

Long-Run Trends in Incarceration of Drug Offenders in the US

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Abstract

Estimates are developed for the number of people incarcerated in the US for drug-law violations between 1972-2002, broken down by type of institution (federal prison, state prison, or jail) and to the extent possible by nature of drug offense (possession/use, trafficking, or other). These time series are compared to trends in drug use indicators, revealing at best weak correlations, and the absolute levels are compared to different market indicators to draw various inferences. For example, even though about 480,000 people are incarcerated for drug-law violations, on average retail sellers spend less than two hours behind bars per sale. Still, full time sellers might expect to spend three months incarcerated per year of selling, suggesting that there are roughly four active drug sellers for every one who is incarcerated.

Introduction

There is considerable controversy concerning the benefits and costs of the extensive incarceration of drug-law violations in the US. The public generally favors a strong criminal justice response (Blendon and Young, 1998), but its effectiveness at reducing drug use has been questioned (Nadelmann, 1989). Drug law violations are a consensual crime; libertarians and others have questioned whether incarceration is morally the right response (Friedman, 1992; Husak, 2002). Effects on families (Mumola, 2000; Mauer and Chesney-Lind, 2002), civil liberties (Human Rights Watch, 1997), minority communities (Free, 1997), disenfranchisement, especially of minorities (Fellner, 1998; Uggen and Manza, 2003), and general well-being (Iguchi et al., 2002; Mauer, 2002) are a serious concern, as is reintegration into society after release (Hagan and Coleman, 2001). US incarceration rates in general have grown dramatically (Langan,

1991; Beck, 1997; Greenberg and West, 2001), and now greatly exceed those of other western countries (Kuhn, 2001). Scholars have sought to explain why the US is an outlier (e.g., Tonry, 1999). Major drivers generally include sentencing policies such as mandatory sentencing, “truth in sentencing”, and “three strikes and you’re out” and, in particular, increasing drug-related incarceration (Blumstein and Beck, 1999; Mauer, 1999, 2001).

The stylized facts underpinning these debates are well known. Drug-related incarceration has risen dramatically, particularly in the federal system. Offenders are disproportionately minority males. Drug offenders’ share of all incarceration has increased markedly.

What is strikingly absent is data concerning drug-related incarceration patterns as a whole over time. Numbers concerning pieces of the overall system are often offered. Data on federal prisoners are readily available, but the federal and state systems are very different both in number and type of drug prisoners (Sevigny and Caulkins, 2004). Furthermore, there are two and a half times as many drug offenders incarcerated in local jails as in federal prisons. So statistics on federal prisoners alone can be misleading.

Absence of comprehensive data on overall drug incarceration trends is problematic. It allows advocates to “spin” partial statistics to their purpose. For example, the Drug Policy Alliance web page’s critique of mandatory minimum sentences (<http://www.lindesmith.org/drugwar/mandatorymin/>) asserts “More than 80% of the increase in federal prison population from 1985 to 1995 is due to drug convictions.” The statistic itself is inflated. The correct number is 75%. More importantly the comparable figures for state prisons, jails, and adult incarceration overall are 35%, 31%, and 36%, respectively. So naïve readers might be misconstrue the Drug Policy Alliance statement to infer that drug convictions were responsible for three-quarters of the increase in incarceration in the US, whereas one-third is a more accurate characterization.

This paper assembles estimates of trends in drug-related incarceration in the US from 1972-2002, broken down by type of institution (federal prison, state prison, or jail) and, to the extent possible, the nature of drug offense (possession or use, trafficking, or other). Incarceration in juvenile facilities is excluded. These trends do not reflect new primary data collection. Rather, they stem from combining data from existing official

documents. Nevertheless, to the best of the authors' knowledge, series of this length spanning institution type have not previously been published.

This paper differs from comparable efforts, such as Blumstein and Beck (1999, forthcoming) by covering more years (1972-2002 vs. 1980-2001), including jail inmates, and distinguishing where possible by type of drug offense. On the other hand, only numbers of inmates are reported, not arrests or commitments per arrest. Cohen and Canela-Cacho's (1994) analysis covered a range of years (1965-1986), but focused on violent offenders, using drug offenders primarily as a foil and again excluding jail inmates.

That these data have not been assembled previously is surprising given the prominence of debates surrounding drug-related incarceration (King and Mauer, 2002). Much has been written concerning the relative merits of "supply side" vs. "demand side" strategies for controlling drug problems (Rydell and Everingham, 1994; Rydell et al., 1996; Crane et al., 1997; Manski et al., 1999, 2001; Caulkins, 2000). Since incarceration is a principal instrument of drug law enforcement (Reuter and Kleiman, 1986; Kleiman, 1992) the series developed here are fundamental to these issues. Furthermore, there has been considerable debate over who is incarcerated for drug law violations: high-level traffickers or low-level users? (e.g., DOJ, 1994; Vincent and Hofer, 1994; Sevigny and Caulkins, 2004) Hence, distinctions by most serious offense charge (trafficking vs. possession) are of interest.

Available Data

Annual data are generally available concerning the total number of inmates by type of institution, but information concerning conviction offense is typically only available from periodic surveys. These have been conducted in jails (1972, 1978, 1983, 1989, 1996, 2002), state prisons (1974, 1979, 1986, 1991, and 1997), and federal prisons (1991, 1997). Time series for drug-related incarceration typically represent some sort of interpolation and/or extrapolation from these benchmark years.

Estimates of the number of drug offenders in *federal* prisons over the entire 1972-2002 period are available (Pastore and Maguire, 2003, Table 6.54). However, no breakdown is given by type of drug offense.

For *state* prisons, the total number of inmates and estimated number incarcerated on drug-related charges from 1980-1992 are available from Snell (1995). The drug-specific estimates were produced using forward and backward stock-flow methods grounded on the 1986 and 1991 surveys. Other government documents allow one to extend this time-series through 2001 (BJS, 1999; Beck and Mumola, 1999; Beck, 2000). Again, no information is provided on the nature of the drug-related offense.

