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### 3. DRUG USE 1984–1998

This section compares the sample analyzed with the sample not included in the analysis, describes the movement in and out of drug use, and then compares the NLSY with another national survey, the National Household Survey on Drug Abuse (NHSDA).

#### Comparison Between Those Included/Not Included in Analysis

In Exhibits 3.1–3.8, we present tables that depict use and nonuse of illicit drugs by individuals between 1984 and 1998. In order to determine movement in and out of drug use, we selected individuals who had consistently responded in survey years 1984, 1988, 1992, 1994, and 1998 of the NLSY. By selecting individuals who had participated in each round of the survey, we avoided developing a database with gaps due to nonresponse in some of the survey years. The analyses presented in this chapter are based on the individuals who responded to all five surveys with drug use modules between 1984–1998, and some who responded to every year except 1998 (participation in 1998 was not a condition for inclusion in the analysis)<sup>12</sup>. In all, 7,597 individuals responded to all five rounds, and an additional 534 responded to only the first four rounds (8,131 in total).

In order to examine the effect of this decision, we conducted two analyses in order to learn the following: (1) Are the individuals who did not respond in 1998, but responded in 1984, 1988, 1992 and 1994 (n=534), different from those who responded every year including 1998 (n=7,597)? (2) Is the sample included in the analysis (7,597+534) different from those we excluded because they did not respond to the NLSY in one or more years between 1984 and 1994?

With regard to question 1, Exhibit 3.1 presents a comparison along 17 variables between respondents in 1984–1998 and respondents in 1984–1994. The results indicate few differences between the two groups. More females were in the 1984–1998 group, and there was a significantly higher percentage of whites in the 1984–1998 group (79.2 percent vs. 75.7 percent). Significantly more individuals in the 1984–1994 group had used marijuana or hashish in 1984, had used cocaine in survey years 1984, 1992, and 1994, and had been suspended from school. For 12 variables, these two groups were not statistically different: There were no significant differences for Hispanic and black race/ethnicity; high school education; and whether the respondent sold hard drugs, gained income from illegal activities in the last year, smoked cigarettes in the past 30 days, smoked marijuana or hashish in 1988–1994, and used cocaine in 1988. Results suggest that these two groups do not differ markedly, but enough that it is desirable to include the 1984–1994 respondents in our analyses.

Exhibit 3.2 compares the sample used for our study with those we excluded. The study sample includes the group who consistently responded to all five rounds (1984–1998) and four rounds (1984–1994); this group is labeled the “in study group.” Nonrespondents (or those excluded from the sample) are those who did not respond in one or more years between 1984 and 1994; this group is labeled “out of study.” As in the previous analysis, these groups were compared along 17 characteristics.

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<sup>12</sup> 1998 is the last survey year used in the analysis and nonresponse in that year would not affect comparisons to subsequent survey years.

**Exhibit 3.1:** Comparisons of Sample Respondents 1984–1998 And Sample Respondents 1984–1994

	Respondents To All 5 Rounds: 1984–1998 (Base <i>n</i> max=7,597)		Respondents To 4 Rounds: 1984–1994 (Base <i>n</i> max=534)	
	%	N	%	N
<b>Percentages</b>				
Female*	51.9	7,597	38.9	534
Hispanic	6.3	7,597	7.5	534
White (non-Hispanic)*	79.2	7,597	75.7	534
Black (non-Hispanic)	14.5	7,597	16.9	534
At least high school education	38.9	7,597	36.6	534
Smoked marijuana or hashish in 1984*	33.1	7,597	40.0	534
Smoked marijuana or hashish in 1988	22.7	7,597	22.6	534
Smoked marijuana or hashish in 1992	13.7	7,597	14.6	534
Smoked marijuana or hashish in 1994	14.3	7,597	14.3	534
Used cocaine in 1984*	11.4	7,597	14.2	534
Used cocaine in 1988	10.6	7,597	10.4	534
Used cocaine in 1992*	3.6	7,597	5.2	534
Used cocaine in 1994*	3.0	7,597	5.5	534
Ever been suspended from school (1980)*	20.8	7,404	25.1	516
Sold hard drugs in past year (1980)	2.4	7,201	3.0	500
Illegal income in past year (1980)	16.1	7,032	16.9	476
Smoked cigarettes in past 30 days (1984)	40.7	7,570	42.6	533
Note: Significant differences between percentages were based on chi-square tests of independence.				
* Difference between respondents and nonrespondents is significant at $p < 0.05$ .				

Results show that these groups differ significantly for eight characteristics. Hispanics were more likely to be in the out of study group, and individuals in the in-study group were more likely to be female. Individuals in the out of study group were more likely to have a high school education (42.5 percent vs. 38.7 percent).

**Exhibit 3.2** Comparisons of Study Sample and Sample Excluded from Study

	In-Study Group (Base <i>n</i> max=8,131)		Out of Study Group (Base <i>n</i> max=1,855)	
	%	<i>n</i>	%	<i>n</i>
<b>Percentages</b>				
Female*	51.1	8,131	43.4	1,855
Hispanic*	6.3	8,131	8.3	1,855
White (non-Hispanic)	79.0	8,131	77.6	1,855
Black (non-Hispanic)	14.7	8,131	14.1	1,855
At least high school education*	38.7	8,131	42.5	1,855
Smoked marijuana or hashish in 1984*	33.5	8,131	30.4	1,376
Smoked marijuana or hashish in 1988*	22.7	8,131	17.9	848
Smoked marijuana or hashish in 1992*	13.8	8,131	10.3	885
Smoked marijuana or hashish in 1994*	14.3	8,131	10.8	760
Used cocaine in 1984*	11.6	8,131	9.3	1,376
Used cocaine in 1988	10.5	8,131	8.7	848
Used cocaine in 1992	3.7	8,131	3.4	885
Used cocaine in 1994	3.2	8,131	3.2	760
Ever been suspended from school (1980)	21.1	7,920	22.0	1,650
Sold hard drugs in past year (1980)	2.4	7,701	2.5	1,562
Illegal income in past year (1980)	16.1	7,508	14.7	1,522
Smoked cigarettes in past 30 days (1984)	40.8	8,103	39.8	1,368
Note: Significant differences between percentages were based on chi-square tests of independence.				
* Difference between respondents and nonrespondents is significant at $p < 0.05$ .				

Respondents in the study were more likely than those out of the study to have smoked marijuana in 1984, 1988, 1992, and 1994, and to have used cocaine in 1984. The group included in this analysis had higher rates of drug use than those excluded from the analysis, leaving us less concerned about the possible diminution of drug users from the analysis.

