion of their own regarding whether to impose the mandated minimum sentence once a defendant is convicted for a mandatory minimum eligible amount of a given drug, there still exist two ways in which a defendant convicted for a mandatory minimum triggering drug quantity can avoid the mandated minimum sentence. First, the defendant may be determined to qualify for the federal "safety-valve." Congress enacted the safety-valve statute (18 U.S.C. §3553(f)) in 1994 to provide relief from the federal mandatory minimum drug sentences for defendants that were determined by the presiding judge to have met five basic criteria: (i) the defendant has little or no prior criminal history, (ii) the defendant did not use violence or possess a firearm in connection with the offense,

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<sup>2</sup> See Federal Defender Services Office's "How the Supreme Court's Decisions Rendering the Guidelines Advisory Would Result in a Lower Sentence Today" (<https://www.fd.org/docs/select-topics/sentencing-resources/clemency-how-the-sentence-would-be-lower-under-the-advisory-guidelines.pdf?sfvrsn=11>) for a detailed discussion of how the Federal sentencing guidelines changed following the *Booker* decision.

<sup>3</sup> There are also additional extensions applied if a gun was used in commission with the crime or serious bodily injury occurred.

(iii), the offense did not result in death or serious injury to anyone, (iv) the defendant was determined not to be an organizer or leader, and (v) the defendant was determined to fully cooperate with investigators regarding his or her role in the offense.

The second, far less common way in which a federal drug defendant who has been convicted for trafficking a drug amount at or in excess of the mandatory minimum cutoff can still avoid the mandated minimum is if the prosecutor files a motion seeking a lower sentence because the defendant provided “substantial assistance.” In particular, a judge may only go below the mandated minimum if the prosecutor invokes 18 U.S.C. § 3553(e) in the motion (Human Rights Watch 2013).

Given the existence of these formal mechanisms by which mandatory minimum eligible defendants can avoid the mandatory minimum, one question of interest is how often they are applied? The first part of the analysis below looks at this question in detail, examining the likelihood of receiving a sentence consistent with the mandatory minimum conditional on being convicted for a mandatory minimum eligible quantity of a given drug. Because one of the key concerns about these mandatory minimums is their impact on first-time offenders, and since a minimal criminal history is a key requirement for being deemed eligible for the "safety-valve", I specifically look at how the frequency with which mandatory minimum eligible defendants are given sentences consistent with the mandatory minimum is related to criminal history.

A second key point of controversy regarding the mandatory minimum legislation for drugs is that the quantity eligibility cutoffs for mandatory minimums differ substantially across drugs. Most notably, similar to *Base Offense Levels* in the U.S.S.C. sentencing Guidelines, the quantity eligibility cutoffs for crack cocaine are lower than for all the other drugs. Of particular note, even after the Fair Sentencing Act of 2010 substantially raised the eligibility cutoff quantities for crack cocaine, a first-time non-violent defendant convicted for trafficking only 0.28 kilograms of crack cocaine is ostensibly required to be given a sentence of 10 years or more, where a defendant convicted for powder cocaine would not be subject to a 10-year mandatory minimum unless he was convicted for a quantity at or in excess of 5 kilograms (a roughly 18 times higher threshold quantity than for crack). As a point of further comparison, a first-time offender convicted for marijuana would not be subject to a 10-year mandatory minimum unless he was convicted for a quantity at or in excess of 1000 kilograms.

The obvious concern is that the more strict treatment of crack cocaine relative to other drugs under the mandatory minimums is one of the primary reasons for why crack defendants on average receive substantially longer sentences than defendants convicted for other drugs. Indeed, over the 2011 – 2012 fiscal years (a time period fully after the Fair Sentencing Act of 2010), the mean sentence for individuals convicted for crack was 97 months (a little over 8 years). This is over 18 months longer than the mean sentence for individuals convicted for powder cocaine, 5 months longer than the mean sentence for individuals convicted for meth, 28 months longer than the mean sentence for individuals convicted for heroin, and over 65 months longer than the mean sentence for individuals convicted for marijuana. The analysis below also aims to empirically assess the extent to which the mandatory minimums may be contributing to these sentencing differences across drug types.

The most comprehensive study to date looking at federal mandatory minimum sentencing laws, and particularly the federal drug laws, is the United States Sentencing Commission Report to Congress (U.S.S.C. 2011). Using data from the 2010 fiscal year, and similar to the analysis below, this report finds that mandatory minimum eligible federal drug defendants appear to receive sentences consistent with the mandated minimums less than half of the time. However, the U.S.S.C. study did not specifically analyze why so many ostensibly mandatory minimum eligible offenders were able to avoid the mandatory minimums, nor did the U.S.S.C. study examine how eligibility for a mandatory minimum sentence impacts expected sentence length, as done below.

Finally, several studies have looked at how different actors in the judicial system attempt to avoid or manipulate mandatory minimums. For example, Miethe (1987), Bjerk (2005), Ulmer, Kurlychek, and Kramer (2007), Bushway and Piehl (2007), Piehl and Bushway (2007) look at how state prosecutors manipulate charges and/or decline to pursue a mandatory minimum sentencing policy to circumvent specific state presumptive sentencing guidelines. Relatedly, Rehavi and Starr (2014) show that, even conditional on initial arrest charge, federal prosecutors are more likely to charge black defendants with a mandatory minimum sentence eligible crime than white defendants, which has substantial explanatory power regarding the resulting differences in sentencing across races. An important distinction between Rehavi and Starr's (2014) study and this one is that they focus almost exclusively on non-drug offenses, while this study focuses exclusively on drug offenses. Moreover, while the study below focuses exclusively on what happens after conviction charge (and conviction quantity) has been determined, as Rehavi and Starr (2014) and the other

papers cited above make clear, the negotiation and sentence bargaining that occurs after conviction is only part of the overall story given the negotiations that likely also take place prior to conviction. However, to better understand the incentives to engage in pre-conviction negotiation and bargaining, we must first develop a clear picture of what occurs after the conviction crime and its details have been determined, which is the goal here.

### **III - Description of the Data**

The data used for this paper come from Monitoring of Federal Criminal Sentences for the fiscal years 2011 and 2012. These data sets are collected and organized by the United States Sentencing Commission, and contain information on all cases sentenced under the federal court system between October 2010 and September 2012. These data contain a wealth of defendant information, including conviction charge---and for drug convictions, conviction drug type and quantity---as well as adjudication district, and demographic and *Criminal History Category* for each defendant. Moreover, sentencing information is provided for each case.

From this data, I extract only cases where the primary drug a defendant was charged with was powder cocaine, crack cocaine, methamphetamine, marijuana, or heroin. I also limit the sample to only those with valid data on drug amount and sentence length (this excluded less than 3 percent of observations).<sup>4</sup> However, for about one-sixth of the observations, drug quantity is reported in a quantity range rather than an actual quantity. For these observations I define the conviction quantity to be the bottom end of the given range. As I show later in the paper, results do not appear to change much if these defendants are excluded. Overall, this gives a sample size of over 63,000 observations.

Using the mandatory minimum quantity thresholds shown in column 1 of Table 1, I determine which cases should be eligible for mandatory minimum sentences based on the conviction drug type and quantity. For convenience, instead of referring to individuals being eligible for a mandatory minimum for exceeding the “lower mandatory minimum threshold” or the “upper mandatory minimum threshold,” I describe defendants as being eligible for either a “5-year” mandatory minimum or “10-year” mandatory minimum. Note that this nomenclature corresponds to the mandatory minimums for exceeding the two different quantity thresholds for first-time drug offenders, but will not necessarily correspond to the mandatory sentences face by defendants with

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<sup>4</sup> Also, all cases adjudicated in non-US districts such as Puerto Rico, Guam, and the Virgin Islands are excluded.

previous drug convictions. For example, while a defendant convicted for 0.5 kilograms of powder cocaine with no previous drug offenses is eligible for a 5 year mandatory minimum, a defendant with a previous drug conviction convicted for a similar amount is eligible for a 10-year mandatory minimum. Furthermore, defendants can get enhanced mandatory minimums if firearms were used or bodily injury occurred. What is of primary importance here though is that regardless of the number of previous drug offenses, crossing the “5-year” or “10-year” thresholds as defined here either makes a defendant eligible for a mandatory minimum (crossing a “5-year” threshold) or increases the mandatory minimum a defendant is eligible for (crossing a “10-year” threshold).

#### **IV – Analyzing the Impact of Mandatory Minimum Eligibility**

This section analyzes the impact of the mandatory minimums on sentencing in three ways. First, I look at what fraction of drug defendants are eligible for mandatory minimum sentencing and how this differs across drug types. Second, I consider how mandatory the mandatory minimums actually are by looking at the likelihood of receiving a sentence consistent with the mandatory minimum conditional on being eligible, and how this differs across drug types. Third, I consider the extent to which being convicted for a quantity just in excess of a mandatory minimum quantity threshold impacts sentence length and how this differs across drug types. Finally, I provide interpretations for the results and some additional evidence.