We do not perform such a stock and flow analysis for two reasons: (1) variation in how data are reported over the entire period of interest here and (2) the desire to keep the methods transparent. Instead, we simply linearly interpolate between adjacent points in time series to fill in missing values. “Linear interpolation” means nothing more than connecting adjacent points with a straight line. For example, official estimates have been made for the number of jail inmates in 1978 (158,395) and 1980 (183,988), but not for 1979. Since 1979 is half-way between 1978 and 1980, linear interpolation assigns to 1979 a value that is half-way between the values for 1978 and 1980. More generally, for any time t between two times t_0 and t_1 for which time series values $X(t_0)$ and $X(t_1)$ are known, the interpolated value $X(t) = X(t_0) + (X(t_1) - X(t_0)) * (t - t_0) / (t_1 - t_0)$.¹

We also make very limited use of linear *extrapolation*, as opposed to interpolation. In particular, for two years at the beginning of the state prison data series we extrapolate the percentage of offenders in prison for drug offenses. This allows a longer overall series (31 years vs. only 29). Risks of significant distortion are minimal because the absolute numbers of drug-related inmates in state prisons were quite small in 1972-1973. Likewise the number of drug offenders in state prison in 2002 was estimated as the total number in state prison times the proportion of state prisoners in 2001 who were drug offenders.²

Details of Methods

Number of Incarcerated Drug Offenders by Type of Institution

The number of drug offenders in federal prisons for the entire 1972-2002 time period is available from Pastore and Maguire (2003, Table 6.54). The number of drug offenders in state prisons for 1980-2001 is available in a consistent series³ that was extended to 2002 as just described.

State prison estimates for the 1970s and jail estimates for all years are obtained by multiplying the total number of prisoners by estimates of the proportions of those offenders who are drug offenders. Total prison population estimates (including state and federal prisons) are available for 1972-1979 from Cahalan (1986). Subtracting the federal figures from these combined totals gives the number of people in state prisons from 1972-1979. The proportions of these inmates who were drug offenders are known in 1974 and 1979 from the Inmate Surveys.⁴ Using these fixed points, values are straight-line interpolated for 1975-1978 and extrapolated for 1972-1973.

Total local jail population estimates are available for 1972 and 1978 from Cahalan (1986), for 1980-2001 from Beck and Glaze (2002), and for 2002 from Harrison and Karberg (2003). Estimates for missing years in the 1970s (specifically, 1973-1977 and 1979) are filled in by linear interpolation. The proportions of these jail inmates who were drug offenders in total and by type of offense is known from inmate surveys for 1972, 1977, 1982, 1989, 1996, and 2002. Values for intermediate years were linearly interpolated from the most recent and first subsequent surveys.

Proportions of Drug Offenders by Type of Charge

The proportions of federal drug offenders who were convicted of the three major types of drug offenses was measured by surveys in 1991 and 1997 and reported by Pastore and Maguire (2002, Table 6.30). Proportions for 1992-1996 are interpolated from these end points. Numbers of prisoners by type are then estimated as these proportions times the drug-related totals for that year. For example, the 1991 survey reports that 13.6%, 42.9%, and 1.4% of federal inmates were incarcerated for drug possession, drug trafficking, and other drug offenses, respectively. Since there were 61,026 drug offenders in prison in 1991, we estimate the number of drug offenders in federal prison who were convicted of possession offenses to be $61,026 * 13.6\% / (13.6\% + 42.9\% + 1.4\%)$. The same approach was used for jail and state prison inmates from 1974 – 1997.

Results

The proportions of inmates by type of drug offense are displayed in Table 1. Light shading indicates figures taken from government documents. The white cells are the result of interpolation/extrapolation from these anchor points.

Table 2 shows numbers of inmates. The second and third columns are totals of all inmates in state prisons (1972-1979) and local jails (all years), including both drug and non-drug offenders. These totals are multiplied by the proportions in Table 1 to produce estimates of numbers of drug inmates in those facilities and years in columns five and six. The fourth column (federal drug inmates) for all years and the fifth column (state drug inmates) for 1980-2002 are taken directly from government documents. The seventh column (total of all adult drug inmates) simply sums across the preceding three columns for federal prisons, state prisons, and local jails.

Table 1: Proportions of Prison and Jail Inmates Who Were Convicted of Drug Possession, Drug Trafficking, or Other Drug Related Offenses, 1972-2002 (Shaded Figures from Government Sources; Un-shaded Figures Are Interpolated/Extrapolated)

