N L S Y
CHILD
HANDBOOK

REVISED EDITION

A Guide to the 1986-1990
National Longitudinal Survey of Youth
Child Data

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National Longitudinal Survey of Youth
Child Data

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THE CHILDREN OF THE NLSY: AN OVERVIEW

Development of the NLSY

The National Longitudinal Survey of Youth (NLSY) is an outgrowth of a larger research project initiated in the mid-1960s by the U.S. Department of Labor to analyze the sources of variation in the labor market behavior and experience of four groups in the United States population. The National Longitudinal Surveys of Labor Market Experience (NLS) were originally comprised of four cohorts: men 45 to 59 years of age, women 30 to 44 years of age, and young men and women 14 to 24 years of age. In 1979, the NLS Youth was launched to permit replication of much of the analyses based on the earlier cohorts and to help evaluate expanded employment and training programs for young people in the late 1970s. This fifth cohort consisted of a national sample of civilian and military young men and young women between the ages of 14 and 21 in 1979, with overrepresentation of blacks, Hispanics, and economically disadvantaged whites.

The primary funding for the NLSY survey over the years has been provided by the U.S. Department of Labor. At present, the survey is largely sponsored by the Bureau of Labor Statistics of the Department of Labor. Significant support for this survey in the past also has come from the Department of Defense, National Institute of Education, the National Institute on Alcohol Abuse and Alcoholism, and the National Institute on Drug Abuse. In 1982, the National Institute of Child Health and Human Development (NICHD) provided funds for the introduction of a comprehensive set of fertility and child care questions into the NLSY. These components have been included each year through 1986 and again in 1988, 1990 and 1992. Finally, with NICHD funding, a battery of cognitive and socio-emotional assessment instruments has been administered to children of female NLSY respondents biennially since 1986.

The NLS Youth Sample

The original NLSY sampling design has enabled researchers to study in detail the longitudinal experiences of not only a particular age group of young Americans, but to analyze the disparate life course experiences of such groups as women, Hispanics, blacks, and the economically disadvantaged. The NLSY

was originally comprised of three subsamples: (1) a cross-sectional sample of 6,111 youth designed to be representative of the noninstitutionalized civilian segment of American young people who were ages 14-21 as of January 1, 1979; (2) a supplemental sample of 5,295 youth designed to oversample civilian Hispanic, black, and economically disadvantaged white youth; and (3) a sample of 1,280 youth designed to represent the population aged 17-21 as of January 1, 1979 who were enlisted in the four branches of the military as of September 30, 1978.

NLSY respondents have to date been interviewed annually from 1979-1993. Respondents belonging to the military sample were the subject of yearly interviews from 1979-1984; post-1984 surveys retained for continued interviewing 201 respondents randomly selected from the entire military sample. Beginning with the 1991 survey, economically disadvantaged white respondents from the supplemental sample were no longer interviewed. Table 1.1 includes the number of sample cases completed in selected years between 1979 and 1991.

The original interview schedule, which called for yearly personal interviews, was maintained from 1979 through 1986. In 1987, budget constraints dictated a limited phone interview rather than a personal interview. Personal interviews resumed with the 1988 round and are expected to continue. Table 1.2 below summarizes the years in which the NLSY sample has been surveyed and the type of interview conducted.

The initial 1979 NLSY interviews were conducted between late January and mid-August 1979. The vast majority of subsequent interviews have occurred during the months of February through May. However, the fielding period for the 1987 survey was an extended one lasting from March through October. The 1988, 1989 and 1990 surveys were conducted from June through December. The 1991 interviews were fielded between late June and mid-November; 1992 interviewing began in late May and concluded in late 1992.

Response rates for those NLSY respondents remaining eligible for interview have remained at or above 90% during the first twelve years of interviews. At the time of the 1991 survey, 9,018 civilian and military respondents of the 9,964 eligible were interviewed for an overall retention rate of 91% (see Table 1.2).

The NLSY Data

Surveys of the NLSY have contained core sets of questions on the following topics: (1) marital history; (2) schooling; (3) current labor force status; (4) jobs and employer information; (5) gaps in employment; (6) training; (7) work experience and attitudes; (8) military service; (9) health limitations; (10) fertility; (11) income and assets; (12) household composition; and (13) geographic residence. Whi

information on those topical areas has been collected during each survey year, the number of questions on any given topic as well as the wording and universes for each question may differ from year to year. The data items linked to the children of the NLSY families are described in greater detail in Section 4.

Additional sets of questions on other factors potentially affecting a young person's labor force attachment have been included during select survey years. The initial survey year collected information on family background, knowledge of the world of work, a retrospective evaluation of labor market experience, the influence of significant others, and an abbreviated Rotter locus of control scale. Subsequent surveys have included questions on job search methods, migration, attitudes towards work, educational and occupational aspirations and expectations, school discipline, self-esteem and depression, child care, pre- and post-natal health behaviors, drug and alcohol use, delinquency, time use, AIDS knowledge, and childhood residences.

The Center for Human Resource Research (CHRR) also creates certain variables which are frequently used by researchers and/or difficult to construct. These created variables include various employment, education, income, geographic and interview-specific variables such as: (1) total net family income; (2) family poverty status; (3) highest grade completed; (4) marital status; (5) employment status recode; (6) region of current residence; (7) school enrollment status; (8) whether current residence is urban/rural; and (9) whether current residence is in an SMSA. Derivations for certain of these variables are provided within the attachments and appendices of the NLS main Youth documentation set.

Finally, NLSY respondents have been the subject of a number of special surveys, the High School and Transcript Surveys conducted by the National Center for Research in Vocational Education, the Profile of American Youth - *ASVAB* administration sponsored by the U.S. Department of Defense, and, of course, the NICHD-sponsored battery of cognitive, socioemotional, and physiological assessments administered to the children of female NLSY respondents during the 1986, 1988, 1990 and 1992 fieldings.

The Children of the NLSY Mothers

The 1986, 1988, 1990 and 1992 waves of the NLS Youth included the administration of an extensive set of assessment instruments to the children of the female respondents. These assessments encompass cognitive, socio-emotional, and physiological aspects of the child's development as well as information about the quality of the home environment. The assessments were completed by 4,971 children in 1986, or about 95 percent of eligible children whose mothers were interviewed in 1986. Parallel information is available for 6,266 children in 1988, and for 5,803 in 1990. The reader is reminded that as of 1990, these children fully represent a cross-section of children who have been born to a nationally representative sample of women who were 25 to 32 years of age as of January 1, 1990. These women,

of course, have not completed their childbearing. The children approximately typify the first two-thirds of childbearing for a recent cohort of American women. Excluded, of course, are children born to older women who would be disproportionately well educated and otherwise above average with respect to their socio-economic status. For a very large sample of children, assessment information can be linked over time with a vast array of child, maternal, and family background information. Users have the opportunity to lay out the antecedents and outcomes of behaviors, to generalize findings to various population subgroups while controlling for the effects of many key variables, and to compare findings from small sample investigations to parallel studies from the large national survey.

All of the NLSY data can be used in conjunction with the child assessment materials. Some of the items have been directly converted from being respondent or mother-linked data items to being child-linked data items (e.g., many maternal work history data items have been translated into maternal employment items referencing the birth date of a specific child born to that woman). Other items can be readily converted from being respondent-specific to being child-specific using the software available on the NLSY Child CD-ROM (e.g., mother's education as of a particular survey point). Some items require more complex manipulations. These procedures are discussed further in Sections 4 and 5 of this handbook.

The data from the child assessments and from the yearly Youth surveys have been combined into a data set called the NLSY Child Data. The file, in which all the children of the NLSY mothers are the actual respondents, includes a variety of constructed normed and raw scores for the various assessments, the actual item responses from the assessments, and information about the social, economic, and family characteristics of the childrens' mothers and families. At present, the NLSY Child Data, updated for a total of more than 8,500 children, are available in two forms: (1) a set of files on magnetic tape containing all assessment information through 1990, child-specific information on family background, pre- and postnatal health, and retrospective child care as well as more than 1500 variables drawn from the mother's main file record; and (2) a compact disc (CD-ROM) that includes all the child assessment information and other above mentioned child-specific information and allows access to the entire longitudinal record of all NLSY females, any item of which can be merged with the child record. The Child Data files are accompanied by extensive documentation including a codebook of frequencies, numeric indices of variables, a Child Assessment Data Users Guide, and original field instruments. These data files and their documentation are described in detail in this Handbook.

Purpose of the Child Handbook

This Handbook is intended both for experienced NLSY users who need specific information about the Child Data file as well as for first time users who wish to access the NLSY Child Data. This latter group

is encouraged to carefully examine appropriate sections of the current *NLS Handbook* and *NLS Users Guide* concomitant with their utilization of this Handbook. While this volume briefly describes the entire NLSY data set, its primary purpose is to explain and document the Child Data files and, in particular, the child assessment data.

In producing this Handbook, the authors have tried to remain cognizant of two issues. First, the Child Data files represent an initiation to the NLSY for many users who, in some instances, have not previously used large data files. Second, many users may prefer to read or refer back to only certain parts of the Handbook. For these reasons, we have tried to assume as little prior knowledge about the data set as possible; readers who read several sections may note some intentionally redundant material. To avoid excessive repetition, the Handbook often makes reference to related materials located in other sections of this Handbook or in other NLS documentation.

The Child Handbook has several objectives. First, it describes the child data collection procedures, emphasizing the continuing close linkages between NORC, which collects the data, the Center for Human Resource Research, which prepares the public use materials, the U.S. Bureau of Labor Statistics of the U.S. Department of Labor, which maintains overall responsibility for the entire NLS and serves as primary funder of the NLSY, and NICHD, which not only has funded this data collection, but also has provided major input into all aspects of the process. The Handbook describes, in some detail the nature of the child sample, the child data files available, and the specifics of the child assessments included in the 1990 survey round. Any researcher planning to use these data is strongly encouraged to read Section 3 on sampling issues and constraints. The description of each assessment is accompanied by an explanation of how to access a particular assessment. A discussion of particular data caveats is followed by information on available outside resource documents as well as limited internal analyses that highlight the strengths and limitations of each assessment. This volume includes a variety of statistical materials that should help prospective users make decisions about whether these data are appropriate for meeting their research objectives. Researchers who plan to use the 1986 or 1988 child assessment materials extensively should consider examining Baker and Mott (1989) and Mott and Quinlan (1991a) for greater detail about the 1986 and 1988 child assessment data respectively.

In summary, the Child Handbook serves as an essential manual and reference document for anyone who plans to use the NLSY Child Data. The authors strongly suggest that this Handbook be used in conjunction with a variety of other materials including the *NLS Handbook*, the most recent *Child Assessment Data Users Guide*, the *NLS Users Guide*, the interview schedules used in the field for children and mothers, and the NLS Youth public user documentation. These items, described in greater detail in Section 6, complement each other and, in total, represent the appropriate and essential package of materials for researchers planning to use these data.

Organization of the Handbook

This Handbook is organized into the following major sections:

Section 2 provides technical information on survey design, field work, sample representativeness, and the data processing and cleaning procedures used in creating the NLSY Child Data.

Section 3 describes the NLSY mother and child samples, highlighting the strengths and limitations of the data set.

Section 4 briefly describes the child data files and the variety of behavioral and attitudinal data available on the children and their families.

Section 5 focuses on the nature and quality of the 1990 child assessment variables and briefly describes the 1986 through 1992 child data collection.

Section 6 describes the NLSY Child Data files, their documentation, and the primary components of the NLS main Youth documentation. The major characteristics of the data files are described and suggestions for their access and management are outlined. Details on hardware requirements and data format are provided. The section concludes with a list of the various supplemental documentation and publications available to users and other persons interested in exploring the applicability of the data.

Each of the remaining Sections of the Handbook contains a number of tables that have been placed at the conclusion of the text portion of each section. An effort has been made to include a listing of useful references with each topic discussed in the various sections of the Handbook. The following citations are provided for users interested in other overviews of the NLS Youth and the NLSY Child.

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Table 1.1   Distribution of NLSY Respondents by Sample Type, Race, and Sex:
1979, 1984, 1990, and 1991 Interviews

	1979	1984	1990	1991
Cross-Sectional Sample	6111	5814	5498	5556
Males	3003	2839	2664	2694
White	2439	2303	2157	2184
Black	346	329	318	315
Hispanic	218	207	189	195
Females	3108	2975	2834	2862
White	2477	2365	2271	2295
Black	405	393	365	366
Hispanic	226	217	198	201
Supplemental Sample	5295	5040	4755	3281
Males	2576	2442	2280	1611
Poor White	742	699	664	---
Black	1105	1055	979	966
Hispanic	729	688	637	645
Females	2719	2598	2475	1670
Poor White	901	851	819	---
Black	1067	1034	984	983
Hispanic	751	713	672	687
Military Sample	1280	1215	183	181
Males	824	774	168	166
White	609	575	70	71
Black	162	151	68	64
Hispanic	53	48	30	31
Females	456	441	15	15
White	342	331	7	7
Black	89	86	5	5
Hispanic	25	24	3	3
Total NLSY Sample	12686	12069	10436	9018

Table 1.2   NLSY Interview Schedules and Retention Rates[a] by Sample Type

	Type of Interview	Cross-Sectional Sample		Supplemental Sample		Military Sample		Total Sample	
		Total	Retention Rate	Total	Retention Rate	Total	Retention Rate	Total	Retention Rate
1979	Personal	6111	-----	5295	-----	1280	-----	12686	-----
1980	Personal	5873	96.1	5075	95.9	1193	93.2	12141	95.7
1981	Personal	5892	96.4	5108	96.5	1195	93.4	12195	96.1
1982	Personal	5876	96.2	5036	95.1	1211	94.6	12123	95.6
1983	Personal	5902	96.6	5093	96.2	1226	95.8	12221	96.3
1984	Personal	5814	95.1	5040	95.2	1215	94.9	12069	95.1
1985	Personal	5751	94.1	4957	93.6	186[b]	92.5	10894[c]	93.9
1986	Personal	5633	92.2	4839	91.4	183	91.1	10655	91.8
1987	Telephone	5538	90.6	4768	90.1	179	89.1	10485	90.3
1988	Personal	5513	90.2	4777	90.2	175	87.1	10465	90.2
1989	Personal	5571	91.2	4853	91.7	181	90.0	10605	91.4
1990	Personal	5498	90.0	4755	89.8	183	91.0	10436	89.9
1991	Personal	5556	90.9	3281[d]	89.9	181	90.0	9018[e]	90.5

[a] Retention rate is defined as the percent of base year respondents within each sample type remaining eligible who were interviewed in a given survey year.

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

[c] The total number of civilian and military respondents in the NLSY at the initiation of the 1985 survey was 11,607.

[d] Poor white female and male members of the supplemental subsample are not eligible for interview as of the 1991 survey year. Remaining eligible for interview in post-1990 surveys are 3,649 black and Hispanic respondents of the supplemental sample of whom 3,281 were interviewed in 1991.

[e] The total number of civilian and military respondents in the NLSY at the initiation of the 1991 survey year was 9,964.

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NLSY CHILD SURVEY PROCEDURES

Survey Design

NLSY Child data collection is primarily carried out using personal home interviews. This approach, effective in maintaining long term cooperation with respondent families, is compatible with the interviewing mode used with the children's mothers and results from the fact that several of the child assessments were designed for face-to-face administration. Experienced interviewers receive extensive special training in the administration of a collection of instruments selected for their suitability of use by nonspecialists in child development and adapted for in-home settings.

Instrument Development

The original proposal for the NLSY Child data collection included plans for instruments that tapped several dimensions of child cognition, health, socio-emotional attributes, behavior, and home environment. Development of the first round of NLSY Child Assessment instruments began in the summer of 1985. The Center for Human Resource Research assumes overall responsibility for selection, design, and adaptation of the Child Assessments. Field training and data collection are the primary responsibility of NORC. Close collaboration between NORC and the Center begins prior to each fielding period on such issues as placement and formatting of questions, survey timing, and special data collection considerations such as confidentiality, interviewer training, and testing conditions. On a continuing basis, NICHD also provides input to this process. Advice on question inclusion as well as review of each draft survey instrument is sought by the Center from the various funding agencies, notably the Bureau of Labor Statistics, which has overall authority regarding survey content, NICHD, a technical advisory board, and designers of the original questions and scales. The overall instrument is subject to review by the Federal Office of Management and Budget. The range of professional experts who have been involved in the development and selection of the child data collection instruments are listed in Table 5.1 at the end of Section 5 in this handbook.

Several months prior to the first child data collection effort in 1986, a preliminary group of assessments was selected and compiled into two booklets intended as supplements to the main NLSY

questionnaire. The set of measures included questions on health and home environment for all children, age-appropriate cognitive assessments, a self-competence scale for school age children, and instruments designed to measure the temperament and the motor and social development of younger children. Four of the assessments were formatted for mothers to self administer, and the remainder were designed for interviewer administration and observation.

A preliminary pretest of the draft child instruments was conducted in August 1985 at NORC in Chicago. Two experienced NLSY field interviewers were given a copy of the draft instrument to review prior to trying it out with several children, ranging from two to eleven years of age, whose parents were employees at NORC. The mother of a five month old was also recruited to test the Mother Supplement. NORC staff and the Chicago district field manager spent two days observing and video taping these interviewers. To allow for maximum practice for both interviewers, some sessions were conducted simultaneously and not taped, but every interview was observed. Since the selection of reading and math instruments to be utilized had not yet been finalized, no reading assessment was administered and the Test of Mathematical Abilities (TOMA) was used to measure math performance.

Based on the results of these two days, a special Child Assessment training program was developed to be used with five field interviewers chosen for the main NLSY Survey 1986 Pretest. The training of the interviewers during this special pretest phase was conducted by the NORC Chicago district field manager and NORC survey staff.

The Child Pretest

A pretest of the Child survey instruments is usually conducted by NORC several months prior to the beginning of the actual fielding period. NORC uses a national sample of approximately 200 respondents selected for pretesting the main NLSY. Conducted at two sites with experienced NLSY interviewers, the pretest serves to test questionnaire wording, to pinpoint items that may pose problems for the respondents or the interviewers, and to time the various sections of the instruments. This process also serves to identify problems with questions, skip patterns, transitions between sections, questionnaire length, and other overt flaws.

Periodic field observations of the interviewers are made by district field managers and NORC staff. This process was particularly useful in preparing for the initial child data collection in determining the special requirements that child assessment would place on interviewers. As one might expect, not all interviewers were suited to the special requirements of administering assessments to children. The number of new tasks and the need for certain personal attributes and personality traits suggested that the interviewing of children is inappropriate for even some very seasoned interviewers.

