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What Drug Dealers Tell Us About Their Costs of Doing Business

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Abstract

Interviews with low-level drug dealers in New York City reveal that the monetary costs of distributing drugs are modest. Hence, the proportion of sales revenue retained by these sellers is a meaningful indicator of their earnings. There are four distinct types of sellers, with systematic differences across types in the proportion of sales revenue retained. Entrepreneurs who own the drugs they sell retain the largest share (about 50%). Independent consignment sellers retain less (about 25%). Consignment sellers who operate within fixed selling locations or "spots" retain still less (10%), and the sellers who were paid hourly to sell from spots retained the smallest proportion (3%). These differences might explain variation in reports of sellers' earnings and may have significant implications for the relative ability of enforcement against spots and enforcement against sellers operating outside of spots to drive up drug prices and suppress drug use.

Running Head: Drug Dealers' Costs of Doing Business

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Introduction

Motivation

Drug dealers and drug dealing organizations are in a very real sense businesses. Furthermore, they are businesses whose operations the government seeks to control or "regulate." However, there is a great deal that is not understood about practical aspects of the operation of these businesses, and this ignorance impedes effective intervention. This paper seeks to fill in some gaps in our knowledge by drawing on interviews with 300 drug sellers in New York City that were conducted between 1989 and 1996. Much of the qualitative information embodied in this data base has already been reported ( ); this paper augments and extends those contributions by focusing on some of the more quantitative information, with particular emphasis on prices, costs, and dollar flows. Hence, this paper complements the work of Johnson et al. (1985) and Reuter et al. (1990).

Description of Data

These data derive from the "Natural History of Crack Distribution/Abuse" project, an ongoing large-scale ethnographic study designed to develop a systematic understanding of crack selling and drug careers. This project collected detailed information on the structure and functioning of cocaine and crack distribution in New York City, primarily in inner-city minority communities where crack selling has become a major career for many citizens (Dunlap and Johnson 1992, 1996, 1998; Williams et al. 1992; Manwar et al. 1994).

Over 1500 different crack sellers and distributors were systematically observed in the field. About 300 crack and other drug distributors were selected as focal subjects and interviewed at least once between 1989 and 1996. About one-third of these had a second interview at a later date as well. A third of these 300 subjects were female, and over two-thirds were African-American. Subjects were recruited primarily in Manhattan, although many were also observed and/or recruited in Brooklyn. During in-depth interviews which often lasted one to three hours, subjects were asked several standard questions and probes about how they sold and packaged drugs, and about the prices they charged for such retail units. The interviews were transcribed verbatim, yielding about 75,000 pages (4.8 million words) of transcripts and field notes for analysis.

Coding

Interview transcripts were uploaded into the FolioViews text management program, and were then searched for sections of text that contained discussion of drug selling. FolioViews allows one to

search text using keywords and, after locating a “hit,” to mark the text containing the keyword for later extraction and analysis. An initial list of keywords was created based on prior knowledge about drugs and drug selling. Later, new candidates for keywords emerged from reading the transcripts, and these were added to the original list.

Keywords fell into five categories: words denoting value, both generally (e.g., cost) and specifically (dollar); names of drugs (crack, rock); terms describing organizational features and roles (supplier, seller); names for units of sale and packaging materials (nickel, vial); and terms illustrating various facets of selling activity (selling, re-up). The categories are not mutually exclusive as some keywords fit into more than one category. FolioViews allows for the use of a delimiter to obtain hits for all inflections of a given root keyword. For instance, a search of the word “price” would also provide instances of the words “prices” and “pricing.” A sample list of the keywords used is presented in Table 1.

Table 1: Keywords Used for Searching the Database
(Inflections of These Root Words Were Searched but Are not Listed)

Category	Keywords
Value	Five, three, ten, thousand, twenty, two, cost, dollar, price
Names of Drugs	Blunt, coke, cocaine, crack, powder, heroin, horse, joint, marijuana, rock
Organization; roles	Business, consignment, crew, customer, dealer, distributor, location, posse, seller, spot, supplier, worker
Units of sale; materials used for packaging	Bag, bottle, bundle, eighth, eight-ball , gram, half, kilo, nickel, ounce, pack, sample, trey, vial, zip lock
Facets/activities of drug selling	Business, buy, cook, cut, deliver ,deal, distribute, hustle, invest, profit, re-up, sell, spend, supply

The list of keywords formed the basis for a series of searches of the entire body of transcripts. When a search produced a hit, the surrounding text was read to see if it contained information on the respondent's selling activity. If so, that section of interview was marked for future reference. This process was repeated until it was clear that all portions of interviews that contained selling-

related information had been located and marked. Finally, each marked portion of text was extracted, printed, and read. From the first reading, it became clear that the data could address several distinct issues, such as the size and nature of retail transactions, and the earnings of different types of sellers. The extracts were reread to identify all information relevant to those issues, as is discussed below.

Organization of Paper

The data yield insights into three issues: (1) the size and nature of retail crack transactions; (2) information on some business expenses not previously described in the literature; and (3) information on differences in earnings across four types of sellers: "entrepreneurs" who own the drugs they sell, those who sell on consignment independently, those who sell on consignment from within a fixed location ("spot") as part of a crew, and those who are paid hourly to sell from a "spot." The third issue is the most interesting, but is discussed last because insights with respect to the first two issues are used to justify aspects of the analysis and interpretation of the third. In particular, the first two subsections justify two assumptions: that the average retail crack sale is about $20, and that the costs of packaging drugs and of converting cocaine powder into crack are negligible relative to the value of the drugs. Readers who are not interested in those points or who are willing to accept them on faith may proceed directly to the section on "Dealers' Earnings and Variation in Returns Across Modes of Distribution."

Size and Nature of Retail Crack Transactions

It is commonly asserted in both the scholarly and popular press that crack is cheaper than powder cocaine (e.g., Marzuk et al. 1990; Combs 1996), and this "fact" is offered as one explanation for why crack spread so quickly (e.g., Chaiken 1993). However, there are no systematic differences in the price per pure gram at which crack and powder cocaine sell (Caulkins 1997). (In fact, crack is slightly *more* expensive per raw or street gram because its purity is typically a little higher than that of powder cocaine selling in the same city at the same time.)

Another version of the "crack is cheaper" story argues that "crack seems to be less expensive because it is sold in small quantities at a low price" (Gold 1987). In particular, there is sometimes a notion that the usual retail crack transaction involves one $5 "rock," whereas some researchers

claim that cocaine powder is only available in larger units. For instance, Inciardi (1987) quotes an informant who reports that the smallest unit of cocaine powder available was a gram at $75.