Year	Federal Prison			State Prison				Jails			
	Possession	Trafficking	Other Drug	Total	Possession	Trafficking	Other Drug	Total	Possession	Trafficking	Other Drug
1972				11.4%				10.8%	3.1%	7.1%	0.6%
1973				10.7%				10.4%	3.3%	6.4%	0.7%
1974				10.0%	5.2%	3.8%	1.0%	10.1%	3.5%	5.8%	0.8%
1975				9.3%	4.5%	3.9%	0.8%	9.7%	3.6%	5.2%	0.9%
1976				8.5%	3.8%	4.0%	0.7%	9.4%	3.8%	4.6%	0.9%
1977				7.8%	3.1%	4.2%	0.6%	9%	4%	4%	1%
1978				7.1%	2.3%	4.3%	0.5%	9.1%	4.1%	4.0%	0.9%
1979				6.4%	1.6%	4.4%	0.4%	9.1%	4.2%	4.0%	0.9%
1980					1.8%	4.5%	0.4%	9.2%	4.4%	4.0%	0.8%
1981					2.0%	4.7%	0.4%	9.2%	4.5%	4.0%	0.7%
1982					2.2%	4.8%	0.4%	9.3%	4.6%	4.0%	0.7%
1983					2.3%	5.0%	0.3%	9.3%	4.7%	4.0%	0.6%
1984					2.5%	5.1%	0.3%	11.6%	5.5%	5.3%	0.7%
1985					2.7%	5.3%	0.3%	13.9%	6.4%	6.7%	0.8%
1986					2.9%	5.4%	0.3%	16.2%	7.2%	8.0%	1.0%
1987					3.8%	7.0%	0.3%	18.4%	8.0%	9.3%	1.1%
1988					4.8%	8.6%	0.4%	20.7%	8.9%	10.7%	1.2%
1989					5.7%	10.1%	0.4%	23.0%	9.7%	12.0%	1.3%
1990					6.7%	11.7%	0.5%	22.9%	10.0%	11.6%	1.3%
1991	13.6%	42.9%	1.4%		7.6%	13.3%	0.5%	22.7%	10.2%	11.2%	1.3%
1992	13.3%	43.3%	2.1%		7.8%	13.0%	0.5%	22.6%	10.5%	10.8%	1.3%
1993	12.9%	43.8%	2.8%		8.0%	12.6%	0.5%	22.4%	10.7%	10.4%	1.3%
1994	12.6%	44.2%	3.5%		8.2%	12.3%	0.6%	22.3%	11.0%	10.0%	1.3%
1995	12.2%	44.6%	4.2%		8.4%	12.0%	0.6%	22.1%	11.2%	9.6%	1.3%
1996	11.9%	45.1%	4.9%		8.6%	11.6%	0.6%	22.0%	11.5%	9.2%	1.3%
1997	11.5%	45.5%	5.6%		8.8%	11.3%	0.6%	22.5%	11.4%	9.7%	1.4%
1998								22.9%	11.3%	10.2%	1.5%
1999								23.4%	11.2%	10.7%	1.6%
2000								23.8%	11.0%	11.1%	1.6%
2001								24.3%	10.9%	11.6%	1.7%
2002								24.7%	10.8%	12.1%	1.8%

The numbers of drug offenders by conviction charge (last three columns of Table 2) are obtained by applying the appropriate proportions in Table 1. For 1991-1997 these numbers of drug offenders by offense type include offenders in all three types of institutions. For 1974-1990 federal inmates are excluded because information about their conviction charge is not available.⁵

Table 2: Estimated Number of Incarcerated Drug-Related Offenders 1972-2002

Year	Total # of Inmates in:		Implied Estimate of Number of Incarcerated Drug Offenders						
	State Prisons	Jails	Federal Prisons	State Prisons	Jails	Total	Excluding Fed Prisoners 1972-90		
							Possession	Trafficking	Other Drug
1972	175,363	141,600	3,384	19,996	15,300	38,680			
1973	182,173	144,399	3,495	19,471	15,081	38,047			
1974	196,697	147,198	3,523	19,617	14,842	37,982	15,380	16,041	3,038
1975	219,901	149,997	5,652	20,360	14,583	40,595	15,363	16,434	3,146
1976	238,698	152,796	6,203	20,394	14,303	40,901	14,852	16,672	3,173
1977	259,783	155,595	5,540	20,339	14,004	39,883	14,149	17,017	3,177
1978	270,895	158,394	6,425	19,273	14,335	40,033	12,820	17,923	2,865
1979	279,931	171,191	6,743	17,916	15,578	40,237	11,726	19,165	2,603
1980		183,988	5,981	19,000	16,835	41,816	13,057	20,215	2,563
1981		196,785	5,468	21,700	18,104	45,272	14,876	22,338	2,590
1982		209,582	4,749	25,300	19,386	49,435	17,038	25,020	2,628
1983		223,551	5,076	26,600	20,790	52,466	18,646	26,212	2,532
1984		234,500	5,518	31,700	27,163	64,381	23,031	32,845	2,987
1985		256,615	7,201	38,900	35,584	81,685	29,081	41,789	3,614
1986		274,444	8,152	45,400	44,323	97,875	35,069	50,462	4,191
1987		295,873	9,491	57,900	54,539	121,930	43,691	63,828	4,920
1988		343,569	11,344	79,100	71,176	161,620	58,021	85,998	6,256
1989		395,553	13,897	120,100	90,977	224,974	80,566	122,271	8,241
1990		405,320	15,087	148,600	92,645	256,332	92,889	139,458	8,897
1991		426,479	18,852	155,200	96,872	270,924	103,108	158,190	9,626
1992		444,584	24,297	168,100	100,349	292,746	113,646	168,370	10,730
1993		459,804	29,667	177,000	103,127	309,794	122,664	175,297	11,834
1994		486,474	35,398	193,500	108,414	337,312	136,194	187,682	13,436
1995		507,044	41,393	212,800	112,274	366,467	150,671	200,595	15,201
1996		518,492	45,367	216,900	114,068	376,335	157,931	201,989	16,415
1997		567,079	46,669	222,100	127,309	396,078	167,545	210,076	18,457
1998		592,462	49,096	236,800	135,674	421,570			
1999		605,943	52,059	251,200	141,488	444,747			
2000		621,149	55,984	251,100	147,833	454,917			
2001		631,240	60,399	246,100	153,076	459,575			
2002		665,475	63,898	252,249	164,372	480,519			

Discussion

The series created here are useful for three purposes. First, they document basic trends in drug-related incarceration. Second, they provide context for the debate concerning the effectiveness and appropriateness of drug incarceration in the US. Third, they can be combined with other data to generate interesting insights.

Trends in Drug-Related Incarceration

The incarceration series in Table 2 confirm over a broader time period the well-known finding documented by Blumstein and Beck (1999, forthcoming) among others. There has been a substantial increase in drug-related incarceration over time, particularly in the late 1980s. Figure 1 shows this graphically by plotting the data in columns 4-6 of Table 2.