The initial pretest revealed some unexpected difficulties posed by this special assessment situation. One mother worried that the interviewer and observer would report her to the authorities for child abuse or neglect because she allowed her infant to cry after the baby had been put down to take a nap. Another mother suggested that her child seemed frightened of the interviewer and observer because of limited prior exposure to people of another race. These incidents led to the development of a comprehensive menu of methods for training interviewers to build rapport with the child, deal with distractions, gain parental cooperation, administer the assessment materials smoothly, decide how much persistence is appropriate to gain the child's cooperation, and gauge respondent burden.

Following each pretest, staff from the Center, NORC personnel, and representatives of the various funding agencies meet to review the NLSY child survey instruments, analyze the response frequencies for selected questions, and discuss problems encountered by both the respondents and interviewers. Subsequent to this debriefing, modifications to the instruments and administrative procedures are made by NORC and the final package forwarded to the Center for Human Resource Research for review.

Data Collection Instruments

Two special survey schedules, the Mother Supplement and the Child Supplement, are the principal instruments used to administer the assessments to the NLSY children and to elicit reports about child health, temperament, and behavior from their mothers. Since their initial application, these instruments have undergone some changes, and in some instances have been deleted. These variations are noted in Table 2.1 and discussed in detail in Section 5. The following is a brief outline of the contents of each data collection instrument and the interviewing aids used in the field. Detailed descriptions of the nature of the child assessment instruments and the criteria used in their selection can be found in Section 5 of this Handbook. Anyone interested in all the data collection instruments used in conducting the NLS Youth main survey should consult the current *NLS Handbook*.

Mother Supplement.

The Mother Supplement is designed to be completed by the mother or guardian for each child prior to or during the administration of the Child Supplement. Interviewers are instructed to quickly accommodate any respondent who indicates a preference for having the supplement administered by the interviewer. The Mother Supplement includes the following four sections:

(1) The HOME Short Form - items from the HOME (Home Observation for Measurement of the Environment) Inventory, developed by Bradley and Caldwell, which contains

age-specific versions of a set of scales designed to measure the nature and quality of the child's home environment.

(2) How My Child Usually Acts/Temperament - items from Rothbart's Infant Behavior Questionnaire, Kagan's Compliance Scale and other items from Campos, which combine to form a set of maternal-report scales measuring temperament or behavioral style over the past two-week period for each child under age seven.

(3) Motor and Social Development - items drawn from Poe, Bayley, Gesell, and the Denver Developmental Screening Test, which measure various milestones in the areas of motor-social-cognitive development for children under age four.

(4) Behavior Problems Index - items from Zill and Peterson's adaptation of the Child Behavior Checklist, developed by Achenbach and Edelbrock, which elicit mother ratings of children four years of age or older in such areas of problem behavior as hyperactivity, anxiety, dependency, depression, and aggressiveness.

(5) School and Family Background - information for children 10 years or older on schooling, grade repetition, school behavior and expectations, peer relations, and religious attendance and training.

Child Supplement.

The Child Supplement is used by the interviewer to collect general and health-related background information from the mother of each child, responses from the children to items from nine additional assessment instruments, interviewer evaluations of the testing conditions, and interviewer observations of the child's home environment. The supplement contains the following sections:

(1) The Child Background section - identifying information (age, gender, grade in school) from the mother of each child. The first page of the supplement refers to child ID's drawn from the Children's Record Form (CRF), an NLS main Youth survey interviewing aid containing information on the biological (Part A) and nonbiological (i. e. , adopted or step-children listed in Part B) children of the respondent. The CRF has been used since

the 1985 surveys to: (1) provide identification numbers, names, dates of birth, sex, deceased/adopted status for each child; and (2) identify special sections of the questionnaire (i.e. , immunization, feeding, etc.) which need to be administered for particular children. A sample Children's Record Form can be found in the NLSY main survey Interviewer's Reference Manuals, a special series in the NLSY documentation (see Section 6 of this Handbook). Information from the Children's Record Forms can be found within two files (CRFBIO and CRFNBIO) on the NLS main Youth tape or in Youth Record Types CRFBIO, CRFNBIO on the Female Youth dataset of the NLSY Child CD-ROM. In 1986, if someone other than the child's mother answered the questions in the first sections of the Child Supplement, interviewers were instructed to record information about this "caretaker" on the concluding page of the supplement. A Caretaker Locating Form was used by interviewers, as they administered the main questionnaire to the mother, to locate biological children who were living outside the mother's household at the time of the 1986 interview. The form listed the child's usual residence distance from mother's household and specific information on the child's current address. While every effort was made to assess these children, the information on the locating form was not data entered. In 1988 through 1992, children living outside their mothers home were not assessed.

(2) The Child Health section - information from the mother on the child's health limitations, accidents and injuries, medical treatment in the last twelve months, health insurance coverage, as well as measures of the child's height and weight at the time of interview.

(3) Parts of the Body - ten items, developed by Kagan, which measure the ability of children aged one or two to identify various parts of their bodies. This assessment was used in 1986 and 1988 but not in subsequent child interview reports.

(4) Memory for Location - developed by Kagan, which measures the ability of children eight months of age through three years to remember the location of an object which is subsequently hidden from view. This assessment was used in 1986 and 1988 but not in subsequent child interview reports.

(5) McCarthy Verbal Memory Scale - a subtest of the McCarthy, (Psychological Corporation), which assesses short-term verbal memory of children aged three through six

years to remember words, sentences, or major concepts from a short story. Part C, the story, was removed from date collection after the 1990 survey.

(6) What I Am Like/SPPC - two scales from Harter's Self Perception Profile for Children, which measure perceived self-competence in the academic skill domain and sense of general self-worth for children aged eight and above.

(7) Memory for Digit Span - a component of the revised Wechsler Intelligence Scales for Children (Psychological Corporation), which assesses the ability of children seven years of age and older to remember and repeat numbers sequentially in forward and reverse order.

(8) The Peabody Individual Achievement Test (PIAT) Math subtest - (American Guidance Service), a wide-range measure of achievement in mathematics for children with a PPVT age[1] of five years or older. The adaptation of the administration form in the Child Supplement is accompanied by the standard PIAT test materials contained in Volume I of the PIAT Easel-Kit.

(9) The PIAT Reading Recognition and Reading Comprehension subtests - (American Guidance Service), which assess the attained reading knowledge of children with a PPVT age of five and older. The item format in the Child Supplement supplanted the standard PIAT record booklet but interviewers used Volumes I and II of the official Easel-Kit which contain the official item plates and instructions for administration.

(10) The PPVT-R (Form L) - (Peabody Picture Vocabulary Test - Revised, American Guidance Service), used to measure the hearing vocabulary knowledge of children whose PPVT age is three and above. As with the PIATs, children were shown the official PPVT item plates and their responses were recorded in the Child Supplement.

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[1] PPVT age is discussed in detail in Section 5.

(11) Interviewer Evaluation of Testing Conditions - used to gauge the attitude of the child toward testing, the child's general physical condition, and whether there were any events that interfered with assessment or caused premature termination of the session.

(12) Interviewer Observations of the Home Environment (Caldwell and Bradley) - a subset of all the HOME items selected for administration, these items indicate interviewer perceptions of child-mother interaction and the nature of the child's physical environment. Most HOME items are included as maternal report items in the Mother Supplement.

Child Self-Administered Supplement (CSAS)

First developed for the 1988 interviews, this self report booklet, filled out by children 10 years or older, collects information on a wide range of topics including child-parent interactions, family decision-making, attitudes toward school, extra-curricular activities, child employment, peer relationships and dating activities, religious identification and attendance at religious services, sex education, participation in various delinquent activities, use of cigarettes, alcohol, and other illegal substances, and age at initiation of sexual activity. The contents of the supplement have been gradually expanded since 1988. In 1992, for example, items were added to obtain information on dates of birth and usual residence of any children born to the NLSY children age 13 or older.

Language of Administration.

The following Child assessment instruments have been translated into Spanish:

    (1) the entire Mother Supplement

    (2) some sections of the Child Supplement

            Section 1 - Child Background (mother report)

            Section 2 - Child Health (mother report)

            Section 3 - Parts of the Body

            Section 4 - Memory for Location

            Section 6 - What I am Like/SPPC

            Section 7 - Memory for Digit Span

            Section 10 - PPVT-R (starting in 1988)

    (3) The Child Self-Administered Supplement for children 10 years and older.

A total of 354 children, age eight months or older, were assigned to bilingual interviewers in 1986. Of these cases, slightly more than 100 children were actually assessed in Spanish. According to the 1986 main

NLSY documentation, only 56 mothers were administered the NLS main Youth questionnaire in Spanish. In 1990, 114 main Youth respondents requested that the survey be conducted in Spanish. A total of 100 children were assigned to bilingual interviews in 1988 and 52 in 1990. Of these latter cases, only 17 children were actually assessed in Spanish in 1990.

Interviewer Selection

Prior to each fielding, a staff of trainers for the Child survey is selected from the ranks of NORC divisional field managers and upper level field managers by NORC's Office of Field Communication and Management (OFC&M). Field managers involved in the pretest training, observations and meetings with the OFC&M liaison are included in the selection process. These trainers are brought to the Chicago office for a concentrated three-day session to train them or update their techniques for administering the measurements to be included in the Child Study.

NORC attempts, to the fullest extent possible, to use interviewers with prior experience on the NLSY or on comparable surveys. Interviewers with successful experience on previous rounds of the NLSY Child or experienced NLSY interviewers who are deemed to have the ability to work well with children of various ages are given first consideration for the Child Study. When it becomes necessary to hire new interviewers for the project, thought is given to the prospect's ability and desire to work with children. Questions are incorporated into the personal interview with applicants to help determine aptitude in this area. If, during training, it becomes evident that an interviewer might experience difficulty in the field, the interviewer is shifted from the Child portion of the study. Field staff selecting interviewers for the Child Study all attend the Trainers' Training session so they are familiar with what is expected of a Child Interviewer. As with recruitment for any NORC study, hiring for the Child Study is conducted by the Administrative Field Supervisor, the person most familiar with interviewer skills, work habits and personality.

Interviewer Training

Training sessions are typically held at a small number of sites around the country. These personalized small group sessions are geared toward developing child interviewing skills, instructing attendees on the use of the Child study instruments, and reviewing NORC's administrative procedures and policies. Interviewers receive a training kit of home-study materials for review prior to the group sessions.

Each interviewer training session, which lasts two and one-half days, is run by a head trainer and observed by staff from the NORC central office and CHRR. The sessions begin with an overview of the study, general field procedures, and a taped lecture on establishing rapport and maintaining the attention

of children of various ages. Detailed instructions on the administration of each assessment follows. Video tapes are used to provide models of the procedures. Pairs of interviewers participate in "mocks," scripted exercises in which the trainees take turns playing the roles of child and test administrator. Group discussion follows each set of mocks so that interviewers have an opportunity to check their administration and scoring procedures and to ask questions. The training session concludes with a set of exercises that are scored by NORC to assess the degree to which the interviewers have mastered the testing procedures. As discussed later in this section, (see Data Quality Control), interviewers are also required to tape and submit their first actual child interviews to the NORC central office for a complete case edit.

Approximately two hundred people are trained as child interviewers for each round of data collection. Some interviewers originally selected as Child interviewers do not make it through the rigors of training, and others self-select out.

Field Procedures

Child Interviewing Field Period

The child interviews are generally conducted simultaneously with the NLS main Youth interviews each survey year. The 1986 child interviews were conducted during the months of February to July while the 1988 and 1990 interviews took place during June to December. While interviewers attempt to interview the mother and her children on the same day, the length of the main interview and the number of children in the household often requires scheduling one or more child cases for separate days. Sometimes a mother has time to complete the Mother Supplement but requests that the assessments contained in the Child Supplement be administered on another day. Such scheduling occasionally means that the Child Supplement assessment date does not match the Mother Supplement assessment date. However, a difference in the age of the child at each assessment date rarely occurs. Researchers conducting research on topics where time periods are critical should carefully examine the reference period of variables tied to the mother's interview dates as well as the actual child assessment dates. This issue is considered more extensively in Section 5.

Interview Methods

During each survey round, NORC attempts to reach all respondents within the active samples. No respondents are excluded from locator efforts with the exception of respondents who are known to have died. Thus, the permanent NLSY sample designated for interviewing during the 1986 interview year consists of all civilian respondents who were interviewed in the base year and who were alive at the survey date.

Respondents in the NLSY reside in each of the fifty states, including the District of Columbia as well as countries abroad. Locating respondents is a coordinated effort of NORC's central office, its locating shop, and local level field staff. Prior to fielding a survey round, NORC's central office sends a short, informative "locator letter" to each respondent reminding the respondent of the upcoming interview and confirming the respondent's current address and phone number. Female respondents known to be mothers as of the current interview year are sent a special letter that introduces the Child data collection effort and briefly explains the assessments. In addition to its comprehensive locating efforts, NORC makes every effort to convert initial respondent refusals to completed interviews. A detailed discussion of NORC's locating and conversion methods can be found in the current NLS Handbook.

In many cases, mothers and their children are interviewed by the same individual who had interviewed the mother at least once and sometimes several times prior to the current interview. While personal interview is the primary contact method used for the NLSY survey, it is not the exclusive method. Telephone contact occurs under certain circumstances where the respondent resides in a remote area or field staff determines that phone contact is the preferred method of interviewing. During the 1990 personal interviews, 12.6 percent of the main NLSY sample was interviewed by phone. A small number of Mother Supplements and maternal report sections of the Child Supplement are administered by phone, ranging from 1% (69) in 1986 to 3% (186) in 1990.

The average length of the main NLSY interview is approximately one hour. The administration of the child assessments adds about 30 minutes to the total survey time. Each Youth respondent is paid ten dollars upon completion of the main interview. NLSY mothers participating in the child assessments are paid an additional five dollars for each child assessed. Parents generally exhibit a high level of cooperation during the testing of their children. In fact, NORC interviewers often report that several respondents feel that the Child Assessment study maintains their interest in the NLSY survey as a whole. While some parents find it difficult to remain uninvolved in the testing process, most interviewers administer the assessments with no significant interference. Section 5 of this Handbook provides a more detailed discussion of the interviewer's evaluations of testing conditions.

NORC's extensive locating methods, its conversion strategy, and its close monitoring of response rates have resulted in an extraordinarily high retention rate for a longitudinal panel of this duration. Table 1.2 presents NLSY retention rates for the overall sample. Attrition rates for the female sample, mothers and children between 1979 and 1990 are discussed in Section 3, Table 3.1. Completion rates by child race/ethnicity for each assessment are detailed in Section 5 and summarized in Table 3.2.

Data Quality Control

In order to insure quality control during every phase of the field operation, NORC has two primary mechanisms, case editing and validation, to evaluate the performance of the field staff and to maintain the quality of the data while they are being collected.

Case edits by field supervisors occur very early in the data collection round to detect any weaknesses overlooked during training. Each interviewer mails the first two completed cases, accompanied by cassette recordings of the child interviews, to the supervisor and then awaits feedback before proceeding with additional assessments. A 100 percent case edit is conducted on these first cases according to written specifications provided by the project, including criteria for passing and failing the edit. Supervisors contact those interviewers who pass the edit and discuss any errors that were found. Interviewers who fail the edit are notified that, based on the seriousness and extent of the problems, either they need additional instruction, need to shift to another assignment, or will not be retained. Interviewers who fail the edit but who are retained on the NLSY Child Study are required to submit another round of case edits for review before resuming a full caseload.

During the first several weeks of the field period, all field managers are called by a supervisor or a coder from the central coding shop about the quality of the incoming cases. The first calls focus on three types of errors: (1) errors made by a number of interviewers -- these are handled as overview comments; (2) information which needs to be retrieved for a specific interviewer; and (3) any other coding problem a specific interviewer is experiencing. Subsequent calls include interviewer-specific problems to the field manager, district field manager, and central office supervisor. Copies of the overview comments are mailed to the interviewers and to CHRR staff.

Validation, another process for monitoring the performance of interviewers, is used by NORC to: (1) certify that data have been accurately, reliably, and professionally collected; and to (2) confirm that interviewers are completing cases as reported with the correct respondent. NORC conducts call backs on a random sample of about 15 percent of all NLSY cases to verify the date of the interview, the duration of the interview, and the level of accuracy with which selected information is obtained and recorded. Female respondents with at least one biological child are asked about the number, age, and residence of their children, whether the children were assessed and approximately how much time the interviewer spent with each child. The respondent is also given an opportunity to offer comments or criticism about her children's participation in the data collection effort. Once the case validation is completed, NORC's staff assesses the results of the call to determine whether any problem or irregularity appeared.

Data Processing

As child cases arrive at the NORC central office, they are directed through a controlled pattern of data reduction steps designed to produce clean machine-readable data. Processing begins with confirmation that all required child instruments and administrative forms are included with the case and that each item contains matching case identification numbers. All documents for each case are placed in a labeled file jacket and batched for routing to the coding department. Those cases randomly selected for validation are specially marked for priority handling. The following steps are conducted for each case: coding, keying, cleaning, hardcopy storage in the NLSY Library, and finally the creation of a machine-readable datafile.

Coding and Editing

To prepare each questionnaire for data entry, a specially trained team of coders examines all case documents and applies a series of editing conventions, developed in conjunction with CHRR personnel. Since the Mother Supplement and the Child Self-Administered Supplement are self-report documents, there are sometimes inadvertent multiple answers to questions that require mutually exclusive responses. If, for example, a mother marks two adjacent codes on scaled items or places a mark equidistant between two codes, coders choose a response by flipping a coin. If a mark appears on a line between codes, coders circle the one nearest to the mark. All questions with multiple responses are logged with the CASEID, the location of the question, and a brief description of the responses. This information is later transferred to CHRR with the hard copy child instruments.

Through 1988, a group of four coders was given special training in the scoring of the story section (Part C) of the McCarthy Verbal Memory subtest in the Child Supplement. Using the circled concepts and added notations made by interviewers on the "idea sheet" inserted into the section, they scored the story, according to the McCarthy Manual, with the codes provided in the Child Supplement. While the Child Supplements from 1986 and 1988 were originally printed with space for interviewers to enter the total Part C score, they were instructed to ignore this question and leave all scoring of the story to the central coding staff.

During the case edit, coders also flag any missing or inconsistent data on critical items that are observed in the supplements. A description of the retrieval errors and the corresponding hardcopy questionnaire are forwarded to NORC's retrieval shop for further processing.

