Youth labor force activity: alternative surveys compared

Studies of youth labor force activity often yield apparently conflicting results; variations in survey concepts, methodology, and other factors may explain some of the differences, but questions still remain

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It is generally perceived that a serious youth employment problem exists in this country, especially among young blacks. Quite often this assessment has been based on data from the monthly Current Population Survey (CPS), conducted for the Bureau of Labor Statistics by the Census Bureau.

The CPS uses a national probability sample composed of rotating groups totaling approximately 65,000 households per month. Census Bureau enumerators contact the households in the sample each month and ask a series of structured questions about the labor force status of each member 16 years of age and over during the preceding (or reference) week. The CPS comprises eight independent panels or rotation groups. Each household is interviewed for 4 consecutive months, dropped from the sample for 8 months, interviewed again for 4

months, and finally dropped entirely from the sample. Any responsible household member may supply the CPS labor force information for other eligible persons in the household. And, except for the first and fifth rotation groups, for which a personal visit is the predominant form of data collection, telephone interviews are used extensively. The overall sample size is approximately 135,000 persons, of which about 30,000 are youth age 16 to 24.

Over the past 15 years, additional data from three longitudinal surveys of the labor force status and work experience of youth have become available to analysts. The three youth-specific surveys: the first National Longitudinal Survey, which collected a wide range of data beginning in 1966; the National Longitudinal Study of the High School Class of 1972; and, finally, a new series of National Longitudinal Surveys begun in 1979. As a result of these surveys, particularly the 1966-based survey, a large body of information on the employment problems of young people has been developed.

While much of the longitudinal research has simply

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confirmed analyses of data from the CPS, some differences between survey measures of current labor force status have also been noted. Among recent studies that called attention to the apparent survey differences are those of Michael Borus, Frank Mott, and Gilbert Nestel; Richard Freeman and James Medoff; and Robert Myer and David Wise.[1] Data from all three longitudinal surveys suggest that youth employment-population ratios are higher than the CPS indicates. Estimates of the unemployment rates for men tend to be little different between the 1966-based longitudinal survey and the CPS; in the class of 1972 survey, estimated unemployment is lower than in the CPS; and unemployment rates for the 1979-based longitudinal survey are much higher than CPS estimates. These inter-survey discrepancies appear to be especially concentrated among youth age 16 to 17, and among those whose major activity is going to school.

Many researchers have suggested that any significant differences between the CPS and the longitudinal studies arise from the fact that the CPS gathers its information from any responsible household member, while the other surveys have relied on the self-response of the young person. As we will see, this hypothesis may be somewhat simplistic. In fact, wherever inter-survey variations appear to be of some importance, they seem to be due to factors other than, or in addition to, the identity of the respondent.

Limitations of the comparisons

A major purpose of this article is to uncover methodological, design, or questionnaire differences among the surveys which may account for the discrepancies in employment and unemployment measures. But even if all the inter-survey differences could be reconciled on methodological grounds, it does not necessarily follow that any particular survey presents the most accurate picture of youth employment. Further, given that one expects some difference in results among surveys, it is important to determine whether the discrepancies are statistically significant. If differences among surveys are frequently not statistically significant, one's confidence in the accumulated body of data might be strengthened.

Comparing labor force estimates from alternative surveys is subject to additional important limitations. For example, the longitudinal surveys were not designed with the intent to test directly the validity of CPS estimates; it is only as a by-product of the surveys that the issue has been raised. Furthermore, the statistical significance of differences among surveys is a function of the magnitude of the differences and the standard errors of the labor force measures. Because standard errors depend in part upon the size of the survey sample, it becomes difficult to detect statistically significant differences between relatively small samples unless the survey

measures are widely at odds with each other. Aggregation of data into larger groups of individuals is one way to offset this problem; for example, we might compare employment-population ratios for those age 16 to 24 rather than for more narrowly defined age groups. However, such aggregation frequently obscures the very areas in which the survey differences are most pronounced.

Statistical significance cannot be considered the sole item of interest in survey comparisons. Findings which are not statistically significant might still be important because they suggest a different set of hypotheses about the youth labor market. However, this article touches only briefly on the formidable issue of the substantive nature of the survey differences.

To keep the following analysis manageable, discussion will be limited to employment-population ratios and unemployment rates. We will not address the subject of labor force participation (the ratio of the sum of employment and unemployment to population) or the numbers employed or unemployed. However, it should be noted that because the longitudinal surveys estimate a higher labor force participation than the CPS in all instances, even if there were no differences in unemployment rates between surveys, the estimated *number* of unemployed youth would still be substantially higher in the longitudinal surveys. Analysts might justifiably attach importance to this fact.

The class of 1972

The survey of 1972 high school graduates, supported by the National Center for Education Statistics with data collection and sample design by the Research Triangle Institute, is different in important respects from other data sources on youth. The primary purpose of the survey was to collect data on the educational and vocational activities, aspirations, and attitudes of young people after leaving high school.[2] This purpose in itself may introduce nontrivial methodological differences between the class of 1972 survey and the CPS.

The class of 1972 survey was a stratified two-stage probability sample; high schools were the first-stage units and students, the second-stage units. The initial design called for 1,200 sample schools—with an oversampling of schools in areas with relatively high concentrations of minorities and in low income areas— and up to 18 randomly selected students per school (plus five alternates). The base-year survey, which did not collect labor force information, was conducted in April and May of 1972, with an initial school nonresponse rate of 17 percent. Nonresponding schools were recontacted in 1973, resulting in students from 1,153 of the 1,200 sample schools being selected as potential sample members for the first follow-up survey. The overall sample consisted of about 23,000 persons,

although the analysis presented here is based on a subset of that sample.

The first follow-up survey was conducted largely by a mail questionnaire in late 1973 and early 1974. Subsequent follow-up questionnaires were mailed to sample members in October 1974 and October 1976. Each questionnaire contained a series of questions about the respondent's labor force status; the 1973 and 1976 installments also requested information on labor force activity in October 1972 and October 1975. The use of mail data collection is an important methodological divergence from the CPS, which is based on interviews.

The first class of 1972 follow-up questionnaire (1973) consisted of five major sections. Civilian work experience information was elicited *following* a series of questions probing respondents' future expectations and aspirations and past and current education and training experience. The CPS, in contrast, is primarily concerned with collecting data on current labor force status; only a few basic demographic and income questions are asked before determining labor force status. Again, such variations in survey purpose and questionnaire design alone may result in different responses to seemingly equivalent questions.

A recent analysis has shown that the addition of supplemental questions to the main questionnaire of a survey, and often-subtle differences in interview techniques each had a rather significant impact on the results. For example, analysis of data on crime victimization rates from the National Crime Survey showed that the addition of a series of attitudinal questions—opinions of police, crime trends, and so forth—asked of respondents before eliciting responses to victimization questions led to significantly higher estimates of victimization rates than if the supplemental questions had not been posed.[3] According to the authors of this report, if the explanation for this result is that the additional questions stimulate both recall and the respondents' desire to be accommodating and responsive to what they perceive to be the goal of the survey, incidents—both real and fabricated—may be reported that do not fall within the survey reference period. This leads to an undesirable response bias. Obviously, survey analysts cannot ignore the interaction of questions on respondents when accounting for differences in survey results.

All of the class of 1972 survey data were gathered retrospectively and, in fact, the bulk of the data *relating to 1972* were collected between October 1973 and April 1974. This might lead one to suspect that respondents would have some difficulty in remembering their 1972 activities after a year or more had elapsed. Although the potential for recall error in the measure of labor force activity for October 1972 seems obvious, the direction of the error is not clear *a priori.* However, considerable evidence from a CPS Methods Test conducted

between July 1966 and February 1967 indicated that recall biases in labor force classification were "quite high, and at an unacceptable level of quality,"[4] and that they generally resulted in higher estimates of employment and lower estimates of unemployment. Moreover, test results suggested that errors in labor force classification due to recall problems were far more serious than any errors due to nonself reporting.

In addition to procedural differences, there were also important conceptual differences in the labor force questions asked in the 1972-based survey and the CPS. First, the class of 1972 questions were retrospective. Second, the 1972 information referred to an entire month, the CPS examines a reference week. And third, the class of 1972 job-search question did not ask about specific job-seeking activities or about availability for work, unlike the CPS. Such differences might contribute to differing results between the two studies.

The class of 1972 data for 1973 and 1974 were collected over a somewhat shorter period. The labor force questions were also different in that they referred only to the first week in October. Because of fewer recall problems and the use of a specific reference week, one might expect the labor force estimates for 1973 and 1974 to show less divergence from the CPS.