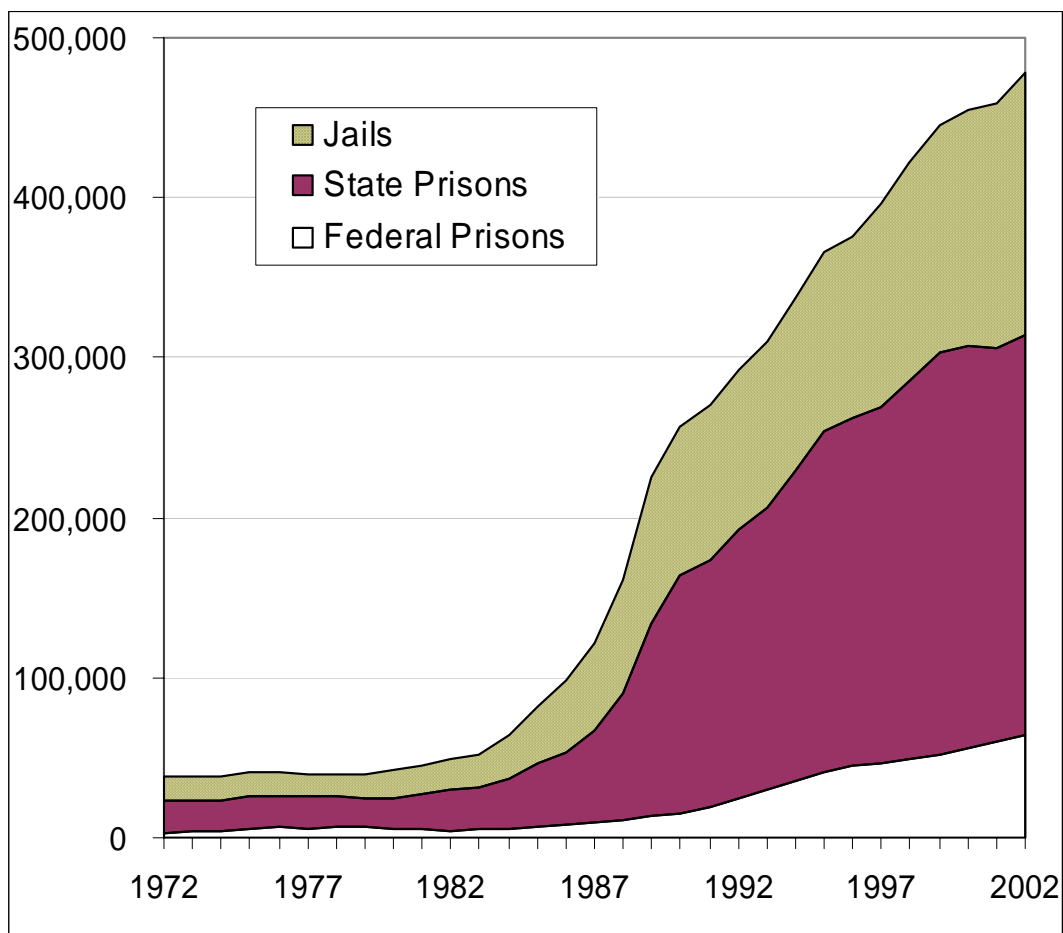
What may be less appreciated is the importance of jail inmates to these trends and overall levels. There are roughly two and a half times as many drug offenders incarcerated in local jails as there are in federal prisons.

It is interesting to compare the data in Table 2 with trends in (adult) drug arrests (available from <http://www.ojp.usdoj.gov/bjs/glance/tables/drugtab.htm> and not reproduced here). The number of drug inmates per drug arrest has increased more or less in parallel with if not even faster than has the number of drug arrests. That suggests that changes in prosecution and sentencing are as important a driver of Figure 1's overall increase as are changes in the number of drug arrests.

Drawing inferences about changes in the proportion of drug-related inmates who were involved in distribution vs. being only users is complicated because there is not a one-to-one mapping between being convicted of drug possession and being just a user. For example, according to the 1997 Prison Inmate Survey, there were 91,766 inmates in state prison whose primary conviction charge was drug possession. However, for 33,697 (36.7%) the charge was possession with intent to distribute, which is essentially a sales charge; 35,122 (38.3%) self-reported having a drug distribution role (dealer, courier, bodyguard, money launderer, etc.); about half of those reporting a quantity possessed described quantities greater than would typically be suitable for personal consumption;

and for 52,266 (60.0%) the possession conviction was the result of a plea bargain. For only 15,974 (17.4%) of those incarcerated with a drug use/possession conviction did none of these conditions apply.⁶ Furthermore, about 40% of this residual group had prior records exposing them to repeat-offender sentencing enhancements such as so-called three strikes and you're out laws.

Figure 1: The Number of Adults Incarcerated for Drug Law Violations in the US Has Grown Sharply Over Time