We do not question that crack is more often sold in smaller units than is powder. Indeed, several dealers in the current study mentioned that $1 rocks were sold. However, we believe that both crack and powder cocaine can be sold in large or small quantities, loose or in vials and, furthermore, that the average retail crack sale is closer to $20 than to $5. Crack is probably sold to addicts on the street in smaller unit sizes today than powder cocaine was 15 years ago to "yuppies," but that may have more to do with the different characteristics of the users than with the different characteristics of the drugs.

With respect to minimum sizes of sales, there is no physical reason why powder cocaine cannot be packaged and sold in vials or in small unit quantities. One dealer reported selling $5 vials of powder; conversely, others reported "loose crack" being sold for $40 per gram, weighed on a scale. A $10 bag of heroin powder contains about the same amount of material as a $1 bag of cocaine powder would.[1] Additionally, the Drug Enforcement Administration's STRIDE database (System to Retrieve Information from Drug Evidence) records many instances of enforcement agents purchasing cocaine powder for less than $20.

With respect to the average size of a crack sale, Table 2 summarizes what the seven respondents who addressed this issue describe as low-end, average, and upper-end numbers of vials in a typical retail transaction. It appears that the average retail crack transaction consists of 5 - 6 vials worth a total of just under $20. Three and five dollar sales occur, but they are the exception, not the norm, and larger transactions occur as well.

Table 2: Reported Average Size of a Retail Crack Transaction

Respondent	Low-end	Average	High-end	Price per vial
Read		4 - 5		probably $5
Lorraine		5		$2
Quinby		5	"recently" sold 30	$2 - $5
Rachel	one, "rarely"	7		$3
Steve	"some" buy 2 - 3;	5 - 6	"doctors and	$3

	“not too many” buy 1		lawyers” buy 50	
Tito	“sometimes” 1	5		mostly $5, some $10
Bubler	“crack bums” buy 1		20 - 30	$5
ABC		5 - 10		$2

The (Small) Costs of Doing Business

Below we analyze what proportion of sales revenue a dealer retains after paying for the drugs he or she purchases. We do not take account of other monetary costs of doing business, such as the costs of dividing and packaging the drugs or of converting powder cocaine into crack. Ignoring those costs is only justifiable if they represent a small fraction of the revenues obtained from selling the drugs. We argue in this section that those costs are in fact small relative to the value of the drugs sold.

“Cooking Up” Cocaine Powder into Crack

One respondent reported making up to $1,000 per hour from 1980 to 1983 cooking garbage cans full of crack for sale to professionals, studio owners, and music industry people; however, every other reference to cooking crack suggested far lower pay. Cooking crack apparently takes skill; some dealers report not being good at it personally. However, there apparently are enough people who both have that skill and are willing to do the work so that cookers only receive a small fraction of the value of what they process. When asked whether he paid someone to cook crack, one dealer, “Dutch,” replied “No. All he wanted was a piece of rock.” Chef, who prides herself on being skilled at the art, took three hours to cook an ounce of cocaine powder, worth $700, into crack that sold at retail for $2,000. For that work, she was paid $20 plus whatever scraps of crack that were left over. The scraps had a retail value of $55 and so were worth about $20 to the seller. Steve paid someone $100 to cook 1.25 ounces of cocaine, purchased for $1,500, into $6,500 worth of crack.

These accounts are consistent with two others in the literature. International Drug Report (1996:16) states that, in the presence of a dealer, undercover agents paid a cooker $100 to produce an amount of crack for which they then paid $2,800. Carlson and Siegal (1991:12) report that, “one cooker claimed that he normally charges a person a $50 piece of crack to rock up an ounce of

cocaine." Since a $50 rock is not usually larger than one-half gram, this suggests that conversion costs are not more than 2% of the cocaine's value.

Thus it appears that converting cocaine powder into crack accounts for no more than 1 - 3% of crack's retail value. One respondent (Rachel) summarized the lack of expense as follows. "It ain't no overhead hardly. … You can always go to the smoke shop and grab a [pyrex] bottle for $1. Baking soda, if you go to the grocery store as compared to the corner store you get a bottle of baking soda at 49 cents. Sixty-nine at the corner store. You know, you need some water, you know. It ain't a hell of a lot of overhead and you don't have to be a genius to do it."

Packaging

One respondent (Robert) reported that the vials in which crack was often sold cost $10 per 100-lot. Four other respondents put the price at between $2 and $3 per 100. One reported that small glassine bags (another common packaging material) sold for $2 per 100 or $13-$15 per 1,000, depending on the size. Since these vials and bags typically contained $3 - $10 of drugs, packaging material accounts for less than 1% of the retail price.

The value of the labor required to put the drugs into the packaging is somewhat more substantial, both because it takes a nontrivial amount of time to manipulate very small quantities of material and because the work is reported to be tedious and boring. Chef was paid $100 for 4-6 hours spent packaging marijuana into plastic bags, about the same hourly rate she received for cooking crack. Steve and his partner paid a third person $50 to work alongside them, packaging into $3 vials an amount of crack that would sell at retail for $6,500. This suggests that packaging labor accounts for 2.3% of the retail price (3 * $50 / $6,500) or about $0.069 per vial. Andrew and Spanky report collectively using about 7.5 hours of labor to pack between 500 and 800 vials with crack that would sell for $2,300 at retail. If they value their time at $7 per hour (the median wage in legitimate employment reported by dealers to Reuter et al., 1990), packaging labor would account for 2.3% of retail sales revenue in this case as well.

Other Costs

A few of the respondents reported "cutting" or diluting the drugs, but the value of such additives is negligible compared to the value of the drugs themselves.[2] Some dealers mentioned the cost of

acquiring a good decimal scale for weighing drugs sold loose ($120) and the cost of guns (typically $100 - $250 per gun). Because such items are not consumed in the process of distributing drugs, their costs can be amortized over many transactions and so do not account for a large share of revenues.

Dealers' Earnings and Variation in Returns Across Modes of Distribution

It is well known that drugs are distributed through a hierarchical distribution chain and that dealers' accounting profits are so large because the price per unit increases markedly as one moves down the chain to smaller transaction sizes. Our first objective was to summarize what the respondents reported concerning those markups and dollar flows. We are far from the first authors to address this question; at least since Preble and Casey (1969) people have attempted to characterize this sort of transaction information. However, because of the unusual nature of this data and the fact that drug markets are constantly evolving, more recent information on this matter is not entirely redundant.