A comparison of CPS measures with the unweighted counts from the 1972-based survey data for males not in school or in the military appeared in a recent paper by Robert Myer and David Wise. (See table 1.) For 1972, the class of 1972 data show both more employment and less unemployment than the CPS, which is to be expected, given possible recall problems and the month-long reference period. Differences by race—especially in employment-population ratios—are reasonably similar. Moreover, the survey differences in 1972 are

Table 1. The labor force activity of male high school graduates: a comparison of the National Longitudinal Study of the High School Class of 1972 and the CPS by race, October 1972-74

Category	Year and survey					
	1972		1973		1974	
	NLS72	CPS	NLS72	CPS	NLS72	CPS
White men						
Labor force participation rate .	92.9	91.6	94.6	¹92.2	96.9	96.0
Employment-population ratio ..	88.0	¹81.5	91.4	¹86.8	91.6	¹86.6
Unemployment rate	5.4	¹11.0	3.5	5.9	7.9	9.8
Black and other men						
Labor force participation rate .	90.2	88.0	92.8	94.0	96.5	94.7
Employment-population ratio ..	78.4	68.0	86.0	78.3	84.0	80.5
Unemployment rate	13.0	22.7	7.3	16.7	15.5	15.0

¹ NLS72-CPS difference is statistically significant at the 95-percent confidence level.

Note: Data refer to those not currently enrolled in school and not in the military.

Source: Class of 1972 data are from Robert H. Myer and David A. Wise, "High School Preparation and Early Labor Market Experience," paper presented at the National Bureau of Economic Research Conference on Youth Joblessness, May 17 and 18, 1979, table 1, p. 9. CPS data for 1972 are from *Employment of High School Graduates and Dropouts, October 1972*, Special Labor Force Report 155, (Bureau of Labor Statistics, 1973). CPS data for 1973 and 1974 are based on unpublished tabulations from the October surveys.

statistically significant only for the employment ratio and unemployment rate of white males.[5] The survey differences are less—considerably so among black men—in the subsequent 2 years. However, class of 1972 estimates of employment-population ratios are in all cases qualitatively higher than in the CPS.

Myer and Wise, as well as others, have attributed the discrepancy between the surveys to the fact that youth responded for themselves in the class of 1972 survey, whereas any responsible household member (typically an adult) responds to CPS questions.[6] The implication is that substantially more accurate information is obtained from self-respondents. However, there is very little evidence to support this proposition. The fact that the differences, at least for minorities, narrowed over time itself raises questions about the relative importance of the self-response hypothesis. And, previously cited results from the 1966–67 CPS Methods Test also suggest that errors in labor force classification due to respondent recall problems might be far more serious than those caused by nonself reporting.

More likely explanations for the discrepancies lie in the important methodological and conceptual differences between the two surveys: different sampling techniques; the long 1972-based survey mail questionnaire; and the fact that class of 1972 observations for 1972 relied on retrospective questions which referred to an entire month rather than a specific week. Comparisons of class of 1972 measures of youth labor force activity with those from the CPS may in fact be unwarranted; at the very least, great caution is necessary given the large methodological differences between the surveys, and the probable effect of recall bias on 1972-based survey results.

The first National Longitudinal Survey

.*Survey design.* The 1966 National Longitudinal Survey (NLS) survey included roughly 5,000 individuals in each of four age cohorts: young men 14 to 24 in 1966; young women 14 to 24 in 1968; women 30 to 44 in 1967; and men 45 to 59 in 1966. The original samples were drawn by the Census Bureau in a multi-stage screening procedure, with blacks oversampled to ensure a sufficient sample size for analysis. Personal interviews were conducted between 1966 and 1971, and telephone interviews were generally used after 1971. The data underlying the following analysis relate to 1966–73.

The standard set of CPS current labor force status questions was used to determine whether individuals were employed, unemployed, or not in the labor force. Like the class of 1972 study, however, the 1966 survey was designed to obtain information about a much wider range of subjects, including education and training, goals, and knowledge of the world of work. Labor force questions were asked following those on education, and training and educational goals. Again, such design pe-

culiarities may well affect respondents' answers; in particular, the earlier questions could increase recall of labor force experience, although to what degree is uncertain.

In the 1966-based survey, each individual described her or his own labor force status. As in the case of the class of 1972-CPS discrepancies, it has been argued that "a very substantial portion of the CPS-NLS differences in the estimated probability that a teenage male is employed seems to be explicable by the fact that the CPS relies on proxy respondents while the NLS does not."[7]

However, other differences between the two surveys should also be noted. First, the 1966-based survey—properly weighted—was an unbiased sample of the population only at the time of the first interview. Because of attrition, the "best" comparisons with the CPS may be for the first year that data were collected.[8] Second, young people in the Armed Forces or institutionalized at the time the NLS sample was drawn were excluded from the sample forever, but this is not true of the CPS. Third, the earliest NLS relied on personal interviews, whereas telephone interviewing is used extensively in the CPS. And finally, the interviewers for each survey may have had varying experience and training.

Observed measurement differences. Table 2 presents comparable measures of youth labor force activity from the CPS and the first NLS. Both the NLS and CPS data are weighted to national population counts.

The raw data in table 2 have been cited as evidence that there is significantly higher work activity among all youth, and that racial differences among men in the probability of being employed are much smaller than previously estimated in the CPS. Inter-survey variations in male unemployment rates follow no clear pattern, and in all but two instances the differences are not statistically significant.[9] The 1966-based unemployment rates for women are usually higher than the CPS estimates, but rarely are the differences statistically significant. Because the discrepancies between unemployment rates generally do not appear to be meaningful, subsequent analysis concentrates on employment figures. (As noted previously, however, because the NLS estimated labor force participation rate is higher than that from the CPS, the NLS estimated number unemployed also is greater.)

Examination of the employment-population ratios in table 2 confirms the fact that the 1966-based measures are always higher than those calculated from the CPS. In fact, over the entire set of years for which data for men are available, the average differences are statistically significant. The same is true for women, except for whites 18 to 19 years of age and blacks age 20 to 24. Some importance might well be attached to these dif-

Table 2. 1966-based NLS and CPS employment-population ratios and unemployment rates by race, sex, and age, 1966-73

Category	Employment-population ratio		Unemployment rate		Category	Employment-population ratio		Unemployment rate	
	NLS	CPS	NLS	CPS		NLS	CPS	NLS	CPS
White men					**White women**				
16 to 17 years:					16 to 17 years:				
1966	48.4	'37.6	18.6	'10.0	1968	31.6	'24.4	22.0	14.2
1967	45.6	'36.7	18.7	14.4	1969	36.3	'24.2	19.7	'8.5
Average	47.0	'37.1	18.6	'12.2	Average	34.0	'24.3	20.8	'11.5
18 to 19 years:					18 to 19 years:				
1966	64.1	'55.1	9.1	8.8	1968	47.0	46.0	13.5	10.3
1967	62.8	56.7	10.3	10.6	1969	49.2	43.9	11.5	8.8
1968	64.6	'55.7	7.9	7.5	1970	45.8	41.1	17.9	'10.4
1969	61.2	56.8	12.5	7.6	1971	50.2	45.2	14.8	14.4
Average	63.1	'55.2	10.0	8.6	Average	48.1	45.2	14.5	11.1
20 to 24 years:					20 to 24 years:				
1966	83.1	79.1	3.1	3.8	1968	52.8	50.0	9.6	7.1
1967	81.8	78.0	3.2	4.0	1969	55.7	'51.6	7.7	5.9
1968	79.7	76.5	3.4	4.1	1970	59.2	'53.4	8.1	7.2
1969	80.8	'76.7	4.6	4.5	1971	56.3	'51.9	8.8	8.8
1970	78.2	75.0	7.4	8.8	1972	57.0	'53.0	9.7	8.1
1971	80.5	'74.1	8.0	9.3	1973	61.0	'56.2	7.0	7.1
Average	80.5	'76.4	5.2	6.0	Average	57.1	'52.8	8.5	7.4
Black and other men					**Black and other women**				
16 to 17 years:					16 to 17 years:				
1966	43.0	'28.2	26.2	19.8	1968	24.9	'12.3	26.7	32.5
1967	40.6	'26.2	29.8	28.8	1969	21.3	'12.4	40.4	33.6
Average	41.7	'27.2	28.0	24.4	Average	23.0	'12.3	33.7	31.7
18 to 19 years:					18 to 19 years:				
1966	58.5	47.7	20.9	16.5	1968	44.3	34.4	24.9	21.4
1967	59.7	'47.0	19.4	21.7	1969	42.2	'31.4	25.2	24.7
1968	61.7	'45.6	13.5	20.3	1970	38.6	29.1	29.2	25.1
1969	59.0	52.6	16.9	19.0	1971	34.5	'21.6	33.9	36.1
Average	59.6	'48.4	17.8	19.4	Average	39.7	'28.9	26.5	26.2
20 to 24 years:					20 to 24 years:				
1966	89.9	82.3	3.5	7.3	1968	52.6	46.8	17.3	11.4
1967	84.8	'76.9	7.8	10.3	1969	55.0	53.3	12.8	7.8
1968	84.5	79.0	3.7	6.7	1970	52.9	49.1	15.4	14.0
1969	78.1	78.2	8.7	7.7	1971	51.0	45.9	17.7	18.3
1970	75.1	69.0	14.6	15.0	1972	50.6	49.9	18.9	16.4
1971	75.3	69.5	13.2	13.0	1973	52.2	46.4	15.7	18.3
Average	80.6	'75.2	9.1	10.1	Average	52.3	47.8	16.4	14.6

' NLS-CPS difference is statistically significant at the 95-percent confidence level.