These results show that the respondents included in the study share more in common with respondents excluded from the study; that is, these two groups are more alike than dissimilar, especially because there were no significant differences between them for a majority of the variables along which they were compared. Although there are notable differences, particularly for the behavioral variables regarding drug use, these differences are in the right direction; for instance, there are higher proportions of individuals in the in-study group who have smoked marijuana, which is useful for this study. The usual concern is that those excluded from the analysis are less likely to engage in the analyzed behavior than those included. For this analysis of the movement into and out

of drug use, those included are somewhat more likely than those in the out-of-study group to have smoked marijuana. Otherwise, the differences between the groups are small.

## **Movement Into and Out of Drug Use**

### **MARIJUANA USE IN THE PAST YEAR**

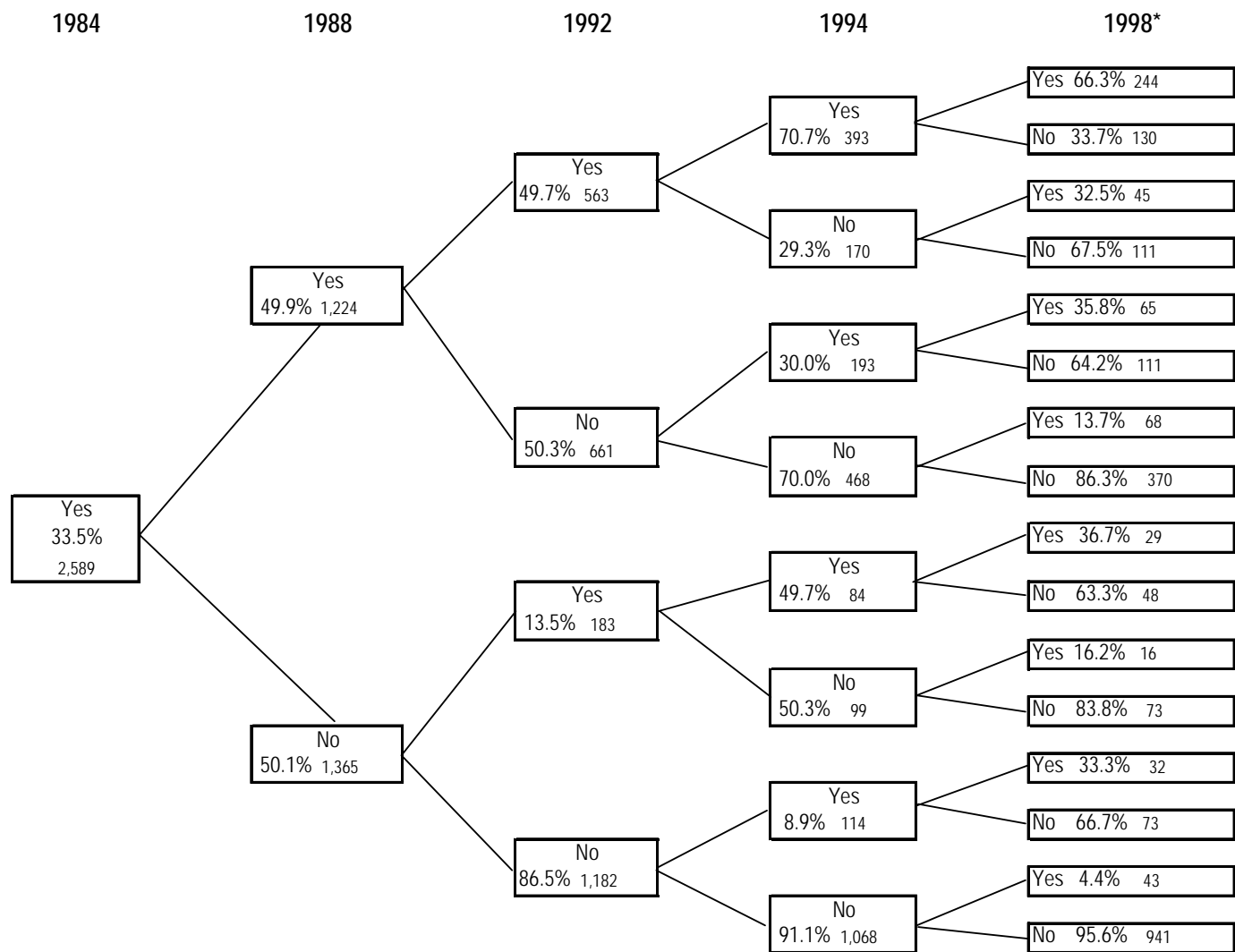
Exhibit 3.3 depicts the distribution “tree” of respondents who reported marijuana use in the past year, in 1984; Exhibit 3.4 depicts the distribution tree of respondents who stated they did not use marijuana in 1984.

The tree describes the distribution of individuals who reported use or nonuse of drugs in each of the five index years from 1984 to 1998. There are two distribution trees for each drug. The first is based on respondents who reported marijuana use in 1984, and the second, on respondents who reported no marijuana use in 1984. Subsequent years after 1984 describe the distributions of respondents based on whether they reported marijuana use or no marijuana use. For instance, the 1988 column in Exhibit 3.3 describes the distribution of respondents who reported marijuana use (“yes”) or no marijuana use in that year (“no”) after reporting drug use in 1984. In 1992, the distribution of respondents is expanded to capture drug use or non-use based on the distribution in 1988. In 1992, there are two binomial distributions (i.e. four alternatives); one is based on those who reported drug use and the other based on those who did not report drug use in 1988. In 1994, there are four binomial distributions based on responses in 1992. And in 1998, there are eight binomial distributions based on responses in 1994. In this way, the distribution tree presents movement in and out of drug use for the five index years (1984, 1988, 1992, 1994, and 1998) over the 15-year study period based on the initial response to questions on drug use in 1984. Weighted percentages are used in all the exhibits.

Over the first 5-year timespan (1984–1988), half of all individuals who used marijuana in 1984 did not use again in 1988 (see Exhibit 3.3). Over the next 5-year span (1988–1992), almost half of those who had used in 1988 reported use again in 1992, and almost 87 percent of those who did not use in 1988 did not use again in 1992. From 1992 to 1998, one-half to two-thirds of individuals who used in one index year also used in the subsequent index year, if they initiated use in 1984 or 1988. Overall, only 3 percent (244/8,131) used marijuana in every one of the five interview years.

Exhibit 3.4 shows that two-thirds (66.5 percent) of respondents did not use marijuana in 1984, and 91 percent (5,062/5,542) did not report use in the subsequent study year. Of those who used in 1988, three-quarters reported no use in 1992. Overall, almost all those who did not use marijuana in 1984 did not use in 1998 (96 percent, or 4,990/5,198). These results suggest that youth who do not initiate marijuana use in the early years are unlikely to ever start marijuana use.