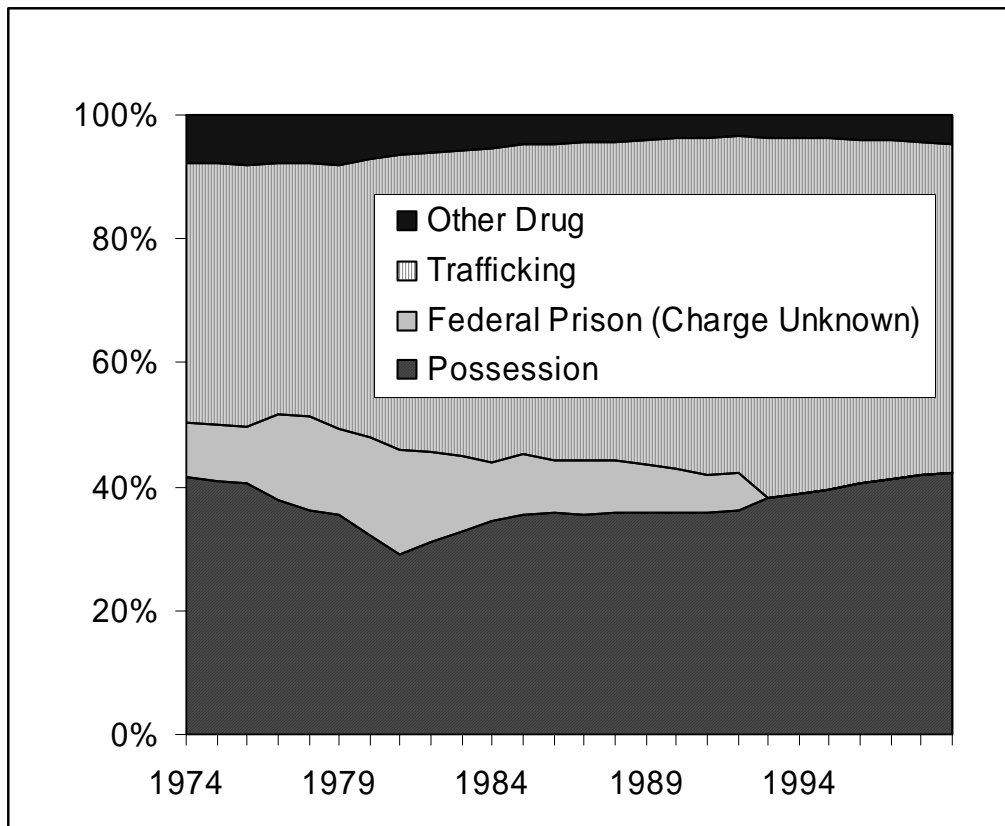


A further minor complication is the absence of information about the type of conviction charge for federal inmates before 1991. That is only a minor complication because most drug inmates are incarcerated in state prisons or jails, not federal prisons. So Figure 2, which plots trends from Table 2 in the proportion of drug inmates by type of

drug conviction, holds out federal drug inmates before 1991 as a separate group whose charge is unknown.

Regardless of whether the federal inmates before 1991 were all convicted of trafficking, all convicted of possession, or were some mix (as seems likely), the broad trend in Figure 2 is one of substantial stability in the distribution of drug inmates by type of conviction. There are variations over time, to be sure. Notably, the proportion of inmates who were convicted of trafficking declined from 58% in 1991 to 53% in 1997. Still, changes over time in the type of conviction charge have been much less pronounced than have been changes in the total number of drug-law violators incarcerated.

Figure 2: The Mix of Drug Conviction Charge Types Among Incarcerated Drug Offenders Has Not Varied Dramatically Over Time



Effects of Increases in Drug-Related Incarceration

These data series document the dramatic investment the US has made in drug-related incarceration. In 2002, the cost of drug-related incarceration was on the order of \$13.5 billion.⁷ From a policy perspective, a relevant question is, what is the return on that investment? How do the benefits compare to its costs?

Academics have sought to quantify these trade-offs through empirical (Kuziemko & Levitt, 2001; Bushway et al., in submission) and modeling (Rydell and Everingham, 1994; Caulkins et al., 1997) analyses, generally concluding that incarceration reduces drug use, but not very dramatically or cost-effectively, at least for established drugs. For example, econometric analyses suggest that marijuana decriminalization only increases marijuana use by a few percent if at all (Pacula, et al., 2001).

Various explanations have been offered, including that incarcerated sellers are easily replaced (Kleiman, 1997), that structural attributes of selling undermine deterrence (Caulkins and MacCoun, 2003), that many of those incarcerated may be couriers or other low-level functionaries, not major dealers (Vincent and Hofer, 1994; Froyd, 2000), and that drug enforcement can have perverse effects on prices and availability (Skott and Gepsen, 2002; Poret, 2003; Taylor et al., in submission).

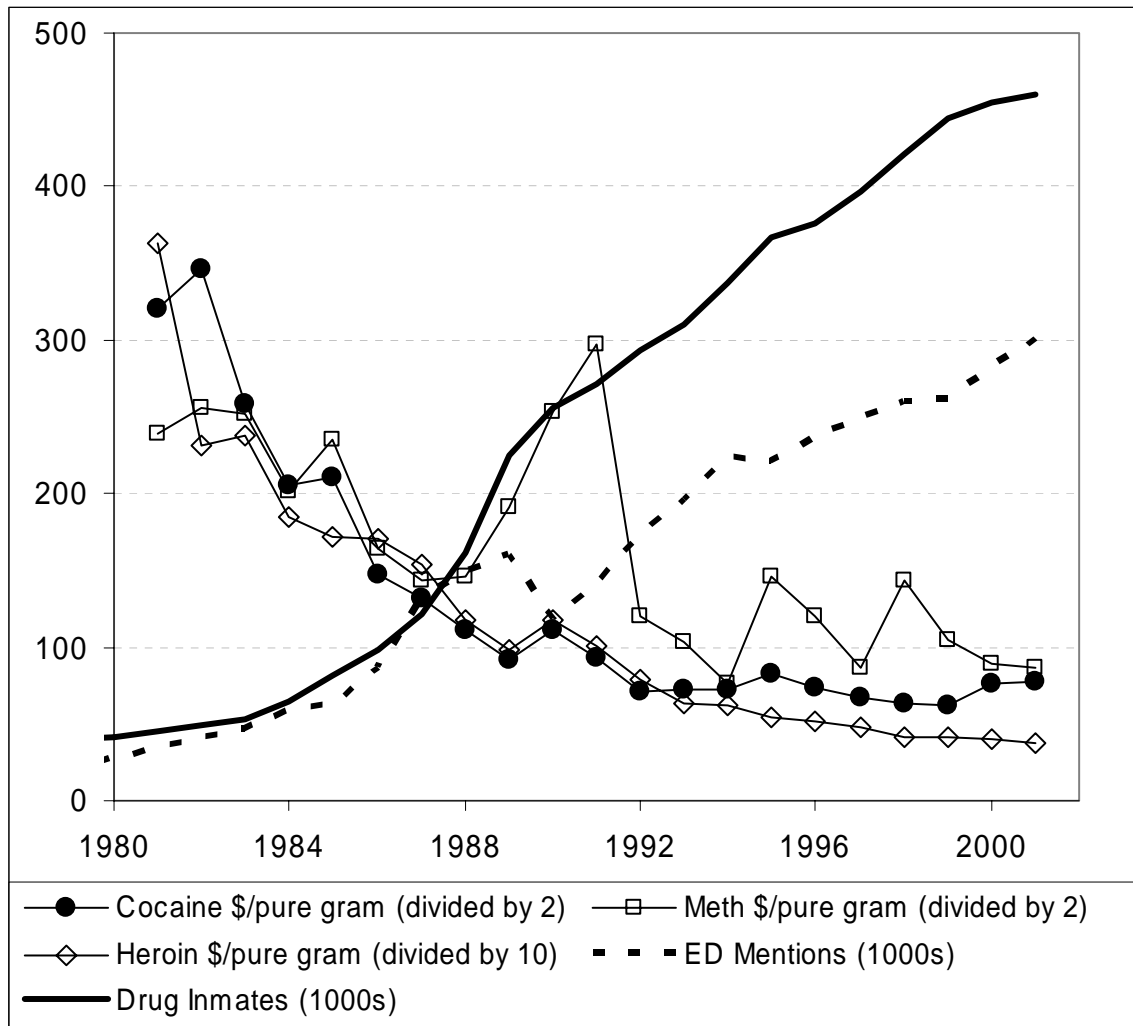
The “science base” for evaluating the effectiveness of incarceration at controlling drug-related problems is thin. Data are poor (Manski et al., 2001). Far less is spent evaluating the effectiveness of drug enforcement than is spent on drug treatment or prevention research (Reuter, 2001). One cannot conduct the sort of controlled experiments with incarceration levels that are viewed as generating the most defensible evidence (Sherman et al., 1997). Consistency in policy across states has limited the insights to be drawn from what Supreme Court Justice Brandeis termed in 1932 the laboratory of the states. And, at any rate, it has been argued that few decisions regarding corrections policy are made based on such analyses (MacKenzie, 2000).