NOTE: Data for men refer to November of each year. Data for women refer to February of each year, except in 1969 when the data refer to January.

SOURCE: The 1966-based NLS data for men are from Richard Freeman and James Medoff, "Why Does the Rate of Youth Labor Force Activity Differ Across Surveys?" in *The Youth Unemployment Problem: It's Nature, Causes, and Consequences*, (Chicago, University of Chicago Press, forthcoming). Data for women were provided by Michael Borus of the Center for Human Resource Research, Ohio State University.

ferences in employment ratio estimates between the two surveys.

When the individual yearly observations are compared, only about one-half of the differences are statistically significant at the 95-percent confidence level.[10] Such results again suggest that analysts should be cautious about drawing conclusions based on raw differences in labor force measures across surveys. However, the differences for both men and women in the youngest age group are statistically significant and quite large, a pattern we shall also see repeated in the 1979-based NLS.

Reporting accuracy. Could CPS nonself reporting be the cause of NLS-CPS differences? Among white men and black men, where data exist for all three age groups, the survey differences appear to narrow by age: in 1966, the differences (NLS minus CPS) among whites were 10.8 percentage points for ages 16 to 17, 9.0 points for ages 18 to 19, and 4.0 points for ages 20 to 24. For blacks, the differences were 14.8, 10.8, and 7.6 points, respectively.

Why do the differences in survey observations narrow by age, when CPS proxy respondents might be expected to know less about the activities of their older sons as they begin to break away from the family? It might be argued that the probability of male self-response in the CPS increases with age, but there is no evidence that this is the case; indeed, the higher employment ratios of older men imply a lower probability of self-response, because they are less likely to be at home at the time of the interview.[11] Among black women the survey discrepancies also narrow by age. In 1968, for example, the differences were 12.6 percentage points, 9.9 points, and 5.8 points, respectively, for the three age groups. This is consistent with the self-response hypothesis because the likelihood of women responding for themselves in the CPS is not only higher than that for men, but also greater for older women, who are less likely to be in school, than for women age 16 to 19. However, the fact that there is no consistent reduction in the survey differences by age among white women seems difficult to reconcile with the self-response explanation.

Given that the survey differences seem to be especial-

ly pronounced among those age 16 to 17, it is tempting to hypothesize that their employment activity and job-seeking behavior is so casual, intermittent, and marginal that their parents, who are likely to be the CPS respondents, may be unaware of it. In both the CPS and the 1966-based NLS, weekly hours worked by those age 16 to 17 are substantially lower than the hours worked by older youth.

However, while the hypothesis that youth labor market activity is casual, and hence not likely to be known to or considered important by a parent, may have some relevance for job search data, it is more difficult to reconcile with the facts about youth employment. In both the NLS and CPS, weekly hours worked averaged about 20 for men and 15 for women. While this is not an extensive average workweek, one must wonder if parents would be completely unaware of that level of employment activity on the part of their children.[12]

The problem may not be lack of parental knowledge. Instead, there could be honest differences between youths' and parents' perceptions of what constitutes employment. Adults, accustomed to the concept of a "9 to 5" job, may overlook the sporadic casual jobs held by their children. However, such perceptions may not be confined to adults; some young people may have similar beliefs about what a real job is.

While there is currently no solid proof for either proposition, it would be hazardous to neglect the possibility. Thus, the critical question does not simply involve self versus nonself reporting, but also the perceptions held by proxy respondents about the activities of their children; how these perceptions interact with the wording and design of the labor force questions; and the "correctness" of these perceptions in accurately accounting for labor market activity. Similar questions must, of course, be raised concerning the youths' responses.

In the context of the hypothesis about lack of parental knowledge, it is possible that the distribution of reported hours worked in the two surveys is such that a large part of the difference might be found among those with very few hours worked. Currently, however, there is no evidence for or against this proposition. More detailed information is required concerning respondents' interpretations of labor force questions and especially about their perceptions of what it means to be "legitimately" employed. Again, the reasons for significant inter-survey differences may be substantially more complex than the simple self-response hypothesis suggests.

The "parental lack of knowledge" hypothesis should most closely fit the data for those age 18 to 19, because the CPS counts unmarried persons living away from home while attending college as members of their parents' households. The labor force data for these youth are obtained from their parents who may simply be un-aware of their children's labor force activity. However, among 16- and 17-year-olds—where inter-survey differences are more apparent—this should not be a factor, these youth being less likely to attend school away from home.

Diminishing differences. Within a few of the age groups, the differences in male employment ratios between the two surveys decline, often considerably, over time. For example, among black men age 18 to 19, the differences go from 12.7 to 6.4 percentage points between 1967 and 1969, and the difference in 1969 is not statistically significant. While it is hazardous to speak of trends in these measures, this apparent narrowing of differences is interesting. To provide robust support for the simple self-response hypothesis as a major explanation for inter-survey differences, one would have to show that the probability of self-response in the CPS increased for young people (especially those age 18 to 19) over these periods. Alternatively, one might argue that the knowledge of proxy respondents about young people's labor force activity had increased. There is no evidence for or against either of these positions. The results may reflect the well-known phenomenon of respondent conditioning as a result of repeated NLS yearly interviews. But it should be noted again that the 1966-based NLS is an un-biased sample of the population only in the first year, and attrition and other problems make strong conclusions based on later estimates difficult.

The data for women reveal a somewhat different story. Especially among whites, the survey discrepancies do not decline over time; in fact, they show some tendency to increase moderately. This is not readily explicable. There is no evidence that the probability of self-response in the CPS declined for young white women between 1968 and 1973. However, the secular increase in female employment since the late 1960's might be cited as indirect evidence of a decline in the probability of self-response, employed women being less likely to be at home when the CPS enumerator calls. Currently, there are no data available to support or reject this possibility.

The narrowing of inter-survey differences is most apparent when youths are followed as they mature. If one traces the NLS-CPS differences for 16- to 17-year-olds in 1967, 18- to 19-year-olds in 1969, and 20- to 24-year-olds in 1970 and 1971, the decline in the survey differences is more visible. Among black men, for example, the differences range from 14.4 percentage points in 1967, to 6.4 points in 1969, and to 5.9 points in 1971. And among white women, the discrepancies fall from 7.2 percentage points (1968), to 4.7 points (1970), and finally to 4.0 points (1972).

This pattern is consistent with what little we understand about the conditioning effect of repeated inter-

views on people's responses to questions, but a range of alternative explanations exists. For example, it is possible that, as youths mature, their employment experience tends to be less marginal and less intermittent. Thus, they have more activity to report, and other family members know more about the activity or attach more weight to it. A test of this hypothesis would require very detailed information not only about the work experience and job-seeking activities of youth, but also about the objective knowledge and subjective perceptions family members have about the labor market activity of their sons and daughters. If this "marginality" hypothesis is valid, however, it does raise the question of the importance of the survey differences. Would measuring a bit more marginal activity warrant a major reevaluation of current analyses of youth employment problems?

Better match with some CPS panels. We have seen that some aspects of the data are difficult to reconcile with the self-response hypothesis, and have presented other explanations which, while plausible, are difficult to test. One methodological factor which may have unduly complicated the analysis is that, up to this point, the CPS data have been based on the full rotation panel— each household is in the sample 4 months, out for 8 months, and back in for 4 months.

Theoretically, each CPS rotation panel is a representative sample of the population, and, therefore, should have the same general labor force characteristics. The fact that each monthly panel consistently yields different labor force estimates—with the reported incidence of employment and unemployment higher in the first and fifth panels than in the others—has been attributed to "rotation group bias," a feature of all panel surveys.[13] The causes of this "bias" are thought to be several, including the effects of respondent conditioning from repeated monthly interviews, possible change in demographic composition of the sample across rotation groups,[14] and the fact that the household respondent may differ from month to month.