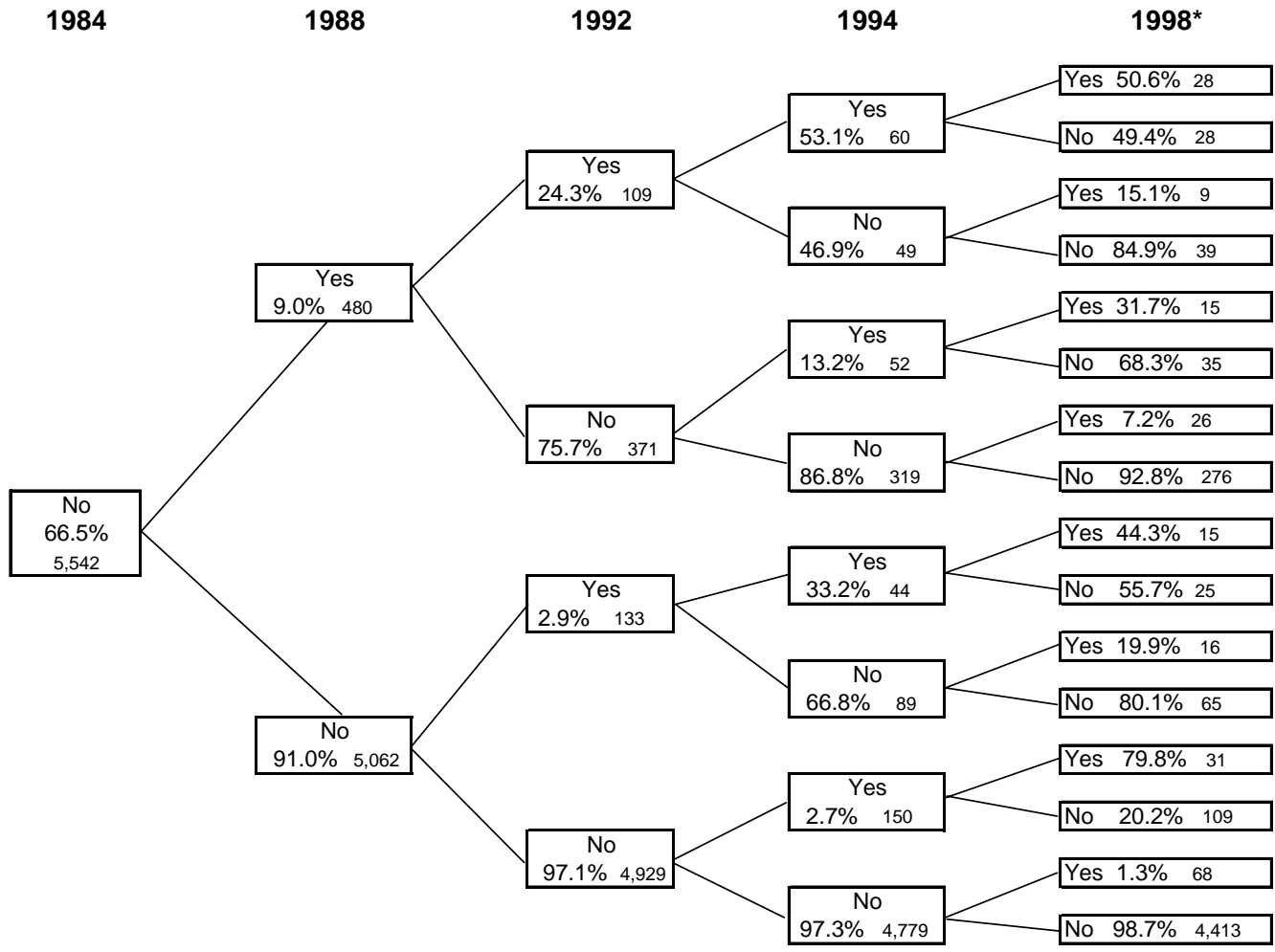
Exhibit 3.3: Distribution Tree of Respondents Who Reported Smoking Marijuana in 1984



Source: National Longitudinal Study of Youth, 1979 cohort, 1984-1998

\* There were 534 individuals who responded to the 1984, 1988, 1992, and 1994 surveys, but not to 1998. These individuals were included in 1984-1994, but not in 1998.

**Exhibit 3.4: Distribution Tree of Respondents Who Reported No Marijuana Use in 1984**



Source: National Longitudinal Study of Youth, 1979 cohort, 1984-1998

\* There were 534 individuals who responded to the 1984, 1988, 1992, and 1994 surveys, but not to 1998. These individuals were included in 1984-1994, but not in 1998.

These results also suggest that few adolescents who initiate marijuana use continue such behavior consistently over the long run. In general, most of those who did not use marijuana in 1984 did not use over the five index years during the 15-year period. However, many adolescents also reported intermittent marijuana use over the 15-year period.

### **COCAINE USE IN THE PAST YEAR**

Exhibits 3.5 and 3.6 present data on cocaine use during the interview years of 1984 to 1998. Whereas cocaine users are more prevalent than marijuana users, there are similar patterns of use for marijuana and cocaine.

When cocaine use is examined over the first 5-year timespan (1984–1988), we see that two-fifths who initiated cocaine use in 1984 used again in 1988. Over the next five year span (1988–1992), a quarter of those who had used in 1984 and 1988 used again in 1992, and only 1 in 10 individuals who had not used in 1988 used in 1992. Overall, less than two-tenths of one percent used cocaine in every year over the study period, and of those who reported cocaine use in 1984, 93 percent (692/748) did not use in 1998.

Exhibit 3.6 shows that about seven-eighths (88.4 percent) of interviewees did not report cocaine use in 1984, and over nine-tenths of these individuals (93.7 percent) did not use in 1988, the subsequent study year. Of the few (6.7 percent) individuals who used cocaine in 1988, more than four-fifths (85.6 percent) did not use in 1992. Almost all respondents who did not use cocaine in 1984 did not use in 1998 (98 percent, or 6,737/6849).