##### **IV(a) – Eligibility for Mandatory Minimum Sentencing**

Given the definition discussed in the previous paragraph, 68 percent of federal drug defendants are eligible for a mandatory minimum based on their conviction drug type and quantity, with about half being classified as eligible for a “5-year” mandatory minimum (i.e., were convicted for a quantity in excess of a lower threshold in Table 1) and half being classified as eligible for a “10-year” mandatory minimum (i.e., were convicted for a quantity in excess of an upper threshold in Table 1).

Not surprisingly, the fraction of defendants eligible for a mandatory minimum differs by drug type. However, the manner in which this differs by drug type may be surprising. As can be seen in the first set of bars in Figure 1, only 37 percent of marijuana defendants are eligible for a mandatory minimum based on their conviction quantity, by far the lowest among the five major drug types. This may be expected given the relatively large amounts of marijuana required to

trigger mandatory minimum eligibility. However, among the four remaining drug types, the fraction of crack offenders eligible for a mandatory minimum is next lowest at 74 percent. This is arguably quite surprising given the much smaller quantities of crack required to trigger the mandatory minimums than powder cocaine. Indeed, the fraction of powder cocaine defendants eligible for a mandatory minimum is 84 percent, a full 10 percentage points higher than it is for crack defendants, even though the mandatory minimum eligible quantities for crack are about 1/20<sup>th</sup> of what they are for powder cocaine.

The second and third set of bars in Figure show mandatory minimum eligibility by drug type by whether eligibility is determined by the “5-year” or “10-year” threshold. Interestingly, while a greater fraction of mandatory minimum eligible powder cocaine and meth defendants are convicted for quantities surpassing the “10-year” mandatory minimum threshold than the “5-year” threshold, the opposite is true for crack and marijuana defendants (mandatory minimum eligible heroin defendants are equally distributed across the two thresholds). Again, while it may not be surprising that relatively fewer marijuana defendants are convicted for quantities in excess of the higher “10-year” mandatory minimum threshold than the “5-year” threshold given the far greater quantity required for the former than the later (1000 kilos versus 100 kilos), one might be surprised that this is also true for crack defendants given the small mandatory minimum triggering quantities for both thresholds. Indeed only about half as many crack defendants are convicted for quantities in excess of the “10-year” mandatory minimum threshold as the “5-year” threshold, despite the fact that the “10-year” threshold for crack is still only about half as large as the “5-year” threshold is for powder cocaine (0.28 kilos versus 0.5 kilos). In general, these findings reveal that a large fraction of federal crack offenders are convicted for very small quantities, particularly compared to the population of federal powder cocaine offenders.

#### **IV(b) – Likelihood of Receiving a Mandatory Minimum Sentence Conditional on Being Eligible**

The previous section showed that while a strong majority of federal drug defendants are eligible for a mandatory minimum (other than those convicted for marijuana), the fraction of crack defendants eligible for a mandatory minimum is lower than it is for powder cocaine, meth, and heroin defendants, despite the lower quantity thresholds required to trigger a mandatory minimum for crack defendants. However, as discussed in Section II, mandatory minimums are not necessarily

mandatory, as there are a couple of legal avenues through which mandatory minimums can be avoided. Therefore, this section considers the extent to which the likelihood of receiving a sentence consistent with the mandatory minimum conditional on being eligible for a mandatory minimum differs by drug type.

As discussed above, so far I have defined a defendant as surpassing the “5-year” mandatory minimum eligibility threshold if he is convicted for a quantity surpassing one of the lower thresholds in column 1 of Table 1, and defined a defendant as surpassing the “10-year” mandatory minimum eligibility threshold if he is convicted for a quantity surpassing one of the upper thresholds in column 1 of Table 1. However, recall that while a defendant might be defined as being eligible for a “5-year” mandatory minimum based on his conviction drug and quantity according to the above definition, his actual mandatory minimum may be much higher for a variety of reasons such as if the defendant had previous drug convictions, there was also a weapons charge, force or the threat of force was determined, or a minor was involved. Therefore, for the purposes of the following exercise, I define someone as having been given a sentence consistent with his mandatory minimum if he is eligible for a mandatory minimum according to the above definitions (i.e., his conviction drug and quantity meets or exceeds a “5-year” or “10-year” threshold) and he is given a sentence equal to or greater than his statutory minimum as stated by the court (i.e., the variable STATMIN from the Monitoring of Federal Criminal Sentences data set).

The first bar in Figure 2 shows the fraction of federal drug trafficking defendants who are eligible for a federal mandatory minimum sentence based on their conviction drug type and quantity who actually receive a sentence consistent with their mandatory minimum. As can be seen, just under half of those eligible for a mandatory minimum actually receive a sentence consistent with the mandatory minimum. The second and third bars in Figure 2 show the analogous results separated by those eligible for “5-year” versus “10-year” mandatory minimums. As can be seen, results are quite consistent across these two categories, with just 51 percent of those eligible for a “5-year” mandatory minimum sentence actually receiving a sentence consistent with their mandatory minimum, and just 46 percent of those eligible for a “10-year” mandatory minimum sentence actually receiving a sentence consistent with their mandatory minimum.

Furthermore, these mandatory minimum eligible defendants who are able to avoid the mandated minimum appear to generally receive sentences substantially short of the mandated minimum. For example, among those whose conviction quantity made them eligible for a “10-

year” mandated minimum but got a shorter sentence, the average sentence for this group was only 5 years. For those whose conviction quantity made them eligible for a “5-year” mandated minimum but got a shorter sentence, the average sentence for this group was only 3.2 years. This is particularly notable since the actual mandated minimum for some of those eligible for a “10-year” mandatory minimum is well in excess of 10 years and the actual mandated minimum for some of those eligible for a “5-year” mandatory minimum is well in excess of 5 years.

As discussed previously, one of the primary concerns regarding mandatory minimums is that they will compel judges to impose very harsh sentences on non-violent first-time offenders. However, the results above show that a large fraction of those ostensibly eligible for a mandatory minimum actually end up with a sentence that falls well short. This is particularly likely to be the case for first-time offenders, as the primary way in which mandatory minimum eligible defendants can receive a sentence less than the mandated minimum is that they are deemed to be eligible for the “safety-valve” statute, for which the primary criteria is a minimal criminal history. Indeed, in over 70 percent of the cases where a defendant’s drug type and conviction quantity made him or her eligible for a mandatory minimum sentence but received a sentence less than the mandated minimum, the “safety-valve” was invoked (this was almost identical for “5-year” and “10-year” mandatory minimum eligibility cases).

This suggests that most of those eligible for a mandatory minimum but who receive a sentence short of the mandatory minimum are first-time offenders. In fact, among those eligible for a mandatory minimum who receive a sentence short of the mandated minimum, almost 80 percent are first-time offenders. To consider this issue in another way, only 26 percent of mandatory minimum eligible Category I offenders (i.e., those with no previous convictions that carried a sentence of 60 days or more) received a sentence consistent with the mandated minimum. By comparison, over 70 percent of mandatory minimum eligible defendants in the higher criminal history categories received a sentence consistent with the mandated minimum.

These results show that while the mandatory minimums themselves are arguably quite restrictive and severe in their sentencing restrictions, the federal “safety-valve” appears to be relatively effective as a means of weeding out the majority of the first-time offenders for whom many believe that the mandated minimums are unduly harsh. However, one could still argue that the mandated minimums do impact sentencing for first-time offenders. For example, while 26 percent of Category I criminal history defendants convicted for quantities eligible for a “10-year”

mandatory minimum receive a sentence of 10 years or more, less than one percent of Category I criminal history defendants convicted for quantities below the cutoffs for a 10-year mandatory minimum receive a sentence of 10 years or more.

As alluded to previously, another controversial issue surrounding the federal mandatory minimums for drug crimes is how they may differentially impact offenders convicted for different types of drugs due to their different eligibility thresholds. Therefore, it is interesting to examine how the relative frequency with which mandatory minimum eligible offenders receive sentences consistent with the mandated minimum differs across drug types.

Figure 3 shows that conditional on being eligible for mandatory minimum sentencing, the likelihood of actually receiving a sentence consistent with the mandatory minimum law varies substantially across drug types. While less than 50 percent of those convicted for trafficking eligible amounts of powder cocaine, meth, heroin, and marijuana actually received sentences consistent with the mandatory minimum, almost 70 percent of those convicted for trafficking eligible amounts of crack cocaine ended up receiving sentences at or above the relevant mandatory minimum.<sup>5</sup>

Importantly however, as discussed above, one of the primary ways in which a defendant convicted for a mandatory minimum eligible amount of drugs is able to avoid the mandated minimum is to be deemed eligible for the safety-valve, the primary criteria for which is to have a minimal criminal history. It turns out that criminal history is also strongly correlated with conviction drug type. While over half of mandatory minimum eligible defendants convicted for powder cocaine, meth, heroin, and marijuana have only the minimal Category I criminal history, only 20 percent of those convicted for crack do. Not surprisingly then, while 40-50 percent of mandatory minimum eligible defendants convicted for powder cocaine, meth, heroin, and marijuana are deemed eligible for safety-valve relief, only 12 percent of mandatory minimum eligible crack defendants are deemed eligible for such relief.