Because the NLS is based on yearly interviews, it may be more appropriate to analyze inter-survey differences using data from the CPS first- and fifth-month-in-sample panels. Like the 1966-based NLS, labor force information from the CPS first and fifth rotation panels is obtained primarily by personal visit, which controls for another possible methodological difference between the surveys. A disadvantage is that the sample sizes are reduced considerably. And, of course, this does not necessarily imply that the first and fifth CPS panels yield the most accurate labor force data.

Table 3 presents employment-population ratios and unemployment rates for selected age groups from the CPS first and fifth rotation groups. (Rotation group data by race are not available.) Especially among men age 18 to 19, the NLS-CPS employment differences narrowed considerably.

In fact, the NLS-CPS differences in employment-population ratios among men are statistically significant only twice in the first rotation panel and three times in the fifth group. For men age 18 to 24, the average survey differences in employment estimates using the first rotation panel are insignificant; for the fifth panel the average differences are marginally significant only for men age 20 to 24. However, among men age 16 to 17, the employment ratio differences remain statistically significant. Unemployment rates are never much different. Among women age 18 to 19, the employment-population estimates also tend to be somewhat higher in the first and fifth rotation group compared to the full CPS. And for this age group there are no significant differences between the surveys. Among women age 20 to 24, however, the survey differences in employment are not reduced when one examines specific rotation groups. Again, for women age 16 to 17, the survey discrepancies remain quite large and statistically significant.

Table 3. Employment-population ratios and unemployment rates by sex and age: a comparison of the 1966-based NLS with the CPS first-month and fifth-month panels, and the full CPS, 1967–73

Category	Employment-population ratio				Unemployment rate			
	NLS	CPS first-month panel	CPS fifth-month panel	Full CPS	NLS	CPS first-month panel	CPS fifth-month panel	Full CPS
Men								
16 to 17 years:								
1967	44.9	¹34.3	38.1	¹35.2	20.3	24.6	13.3	¹11.1
18 to 19 years:								
1967	62.3	57.0	52.9	¹52.3	11.6	9.2	16.2	12.1
1968	64.2	60.3	50.9	¹54.3	8.7	10.9	11.1	9.2
1969	60.9	61.3	60.3	56.3	13.1	8.3	9.1	9.2
Average	62.5	59.5	54.8	¹54.3	11.1	9.5	12.1	10.1
20 to 24 years:								
1967	82.1	77.6	80.2	77.8	3.8	5.1	3.5	4.8
1968	80.3	75.5	¹73.8	76.8	3.5	5.0	8.6	4.4
1969	80.4	80.1	80.4	76.9	5.1	4.0	3.7	4.9
1970	77.9	76.2	73.0	74.3	8.3	9.9	9.8	9.5
1971	79.9	¹73.1	¹70.9	¹73.5	8.6	10.5	11.1	9.8
Average	80.0	76.4	¹75.4	¹75.7	6.1	7.1	7.5	6.9
Women								
16 to 17 years:								
1968	30.6	24.5	24.3	¹22.7	22.6	29.9	17.9	15.9
1969	34.2	¹22.8	¹22.8	¹22.6	22.0	18.3	17.6	¹11.0
Average	32.3	¹23.7	¹23.5	¹22.6	22.2	25.0	18.0	¹13.4
18 to 19 years:								
1968	46.6	43.6	45.5	44.4	15.1	17.9	10.9	11.6
1969	48.2	40.6	44.8	42.2	13.4	13.8	12.6	10.7
1970	44.8	47.3	45.5	43.6	19.4	18.0	¹10.7	¹12.0
1971	48.0	46.5	43.0	41.9	17.2	14.9	16.2	16.4
Average	46.9	44.4	44.7	43.0	16.3	16.2	12.9	¹12.8
20 to 24 years:								
1968	52.8	50.9	51.2	49.6	10.6	10.0	7.7	7.6
1969	55.6	51.1	55.5	51.8	8.4	9.8	8.2	6.1
1970	58.4	¹52.5	¹51.2	¹52.8	9.0	8.4	9.1	8.1
1971	55.6	50.0	¹48.9	¹51.1	10.0	12.7	11.5	10.0
1972	56.2	51.4	53.6	¹52.1	10.9	11.9	7.8	9.1
1973	59.8	¹53.3	¹54.5	¹54.8	8.1	11.0	10.8	8.5
Average	56.5	¹51.6	52.6	¹52.2	9.5	10.7	9.2	8.3

¹ NLS-CPS difference is statistically significant at the 95-percent confidence level.

Note: CPS data for men refer to November of each year. CPS data for women refer to February of each year, except in 1969 when the data refer to January.

The largest "rotation group" effect for women is, quite clearly, on estimates of unemployment. In fact, the unemployment rates for the first-month panel are not only quite a bit higher than those for the full CPS, but are often greater than the NLS measures; none of the NLS-CPS differences is statistically significant. On average, the unemployment rate differences for women 16 to 19 are significant when comparisons are made between the 1966-based NLS and the full CPS, but are not significant when comparisons are limited to the first and fifth CPS panels.

The data in table 3, which reflect an attempt to control for some of the methodological differences between the surveys (except for the self-response difference), do challenge strong conclusions about the relative importance of self versus proxy response in the collection of youth labor force data. A number of other factors of equal or greater importance may be involved, including the effects of rotation group bias on CPS measurements of current labor force status.

Major activity affects comparisons. Table 4 shows data for youth age 16 to 21 in 1967 or 1968 by their "major activity," race, and sex. These data suggest that the inter-survey variations in employment-population ratios for young men are substantially dependent upon their major activity. Even though the employment ratio differences are also statistically significant for men whose major activity is "other," the absolute magnitude of the discrepancies is much less than among those in school. Consistent with previous observations, unemployment rates among the men are less likely to be statistically different. The fact that measured unemployment is generally higher than CPS estimates in the NLS "school" group and lower in the "other" group is not readily explicable. Again, it may be that parents do not know about the job search activity of their children in school, or do not think it relevant. Interestingly, the inter-survey differences in female employment-population ratios tend to be a little different regardless of major activity classification.

From their analysis of the data for men, Richard Freeman and James Medoff concluded that "much of the differences between the surveys occur among those who are going to school and those who have a more marginal commitment to the work force."[15] Data from table 4 appear to support this conclusion. CPS measures also show that young men in school work substantially fewer hours than others. In 1979, average hours worked were 16.5 for those attending school, versus 35.5 for those whose major activity was "other." However, confirmation that the labor force status of the very young is marginal and therefore more difficult to measure precisely in a monthly survey like the CPS which relies on a household respondent would require more detailed in-

Table 4. 1966-based NLS and CPS employment-population ratios, and unemployment rates of youth age 16 to 21 by race, sex, and major activity, 1967 or 1968				
Category	Employment-population ratio		Unemployment rate	
	NLS	CPS	NLS	CPS
Men				
Major activity:				
School 1967	44.2	¹31.7	17.1	13.1
Other 1967	89.3	¹82.1	4.8	¹10.2
White men				
Major activity:				
School 1967	46.2	¹33.0	15.4	11.9
Other 1967	89.0	¹83.8	3.9	¹8.5
Black and other men				
Major activity:				
School 1967	37.0	¹21.6	31.7	25.2
Other 1967	83.1	¹73.1	9.9	¹18.9
Women				
Major activity:				
School 1968	28.3	23.8	19.7	12.2
Other 1968	56.1	55.1	13.4	11.4
White women				
Major activity:				
School 1968	27.9	25.4	19.4	¹10.9
Other 1968	60.1	56.7	12.0	10.3
Black and other women				
Major activity:				
School 1968	25.4	¹11.8	24.3	28.4
Other 1968	48.0	45.4	24.1	19.4

¹ NLS-CPS difference is statistically significant at the 95-percent confidence level.

NOTE: Data refer to November for men and February for women.

SOURCE: This table was derived from data presented in Michael Borus and others, "Counting Youth: A Comparison of Youth Labor Force Statistics in the Current Population Survey and the National Longitudinal Survey," in *Conference Report on Youth Unemployment: Its Measurement and Meaning* (U.S. Department of Labor, 1978), tables 3 and 4, and unpublished data on the proportion of the NLS sample whose major activity is "school" and "other" provided by Gilbert Nestel of the Center for Human Resource Research at Ohio State University.

formation on the kinds of jobs the young men held, their hours worked, and wages.

In fact, some might ask how parents may truly be unaware that their sons are working 16 hours per week. It is possible, of course, that the distribution of hours worked is such that the inter-survey differences are greatest among those youth who work very few hours (less than 10, for example) at odd jobs, but we have no direct information about this. If hours worked per week are minimal, parents may honestly be unaware of their sons' activity or even less inclined to view it as "real" work. However, testing such a proposition would be very difficult.