In such circumstances, statistics describing long-term trends can provide historical context that aid interpretation. Most drug-related incarceration is focused on people who played at least some role in distribution, not on people who were just users (Sevigny and Caulkins, 2004). The premise of this focus is that constraining supply ought to drive up

prices (Reuter and Kleiman, 1986). Higher prices, in turn, are known to suppress use, even for addictive substances such as illicit drugs (cf. Grossman and Chaloupka, 1998; Chaloupka and Pacula, 2000; Saffer and Chaloupka, 1999; Darke et al., 1999; DeSimone & Farrelly, 2003). Hence, it is natural to examine enforcement's impact on prices and indicators of use (cf., DiNardo, 1993; Crane et al., 1997; Yuan and Caulkins, 1998). We do so in Figures 3 and 4.

Figure 3 compares drug-related incarceration from Table 2 to prices and emergency department (ED) mentions recorded by the Drug Abuse Warning Network (DAWN) for three of the "big four" drugs (heroin, cocaine, and methamphetamine) that collectively account for 90% of drug-related incarceration (Sevigny and Caulkins, 2004).⁸ The other major drug, marijuana, is excluded because most of its DAWN ED mentions are in combination with other substances. One might expect that as incarceration of drug offenders (primarily distributors) rose, supply would be suppressed leading to higher prices and fewer ED mentions, since prices and ED mentions are known to be inversely related (Crane et al., 1997; Hyatt and Rhodes, 1992, 1995; Caulkins, 2001; Cunningham and Liu, 2003; Dave, 2004). Instead, prices fell dramatically during the rapid expansion in drug incarceration. For cocaine and heroin the price declines were not only dramatic (80% and 88%, respectively), they were also steady, interrupted only by a spike in 1989-1990 that Crane et al. (1997) attribute to international, not domestic activities. The 68% decline in methamphetamine prices was interrupted by three substantial spikes, but Cunningham and Liu's (2003) analysis suggests those were due to precursor control regulations, not incarceration per se.

Figure 3: Cocaine and Heroin Prices Fell and Drug-Related Emergency Room Mentions Rose While Total Drug-Related Incarceration Was Increasing



Next Figure 4 compares the incarceration rates from Table 2 to a measure related to overall drug initiation and to cocaine demand. The best long-run measures related to initiation are past-year use by high school seniors as recorded by the Monitoring the Future (MTF) survey (Johnston et al., 2002). Past-year use is literally a measure of prevalence, not incidence, but use among youth necessarily reflects recent initiation because drug use is not common among pre-teens. Estimates of historical initiation trends can also be constructed from the household surveys (e.g., Johnson et al., 1996), but they are complicated by issues of telescoping and recall bias. (Note there is no inconsistency in looking at adult incarceration and youthful initiation; the incarceration is

primarily of people involved in distribution not just use and is presumed to affect use by constraining supply, not by directly deterring users.)

From among the MTF indicators we choose past-year use of any illicit drug as the broadest possible measure of illicit drug activity. There are no comparable long-run series for overall drug *demand*. Measures of past-year *prevalence* of any illicit drug use give a highly skewed image of trends in demand because there is so much heterogeneity in intensities of use. In terms of demand placed on the market, one “heavy” user is equivalent to several if not many “light” users (Everingham and Rydell, 1994). Thus, demand is better measured as a weighted sum of users of different intensities, weighting by their relative propensities to consume. Long-run historical estimates of demand in this more valid sense have only been constructed for cocaine (Everingham and Rydell, 1994 updated by Caulkins et al., 2004), so the time series for demand in Figure 4 is just for cocaine.⁹

Figure 4: Overall Cocaine Demand and Past-Year Drug Use by High School Seniors Compared with Trends in Total Drug-Related Incarceration