Data Retrieval

The need for retrievals on critical items in the Child data is quite low. Obviously children cannot be recontacted to retrieve missing assessment responses and mothers cannot be expected to supply information on isolated missing assessment items via telephone. NORC focuses their retrieval efforts on missing or inconsistent child age and date of birth data, most of which they are able to resolve using in-house sources of information.

Data Entry

All information filled in by the interviewer is data entered exactly as it is found in the Child instruments. Ten percent of the cases are 100 percent verified, that is, data are double- entered, compared, and checked against hard copy when discrepancies are found. A special program is run against entered data to: (1) make valid value and range checks, (2) perform logic checks or simple arithmetic checks, (3) flag important missing items, and (4) avoid entry of skipped fields. These data quality checks help to prevent the entry of invalid values and to identify earlier errors made by interviewers and/or coders. Once the data are received from NORC, CHRR subjects several key items to a complex series of consistency checks and edits.

Table 2.1   List of NLSY Child Data Collection Instruments

Child Supplement + Q X Q's - interviewer-administered booklet completed for each child. The CS is used to collect general and health-related background information from the mother of each child; interviewer evaluations of the testing conditions and observations of the child's home environment, and responses from the child to questionnaire items from the following assessments: (1) Body Parts (1986, 1988), (2) Memory for Location (1986, 1988), (3) Verbal Memory, (4) SPPC/What I am Like, (5) Digit Span, (6) PIAT Math and Reading, and (7) the PPVT. The CS QxQ's are annotated copies of the Child Supplement designed to provide interviewers with detailed administration instructions and definitions of certain items.

Infant Supplement - 1986 - abbreviated form of the Child Supplement designed for use in households with children under 8 months of age.

Mother Supplement + Q X Q's - self-report booklet completed by the mother or guardian of each child. The MS contains questionnaire items for the following assessments: (1) the HOME-SF, (2) How My Child Usually Acts/Temperament, (3) Motor and Social Development, (4) the Behavior Problems Index, and, starting in 1988, (5) School and Family Background for children 10 years or older. The MS QxQ's are annotated copies of the Mother Supplement designed to provide interviewers with detailed administration instructions and definitions of certain items.

Mother of Infant Supplement - 1986 - abbreviated form of the Mother Supplement designed for use in households with children under 8 months of age.

Caretaker Locating Form - 1986, 1988 - used by interviewers as they administered the main NLS Youth questionnaire to locate children living outside the mother's household. The form lists the distance of the child's usual residence from the mother's household and specific information on the child's current address.

Caretaker Household Interview - 1986, 1988 - administered to caretaker of children not living in the household of the mother respondent. Includes information about the composition, education, and employment status of the caretaker household as well as locating information potentially useful for future contact with the child. This information has not been data entered.

Child Self-Administered Supplement (CSAS) - 1988, 1990 - self report booklet for children 10 years or older containing items on interactions with parents, responsibilities in the home, time use after school, religion, peer relationships, dating, sexual activity, sex education, attitudes, and absence from parents.

Confidential Child Self-Administered Supplement (CSAS) Card - administered at the end of CSAS for children 13 years or older. In 1988 and 1990 it contained a single question about date and age of onset of sexual activity. In 1992, items were added on dates of any live births.

Child Showcard A - 1986, 1988 - picture of child used in administering Body Parts assessment.

Child Showcard Set B - cards, containing statements from What I Am Like section of the Child Supplement, designed for child's reference as Interviewer reads items.

Childrens Record Form (CRF) - from main NLS YOUTH - includes for each child of main Youth Respondent, child's name, identification number, date of birth, child sex, deceased/adopted status, indication whether special sections of the main questionnaire need to be administered.

Child Face Sheet - 1988, 1990 - Interviewer information sheet containing child ID, name, mother's sample type (1990), Child Supplement interview date, child date of birth, child's age at date of Child Supplement, PPVT age, school grade, whether child has had menses, interviewer ID, and a grid indicating which assessments should be administered.

3

NLSY MOTHER AND CHILD SAMPLES

This section of the Handbook describes the sample of NLSY mothers and their children. Particular emphasis is given to sampling constraints imposed by respondent characteristics and attrition. The development of child sampling weights and their application are also discussed.

The Sample and Sampling Constraints

In the 1990 NLSY Child data files, each respondent or sample case is a child who had been born by 1990 to one of the original NLSY female respondents. The sample, when weighted, represents a cross-section of children born to a nationally representative sample of women who were between the ages of 25 and 32 on January 1, 1990. The children in the sample typify approximately the first two-thirds of childbearing to a contemporary cohort of American women and should not be thought of as representative of all American children. The original NLSY sample included 6,283 women in 1979. This includes 456 women who were in the military at that time, almost all of whom were dropped from the sample following the 1984 survey round. Additionally, following the 1990 survey round, the original economically disadvantaged ("poor") white oversample, which included 901 women, was also dropped because of financial constraints. In anticipation of this deletion and reflecting N.I.H. budget constraints, children born to these economically disadvantaged white women were not assessed in 1990. Deleting almost all the military women and the poor white women left a sample of 4,941 women eligible to be interviewed. Of these women, 4,510 or about 91 percent of those eligible, were interviewed in 1990. About 68 percent (3,088) were mothers (see Table 3.1).

As of the 1990 survey, 8,513 children have been identified as born to the original sample of 6,283 NLSY women. Obviously, an additional unknown number of children have been born to women who are no longer being interviewed following their attrition from the main Youth sample. However, 858 children are known to have been born to women who left the sample before 1990 and an additional 1,254 children have been born to poor white women. This leaves 6,427 children as actually having been born to women who were interviewed in 1990; 5,949 of these children were living in the homes of their mothers and at

least some assessment information (e.g., child health) was collected for 5,803 children. Of these interviewed children, a HOME score (the one assessment relevant to all age groups) is available for 5,359—about 90 percent of those living with their mother.

Child Response and Completion Rates, 1990

The child assessment response rate differs slightly between white, black and Hispanic children in the sample. The child sampling weight adjusts for overall assessment nonresponse. The sampling weight essentially adjusts upward the number of children who were assessed to the total number of children estimated to have been born to the original sample of 5,828 civilian women and redistributes the children (by race/ethnicity and social class) such that the sample of children properly represents children born to a representative sample of women twenty-five to thirty-two years of age on January 1, 1990.

The sampling weight does not adjust for selective assessment non-completion. This modest assessment attrition is described in detail in Table 3.2, which shows the proportion of children available and eligible to take each assessment who actually completed and could be scored on the assessment. For example, it may be noted that, overall, 1,328 children under the age of three were available (i.e., actually identified as having been born to a woman who was interviewed in 1990) for a HOME assessment, and 1,181, or 88.9 percent, have a valid score on this assessment. This completion rate varies across assessments and by race/ethnicity of the child. Because the sampling weight does not adjust for differential attrition, it is possible that population estimates of numbers or distributions of children completing a particular assessment could be slightly inaccurate.

Whom Do the NLSY Mothers and Children Represent?

As previously emphasized, the NLSY sample includes (when weighted) a representative sample of American mothers twenty-five to thirty-two years of age on January 1, 1990. The children of these women are representative of American children who have been born to such a sample of women. Thus, as will be demonstrated, the sample includes an over-representation of children born to relatively younger mothers, less educated and disadvantaged mothers, and minority mothers. While the younger children in the sample will have been born to a fairly heterogeneous socio-economic group of women, the older children are more likely to have been born to younger mothers. This particular sample constraint was highly significant in 1986, when we began assessing the children. At that time, a substantial proportion of the children had been born to younger mothers. However, by 1990, the magnitude of this sample censoring has been greatly reduced, as the mothers continue to age and their children increasingly have a more heterogeneous profile.

Children Assessed in 1990

Table 3.3 provides information on the children who were assessed in 1990. As can be seen, there are very large numbers of children at all ages below twelve, and sufficiently large numbers to permit some analyses at ages twelve through fifteen. From an analytical perspective, it is important to note that all children age 14 and over and the large majority of children age eleven and over were born to teenage mothers. This older sample of children can readily be used for a variety of analyses focusing on the consequences of early childbearing, but they should be used cautiously in any analyses generalizing to a broader cross-section of mothers and children. Table 3.4 suggests one other caveat for studies focusing on the consequences of adolescent childbearing. A large proportion of all adolescent births to NLSY women occurred prior to the first (1979) survey round. If the essential explanatory inputs for one's analysis include pre-1979 points (e.g., employment status in 1977 or early paternal presence in the home), one's sample size may be temporally constrained because of a left censoring problem--the unavailability of some data elements for the pre-survey period. Having noted these constraints, it is emphasized that the sample does include a significant number of adolescent births that have occurred since 1979. Furthermore, the number of adolescent children born to a heterogeneous sample of mothers is increasing substantially with each additional survey round. As of 1990, about 380 of the 1290 adolescents have been born to mothers age 20 and <u>over</u>.

Table 3.5 further clarifies one implication of this sample selection issue. The younger children in the sample are substantially more likely to be white, to have been born to older mothers and, even after controlling for race/ethnicity, to have more educated mothers (not reported in table). These characteristics suggest that researchers should be extremely careful to control as much as possible for all factors known to be linked with child age in this sample, if one's analysis is comparing child outcomes across child ages-- even if using standardized scores for a single assessment.

Children of Mothers Interviewed in 1990

Tables 3.6 and 3.7 provide summary statistics regarding the extent to which any sample biases remain due to the fact that the NLSY mothers and children as of 1990 do not fully typify, in a socioeconomic sense, all the women and children in this birth cohort. It may be seen from Table 3.6 that there is a pronounced pattern of mothers who have lower levels of education and older children. Over half of mothers of children age 12 and over have not completed high school compared with lesser percentages for mothers of younger children. Indeed, only 18 percent of mothers of infants in the sample are high school dropouts.

Table 3.7 puts these patterns of age at birth in an even broader perspective--this time more directly from the women's viewpoint. First, women who had children at the youngest ages are much more likely to not have completed high school by 1990 compared with women who had their first child at increasingly older ages. Second, about 18 percent of the approximately 69 percent of the women's sample who have had children have not completed high school compared with 4.4 percent of the 31 percent of the sample who have not yet had a child. Thus, when comparing child characteristics or outcomes (1) between older and younger children and (2) between mothers and non-mothers, one must carefully take into account the substantial differences between the women and mothers in these different situations. Additionally, as both tables 3.6 and 3.7 indicate, there are substantial sample sizes of children and mothers in these different socio-economic and demographic statuses for carrying out comparative in-depth analyses.

Child Sibling Information and Multiple Child Households

Because child assessment information is collected for all children born to female respondents, the NLSY Child data set offers unique opportunities for comparing development profiles for all of the children born to mothers and for evaluating in part how these profiles may differ due to different within-family experiences. As of 1990, there is available a large sample of mothers who have borne several children. As may be seen in Table 3.8, there are 1,137 interviewed mothers with two children eligible to be assessed and 848 mothers with three or more children. There are large samples of black, Hispanic and other white multiple child households and, as of 1990, the age dispersion of the siblings is considerable. Since the NLSY sample includes a large number of sisters, the child data can be used not only for sibling comparison analyses, but also for cousin comparisons (i.e., comparing characteristics of children born to sisters from the original sample). This relatively large sample of siblings and cousins within the child generation permit researchers to explore within- and cross-family effects to a greater extent than is typically possible.

The main Youth data set contains the date of birth and sex of each child of NLSY mothers as well as spacing between births. Variables measuring the number of months between first and second children and between second and third children are provided for all interviewed Youth respondents for each survey year. Users interested in these and other constructed Fertility variables are encouraged to consult Appendix 5 of the Supplemental NLSY Documentation, available from CHRR and discussed briefly in Section 6 of this Handbook. To construct similar variables on the NLSY Child file, the sibling identification codes (reference numbers E3. - E8.10) to link related children.

Child Sampling Weights

The 1990 child sampling weight adjusts for child attrition between 1979 and 1990. This includes adjustment for sample reduction due to the loss of the military and economically disadvantaged white oversample as well as overall sample attrition. All children not assessed in 1990 are assigned a 1990 sampling weight of zero. Adjustments are also included for the unweighted sample over-representation of black and Hispanic youth. When presenting any of the data in tabular form, appropriate population weights should be used if the researcher intends to make population inferences from the NLSY sample. The appropriate 1986 through 1990 weight variables are referenced by E5812., E8007. and E999. respectively. Using these weights translates the unweighted sample of assessed children into one which is approximately representative of all children who have been born by a particular survey date to a nationally representative sample of women who were 14 to 21 years of age on January 1, 1979. However, considerable caution should be exercised when comparing weighted populations across survey points, as modest variations between populations or sub-populations in characteristics may well be due to variability between the child sampling weights for the different years.

Computation of the Child Weights

The weights generated for the Children of the NLSY are constructed to allow internal norms to be generated for certain assessments. For this reason weights are computed only for children who have been assessed. The child's weight equals the mother's 1979 weight multiplied by an adjustment factor that is the reciprocal of the rate at which children in a particular age, sample-type, and sex cell are assessed. When the age, sample-type, sex cells yields small counts, cases are grouped across ages (and sometimes sample types) to avoid large fluctuations in the child weights. This grouping can produce instability for older children for whom cell sizes are small. Because the economically disadvantaged non-black, non-Hispanic oversample (i.e., the poor white oversample) was not assessed in 1990 in anticipation of its discontinuance in the 1991 main survey (as well as because of financial limitations), the completion rates in certain age, sample-type, sex cells exhibit more variability than one would anticipate from the 1988 rates.

Using the Child Weights in Analysis

We caution users that comparing weighted data across years is risky, as the composition of the sample can change in subtle ways depending on who is interviewed. Analyzing data from persons interviewed in multiple years also creates problems since the yearly weights are not appropriate to such a universe. To be correct, weights for a multi-wave analysis would have to be constructed specifically for that particular set of observations.

Because many users ask whether and how weights should be used, we will provide our judgement on this matter. First, if one is estimating a regression or similar model, weights probably should not be used, or should only be used very cautiously. Many users note that the NLSY child sample is rich in black and Hispanic children, and to avoid over-representing these children in their analysis, the user is inclined to use a weighted analysis. We feel this urge should be resisted. If the user feels that blacks and/or Hispanics follow a systematically different empirical law than sample whites (more often the case than not), the analysis should be done separately by race. Most statistics texts contain the Gauss-Markov theorem for ordinary least squares, and users should familiarize themselves with the conditions under which least squares has the desired properties.

Sometimes users employ weighted least squares to obtain "average estimates" across groups that are thought to follow different empirical laws and hence have different regression coefficients. This "quick and dirty" approach to aggregation is exactly that. Weighting the data prevents the oversample from having disproportionate effect on the results, but these "averages" may differ from a weighted average of the coefficient estimates obtained from the individual samples. Moreover, even if the error terms for the regression equations for the various sample types are all mutually uncorrelated and have the same variance, it is unlikely the computed standard errors from the pooled, weighted regression will be the true standard errors.

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Table 3.1   NLSY Mother and Child Samples: 1986, 1988, 1990 Surveys

	1979	1986[a]	1988[a]	1990[b]
NLSY Females				
Eligible for Interview	6283	5842	5842	4941
Interviewed	6283	5418	5312	4510
NLSY Mothers				
Interviewed	----	2910	3343	3088
Interviewed & Children Interviewed	----	2774	3196	2772
NLSY Children				
Born to Interviewed Mothers	----	5255	6543	6427
& Interviewed	----	4971	6266	----
Living in Household of Eligible Mother	----	----	----	5949[c]
& Interviewed	----	----	----	5803[d]
Assessed, i.e., Interviewed with a Valid HOME Score	----	4786	5937	5359

[a] Sample sizes for 1986 and 1988 exclude the 441 female members of the military subsample dropped from interviewing in 1985 and the children born to these women.

[b] Sample sizes for 1990 exclude, in addition, female members of the civilian white economically disadvantaged subsample whose children were not eligible for assessment during this child survey year.

[c] Based on the mother's report that her child's usual residence is the mother's household. This information is collected during administration of the "Fertility" section of the 1990 NLSY main questionnaire. The difference between 6,427 and 5,949 is accounted for by children living in other residences or children who are deceased.

[d] Interviewers were able to directly assess a child or were able to obtain a maternal report of the child's background, health, or assessment information as recorded in either the *Child Supplement* or *Mother Supplement.*

[e] The number of children with valid scores on individual assessments varies by instrument. The *Home Observation for Measurement of the Environment (HOME)* is the only assessment for which all children are eligible.

Table 3.2 Child Assessment Completion Rates by Race/Ethnicity, 1990: Unweighted ("Raw") Data

| Assessment | Child Age | RACE/ETHNICITY | | | | | | | | | | | |
| | | ALL CHILDREN | | | HISPANIC | | | BLACK | | | WHITE | | |
		Total Sample	Valid Sample	Percent Valid	Total Sample	Valid Sample	Percent Valid	Total Sample	Valid Sample	Percent Valid	Total Sample	Valid Sample	Percent Valid
The HOME	< 3 Years	1328	1161	88.9	278	241	86.7	379	351	92.6	670	588	87.8
	3-5 Years	1410	1295	91.8	321	293	91.3	413	370	89.6	676	632	93.5
	6-9 Years	1769	1670	94.4	426	404	94.8	613	576	94.0	729	689	94.5
	10 Years & Older	1296	1213	93.6	279	254	91.0	588	554	94.2	429	404	94.4
Temperament	< 1 Year	409	393	96.1	80	77	96.3	112	109	97.3	215	205	95.3
	1 Year	457	446	97.6	94	91	96.8	139	137	98.6	224	218	97.3
	2-6 Years	2325	2237	96.2	525	498	94.9	688	666	96.8	1110	1071	96.5
Motor and Social Development	Under 4 Years	1763	1601	90.8	383	349	91.1	497	442	88.9	882	810	91.8
Behavior Problems	4 Years & Older	4040	3832	94.9	921	865	93.9	1496	1403	93.8	1622	1563	96.4
Verbal Memory Part A & B	4-6 Years	626	552	88.2	156	127	81.4	189	173	91.5	281	252	89.7
Verbal Memory Part C	4-6 Years	626	519	82.9	156	116	74.4	189	165	87.3	281	238	84.7
SPPC-Global	8 Years & Older	2154	2007	93.2	500	453	90.6	889	858	96.5	765	696	91.0
SPPC-Scholastic	8 Years & Older	2154	2007	93.2	500	453	90.6	889	858	96.5	765	696	91.0
Digit Span	7 Years & Older	1656	1477	89.2	407	356	87.5	612	569	93.0	636	551	86.6
PIAT Math	PPVT Age (5 Years +)	3604	3321	92.1	822	730	88.8	1368	1304	95.3	1413	1281	90.7
PIAT Reading Recognition	PPVT Age (5 Years +)	3604	3270	90.7	822	715	87.0	1369	1285	93.9	1415	1267	89.5
PIAT Reading Comprehension	PPVT Age (5 Years +)	3604	3209	89.0	684	564	82.5	1203	1092	90.8	1181	1012	85.7
PPVT-R	PPVT Age (4 Years +)	1351	1155	85.5	331	270	81.6	484	433	89.5	536	452	84.3

Note: The 5803 children in this universe, of the 6401 born to mothers (excluding those who are "poor white") interviewed in 1990, are those known to be available (primarily in their mother's home) at the time of assessment.