Figure 4 shows that once we control for criminal history category, much of the differences across drugs disappear. As can be seen, amongst those eligible for a mandatory minimum in similar Criminal History Categories, crack defendants receive a sentence consistent with the mandatory minimum at about equal rates as those convicted for other drugs. Indeed, regressing whether or not

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<sup>5</sup> This difference shown in Figure 5 between offenders convicted for crack and offenders convicted for each of the other drugs is statistically significant at well beyond the 1 percent level (using a two-sided t-test), even when clustering standard errors by judicial district.

a mandatory minimum eligible defendant received a sentence consistent with the mandatory minimum on drug type dummies, race and gender dummies, judicial district dummies, final offense score, and criminal history category dummies, shows no significant differences between crack offenders and defendants convicted for other drugs (See Appendix Table A-1).

#### **IV(c) – The Impact of Exceeding Mandatory Minimum Eligibility Thresholds on Sentencing**

All of the above findings then lead to another important question, namely, to what extent does being convicted for a quantity of drugs that makes a defendant eligible for a “5-year” or “10-year” mandatory minimum sentence actually impact expected sentence length? Moreover, does this impact differ by the conviction drug type? This section examines these questions explicitly.

It is important to clarify the actual parameter I am estimating in this section. To be clear, I am estimating the average impact of being *convicted* for a quantity that makes an offender eligible for a mandatory minimum sentence on expected sentence length. I am not attempting to estimate the overall impact of the mandatory minimum sentencing laws on expected sentence length. These are potentially quite different parameters. The former is looking simply at the sentencing consequence of being convicted for a quantity at or in excess of a mandatory minimum eligibility threshold relative to being convicted for a quantity less than that threshold. The latter parameter differs in that it must not only account for the impact on sentencing of being convicted for a mandatory minimum eligible quantity, but also account for the fact that defendants, prosecutors and judges may potentially manipulate key case characteristics---in this case drug quantity---in response to what they perceive to be the impact on sentencing of being convicted for a mandatory minimum eligible quantity (see, for example, Bushway and Piehl (2007), Shermer and Johnson (2009), and Starr and Rehavi (2014) for discussions of this issue regarding non-drug crimes). Clearly, estimating the latter parameter may be more complicated than the former. However, I argue that estimating the former is important in its own right, and is a necessary step toward estimating the latter. Moreover, I come back to this issue of quantity manipulation and how it might affect the interpretation of the results later in the paper.

With the above issues in mind, I estimate the impact of being convicted for a mandatory minimum eligible quantity on expected sentence length by comparing mean sentence lengths for those whose conviction quantity is at or just over the relevant cutoff (i.e., those “just eligible”) to the mean sentence lengths for those whose conviction quantity is just under the relevant cutoff (i.e.,

those “just ineligible”). Table 2 shows the results of this basic analysis where I compare sentences received by those whose conviction quantity was at or up to 10 percent above the mandatory minimum threshold to those whose conviction quantity was below the mandatory minimum threshold by up to 10 percent (i.e., a “bandwidth” of 0.10 above and below the mandatory minimum eligibility threshold). The top row of numbers shows that overall, those convicted for quantities at or just above the “10-year” mandatory minimum threshold on average receive sentences about 2.05 years longer than those convicted for quantities just under the “10-year” mandatory minimum threshold. Similarly, those convicted for quantities at or just above the “5-year” mandatory minimum threshold on average receive sentences about 1.77 years longer than those convicted for quantities just under the “5-year” mandatory minimum threshold.

The sentencing impact of being convicted for a quantity at or just in excess of a mandatory minimum threshold appears to differ dramatically across drug types however. Most notably, as can be seen in the lower rows of Table 2, while being convicted for a quantity at or just in excess of a mandatory minimum threshold is associated with a significant increase in sentence length for powder cocaine, meth, marijuana and heroin defendants, this is not true for crack cocaine defendants. Crack cocaine defendants convicted for quantities at or just in excess of a “10-year” or “5-year” mandatory minimum sentence threshold on average receive sentences no longer than those convicted for quantities just under these thresholds. It is also interesting to note that the mean sentence for crack defendants convicted for quantities just short of the “10-year” mandatory minimum is 10.7 years, and the mean sentence for crack defendants convicted for quantities just short of the “5-year” mandatory minimum is 6.26 years. This is consistent with the notion that the mandatory minimums simply do not bind for many crack defendants, as even those not eligible for mandatory minimums are often being sentenced to sentences longer than the mandatory minimums. Note that this is not true for defendants convicted for most other drugs other than meth defendants convicted for quantities just under the “5-year” mandatory minimum threshold (whose average sentence is 6.7 years). Interestingly, this is also the only other case where just surpassing the mandatory minimum threshold is not associated with any increase in average sentence length.

Table 3 shows that the basic results shown in Table 2 are robust to other “bandwidths.” The first column of numbers in Table 3 simply repeats the basic results from the third column of numbers in Table 2, showing the mean sentencing impact for crossing the “10-year” mandatory minimum thresholds using a bandwidth of 0.10 (i.e., convictions up to 10 percent greater or 10

percent smaller than the “10-year” mandatory minimum thresholds). The second column of numbers in Table 3 shows what happens when I half the bandwidth to 0.05, while the third column of numbers in Table 3 shows what happens with I double the bandwidth to 0.20. As can be seen, for cocaine, meth, marijuana, and heroin, being convicted for quantities at or just in excess of the “10-year” mandatory minimum threshold is associated with a significant increase in average sentence length. However, this is not true for crack offenders. The three right columns of numbers in Table 3 show the same story holds across bandwidths when comparing those convicted for quantities at or just in excess of the “5-year” mandatory minimum thresholds to those convicted for quantities just below.

Recall from Section III that for about 1/6<sup>th</sup> of the observations, actual conviction quantity was not reported in the data, but rather a quantity range was reported. For these observations I count the lower end of the range given as the conviction quantity. One might be concerned that the inclusion of these observations in this way is impacting the results. However, as shown in Appendix table A-2, the basic results are essentially unchanged even if these observations are excluded. Namely, being convicted for a quantity at or up to 10 percent greater than a mandatory minimum threshold relative to being convicted for a quantity up to 10 percent less than a mandatory minimum threshold is associated with a significant increase in average sentence length for defendants convicted for powder cocaine, meth, marijuana and heroin, but not crack cocaine.

Recall from above that the primary way in which mandatory minimum eligible defendants are able to avoid the mandatory minimum is via the “safety-valve”, which requires a minimal criminal history. Given this, Tables 4a and 4b look at the impact of being convicted for a quantity at or just in excess of a mandatory minimum threshold relative to being convicted for a quantity just below the threshold (again using a bandwidth of 0.10 above and below the threshold), but divided up between those with the minimal Category I criminal history (and therefore potentially eligible for the safety-valve) and those with more extensive criminal histories. Looking first at Table 4a, which corresponds to the impact of being convicted for a quantity at or just surpassing a “10-year” mandatory minimum threshold, we see that for those with more extensive criminal histories (and therefore not eligible for the safety-valve), being convicted for a quantity at or just in excess of a mandatory minimum is associated with a significant increase in average sentence length for powder cocaine, meth, marijuana, and heroin offenders. Not surprisingly though, if we look at those with a Category I criminal history, the impacts of being just eligible for a “10-year”

mandatory minimum are much smaller (though still statistically significant for powder cocaine, meth, and heroin). Notably though, Table 4a again provides little evidence to suggest that being convicted for a quantity of crack at or just in excess of a “10-year” mandatory minimum threshold is associated with any increase in sentence length for either those defendants with extensive criminal histories or those with minimal criminal histories.

Looking at Table 4b, the results are a little more mixed with respect to the sentencing impact of being convicted for a quantity at or just in excess of a “5-year” mandatory minimum threshold, but the impact is still generally quite positive (and often significant) for cocaine, meth, marijuana, and heroin for both those defendants with minimal criminal history and those with more extensive criminal histories, but with the impact generally being smaller for those with minimal criminal histories. Again however, there is no notable increase in average sentence length for crack offenders convicted for quantities at or just in excess of the “5-year” mandatory minimum threshold than those convicted for quantities just below, regardless of criminal history.

Looking back at Table 2, we can see that for all drugs there are far more defendants convicted for quantities at or just above a mandatory minimum threshold than for a quantity just below a threshold. One reason for this is that those defendants for whom quantity was reported in a range I count as being convicted for the range minimum, which turns out to often correspond to a mandatory minimum quantity threshold. This in itself should not be surprising, as the quantity ranges correspond to the U.S.S.C. Guideline Base Offense Level ranges, which are constructed so that a mandatory minimum threshold also corresponds to a new quantity range. However, it is also generally true that there are more defendants convicted for quantities just above a mandatory minimum threshold than just below even when defendants whose conviction quantity is reported as a range are thrown out (see Appendix Table A-2). This suggests that prosecutors and defendants may be negotiating the actual conviction quantity in some cases. However, it is very unlikely that prosecutors are able to negotiate the quantity higher in order to just surpass a mandatory minimum threshold. Therefore, the bunching at or just over the mandatory minimum quantity thresholds is likely due to prosecutors and defendants negotiating quantities downward. Moreover, the fact that there is substantial bunching at or just above the mandatory minimum threshold quantities, not below, suggests that most quantity negotiating pushes quantities down to at or near the mandatory minimum thresholds, rather than to quantities below the thresholds, though such negotiations are certainly not ruled out.