Furthermore, while there is considerable variation both in past characterizations of the drug distribution hierarchy and in the price data themselves (Caulkins 1994), there is at best a rudimentary understanding of the origins of this variation. So our second objective is to tap the richness of the information in the interview transcripts to discover the circumstances by which some dealers are able to reap greater returns from a given volume of sales than are others.

To address this issue systematically, we searched the data for all instances in which the following eight pieces of information could be ascertained for a given dealer's activity: quantity of drugs purchased, purchase price, average size of a sale, selling price, how many sales were associated with a given unit of drugs purchased, the dealers' gross revenues, net revenues, and the "mark up" (ratio of the amount for which the drugs were sold). These eight quantities are related. For instance, when there was no dilution, the number of sales equals the quantity purchased divided by the average size of a sale. Generally as long as four of these quantities were given, the other four could be inferred. The 45 instances for which complete information about the "*cycle*" of drug distribution was given or could be ascertained are listed in Table 3. (A "cycle" of selling consists of obtaining drugs from a supplier, dividing them into smaller packets, and selling those smaller packets.)

Not all of the table entries are integers because ranges of values were replaced by their midpoints and because some figures were obtained by working backward from other figures. For example, Rachel reported that her average sale involved seven $3 vials and that she made a profit of $100 - $150 by selling the drugs she initially bought for $100. We take her gross revenues to be the $100 spent acquiring the drugs plus $125 in profit (the midpoint of $100 and $150), or $225. Dividing that figure by her reported average sale size of $21 (seven $3 vials) gives the estimated 10.71 sales by Rachel for every purchase she makes.

Four respondents (Steve, Rachel, ABC, and Lauraine) described their typical retail crack sale; others did not. Based on the discussion above, when there is no specific information available we assume that the average retail crack sale is $20. With less justification we assume the same value for retail heroin and powder cocaine sales. Only one respondent (Mattey) described an average heroin sale. That figure was $40, but Rocheleau and Boyum (1994:50) report an average of $16.90 per transaction based on interviews with 49 users. The only respondent who sold cocaine powder at retail (Marva) did not explicitly state how large her average retail sale was. All we know is that the powder was packaged in $5 bags.

As mentioned, the transcripts revealed four distinct types of sellers: (1) “entrepreneurs” who own the drugs they sell, (2) those who sell on consignment independently, (3) those who sell on consignment from within a fixed location (“spot”) as part of a crew, and (4) those who are paid hourly to sell from a “spot.” The data in Table 3 are broken down by type of seller.

Table 3: Transaction Data by Type of Sellers

Dealer	Drug	Purchase Quantity	Purchase Price	Sales Quantity	Sales Price	Num. of Sales	Revenues	% of Rev. retained	Markup
Entrepreneurs									
Read	MJ	pound	$350	$5 bags	$5	300	$1,500	76.7%	4.29
Steve & partner	crack	1.25 oz.	$1,650	5-6, $3 vials	$16.50	393.9	$6,500	74.6%	3.94
Locks	MJ	1/4 pound	$350	0.5 oz.	$137.50	8	$1,100	68.2%	3.14
Robert	crack	powder	$300	retail	$20	37.5	$750	60.0%	2.50
Read	MJ	pound	$350	1 oz.	$50	16	$800	56.3%	2.29
Rachel	crack	3 grams	$100	7, $3 vials	$21	10.7	$225	55.6%	2.25
Bee	cocaine	10 grams	$200	3-4 $10 bags	$35	11.4	$400	50.0%	2.00
Read*	crack	powder	$450	10, $5 caps	$30	30	$900	50.0%	2.00
Chef's boss*	crack	ounce	$700	40, $5 bags	$140	10	$1,400	50.0%	2.00
Quinby*	crack	powder	$250	50X$3 vials	$100	5	$500	50.0%	2.00
Moe	crack	ounce	$600	retail	$20	60	$1,200	50.0%	2.00
Tito*	heroin	7.5 grams	$1,500	10, $10 bags	$70	42.9	$3,000	50.0%	2.00
Moe	MJ**	pound	$3,000	oz.	$350	16	$5,600	46.4%	1.87
Silver*	cocaine	1.5 kgs	$42,000	125 gms	$5,000	12	$60,000	30.0%	1.43
Moe	MJ**	pound	$3,000	oz.	$250	16	$4,000	25.0%	1.33
Independent Consignment Sellers									
Benny	crack	200, $10 vials	$1,000	retail	$20	100	$2,000	50.0%	2.00
Marva	crack	350, $5 vials	$950	retail	$20	87.5	$1,750	45.7%	1.84
Marva	cocaine	280, $5 bags	$800	retail	$20	70	$1,400	42.9%	1.75
Joe	crack	20, $5 vials	$60	retail	$20	5	$100	40.0%	1.67
Read's Customer	crack	10, $5 vials	$30	retail	$20	2.5	$50	40.0%	1.67
Joe	heroin	100, $10 bags	$650	retail	$20	50	$1,000	35.0%	1.54
David	crack	50, $3 vials	$100	retail	$20	7.5	$150	33.3%	1.50
Dutch	crack	60, $5 bags	$300	retail	$20	22.5	$450	33.3%	1.50
Dutch	crack	160, $5 bags	$800	retail	$20	60	$1,200	33.3%	1.50
Ann	heroin	10, $10 bags	$70	retail	$20	5	$100	30.0%	1.43
Brenda	crack	10, $10 vials	$70	retail	$20	5	$100	30.0%	1.43
Tito's employee	heroin	10, $10 bags	$70	retail	$20	5	$100	30.0%	1.43
Chef	crack	40, $5 vials	$160	retail	$20	10	$200	20.0%	1.25
Keith	crack	10, $10 vials	$80	retail	$20	5	$100	20.0%	1.25
LS	crack	50, $3 vials	$125	retail	$20	7.5	$150	16.7%	1.20
Paul	crack	12, $10 vials	$100	retail	$20	6	$120	16.7%	1.20
Isabella	crack	15, $3 vials	$65	retail	$20	3.75	$75	13.3%	1.15
Vicky	crack	24, $5 vials	$105	retail	$20	6	$120	12.5%	1.14
ABC	crack	40, $2 vials	$70	5-10 $2 vials	$15	5.33	$80	12.5%	1.14
Isabella	heroin	10, $10 bags	$90	retail	$20	5	$100	10.0%	1.11
LS	heroin	10, $10 bags	$90	retail	$20	5	$100	10.0%	1.11
Quinby	crack	25, $3 vials	$65	retail	$20	3.75	$75	13.3%	1.15
Quinby	heroin	24, $10 bags	$216	retail	$20	12	$240	10.0%	1.11
Dollar Bill	crack	100, $3 vials	$275	retail	$20	15	$300	8.3%	1.09
Sold from a "Spot" on Consignment									
Nisi	crack	12, $5 vials	$50	retail	$20	3	$60	16.7%	1.20
Bubler	crack	26, $5 vials	$115	retail	$20	6.5	$130	11.5%	1.13
Isabella	crack	100, $3 vials	$270	retail	$20	15	$300	10.0%	1.11
ST	crack	100, $5 vials	$475	retail	$20	25	$500	5.0%	1.05
Sold from a "Spot" on Salary (converted salary to a "purchase price")									
Creek	crack	100, $3 vials	$289	retail	$20	15	$300	3.6%	1.04
Lauraine	crack	250, $2 vials	$487	5, $2 vials	$10	50	$500	2.7%	1.03