Table 3.3   Age of Child in 1990 by Age of Mother at Birth of Child: Children Assessed in 1990

AGE OF CHILD IN 1990	MATERNAL AGE AT BIRTH OF CHILD																	TOTAL
	LE 14 YRS	15 YRS	16 YRS	17 YRS	18 YRS	19 YRS	20 YRS	21 YRS	22 YRS	23 YRS	24 YRS	25 YRS	26 YRS	27 YRS	28 YRS	29 YRS	30 + YRS	
Mother not Interviewed in 1990					1			1				1	1		2			6
Lt 1 YR												40	67	60	60	52	132	411
1 YR											42	54	64	73	73	52	99	457
2 YRS									2	40	64	79	77	65	55	42	40	464
3 YRS								2	30	71	63	49	59	57	49	43	10	433
4 YRS								2	38	57	67	47	57	55	57	55	22	457
5 YRS						3	33	75	78	77	67	64	62	49	17			525
6 YRS					2	39	53	60	53	59	63	47	60	11				447
7 YRS				2	31	54	67	61	60	51	58	56	12					452
8 YRS				23	44	69	55	64	81	57	66	13						472
9 YRS			10	29	46	65	74	51	43	57	14							389
10 YRS		7	28	45	55	54	70	59	52	11								381
11 YRS	1	7	27	27	43	47	44	61	13									270
12 YRS	5	11	24	36	37	40	45	12										210
13 YRS	3	10	21	37	36	44	12											163
14 YRS	1	12	34	31	40	13												131
15 YRS	4	14	24	33	9													84
16 YRS		8	14	7														29
17 YRS	4	7	5															16
18 YRS	3	2																5
19 YRS	1																	1
Total	22	78	187	270	344	428	455	484	469	490	484	460	457	372	311	211	281	5803

Table 3.4   Year of Birth of Child in 1990 by Age of Mother at Birth of Child: Children Assessed in 1990

MATERNAL AGE AT BIRTH OF CHILD

YEAR OF BIRTH OF CHILD	LE 14 YRS	15 YRS	16 YRS	17 YRS	18 YRS	19 YRS	20 YRS	21 YRS	22 YRS	23 YRS	24 YRS	25 YRS	26 YRS	27 YRS	28 YRS	29 YRS	30 + YRS	TOTAL
1971	3																	3
1972	1	5																6
1973	4	8	8															20
1974	2	9	17	13														41
1975	2	13	25	41	18													457
1976	2	10	33	26	46	22												525
1977	4	11	22	40	28	48	29											447
1978	3	11	26	30	40	41	38	31										452
1979	1	7	27	32	54	47	56	60	28									472
1980		4	26	46	50	62	68	53	49	30								389
1981		3	26	45	74	69	54	58	61	25								381
1982			16	47	57	58	68	72	49	73	32							270
1983				16	55	63	65	60	53	61	51	30						210
1984					22	54	64	57	69	61	49	64	27					163
1985						20	67	74	66	62	67	57	43	34				131
1986							22	55	70	57	55	50	64	51	32			84
1987								16	72	57	57	78	68	50	50	21		29
1988									20	65	72	70	56	52	36	59		16
1989										23	59	71	77	81	64	115		5
1990											18	37	37	43	29	86		1
Total	22	78	187	270	344	428	455	484	469	490	484	460	457	372	311	211	281	5803

Table 3.5 Child Age in 1990 By Race/Ethnicity: Children Assessed in 1990
(Unweighted Estimates)

	Percent Hispanic	Percent Black	Percent White	Mean Age of Mother at Birth
Age of Child 1990				
Less Than 1 Year	20.0	27.5	52.6	28.3
1 Year	20.1	30.6	49.2	27.5
2 Years	22.4	27.6	50.0	26.3
3 Years	24.9	27.0	48.0	25.6
4 Years	22.3	29.8	47.9	24.8
5 Years	21.9	31.0	47.0	23.6
6 Years	22.1	32.4	45.4	22.7
7 Years	22.6	36.1	41.4	21.8
8 Years	29.2	33.3	37.5	21.1
9 Years	22.1	37.5	40.4	20.2
10 Years	21.3	39.4	39.4	19.3
11 Years	23.3	43.0	33.7	19.0
12 Years	22.9	45.7	31.4	18.1
13 Years	19.6	49.1	31.3	17.7
14 Years	20.6	48.9	30.5	17.0
15 Years	19.0	58.3	22.6	16.3
16 Years	24.1	55.2	20.7	16.0
17 Years	0.0	75.0	25.0	15.0
18 Years	40.0	60.0	0.0	13.8
19 Years	0.0	0.0	100.0	13.0
Total	22.5	34.4	43.1	22.9

Table 3.6   Age of Child in 1990 by Highest Grade of School Completed by Mother
(Sample Cases)

| HIGHEST GRADE COMPLETED BY MOTHER | AGE OF CHILD IN 1990 (in years) | | | | | | | | | | | | | TOTAL |
	<1	1	2	3	4	5	6	7	8	9	10	11	12+	
0-11 Years	80	100	102	103	120	130	147	158	178	173	163	130	414	1998
12 Years	148	192	202	185	207	257	219	212	230	196	172	124	239	2583
13+ Years	209	188	182	169	169	175	124	134	116	81	97	56	141	1841
TOTAL	437	480	486	457	496	562	490	504	524	450	432	310	794	6422
Percent of Children Born to H.S. Dropouts	18.3	20.8	21.0	22.5	24.2	23.1	30.0	31.4	34.0	38.4	37.7	41.9	52.1	31.1

Note: Sample includes all children born to women interviewed in 1990 for whom information was available. Age of child was computed based on 1990 interview date of mother.

Table 3.7 Distribution of NLSY Women by Age at First Birth, Parent Status, Race/Ethnicity, and Highest Grade Completed by 1990
(Sample Cases)

HIGHEST GRADE OF SCHOOL COMPLETED	AGE AT FIRST BIRTH					PARENT STATUS		
	Under 15	15-16	17-19	20-23	24 & Over	Total Mothers	Non-Mothers	Total Women
TOTAL	30	291	880	991	867	3059	1403	4462
Less than 12	14	133	240	112	52	551	62	613
12 Years	14	112	496	555	340	1517	453	1970
13 Years and Above	2	46	144	324	475	991	888	1879
Percent who are								
H.S. dropouts	46.7	45.7	27.3	11.3	6.0	18.0	4.4	13.7
WHITE	5	85	326	476	549	1441	874	2315
Less than 12	3	38	90	40	19	190	30	220
12 Years	2	33	201	302	225	763	276	1039
13 Years and Above	0	14	35	134	305	488	568	1056
Percent who are								
H.S. dropouts	---	44.7	27.6	8.4	3.5	13.2	3.4	9.5
BLACK	22	151	350	304	152	979	318	1297
Less than 12	10	56	77	24	8	175	18	193
12 Years	11	64	192	152	50	469	107	576
13 Years and above	1	31	81	128	94	335	193	528
Percent who are								
H.S. dropouts	45.5	37.1	22.0	7.9	5.3	17.9	5.7	14.9
HISPANIC	3	55	204	211	166	639	211	850
Less than 12	1	39	73	48	25	186	14	200
12 Years	1	15	103	101	65	285	70	355
13 Years and above	1	1	28	62	76	168	127	295
Percent who are								
H.S. dropouts	---	70.9	35.8	22.7	15.1	29.1	6.6	23.5

Note: Sample includes all NLSY women interviewed in 1990 for whom information was available. This excludes the economically disadvantaged white oversample who were interviewed but whose children were not assessed.

Table 3.8   Distribution of NLSY Women by Number and Age of Children, and Race/Ethnicity, 1990

TYPE OF HOUSEHOLD (FEMALE)	AGE OF CHILDREN	NUMBER OF HOUSEHOLDS			
		Total	Hispanic	Black	White
Females with No Children		1422	215	337	870
Mothers with 1 Child	< 3 Years Old	346	58	70	218
	3-5 Years Old	258	59	64	135
	6-8 Years Old	171	31	66	74
	9+ Years Old	234	43	108	83
	Total	1009	191	308	510
Mothers with 2 Children	Both < 3 Years Old	68	15	14	39
	Both 3-5 Years Old	76	15	19	42
	Both 6-8 Years Old	53	10	17	26
	Both 9+ Years Old	167	34	64	69
	Older 3-5, Younger < 3	175	35	38	102
	Older 6-8, Younger < 3	67	17	22	28
	Older 6-8, Younger 3-5	188	43	48	97
	Older 9+, Younger < 3	57	10	25	22
	Older 9+, Younger 3-5	108	26	36	46
	Older 9+, Younger 6-8	178	35	62	81
	Total	1137	240	345	552
Mothers with 3 or More Children	All < 3 Years Old	33	11	13	9
	All 3-5 Years Old	22	7	8	7
	All 6-8 Years Old	22	5	9	7
	All 9+ Years Old	71	12	38	21
	Oldest 3-5, Youngest < 3	52	9	14	29
	Oldest 6-8, Youngest < 3	104	32	30	42
	Oldest 6-8, Youngest 3-5	81	16	27	38
	Oldest 9+, Youngest < 3	178	40	84	54
	Oldest 9+, Youngest 3-5	160	46	56	58
	Oldest 9+, Youngest 6-8	126	30	54	42
	Total	848	208	333	307

Note: Females are classified on the basis of available child birth dates. Sample is limited to children eligible to be assessed in 1990 and excludes children born to economically disadvantaged whites.

4

NLSY CHILD DATA DESCRIPTION

The NLSY Child data set combines selected information on mothers and children from the NLSY surveys with the child assessment data. Certain variables are derived from the longitudinal record of each NLSY mother while other items, notably the child assessments, are drawn from data collected during select survey years. The 1990 NLSY Child data set supersedes all files created in connection with the 1986 and 1988 child assessment data. The current version includes nearly all the variables created for the previous file release, updating through 1990 both for the two additional (1989, 1990) Youth survey rounds as well as for children born between the 1988 and 1990 surveys. All of the individual assessment items from the 1986-1990 child assessments as well as the constructed raw and normed scores from the 1986, 1988, and 1990 assessments appear on the current file.

The NLSY Child data, currently updated for 8,513 children as of 1990, are available in two forms: (1) a set of files on magnetic tape containing all assessment information through 1990, child-specific information on family background, pre-postnatal health, and retrospective child care as well as variables drawn from the mother's main file record; and (2) a compact disc (CD-ROM) that includes all the above mentioned child-specific information as well as software that allows access to the entire longitudinal record of all NLSY females. Both forms of the data and their accompanying documentation are described in greater detail in Section 6.

NLSY Child Data on Tape. The magnetic tape version of the NLSY Child Data contains nearly 9000 variables, including more than 1700 variables selected from the main Youth records of the mothers of the children. This version of the Child data set is composed of several files on two reels. One reel of tape holds the data and documentation for the constructed variables and assessment scores for all 8,513 identified children born to NLSY females to date. The second reel contains all the individual item responses corresponding to the child assessments exactly as they were recorded in the field. The number of observations on each of these raw item assessment files reflects the number of children interviewed in each survey round. Thus the 1986 raw item file contains 4,971 child cases, the 1988 raw item assessment file contains 6,266, and the 1990 raw item file 5,803 cases. The NLSY Child data on tape are loosely

structured according to the summary format in Table 4.1. Specific items on the file may be identified by reference or "E" numbers which are used in both the NLSY Child Numeric Index and the NLSY Codebook. (They are conceptually equivalent to the "R" numbers used in the NLS Youth documentation and the "D" numbers used in the 1988 release of the Child Data.)

NLSY Child Data on CD-ROM. The Child data are also available on compact disc (CD-ROM) media for use in a PC/MS-DOS environment. The CD-ROM, which contains the entire NLSY 1979-1991 record for all NLS Youth female respondents, features search and extracting software that allows a user to access all constructed child-based variables and to link all main file variables of any NLSY mother to each of her children. All the child-based, constructed variables that appear on the tape version and all the assessment variables, both individual "raw" items and created scores, are divided into seventeen topic areas or record types. The Child CD-ROM also contains the entire NLSY 1979-1991 database for female respondents, even though child data are only available through 1990. The CD-ROM child record types do not contain the 1,718 variables on the tape version that are drawn directly from the mother's record and assigned to each of her children. Since the complete NLSY record can be accessed for all mothers, the CD-ROM user can easily link children to any of the nearly 34,000 NLSY variables, rather than only the variables that were selected for the child file on magnetic tape. Powerful search and extracting software on the CD-ROM greatly facilitates the process of finding and using the appropriate variables.

Subject Content of the NLSY Child Data Set. The following discussion of major data elements is by no means complete. Interested persons are encouraged to acquire copies of the child assessment instruments and NLS Youth questionnaires or to browse the documentation files on the NLSY compact discs for more detailed information on the types of data available. Researchers interested in linking the NLSY Child Data to variables found on the NLSY main, workhistory, or geocode data files may do so by accessing these main Youth files either via tape or CD-ROM.

The unit of observation on the Child files is each of the 8,513 biological children ever born to the women identified as mothers in the NLS Youth cohort at any survey point between 1979 and 1990. The child sample, when weighted, represents a cross section of children born to a nationally representative sample of women aged 25-32 on January 1, 1990.[2] Sampling design and weighting procedures for the Child data are explained in Section 3 of this Handbook.

The Child data set outlined in Table 4.1 includes: (1) information on each child's family background, family employment and education history, household composition, prenatal and postnatal health care, child care experiences, and selected items and scores from the 1986, 1988, and 1990 child

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[2] Children not "interviewed" in a particular assessment year are assigned "zero" for their child weight in that year and thus would be dropped from any weighted child analyses.

assessment data; as well as (2) information on each mother's family of origin, marital and fertility history, income and earnings, health and deviance histories, and attitudes and aspirations. While some information is cross-sectional, many variables create a profile of the child at the date of each of the mother's interviews or at "key points" in the child's life. The following discussion outlines the major categories of variables that can be found in the file. The "E" numbers in parentheses indicate the range of Child reference numbers encompassed by each topic. These reference numbers, which appear in the Child Numeric Index of variables and the Child Codebook, are discussed further in Section 6 of this Handbook.

Child Background Characteristics

This series of variables contains a number of key variables that enable users to link child data with other Youth files as well as to easily connect certain children with various kinds of child file information. Also in this group are several demographic variables, discussed in detail below, that describe each child's age and usual living arrangement at the time of the mother's interview, and a set of variables indicating whether the child's father was present in the household at the date of interview.

Missing Values. Many of the Child Background variables apply to all the children on the file without reference to a particular interview year. Therefore, unless an item is taken directly from the mother's record in a particular year, missing values have generally been collapsed into a minimal number of categories, "-4" for valid skip and a "-3" for invalid skip. E64.10 - E64.14, E70.10, and E70.20 represent exceptions to this pattern. The missing values for these 1990 child assessment dates and ages distinguish invalid skips from the number of children not interviewed in that year ("-5"). Items on the tape version of the Child data set that are taken directly from the mother's record reflect the missing values originally assigned on the main NLS Youth files. Users can find more details about missing value codes in Section 6 of this Handbook and in appropriate parts of the *NLS Handbook* and *NLS Users' Guide.*

Child Linkage Variables.

(E1. - E52.) These items enable the user to connect the NLSY Child file with information attached to the mother on the main NLS Youth tape, the Workhistory files, the Geocode files, and the supplementary Fertility files. (The main Youth data files are described briefly in Section 6 and discussed more fully in the *NLS Handbook* and the *NLS Users' Guide.*) The case identification codes (E1. - E17.) enable the user to link children with their mother or with their siblings, with data from other child files, and with other interviewed female relatives of the child's mother who are respondents on the main NLSY tape. The Child identification code (E1.) is a seven-digit code, unique to each child. The first five digits of the child ID are identical to the mother's ID (E2.). The final two digits, with a few exceptions, reflect the birth order of the

child. For example, a child ID of "1267501" means that the child's mother's ID is "12675" and the child was assigned a 2-digit ID of "01" when the birth was first reported by the mother in her own main NLSY interview. While only a very small number of children were initially assigned 2-digit ID's out of birth order, users should rely on variable E58. as the most accurate indicator of birth sequence (see Child Demographic Information below).

Due to the nature of the original sample design, the NLSY cohort contains multiple respondents from the same household and often from the same family unit. A subset of respondents related to the mothers of the children are identified by variables E9. - E17. on the Child file. The ID's for these relatives of the mother were derived from information about other interviewed NLSY respondents contained in variables with reference numbers R1.50 - R1.61 on the NLS Youth main file. As already noted, many children have siblings who were also assessed. These children have the same mother ID embedded in their own child ID. That is, the first five digits of children who are siblings will be the same. Table 3.8 provides a distribution of the number of children born to the NLSY female respondents.

Mother interview dates (E18. - E37.40) and child ages at each of the mother's survey date are also included. The user should note that children who were reported deceased or who were not yet born as of a certain interview date were assigned a value of -4 on variables E38. - E47.20, age of child at each interview date of mother. However, children deceased as of a particular interview date are not excluded from valid values on other similar variables drawn from the mother's record such as E48. - E51., "Is Child Youngest as of the 1982-85 Date of Interview Date of Mother", or any mother- specific data (such as CPS information) tied to interview dates.

Users should be aware that while many consistency checks are conducted at CHRR prior to release of the data, some discrepancies in mother reports of child birth dates remain reflected in the constructed date and age variables on the file. While the vast majority of reports across years are consistent, there is a small percentage of records that yield inconsistent age variables across years when dates reported by the mother are used to compute age at interview and age at assessment.

Child Demographic Information.

