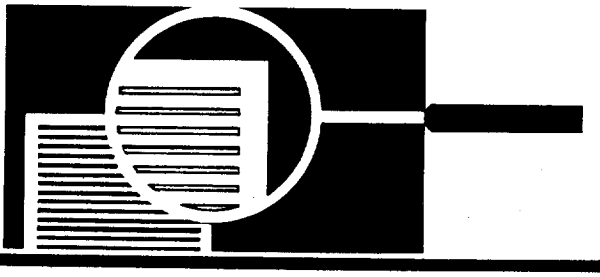
Research summaries



National Longitudinal Surveys: development and uses

Marilyn Manser, Michael Pergamit, and Wanda Bland Peterson

As the oldest longitudinal data collection effort in the United States, the National Longitudinal Surveys of Labor Market Experience (NLS) this year completed its 24th year of interviews. These surveys have collected a variety of information on the labor force participation of five groups of the U.S. population—45- to 59-year-old men (Older Men), 30- to 44-year-old women (Mature Women), 14- to 24-year-old males (Young Men), 14- to 24-year-old females (Young Women), and the 1979 National Longitudinal Survey of Youth (Youth Survey). In 1989, labor market information was obtained from two of these groups—Mature Women (now aged 52–66), their 15th interview since 1967, and the Youth cohort, both males and females (now aged 24–31), their 11th consecutive year of interviews. Spanning nearly a quarter of a century, the National Longitudinal Surveys have provided a unique opportunity to obtain detailed information on how individuals' lives evolve over time and to examine the interaction of a variety of economic and social forces as revealed by the diverse dimensions of the individual's actions and surroundings.

This report summarizes National Longitudinal Survey data used by economists, sociologists, and other researchers in government, the academic research community, and private organizations to examine a variety of policy issues such as: employment and earnings of workers in the labor market; educational experience, achievement, and the transition from school to work; training programs and training in the workplace; geographic mobility; relationships between workplace and the well-being of the family and family transitions; attitudes toward military service and military recruitment; experiences of veterans and the relationship between military training and service and subsequent career experience; drug and alcohol abuse; juvenile delinquency and criminal behavior; fertility and childbearing, especially the problems of adolescent mothers and the effects of adolescent fertility on both the mothers and their children; child development and its relationship with employment, family structure and background, schooling, and child care; and retirement behavior of older workers and the problems of the elderly, with an emphasis on income, assets, and family structure.

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Background on the surveys

In 1966, the Office of Manpower Policy, Research, and Evaluation of the U.S. Department of Labor contracted with Ohio State University's Center for Human Resource Research to conduct longitudinal studies of the labor market experience of four age cohorts: men 45 to 59; women 30 to 44; and young men and women 14 to 24. These groups were selected because they faced important labor market decisions of special interest to policymakers.

Initially, the plan was to conduct annual interviews over a 5-year period with a nationally representative sample of approximately 5,000 individuals in each age and sex group. However, a decision was made to interview the two older cohorts biennially rather than annually and because of their greater mobility, the younger groups were interviewed annually. At the end of the 5-year period, the surveys were continued beyond the original timeframe because of relatively high response rates and widespread interest. Plans also were made to cover an additional 5 years for each cohort by means of two biennial telephone surveys and a personal interview 10 years following the original survey.

In 1977, another decision was made to (1) continue the surveys of the original cohorts for an additional 5 years or for as long as response was at an acceptable level; and (2) begin a new longitudinal study of Young Men and Young Women. The new study of youth ages 14 to 21 was initiated for two reasons. First, there was a desire to replicate much of the analysis gained from the earlier youth cohorts and, second, there was a need to evaluate the expanded employment and training programs for youth legislated by the 1977 amendments to the Comprehensive Employment and Training Act.