Regardless of the reason for the bunching at quantities at or just above mandatory minimum thresholds, the fact that conviction quantity is potentially subject to manipulation might cause one to be concerned that those defendants convicted for quantities at or just in excess of a mandatory minimum threshold differ in important ways from those convicted for quantities just under a threshold, and these differences are influencing the results discussed above. Table 5 looks at the differences in a variety of defendant characteristics across drugs between those “just eligible” and those “just ineligible” (i.e., those convicted for a quantity within 10 percent above or 10 percent below a mandatory minimum threshold). Interestingly, among powder cocaine defendants, there appear to be substantial differences between those just eligible for a mandatory minimum and those just ineligible, particularly when it comes to a “10-year” mandatory minimum. For example, those just eligible for a “10-year” mandatory minimum are just slightly less likely to plea bargain (4 percentage points on a base of 97 percent), but more dramatically, are far more likely to be also convicted for weapons charge, far more likely to be black, far less likely to be Hispanic, and far less likely to be female. While the differences between the just eligible and just ineligible are less pronounced among powder cocaine defendants around the “5-year” threshold, and among defendants convicted for meth, marijuana, and heroin, there are still some significant differences. Notably however, there are no significant differences in characteristics between the just eligible and the just ineligible when it comes to crack defendants. In other words, at least among this small subset of characteristics, among crack offenders, there is little evidence of that the “just eligible” are notably different than the “just ineligible. This is consistent with the notion that mandatory minimums are not having large impacts on crack offender sentences, and therefore there is little incentive for quantity manipulation around their eligibility cutoffs.

More generally though, we can attempt to account for the extent to which some of these changing defendant characteristics around the eligibility thresholds are affecting the results by doing a regression adjusted version of Table 2. In particular, for each drug I first estimate the following regression

$$S_i = \alpha + \beta X_i + \Omega \text{Crim Hist Cat}_i + \delta \text{Final Offense Level}_i + \eta \text{District} + e_i$$

where  $S_i$  is the sentence given to defendant  $i$ ,  $X_i$  is a vector of defendant characteristic dummies (race, gender, weapon, etc.),  $\text{Crim Hist Cat}_i$  is a vector of criminal history category dummies,  $\text{Final}$

$Offense Level_i$  is the final offense level determined for defendant  $i$ ,  $District$  is a vector of district dummies, and  $e_i$  is the regression residual.<sup>6</sup> The residuals from this regression measure how far each defendant's actual sentence is from his/her predicted sentence based on his/her characteristics. I then compare these *residuals* for those convicted for quantities at or just above the mandatory minimum threshold to those convicted for quantities just below the mandatory minimum threshold for each drug category (again using a bandwidth of 10 percent of the threshold above and below the threshold). To the extent that being just eligible for a mandatory minimum systematically increases sentences, predicted sentences should over-predict sentences for those just short of the threshold and under-predict sentences for those just over the threshold, or equivalently, the regression residuals should on average be higher for those convicted for quantities just above the threshold than for those convicted for quantities just below.<sup>7</sup>

Table 6 shows the results of this exercise. As can be seen, even with this regression adjustment, on average, sentences are higher for those convicted for quantities at or just greater than the mandatory minimum thresholds than observationally similar defendants convicted for quantities just below. However, the magnitude of this increase is muted compared to the unadjusted results in Table 2. Relatedly, there is evidence of significantly higher than expected sentences for those convicted for quantities just above the mandatory minimum thresholds relative to those convicted for quantities just below with respect to the “10-year” threshold for powder cocaine, meth, and heroin, and the “5-year” thresholds for meth and marijuana. Again, however, these differences are muted compared to the unadjusted differences shown in Table 2. This should not be unexpected given the results in Table 5 showed significant differences in defendant characteristics between those convicted for quantities just above the mandatory minimum thresholds relative to those convicted for quantities just below the thresholds for these drugs. Notably again however, even with this regression adjustment, there is no evidence that sentences for crack offenders convicted for quantities at or just above the mandatory minimum thresholds differ from those convicted for quantities just below the thresholds.

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<sup>6</sup> Technically, I interact Final Offense Level with the year of the Guidelines manual being used at sentencing, or in other words predicting a different  $\delta$  for each Guidelines manual. This is done as guidelines manuals can change from year to year regarding how Base Offense levels are assigned or how Final Offense levels can differ from Base offense level.

<sup>7</sup> Results from the first-stage regressions are available upon request. Results are generally as expected. Coefficients are significantly larger for higher criminal history categories, the coefficient on Final Offense Level is positive and significant, coefficients on the weapon charge and black dummies are significantly positive, coefficient on the female dummy negative and significant.

#### **IV(d) – Interpretation of Results**

The results above show that despite the fact that over half of mandatory minimum eligible drug defendants actually receive a sentence short of the mandatory minimum sentence, being convicted for a quantity at or in excess of a federal drug mandatory minimum sentence cutoff still appears to significantly increase sentence length overall. However, there are also some results that are arguably a bit puzzling. Specifically, section IV(b) showed that crack cocaine defendants ostensibly eligible for a mandatory minimum sentence are significantly more likely to receive a sentence consistent with the mandatory minimum than eligible defendants convicted for other drugs. Yet, section IV(c) showed that being convicted for a quantity at or just in excess of a mandatory minimum eligibility threshold led to significant increases in expected sentence lengths for all drugs *except crack*.

At first glance, the results of these previous two subsections may seem to be contradictory, as one would think that because a much higher fraction of mandatory minimum eligible defendants convicted for drugs besides crack avoid the mandatory sentence via the safety-valve, the average sentencing impact of being just eligible for a mandatory minimum would be greater for crack offenders than for those convicted for other drugs. However, I argue that the way to interpret this seeming contradiction is the following. While a large fraction of mandatory minimum eligible defendants convicted for powder cocaine, meth, marijuana, and heroin are able to avoid the mandatory minimum via the federal safety-valve, when they cannot, the mandatory minimum represents a notable jump in sentence length relative to what they would have gotten in the absence of the mandatory minimums. In other words, for those who cannot avoid the mandatory minimum, the mandatory minimum is quite binding with respect to the judges'/prosecutors' regular sentencing practices. By contrast, for crack offenders, the overall sentencing practices are sufficiently harsh such that the mandatory minimums generally aren't binding---mandatory minimum eligible crack offenders would receive similar sentences even in the absence of the mandatory minimums.

In general, the results above suggest that even though the mandatory minimums appear to be much more restrictive for crack offenders relative to offenders convicted for other drugs, these mandatory minimums do not appear to substantially impact sentencing for crack offenders, and therefore do not appear to be driving much of the differences in sentencing between crack offenders

and those convicted for other drugs, particularly powder cocaine. If the mandatory minimums aren't driving the differences in sentencing across drug types, what is? The results of Table 7 may give us some ideas.

Table 7 looks at mean Guideline sentencing characteristics across drug types, where "Guideline sentencing characteristics" refer to the key characteristics regarding sentencing under the U.S.S.C. Guidelines. The top row of Table 7 shows actual mean years of sentencing across drug types. Sentences for crack offenders are longest (8.16 years), followed pretty closely by those for meth offenders (7.87 years), with more than a year gap to powder cocaine (6.76 years), followed by heroin (5.79 years), and marijuana (2.92 years).

Recall again that in determining sentencing for federal offenders, judges must first compute the U.S.S.C. Guideline sentence for each offender, though no longer necessarily have to sentence the offenders in the Guideline range. Regardless, the second row shows, not surprisingly, that the average minimum Guideline sentences across drugs line up similarly to average actual sentencing across drugs, with the mean minimum Guideline sentence for crack and meth offenders being well over one year longer than for powder cocaine, heroin, and marijuana offenders. Hence, while the Guidelines are no longer mandatory, the differences in actual sentencing across drugs appear to track quite closely with differences in minimum Guideline sentences across drugs.

To better understand what is driving these differences in Guideline sentences across drugs, recall that Guideline sentences are determined via a two-dimensional grid with Criminal History Category on one axis and Final Offense Level on the other. Final Offense Level in turn starts with a Base Offense Level, which for drug offenders is determined by drug type and quantity. In calculating Final Offense Level, the initial Base Offense Level can then be added to or subtracted to based on exacerbating or mitigating factors as determined by the judge. The third row of Table 7 shows mean Base Offense Level across drug types. As can be seen, it does not appear that Base Offense Level is driving the longer Guideline sentences for crack offenders, as not only is the mean Base Offense Level for crack offenders lower than it is for meth offenders, but also lower than it is for powder cocaine and heroin offenders, both of whom have much shorter actual and Guideline minimum sentences. Note, this must be driven by the fact that a large fraction of crack offenders are convicted for very small amounts, as Base Offense Levels by weight are much higher for crack than other drugs.