(E53. - E70.20). Demographic items for each child include sex, race, date of birth, birth order, dates of each child interview, age at each assessment date, and grade at the time of the 1986 child interview.[3] Also in this series is a created variable indicating the age of the child's mother at the time of the child's birth (E70.). The race variable for each child, derived from the main Youth record, is identical

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[3] Users interested in constructing a school grade variable for other assessment years must go to the Child Assessment Raw Item Data (record types CHDSUP on the NLSY Child CD-ROM) for the relevant inputs.

to the reported race/ethnicity of the mother. The race/ethnicity variable referred to in E53. is based on the 3-category race/ethnicity of the mother (R2147.) which is a created variable on the NLS Youth main tape. This variable is a collapsed version of the more detailed categories in the original sampling type of the mother (E308.) that was coded on the householder's report during initial screening in the fall of 1978. This Household Screener race information was based on interviewer observation unless the main Youth respondent was of mixed racial background, in which case the race of the Youth respondent's father was assigned. The derivation of the variable that was used to create E53. is documented in the main NLSY codebook with the entry for variable R2147., "Racial/Ethnic Cohort from Screener 79 Int." This variable may differ from recodes based on the respondent's self-reported ethnicity collected in the 1979 survey (E426.). CD-ROM users should note that additional race/ethnicity information, other than that found in E53., must be accessed from the mother's record.

Child Assessment Age. Each child has potentially two assessment ages, one tied to the day the interviewer administered the *Child Supplement* and one specific to the date the mother completed the *Mother Supplement*. Some children had their Child Supplement administered on a date different from the day their mother filled out the Mother Supplement. For only a few cases did this difference in schedule result in a discrepancy of one month or more between the two assessment dates. Users controlling for age on specific assessments should choose either the Mother Supplement or Child Supplement age variable appropriate for that test. Because the assessment dates in 1988, as recorded by the interviewer, were not reliably data-entered, they do not appear on the file. The child assessment ages (E65., E66., E68., E69., E70.10, E70.20) are the most accurate indicators of how old a child was at the time of a particular test. The interviewer versions of child date of birth, age, and date of interview (recorded in the supplements or on the Child Face Sheet) do not reflect the consistency checks across multiple inputs and the internal edits based on hard copy information that were incorporated in the constructed child assessment age variables.

Child Residence.

(E71. - E80.). These variables describe the usual living arrangement of the child at each of the mother's interview dates, i.e., whether the child resides with the mother, father or elsewhere. For the years 1979-1981, 1983, and 1985 these variables are constructed from information in the household record which simply indicates whether or not a particular family member is present. Child residence for years 1982, 1984, 1986 and each year after comes from the Fertility section of the NLS main Youth questionnaire. These latter variables provide greater detail on the residence of children not living with their mother. Note that for years 1982-1985, the responses "child lives part time with mother and part time with father or other person" were not available to respondents asked "Where does this child usually live?"

Father Presence/Visitation.

(E81. - E101.). This series indicates, for 1984 through 1988, for children living with their mother at the time of the main survey, whether the child's father is alive, whether he is present in the household, and if not, the degree of contact the child has with him. Users who wish to create a parallel set of "father" variables for 1989 and 1990 should access the main Youth file and extract the variables listed in Table 4.2. Constructed child-based versions of the 1989 and 1990 variables are planned for the next release of the Child data. Users are encouraged to contact CHRR prior to starting any extensive programming to see if the 1989-1990 father variables have been completed.

Family Background

Child's Parental Background & Environment.

(E300. - E382.50). Characteristics of the child's immediate family environment include mother's date of birth, age of mother at each interview date, date(s) of birth of mother's spouse(s), age of mother at first birth, a measure of maternal intelligence, mother's residence, religious preference and church attendance. Also included is information on mother's family of origin, maternal marital status and history, selected items from the mother's high school transcripts, and the educational background of the child's family. Of course, this represents only a portion of relevant child environment variables as, for example, the data files include a substantial battery of questions relating to the mother's employment, education, family experiences and so on. Many of the items described below overlap this topical area.

References: Parental Background & Environment.

"Inconsistencies in Age at 1st, 2nd, and 3rd Births on the 1986 Supplemental Fertility File." 1988.
     Columbus: The Ohio State University, Center for Human Resource Research.

AFQT/ASVAB.

The Armed Forces Qualification Test (AFQT) intelligence measures (E336., E336.10) are derived from the mother's Profile scores on the Armed Services Vocational Aptitude Battery (ASVAB), administered to NLSY respondents in 1980. The AFQT is used to determine trainability and general aptitude for enlistment in the Armed Forces. Two versions of the summary AFQT are available. The first version of the measure (E336.), used operationally by researchers and the U.S. government through 1988, is computed by summing the raw scores for the following sections of the ASVAB: Section 2 - Arithmetic Reasoning, Section 3 - Word Knowledge, Section 4 - Paragraph Comprehension and one half of the score from Section 5 - Numerical Operations. Subsequent analyses by the Department of Defense indicated tha.

a change in the formulation of the AFQT was appropriate based on the disproportionate practice effect of the speeded subtest, numerical operations. The algorithm for the revised version of the AFQT (E336.10) involves: (1) computing a Verbal composite score by summing word knowledge and paragraph comprehension raw scores; (2) converting subtest raw scores for Verbal, math knowledge, and arithmetic reasoning; (3) multiplying the Verbal standard scores by 2; (4) summing the standard scores for verbal, math knowledge, and arithmetic reasoning; and (5) converting the summed standard score to a percentile. Details on the nature of these two scores can be found in the Addendum to the NLSY documentation item, *Profile of American Youth - Attachment 106*. The NLS Youth tape contains thirty-three original and revised PROFILES variables including raw scores, scale scores, and standard errors for each of the subtests, testing sampling weight, test disposition, and high school graduate status at time of testing. The NLSY Child file, however, provides only the two composite AFQT scores mentioned above and scale scores for the individual sections of the total battery. Attachment 106 of the Supplemental NLSY Documentation (see Section 6 of this Handbook) provides general information on the Profiles of American Youth study, technical information on the ASVAB scale scores, an annotated bibliography of publications, and an example of the test scores report (Department of Defense, 1982). The current *NLS Users Guide* also describes the ASVAB data in detail.

References: AFQT/ASVAB.

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Claudy, John G. and Lauri Steel. 1990. "Armed Services Vocational Aptitude Battery: Validation for Civilian Occupations Using National Longitudinal Survey of Youth Data. AFJRL Technical Report 90-29, American Institute for Research (NTIS # AD-225-244-3-XAB). Washington, D.C.: National Technical Information Service.

Department of Defense. 1982. Profile of American Youth: 1980 Nationwide Administration of the Armed Services Vocational Aptitude Battery. Washington, D.C.: Office of the Assistant Secretary of Defense, March. Also available from CHRR as Attachment 106 of the Supplemental NLSY Documentation.

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McWilliams, Harold A. and Martin R. Frankel. 1982. "The Profile of American Youth: Non-Technical Sampling Report." Chicago: NORC.

McWilliams, Harold A. 1980. "The Profile of American Youth: Field Report." Chicago: NORC.

Sum, Andrew M., Paul Harrington and William Goedicke. 1986. Basic Skills of America's Teens and Youth Adults: Findings of the 1980 National ASVAB Testing and Their Implications for Education, Employment and Training Policies and Programs. New York: Ford Foundation.

Waters, Brian K. 1982. "The Profile of American Youth: Annotated Bibliography of DOD Related Publications." Technical Memorandum 82-1. Washington, D.C.: Department of Defense.

Religion.

The religious denomination categories used to code the 1979 and childhood religion of mother (E433. E434.) and the 1982 religion variables (E341. - E343.) are listed in Attachment 103 of the Supplemental NLSY Documentation (available from CHRR and discussed in Section 6 of this Handbook).

Region & Urban/Rural Residence.

The derivation of the original variable describing maternal region of residence at each interview date can be found in the main NLSY codebook with the entry for R2164., "Region of Current Residence 1979." The list of region codes appears in Attachment 100 of the Supplemental NLSY Documentation (discussed in Section 6 of this Handbook). Essentially, these variable definitions parallel those used by the U.S. Bureau of the Census.

The variables indicating whether the mother's residence at the date of interview was urban or rural are constructed using the total and urban Census population data for the county of residence. Users interested in the derivation of these variables should consult Appendix 6 of the Supplemental NLSY Documentation.

Spouse Characteristics.

Variables that are referenced by E348. - E379. describe the educational, occupational, religious, marital and health background of spouses of the child's mother as of the 1982 interview with the mother. This detailed information was collected only in that survey round.

Background of Maternal Family of Origin.

(E383. - E459.). These variables describe the ethnicity, education, prior employment, religious background, and residence of the mother's family of origin. Most of this information comes from the 1979 and 1980 main NLS Youth interviews.

The codes used to describe the occupations of mother's family of origin are defined in Attachment 3, Industry and Occupation Codes, of the Supplemental NLSY Documentation (see Section 6 of this Handbook). This compilation includes (1) the 3-digit 1970 Census classifications used to code job and training information as well as occupational aspiration information from the 1979-87 questionnaires and employer supplements, and (2) the 3-digit 1980 Census codes which have been used, beginning with the 1982 survey, to classify the main respondents' most current or most recent job.

Users interested in a detailed breakdown of the religion in which the mother was raised, referenced by E434. (R103.10), should consult Attachment 103 of the Supplemental NLSY Documentation (available from the Center for Human Resource Research) for definitions of the 3-digit codes. An abbreviated version of this information collapsed into nine categories is provided in E433. (R103.).

In 1988 a series of questions was asked of the main Youth respondents about the date of birth and the current age of their parents. These appear on the Child tape file as characteristics of each child's maternal grandparents (E451. - E457.). Users of the Child Data on CD-ROM will find the Youth versions of these variables (R25051. - R25058.) in the FAMBKGN record type of the Youth file.

References: Maternal Family of Origin.

U.S. Bureau of the Census. 1971. 1970 Census of Population Alphabetical Index of Industries and Occupations. Washington, D.C.: U.S. Government Printing Office.

U.S. Bureau of the Census. 1981. 1980 Census of Population Alphabetical Index of Industries and Occupations. Washington, D.C.: U.S. Government Printing Office.

Maternal Marital History.

(E460. - E529.18; E612. - E792.). Key variables on the mother's marital status at each interview date are provided as well as month and year of the beginning and end of first and second marriages. These variables enable the user to determine if the child's mother was ever married or ever divorced as well as the status and the number of mother's marriages at key points in the child's life. Variables E612. - E792. profile the date and type of up to three marital status transitions reported (since the preceding survey date) at each of the mother's survey dates.

References: Maternal Marital History.

"Inconsistencies in the NLSY Marital History Data - 1986 Supplemental Fertility File." 1988. Columbus: The Ohio State University, Center for Human Resource Research.

Family Education & Competence.

(E530. - E611.12). This series of variables describes the educational background of the child's mother at each of the mother's interview dates. Included are maternal enrollment status at survey date and highest grade completed by the mother at each date of interview. Variables that summarize the education of the mother's spouse or partner as well as the other adult members of the household is discussed with the Maternal Household Composition variables.

Selected information on mother's high school absences, class rank and size, and test scores were taken from the NLSY High School and Transcript Surveys. Designed to supplement both subjective respondent information on educational experiences from the main survey as well as data from the transcript survey (described below), the 1979 survey of the last secondary school attended gathered information on: each school's grading system, course offerings, dropout rate, student body composition, faculty characteristics and qualifications, as well as respondent scores from a variety of intelligence and aptitude tests such as the Differential Aptitude Test, Stanford-Binet, and Wechsler Intelligence Scale. The 96 variables from this school survey are located within the SCHLSURV record type on the NLS main Youth file. Beginning in 1980, transcript information was collected for civilian NLSY respondents who were expected to complete high school. Data collected included high school course titles, course descriptions, and final grades for up to 64 courses taken by each surveyed respondent. By the end of the 1983 round, transcript data had been obtained for 77 percent of the NLSY civilian respondents. The differential response rate from item to item on this file was, however, considerable with only modest percentages, for example, providing test score information. The full series of 320 transcript variables can be found within the TRANSURV file on the main NLSY tape and is fully documented in the current NLS Users Guide.

Additional information on both the school and transcript surveys is also provided in the NLSY main file documentation item "High School Transcript Survey: Overview and Codebook" which contains background information, copies of the survey instruments, a codebook, and bibliography of resource materials. This supplemental NLSY documentation is discussed in Section 6 of this Handbook.

References: Family Education & Competence.

NORC. 1980. "The School and Transcript Surveys: Technical Report." Columbus: The Ohio State University, National Center for Research in Vocational Education, October.

NORC. 1982. "Transcripts II: Technical Report." Columbus: The Ohio State University, National Center for Research in Vocational Education.

NORC. 1984. "Transcripts III: Technical Report." Columbus: The Ohio Sate University, National Center for Research in Vocational Education.

Maternal Household Composition

(E900. - E1273.). These variables describe the individuals sharing permanent residence in the mother's household at the time of each interview. Variables include number of family members, family units, children and adults present at date of interview. The family unit includes all those related by blood, marriage, or adoption who share the same household. The household unit additionally includes others living in the same residence as the respondent. There are also indicators of whether a spouse, partner, mother or father of the child's mother is present as well as the number of household members present in various age ranges. These household and family variables are created from the yearly household enumeration roster. As this information is provided for all survey dates, some variables describe the composition of the mother's household prior to the birth of a particular child. Variables referring to whether a spouse or partner is present in the household are based strictly on the NLS main Youth household record, not on the marital section of the main Youth questionnaire. The "0" or "no" category for the "spouse present" variables in this series includes responses from both ever married and never married mothers.

Maternal Well Being

Maternal Health History.

(E1300. - E1368.). These maternal health items indicate, as of each survey date, whether the mother has any health conditions that affect her current employment or ability to work. Included are the dates for calculating the duration of limitations on mother's activity. This series of variables also describes maternal hair and eye color, height at various surveys, weight at various surveys, date and age at menarche, date and age at first intercourse, and self reports of shyness. CD-ROM users should take particular note that only eight constructed maternal health variables were constructed as child-based variables and stored in Child record type MOMWELL. Other health-related information can be accessed from the mother's main NLSY record, using the "R" reference numbers that appear in the Child codebook or numeric.

The reports of mother's height are based on items from the 1981, 1982, 1983, and 1985 Health Sections of the main NLS Youth questionnaire. The first report of mother's weight was obtained in 1981, and then again in the 1982, 1983, 1985, 1986, and 1988-1990 main interview schedules. Mother's weight at the beginning and end of each pregnancy as well as weight gain during pregnancy are grouped with the prenatal variables (see Child Prenatal Health History below). CD-ROM users should note that with the exception of E1354. (height in 1981) and E1356. (height in 1983), which appear on the MOMWELL Child

Record Type, maternal height and weight variables must be accessed from the NLS Youth Record Type HEALTH.

The variables describing onset of maternal menarche and first intercourse (E1363. - E1368.) were constructed from data collected in 1983, 1984, and 1985. Respondents who had experienced intercourse (or menarche) were asked the age at which the event occurred. The interviewer then combined this age information with the mother's birth date to compute the year in which the event took place. The respondent was then supplied with the year and then asked for the month of occurrence. Users interested in the precise protocol of these questions should consult the Fertility Sections of the appropriate NLS main Youth questionnaires. The two shyness reports that appear on the tape version of the Child data set, one retrospective question about shyness at age 6 and the other as an adult, were obtained in 1985. They are constructed as a four-point scale, from extremely shy (1) to extremely outgoing (4).

Maternal Deviance History.

(E1369. - E1658.). This category refers to mother's self-reports of drug use, delinquency, and police contacts, substance use and its impact on work, and self-reports of alcohol use by the youth and her family.

The 1980 NLSY survey contained a special self-report index on respondents' participation in and income from such delinquent and criminal activities as skipping school, alcohol/marijuana use, vandalism, shoplifting, drug dealing, robbery, assault, or gambling during the previous twelve month period. Adapted from previously used self-report delinquency scales, the instrument utilized an expanded response scale to differentiate very highly delinquent youth from occasional participants. A second set of questions measured involvement with the criminal justice system by assessing the extent of police contacts, resulting criminal convictions and sentences (probation, incarceration) received. Nearly all of the 71 variables on illegal activities that are found on the main NLSY tape were extracted and included on the child file. Sections 15 and 16 of the 1980 NLS main Youth questionnaire and the accompanying confidential "Form J" contain the delinquency and police contact questions. Crowley (1981, 1982) presents various tabulations of these data by sex, race, education and poverty status. Appendices within both reports discuss the development of the index, the specific procedures used to administer the confidential form, issues intrinsic in measuring delinquent behavior and criminal activity, and the consistency of responses to the various delinquency and police contact measures.

The 1982-1985, 1988, and 1989 NLS Youth surveys include questions which focus on the development of drinking patterns, consumption of various alcoholic beverages, and the impact of alcohol use on school work and/or job behavior. The 1988 survey round also included detailed reports from the

respondent about the extensiveness of alcohol use by other family members and relatives. The complete set of alcohol questions, (E1400. - E1472.; E1563. - E1642.31) was included on the tape version of the Child file. CD-ROM users must access the mother's record to extract these variables.

An extensive set of questions on substance use was included in the 1984 and 1988 main Youth surveys. Information was collected on respondents' use of cigarettes and marijuana, as well as illicit and non-prescribed use of amphetamines, barbiturates, tranquilizers, and other drugs. Questions included monthly use of marijuana over the years 1979-1984, lifetime use of marijuana and other illicit drugs, age at first use, and substance abuse on the job. These variables appear as E1473. - E1562.; E1643. - E1658. on the Child file. Users of the Child CD-ROM should consult the "R" numbers assigned to these items in the Child Codebook or Numeric in order to locate them in the Youth record. Some evaluation research on these data, carried out by Mensch and Kandel (1988), suggests some under-reporting, primarily by marginal substance users.

References: Maternal Health & Deviance.

Abma, Joyce C. 1991. "Alcohol Use Among Young Adults in 1988: Results from the National Longitudinal Survey of Youth." Working Paper. Columbus: The Ohio State University, Center for Human Resource Research.

Abma, Joyce C. and Frank L. Mott. 1990. "Is There a 'Bad Mother' Syndrome? Evidence of overlapping High Risk Behavior During Pregnancy Among a National Cross-section of Young Mothers." Presented: Annual Meetings of the Population Association of American, Toronto.

Abma, Joyce C. and Frank L. Mott. 1991. "Substance Use and Prenatal Care During Pregnancy Among Young Women." Family Planning Perspectives 23, 3 (May/June 1991): 117-122.