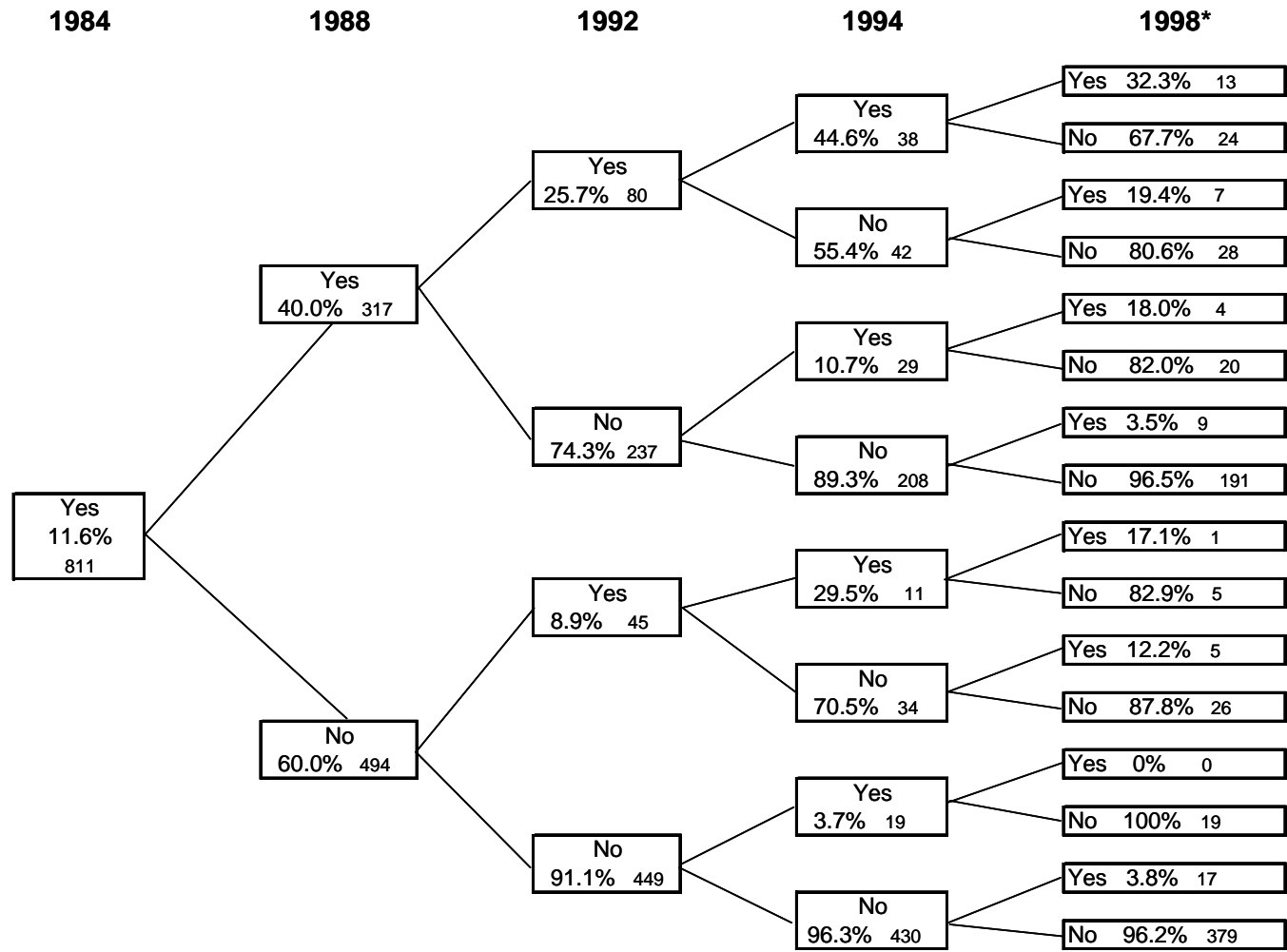
### **MARIJUANA AND COCAINE USE IN THE PAST YEAR**

Ten percent of respondents reported use of both marijuana and cocaine in 1984 (see Exhibit 3.7). Of these individuals, 35.7 percent used both drugs again in 1988 (3.6 percent of interviewees). In 1992, almost one quarter (23.8 percent) of those who used in 1988 and 1984 used both drugs again.

Exhibit 3.8 shows that nine-tenths of respondents (89.8 percent) did not use marijuana and cocaine in 1984. Only 5 percent of those who did not use both drugs in 1984 used both drugs in 1988. Of the 5 percent who reported use of marijuana and cocaine in 1988, approximately 9 out of 10 did not use both again in 1992. Overall, almost all non-users of marijuana and cocaine in 1984 did not report use in the subsequent interview years from 1988 to 1998 (98.9 percent, or 6,872/6,948). These data from combined marijuana and cocaine use paint a similar story to the results presented in Exhibits 3.3 to 3.6. Though most respondents do not report initiating drug use, there are others who initiate and use these drugs intermittently.

Even though the relationship between initiation of drug use and the continuation of such behavior is not clear from this analysis, the results clearly depict individuals moving in and out of drug use. In general, these data suggest that the majority of youth abstained from drug use during the study period, and only a few individuals consistently used drugs in every interview or index year (3.2 percent for marijuana and 0.2 percent for cocaine). Further, varying proportions of individuals who initiated drug use became intermittent users or regular users. What these data do not tell us are the intervening factors that influence movement in and out of drug use.