The fourth row of Table 7 shows mean Final Offense Level across drug types and reveals something interesting. While mean Final Offense Level for crack offenders is still lower than it is for meth offenders, and not much different than it is for powder cocaine and heroin offenders, mean Final Offense Level is over 2 points lower than mean Base Offense Level for powder cocaine, meth, marijuana, and heroin offenders, but almost the same for crack offenders. This means judges appear to generally find fewer “mitigating” factors for crack offenders than those convicted for other drugs.

Finally, and arguably most crucially, the fifth row of Table 7 shows mean Criminal History Category across drugs. Recall Criminal History Category goes from I – VI (I being most minimal) and is determined by a defendant’s criminal history point total, which in turn is determined by the defendant’s number of previous convictions that led to incarceration *and how long these spells of incarceration were*, a point I will return to below. As can be seen, the mean Criminal History Category for crack defendants is more than one full category (out of six) higher than it is for defendants convicted for other drugs. This higher criminal history, as measured by Criminal History Category, seems to be the driving factor for why Guideline minimum sentences, and actual sentences, are significantly longer for crack offenders than those convicted for other drugs (particularly powder cocaine).<sup>8</sup>

In words, the evidence shown in this paper suggests that it is not mandatory minimums, but rather the structure of the United States Sentencing Guidelines, and the continued influence of these Guidelines on sentencing, that is the primary cause of sentencing disparity between crack offenders and those convicted for other drugs. As alluded to above, of particular import may be how criminal history gets translated into the sentencing Guidelines. For purposes of the Guidelines, criminal history is determined not only by the number of previous convictions, but also the severity of those previous convictions. However, “severity” of previous convictions is determined by length of the sentence associated with previous convictions. This can lead to a vicious cycle for crack offenders.

To see this, consider the following example. Take two offenders A and B, both with one previous relatively minor conviction that carried a sentence of less than 60 days (giving them each one criminal history point). Now suppose offender A is subsequently convicted for 3 grams of

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<sup>8</sup> Results are essentially unchanged if we look at three sub-groups defined by mandatory minimum eligibility: (i) Those not eligible for a mandatory minimum, (ii) those eligible for a “5-year” but not “10-year” mandatory minimum, (iii) those eligible for a “10-year mandatory minimum”. Results available upon request.

crack cocaine (approximately 10-12 doses). This carries a Base Offense Level of 14, which with no further adjustments would lead to a Guideline minimum sentence of 15 months, and place him in Zone D of the Sentencing Grid, which means this sentence can only be satisfied through incarceration in prison. By contrast, suppose offender B is subsequently convicted for 45 grams of powder cocaine (approximately 90-100 doses). This carries a Base Offense Level of only 12, which not only corresponds to a sentence of only 10 months, but also puts him in Zone C, where up to half of the sentence can be satisfied by home detention. It doesn't end here though. Suppose each offender is convicted one more time, but both for a Base Level 12 quantity. While again this could be up to 50 grams of powder cocaine for offender B (well over 100 doses), even a conviction for one dose of crack cocaine (less than half a gram) for offender A would still lead to a Base Offense Level of 12. Moreover, because offender A's previous crack conviction carried a sentence of greater than one year one month, it would have led to 3 further criminal history points, giving him a total of 4, meaning he would be considered a Criminal History Category III offender. This would mean his new Base Offense Level 12 offense would lead to a minimum Guideline sentence of 15 months, and again be in Zone D, meaning the time must be done in prison. By contrast, offender A would only get 2 additional criminal history points from his previous drug offense (since his sentence was less than a year), giving him 3 total, meaning he would be considered a Criminal History Category II offender. This would mean his current Base Offense Level 12 offense would only carry a 12 month sentence, and moreover would again be in Zone C, meaning some of this sentence could be satisfied via home detention. Further convictions would keep exacerbating these inequalities.

This simple example shows the way in which criminal history is incorporated into the U.S.S.C sentencing Guidelines, along with the disparate treatment of crack cocaine relative to powder cocaine under these Guidelines, can lead a relatively low level crack dealer (or even just a user) to end up spending far more time in prison than a relatively large scale powder cocaine dealer, even in the absence of mandatory minimums.

## V - Conclusion

This paper shows that the impact of the United States Federal mandatory minimums for drug crimes is quite nuanced. First, while first-time offenders can be ostensibly eligible for mandatory minimums and the arguably quite long sentences therein, the vast majority of mandatory

minimum eligible offenders with minimal criminal histories avoid such sentences via the federal safety-valve program. Second, even though the mandatory minimum eligibility criteria is much more restrictive for crack cocaine relative to other drugs, particularly powder cocaine, the mandatory minimums do not appear to be a primary driver for the longer sentences for crack offenders relative to powder cocaine offenders and those convicted for other drugs. The reasons for this are twofold. First, a large fraction of federal crack offenders are convicted for exceedingly small quantities, so that even though mandatory minimum eligible quantities for crack are much lower than they are for other drugs, a smaller fraction of crack offenders are eligible for mandatory minimum sentencing than offenders convicted for other drugs. Second, while eligibility for a mandatory minimum generally leads to a significant increase in expected sentence for powder cocaine, meth, marijuana, and heroin offenders, overall federal sentencing practices end up being sufficiently harsh with respect to crack offenders such that the mandatory minimums are generally not binding for crack offenders.

The last part of the paper considered why the federal sentencing system net of the mandatory minimums is so harsh with respect to crack offenders relative to those convicted for other drugs. The reasons seem to be threefold. First, the federal sentencing system treats crack cocaine much more harshly than similar amounts of other drugs. Second, judges appear to be somewhat less likely to find mitigating factors for crack offenders relative to those convicted for other drugs. Third, crack offenders generally have much more serious criminal histories than those convicted for other drugs, at least in terms of how criminal history is determined by the federal sentencing Guidelines. Importantly however, criminal history as determined by the federal sentencing Guidelines is a function of the *length of sentences* for previous offenses, which obviously are in turn affected by the two issues highlighted earlier.

The main lessons to take from the results in this paper are that if policy makers and criminal justice reform advocates want to tackle the issue of long sentences for crack offenders, particularly compared to powder cocaine offenders, focusing solely on reforming mandatory minimum sentencing (for example as done by the Fair Sentencing Act of 2010) will likely be insufficient. Rather, the focus must be on reforming broader sentencing practices with respect to crack cocaine relative to powder cocaine, primarily the disparate treatment of crack cocaine relative to powder cocaine under the U.S.S.C. sentencing Guidelines and how criminal history is incorporated into these Guidelines.

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**Table 1 - Federal Mandatory Minimum Drug Sentences, by drug and quantity**

	<b>1st Drug Offense</b>	<b>2nd Drug Offense</b>	<b>3rd Drug Offense</b>
Marijuana			
100 kg or more	<b>5 yrs</b>	10 yrs	10 yrs
1000 kg or more	<b>10 yrs</b>	20 yrs	Life
Methamphetamine			
0.05 kg or more	<b>5 yrs</b>	10 yrs	10 yrs
0.5 kg or more	<b>10 yrs</b>	20 yrs	Life
Heroin			
0.1 kg or more	<b>5 yrs</b>	10 yrs	10 yrs
1 kg or more	<b>10 yrs</b>	20 yrs	Life
Powder Cocaine			
0.5 kg or more	<b>5 yrs</b>	10 yrs	10 yrs
5 kg or more	<b>10 yrs</b>	20 yrs	Life
Crack Cocaine			
0.028 kg or more	<b>5 yrs</b>	10 yrs	10 yrs
0.280 kg or more	<b>10 yrs</b>	20 yrs	Life

**Table 2: Difference in mean sentences between those "just" eligible for mandatory minimum to those "just" ineligible (bandwidth 0.10 around eligibility threshold)**

	(1) "10-Year" Mand Mins			(2) "5-year" Mand Mins		
	eligible	ineligible	diff	eligible	ineligible	diff
<b>all</b>	8.69 (.103) 3422	6.63 (.151) 946	<b>2.05***</b> <b>(.212)</b> <b>4368</b>	5.27 (.07) 3386	3.50 (.086) 1288	<b>1.77***</b> <b>(.125)</b> <b>4674</b>
<b>cocaine</b>	8.25 (.153) 1371	5.47 (.218) 218	<b>2.78***</b> <b>(.394)</b> <b>1589</b>	4.70 (.119) 927	3.80 (.34) 102	<b>0.90**</b> <b>(.551)</b> <b>1029</b>
<b>crack</b>	10.72 (.316) 468	10.70 (.649) 104	<b>0.02</b> <b>(.737)</b> <b>572</b>	5.86 (.175) 561	6.26 (.356) 173	<b>-0.40</b> <b>(.371)</b> <b>734</b>
<b>meth</b>	9.49 (.245) 680	7.70 (.288) 287	<b>1.79***</b> <b>(.421)</b> <b>967</b>	7.29 (.206) 655	6.70 (.296) 116	<b>0.59</b> <b>(.505)</b> <b>771</b>
<b>marijuana</b>	6.76 (.257) 370	5.87 (.258) 174	<b>0.89**</b> <b>(.415)</b> <b>544</b>	3.82 (.105) 723	2.44 (.056) 850	<b>1.38***</b> <b>(.115)</b> <b>1573</b>
<b>heroin</b>	8.34 (.254) 533	4.53 (.254) 163	<b>3.81***</b> <b>(.481)</b> <b>696</b>	5.11 (.143) 520	3.92 (.375) 47	<b>1.19**</b> <b>(.489)</b> <b>567</b>