* Sold to other dealers, not directly to customers.

** Moe charged his friends $250/ounce and strangers $350/ounce for marijuana.

For entrepreneurs, the purchase price is literally what was paid to obtain the drugs. For other sellers it is a pseudo-purchase price set such that the amount the seller made was the difference between the sales revenue and that pseudo-purchase price. For example, if a consignment seller received $20 for selling ten $10 packets, the pseudo-purchase price is $100 – $20 = $80.

A pseudo-purchase price was computed similarly for the two respondents who received an hourly wage to sell from a spot. For example, Lauraine was paid $80 for working a 12 hour shift. On average she would sell six packets of one hundred $3 vials per shift, with packets delivered one at time. Since she worked 2 hours and made $80/6 = $13.33 per packet sold, we imputed a pseudo-purchase price of $300 - $13.33 = $288.67; the proportion of sales revenue she retained was the same as it would be for someone who bought the packet of crack vials for that amount.

Most of the respondents sold directly to users. Four of the entrepreneurs supplied independent consignment sellers. One (Silver) sold quantities of cocaine (125 grams) that were well above retail or first-level wholesale levels. (Dealers who sold to other sellers are denoted with an asterisk in Table 3.)

Analysis of Differences by Type of Seller

One striking feature which emerges from the data in Table 3 is that entrepreneurs retain a larger share of sales revenues than do independent consignment sellers. Although there is less data for spot sellers, it appears that independent consignment sellers in turn retain a larger share of revenues than do consignment sellers who work in spots, and that salaried sellers in spots retain the smallest fraction of all.

Since the price per unit increases with decreasing transaction size, one would expect sellers who make a larger number of smaller sales to retain a greater proportion of sales revenue. Hence, it is important to look at the proportion of revenue retained for any given number of sales made per selling cycle as another way of gauging the variation in earnings. This is shown in Figure 1.

Figure 1: Proportion of Revenues Retained vs. Number of Sales, by Type of Seller

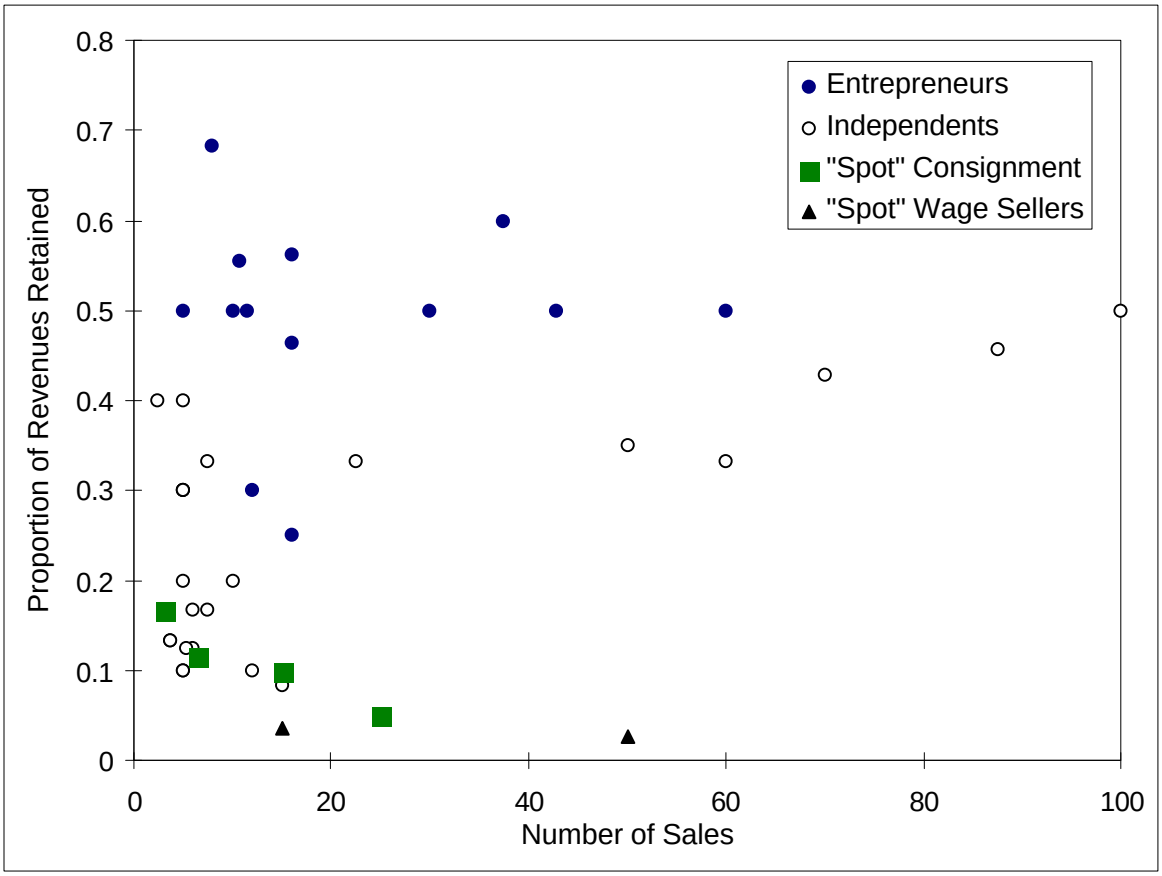

Figure 1 shows that the observed rank order (entrepreneurs retaining more than independents, independents more than spot consignment sellers, and spot consignment more than hourly spot workers) is not just an artifact of differences across groups in the number of sales per cycle. Furthermore, the exceptions to the rule are truly exceptional cases. The only two entrepreneurs who retain less than 40% of sales were Silver selling packets of 125 grams of cocaine and Moe selling ounces of marijuana, particularly to friends. It is not surprising that some dealers making larger unit sales retained a smaller percentage of sales revenue. Silver's sales ($5,000 each) were over an order of magnitude larger than the next largest sale, and Moe's were the second largest. Also, when Moe sold to friends, he may have been exposed to less risk of arrest and/or may have been accepting a low price as a favor to his friends.