Among women, the survey differences for employment are much smaller than for men and are statistically significant but once. According to Camilla Brooks and Barbara Bailar, women have a much higher probability of being interviewed for themselves in the CPS. They also note, however, that "groups which are largely responded for by proxies are . . . young men and women in school."[16] Thus, support for the self versus proxy response hypothesis is not so clear-cut. Unemployment rates for white women whose major activity is school are significantly higher in the 1966-based NLS. This ob-

servation is consistent with some versions of the self-response hypothesis which have as components the knowledge and perceptions of parents concerning youth job search, but once again there may be alternative explanations.

Table 5, which is taken from a paper by Freeman and Medoff, compares the labor force activity of men age 20 to 24 by family status, to test the contention that a survey based on self-response will provide a more accurate—or, at least, a different—measure of the activity of those who are probably most likely to be marginally attached to the labor market. According to the authors, if this hypothesis is true, differences between the surveys should be greater among other household members than among those who maintain families. The data do not provide any solid evidence for these conjectures. None of the survey differences is statistically significant, although the raw differences are somewhat larger for other household members.

A corollary hypothesis is that the labor force activity of male "household heads" in the CPS is more likely to be self-reported, which would presumably account for the small measurement differences among men who maintain families. There exists no direct evidence for or against this explanation either. Indeed, the probability of self-response by men who maintain families might be less than for others; because they are more likely to be working, such persons are often not at home when the CPS enumerator calls. Of course, if the activity of other household members is marginal, while that of "household heads" is substantive, there may be a greater likelihood that the labor market activity of "heads" is considered work by everyone in the family. This would account for the somewhat smaller raw differences observed for those who maintain families, but again this conjecture is not supported empirically, and goes considerably beyond the issue of who responds to a structured set of labor force questions.

Tentative conclusions. This examination of the 1966-based NLS and CPS leads to certain tentative conclusions. First, focusing on raw differences between surveys is inadequate; in many instances the differences are not statistically significant, especially when the more appropriate first and fifth CPS rotation panels are compared to the NLS data. However, because of small sample sizes, the test for statistical significance must itself be carefully interpreted. And the fact that the NLS employment estimates are consistently higher than CPS measures lends some weight to the survey differences.

Second, the largest inter-survey differences occur among the very young and those whose major activity is attending school. This may mean that the NLS measures slightly more marginal labor force activity than does the CPS. However, at the level of aggregation of this analysis, this is but a tentative conjecture.

Third, while the self-response hypothesis of inter-survey variations cannot be rejected out of hand, explanations for any real differences in the survey measures appear to be much more complicated. In particular, we must admit the possibility of differing perceptions between parents and their children about what constitutes "real" work and account for the interaction of these perceptions with the content and interpretation of labor force questions. Therefore, unless one is content with a "proxy" explanation, it is necessary to look beyond the identity of survey respondents for the reasons underlying inter-survey differences. Fourth, the discrepancies between surveys do not appear to be of such substantive importance that they warrant a major reassessment of the employment problems of youth, especially black youth. Any conclusion to the contrary would necessitate a leap of faith from aggregate data to causal inference—almost certainly an unwarranted jump. And finally, there are differences between the surveys other than type of respondent, such as overall questionnaire design and length, which cannot be overlooked.

The newest NLS

Recently a new 5-year youth-specific longitudinal survey was undertaken. The 1979-based NLS is a sample study of about 12,700 youth (including a military subsample), born in calendar years 1957 through 1964. The sample design and data collection are conducted by the National Opinion Research Center at the University of Chicago, and the questionnaire design and data analysis are the responsibility of the Center for Human Resource Research at Ohio State. This NLS sample represents a basic cross-section of the Nation's youth, augmented by independently drawn subsamples of black, Hispanic, and non-black, non-Hispanic poor youth.

The information elicited ranges from current labor force status (the usual CPS labor force questions) to educational and work experience, earnings, family back-

Table 5. The 1966-based NLS and CPS estimates of the labor force activity of men age 20 to 24 by family status

Category	NLS	CPS
Men who maintain families		
Labor force participation rate	93.2	94.0
Employment-population ratio	91.9	91.3
Unemployment rate	1.3	2.7
Other men		
Labor force participation rate	73.0	68.5
Employment-population ratio	68.3	63.0
Unemployment rate	4.7	5.5

NOTE: Although the NLS sample was weighted for age in order to facilitate comparisons with the CPS data, there is still a difference between the two sets of figures. Whereas both sets of data refer to the survey week, the NLS data refer to the fall of 1968, and the CPS data refer to March 1969.

SOURCE: Richard Freeman and James Medoff, "Why Does the Rate of Youth Labor Force Activity Differ Across Surveys?" in *The Youth Unemployment Problem: Its Nature, Causes, and Consequences* (Chicago, University of Chicago Press, forthcoming).

ground, aspirations and expectations, and so forth. As a result, the questionnaire is quite long (22 sections in all), and the current labor force status questions follow those concerning family background, schooling, knowledge of and experience in the world of work, and others. All interviews are conducted directly with the youth by personal visit. Thus, in many methodological respects, the newest NLS is similar to the 1966-based NLS.

Preliminary data for the first year of the study have been released.[17] But because analysis of the weighting procedures and estimates of standard errors are still being developed, the following discussion of inter-survey variations is necessarily qualitative and brief, and does not provide information about the statistical significance of any differences.[18]

The great majority of 1979-based interviews occurred between February and May 1979, with the modal month—March—accounting for about 44 percent of the contacts. Therefore, most of the tables presented here compare results of the full CPS for March with NLS data from interviews conducted between February and May.

Employment. A quick perusal of the employment data in tables 6 and 7 suggests the following: First, employment-population ratios are always higher in the NLS than in the CPS. Second, variations between the surveys are slightly larger for men than for women. Third, inter-survey differences narrow considerably by age for all groups. And finally, when youth are classified by major activity, the differences occur almost entirely among those whose major activity is attending school.

In many respects, these comparisons are similar to those between the 1966-based NLS and the CPS. However, there are also some notable differences. For example, among black men age 16 to 19, the magnitude of the inter-survey employment variation is somewhat less in 1979 (table 6) than in 1967 (table 2), especially for those age 18 to 19 (12.7 percentage points in 1967 versus 6.5 points in 1979). For white men and all men, the magnitudes of the discrepancies are fairly similar between the 2 years.

More perspective may be gleaned by comparing tables 4 and 7. Except for white women, the employment differences for the "major activity-school" group—the area in which the most pronounced inter-survey discrepancies had existed—are considerably less in 1979. This apparent narrowing of the differences raises disconcerting questions, in particular concerning the relative importance of the self-response hypothesis, because there is no evidence that the probability of self-response in the CPS has increased over time for these groups of young people. More information than is currently available would be required to address this issue.

Table 6. The 1979-based NLS and CPS employment-population ratios and unemployment rates for youth age 16 to 21 by race, sex, and age, March 1979				
Category	Employment-population ratio		Unemployment rate	
	NLS	CPS	NLS	CPS
Men				
16 to 17 years	45.6	36.7	28.3	21.9
18 to 19 years	65.3	58.4	15.5	14.3
20 to 21 years	74.1	69.2	10.4	10.8
White men[1]				
16 to 17 years	48.5	40.4	24.6	19.6
18 to 19 years	68.0	61.3	12.8	12.6
20 to 21 years	75.3	70.9	8.7	8.9
Black men[2]				
16 to 17 years	27.4	16.5	53.8	43.5
18 to 19 years	47.4	40.9	34.6	27.0
20 to 21 years	62.8	58.2	23.4	23.2
Women				
16 to 17 years	41.5	34.5	29.6	18.1
18 to 19 years	56.4	51.6	20.9	13.0
20 to 21 years	61.4	59.3	14.8	10.5
White women[1]				
16 to 17 years	44.6	38.4	26.5	16.2
18 to 19 years	59.4	55.5	18.0	11.4
20 to 21 years	63.8	62.3	12.2	8.5
Black women[2]				
16 to 17 years	21.6	14.5	54.9	37.1
18 to 19 years	38.1	30.9	40.3	26.0
20 to 21 years	45.9	43.1	32.5	24.2

[1] The NLS includes Hispanics and other races in the white category. The CPS includes about 96 percent of Hispanics, but not other races, in the white category.
[2] The NLS excludes other races from the black category. The CPS includes other races and about 4 percent of Hispanics in the black category.

SOURCE: Michael Borus and others, "Pathways to the Future: A Longitudinal Study of Young Americans," *Preliminary Report: Youth and the Labor Market— 1979* (U.S. Department of Labor, 1980), tables 2.2 and 2.6.