Standard errors in parentheses. Number of observations in italics below standard errors. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 3: Robustness of differences in mean sentences between eligible and ineligible to different bandwidths - bandwidths (bw) 0.10, 0.05, 0.20**

	(1) "10-Year" Mand Mins			(2) "5-year" Mand Mins		
	bw 0.10	bw 0.05	bw 0.20	bw 0.10	bw 0.05	bw 0.20
<b>all</b>	2.05*** (.212) 4368	2.53*** (.273) 3691	1.92*** (.158) 5700	1.77*** (.125) 4674	1.92*** (.155) 3840	1.58*** (.104) 6248
<b>cocaine</b>	2.78*** (.394) 1589	2.77*** (.431) 1507	2.50*** (.317) 1834	0.90** (.551) 1029	1.11** (.451) 960	0.92*** (.247) 1261
<b>crack</b>	0.02 (.737) 572	0.19 (1.04) 459	0.75 (.517) 774	-0.40 (.371) 734	-0.47 (.46) 595	-0.18 (.304) 971
<b>meth</b>	1.79*** (.421) 967	1.87*** (.638) 718	2.17*** (.293) 1461	0.59 (.505) 771	0.34 (.735) 610	0.83** (.363) 1083
<b>marijuana</b>	0.89** (.415) 544	0.99* (.599) 411	1.25*** (.307) 791	1.38*** (.115) 1573	1.42*** (.145) 1145	1.43*** (.105) 2279
<b>heroin</b>	3.81*** (.481) 696	4.23*** (.553) 596	3.44*** (.393) 840	1.19** (.489) 567	1.52** (.657) 530	0.99** (.396) 654

Standard errors in parentheses. Number of observations in italics below standard errors.  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4a: Difference in mean sentences between those "just" eligible for "10-yr" mandatory minimum to those "just" ineligible (bandwidth 0.10) - by Criminal History**

	Minimal Criminal History (Cat I)			Longer Criminal History (Cat II-IV)		
	eligible	ineligible	diff	eligible	ineligible	diff
<b>all</b>	5.79 (.107) <i>1543</i>	4.51 (.119) <i>531</i>	<b>1.28***</b> <b>(.196)</b> <b>2074</b>	11.07 (.145) <i>1877</i>	9.34 (.254) <i>415</i>	<b>1.73***</b> <b>(.331)</b> <b>2292</b>
<b>cocaine</b>	5.86 (.158) <i>690</i>	4.19 (.151) <i>149</i>	<b>1.68***</b> <b>(.347)</b> <b>839</b>	10.69 (.23) <i>679</i>	8.23 (.457) <i>69</i>	<b>2.45***</b> <b>(.735)</b> <b>748</b>
<b>crack</b>	6.62 (.516) <i>94</i>	6.05 (.86) <i>16</i>	<b>0.57</b> <b>(1.302)</b> <b>110</b>	11.76 (.354) <i>374</i>	11.54 (.716) <i>88</i>	<b>0.21</b> <b>(.809)</b> <b>462</b>
<b>meth</b>	6.34 (.28) <i>280</i>	5.56 (.263) <i>152</i>	<b>0.77*</b> <b>(.427)</b> <b>432</b>	11.69 (.326) <i>400</i>	10.10 (.455) <i>135</i>	<b>1.59**</b> <b>(.62)</b> <b>535</b>
<b>marijuana</b>	5.23 (.253) <i>219</i>	4.67 (.293) <i>98</i>	<b>0.56</b> <b>(.426)</b> <b>317</b>	8.97 (.458) <i>151</i>	7.42 (.391) <i>76</i>	<b>1.56**</b> <b>(.703)</b> <b>227</b>
<b>heroin</b>	5.17 (.237) <i>260</i>	3.21 (.185) <i>116</i>	<b>1.97***</b> <b>(.376)</b> <b>376</b>	11.36 (.357) <i>273</i>	7.81 (.502) <i>47</i>	<b>3.55***</b> <b>(.886)</b> <b>320</b>

Standard errors in parentheses. Number of observations in italics below standard errors. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4b: Difference in mean sentences between those "just" eligible for "5-yr " mandatory minimum to those "just" ineligible (bandwidth 0.10) - by Criminal History**

	Minimal Criminal History (Cat I)			Longer Criminal History (Cat II-IV)		
	eligible	ineligible	diff	eligible	ineligible	diff
<b>all</b>	3.08 (.069) 1396	2.05 (.052) 672	<b>1.03***</b> <b>(.106)</b> <b>2068</b>	6.82 (.094) 1985	5.09 (.145) 614	<b>1.72***</b> <b>(.188)</b> <b>2599</b>
<b>cocaine</b>	2.86 (.105) 441	2.03 (.177) 50	<b>0.83***</b> <b>(.317)</b> <b>491</b>	6.37 (.174) 486	5.50 (.551) 52	<b>0.87</b> <b>(.563)</b> <b>538</b>
<b>crack</b>	2.53 (.153) 133	2.82 (.398) 28	<b>-0.29</b> <b>(.38)</b> <b>161</b>	6.90 (.199) 428	6.92 (.395) 145	<b>0.02</b> <b>(.411)</b> <b>573</b>
<b>meth</b>	4.57 (.271) 233	4.69 (.342) 39	<b>-0.13</b> <b>(.677)</b> <b>272</b>	8.83 (.255) 420	7.72 (.359) 77	<b>1.11*</b> <b>(.615)</b> <b>497</b>
<b>marijuana</b>	2.68 (.094) 418	1.82 (.043) 538	<b>0.87***</b> <b>(.096)</b> <b>956</b>	5.41 (.179) 303	3.54 (.109) 310	<b>1.87***</b> <b>(.209)</b> <b>613</b>
<b>heroin</b>	3.02 (.155) 171	2.30 (.145) 17	<b>0.72</b> <b>(.494)</b> <b>188</b>	6.13 (.176) 348	4.84 (.513) 30	<b>1.29**</b> <b>(.617)</b> <b>378</b>

Standard errors in parentheses. Number of observations in italics below standard errors. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 5: Difference in mean Defendant Characteristics between those "just" eligible for mandatory minimum to those "just" ineligible (bandwidth 0.10 around eligibility thresholds)**

<b>"10-yr" Mandatory Minimum Thresholds</b>					
	<b>cocaine</b>	<b>crack</b>	<b>meth</b>	<b>marijuana</b>	<b>heroin</b>
Plea Bargain	-0.04** (.017)	0.04 (.029)	-0.01 (.014)	-0.03 (.022)	-0.02 (.018)
Weapons Charge	0.40*** (.057)	0.01 (.096)	0.01 (.053)	-0.05 (.07)	0.17*** (.062)
Black	0.17*** (.035)	0.01 (.039)	-0.01 (.012)	0.08** (.036)	0.16*** (.043)
Hispanic	-0.19*** (.036)	0.02 (.032)	-0.22*** (.034)	-0.25*** (.045)	-0.17*** (.044)
Female	-0.11*** (.021)	0.02 (.031)	0.00 (.028)	0.05** (.02)	-0.05 (.031)

<b>"5-yr" Mandatory Minimum Thresholds</b>					
	<b>cocaine</b>	<b>crack</b>	<b>meth</b>	<b>marijuana</b>	<b>heroin</b>
Plea Bargain	-0.02 (.018)	0.01 (.014)	0.01 (.015)	0.00 (.006)	0.03* (.017)
Weapons Charge	0.01 (.067)	-0.08 (.064)	0.04 (.069)	0.17*** (.024)	-0.07 (.096)
Black	0.12** (.05)	-0.06 (.036)	0.02 (.017)	0.14*** (.015)	0.05 (.075)
Hispanic	-0.07 (.051)	0.00 (.022)	-0.03 (.046)	-0.35*** (.023)	-0.07 (.071)
Female	-0.03 (.03)	0.01 (.023)	0.02 (.042)	-0.05*** (.016)	0.00 (.053)

Standard errors in parentheses. . \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 6: Difference in *Regression Adjusted* sentences between those "just" eligible for mandatory minimum to those "just" ineligible (bandwidth 0.10 around eligibility threshold)**