Benny and Marva are the only two independents who retained more than 40% of sales revenues. Each made an unusually large number of sales (70-100) per selling cycle. They effectively skipped

one level of the distribution chain, and so retained a greater proportion of sales revenues by "cutting out a middleman."

Figure 1 is only a two-way analysis. Perhaps some or all of the apparent difference might be explained by other factors, such as the type of drug sold, whether the individual is selling to users or lower-level dealers, or the gender of the seller. So, it is appropriate to do a multivariate regression. It is not appropriate, however, to assume that there is a linear relationship between the proportion of revenues retained and the branching factor.

The price of drug transactions grows in proportion to the size of the transaction raised to a power (Caulkins and Padman 1993), i.e.,

$$\text{transaction price} = \alpha * (\text{transaction size})^{\beta},$$

so one would expect the proportion of revenues retained to be

$$\text{proportion retained} = 1 - (\text{number of sales})^{\beta-1}.$$

Since the quantity discount factor (β) is not known, it is easier to do the regression with a closely related dependent variable, the ratio of sales revenue to the amount paid to acquire the drugs which were sold, called the "*markup*" here. (Specifically, markup is the reciprocal of 1 - proportion retained.) For example, dealers often speak of trying to "double their money" by selling the drugs for twice as much as they paid to obtain them; that would correspond to a markup of 2.0.

$$\text{markup} = (\text{number of sales})^{1-\beta},$$

which suggests regressing the log of the markup on the log of the number of sales, using dummy variables for the various conditions of interest.[3]

There are relatively few observations for "spot"-based selling, and there may be uncontrolled - for differences between the ancillary support services offered in a spot versus outside a spot, so one could argue that observations on "spot" sellers should be excluded. On the other hand, one is always reluctant to discard data. In this case the regression yields the same qualitative results whether or not data from spot sellers are included. (See Table 4.)

The regression results confirm that entrepreneurs benefit from a higher markup (greater proportion of sales revenue retained). Also, the coefficients for spot selling, both on consignment and for a

wage, have the expected signs (negative) relative to the omitted category of independent consignment selling. Other than number of sales, none of the other variables was significant.

Table 4: Regression Results

Regression Statistics	Data from outside "spots"			All data		
Multiple R	0.842			0.861		
R Square	0.709			0.742		
Adjusted R Square	0.655			0.685		
Observations	39			45		
	Coefficient	*Std Error*	*P-value*	*Coefficient*	*Std Error*	*P-value*
Intercept	0.021	0.097	0.830	0.042	0.092	0.651
ln(num. of sales)	***0.122***	0.030	0.000	***0.112***	0.028	0.000
Sell to Supplier?	-0.138	0.132	0.302	-0.148	0.128	0.255
Entrepreneur?	***0.418***	0.109	0.001	***0.433***	0.105	0.000
Spot Consignment?				-0.195	0.108	0.078
Spot Salary?				-0.419	0.154	0.010
Heroin?	-0.061	0.088	0.489	-0.062	0.085	0.469
Marijuana?	0.029	0.128	0.819	0.025	0.124	0.843
Female?	0.034	0.072	0.645	0.038	0.066	0.567

Boldface indicates statistically significant at the 0.001 level.

Underline indicates statistically significant at the 0.01 level.

Discussion

One obvious conclusion is that neither "drug selling" nor even "retail drug selling" is a homogenous job classification. We propose here a more refined classification (entrepreneurs, independent consignment sellers, spot-based consignment sellers, and spot-based wage earners). There are certainly other roles (runners, touters, doormen, etc.) and further refinements could be made, but the current categorization arose naturally from the data, and there are systematic differences in monetary compensation between these categories.

A corollary is that one must be cautious when comparing reports of retail sellers' earnings that are given by different authors. In the fall of 1989, the *New York Times* ran articles that appeared to make conflicting claims about the earnings of retail crack sellers. Many articles described the trade as being very lucrative; Kifner (1989), for example, quotes people who were pessimistic about President Bush's drug plan because "there's so much money in drugs." In stark contrast, Kolata (1989) bemoans the sweatshop-like conditions endured by crack dealers. Superficially

these reports seem contradictory. In view of the analysis above, however, both *New York Times* reporters could have been completely accurate, but merely describing two different types of retail sellers without making an explicit distinction or contrast between the types.

It is interesting to speculate as to why these differences in earnings might exist, both between the earnings of sellers in spots and outside of spots and between entrepreneurs and consignment sellers operating outside of spots. (We do not have enough observations even to speculate about differences between consignment sellers in spots and wage earners in spots.)

Differences in earnings between sellers in and outside of spots

Sellers in spots retain less than sellers who operate outside of spots, so why would any sellers be willing to work in spots? It may be that sellers in spots benefit from greater support services, such as lookouts, runners, doorkeepers, a physical location, etc., that reduce the sellers' risk of arrest, robbery, or injury. Unfortunately, we do not have enough data to estimate the value of these services.

From the perspective of higher-level suppliers, if sellers in spots retain a smaller share of the revenues than do entrepreneurs, the higher-level suppliers should in theory prefer to distribute all of their drugs through spots. Why do they not? One explanation might be that there are barriers to entry which constrain the number of spots, at least in the short run. Spots can only be set up and operated by an organization. Perhaps relatively few individuals are capable of assembling and coordinating the activities of such an organization. In contrast, there are few barriers to entry (or exit) as an individual entrepreneur. Therefore, if there are not enough spots to meet demand, the residual demand could be met by these (higher-cost) individual sellers.

If this were the case, the situation would be parallel to the "Learning Curve Theory" Kleiman (1989) suggests for the marijuana market. According to that theory, as long as the low cost provider (spot sellers) cannot meet market demand, the market price is determined by how much it costs residual suppliers (entrepreneurs) to supply the market, and the low cost, spot suppliers reap quasi-rents. If the capacity of spot-based sellers expanded to the point where they could meet all demand, entrepreneurs would be driven out of business and competition among spot-based

providers would drive the market price down, perhaps sharply, reducing or perhaps even eliminating the quasi-rents.