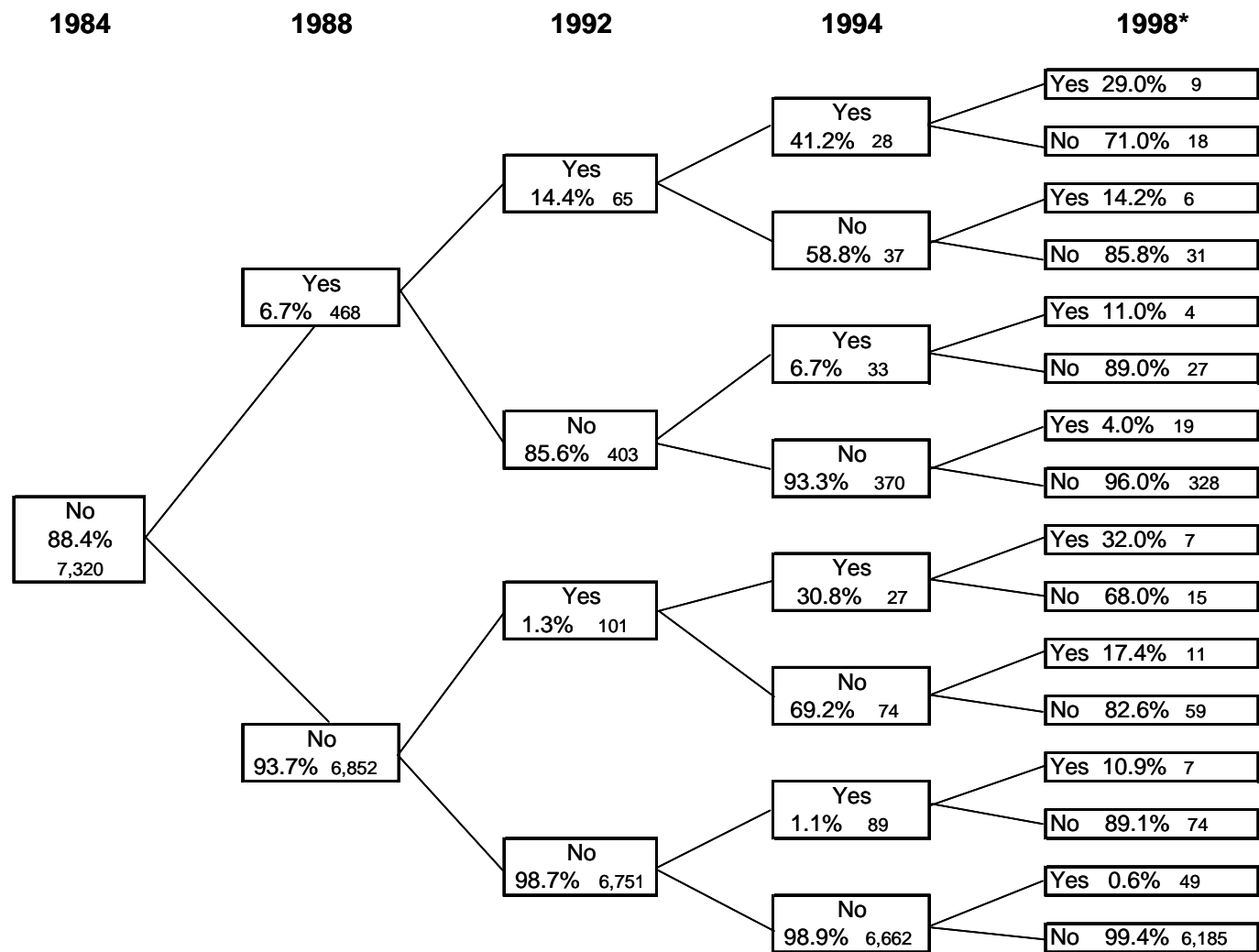
**Exhibit 3.5: Distribution Tree of Respondents Who Reported Using Cocaine in 1984**



Source: National Longitudinal Study of Youth, 1979 cohort, 1984-1998  
 \* There were 534 individuals who responded to the 1984, 1988, 1992, and 1994 surveys, but not to 1998. These individuals were included in 1984-1994, but not in 1998.



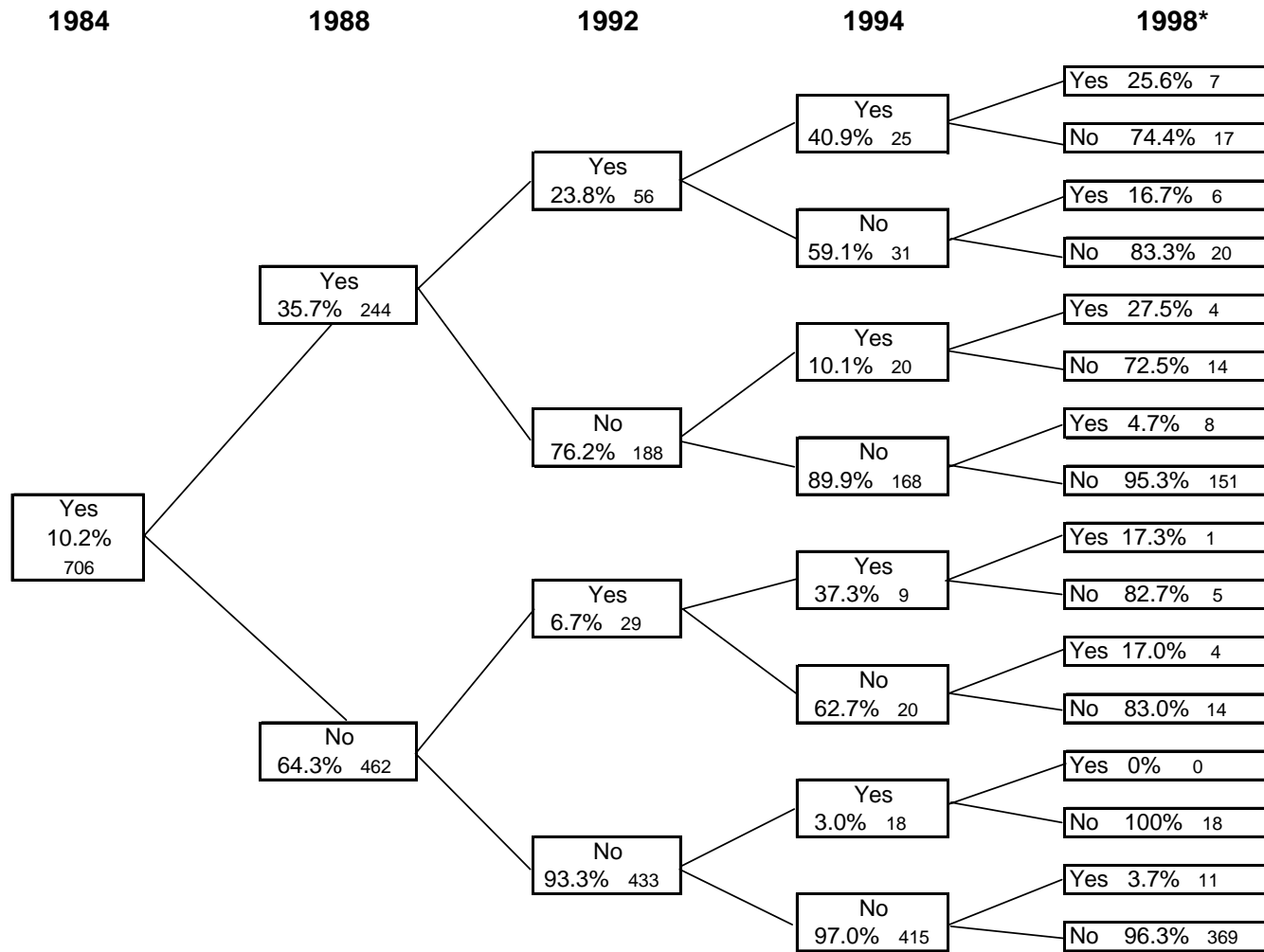
**Exhibit 3.6: Distribution Tree of Respondents Who Reported No Cocaine Use in 1984**



Source: National Longitudinal Study of Youth, 1979 cohort, 1984-1998

\* There were 534 individuals who responded to the 1984, 1988, 1992, and 1994 surveys, but not to 1998. These individuals were included in 1984-1994, but not in 1998.