Caughy, Margaret O'Brien. 1992. The Influence of Early Health Morbidity and Environmental Risk Factors on the Cognitive Functioning of Young School Age Children. Ph.D. Dissertation, The Johns Hopkins University, School of Hygiene and Public Health.

Crowley, Joan E. 1981. "Crime and Delinquency: Descriptions and Distributions". In Pathways to the Future: A Longitudinal Study of Young Americans. Preliminary Report on the 1980 Survey, Michael E. Borus, ed. Columbus: The Ohio State University, Center for Human Resource Research, December.

Crowley, Joan E. 1982. "Delinquency and Employment: Substitutions or Spurious Associations." In Pathways to the Future Volume II: A Final Report on the National Longitudinal Survey of Youth Labor Market Experience in 1980, Michael E. Borus, ed. Columbus: The Ohio State University, Center for Human Resource Research, December.

Crowley, Joan E. 1985. "Demographics of Alcohol Use Among Young Americans: Results from the 1983 National Longitudinal Surveys of Youth." Columbus: The Ohio State University, Center for Human Resource Research.

Dornfeld, Maude and Candace Kruttschnitt. 1992. "Do the Stereotypes fit? Mapping Gender-Specific Outcomes and Risk Factors." Criminology 30, 3: 397-419.

Ketterlinus, Robert D., Sandra Henderson and Michael E. Lamb. 1990. "Maternal Age, Sociodemographics, Prenatal Health, and Behavior: Influences on Neonatal Risk Status." Journal of Adolescent Health Care 11, 5 (September): 423-431.

Martin, Sandra L. and Margaret R. Burchinal. 1992. "Young Women's Antisocial Behavior and the Later Emotional and Behavioral Health of their Children." American Journal of Public Health, Vol. 82, No. 7 (July): 1007-1010.

Mensch, Barbara S. and Denise B. Kandel. 1988. "Underreporting of Substance Use in a National Longitudinal Youth Cohort: Individual and Interviewer Effects." Public Opinion Quarterly 52, 1 (Spring): 100-124.

Mott, Frank L. and R. Jean Haurin. 1988. "Linkages Between Sexual Activity and Alcohol and Drug Use Among American Adolescents." Family Planning Perspectives 20, 3 (May/June): 128-136.

Rosenbaum, Emily and Denise B. Kandel. 1990. "Early Onset of Adolescent Sexual Behavior and Drug Involvement." Journal of Marriage and the Family 52, 3 (August): 783-798.

Weitzman, Michael, Steven Gortmaker and Arthur Sobol. "Maternal Smoking and Behavior Problems of Children." Pediatrics 90, 3 (September): 342-349.

Maternal Attitudes, Expectations, Aspirations.

(E1369. - E1658.). This group of variables includes maternal birth expectations at selected interview dates, knowledge of the world of work in 1979, influence of a significant other on future decisions in 1979, career aspirations, a 4-item subset from the Rotter Scale of locus of control in 1979, the Rosenberg self-esteem scale in 1980 and 1987, attitudes toward work and school in 1979, women's roles items in 1979, 1982, and 1987, and global measures of job satisfaction for all survey years.

Influence of Significant Others. The "On Significant Others" section of the 1979 NLS main Youth questionnaire is the source of the discrete set of nine variables dealing with the attitude of the most influential person in each respondent's life toward certain key career, occupational, residence, and childbearing decisions. These variables are available for women who were between the ages of 14 and 17 in 1979.

Rotter Locus of Control Scale. The Rotter Internal-External Locus of Control scale in the 1979 NLSY survey is a 4-item abbreviated version of a 23-item forced choice questionnaire adapted from the 60-item Rotter Adult I-E scale developed by Rotter in 1966. The scale was designed to measure the extent to which individuals believe they have control over their lives through self-motivation or self-determination (internal control) as opposed to the extent that the environment (i.e., chance, fate, luck) controls their lives (external control). The locus of control construct is formulated within the framework of social learn'

theory. The scale is scored in the external direction, that is, the higher the score, the more external the individual.

In order to score the Rotter scale in the NLSY, one has to generate a 4-point scale for each of the paired items and then sum the scores. For example, the first pair has the following two statements:

1. What happens to me is my own doing. (internal control item)
2. Sometimes I feel that I don't have enough control over the direction my life is taking. (external control item)

Respondents were asked to select one of each of the paired statements and decide if the selected statement was much closer or slightly closer to their opinion of themselves. The following describes how the scale is constructed:

Internal Control Item		External Control Item	
Much Closer	Slightly Closer	Slightly Closer	Much Closer
1	2	3	4

Each of the 4-paired items is constructed in the same manner as the above example. The values for each item are then summed. In the above example, the maximum possible score is 16, indicating high external control while the minimum possible score is 4, indicating high internal control. The summed score on the NLSY abbreviated version correlates well with self-esteem, education, and social class, but the internal consistency of the scale is quite low for the whole Youth cohort (alpha: .36). Separate estimates by race and sex do not yield significantly higher reliability estimates.

References: Rotter Scale/Locus of Control.

Boor, M. 1974. "Dimensions of Internal-External Control and Marital Status, Sex, Age, and College Class." Journal of Social Psychology, 94: 145-146.

Cherlin, A. and L.B. Bourque. 1974. "Dimensionality and Reliability of the Rotter I-E Scale." Sociometry, 37: 565-582.

Doherty, William and Cynthia Baldwin. 1985. "Shifts and Stability in Locus of Control During the 1970s: Divergence of the Sexes." Journal of Personality and Social Psychology, 48, 4: 1048-1053.

Lefcourt, Herbert M. 1976. Locus of Control: Current Trends in Theory and Research. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Rotter, Julian B. 1966. "Generalized Expectancies for Internal Versus External Control of Reinforcement." Psychological Monographs General and Applied, 80 (1, Whole No. 609).

Rotter, Julian B. 1975. "Some Problems and Misconceptions Related to the Construct of Internal versus External Control of Reinforcement." Journal of Consulting and Clinical Psychology, 43: 56-67.

Watson, Jane M. 1981. "A Note on the Dimensionality of the Rotter Locus of Control Scale." Australian Journal of Psychology, 33, 3: 319-330.

__Rosenberg Scale__. The Rosenberg self-esteem scale was administered in the 1980 and 1987 NLS main Youth surveys. The 10-item scale, designed for adolescents and adults, measures the self evaluation that an individual makes and customarily maintains. It describes a degree of approval or disapproval toward oneself (Rosenberg, 1965, p. 5). The scale is short, widely used, and has accumulated evidence of validity and reliability. It contains ten statements of self approval and disapproval with which respondents are asked to strongly agree, agree, disagree or strongly disagree. Items A, B, D, F, G (below) need to be reversed prior to scoring in order for a higher score to designate higher self-esteem. Typically, the raw items are summed or the standardized items are averaged to create a summary score. The scale has proven highly internally consistent with reliability coefficients that range from .84 (Strocchia-Rivera, 1988) to .87 (Menaghan, 1990), depending on the nature of the NLSY sample selected. The NLSY 1980 version of the Rosenberg was administered as follows:

Interviewer to respondent: "Now I'm going to read a list of opinions people have about themselves." (HAND CARD T) "After I read each one I want you to tell me how much you agree or disagree with these opinions. (First/next) (READ STATEMENT) Do you strongly agree, agree, disagree, or strongly disagree with this opinion?

	Strongly Agree	Agree	Disagree	Strongly Disagree
A. I feel that I'm a person of worth, at least on an equal basis with others.	1	2	3	4
B. I feel that I have a number of good qualities.	1	2	3	4
C. All in all, I am inclined to feel that I am a failure.	1	2	3	4
D. I am able to do things as well as most other people.	1	2	3	4
E. I feel I do not have much to be proud of.	1	2	3	4
F. I take a positive attitude toward myself.	1	2	3	4
G. On the whole, I am satisfied with myself.	1	2	3	4
H. I wish I could have more respect for myself.	1	2	3	4
I. I certainly feel useless at times.	1	2	3	4
J. At times I think I am no good at all.	1	2	3	4

References: Rosenberg Scale/Self-Esteem.

Ketterlinus, Robert D., Sandra H. Henderson and Michael E. Lamb. 1992. "The Effect of Type of Child Care and Maternal Employment and Self Esteem on Children's Behavioral Adjustment: Findings from the U.S. National Longitudinal Survey of Youth." In B. Pierrehumbert, ed., L'Accueil du Jeune Enfant: Politiques et Recherches dans les Differents Pays. Paris: Les Editions Sociales.

Menaghan, Elizabeth G. 1990. "The Impact of Occupational and Economic Pressures on Young Mothers' Self-Esteem: Evidence from the NLSY." Presented: Annual Meetings of the Society for the Sociological Study of Social Problems, Washington, D.C., August 9.

Rosenberg, Morris. 1965. Society and the Adolescent Self-Image. Princeton: Princeton University Press.

_____. 1986. Conceiving the Self. NY: Basic Books, Orig. Ed. 1979. Melbourne, Florida: Krieger Publishing Co., Inc., Reprint.

Strocchia-Rivera, Lenore. 1988. Self-Esteem and Educational Aspirations as Antecedents of Adolescent Unmarried Motherhood. Ph.D. Dissertation, The University of Texas at Austin.

Wylie, Ruth C. 1979. The Self-Concept Volume 2: Theory and Research on Selected Topics. Lincoln, Nebraska: University of Nebraska Press.

_____. 1974. The Self-Concept Volume 1: A Review of Methodological Considerations and Measuring Instruments. Lincoln, Nebraska, University of Nebraska Press.

Women's Roles/Family Attitudes. The 1979, 1982, and 1987 NLSY interview schedules included eight attitude items on various dimensions of women's roles. The 5-point items were chosen partly because they had appeared in the original (1960s) NLS younger cohorts and because they have been frequently used and cited in the literature (Mason, et al., 1975). Most of the items focus on women's employment. Analysis of single-item distributions in the NLSY data indicates that, while most youth exhibited generally nontraditional orientations towards women's roles, there were significant differences in attitudes by race, level of educational expectations, and by their fertility expectations (Mott, 1984). When these items were collapsed into a single scale ranging from 8 to 40, there were persistent differentials in response congruence by age and race.

Research conducted in 1981 on the 1979 NLSY data used an index based on the sum of the responses to the following five of the eight items:

(1) A woman's place is in the home, not in the office or shop,
(2) A wife who carries out her full family responsibilities doesn't have time for outside employment,
(3) The employment of wives leads to more juvenile delinquency,
(4) It is much better for everyone concerned if the man is the achiever outside the home and the woman takes care of the family,
(5) Women are much happier if they stay at home and take care of their children.

Inspection of factor analyses and inter-item correlations showed that the five selected items all correlated well with each other, while the remaining three items were unrelated. Items were rated on a four point scale ranging from strongly agree to strongly disagree, and were summed to form an index ranging in value from 5 to 20 with higher scores indicating more traditional attitudes. Essentially, each of the selected items deals with the conflict between work outside the home and the successful fulfillment of the family roles which women have traditionally held. Inter-item correlations range from .40 to .56. The total five-item scale yields a reliability coefficient of .74. For more detail on the development, measurement properties, and correlates of the traditionality scale in the NLSY data, see Shapiro and Crowley, 1981.

Additional analyses at CHRR used a scale composed of four of the eight items to construct a measure of individuals' sex-role attitudes regarding wives' employment and household responsibilities (Mott, 1984). Selection of the items was based on an initial factor analysis of six questions related to women's roles from the 1979 NLS main Youth survey. A single factor was identified by using principal factoring with iterations. The rotated varimax solution revealed that the four items subsequently scaled loaded reasonably well on this one dimension (.72, .62, .70, .62). The scales' reliability, as measured by Chronbach's alpha, was .765 for the four selected items. Questions were scored from 1-4 (don't knows excluded) and coded so that lower scores reflected more traditional attitudes and higher scores represented more modern or egalitarian types of responses. The items were then summed to create a scale having a theoretical range of 4-16. Listwise deletion was employed in calculating scale values for individual respondents. The scale had a mean of 11.07 and a standard deviation equal to 2.42.

References: Womens Roles.

Mason, Karen Oppenheim with Daniel R. Denison and Anita J. Schacht. 1975. "Sex-Role Attitude Items and Scales from U.S. Sample Surveys." DHEW Publication No. (ADM) 75-248. Washington, D.C.: U.S. Department of Health, Education and Welfare; Public Health Service; Alcohol, Drug Abuse, and Mental Health Administration.

Mott, Frank L. 1984. "The Patterning of Female Teenage Sexual Behaviors and Attitudes." Revised version of a paper presented at the 1983 Annual Meeting of the American Public Health Association, Dallas, Texas. Columbus: The Ohio State University, Center for Human Resource Research, January.

Mott, Frank L. and Susan H. Mott. 1984. "Prospective Life Style Congruence Among American Adolescents: Variations in the Association Between Fertility Expectations and Ideas Regarding Women's Roles." Social Forces, 63: 1(September), 184-208.

Shapiro, David and Joan E. Crowley. 1981. "Aspirations and Expectations for the Future: Education, Work Activity, and Fertility." In Michael E. Borus et al., Pathways to the Future: A Report on the National Longitudinal Survey of Youth Labor Market Experience in 1979. Columbus: The Ohio State University, Center for Human Resource Research.

Job Satisfaction. Included in the 1979-1982, and 1988 NLS main Youth surveys are job satisfaction items drawn from the University of Michigan's Quality of Employment Surveys (QES) of 1969, 1973, and 1977. The Survey scale was chosen for use in the NLSY due to its high reliability in applications across a broad cross-section of employed respondents and its ease of administration relative to other job satisfaction scales (Mangione, 1973 and Seashore and Faber, 1975). In addition, the file contains a global maternal job satisfaction item for each interview year. Ten job satisfaction items were administered in each of the survey years 1979-1982 and eleven in 1988.

A short form of the QES scale developed by Robert Quinn appears to have better scale properties than the single global measure (Quinn and Mangione, 1973). The NLSY questions from which the 7-item Quinn job satisfaction scale is constructed are as follows:

NLSY Main Questionnaire Text	Dimension	NLSY Reference Numbers 1979-1982, 1988
1. You are given a chance to do the things you do best.	Challenge	R489., R2659., R4473., R7034., R25296.
2. The physical surroundings are pleasant.	Comfort	R490., R2660., R4474., R7035., R25297.
3. The pay is good.	Financial Rewards	R494., R2664., R4475., R7036., R25302.
4. Your co-workers are friendly.	Relations with Co-workers	R496., R2666., R4480., R7041., R25304.
5. Your supervisor is competent in doing the job.	Resource Adequacy	R497., R2667., R4481., R7042., R25305.
6. Take a different job?	Opportunity	R506., R2676., R4490., R7052.
8. How do you feel about your (current/most recent) job?	Global Job Satisfaction	R508., R2678., R4492., R7065., R25329.

Users should note that the sixth item on whether the respondent would take a different job if offered the opportunity was not administered in 1988. To construct the full seven-item scale, raw scores for each of the above items should be converted to z scores for each respondent. The scores can then be multiplied by 100 to remove decimals and combined to obtain an unweighted average of the seven z scores. The resulting scores for the satisfaction index are either positive or negative numbers that can be interpreted as deviations from the mean for the total sample of respondents in the survey.

References: Job Satisfaction.

Mangione, T.W. 1973. "The Validity of Job Satisfaction." Doctoral dissertation, The University of Michigan.

Quinn, Robert B. and T.W. Mangione. 1973. "Jobsat '72 and Its Kinfolk - A Brief Manual." Chapter 5 in The 1969-1970 Survey of Working Conditions: Chronicles of an Unfinished Enterprise. Ann Arbor: University of Michigan, Institute for Social Research, Survey Research Center.

Seashore, S. and T. Taber. 1975. "Job Satisfaction Indicators and Their Correlates." American Behavioral Scientist, 18: 333-368.

Family Employment & Income

(E2000. - E2222.51). These variables provide detailed reports of total income, earnings, and benefits received by the mother, her spouse, and family at each interview date. In addition to information on AFDC, child support, food stamps and welfare payments, there is an indicator of family poverty status for each survey year. Earnings variables include wages (including military), salary, commissions, and tips. Income measures include reports of amounts accrued from farm or nonfarm business, partnership or professional practice, and various sources of unearned income. In 1979, respondents under age 18 who were unmarried, not in college and living with parents were asked to report the following income components as a lump sum: farm, nonfarm business, savings, unemployment insurance and Supplemental Security Income (SSI). From 1980-1982 all respondents were asked about farm or nonfarm business income and savings as a single amount. Following that year, farm and nonfarm business income was reported as a lump sum but all other income components were listed separately. No question about veterans benefits was included in the 1979 schedule. In 1979 and 1980, alimony and child support were reported as a lump sum but were broken out separately in subsequent interview years. The sources of the inputs for these public support amounts are well documented in the current *NLS Users Guide*.

The following public assistance benefit source variables are included on the Child file as child-based variables: (1) total income from AFDC received by mother/spouse in the past calendar year (1979-1990); (2) total income from other public assistance received in the past calendar year (1979-1984); (3) total income from SSI received in the past calendar year (1985-1990); and (4) total income from food stamps received in the past calendar year (1979-1990). All other income variables that appear on the Child tape have been drawn directly from the main Youth file and can only be accessed on the Child CD-ROM from the female Youth record types.

To insure respondent confidentiality, income variables on the NLS main Youth file with values that exceed particular limits are truncated. For survey years 1979 through 1984, the upper limit on income variables was $75,000, and any amounts exceeding $75,000 were converted to $75,001. For surveys after 1984, the upper limit on income amounts was increased to $100,000 due to inflation and the advancing age of the cohort, and amounts exceeding $100,000 were converted to $100,001. Users interested in the precise derivation of the series of variables on Total Net Family Income and Family Poverty Status should consult Appendix 2 in the Supplemental NLSY Documentation (available from CHRR and discussed in Section 6 of this Handbook) which provides the code used to create the key income variables for each survey year for the NLS main Y file. Since Family Poverty Status for the year prior to the 1979 interview is not available on the NLS main Youth file, it does not appear on the Child file. It should be noted that

the key income variables have relatively high non-response rates reflecting the fact that if critical income components were not reported, the overall key variable could not be determined.

Maternal CPS Employment Information.

(E2223. - E2693.). These variables from the Current Population Survey (CPS) section of the NLSY main questionnaire establish current labor force status, i.e. activity during most of the survey week. "CPS" characteristics follow the definitions utilized by the U.S. Department of Labor in their monthly employment and unemployment data collection effort - the Current Population Survey. The following CPS characteristics for each survey week are provided: employment status, hours worked for current/most recent job, occupation, industry, wages, benefits, and tenure. Job search behavior for those unemployed and reasons for not seeking employment for those out of the labor force are provided for all survey years 1979-1990. A series of detailed maternal job characteristics are available only for 1979 and 1982.