The theory has interesting implications for enforcement. In the short run, enforcement against independents could raise their costs, driving up the market price somewhat, whereas enforcement against low-cost, spot-based sellers might reduce their quasi-rents but wouldn't affect the market price or consumption. However, if spot-based capacity tends to grow over time and enforcement can constrain that capacity (either through physical incapacitation or by making it difficult to organize sufficiently to run a spot), then in the long run enforcement's comparative effects are almost the opposite. In the long run enforcement against entrepreneurs might be irrelevant to price if expansion of spot-based selling drives them out of business, whereas enforcement against spots might prevent their growth and attendant price collapse.

At this point this is all speculation. But it raises the possibility that enforcement against different types of sellers (in spots vs. out) might have materially different effects on prices and, hence, on consumption. Relatively little attention has been paid to this possibility in the past, and so it deserves further exploration.

Differences between entrepreneurs and consignment sellers outside of spots

Among those who sell outside spots, independent consignment sellers receive less monetary compensation than do entrepreneurs. One reason for this might be that consignment sellers sometimes "come up short" and cannot pay the supplier for the drugs received. On average, independents retained about 25% of sales revenues; entrepreneurs retained 50%. So if independents absconded with the drugs one-third of the time, the value of what they received – counting drugs as well as money – would equal 50% of the retail value of the drugs they sold or could have sold. "Coming up short" is not uncommon, but it does not seem plausible that it occurs as often as one-third of the time and, since it is frequently punished, absconding with drugs is not costless.

Theoretically one might expect entrepreneurs to retain a greater share of revenues because they accept all of the risks associated with owning the product. Practically, though, it is hard to identify what risks could explain such a large difference in earnings retained. Two prominent risks are

losing the product to theft or to seizure by police. Such events are pure losses for an entrepreneur. For consignment sellers, they are equivalent to absconding with the drugs and then losing them. (Whether the consignment seller uses the drugs or loses them is of little interest to the seller's supplier; either way the consignment seller has come up short.) Again, it is hard to imagine that consignment sellers come up short as often as one-third of the time. Another risk is that the quality of the drugs is poor, but that risk affects consignment sellers and entrepreneurs similarly. If it takes longer to sell lower-quality drugs, both types of sellers have to invest more of their time. If they have to offer discounts, those discounts come out of the seller's pocket in either case. (Consignment sellers must return a fixed dollar amount to the supplier, not a percentage of sales.)

Suppliers might give entrepreneurs better terms than they give consignment sellers because the suppliers only have to meet and interact with entrepreneurs once (when the drugs and money are exchanged), whereas two meetings are required with consignment sellers (one to provide the drugs and one to collect the money). Meetings can be costly in terms of time, exposure to enforcement risk, and exposure to violence from the other party to the transaction.

Presumably meetings are costly to the sellers as well, so why wouldn't they always prefer to operate as entrepreneurs? An obvious answer is that they might be cash-constrained. In some sense, drug sellers "shouldn't" be cash-constrained. Consignment sellers typically retain 25% of sales revenue, so if they saved their earnings from three cycles of selling they would have enough cash to buy the drugs outright at the price suppliers demand of consignment sellers. Since entrepreneurs buy drugs for about half their ultimate selling price, consignment sellers would have enough cash to buy the drugs under the terms offered to entrepreneurs after only two "cycles". Furthermore, the majority of consignment sellers in this sample completed three or more cycles in a day, a behavior that has been noted elsewhere (Johnson et al. 1990). So only sellers who are extraordinarily poor at saving money need be cash-constrained for long, although sellers who are drug-addicted may fit that description. By selection effects alone, one would expect drug addicts to have less self-control than the population as a whole, and possession of money can stimulate intense cravings for drugs, making it hard for some addicts to possess even relatively modest amounts of cash (Petrakis et al. 1996). So another explanation for the earnings differences is that they reflect differences in the qualities of the individuals. Entrepreneurs might retain a higher

proportion of sales revenue than do consignment sellers because they have scarce ability to hold significant amounts of drugs and/or cash responsibly.

Summary

Transcripts of interviews with retail and low-level wholesale dealers reveal some interesting facts about the economics of drug selling. The average value of a retail crack sale is about $20; the fee for "cooking" cocaine powder into crack accounts for about 1 - 3% of the retail value of the crack; packaging materials account for less than 1% of drugs' retail sales value, but the labor involved in packaging might account for a little over 2% of retail sales value.

More significantly, the transcripts reveal that there are four distinct types of sellers, and further that there are systematic and significant differences across types of sellers in the proportion of sales revenue retained by the seller. In particular, entrepreneurs who own the drugs they sell retain the largest share of sales revenues (about 50%). Independent consignment sellers retain less (about 25%). Consignment sellers who operate within fixed selling locations or "spots" retain still less (10%), and the two sellers in the sample who were paid hourly to sell from spots retained the smallest proportion of sales revenue (3%). These differences might help explain variation in past reports of sellers' earnings and variation in prices.

There are a variety of possible explanations for these variations in earnings. Some are straightforward. Spot sellers may receive a smaller share of sales revenue because they enjoy greater non-monetary benefits (e.g., reduced risk of arrest). Entrepreneurs may do better than independent consignment sellers because they are more skilled at managing quantities of money and drugs responsibly and because they are easier for suppliers to work with. Other possible explanations have significant policy implications. If only high barriers to entry retard the market from moving toward lower cost, spot-based selling operations, then enforcement against spots may have materially different consequences on drug prices and use than would enforcement against sellers who operate outside of spots. Hence, further investigation to understand the origins and implications of these differences in earnings across types of sellers is warranted.

End Notes

[1] Drug Enforcement Agency (1994: vi) reports the average purity of heroin sold at retail in New York City in 1993 was 61.8%, only slightly below that of cocaine. Office of National Drug Control Policy (1997:240) reports that in the same year heroin cost $1,399/pure gram at retail vs. $110 per pure gram for cocaine.

[2] Consider, as an example, the cost of diluents and adulterants for cocaine. In 1992 the average purity of cocaine sold at retail in the US was roughly 76% (Office of National Drug Control Policy, 1997). At import, it was roughly 90% pure. Total cocaine consumption was about 290 tons of pure cocaine (Everingham and Rydell 1994:xvi), suggesting that a little over 60 tons of diluents and adulterants were added to the cocaine within the US. Common adulterants and diluents include manitol and inositol (vitamin B-12). Even purchased at retail, these cost on the order of $10 for 100 grams, at which price 60 tons costs just $6 million.