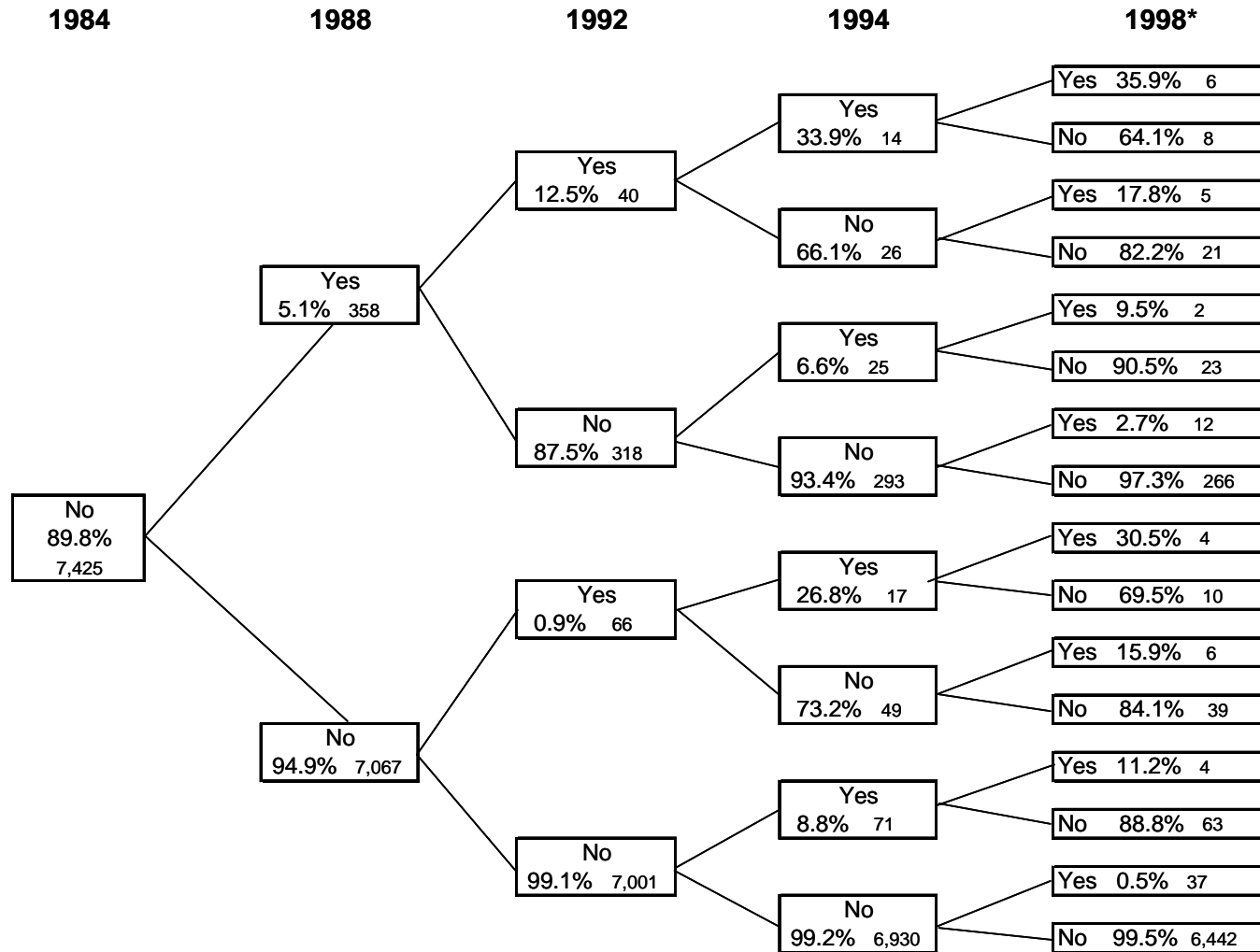
**Exhibit 3.7: Distribution Tree of Respondents Who Reported Cocaine and Marijuana Use in 1984**



Source: National Longitudinal Study of Youth, 1979 cohort, 1984-1998

\* There were 534 individuals who responded to the 1984, 1988, 1992, and 1994 surveys, but not to 1998. These individuals were included in 1984-1994, but not in 1998.

**Exhibit 3.8: Distribution Tree of Respondents Who Reported No Cocaine and Marijuana Use in 1984**



Source: National Longitudinal Study of Youth, 1979 cohort, 1984-1998

\* There were 534 individuals who responded to the 1984, 1988, 1992, and 1994 surveys, but not to 1998. These individuals were included in 1984-1994, but not in 1998.

## CORRELATES OF NUMBER OF YEARS USED DRUGS: GENDER AND RACIAL/ETHNIC DIFFERENCES

Exhibits 3.9 and 3.10 display the association between demographic characteristics and the number of index years respondents used marijuana and cocaine. Higher percentages of females than males abstain from marijuana and cocaine use. For both marijuana and cocaine, males are about twice as likely as females to have used in 3–5 index years.

**Exhibit 3.9:** Number of Times Used Marijuana By Gender\*

Number of Index Years	Male	Female
<b>Used Marijuana</b>		
0	49.4%	66.2%
1	21.4%	17.5%
2	11.8%	7.7%
3–5	17.4%	8.7%

\* $p < 0.05$

**Exhibit 3.10:** Number of Times Used Cocaine By Gender

Number of Index Years	Male	Female
<b>Used Cocaine</b>		
0	75.7%	86.8%
1	14.9%	8.8%
2	6.3%	3.1%
3–5	3.2%	1.3%

\* $p < 0.05$

In Exhibits 3.11 and 3.12, the analyses are repeated using race/ethnicity as the classification variable. The distribution in Exhibit 3.11 is statistically significant and shows that there were more Hispanics than blacks or whites who abstained from marijuana use in any of the index years. Interestingly, while use in one or two index years by Blacks and whites is slightly higher than for Hispanics, the largest differences are in the 3-5 year category, where Blacks and especially whites have much higher use rates than Hispanics. In Exhibit 3.12, there is no statistically significant racial/ethnic difference for the number of index years of cocaine use.