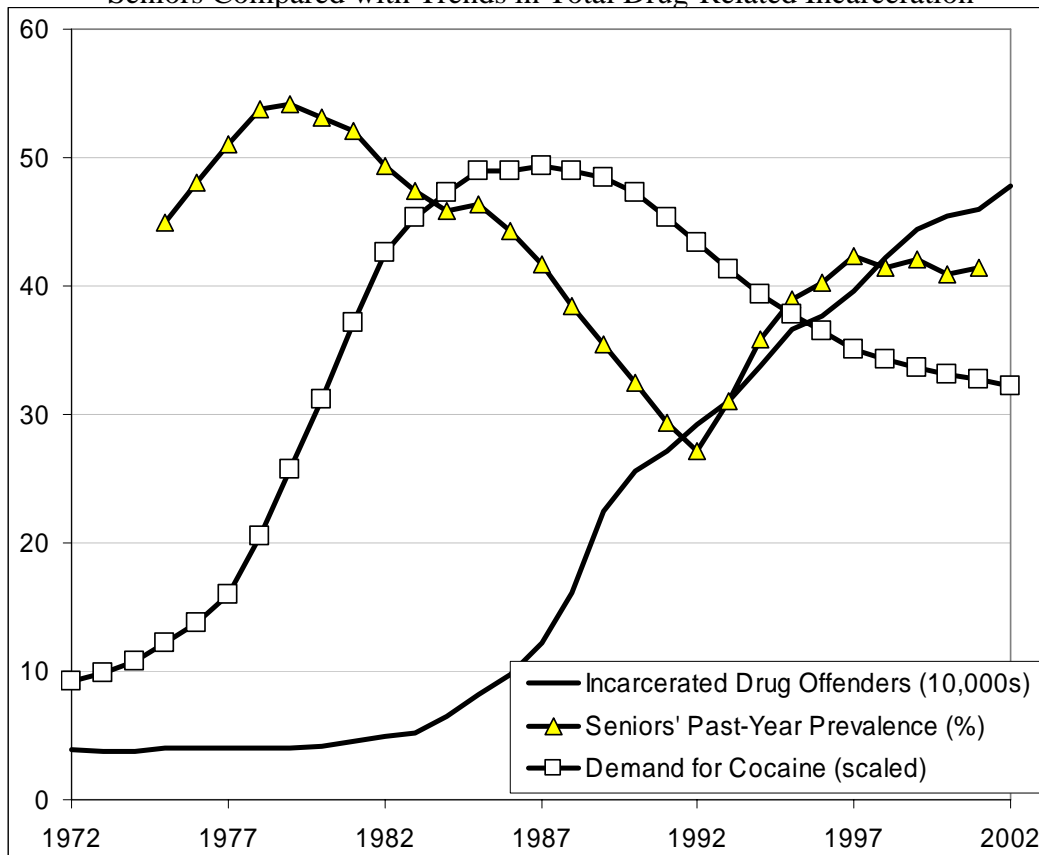


Figure 3's relationships between incarceration, prices, and emergency department mentions seem perverse. Price plummeted and emergency department mentions soared precisely when drug-related incarceration was increasing dramatically, exactly the opposite of what one would expect or hope for. The patterns in Figure 4 are somewhat less discouraging. Use by youth and overall cocaine demand rose sharply during the 1970s, before the increase in drug-related incarceration, then stabilized or fell during the 1980s when drug-related incarceration expanded rapidly. On the other hand, use by youth peaked before the increase in incarceration, not after, and it has rebounded in the 1990s despite further increases in incarceration.

It is important not to over-interpret national trends. Hypothesis testing requires panel data with time series for multiple jurisdictions. Still, Figures 3 and 4 do not support a thesis that expanding drug incarceration greatly reduces drug use. Furthermore, some argue that enforcement and incarceration can increase the social harm per unit of use, e.g., because removing a seller can engender violent competition among those who remain or because disrupting markets can lead to more dangerous patterns of drug use (Maher and Dixon, 1999, 2001). Defining and estimating drug-related social costs is tricky (cf. Harwood et al., 1998). However, we are not aware of anyone who has argued that drug-related incarceration has been more effective at reducing drug-related social costs than it has been at reducing drug use (a claim that is entirely plausible for demand-side interventions such as treatment, cf. Rydell et al., 1996).

Insights from Comparing Drug-Related Incarceration to Other Data

The figures derived above can be combined with other data to generate a variety of insights. For instance, even if one were pessimistic about incarceration's ability to reduce drug use, incarceration, even at more modest levels, might still be able to effectively control some destructive aspects of drug markets. One does not need to incarcerate 480,000 people to punish the most violent dealers. The number of drug-related homicides is not known. The official estimate of 5-6% of all homicides (ONDCP, 2000) is probably too low. Drawing heavily on the work of Goldstein and colleagues (Goldstein et al. 1989, 1991, 1992; Spunt et al., 1990, 1995) as well as official statistics, Caulkins et al. (1997) suggest that one-third might be realistic. But even if one-third of

the 15,980 homicides known to police in 2001 (Pastore and Maguire, 2002) were drug-related and every one of those assailants served eight years (roughly the average time served for homicide), that would in steady state only fill about 42,500 cells, which is less than 10% of the cells now devoted to incarcerating drug law violators.

On the other hand, if longer sentences are not reserved for the sellers who are the most violent, employ juveniles, sell in front of treatment clinics, or otherwise distinguish themselves as particularly noxious, drug-related incarceration could clearly be expanded well beyond today's levels. Retail sales for illicit drugs in 2000 totaled about \$65 billion (ONDCP, 2001). Assuming a typical retail transaction is worth about \$30, there were upwards of 2 billion retail drug sales per year.¹⁰ Even if all of the 450,000 people incarcerated for drug law violations in 2000 were retail sellers, that implies that drug sellers spend less than two hours incarcerated per drug sale, on average.

Given uncertainty about the average dollar value of a retail drug sale, it is perhaps more instructive to phrase this in terms of time served per \$50,000 in drugs sold (\$50,000 being a reasonable figure for annual sales of a full time retail cocaine seller, cf. Reuter et al., 1990). Sevigny and Caulkins (2004) report numbers of federal and state drug prisoners in 1997 who were involved in distribution broken down by substance. Scaling state prison figures to the jail population (the best alternative in the absence of jail-specific data) allows one to estimate crudely total time served for selling by drug. Dividing by ONDCP (2001) estimates of retail sales and multiplying by \$50,000 yields the desired ratios. (See Table 3.) Crack and cocaine distributors appear to spend about twice as much time incarcerated per dollar sold as do sellers of other substances. Furthermore, if \$50,000 is a reasonable estimate of annual sales per full-time seller, sellers appear to spend about 3.3 months incarcerated per year of active selling. In other words, there would be about 12 months of dealing per 3.3 months in prison, or roughly four times as many people free and selling on the street as there are sellers in prison.