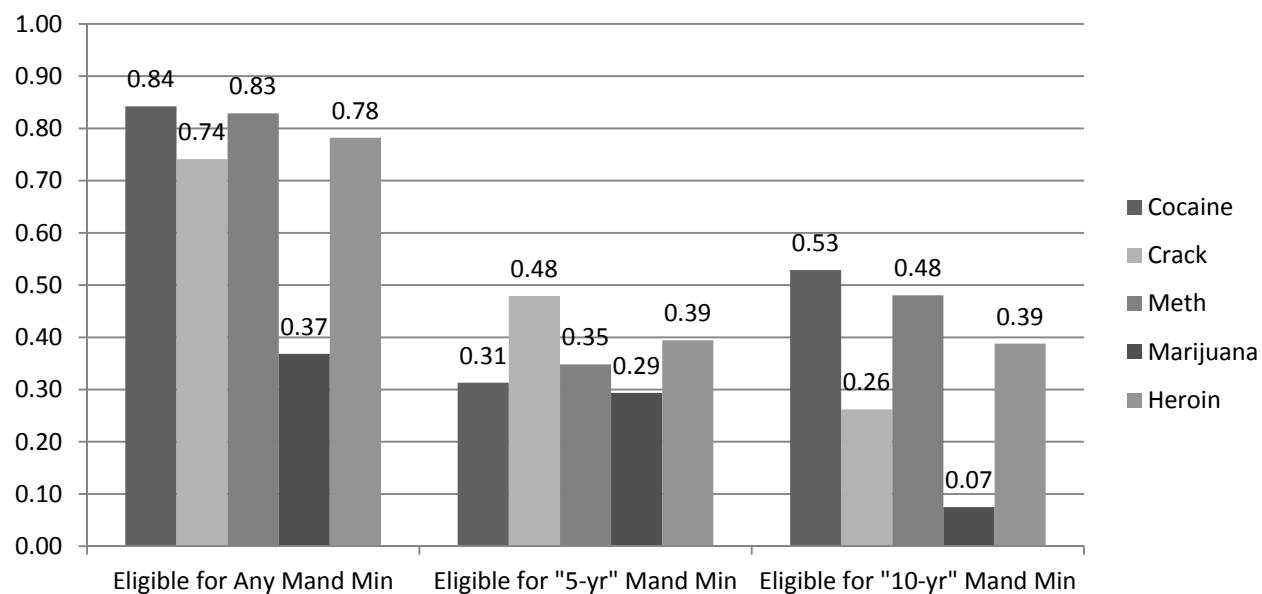
	(1) "10-Year" Mand Mins			(2) "5-year" Mand Mins		
	eligible	ineligible	diff	eligible	ineligible	diff
<b>all</b>	0.57 (.077) <i>3417</i>	-0.17 (.096) <i>945</i>	<b>0.74***</b> <b>(.155)</b> <b>4362</b>	-0.50 (.045) 3377	-0.51 (.048) 1276	<b>0.01</b> <b>(.078)</b> <b>4653</b>
<b>cocaine</b>	0.41 (.114) <i>1367</i>	-0.22 (.119) <i>218</i>	<b>0.62**</b> <b>(.289)</b> <b>1585</b>	-0.40 (.072) 926	-0.17 (.175) 102	<b>-0.23</b> <b>(.224)</b> <b>1028</b>
<b>crack</b>	0.80 (.238) <i>468</i>	0.70 (.467) <i>104</i>	<b>0.10</b> <b>(.551)</b> <b>572</b>	-0.70 (.105) 561	-0.51 (.209) 173	<b>-0.19</b> <b>(.221)</b> <b>734</b>
<b>meth</b>	0.66 (.177) <i>680</i>	-0.08 (.184) <i>287</i>	<b>0.74**</b> <b>(.298)</b> <b>967</b>	0.07 (.141) 653	-0.69 (.197) 116	<b>0.76**</b> <b>(.346)</b> <b>769</b>
<b>marijuana</b>	0.47 (.205) <i>370</i>	0.16 (.184) <i>174</i>	<b>0.32</b> <b>(.324)</b> <b>544</b>	-0.30 (.071) 720	-0.50 (.037) 838	<b>0.20***</b> <b>(.077)</b> <b>1558</b>
<b>heroin</b>	0.69 (.178) <i>532</i>	-0.56 (.137) <i>162</i>	<b>1.26***</b> <b>(.332)</b> <b>694</b>	-0.45 (.099) 517	-0.56 (.259) 47	<b>0.11</b> <b>(.338)</b> <b>564</b>

Standard errors in parentheses. Number of observations in italics below standard errors. \*\*\* p<0.01,  
\*\* p<0.05, \* p<0.1

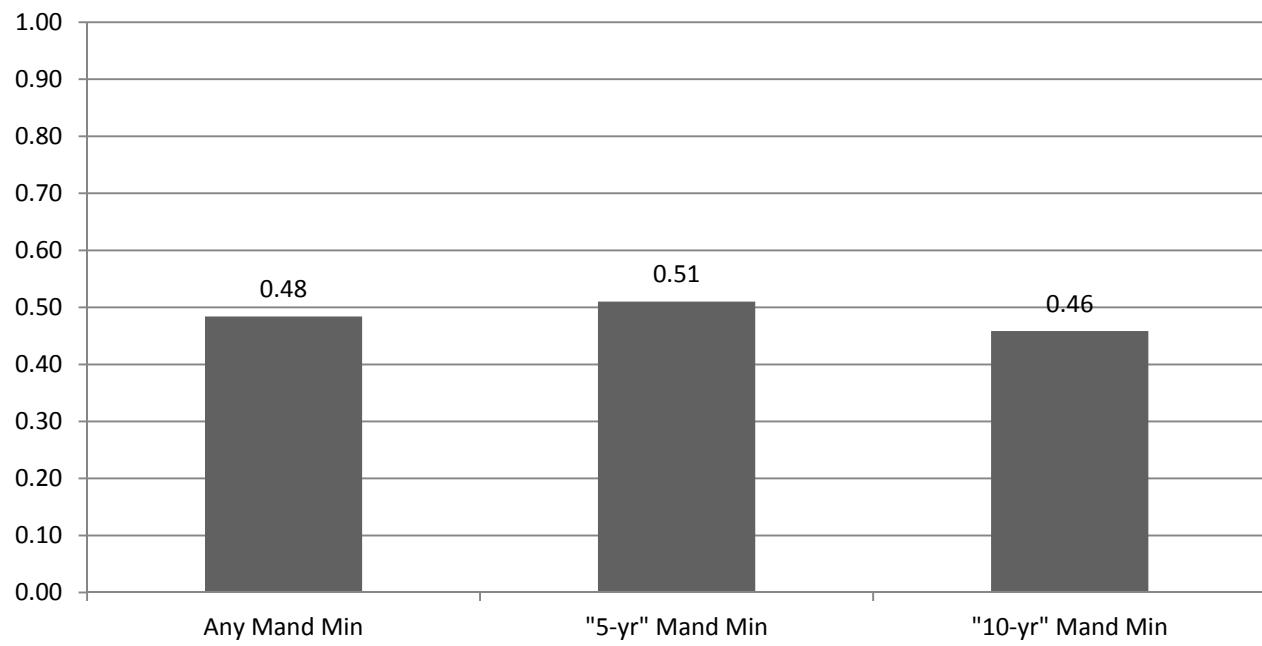
**Table 7: Sentencing Characteristics by Drug**

	Cocaine	Crack	Meth	Marijuana	Heroin
<b>Actual Sentence (yrs)</b>	6.76 (.049)	8.16 (.066)	7.87 (.048)	2.92 (.025)	5.79 (.069)
<b>Guideline Min (yrs)</b>	8.27 (.054)	9.68 (.073)	9.91 (.053)	3.45 (.027)	7.32 (.076)
<b>Base Offense Level</b>	29.28 (.05)	26.93 (.06)	31.68 (.042)	22.47 (.042)	27.66 (.079)
<b>Final Offense Level</b>	26.44 (.055)	26.19 (.067)	28.64 (.048)	18.70 (.047)	25.05 (.083)
<b>Criminal History Cat.</b>	2.10 (.013)	3.64 (.019)	2.36 (.015)	1.77 (.01)	2.47 (.024)