**Exhibit 3.11: Number of Times Used Marijuana By Race/Ethnicity\***

Number of Index Years	Hispanic	Black	White
<b>Used Marijuana</b>			
0	63.8%	57.3%	56.2%
1	18.3%	20.3%	19.3%
2	9.4%	10.4%	9.3%
3-5	8.4%	12.1%	15.2%

\* $p < 0.05$

**Exhibit 3.12: Number of Times Used Cocaine By Race/Ethnicity**

Number of Index Years	Hispanic	Black	White
<b>Used Cocaine</b>			
0	82.3	83.2	79.9
1	11.3	10.9	12.5
2	4.5	4.1	5.1
3-5	2.0	1.7	2.6

### COMPARISONS OF DRUG USE OVER TIME

Exhibits 3.13 through 3.18 present summary data about the number of years of drug use, and the additional years that drugs were used. Exhibits 3.13 and 3.14 present comparisons between drug use for adjacent study years. When marijuana use is considered over the entire study period, 53 percent of those who reported marijuana use in one time period did not use in the following study year. Further, 94 percent of those who did not use marijuana in the prior study period did not use in the following study year.

For cocaine, almost three-quarters (71 percent) of those who used in the prior time period did not use in the subsequent study year. In a similar pattern to marijuana, 97 percent of those who did not use cocaine in the prior time period did not use in the following study period. It seems that abstinence from drugs for one study year may be indicative of a substantial longer term effect.

Over the entire study period, the majority of respondents reported no drug use, as presented in Exhibit 3.15. Overall, 58.1 percent, 81.4 percent, and 96.6 percent of respondents reported no marijuana, cocaine, or crack use, respectively, in the five reporting periods. Only a small minority of individuals reported drug use in all five years (3.2 percent for marijuana, 0.2 percent for cocaine, and 0.2 percent for crack). Note that data on crack use were collected in 1992, 1994, and 1998 only.

**Exhibit 3.13: Marijuana Use Between Adjacent Survey Periods**

		First Time Period	
		Used Marijuana	Did Not Use Marijuana
Following Time Period	Used Marijuana	46.6%	6.2%
	Did Not Use Marijuana	53.4%	93.8%

**Exhibit 3.14: Cocaine Use Between Adjacent Survey Periods**

		First Time Period	
		Used Cocaine	Did Not Use Cocaine
Following Time Period	Used Cocaine	28.6%	3.0%
	Did Not Use Cocaine	71.4%	97.1%

**Exhibit 3.15: Number of Years Used Drug**

Number of Years Used	Marijuana		Cocaine		Crack*	
	Percentage	Count	Percentage	Count	Percentage	Count
0	58.1%	4,413	81.4%	6,185	96.6%	7,335
1	19.2%	1,459	11.7%	889	2.7%	203
2	9.6%	731	4.8%	363	0.6%	46
3	6.0%	453	1.3%	102	0.2%	13
4	3.9%	297	0.6%	45	NA	
5	3.2%	244	0.2%	13	NA	
Total	100%	7,597	100%	7,597	100%	7,597

\*Data for use of crack are available only for 1992, 1994 and 1998.  
 Note: Percentages may not sum to 100 due to rounding.

Exhibits 3.16 and 3.17 display the number of *additional* years that drug users continue their use of drugs, given drug use in one study year. Among those who reported marijuana use in any one year (Exhibit 3.16), almost half (46 percent) never again reported use in the other study years. However, 23 percent of individuals who used marijuana in one study year used in a second study year. Two-fifths (42 percent) of those who used marijuana in two study years did not report additional use.

Exhibit 3.17 presents the percentage of cocaine users who used cocaine additional years. Almost two-thirds (63 percent) of individuals who reported cocaine use in one study year did not report cocaine use in other study years. About a quarter (26 percent) of those who used cocaine in one

**Exhibit 3.16: Percentage Who Used Marijuana Additional Years by Number of Years Used Marijuana**

Additional Years Used	Number of Years Used			
	1	2	3	4
0	46%	42%	46%	55%
1	23%	26%	30%	45%
2	14%	17%	25%	NA
3	9%	14%	NA	NA
4	8%	NA	NA	NA
Total	100%	99%	101%	100%

Note: The number of years used is computed by adding each year of use for survey years 1984, 1988, 1992, 1994 and 1998.

Note: Percentages may not sum to 100 due to rounding.

**Exhibit 3.17: Percentage Who Used Cocaine Additional Years by Number of Years Used Cocaine**

Additional Years Used	Number of Years Used			
	1	2	3	4
0	63%	69%	64%	78%
1	26%	20%	28%	22%
2	7%	9%	8%	NA
3	3%	2%	NA	NA
4	1%	NA	NA	NA
Total	100%	100%	100%	100%

Note: The number of years used is computed by adding each year of use for survey years 1984, 1988, 1992, 1994, and 1998.

study year used in a second year. Two-thirds (69 percent) of those who used in two study years did not report additional use.

Exhibit 3.18 shows that almost all (96.6 percent) of respondents who did not use marijuana did not use cocaine, while more than half of those who used marijuana three or more study years also used cocaine.

### **COMPARISON BETWEEN NLSY AND NATIONAL HOUSEHOLD SURVEY ON DRUG ABUSE (NHSDA)**

The discussion of drug use over time using a longitudinal survey leads to a different picture of drug use than is usually seen using a cross-sectional survey. Each survey type provides crucial information. While the cross-sectional survey provides an excellent snapshot of a specific time period, without the burden of interviewing and reinterviewing the same individuals over many years, longitudinal data permit inferences regarding change over time, as the information about each survey participant is sequenced along the years these individuals were interviewed.

This section of the report compares and contrasts two premiere data sets: the National Longitudinal Survey on Youth (the data used in this report) and the National Household Survey on Drug Abuse, sponsored by the Substance Abuse and Mental Health Services Administration of the Department of Health and Human Services. Exhibit 3.19 presents a comparison between these surveys. Except for 1985, we compare the relevant NLSY and NHSDA during the same year. When the NLSY was conducted in 1984, the NHSDA was not conducted that year. Instead, we used the 1985 NHSDA, the most proximate survey year, as the comparison with the 1984 NLSY. To compare the surveys, we used the same age cohorts for each.

The bulk of differences between the two nationally representative surveys were not statistically significant. The only differences were reports of higher rates of cocaine use (both lifetime and last year report) in the 1985 NHSDA and higher reports of lifetime marijuana use in the 1994 and 1998 NLSY than the NHSDA.

The NLSY data provide information on a cohort of 12,686 individuals and therefore allows us to investigate the following: (1) who uses drugs over extended periods (15 years); (2) who becomes a heavy drug user, and what variables predict such a phenomenon; (3) which individuals abstain or never use drugs, and what variables might help explain this phenomenon; and (4) which individuals use drugs intermittently, and why. The longitudinal data set also enables us to investigate the relationship between drug use in one period and a later period. In this way, longitudinal data provide advantages over cross-sectional data.