The variables in this series referred to as Employment Status Recodes at each interview date are measures of main labor force activity during the survey week and follow official government definitions. Appendix 1 of the Supplemental NLSY Documentation (see Section 6 of this Handbook) contains the program statements used each year to create this variable for the NLS main Youth file.

The codes used to describe occupation are defined in Attachment 3, Industry and Occupation Codes, of the Supplemental NLSY Documentation (see Section 6 of this Handbook). The 3-digit 1970 Census classifications were used to code respondent job information from 1979 to 1981. Beginning with the 1982 survey, 3-digit 1980 Census codes were used to classify a main respondent's most current or most recent job.

The Duncan Index that accompanies the mother's CPS occupation code is a socioeconomic index of status designed to give near optimal reproduction of a set of prestige ratings. All census occupations were assigned scores on the basis of their education and income distributions. The scores may be interpreted either as estimates of prestige ratings or simply as values on a scale of occupational socioeconomic status. The scale of 2-digit values ranges from 0 to 96. Campbell and Parker (1983) describe the Duncan SEI as "a measure designed to provide an optimally weighted composite to occupation-specific income and education such that it correlates maximally with independently obtained measures of occupational prestige. Since Duncan developed the original measure it has been updated using information from the 1970 Census and Siegel's update and extension of the North-Hatt prestige scores (Hauser and Featherman, Appendix B)." ... "The SEI was developed in order to get a single score for all occupations when the computational limits of social research made such a score highly desirable."

Maternal Job Characteristics.

The Maternal Job Characteristics variables (E2601. - E2621.) in this series are based on perceived job characteristics developed by Sims, Szilagyi, and Keller. The Job Characteristics Index (JCI) is an extension of the work first begun by Turner and Lawrence in 1965, which was preceded by an instrument developed by Hackman and Oldham using what is known as the Job Diagnostic Survey (JDS). Both scales measure job complexity. Comparisons of the JCI and JDS by Dunham et al., 1977 have shown that both scales tend to collapse to a one-dimensional scale measuring job-complexity. Therefore, the JCI was shortened by selecting one scale Rem which loaded strongly on each of the dimensions of job complexity shown to be important in earlier research. In their 1976 article, Sims et al. reported the necessary factor analysis scores used to obtain the abbreviated scale. The seven NLSY questionnaire items that comprise the shortened JCI scale are in Section 8, question 23, sub-questions 1-5, and questions 24A and C (R481. -R486. and R488.) for 1979; for 1982, the items are in Section 5, question 36, sub-questions 1-5, and questions 36B and 36D (R7054. - R7059. and R7061.). For details on the text of the NLSY main survey questions that comprise the shortened JCI, consult Appendix 4 - Job Characteristics Index 1979 and 1982 in the Supplemental NLS Youth Documentation (available from CHRR and discussed in Section 6 of this Handbook).

References: Family Employment & Income.

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Hauser, R.M. and D.L. Featherman. 1977. The Process of Stratification: Trends and Analyses. New York: Academic Press.

Pierce, Jon L. and Randall B. Dunham. 1978. "The Measurement of Perceived Job Characteristics: The Job Diagnostic Survey vs. the Job Characteristics Inventory." Academy of Management Journal 21, 1 (March): 123-128.

Sims, Henry R., Andrew Szilagyi, and Robert Keller. 1976. "The Measurement of Job Characteristics." Academy of Management Journal 26, 2 (June): 195-212.

Turner, A.N. and P.R. Lawrence. 1965. Industrial Jobs and the Workers: An Investigation of Responses to Task Attributes. Boston: Harvard University Press.

Maternal Quarterly Employment History

(E2700. - E31 10.). These variables describe the mother's quarterly (1 3-week interval) employment activity starting one year prior to each child's date of birth and continuing up through the first five years following the birth or the mother's 1990 interview date, whichever occurs first. These chi Id-specific quarterly variables (see Table 4.3) are constructed from the NLS main Youth Work History data file which provides a week-by-week work record of the labor force attachment of each NLSY respondent from January 1, 1978 through the current main Youth survey date. Designed to be used primarily in conjunction with the main NLSY data files, the NLSY Work History data set contains several thousand variables organized around three primary week-by-week arrays: (1) "A" Array: Labor Force/Military Status Each Week Beginning January 1, 1978; (2) "HOUR" Array: Usual Hours Worked per Week at all Jobs Beginning January 1, 1978; and (3) "DUALJOB" Array: Job Numbers for Respondents Who Worked at More than One Job in Any Week Beginning January 1, 1978. Other variables on the tape include: (1) job-specific information for up to five jobs for each interview year, (2) active military service information, (3) key employment variables for last calendar year and since last interview, and (4) respondent information such as identification code, sampling information, birth dates, and interview dates. The quarterly maternal employment variables on the Child file represent a subset of the complete NLSY Work History file.

The following "child" work history variables (outlined in Table 4.3) are the maternal employment variables on the Child file that are constructed for each of up to 24 quarters (1 3-week interval) in the child's life: weeks and hours worked, number of jobs held, occupation, industry, whether wages are set by collective bargaining and whether job is government sponsored. The first five variables in the quarterly series refer to all jobs held by a mother, and the next twelve variables provide details on the duration and nature of the "main" job in each quarter, defined as the job at which the mother worked the most hours.

Only the 13-week intervals of a child's life that are complete within the 1/1/78 to 1990 interview date time frame received valid values. For example, children born prior to 1/1/78 were assigned missing values (4) for all quarters that precede or overlap that date. Children born prior to 1/1/78 can be identified by their value of "0" on E2700. on "Week # of Date of Birth of Child from 1/1/78 to 1990 Interview Date of Mother."

Variables related to any quarter that was not complete as of (or followed) the mother's 1990 interview date are also assigned missing values.

Users should note that the NLS main Youth questionnaire defines respondents who are on vacation, on sick leave, on unpaid leave of less than one month, or on maternity leave of less than 90 days as still attached to an employer. Therefore, a mother with this kind of status would be considered working, even though she was on leave around the time of the birth of a child. For example, such a profile of continuous employment would show up as a "0" (i.e. continuous employment until the birth) or a very low value for variables E2701. and E2702., which describe the mother's work status before and after a child's birth even though the woman may not have actually been on the job the whole time. Recent work by Klerman and Leibowitz has clarified the substantial extent to which women who are counted as in the labor force immediately preceding or following a birth frequently are not on the job. In some instances they are on paid vacation but more often are on unpaid leave (Klerman and Leibowitz, 1993). Patterns of labor force retention and paid and unpaid leave vary by characteristics such as education and occupational status. Thus, labor supply analyses for the interval immediately preceding and following a birth need to consider possible retention bias. This potential problem is limited to analyses incorporating the interval immediately surrounding the birth.

Missing Values. One additional caution regarding variable construction should be noted: missing values for the Child work history variables do not consistently reflect the meanings normally attached to "skips" or missing values in the NLSY data. A negative value for these variables simply means that one or more of the inputs critical to the construction of the variable was missing. Users should not use the negative values to differentiate among the types of missing categories or to discriminate children of mothers not interviewed in a particular quarter from children whose mothers had valid skips or invalid skips on the inputs to a created variable.

The main NLSY Workhistory file exists as a separate data set, available on tape or a separate CDROM. Documentation for the complete NLSY Work History data file, available both in hardcopy and as print files on the CD-ROM, includes: (1) a description of and codes for each variable on the workhistory data file; (2) a discussion of the PL/I program logic and procedures; (3) a listing of the PL/I program that created the file; (4) the Workhistory record layout and condescriptives; (5) format specification; and (6) a description of procedures involved in linking employers through contiguous survey years. Users interested in these data should also consult the section on NLSY Workhistory Documentation in the *NLS Handbook* and the 'Work Experience" section of the current *NLS Users Guide* which explains employer linkages, tenure, age effects, and other aspects of the longitudinal employment record.

References: Maternal Work History.

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Garrett, Patricia, Sally Lubeck and DeeAnn Wenk. 1989. "Childbirth and Maternal Employment: Data from a National Longitudinal Survey." In Janet S. Hyde, ed., Parental Leave and Child Care. Philadelphia: Temple University Press.

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Klerman, Jacob Alex and Arleen Leibowitz. 1990. "Child Care and Women's Return to Work After Childbirth." American Economic Review 80, 2 (May): 284-288.

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Research Using NLSY Data on Maternal Employment, Fertility & Children: A Bibliography. 1993. Updated periodically. Columbus, Ohio: The Ohio State University, Center for Human Resource Research.

Child Prenatal Health History

(E3200. - E3279.10). This set of variables describes the mother's health and details prenatal care during the pregnancy leading to the child's birth. Variables include degree of alcohol use, smoking, exposure to x-rays, prenatal visits, mother's weight at the beginning and end of the pregnancy, weight gain during pregnancy, and use of sonograms, amniocentesis, and dietary supplements during pregnancy.

The notes for the prenatal care entries in the Child Codebook refer only to the 1984 prenatal care "R" reference numbers from the NLSY main file. This set of reference numbers does not represent the complete set of inputs but rather illustrates the types of variables extracted from the mother's longitudinal record since 1983 to construct each child's prenatal history. For example, only prenatal care information for the child who was the youngest child as of the 1983 interview was actually reported in that year. In subsequent years women were asked about all pregnancies that occurred since the last interview date. Starting in 1988, these reports are solicited every second survey year. Prenatal care for children born prior to 1983 who were not the youngest in 1983 was retrospectively asked in 1986. The x-ray questions, however, were not asked in the 1986 retrospective prenatal health section or in the 1986 prenatal health update (see pages 10-99 to 10-104 and pages 10-116 to 10-118 of Section 10: Fertility, 1986 NLS main Youth Questionnaire). In addition, sonogram, amniocentesis, and diet questions were not asked in the 1986 prenatal health update (see pages 10-116 to 10-118 of Section 10: Fertility, NLS main Youth

Questionnaire, 1986). Users should consult specific main questionnaires and Mott and Quinlan (1991), listed below, to better understand which year yielded information for a specific universe of children.

Child Postnatal Health History

(E3280. - E3392.10). Information on gestation, birth weight, infant feeding practices, illnesses and well baby care during the period immediately following birth through the first year of life were taken from the mother's longitudinal record and attached to each child.

Only the 1984 NLSY main file reference numbers are noted in the Child Codebook for postnatal care variables. As mentioned above in the discussion of prenatal care information, these codebook notes illustrate the types of inputs drawn from the mother reports since 1983 of postnatal care for all children. Users should review the Fertility Section of the main Youth questionnaire for each of these years to see when certain questions were asked for specific children of specific ages. For example, while birth weight was reported in 1983 for all children born as of that date, certain feeding questions were applicable only to a subset of children. Feeding questions about solid foods which may have been inappropriate for an infant in 1983, for example, were updated in 1984 or 1985, depending on the developmental stage of the child at each interview date. Users should note that only the subset of immunization questions most comparable across survey years was included in the Child file. Also, unlike the series of child illness questions asked of the mother starting in the 1984, the 1983 interview schedule refers to illnesses experienced by the youngest child in the first year only if the child had been hospitalized (see Section 10, Q. 40A and B, pages 10-105 of the 1983 NLS main Youth questionnaire). A good source for users interested in an overview of maternal and child health information related to pregnancy and birth in the NLSY is the report by Mott and Quinlan (1991), listed below and available at no charge from CHRR.

Quality of the Pre/Postnatal Data.

In the process of updating the current set of eight variables that indicate when the child began cow's milk and solid food, CHRR discovered a relatively high number of cases with missing information for children born between the 1986 and 1988 mother interview dates. This high level of invalid response, caused by a data entry problem, remains on the file but does not appear to be related to any particular child characteristic.

A second caveat relates to the postnatal information available for children who are less than a year old when first reported by the mother in the Fertility section of the main NLSY questionnaire. Users of the postnatal data should be aware that children who have not completed one year of life at the time of the mother's first pre/postnatal report will have partial information on illnesses, hospitalization, sick-care, an

well-care in the first year of life, since these items, by virtue of the child's age, are incomplete at first report and are not updated at the subsequent interview date. This censoring effect does not apply to the questions on infant feeding.

In general, CHRR evaluations of the birth weight data have found very good comparability between NLSY and official Vital Statistics birth weight data. The match appears less satisfactory when comparing gestation data from the two sources. When collecting most gestation data, the potential for error is considerable because of the uncertainty of many women regarding the precise beginning of their pregnancy.

Missing Values. While uniform distinctions have not always been made between valid missing values (-4) and invalid skips (-3, -2, -1) in this series, most variables in the pre/postnatal series reflect the missing values assigned the original NLS Youth Fertility items on which the constructed items were based. Since the Child data set contains a comprehensive set of variables from this section of the NLSY data, those wishing to distinguish types of missing values can use the various screening questions in combination with more detailed follow-up items to determine which questions apply to which universes of children.

References: Pre/Postnatal Health.

Mott, Frank L. and Stephen V. Quinlan. 1991. Maternal-Child Health Data from the NLSY: 1988 Tabulations and Summary Discussion. (October). Columbus, Ohio: The Ohio State University, Center for Human Resource Research.

Research Using NLSY Data on Child Health: A Bibliography. 1993. Updated periodically. Columbus, Ohio: The Ohio State University, Center for Human Resource Research.

Research using NLSY Birthweight Information.

The NLSY Child database contains information on numerous aspects of both maternal and child health, as well as other important social and demographic indicators, providing researchers with a unique opportunity to explore complex issues such as the determinants and consequences of birth weight. Important information about each pregnancy, such as maternal weight gain, smoking and drinking behaviors, and use of prenatal care, can be linked with other potentially influential factors such as family background, age, race and socio-economic status, in attempts to understand the processes that influence birth weight.

The NLSY data have been used to demonstrate the effects of maternal health-related characteristics and behaviors on birth weight outcomes. Results suggest a high face validity for the NLSY birth weight inputs. Cramer (1987), using data through 1984 from white and nonblack Hispanic mothers, found that smoking, low weight for height, delaying prenatal care, and low weight gain were significantly

negatively related to birth weight. Also using data through 1984, Rosenzweig and Wolpin (1990) found that smoking marijuana has a significant negative effect on birth weight, especially during the first trimester of pregnancy. Furthermore, smoking marijuana during all three months of the first trimester has a much greater negative impact than smoking fewer than all three months (Rosenzweig and Wolpin, 1990). In a study using data through 1986 and limited to first births, Abma and Mott (1990) found that women engaging in one risk factor (smoking, drinking or delaying prenatal care) had the highest percent of low birth weight babies, followed by women engaging in more than one risk factor. Researchers have also used the NLSY data to explore variations by racial group in the rate of occurrence of low birth weight. Ketterlinus, Henderson, and Lamb (1990), using data through 1986 for both black and white primiparous women, found race to be a significant predictor of low birth weight. Using data on all births occurring from 1979 to 1986, Cramer, Bell and Vaast (1990) found that even controlling for socio-economic, demographic and proximate variables, blacks and Puerto Ricans still had significantly lower birth weight babies than whites. However, some researchers have suggested that race per se is not causal in determining low birth weight and have explored other mechanisms involved. Abma and Mott (1990) found that when risk factors (smoking, drinking, and delaying prenatal care) and maternal AFQT scores are included in multivariate analyses that the effect of race on low birth weight becomes insignificant.

In an explicit attempt to explore the linkages between race and family income and drawing on data from all births to non-Hispanic black and white women between 1979 and 1988, Starfield, et al. (1991) found that poor black and white infants are at similar risk levels for low birth weight, but nonpoor black infants are at much greater risk of being low birth weight than nonpoor white infants, controlling for known risk factors. Furthermore, shifts into and out of poverty affected the risk of low birth weight for whites but not for blacks (Starfield, et al., 1991). In another attempt to look at the linkages between poverty and race, Currie and Cole (1992), basing their analysis on children born between 1979 and 1988, found that AFDC recipients are both more likely to be black and more likely to have low birth weight infants. However, they argue that this connection is not causal because the women most likely to be on AFDC also are more likely to have other characteristics associated with low birth weight (i.e., delaying prenatal care, smoking or drinking).

Using data through 1986 for both black and white primiparous women, Ketterlinus, Henderson, and Lamb (1990) found that the youngest and oldest women were the most likely to have low birth weight babies. Other researchers have demonstrated that the link between maternal age and low birth weight is complicated by other social factors. Identifying sisters from the NLSY who had experienced births by 1986 and at different ages, Geronimus and Korenman (1991) found that, when comparing sisters, teen mothers are slightly less likely to have low birth weight babies. They also found that teen mothers from disadvantaged families were more likely to have low birth weight babies than teen mothers from

advantaged families, but that older mothers from disadvantaged families were more likely to have low birth weight babies than teen mothers from disadvantaged families (Geronimus and Korenman, 1991). Using data on all births through 1988, Rosenzweig and Wolpin (1992) identified sister pairs with multiple births to construct a model of birth weight that controls for both instrumental and heritable components of birth weight. They conclude that, controlling for these components, teenage childbearing might have a positive effect on birth weight (Rosenzweig and Wolpin, 1992).

Other issues that might affect birth weight have been explored using these data. Marsiglio and Mott (1988), using data through 1984, suggest that wantedness has only a weak indirect effect on birth weight, through the significant effect wantedness has on seeking early prenatal care. Basing their analysis on all women with single, live births prior to 1983 for whom employment data were available, Homer, Berresford, James, Siegel, and Wilcox (1990) found that, controlling for sociodemographic, behavioral and obstetrical characteristics, women working in high-exertion jobs were five times more likely to have pre-term, low birth weight babies that women in low exertion jobs. In a related analysis, Homer, James and Siegel (1990) found that women in psychologically stressful jobs who did not want to be working had babies with significantly lower birth weights.

Low birth weight has also been used as a control variable in research looking at child outcomes (i.e., Moore and Snyder, 1991; Menaghan and Parcel, 1992) and as an indicator of poor health in infancy (i.e., Mott, 1991). Using 1986 data on children aged four through eleven, Weitzman, Gortmaker and Sobol (1992) found that very low birth weight was significantly related to later behavior problems, controlling for a wide variety of other factors (i.e., age, sex, race, family structure and income, and maternal characteristics) that could influence levels of behavior problems.

References: Birthweight.