The youth selected for the new cohort were to be representative of all youth born in the United States between 1957 and 1964. Three independent probability samples were drawn to accomplish this goal: a cross-sectional sample of noninstitutionalized civilian youth ages 14 to 21; oversamples of civilian blacks, Hispanics, and economically disadvantaged whites; and a military sample of the population ages 17 to 21. This new sample of more than 12,000 civilian and military youth, referred to as the National Longitudinal Survey of Youth, was interviewed for

the first time in 1979. Since that date, civilian youth have been reinterviewed annually, and the military sample was interviewed annually from 1979 through 1984. The interview history for all five cohorts by type of interview is shown in table 1.

In the 1980's, reductions in the Federal budget ended two of the original four cohorts. The interview of Young Men, begun in 1966, was last conducted in 1981, and the interview of the Older Men, begun in 1966, was last conducted in 1983. To reduce the costs of the survey effort, the 1987 survey of the youth cohort was conducted by telephone.

Survey characteristics

Organization. Because of budget reductions, the National Longitudinal Survey was transferred from the Department of Labor's Employment and Training Administration to the Department's Bureau of Labor Statistics, which has been responsible for administration of the NLS since October 1986. Management of the surveys, however, has remained with the Center for Human Resource Research at the Ohio State University. In addition, two survey organizations—NORC (National Opinion Research Center) at the University of Chicago and the U.S. Bureau of the Census—are also involved in National Longitunal Survey data collection activities. While the specific tasks of these organizations have varied over the life of the project, the Center for Human Resource Research has been responsible for designing the survey instruments, preparing reports, and analyzing and disseminating data. Sample design, data collection activities, and data reduction tasks for the four original cohorts have been performed by the Census Bureau, while NORC has performed similar activities for the National Longitudinal Survey of Youth.

Sample. Each of the original four samples was designed to represent the civilian noninstitutionalized population at the time of the first survey and was to provide approximately 5,000 interviews for each cohort (about 1,500 blacks and 3,500 whites). The sample was drawn by the Census Bureau from the primary sampling units that had been selected for the experimental Monthly Labor Survey conducted between 1964 and 1966. The sampling process produced 5,518 older men ages 45 to 59; 5,713 young men ages 14 to 24; 5,393 mature women ages 30 to 44; and 5,533 young women ages 14 to 24.

Initial interviews with each of the four cohorts occurred between 1966 and 1968. More than 90 percent of the individuals designated for interviewing responded in the first year. The older men, first interviewed in 1966, had an initial response rate of 91 percent and the young men's cohort, also interviewed for the first time in 1966, had a 92-percent response rate. The mature women's cohort, first interviewed in 1967, had a 94-percent response rate while 93 percent of the young women sampled responded to the first interview in 1968. Sample sizes and response rates for each of the cohorts are shown in table 2.

Retention rates within certain of the original samples have remained high for longitudinal surveys of this duration. At the latest interview for the original four cohorts, retention rates were as follows:

Cohort	*Latest interview*	*Retention rate (percent)*
Young Women	1988	68
Mature Women	1989	61
Young Men	1981	65
Older Men	1983	52

Retention is defined as the percentage of the base-year respondents who were interviewed in any given year. Included in the noninterview totals are the deceased, those in jail and other institutions, and those serving in the military. Research data indicate that if these noninterviews were dropped, then retention rates would climb, especially for the Older Men's cohort. For example, by 1981, more than 25 percent of the original sample of Older Men were deceased. If these were dropped from the sample, the retention rate would rise to 83 percent.