Unemployment. The 1979-based NLS unemployment rates are higher—often considerably so—among young men and for all the female age groups than in the CPS. While the inter-survey differences for men age 18 to 21 are very small, NLS unemployment rates for those whose major activity is school tend to be much larger than CPS estimates. The rates for men whose major activity is not school are similar, while there are still some disparities for women.

These results differ substantially from the 1966-based NLS-CPS comparisons, in which unemployment rates, particularly among men, tended to be little different. One appealing hypothesis for some of the 1979-based NLS differences is that CPS data refer to March, whereas the newest NLS includes information gathered between February and May. In May, a large number of youth begin looking for work, although the peak labor force activity does not occur until July. It might be thought, therefore, that this seasonal factor is responsible for some of the results. However, this is not the case; a relatively small number of the 1979 NLS interviews were conducted in May, and respondents counted as unemployed were not concentrated in this month.[19] Why are unemployment rate differences between the 1966-based NLS and the CPS small and seldom significant, and the

1979 NLS-CPS differences very often quite large? Two substantive hypotheses for this apparent anomaly come to mind. First, many students might have been looking for summer or post-graduation jobs during the 1979 NLS interview period (spring 1979). They would have met the CPS job-search criterion for being classified as unemployed, but it is not clear whether they would have met the second criterion, current availability for work.

The second hypothesis takes note of the fact that the 1966-based NLS comparisons with the CPS reflected the more favorable job markets of the late 1960's; during that time it was easier to find a job, so that the relatively larger NLS labor force was "allocated" more to employment than unemployment. But by 1979, secular developments had made it more difficult to find acceptable employment; thus, the higher NLS labor force participation was more concentrated in unemployment. Unfortunately, each of these hypotheses is difficult to test in the absence of very detailed information on the job search activity and other characteristics of unemployed youth. And finally, there are also a few methodological differences between the two NLS surveys that could produce the observed results; for example, different organizations were in charge of survey design and data collection, and interviewers may not have had comparable training.

CPS panels compared. As previously noted, NLS results are probably most appropriately compared with first-month-in-sample CPS data to minimize problems of respondent conditioning and other factors contributing to "rotation group bias." Table 8 presents some limited data for men and women age 16 to 19. As expected, the CPS employment-population ratios for men are higher in the first rotation group and 1979 NLS-CPS discrepancies are considerably smaller than when comparisons are made with the full CPS. Among women, however, the first-month-in-sample employment comparisons result in an increase in the inter-survey variations. Unemployment rate differences tend to narrow substantially, particularly for women, when comparisons are made with the first rotation panel. By no means does this refinement entirely account for the differences between survey measures, but it is clear that rotation group bias cannot be ignored when comparing data across surveys.

Participation questions may affect data. A slight portion of the 1979 NLS-CPS unemployment rate discrepancies may also result from an important inter-survey difference in the labor force questions. The 1979-based NLS asked the complete battery of labor force questions, including those intended to identify the reasons for persons' nonparticipation in the labor force. The CPS first rotation panel is not asked these questions; rather the probing not-in-the-labor-force questions are posed only to the fourth and eighth panels.

Evidence from the CPS indicates that it makes quite a bit of difference whether the questions about current desire for work are asked in the first CPS interview or in subsequent months.[20] For example, between January 1967 and December 1969, the not-in-the-labor-force questions were posed to the first and fifth month panels; the "first month bias" during this time was substantially higher than before or subsequently, especially for reported unemployment and part-time employment among youth. Indeed, during the 1967–69 period, there was an average 20-percent drop between the first-month-to-entire-sample ratio and the corresponding ratio for the second month. Since January 1970, the not-in-the-labor-force questions have been asked only of the fourth and eighth rotation groups.

Census Bureau research strongly supports the hypothesis that inclusion of these questions has a large effect on reported unemployment by rotation group. Following the January 1970 switch, the incidence of unemployment for the first and fifth month in sample fell relative to the other "months in sample," and that for the fourth and eighth months increased. That is, it was found that persons in the latter panels were being reported as unemployed who would have been classified as not in the labor force had they not been asked about current desire for a job and future job-search activity.

Table 7. The 1979-based NLS and CPS employment-population ratios and unemployment rates for youth age 16 to 21 by race, sex, and major activity, March 1979

Category	Employment-population ratio		Unemployment rate	
	NLS	CPS	NLS	CPS
Men				
Major activity:				
School	38.2	29.9	28.0	20.9
Other	80.8	79.2	12.3	12.3
White men [1]				
Major activity:				
School	40.7	32.9	23.7	18.5
Other	83.2	81.7	10.5	10.6
Black men [2]				
Major activity:				
School	22.5	13.8	56.6	42.8
Other	64.6	63.4	26.1	24.1
Women				
Major activity:				
School	36.3	30.4	31.3	17.0
Other	65.4	64.9	16.3	11.6
White women [1]				
Major activity:				
School	38.9	33.5	27.7	15.8
Other	68.1	68.7	14.0	9.5
Black women [2]				
Major activity:				
School	21.7	14.0	54.1	30.0
Other	47.0	44.0	33.7	26.4

[1] See footnote 1, table 6.
[2] See footnote 2, table 6.

SOURCE: Michael Borus and others, "Pathways to the Future: A Longitudinal Study of Young Americans," *Preliminary Report: Youth and the Labor Market—1979* (U.S. Department of Labor, 1980), table 2.7.

Two explanations for this phenomenon have been advanced. First, the probing nature of the not-in-the-labor-force questions may elicit information that conflicts with or is not obtained from the basic CPS questions, and the enumerators consequently change the original responses. And second, CPS household respondents may be conditioned by the additional questions and provide information for other family members differently than if the not-in-the-labor-force questions had not been asked.

Thus, the 1979 NLS battery of labor force questions is somewhat different from that faced by the CPS first-month group. It is unclear what effect these inter-survey design variations might have on NLS estimates, especially because that survey should not reflect any respondent conditioning. However, by making certain very rough assumptions, we may attempt to estimate their impact on the CPS.

The tabulation below shows the observed 1979 annual average unemployment rate for the first rotation group, and a recalculated 1979 unemployment rate which is based on the 1968 "rotation group index." (A rotation group index is simply the value for one rotation group divided by the average value for all rotation groups and multiplied by 100. A rotation group labor force index of 110.0 means that a group's labor force was 10 percent greater than the average.) If it is assumed that any differences between the 1968 and 1979 rotation group indexes are due solely to the procedural change for not-in-the-labor-force questions, the following is an estimate of what the 1979 CPS unemployment rate would have been had the change not been implemented:

	Average unemployment rate during 1979 for first-month CPS panel	
	Reported	*Adjusted by 1968 rotation group indexes*
Men:		
16 to 17 years	19.6	21.0
18 to 19 years	14.3	15.7
Women:		
16 to 17 years	23.3	24.3
18 to 19 years	16.2	17.2

In each case the unemployment rate calculated using the 1968 indexes is higher by at least 1 percentage point. Although this revision procedure is admittedly crude and intended only for illustration, it does show that the possibility of a slight bias in the 1979-based NLS data because of the inclusion of the not-in-the-labor-force questions cannot be ruled out.

In summary, there are some similarities between the 1979 NLS-CPS comparisons and the disparities previously noted between the 1966-based NLS and CPS surveys, but there also appears to have been a shift in the magnitude

Table 8. Employment-population ratios and unemployment rates for youth age 16 to 19 by sex and age: a comparison of the 1979-based NLS and the full CPS with the CPS first-month panel and the weighted average of the CPS first-month panel

Category	Employment-population ratio				Unemployment rate			
	NLS	Full CPS	CPS first-month panel	Weighted average of CPS first-month panel	NLS	Full CPS	CPS first-month panel	Weighted average of CPS first-month panel
Men								
16 to 17 years ...	45.6	36.7	39.3	41.8	28.3	21.9	23.4	21.2
18 to 19 years ...	65.3	58.4	59.6	61.6	15.5	14.3	17.0	15.0
Women								
16 to 17 years ...	41.5	34.5	32.0	33.7	29.6	18.1	22.9	22.8
18 to 19 years ...	56.4	51.6	47.0	50.5	20.9	13.0	18.5	15.9

NOTE: The NLS data are based on interviews conducted between February and May 1979. About one-half of the interviews took place in March. Full CPS and CPS first-month panel data relate to March. The weighted average of the CPS first-month panel relates to the period February through May for the first-month-in-sample; the weights attached to each month are based on the proportion of NLS interviews conducted in each month.

of the differences. In particular there was a slight reduction in employment differences and a large increase in unemployment differences between the two studies for which no empirically verified explanation currently exists. In the future, rigorous examination of the evidence suggested above for the unemployment differences, rotation group bias problems, and interactions of questions on respondents may reveal that the inter-survey differences are slightly narrower than previously thought.