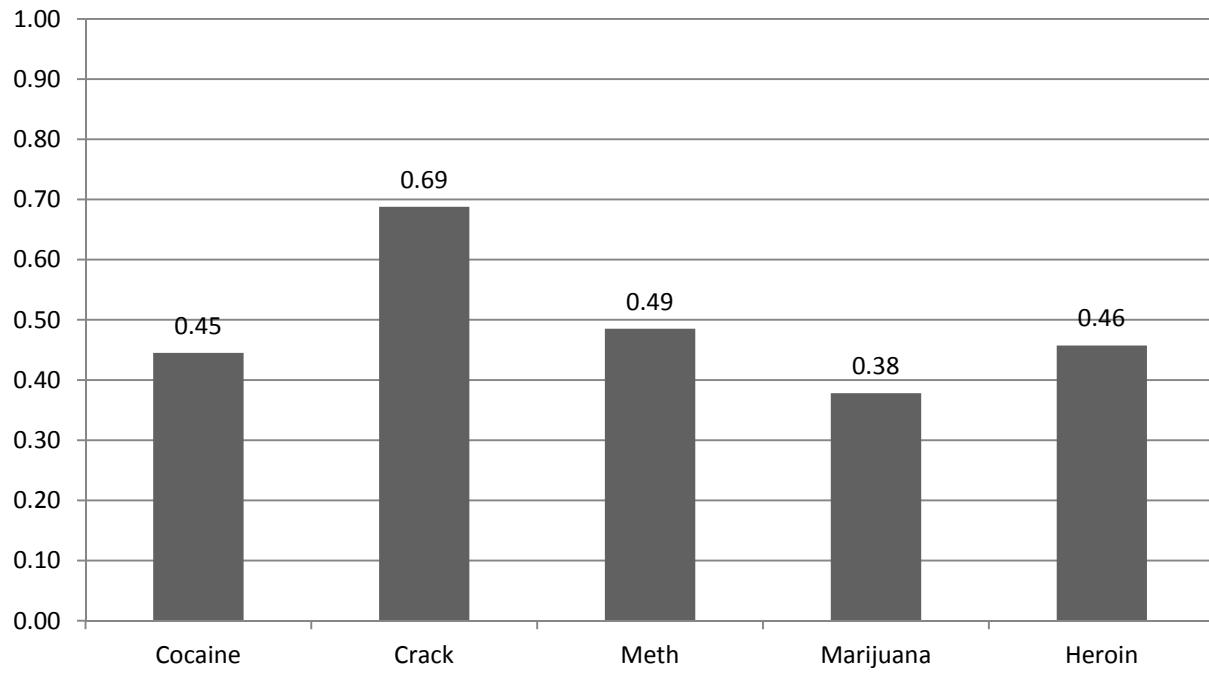
**Fig 1: Mandatory Minimum Eligible by Drug Type**



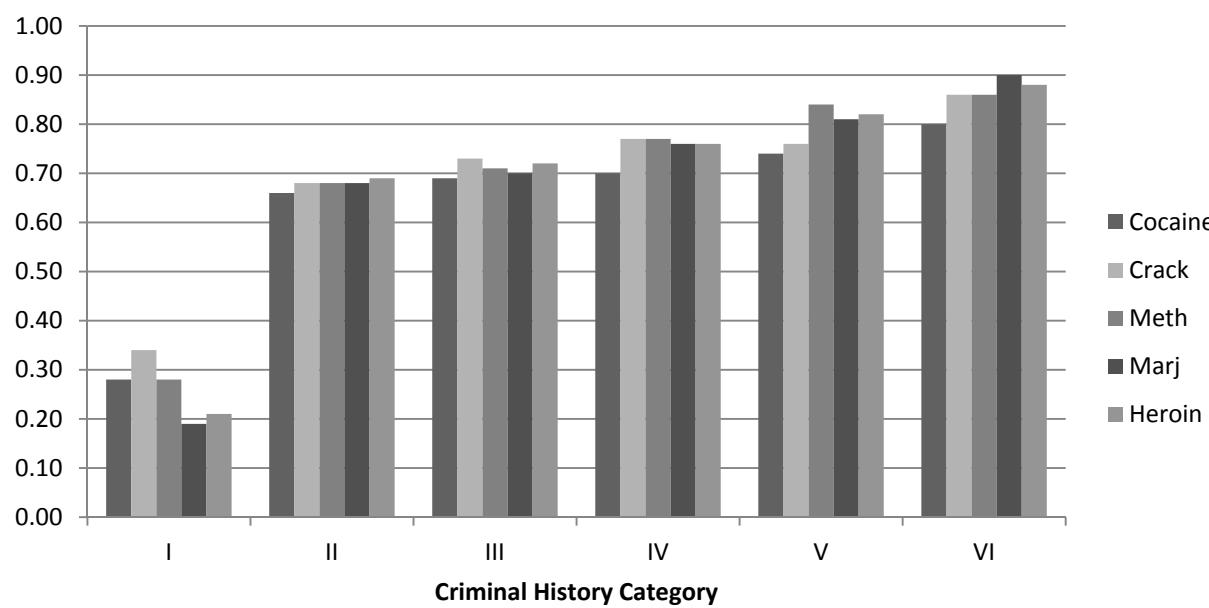
**Fig 2: Sentence Consistent with Mandatory Minimum**



**Fig 3: Sentence Consistent with Mandatory Minimum (by Drug Type)**



**Fig 4: Sentence Consistent with Mandatory Minimum by Criminal History Category and Drug Type**



## Appendix Tables

**Table A1: Likelihood of Receiving a Mandatory Minimum Consistent Sentence  
Conditional on Being Eligible (Regression Results)**

Control Variables	"5-Yr" Mand Min Eligible			"10-Yr" Mand Min Eligible		
	(1)	(2)	(3)	(4)	(5)	(6)
crack	0.097*** (0.019)	-0.018 (0.014)	-0.023* (0.014)	0.096*** (0.018)	0.032* (0.017)	0.029 (0.018)
marijuana	-0.056*** (0.018)	-0.022* (0.012)	-0.000 (0.015)	-0.019 (0.027)	-0.001 (0.021)	0.041** (0.019)
heroin	0.058*** (0.018)	0.016 (0.014)	0.013 (0.014)	0.022 (0.018)	0.002 (0.015)	0.019 (0.013)
meth	0.125*** (0.014)	0.052*** (0.013)	-0.091*** (0.015)	0.066*** (0.020)	0.048** (0.019)	-0.022 (0.016)
female	-0.231*** (0.014)	-0.097*** (0.012)	-0.067*** (0.012)	-0.186*** (0.024)	0.117*** (0.017)	0.073*** (0.012)
black	0.147*** (0.014)	0.080*** (0.012)	0.063*** (0.012)	0.096*** (0.018)	0.040** (0.020)	0.017 (0.018)
Hispanic	0.066*** (0.020)	0.082*** (0.016)	0.059*** (0.015)	0.033** (0.016)	0.060*** (0.014)	0.034*** (0.010)
age	0.186*** (0.019)	0.019 (0.015)	0.011 (0.010)	0.066*** (0.015)	-0.035** (0.014)	-0.025** (0.011)
US Citizen	0.002*** (0.001)	0.001 (0.001)	-0.000 (0.000)	0.003*** (0.000)	0.002*** (0.000)	0.000* (0.000)
Weapon Charge	0.118*** (0.007)	0.108*** (0.006)	0.051*** (0.006)	0.127*** (0.008)	0.118*** (0.007)	0.049*** (0.007)
district dummies	yes	yes	yes	yes	yes	yes
criminal history category	no	yes	yes	no	yes	yes
Final Offense Level	no	no	yes	no	no	yes

Coefficients on dummies for missing race not shown. Huber/White robust standard errors clustered by district shown in parentheses. Final Offense Level interacted is with the year of the applied guideline manual. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

**Table A-2: Difference in mean sentences between those "just" eligible for mandatory minimum to those "just" ineligible (bandwidth 0.10 around eligibility threshold)**  
**Only Those with Continuous Quantity Data**

	(1) "10-Year" Mand Mins			(2) "5-year" Mand Mins		
	eligible	ineligible	diff	eligible	ineligible	diff
<b>all</b>	8.57 (.171) 1251	6.63 (.151) 946	<b>1.94***</b> <b>(.237)</b> <b>2197</b>	5.71 (.131) 1088	3.50 (.086) 1288	<b>2.22***</b> <b>(.152)</b> <b>2376</b>
<b>cocaine</b>	8.12 (.255) 477	5.47 (.218) 218	<b>2.64***</b> <b>(.406)</b> <b>695</b>	5.15 (.257) 258	3.80 (.34) 102	<b>1.35**</b> <b>(.462)</b> <b>360</b>
<b>crack</b>	10.31 (.462) 217	10.70 (.649) 104	<b>-0.39</b> <b>(.805)</b> <b>321</b>	6.76 (.348) 180	6.26 (.356) 173	<b>0.50</b> <b>(.371)</b> <b>353</b>
<b>meth</b>	9.16 (.398) 229	7.70 (.288) 287	<b>1.45***</b> <b>(.48)</b> <b>516</b>	7.38 (.317) 250	6.70 (.296) 116	<b>0.68</b> <b>(.508)</b> <b>366</b>
<b>marijuana</b>	7.08 (.453) 116	5.87 (.258) 174	<b>1.22**</b> <b>(.49)</b> <b>290</b>	4.28 (.195) 283	2.44 (.056) 850	<b>1.84***</b> <b>(.148)</b> <b>1133</b>
<b>heroin</b>	8.00 (.448) 212	4.53 (.254) 163	<b>3.47***</b> <b>(.558)</b> <b>375</b>	5.20 (.298) 117	3.92 (.375) 47	<b>1.23**</b> <b>(.532)</b> <b>164</b>

Standard errors in parentheses. Number of observations in italics below standard errors. \*\*\* p<0.01,  
 \*\* p<0.05, \* p<0.1