[3] This regression gives exactly the same results as regressing log(1 – proportion retained) on log(number of sales) and the dummy variables, except that the signs of all of the coefficients are multiplied by –1.

References

Carlson, R.G., and H.A. Siegal

1991 The Crack Life: An Ethnographic Overview of Crack use and Sexual Behavior Among African-Americans in a Midwest Metropolitan City. *Journal of Psychoactive Drugs* 23(1):11-20.

Caulkins, J.P.

1994 *Developing Price Series for Cocaine*. Santa Monica, CA:RAND.

Caulkins, J.P.

1997 Is Crack Cheaper than (Powder) Cocaine? *Addiction* 92(11):1437-1443.

Caulkins, J.P., and R. Padman

1993 Quantity Discounts and Quality Premia for Illicit Drugs. *The Journal of the American Statistical Association* 88(423):748-757.

Chaiken, M.R.

1993 The Rise of Crack and Ice: Experiences in Three Locales. *National Institute of Justice Research in Brief*, NCJ #139559. Washington, DC:U.S. Department of Justice.

Combs, C.

1996 Statistics Show Crime is Worse in Smaller Cities. *Pittsburgh Post-Gazette*, April 28th:F1.

Drug Enforcement Administration

1994 *Domestic Monitor Program: October-December 1993*. Washington, DC:Department of Justice.

Dunlap, E., and B.D. Johnson

1992 The setting for the crack era: Macro forces, micro consequences (1960-92). *Journal of Psychoactive Drugs* 24(3):307-321.

Dunlap, E., and B.D. Johnson

1996 Family/resources in the development of a female crack seller career: Case study of a hidden population. *Journal of Drug Issues* 26(1):177-200.

Dunlap, E., and B.D. Johnson

1998 *Gaining access to hidden populations: Strategies for gaining cooperation of sellers/dealers in ethnographic research*. Rockville, Maryland:National Institute on Drug Abuse Research Monograph (forthcoming).

Gold, M.S.

1987 Crack abuse: Its Implications and Outcomes. *Resident and Staff Physician* 33(8):45-53.

Inciardi, J.A.

1987 Beyond Cocaine: Basuco, Crack, and Other Cocaine Products. *Contemporary Drug Problems* 16(3):461-492.

International Drug Report

1996 Agents' Request to Buy Crack Rather Than Powder Cocaine Wasn't Sentence Entrapment. *International Drug Report* 37(4-6):16,20.

Johnson, B.D., P. Goldstein, E. Preble, J. Schmeidler, D. Lipton, B. Spunt, and T. Miller

1985 *Taking Care of Business: The Economics of Crime by Heroin Abusers*. Lexington:D.C. Heath.

Johnson, B.D., A. Hamid, and H. Sanabria

1991 Emerging models of crack distribution. In *Drugs and crime: a reader*, ed., T. Mieczkowksi, 56-78. Boston:Allyn-Bacon.

Johnson, B.D., M.A. Kaplan, and J. Schmeidler

1990 Days with drug distribution: Which drugs? How many transactions? With what returns? In Drugs, Crime, and the Criminal Justice System, ed. R.A. Weischeit, 193-214. Cincinnati, OH: Anderson Publishing Company.

Kifner, J.

1989 In South Bronx, drugs already claim victory. *The New York Times*. September 8.

Kleiman, M.A.R.

1989 *Marijuana: Costs of abuse, costs of control*. Westport, CT:Greenwood Press.

Kolata, G.

1989 Despite its promise of riches, the crack trade seldom pays. *The New York Times*. November 26:A1.

Manwar, A., E. Dunlap, B.D. Johnson

1994 Qualitative data analysis with HyperText:A case study of New York City crack dealers. *Qualitative Sociology* 17(3):283-292.

Marzuk, P.M., K. Tardiff, A.C. Leon, M. Stajic, E.B. Morgan, and J.J. Mann

1990 Prevalence of recent cocaine use among motor vehicle fatalities in New York City. *Journal of the American Medical Association* 263(2):250-256.

Office of National Drug Control Policy (ONDCP)

1997 *The National Drug Control Strategy, 1997: Budget Summary*. Washington, DC:The White House.

Petrakis I., Satel S., Krystal J.

1996 Effect of AMPT (alpha methyl para tyrosine) on cue-induced cocaine craving. *American Journal of the Addictions* 5(4):313-320.

Preble, E., and J.J. Casey

1969 Taking Care of Business – The heroin user's life on the street. *The International Journal of the Addictions*. 4(1):1-24.

Reuter, P., R. MacCoun, and P. Murphy

1990 *Money from crime: A study of the economics of drug dealing in Washington, DC*. Santa Monica, CA:RAND.

Williams, T., E. Dunlap, B.D. Johnson, A. Hamid

1992 Personal safety in dangerous places. *Journal of Contemporary Ethnography* 21(3):343-374.

References ("normal format, not for JDI")

Carlson, Robert G. and Harvey A. Siegal. 1991. The Crack Life: An Ethnographic Overview of Crack use and Sexual Behavior Among African-Americans in a Midwest Metropolitan City. *Journal of Psychoactive Drugs*. Vol. 23, No. 1, pp.11-20.

Caulkins, J. (1994) Developing Price Series for Cocaine. MR-317-DPRC, The RAND Corporation, Santa Monica, CA.

_____. 1997. Is Crack Cheaper than (Powder) Cocaine? *Addiction*, Vol. 92, No. 11, pp.1437-1443.

Caulkins, Jonathan P. and Rema Padman. 1993. Quantity Discounts and Quality Premia for Illicit Drugs. *The Journal of the American Statistical Association*. Vol. 88, No. 423, pp.748-757.

Chaiken, Marcia R. 1993. The Rise of Crack and Ice: Experiences in Three Locales. U.S. Department of Justice, National Institute of Justice Research in Brief, NCJ #139559, March.

Combs, Casey. 1996. Statistics Show Crime is Worse in Smaller Cities, *Pittsburgh Post-Gazette*, April 28th, p.F1.

Drug Enforcement Administration (DEA). 1994. *Domestic Monitor Program: October-December 1993*, Department of Justice, Washington, DC.

Dunlap, Eloise, and Bruce D. Johnson. 1992. The setting for the crack era: Macro forces, micro consequences (1960-92). Journal of Psychoactive Drugs 24(3):307-321. Dunlap, Eloise, and Bruce D. Johnson. 1996. Family/resources in the development of a female crack seller career: Case study of a hidden population. Journal of Drug Issues 26(1): 177-200.