Table 1. **National Longitudinal Surveys cohorts' interview schedules and type of interview, by year, 1966–91**

Year	Older Men	Mature Women	Young Men	Young Women	Youth
1966	Personal	—	Personal	—	—
1967	Personal	Personal	Personal	—	—
1968	Mail	Mail	Personal	Personal	—
1969	Personal	Personal	Personal	Personal	—
1970	—	—	Personal	Personal	—
1971	Personal	Personal	Personal	Personal	—
1972	—	Personal	—	Personal	—
1973	Telephone	—	Telephone	Personal	—
1974	—	Telephone	—	—	—
1975	Telephone	—	Telephone	Telephone	—
1976	Personal	Telephone	Personal	—	—
1977	—	Personal	—	Telephone	—
1978	Telephone	—	Telephone	Personal	—
1979	—	Telephone	—	—	Personal
1980	Telephone	—	Telephone	Telephone	Personal
1981	Personal	Telephone	Personal	—	Personal
1982	—	Personal	(1)	Telephone	Personal
1983	Telephone	—	—	Personal	Personal
1984	(2)	Telephone	—	—	Personal
1985	—	—	—	Telephone	Personal
1986	—	Telephone	—	—	Personal
1987	—	Personal	—	Telephone	Telephone
1988	—	—	—	Personal	Personal
1989	—	Personal	—	—	Personal
1990	[3]Personal	—	—	—	Personal
1991	—	—	—	Personal	Personal

[1] Survey of this cohort was discontinued after 1981.

[2] Survey of this cohort was discontinued by the Department of Labor after 1983.

[3] In 1990, the Older Men's cohort will be reinterviewed with funding provided by the National Institute on Aging.

NOTE: Dash indicates no interview in that year.

As stated earlier, the sample design for the National Longitudinal Survey of Youth consisted of a national probability sample of young women and young men between ages 14 and 21 as of January 1, 1979, with a supplemental sample designed to oversample civilian blacks, Hispanics, and economically disadvantaged whites. Of the 12,781 civilian youth selected for interview, 11,406 (or 90 percent) were interviewed in 1979. Table 3 shows the distribution by race, sex, and sample type interviewed in 1979.

With funding from the Department of Defense and the Armed Services, a group of young persons serving in the military was also selected for interviewing. The sample was drawn from rosters provided by the Department of Defense of youth ages 17 to 21 as of January 1, 1979, and on active military duty as of September 30, 1978. Of those military youth selected for interview, 72 percent were interviewed in 1979; of the 1,280 military youth interviewed, 823 were male and 457 were female. The military sample was interviewed from 1979 to 1984.

Response rates within the youth survey have remained high, ranging around 95 percent during the first 6 years of the study. In 1985, the respondents from the original military sample were dropped, reducing the overall sample total to 11,607. In 1989, the 11th year of interviews for these respondents, 10,605 respondents continued to be interviewed for an overall response of 91.4 percent. Sample size and retention rates are shown in table 4.

Table 2. **National Longitudinal Surveys original four cohorts' sample size and retention rates, by year, 1966–89**

Year	Older Men		Mature Women		Young Men		Young Women	
	Total	Retention rate	Total	Retention rate	Total	Retention rate	Total	Retention rate
1966	5,034	100.0	—	—	5,225	100.0	—	—
1967	4,751	94.4	5,083	100.0	4,790	91.7	—	—
1968	4,661	92.6	4,910	96.6	4,318	82.6	5,159	100.0
1969	4,388	87.2	4,712	92.7	4,033	77.2	4,930	95.6
1970	—	—	—	—	3,992	76.4	4,766	92.4
1971	4,182	83.1	4,575	90.0	3,987	76.3	4,714	91.4
1972	—	—	4,471	88.0	—	—	4,625	89.6
1973	3,951	78.5	—	—	4,014	76.8	4,424	85.8
1974	—	—	4,322	85.0	—	—	—	—
1975	3,732	74.1	—	—	3,977	76.1	4,243	82.2
1976	3,487	69.3	4,172	82.1	3,538	67.7	—	—
1977	—	—	3,966	78.0	—	—	4,071	78.9
1978	3,219	63.9	—	—	3,695	70.7	3,923	76.1
1979	—	—	3,812	75.0	—	—	—	—
1980	3,001	59.6	—	—	3,438	65.8	3,801	73.7
1981	2,834	56.2	3,677	72.3	3,398	65.0	—	—
1982	—	—	3,542	69.7	(1)	—	3,650	70.8
1983	2,634	52.3	—	—	—	—	3,545	68.7
1984	(2)	—	3,422	67.3	—	—	—	—
1985	—	—	—	—	—	—	3,720	72.1
1986	—	—	3,335	65.6	—	—	—	—
1987	—	—	3,241	63.7	—	—	3,639	70.5
1988	—	—	—	—	—	—	3,510	68.0
1989	—	—	3,104	61.1	—	—	—	—

[1] Survey of this cohort was discontinued after 1981.