An overview of the findings

A number of findings from this comparative analysis merit emphasis. First, all three longitudinal surveys reveal higher estimates of labor force participation ratios and employment-population ratios than does the CPS. Second, with the important exception of the newest NLS, unemployment rates are little different between studies. Third, raw inter-survey differences are, in many instances, not statistically significant. (However, it should be kept in mind that none of the other surveys was constructed to test CPS youth labor force measures and that because of the relatively small sample sizes large discrepancies must exist between survey measures for statistical significance to be detected.) Fourth, comparisons of the full CPS with other one-time or yearly surveys ignore the problem of rotation group bias, a factor which certainly accounts for some of the inter-survey differences. Fifth, the discrepancies, especially between the CPS and the 1966 and 1979 NLS data, appear to be concentrated among young teenagers and those whose major activity is attending school, perhaps because of the marginal nature of their labor force activity. Again, however, the evidence for this proposition is only suggestive. Sixth, the focus on self versus proxy response as the cause of inter-survey variations probably obscures a number of other important influences that may be pro-

ducing the differences.

Finally, there are important methodological variations between the surveys that almost certainly account for some of the discrepancies. The class of 1972 survey, for example, was undoubtedly subject to serious recall bias, and the differences between the CPS and the 1972-based study narrowed when the length of recall was subsequently reduced. Other critical differences among the surveys include questionnaire design, length, and content. The interaction of these factors with respondents' memory and desire to be accommodative may simply produce an unwanted response bias rather than "better" data, if analysis of results from other surveys is a reliable guide. And the fact that longitudinal surveys are different in purpose from the CPS probably contributes to even more subtle variations in the resulting data.

In this context, it is important to reiterate the distinction between the accuracy of a survey and the reconciliation of inter-survey differences. None of the surveys analyzed in this article has any *a priori* claim to accuracy. And, while we have resolved some aspects of the inter-study discrepancies on methodological and other grounds, unexplained differences remain. □

───── FOOTNOTES ─────

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[1] Michael Borus and others, "Counting Youth: A Comparison of Youth Labor Force Statistics in the Current Population Survey and the National Longitudinal Surveys," in *Conference Report on Youth Unemployment: Its Measurement and Meaning* (U.S. Department of Labor, 1978), pp. 15–34; Michael Borus and others in "Pathways to the Future: A Longitudinal Study of Young Americans," *Preliminary Report: Youth and the Labor Market-1979* (U.S. Department of Labor, 1980); Richard Freeman and James Medoff, "Why Does the Rate of Youth Labor Force Activity Differ Across Surveys?" and Robert H. Myer and David A. Wise, "High School Preparation and Early Labor Market Experience," in *The Youth Unemployment Problem: Its Nature, Causes, and Consequences* (Chicago, University of Chicago Press, forthcoming).

[2] The basic analysis of labor market data from the survey is found in Robert H. Myer and David A. Wise, "High School Preparation." A complete discussion of the class of 1972 survey is contained in Jay Levensohn and others, *National Longitudinal Study Base Year, First, Second, and Third Follow-up Data File Users Manual,* Vol. 1 (Washington, National Center for Education Statistics, 1978).

[3] See Christina O. Gibson and others, "Interaction of Survey Questions as It Relates to Interviewer-Respondent Bias," *Proceedings of the Survey Research Methods Section,* American Statistical Association, 1978, pp. 251–56.

[4] See Louis E. Williams, "Methods Test Phase III: First Report on the Accuracy of Retrospective Interviewing and Effects of Nonself Response on Labor Force Status," Memo, Bureau of the Census, June 24, 1969, p. 4; Charles Jones and Robert Aquilino, "Methods Test Phase III: Second Report . . . ," Memo, Bureau of the Census, Jan. 29, 1970; and Robert Aquilino, "Methods Test Phase III: Third Report . . . ," Memo, Bureau of the Census, Apr. 2, 1979.

[5] Information to calculate standard errors for the CPS data is contained in *Employment of High School Graduates and Dropouts, October 1972,* Special Labor Force Report 155 (Bureau of Labor Statistics, 1973), table 2; *Employment of High School Graduates and Dropouts, October 1973,* Special Labor Force Report 168 (Bureau of Labor Statistics, 1974), table 2; and *Students, Graduates, and Dropouts in the Labor Market, October 1974,* Special Labor Force Report 180 (Bureau of Labor Statistics, 1975), table 2. Standard errors for the class of 1972 survey were calculated as follows:

$$\sigma = \left(\sqrt{\frac{P(1-P)}{N}} \right) \left(1.16 \right)$$

where σ equals the approximate standard error, P equals the unemployment rate or employment-population ratio, N equals the sample size, and 1.16 is the estimated design effect resulting from decrease in the efficiency of the 1972-based survey due to the clustering of the sample. The sample size and labor force information is from Robert H. Myer and David A. Wise, "High School Preparation."

The hypothesis that the survey differences are statistically significant is tested according to the following formula:

$$X = \frac{DIFF}{\sqrt{\sigma_1^2 + \sigma_2^2}}$$

where DIFF equals the difference between the survey measures, and σ is the approximate standard error. In this study, inter-survey differences are considered statistically significant if X is greater than or equal to 2, which roughly represents the 95-percent confidence interval.

[6] In the CPS, about 20 percent of all the men and 55 percent of all the women are self-respondents. Information on working men and young people in school is largely derived from proxy respondents. See Camilla Brooks and Barbara Bailar, "An Error Profile: Employment as Measured by the Current Population Survey," report prepared for the Federal Committee on Statistical Methodology, Subcommittee on Nonsampling Errors, 1978.

[7] Freeman and Medoff, "Why Does," p. 18.

[8] However, results of a recent study indicate that attrition from the 1966-based NLS sample may not be of substantial importance. See Michael Borus and others, "Counting Youth," pp. 18–19.

[9] It is difficult to assess any trends in the survey differences, save perhaps among youth age 20 to 24, where, it should be noted, racial differences in unemployment rates do not seem to differ across surveys.

[10] Information to calculate standard errors is contained in "CPS Variances-New Standard Errors for Monthly Estimates of Levels, Percentages and Participation Rates for the CPS Labor Force Data for the 461 Area Design" (Bureau of the Census, 1977); and *Career Thresholds,* Volume 3, Manpower Research Monograph 16, (U.S. Department of Labor, 1971), pp. 129–40. The formula to test the hypothesis that the differences are statistically significant is:

$$X = \frac{DIFF}{\sqrt{\sigma_1^2 + \sigma_2^2}}$$

where DIFF equals the differences between the surveys, and σ is the approximate standard error. (See footnote 5 for the interpretation of X.) The base used to calculate the standard error in both surveys is the CPS estimate of the civilian noninstitutional population.

[11] See Brooks and Bailar, "An Error Profile," pp. 17–18.

[12] Note that we are concerned with current activity. Freeman and Medoff note in "Why Does" that males in the NLS sample report working more weeks over the past year than is reported for them by their mothers. The problems .with retrospective questions are well known, and the authors' regression results so inconclusive that this is a very poor test of the objective knowledge of respondents.

[13] See Brooks and Bailar, "An Error Profile," pp. 61–65; *The Current Population Survey: Design and Methodology,* Technical Paper 40 (Bureau of the Census, 1978), pp. 82–85; and W. H. Williams and C. L. Mallows, "Systematic Biases in Panel Surveys Due to Differential Nonresponse," *Journal of the American Statistical Association,* September 1970, pp. 1338–49.

[14] For instance, in the May 1978 CPS the first rotation group is 21.7 percent black and has a mean age of 35.66 years. For the eighth rotation group the comparable figures are 20.4 percent and 36.72 years.

[15] Freeman and Medoff, "Why Does," p. 16.

[16] Brooks and Bailar, "An Error Profile," p. 17.

[17] See Borus, "Pathways to the Future." This report presents a wealth of information about youth; included is an appendix that outlines the sample design and weighting procedures.

[18] Because the newest NLS oversampled young blacks and youth

from low income families, the employment and unemployment estimates may be more sensitive to the weighting procedure than is the CPS, which is self-weighting. For example, as a result of this oversampling, there is a group of youth with a higher probability of not being in school and a higher probability of being unemployed. Therefore, if the weights are not entirely appropriate, it could result in a higher estimate of unemployment and labor force participation. Under the same scenario, estimates of employment would be lower. Until this issue is resolved, some care must be used in interpreting the significance of the survey differences.

[19] Gilbert Nestel of the Center for Human Resource Research at Ohio State University was kind enough to provide us with this information.