Looking at it another way, if the average retail dealer sells \$50,000 per year and the total market is about \$65B, that means there are on the order 1.3 million full-time equivalent retail sellers. Reuter et al. (1990) note that part-time selling is common, and there are perhaps 3 people who sell for every 2 full-time equivalent sellers, so the actual number of people who have sold a drug at retail recently in US is probably closer to 2

million. Given our estimates above, that calculation also suggests that there are four to five times as many retail sellers who are free as there are sellers in prison.

Table 3: Incarceration of Drug Distributors and Retail Sales, by Drug, in 1997

	Estimated # of Drug Distributors in:				Retail Sales (\$B)	Cell-Months Served per \$50K sold
	Federal Prisons	State Prisons	Jail	Total		
Heroin/Opiates	4,743	22,299	12,373	39,415	\$11.4	2.1
(Meth)amphetamine	5,896	17,215	9,552	32,663	\$9.3	2.1
Cocaine (including crack)	35,677	141,374	78,444	255,495	\$34.7	4.4
Marijuana	8,624	17,708	9,826	36,158	\$10.5	2.1
Other Drugs	1,680	6,280	3,485	11,445	\$2.5	2.7
Total				375,175	\$68.4	3.3

Different people can look at this evidence and reach different conclusions. Some might infer that incarcerating large numbers of drug law violators has not been particularly effective to date, so given how many more sellers remain free and active, expanding it to a significantly larger proportion of all sellers would be prohibitively expensive. Others might focus on the 2 million retail sellers on the street, not the 480,000 drug law violators who are incarcerated, and argue that past efforts have not been aggressive enough (cf. Bennett et al., 1996). The goal of this paper is not to take sides in such debates but rather to sharpen them by providing a consistent long-term description of drug-related incarceration, including incarceration in jail. Inasmuch as incarceration for drug-related offenses has been a focal point of debate and disagreement, having convenient access to long-term time-series on drug-related incarceration broken down by type of institution and type of drug charge is important.

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End Notes:

¹ Linear interpolation gives the same results as would running a linear regression through the two known points. Regression offers no additional “statistical” information because when there are only two data points and two free parameters (slope and intercept), regression will always fit those two points perfectly.

² For most recent years Beck and colleagues at the Bureau of Justice Statistics published estimates of the number of drug-related state prisoners in its “Prisoners in YYYY” series for various years YYYY. Such as estimate was not provided for 2002 in the Prisoners in 2003 report, but Beck suggested that a reasonable approximation would be multiplying the proportion for 2001 by the total for 2002 (Alan Beck, personal communications, November 9, 2004).

³ Downloaded from <http://www.ojp.usdoj.gov/bjs/glance/sheets/corrtyp.wk1> on July 29, 2004. The series is based on Beck and Harrison (1997) plus reports in the “Prisoners in NNNN” series of BJS publications for various years NNNN.

⁴ Proportions of state inmates by drug-charge type are reported for the 1974 survey in Hindelang et al. (1977, Table 6.50), for the 1979 and 1986 surveys in Jamieson and Flanagan (1989, Table 6.39), and for the 1991 and 1997 surveys in Pastore and Maguire (2002, Table 6.30).

⁵ To clarify, the estimate of 16,110 drug possession inmates in 1972 is simply 175,363 state inmates * 6.7% plus 141,600 jail inmates * 3.1%. It does not include any federal inmates. In contrast, the 1991 estimate of 103,108 drug possession inmates includes $18,852 * 13.6\% / (13.6\% + 42.9\% + 1.4\%) = 4,428$ federal inmates as well as $155,200 * 7.6\% / (7.6\% + 13.3\% + 0.5\%)$ state inmates and $426,479 * 10.2\%$ jail inmates.

⁶ Furthermore, for 4,857 of the 15,974 there were missing data elements, so, for example, the 15,974 includes not only people who reported possessing small quantities but also people for whom there were no data concerning the quantity possessed.

⁷ The \$13.5B figure was calculated as follows. Separately for federal, state, and local levels of government, total corrections expenditures in 1999 as reported by Pastore and Maguire (2002, p.5) were divided by total inmate numbers to get the average cost per inmate in 1999. (The state figure was first multiplied by the proportion of state expenditures going to “institutions” vs. “other corrections” in an effort to parcel out probation and parole costs.) Those costs were inflated to 2002 dollars using the CPI-U from the Bureau of Labor Statistics, multiplied by the number of drug inmates reported in Table 2 by institution type, and summed across institution type. The cost per inmate varied considerably by institution type, but the weighted average for drug offenders worked out to \$28,400 in 2002 dollars.

⁸ Prices are from Caulkins et al. (2004). Emergency room data sum mentions for cocaine, heroin, and methamphetamine from concatenated, published overlapping time series scaled to be in common units. In particular, data from 1978-1994 are combined with the 1994-2001 series by scaling them up to make the 1994 figures from the two sources equal. ED trends for a broader set of drugs that account for the majority of mentions are strongly parallel. The incarceration series is from Table 2.

⁹ Cocaine accounts for roughly two-thirds of drug-related incarceration (Seigny and Caulkins, 2004) and of social costs associated with illicit drugs (Caulkins et al., 2002). Also, ONDCP (2001) estimated demand as a weighted sum of occasional and hardcore users for heroin as well as cocaine for 1988-2000. The correlation between their cocaine and heroin demand series was 0.95. Hence trends in cocaine-specific demand reflect an important subset of trends in overall drug demand.

¹⁰ The \$30 figure is quite uncertain. The median size of the most recent marijuana purchase reported in the 2001 NHSDA was \$20 - \$30 (Caulkins and Pacula, in submission). Comparable data for other substances are not available, but street users, who account for the vast majority of cocaine and heroin purchases, are reputed to often purchase crack in vials or rocks ranging from \$5 - \$20 and heroin in quantities of 1-3 “dime bags”, each worth \$10, so the \$30 figure may, if anything, be conservative.