[2] Survey of this cohort was discontinued after 1983.

NOTE: Retention rates are calculated as the percentage of base-year respondents who were interviewed in any given year. Included in the calculations are deceased and institutionalized respondents as well as those serving in the military. Dash indicates no interview that year.

Content. Close collaboration exists between BLS, the Census Bureau, and the Center for Human Resource Research on the development of the original cohort questionnaires, while development of each National Longitudinal Survey of Youth survey instrument is the joint responsibility of BLS, the Center for Human Resource Research, and NORC. Over the years, advice has also been sought from other Federal agencies funding special supplements to the surveys, a technical review committee, and other agencies using National Longitudinal Survey data.

Respondents of all five National Longitudinal Survey cohorts have been asked a core set of questions that provide information on employment, training, work experience, sources of income, marital status, health, attitudes toward work, and occupational and geographic mobility. In addition, each cohort is asked special sets of questions in selected survey years or that are specific to that cohort.

The focus of each cohort's survey has been determined by the particular stage of labor market attachment that each of these unique age-sex groups was experiencing. For example, the focus for the Older Men was on plans for their future—specifically, retirement, pension plans, and health insurance. Special topics for the Mature Women have included volunteer work, household activities, retirement plans, child care, parental care, health insurance, commuting time and costs, attitudes toward working women, and perceived job discrimination. The surveys of both the Young Men's and Young Women's cohorts have focused on educational goals, high school and college experiences, and future job plans. In addition, surveys of the Young Men collected information on military service and union membership, while special topics for the Young Women have included fertility, child care, responsibility for household tasks, attitudes toward working women, and perceived job discrimination.

Additional sets of questions on a variety of factors that potentially affect the National Longitudinal Survey of Youth respondent's labor force attachment have also been included in selected survey years. For example, in the initial survey year 1979, information was collected on family background, knowledge of the world of work, the influence of significant people in the respondents'

lives, and a measure of how much control respondents feel they have over their lives and their jobs. Subsequent surveys included questions on job search methods, migration, attitudes toward work, educational and occupational aspirations and expectations, school discipline, self-esteem, child care, drug and alcohol abuse, delinquency, and time use. Whenever possible, new questions follow the language and format of questions that have been developed from other surveys to achieve comparability across surveys. As a result, the current labor force status section of the National Longitudinal Survey of Youth is modeled after the BLS Current Population Survey, the military service questions are identical to other Department of Defense surveys, and part of the child care section is taken from the design of the Survey of Income and Program Participation.

In addition, National Longitudinal Survey of Youth respondents have been the subject of a number of special studies. The most notable are the High School Transcript Surveys, the Profile of American Youth, and child assessments. The High School and Transcript Surveys, sponsored by the National Center for Research in Vocational Education, obtained information on school characteristics and complete high school records for many of the civilian respondents. The Profile of American Youth, sponsored by the U.S. Department of Defense, administered the Armed Services Vocational Aptitude Battery (ASVAB) to 94 percent of the respondents. The purpose was to obtain current data on vocational aptitudes of youth and to update national norms for the ASVAB. The National Institute of Child Health and Human Development and several private foundations sponsored the child assessments administered to children of female National Longitudinal Survey of Youth respondents in 1986 and 1988. These assessment materials encompassed cognitive, socioeconomic, and physiological aspects of development as well as information about the quality of the home environment.