[20] Evidence for the information in this paragraph can be found in: Louis E. Williams, "Effect of Item 24 on Rotation Group Bias," Memo, Bureau of the Census, Aug. 17, 1970; Louis E. Williams, "The Effect of Item 24 on Rotation Group Bias for Unemployment in the CPS," Memo, Bureau of the Census, Apr. 7, 1972; and Morton Boisen, "Bureau of Labor Statistics' Request for Additional Analysis on the Effect of Item 24 on the Level of the Composite and Noncomposite Estimate in CPS," Memo, Bureau of the Census, June 18, 1975.

APPENDIX: Other measures of youth labor force activity

National crime survey

The NCS covers about 72,000 households which are visited twice a year for 3 years, with new units replacing expired ones at the end of the period. About 10,000 households are interviewed by Census Bureau enumerators each month. The basic methodological differences between the NCS and CPS are that the NCS is 90 to 95 percent self-response, and most NCS interviews are personal visits rather than telephone contacts.

Although the NCS is chiefly a crime survey and does not contain a complete battery of labor force questions, certain questions are similar enough to those in the CPS to facilitate a test of the self-response hypothesis. Moreover, NCS labor force questions are asked before eliciting information about crime victimization, eliminating one previously cited source of response bias.

To minimize another methodological difference between NCS and CPS, table A–1 compares 1977 annual average employment-population ratios and unemployment rates only for the first-month-in-sample respondents.

The results, though not conclusive, raise additional questions concerning the relative importance of self-response in the measurement of youth labor force activity. The CPS estimates of employment-population ratios tend to be slightly larger than those from the NCS, although the differences are usually not statistically significant. In any case, the extent of the inter-survey employment differences is less than when similar comparisons are made between the CPS and the youth-specific surveys. Interestingly, employment-population ratios from the CPS are higher than NCS measures for men 16 to 19, but lower for those age 20 to 24. This pattern is the exact reverse of the NLS-CPS relationship in which the survey differences were found to narrow by age. Also, subject to the analytical limitations imposed by

relatively small samples, variations in the employment-population ratios are statistically significant in only 4 out of 12 observations, and in one-half of those, the CPS yielded the higher ratio. Finally, the CPS-measured unemployment rate is always greater than that from the NCS.

Even considering the different emphasis of each survey and the abridged version of the NCS labor force questions, one cannot simply dismiss the results of this test of the self-response hypothesis—findings which seem to contradict observations from the NLS-CPS comparisons. If nothing else, the NCS-CPS comparisons

Table A-1. Employment-population ratios and unemployment rates for youth age 16 to 24 by sex: a comparison of the National Crime Survey 1977 average for incoming respondents and the 1977 average CPS first-month panels, weighted to population estimates

Category	Employment-population ratio			Unemployment rate		
	NCS first-month panel	CPS first-month panel	Difference	NCS first-month panel	CPS first-month panel	Difference
Total						
16 to 17 years	38.9	40.5	1.6	18.4	21.7	[1]3.3
18 to 19 years	56.5	57.8	1.3	13.7	17.5	[1]3.8
20 to 21 years	66.6	63.8	[1]−2.8	10.0	13.8	[1]3.8
22 to 24 years	68.9	71.1	[1]2.2	8.1	11.1	[1]3.0
Men						
16 to 17 years	42.6	44.7	2.1	18.3	20.4	2.1
18 to 19 years	61.6	63.2	2.1	12.3	16.3	[1]4.0
20 to 21 years	75.1	69.9	[1]−5.2	9.4	13.6	[1]4.2
22 to 24 years	80.5	80.6	.1	7.4	10.5	[1]3.1
Women						
16 to 17 years	35.1	36.2	1.1	18.5	23.2	[1]4.7
18 to 19 years	52.2	52.6	.4	15.2	18.9	[1]3.7
20 to 21 years	58.8	58.1	−.7	10.6	14.1	[1]3.5
22 to 24 years	58.4	62.2	[1]3.8	8.8	11.9	[1]3.1

[1] NCS-CPS difference is statistically significant at the 95-percent confidence level.

should warn analysts against making hasty judgements about the source—and possible significance—of differences between any two surveys.

The Census Bureau has also performed some comparisons of NCS labor force estimates with those from the CPS. Results of these studies may be found in Martin Boisen, "Comparison of NCS and CPS Labor Force Data," Memo, Bureau of the Census, Nov. 14, 1975; John Bushery, "Update of Comparisons of NCS and CPS Labor Force Data—Addendum 1," Memo, Bureau of the Census, Mar. 14, 1978; and Henry Woltman and John Bushery, "NCS Labor Force Reinterview Study," Memo, Bureau of the Census, June 8, 1978.

Methods development survey

The MDS is a research project designed to test the potential impact of alternative data collection methods and concepts on the CPS. Phase I of the study compared alternative data collection procedures, including the use of self versus proxy response. MDS data should be used carefully, because the sample size for youth is particularly small and because there are some methodological interactions—for example, between type of respondent, contact (telephone or personal interview), and interviewer (same or different enumerator each month)—that are not controlled. Also, the MDS is not a national probability sample, but rather, during Phase I, was limited to four areas of the country. However, there is no evidence that these areas are atypical in terms of self versus household response.

Results from Phase I were used to calculate employment-population ratios for those age 16 to 21 by type of respondent. (See table A–2.) "Household respondent" refers to the usual responsible person in the CPS, and "self-response" to the individual reports of each eligible household member. (For more detail, see Anthony Roman, "MDS Phase I Results for the 16–21 Age Group," Memo, Bureau of the Census, May 16, 1980; and Gary Shapiro, "Effect of Survey Methodology on Teen-Age Employment to Population Ratios," Memo, Bureau of the Census, June 1, 1980.)

MDS-CPS comparisons do not provide robust support for the hypothesis that proxy response is a major cause of differences in the measurement of youth employment between surveys. Even among those age 16 to 17—where previous comparisons suggested the most pronounced differences—the only clearcut support for the hypothesis is found among men. Interestingly, it is those age 20 to 21 who provide the best evidence for the effect of self-response, but it is precisely these older youth for which CPS-other survey differences have been noticeably smaller. One possible reason for this finding is that the MDS did not personally contact unmarried college students who were living away from home but were considered to be part of their parents' households. In short, the comparisons again suggest that other reasons discussed throughout the preceding article may be much more important components of inter-survey variation than self versus proxy response. In fact, self-re-

Table A-2. MDS employment-population ratios by type of respondent, sex, age, and race, cumulative figures from June 1978 to September 1979

Category	Household respondent	Self respondent	Estimated standard error of the difference
Total			
16 to 21 years	55.7	54.5	1.4
16 to 19 years	52.2	48.5	1.7
16 to 17 years	40.5	39.8	2.3
18 to 19 years	63.9	58.3	2.3
20 to 21 years	63.9	69.1	2.6
Men			
16 to 21 years	57.9	61.7	2.0
16 to 19 years	54.0	54.0	2.4
16 to 17 years	40.0	46.5	3.3
18 to 19 years	69.3	63.1	3.3
20 to 21 years	68.5	80.5	3.4
Women			
16 to 21 years	53.7	47.7	2.0
16 to 19 years	50.4	43.4	2.4
16 to 17 years	41.1	33.0	3.3
18 to 19 years	58.9	54.1	3.3
20 to 21 years	60.5	58.3	3.5
White			
16 to 21 years	59.5	59.1	1.6
16 to 19 years	55.7	53.0	1.9
16 to 17 years	42.8	46.2	2.6
18 to 19 years	68.0	59.9	2.5
20 to 21 years	68.2	74.6	2.6
Black and other			
16 to 21 years	34.9	35.9	3.3
16 to 19 years	33.3	29.0	3.9
16 to 17 years	29.0	17.8	4.6
18 to 19 years	38.5	48.6	6.4
20 to 21 years	39.0	49.8	6.2

SOURCE: Anthony Roman, "MDS Phase 1 Results for the 16–21 Age Group," Memo, Bureau of the Census, May 16, 1980.

sponse in the MDS results in a smaller estimate of employment-population ratios, except for men age 16 to 17 and minorities age 18 to 19, where self-response yields a moderately higher figure.

In addition to the information previously analyzed, youth-specific data from the Census Bureau's Survey of Income and Education (SIE) were also compared with CPS measures. Results of this comparison will not be discussed here in detail, but it was found that CPS estimates of youth labor force activity were little different from those in the SIE. (A complete description of the SIE may be found in *Household Money Income in 1975 by Housing Tenure and Residence for the United States, Regions, Divisions, and States,* Current Population Reports, Series P–60, No. 108 (Bureau of the Census, 1977)).

CPS data on the effect of rotation group bias on youth labor force estimates were also examined. The results of this study showed that youth are more likely to be classified as employed or unemployed the first month they are in the sample than in later months. It was also found that youth exhibit rotation group patterns that are not identical to those for adults.

A more complete discussion of the results of the SIE-CPS comparisons and the investigation of youth rotation group bias is available from the author upon request.