**Exhibit 3.18:** Number of Years Used Cocaine By Number of Years Used Marijuana\*

Number of Years Used Cocaine	Number of Years Used Marijuana											
	0		1		2		3		4		5	
0	96.6%	4,261	77.5%	1,130	56.8%	415	44.4%	201	35.0%	104	30.3%	74
1	2.8%	125	17.6%	256	30.0%	219	30.7%	139	31.0%	92	23.8%	58
2	0.4%	19	4.2%	61	11.4%	83	17.7%	80	22.2%	66	22.1%	54
3	+		0.7%	10	+		5.7%	26	6.7%	20	12.3%	30
4	+		+		+		+		3.7%	11	8.6%	21
5	+		+		+		+		+		+	
Total	99.8%	4,413	100%	1,459	98.2%	731	98.5%	453	98.6%	297	97.1%	244

\* Survey years 1984, 1988, 1992, 1994, 1998.

+ Fewer than 10 cases.

Note: Percentages may not sum to 100 due to rounding.

**Exhibit 3.19:** Comparison between NHSDA and NLSY for Lifetime and Past Year Marijuana and Cocaine Use 1984–1998

Age Group	NHSDA Year	NHSDA NATIONAL ESTIMATE (%)				NLSY Year	NLSY NATIONAL ESTIMATE (%)			
		Lifetime Marijuana	Past-Year Marijuana	Lifetime Cocaine	Past-Year Cocaine		Lifetime Marijuana	Past-Year Marijuana	Lifetime Cocaine	Past-Year Cocaine
<b>20–27</b>	1985	63.1	34.4	26.2	15.6	1984	61.0	31.8	15.2	10.0
<b>23–30</b>	1988	63.8	20.9	26.7	10.4	1988	62.9	21.0	26.8	9.7
<b>27–34</b>	1992	58.8	14.1	25.5	4.9	1992	55.1	12.2	23.8	3.6
<b>29–36</b>	1994	53.7	11.0	23.3	3.1	1994	61.4	13.4	23.8	3.4
<b>33–40</b>	1998	51.3	9.3	22.4	2.5	1998	56.3	9.2	21.7	2.1

NOTES: Due to changes in the questionnaire design in 1994, data from previous survey years are not directly comparable to 1994 estimates and subsequent survey years. The NLSY estimate is developed through analysis of the population described in this chapter (i.e., those individuals who responded to every one of the surveys in 1984, 1988, 1992, 1994, and almost always 1998).

All differences between NLSY and NHSDA are nonsignificant at the 0.05 level, except lifetime marijuana use in 1994 and 1998 (NLSY is significantly higher) and lifetime and past-year cocaine use in 1985 (NHSDA is significantly higher).

## STRENGTHS OF LONGITUDINAL SURVEYS

Survey data can be collected to describe events over time through both prospective panel (longitudinal) surveys or retrospective cross-sectional means. Prospective data (e.g., NLYS79) are collected by taking repeated measures in a set of panel follow-ups. Retrospective data are generally collected in a single interview, using event history (calendar) methods to assist memory. The strengths of longitudinal surveys are their ability to measure transitions, changes, and the order of events as they occur. Longitudinal data collection provides more accurate data than cross-sectional data for long-term measures subject to response error caused by such things as recall and telescoping

A problem with retrospective cross-sectional data collection is the issue of recall accuracy.<sup>13</sup> Also, given time limitations, the brief interview period of a single cross-sectional survey permits comparatively less detail on timing and change over time than is available from several interviews from a panel study. As a result, longitudinal panel data provides better answers than cross-sectional data to some questions, particularly because of lower recall error and better information on the order of events. For example:

- What is the relationship between drugs and crime and the movement from one to the other?
- Who becomes a heavy drug user? What variables predict heavy drug use?
- Who never uses drugs? Who uses drugs only a few times? Can we predict either?
- To what extent is drug use at one time period associated with use at another time? What explains the association?
- What is the relationship between exposure to prevention messages and drug use/criminal behavior?
- What are the transitions (initiation and cessation) of drug use and what is the duration of use?
- What is the relationship between unemployment and drug use? What explains the movement from one to the other? Which is prior?
- What is the effect of events (e.g., becoming unemployed or getting married or divorced) on initiation, cessation, or changes in drug use? Cross-sectional data collection from a single slice in time is less likely to learn about the point when events occur relative to changes in behavior.
- If important unobserved characteristics influence the outcome variable, the regression estimates will be biased. Longitudinal data allow us to obtain unbiased estimates through the use of fixed effects models that “net out” characteristics such as personality traits.

## Summary

- Respondents included in the study share more in common with respondents excluded from the study. However, respondents included in the study report more drug use than those excluded from the study.

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<sup>13</sup> R. A. Johnson, D. R. Gerstein, K. A. Rasinski, “Adjusting Survey Estimates for Response Bias: An Application to Trends in Alcohol and Marijuana Use,” *Public Opinion Quarterly*, v. 62, no.3, 1998.

- A majority of individuals reported no drug use during the five study periods. Overall, 58.1 percent of interviewed individuals reported no marijuana use, 81.4 percent reported no cocaine use, and 96.6 percent reported no crack use (crack was only collected for the three study periods from 1992 to 1998).
- Very few individuals consistently reported drug use in all five years: for marijuana and cocaine, 3.2 percent and 0.2 percent reported use from 1984 to 1998, respectively. For crack, 0.2 percent reported use from 1992 to 1998.
- About half of marijuana users who used in one study period reported marijuana use in the subsequent study period. Only one of 16 who did not use marijuana in one study period used marijuana in the subsequent period.
- About one-quarter of cocaine users who used in one study period reported cocaine use in the subsequent study period. Only one of 32 who did not use cocaine in one study period used cocaine in the subsequent period.
- Of those who used in one study period, most did not use again. Overall, 19.2 percent, 11.7 percent, and 2.7 percent of individuals reported marijuana, cocaine or crack use, respectively, only in one year. Among those who reported marijuana use in any one year, almost half (46 percent) never reported use again. Among cocaine users, almost two-thirds (63 percent) of those who reported use in any one year never reported use again.
- More females than males reported no marijuana or cocaine use and more males than females reported marijuana or cocaine use during one or more of the index years. More Hispanics reported no marijuana use and more blacks reported marijuana use in one or two index years, whereas more whites reported marijuana use in three to five of the index years.
- In terms of poly-drug use, almost all of the interviewed individuals who did not report marijuana use did not report cocaine use (96.6 percent). More than half of those who reported marijuana use in three or more years also used cocaine.
- When compared to the similar age group in the same year of NHSDA data (except that there was no 1984 NHSDA), almost no significant differences were found in lifetime and last-year use of marijuana and cocaine. The 1985 NHSDA had significantly higher lifetime and past-year cocaine use, while the 1994 and 1998 NLSY showed significantly higher lifetime marijuana use.