Dunlap, Eloise, and Bruce D. Johnson. 1998. Gaining access to hidden populations: Strategies for gaining cooperation of sellers/dealers in ethnographic research. Rockville, Maryland: National Institute on Drug Abuse Research Monograph (forthcoming).

Gold, Mark S. 1987. Crack Abuse: Its Implications and Outcomes. *Resident and Staff Physician*. Vol. 33, No. 8, pp.45-53.

Inciardi, James A. 1987. Beyond Cocaine: Basuco, Crack, and Other Cocaine Products, Contemporary Drug Problems, Fall, pp.461-492.

International Drug Report. 1996. Agents' Request to Buy Crack Rather Than Powder Cocaine Wasn't Sentence Entrapment, Vol. 37, No.4-6, pp.16,20.

Johnson, Bruce, Paul Goldstein, Edward Preble, James Schmeidler, Douglas Lipton, Barry Spunt, and Thomas Miller. 1985. *Taking Care of Business: The Economics of Crime by Heroin Abusers* Lexington, D.C. Heath.

Johnson, Bruce D., Ansley Hamid, and Harry Sanabria. 1991. Emerging models of crack distribution. Pp. 56-78 in Tom Mieczkowksi (ed.), Drugs and Crime: A Reader. Boston: Allyn-Bacon.

Johnson, Bruce D., Mitchell A. Kaplan, and James Schmeidler. 1990. Days with drug distribution: Which drugs? How many transactions? With what returns? Pp. 193-214 in Ralph A. Weischeit (ed.), Drugs, Crime, and the Criminal Justice System. Cincinnati, Ohio: Anderson Publishing Company.

Kifner, John. 1989. In South Bronx, Drugs Already Claim Victory. *The New York Times*. September 8.

Kleiman, Mark A.R. 1989. *Marijuana: Costs of Abuse, Costs of Control*. Westport, CT, Greenwood Press.

Kolata, Gina. 1989. Despite Its Promise of Riches, The Crack Trade Seldom Pays. *The New York Times*. November 26, p.A1.

Manwar, Ali, Eloise Dunlap, Bruce Johnson. 1994. Qualitative data analysis with HyperText: A case study of New York City crack dealers. Qualitative Sociology 17(3): 283-292. Williams, Terry, Eloise Dunlap, Bruce D. Johnson, Ansley Hamid. 1992. Personal safety in dangerous places. Journal of Contemporary Ethnography 21(3):343-374.

Marzuk, Peter M., Kenneth Tardiff, Andrew C. Leon, Marina Stajic, Edward B. Morgan, and J. John Mann. 1990. "Prevalence of Recent Cocaine Use Among Motor Vehicle Fatalities in New York City," *Journal of the American Medical Association*, Vol. 263, No. 2, pp.250-256.

Office of National Drug Control Policy (ONDCP). 1997. *The National Drug Control Strategy, 1997: Budget Summary*, The White House, Washington, DC.

Petrakis I, Satel S, Krystal J. 1996. Effect of AMPT (alpha methyl para tyrosine) on Cue-induced Cocaine Craving. *American Journal of the Addictions*, Vol 5, No. 4, pp.313-320.

Preble, Edward and John J. Casey. 1969. Taking Care of Business – The Heroin User's Life on the Street, *The International Journal of the Addictions*, Vol. 4, No. 1 (March), pp.1-24.

Reuter, P., MacCoun, R. and P. Murphy. 1990. *Money from Crime: A Study of the Economics of Drug Dealing in Washington, DC* Santa Monica, RAND.

Frank, Richard S. (1987) "Drugs of Abuse: Data Collection Systems of DEA and Recent Trends." *Journal of Analytical Toxicology* Vol. 11, Nov./Dec. pp.237-241.

Office of National Drug Control Policy (1992) *Price and Purity of Cocaine: The Relationship to Emergency Room Visits and Deaths, and to Drug Use Among Arrestees*. Washington DC, Office of National Drug Control Policy.

Reuter, P. and M. Kleiman (1986) "Risks and Prices: An Economic Analysis of Drug Enforcement" in Tonry, M. and N. Morris (eds.) *Crime and Justice: An Annual Review of Research* Vol 7, Chicago, University of Chicago Press.

Rhodes, William, Paul Scheiman, Tanutda Pittayathikhun, Laura Collins, and Vered Tsarfaty (1995) *What America's Userse Spend on Illegal Drugs, 1988-1993*. Office of National Drug Control Policy, Washington, DC.

Rydell, C. P. and S. S. Everingham (1994) *Controlling Cocaine: Supply vs. Demand Programs*. RAND, MR-331-ONDCP/A/DPRC, Santa Monica, CA.

Wage Earners

People paid by the hour and those in support roles seemed to earn much less than either "independents" or consignment sellers. Two people who sold from "spots" reported being paid by the hour.

The "doorman" of one operation (watches the door and sounds alarm if police are seen) was paid $50 a day. The "chief" of one spot's operation was paid $200 per day for checking deliveries and arranging meals. One retail seller reported paying a touter $50 per night to steer customers his way; interesting, the sellers objective was not to sell more drugs but to sell a certain amount ($2,000) more quickly, to minimize exposure to enforcement risk.

Finances of Organizations and Selling "Spots"

There were a few descriptions of organizations running a "spot". These are not reported here because the descriptions were usually not complete (e.g., were given just from the perspective of one worker) and seemed to vary considerably from spot to spot. The general sense, though, is that organizations sought to amortize the fixed cost of a "crew" of salaried employees (lookouts, gunmen, runners, etc.) by having the seller or "pitcher" in the spot sell very large volumes. When the operation was running smoothly, they were apparently quite efficient, with a crew of five to ten able to sell $5,000 - $10,000 per day, depending on the day. ("Check days," particularly around the first of the month, were consistently reported to be the busiest; Fridays and Saturdays were busier than other days; Sundays were less busy.)

Some spots paid employees by the hour, others by volume. For example, one organization paid its doorman $50 per day. Another paid the doorman $3 per pack of crack sold, with typical volume of 20 packs per day.

Creek made $30 - $35 per day for a 10 hour shift during which she would sell $900 worth of crack. (Creek was locked into her spot and could not get out by herself.)

A priori, one might expect entrepreneurs to make the most money because drug dealing is a risky business and they bear the entire burden of that risk … Interpretation.