Table 3. **Distribution of National Longitudinal Survey of Youth respondents interviewed in 1979, by type of sample, race, and sex**

Sample type, race, and ethnicity	Total	Male	Female
Total sample	12,686	6,403	6,283
Cross-sectional sample	6,111	3,003	3,108
White	4,916	2,439	2,477
Black	751	346	405
Hispanic	444	218	226
Supplemental sample	5,295	2,576	2,719
Poor white	1,643	742	901
Black	2,172	1,105	1,067
Hispanic	1,480	729	751
Military sample	1,280	824	456
White	951	609	342
Black	251	162	89
Hispanic	78	53	25

Distinguishing features

The National Longitudinal Surveys complement other U.S. household surveys. A major use has been for research purposes. In 1986, Frank Stafford concluded that "... theoretical and empirical research in labor economics has been broadened and accelerated by the advent of large-scale microdatasets."[1] The Current Population Survey, the Panel Study of Income Dynamics, and the National Longitudinal Surveys were the most widely used of these data sets in the period which Stafford considered, 1965–83.[2] As Stafford notes, this research has improved the accuracy with which things are known, and has also led to the posing of more ambitious research questions. Since Stafford's review was published, the Survey of Income and Program Participation was started; although its focus is on data on sources of income and participation in government programs, labor market data also are collected.

Cross-sectional data sets provide snapshots of the labor market and, over time, can track gross changes. The Current Population Survey is primarily used as a cross-sectional survey, although it has rotating panels of respondents which also permit some longitudinal uses. Because these panels are in the sample for short periods of time, however, the Current Population Survey can be used to examine only short-run labor market phenomena, failing to capture the long-run changes that are the focus of the National Longitudinal Surveys. Similarly, the period covered by each Survey of Income and Program Participation panel is 30 months, so data from this survey can also support cross-sectional studies or provide information on other relatively short-run changes in labor force behavior. Issues such as the transition from school to work, cyclical patterns of work and family, the effects of training on future employment and wages, career formation, the ability to advance out of low-wage jobs, long-term effects of unemployment, retirement, and so forth, can best be examined with the National Longitudinal Surveys.

A number of features distinguish the National Longitudinal Surveys from another major U.S. longitudinal data set, the Panel Study of Income Dynamics, which originated in 1968. The Panel Study covers the entire age spectrum, focusing on household heads. In contrast, the NLS focuses on well-defined cohorts. Because of the relatively large size of the sample of each NLS cohort, it is also possible to perform detailed comparisons by age. In addition, issues affecting these age groups can be studied in more depth and comparisons across cohorts also are possible.

In 1990, the women in the three cohorts remaining in the survey are in the age brackets 25 to 32, 36 to 46, and 53 to 67. With several thousand observations in each of these groups, the National Longitudinal Survey data are unique in their ability to support analyses of how changes have occurred in women's labor force participation, occupational choice, and work patterns. The value of the surveys is especially evident when one examines the tremendous scope of data for the National Longitudinal Survey of Youth.

The 1979 National Longitudinal Survey of Youth has several features which make it an exceptional database for labor market analyses. Three of particular importance are the breadth of information collected, the event history format—notation of the dates of events in worklife—and the high retention rate.

The survey collects a vast amount of labor market information, accompanied by complementary variables which affect work and life decisions. Detailed information about each job held is collected along with the characteristics of that job, including wages, hours, occupation, and industry. Each period of nonwork is investigated to capture time spent looking for work and other factors distinguishing those unemployed from those not in the labor force. Detailed human capital data are collected on education and training as well as events such as marriage, divorce, and fertility, which affect labor market choices.

The survey also facilitates the addition of questions funded by other government agencies. For example, several survey years have included questions (funded by another agency) dealing with child care arrangements made by mothers. This information combined with existing information on work allows us to study the choices about work and family faced by many women. The detail which is given to each topic covered in the survey is immense and as a whole provides a rich data set with more than 2,000 variables each year.

Another outstanding feature of the survey is the collection of information in event history format, in which dates are collected for the beginning and ending of important events. In the case of work, the starting date for a job is recorded and if a person stops work for that employer, the ending date also is recorded. The times in between jobs are then confirmed as gaps for further investigation. For multiple jobholders, information is collected for each job, with beginning and ending dates. Periods of nonwork within a job, such as periods on layoff, or when ill, pregnant, and so forth, are also recorded. By recording the dates of all jobs and all periods of nonwork, the survey provides a complete and continuous employment history for each individual in the sample. Information on other major events also is collected in this manner. The months spent in school are identified, as is the timing of training programs. Also collected are dates of the changes in marital status and the birth of children. By linking the dates of all these events, we are better able to analyze the causal relationships among various life events.

Table 4. **National Longitudinal Survey of Youth sample size and retention rates, by year, 1979–89**

Year	Total sample		Civilian sample		Military sample	
	Total	Retention rate	Total	Retention rate	Total	Retention rate
1979	12,686	100.0	11,406	100.0	1,280	100.0
1980	12,141	95.7	10,948	96.0	1,193	93.2
1981	12,195	96.1	11,000	96.4	1,195	93.4
1982	12,123	95.6	10,912	95.7	1,211	94.6
1983	12,221	96.3	10,995	96.4	1,226	95.8
1984	12,069	95.1	10,854	95.2	1,215	94.9
1985	[1]10,894	93.9	10,708	93.9	[2]186	92.5
1986	10,655	91.8	10,472	91.8	183	91.1
1987	10,485	90.3	10,306	90.4	179	89.1
1988	10,466	90.2	10,291	90.2	175	87.1
1989	10,605	91.4	10,424	91.4	181	90.0

[1] The total number of civilian and military respondents in the National Longitudinal Survey of Youth at the start of the 1985 survey was 11,607.

[2] A total of 201 military respondents were retained from the original military sample of 1,280.

NOTE: Retention rates are calculated as the percentage of base-year respondents who were interviewed in any given year. Included in the calculations are deceased and institutionalized respondents as well as those serving in the military.

A third major feature of the survey is the continuing high response rate. More than 91 percent of the base-year sample remains in the survey after 11 years. Low attrition keeps the data set useful by maintaining large sample sizes and reducing the need for complicated nonresponse adjustments. As a result, the validity of the sample is maintained.

Many factors play a role in maintaining these response rates. Considerable information is collected at the conclusion of each interview to help locate the respondent in subsequent years. The respondent's address and phone number are confirmed as are the name, address, and telephone number of his or her employer. An attempt is made to collect the names, addresses, and phone numbers of as many as four friends and relatives with whom the respondent keeps in close touch. Any nicknames or other names by which friends or relatives might know the respondent are collected. The respondent is also asked if he or she intends to move in the next year, and if so, when and where. (If an address is already known, this is recorded.) Interviewers also make notes about locating the respondent which might be useful the following year. As a result of all locating efforts, after the 11th year of the survey, we have been able to locate all but about 200 respondents.

The respondents began the survey when they were young. In all but one year, the interview was conducted in person. This combination has created a continuing rapport between interviewers and respondents. In assigning interviewers to cases, there is an attempt to have the same interviewer return to the same respondents with whom there was a successful interview.

The breadth of the questions may also be a contributing factor, keeping respondents interested as they tell about their lives. Finally, all respondents who are not openly hostile are contacted each year, even if they were not interviewed in the previous year. Many people who may be busy or otherwise unavailable one year may be willing to return to the survey the following year. It should be noted, however, that 82 percent of the base-year sample has participated in every year of the survey.

Obtaining NLS data

For additional information regarding the National Longitudinal Survey, contact the Bureau of Labor Statistics, Office of Economic Research, 441 G Street, N.W., Room 2126, Washington,