Abma, Joyce C. and Frank L. Mott. 1990. "Is There a 'Bad Mother' Syndrome? Evidence of Overlapping High Risk Behavior During Pregnancy Among a National Cross-section of Young Mothers." Presented: Annual Meetings of the Population Association of America, Toronto.

Cramer, James C. 1987. "Family Structure and Infant Health." Presented: Annual Meetings of the Population Association of America, Chicago.

Cramer, James C., Katrina Bell and Katherine Vaast. 1990. "Race, Ethnicity, and the Determinants of Low Birthweight in the U.S." Presented: NICHD Workshop on Social and Demographic Research on Infant Mortality and Low Birthweight, Bethesda, Maryland.

Currie, Janet and Nancy Cole. 1992. "Welfare and Child Health: The Link Between AFDC Participation and Birth Weight." Working Paper #92-9. Cambridge: MIT, Department of Economics.

Geronimus, Arline T. and Sanders Korenman. 1991. "Maternal Youth or Family Background? Preliminary Findings on the Health Disadvantages of Infants with Teenage Mothers." Research Report No. 91-204 (March). Ann Arbor: Population Studies Center, The University of Michigan.

Homer, Charles J., Shirley A. Berresford, Sherman A. James, Earl Siegel, et al. 1990. "Work-related Physical Exertion and Risk of Preterm, Low Birthweight Delivery." Paediatric and Perinatal Epidemiology 4: 161-174.

Homer, Charles J., Sherman A. James and Earl Siegel. 1990. "Work-Related Psychosocial Stress and the Risk of Preterm, Low Birthweight Delivery." American Journal of Public Health 80, 2 (February): 173-177.

Ketterlinus, Robert D., Sandra Henderson and Michael E. Lamb. 1990. "Maternal Age, Sociodemographics, Prenatal Health, and Behavior: Influences on Neonatal Risk Status." Journal of Adolescent Health Care 11, 5 (September): 423-431.

Marsiglio, William and Frank L. Mott. 1988. "Does Wanting to Become Pregnant with a First Child Affect Subsequent Maternal Behaviors and Infant Birth Weight?" Journal of Marriage and the Family 50 (November): 1023-1036.

Menaghan, Elizabeth G. and Toby L. Parcel. 1992. "Social Sources of Stability and Change in Children's Home Environments: Effects of Parental Occupational Experiences and Family Conditions." Presented: The RAND Conference on Economic and Demographic Aspects of Intergenerational Relations, Santa Monica, March 20-22.

Moore, Kristin A. and Nancy O. Snyder. 1991. "Cognitive Attainment Among Firstborn Children of Adolescent Mothers." American Sociological Review 56 (October): 612-624.

Mott, Frank L. 1991. "Developmental Effects of Infant Care: The Mediating Role of Gender and Health." Journal of Social Issues 47, 2 (Summer): 139-158.

Rosenzweig, Mark R. and Kenneth I. Wolpin. 1990. "The Effect of the Timing and Frequency of Marijuana Use on Fetal Growth Based on Sibling Birth Data." Working Paper. University of Minnesota.

Rosenzweig, Mark R. and Kenneth I. Wolpin. 1991. "Sisters, Siblings and Mothers: The Effects of Teenage Childbearing on Birth Outcomes." Working Paper (November). University of Minnesota.

Starfield, Barbara, Sam Shapiro, Judith Weiss, Kung-Yee Liang, et al. 1991. "Race, Family Income, and Low Birth Weight." American Journal of Epidemiology 134, 10 (November): 1167-1174.

Weitzman, Michael, Steven Gortmaker and Arthur Sobol. 1992. "Maternal Smoking and Behavior Problems of Children." Pediatrics 90, 3 (September): 342-349.

Child Care

(E3500. - E3748.). A range of both cross-sectional (past four weeks) and retrospective child care information from several survey years is included in this series of variables. The mother-report child care sections from the 1986 and 1988 main NLSY surveys provide the types of current child care arrangements used for each child in the household, the overall family expenditure for current care, and a retrospective of child care experiences during the first three years of life for all children (of at least 1 year of age) born

to the respondent. These cross sectional child care variables are identified by E3500. - E3563., and E3591. - E3748. Variables E3564. - E3590. provide a cumulative updated profile through 1988 of the child care experiences in the first three years of life for children of at least one year of age. Child care information was not collected in the 1990 survey round but was updated in 1992. Note that children who were less than three years old in 1988 will not have a complete 3-year child care retrospective for the first three years of life until the release of the 1992 Child Data.

Child care information taken directly from the 1984 and 1985 NLSY main surveys (E3591. - E3748.) describes child care arrangements used in the past four weeks for the youngest child by parents who were either employed, in school, or in training at the survey date. Location and type of primary and secondary care, hours of use, nature of payment and grandmother utilization are reported in 1984. Location, type, payment, detail on group arrangements, and hypothetical care are available for 1985. In both years, limited information on location and type of care are reported by respondents who are not currently employed but who have an employed spouse.

The retrospective information collected in 1986 and the current child care information collected between 1984 and 1988 relate to different universes of children and utilize different child care definitions. These distinctions are clarified further in the topical section titled "Child Care" in the current *NLS Users Guide*. Additional child care information was also collected in the 1982 and 1983 main NLSY surveys. The child care data from these two years are not included in the tape version of the NLSY Child file but can be found on the NLS main Youth file (CD-ROM Youth Record Type CHILDCAR). A bibliography (listed below) that cites research based on the NLSY child care data is available from CHRR.

Users of the CD-ROM printed documentation should note that, even though the child care variables drawn directly from the mother's record are identified by NLS Youth cross reference "R" numbers in the printed CD-ROM Numeric listing, the entire set of child care variables mentioned above has been loaded into the child-based Record Type CHDCARE. Both the Record Type name and the main Youth cross reference ("R") number appear in the codebook entries on the CD-ROM itself while the Youth cross reference number and the NLSY question number appear in the printed CD-ROM codebook documentation.

Missing Values. Child care variables drawn from the mother's cross-sectional record for years 1983, 1984, 1985, 1986, and 1988 retain the full range of missing values originally assigned to the Youth file in those years. The retrospective variables (E3564. - E3590.) have no noninterviews assigned since the inputs do not necessarily come from any one interview year.

References: Child Care.

Research Using NLSY Child Care Data: A Bibliography. 1993. Updated periodically. Columbus, Ohio: The Ohio State University, Center for Human Resource Research.

The Child Assessment Data

The Child Assessment Raw Item Data.

(E4021. - E5677.; E5910. - E7864.; E8100. - E9895.) The Child Assessment Raw Item files contain the individual item responses to the various assessment instruments administered in each survey year. References to the tape version of these items can be found in the Raw Supplement Item Indices and Codebook documentation for the appropriate years. The number of cases on each of the magnetic tape files reflects only the children interviewed in the relevant year. Each child's sequential identification number appears at the beginning of each file for use in merging with other child files. The Child Raw Item data files on magnetic tape are accompanied by an electronic version of the appropriate numeric indices and a codebook that documents the distributions of these items. CD-ROM users will find these individual items in the CHDSUP and MOMSUP Child record types for the appropriate year (see the discussion of the Child CD-ROM data in Section 6).

The data on each Raw Item file appear exactly as collected by NORC and are not always consistent with the assessment data and scores on the Child Data file. Items on the latter file have undergone a series of internal consistency checks whereas the data on the Raw Item files have not. Given the many currently undefined uses of the data, it was considered preferable to release these files of unchanged assessment items so that individual researchers could have the opportunity to alter the original data in a manner consistent with their needs. While all HOME items appear in their original form on the file, the dichotomous versions of the items used in scoring are not included. Each of the Child assessments is discussed in detail in Section 5.

Missing Values. The valid missing values (designating those children not age eligible) and the invalid skips (interviewer error, "don't knows" and refusals) have been collapsed into a "-6" category on the Raw Item assessment files. (Note that this procedure differs from the assignment of the constructed assessment scores, discussed in detail in Section 5 of this Handbook.) A value of "-5" was assigned to children not interviewed in a particular assessment year.

Documentation available when these item files are ordered consists of a codebook that identifies each variable, its question number, and response frequencies as well as copies of the Child and Mother Supplement interview schedules. Those exploring the applicability of the child assessments for their research needs can obtain copies of the relevant interview schedules (the Mother and Child Supplements as well as the relevant NLSY questionnaires) from the NLS User Services Offices. Ordering information is provided in Section 6 of this Handbook.

Pre-teen/Teen Behaviors & Attitudes.

(E9327. - E9486.) For children 10 years of age and older, information was collected during the 1988, 1990 and 1992 surveys on a variety of factors including child-parent interaction, child home responsibilities, attitudes towards school, time-use, employment, religious attendance, alcohol and drug use, sexual activity, life expectations, dating and friendship patterns, and other related attitudes and behaviors. A special Child Self-Administered supplement first developed in 1988, is used to collect this information.

Child Assessment Measures.

(E5700. - E5812.; E7900. - E8007.; E9900. - E9999.). Assessments of the cognitive, socioemotional and physical development of the children of the mothers of the NLSY as well as measures of the quality of the child's home environment are included in the Child data. The assessment measures vary depending on the age of the child. Cognitive materials for the youngest children include a body parts identification (1986, 1988), a memory for locations test (1986, 1988), and a verbal memory subscale from the McCarthy. The older children have scores from the PIAT Math and Reading subtests, the Peabody Picture Vocabulary Test-Revised, and the Memory for Digit Span subscale of the Wechsler. Assessments that evaluate the social and emotional development of children include temperament scales for children under age seven, a Motor and Social Development Scale for children under age four, the Behavior Problems Index for children four years and older, and a perceived self competence scale for children eight years and older. These assessments are discussed in detail in Section 5. A comprehensive bibliography of research using the NLSY Child assessment data (cited below) is available at no charge from CHRR.

The 1986, 1988, and 1990 child sampling weights, which adjust for child attrition between 1979 and 1990, appear as E5812., E8007., and E9999. respectively in the Child file documentation. For a discussion of the creation of these weights and their application in analysis, the user should consult Section 3 of this Handbook (NLSY Mother and Child Samples) and the section on Survey Methodology in the current *NLS Handbook*.

References: Child Assessments.

Research Using NLSY Child Assessment Data: A Bibliography. 1993. Updated periodically. Columbus, Ohio: The Ohio State University, Center for Human Resource Research.

Table 4.1   The NLSY 1979-90 Child Data: A Summary

The following is a list of the contents of the 1979-90 NLSY Child database, available to the public both on magnetic tape and on compact disc (CD-ROM). While all the variables described below are included on the tape version of the dataset, only a subset appear as child-based items on the Child CD-ROM. The relevant CD-ROM Child Record Type name is noted in parentheses after each topic heading as well as the total number of constructed "child-based" variables found in each category. Subheadings preceded by an asterisk (*), e.g. Maternal Family Background under FAMILY BACKGROUND (FAMBKGN), indicate groups of variables drawn from the mother's record, converted to child-specific variables and placed on the tape version of the Child file. CD-ROM users can create these constructs by (1) accessing the child database, (2) moving to the Youth database and extracting items from the mother's file, and (3) using the CD feature that attaches them to the appropriate children.

CHILD BACKGROUND (CHDBKGN: 117 items)
   Child linkage variables
   Child demographic variables
   Child usual residence 1979-90
   Father contact 1984-88

FAMILY BACKGROUND (FAMBKGN: 37 items)
   Child family background
   *Maternal family background (mostly drawn from NLSY 1979)
   *Maternal marital status (NLSY created variables)
   *Marital transitions 1979-90
   *Maternal marital history 1979-90
   *1982 Maternal spouse information
   Child family education 1979-90

MATERNAL HH COMPOSITION 1979-90 (MHHCOMP: 394 items)
   Number of HH members in maternal HH; total; by age ranges
   Number of adults and children maternal HH
   Work status and education of adults in maternal HH in last year
   Age of youngest HH member & family member in HH
   Number of family members & family units in maternal HH
   Age of youngest child of mother in HH
   Presence, age, education of spouse or partner of mother in HH
   Presence of grandmother/grandfather in maternal HH
   Number of biological & step siblings of mother in maternal HH

MATERNAL WELL-BEING (MOMWELL: 8 items)
   Maternal health 1979-90
   *Maternal deviance
   *Maternal attitudes

FAMILY EMPLOYMENT & INCOME (EMPINC: 184 items)
   Maternal CPS info 1979-90
   *Maternal job characteristics
   *Spouse employment 1979-90
   *Child family income 1979-90
   *Family public assistance 1979-90

Table 4.1   The NLSY 1979-90 Child Data: A Summary (continued)

QUARTERLY MATERNAL WORK HISTORY (WORKHIST: 411)
        Week # of date of birth of child from 1/1/78 to current maternal interview date
        # of weeks before birth of child mother left employment
        # of weeks after birth of child mother began employment
        # of jobs held 4 quarters prior/20 quarters post birth
        Weeks worked at all jobs 4 quarters prior/20 quarters post birth
        # of weeks in military service, 4 quarters prior/20 quarters post birth
        Hours worked at all jobs 4 quarters prior/20 quarters post birth
        Earnings at all jobs 4 quarters prior/20 quarters post birth
        Weeks worked at main job, 4 quarters prior/20 quarters post birth
        Hours worked per day at main job, 4 quarters prior/20 quarters post birth
        Hours worked per week at main job, 4 quarters prior/20 quarters post birth
        Industry of main job, 4 quarters prior/20 quarters post birth
        Occupation at main job, 4 quarters prior/20 quarters post birth (70 census 3 digit)
        Occupation at main job, 4 quarters prior/20 quarters post birth (Duncan index)
        Class of worker at main job, 4 quarters prior/20 quarters post birth
        Rate of pay at main job, 4 quarters prior/20 quarters post birth
        Time unit of pay at main job, 4 quarters prior/20 quarters post birth
        Hourly wage at main job, 4 quarters prior/20 quarters post birth
        Collective bargaining set main job wages?; 4 quarters prior/20 quarters post birth
        Is job government-sponsored? main job, 4 quarters prior/20 quarters post birth

PRE/POSTNATAL CARE (NATAL: 194 items)
        Child prenatal care
        Child postnatal care
        Infant Health in the first year of Life

CHILD CARE (CHDCARE: 249 items)
        1984 child care
        1985 child care
        1986 current child care
        1988 current child care
        1990 current child care
        Retrospective child care

1986 CHILD SUPPLEMENT ITEMS (CHDSUP86: 1270 items)
        Child Background (age, school enrollment, grade)
        Child Health (limitations, menses, behavioral/emotional problems, medication,
                height, weight)
        Child Supplement Assessments:
                Body Parts
                Memory for Location
                Verbal Memory
                Self-Perception Profile for Children
                Digit Span
                PIAT Math
                PIAT Reading Recognition
                PIAT Reading Comprehension
                PPVT-R

Table 4.1   The NLSY 1979-90 Child Data: A Summary (continued)

1986 CHILD SUPPLEMENT ITEMS (CHDSUP86: 1270 items)(continued)
Interviewer Evaluation of Testing Conditions (child attitudes, vision/hearing/health problems, child shyness at end of session, interferences/distractions, test site)
Interviewer Observations of Home Environment
Caretaker Locating Information

1986 MOTHER SUPPLEMENT ITEMS (MOMSUP86: 270 items)
Type of interview
Child ID (unedited)
Mother Supplement date of administration (unedited)
Age at administration of Mother Supplement (unedited)
Relationship of respondent to child
HOME items
Temperament items
Motor & Social Development items
BPI items
Interviewer ID
Child age at date of Mother Supplement (constructed variable)

1986 CHILD ASSESSMENT SCORES (ASSESS86: 115 items)
HOME Inventory scores
Temperament scores
Motor & Social Development scores
Behavior Problems Index scores
Child Health items (including height, weight)
Body Parts scores
Memory for Location scores
Verbal Memory scores
Self-Perception Profile scores
Digit Span scores
PIAT Math scores
PIAT Reading scores
PPVT-R scores
PPVT-R Age in months
Child Sampling Weight

1988 CHILD SUPPLEMENT ITEMS (CHDSUP88: 1491 items)
Child Background (age, school enrollment, grade, Headstart experience)
Child Health (limitations, accidents, injuries, hospitalization, menses, behavioral/emotional problems, medication, height, weight)
Child Supplement Assessments:
Body Parts
Memory for Location
Verbal Memory
Self-Perception Profile for Children
Digit Span
PIAT Math
PIAT Reading Recognition
PIAT Reading Comprehension
PPVT-R

Table 4.1   The NLSY 1979-90 Child Data: A Summary (continued)

1988 CHILD SUPPLEMENT ITEMS (CHDSUP88: 1491 items)(continued)
Interviewer Evaluation of Testing Conditions (child attitudes, vision/hearing/health problems, child shyness at end of session, interferences/distractions, test site, language used in administration)
Interviewer Observations of Home Environment
Caretaker Locating Information
Child Self-Administered Supplement (age 10 years +)

1988 MOTHER SUPPLEMENT ITEMS (MOMSUP88: 359 items)
Type (mode) of interview
Child ID & DOB (unedited)
Relationship of respondent to child
HOME items
Temperament items
Motor & Social Development items
BPI items
School Background
Language in which supplement administered
Child age at date of Mother Supplement

1988 CHILD ASSESSMENT SCORES (ASSESS88: 110 items)
HOME Inventory scores
Temperament scores
Motor & Social Development scores
Behavior Problems Index scores
Body Parts scores
Memory for Location scores
Verbal Memory scores
Self-Perception Profile scores
Digit Span scores
PIAT Math scores
PIAT Reading scores
PPVT-R scores
PPVT-R Age in months
Child Sampling Weight

1990 CHILD SUPPLEMENT ITEMS (CHDSUP90: 1412 items)
Child Background (age, school enrollment, grade, Headstart experience)
Child Health (limitations, accidents, injuries, hospitalization, menses, behavioral/emotional problems, medication, height, weight)
Child Supplement Assessments:
Verbal Memory
Self-Perception Profile for Children
Digit Span
PIAT Math
PIAT Reading Recognition
PIAT Reading Comprehension
PPVT-R

Table 4.1   The NLSY 1979-90 Child Data: A Summary (continued)

1990 CHILD SUPPLEMENT ITEMS (CHDSUP90: 1412 items)(continued)
Interviewer Evaluation of Testing Conditions (child attitudes, vision/hearing/health problems, child shyness at end of session, interferences/distractions, test site, language used in administration)
Interviewer Observations of Home Environment

Child Self-Administered Supplement (age 10 years +)

1990 MOTHER SUPPLEMENT ITEMS (MOMSUP90: 384 items)
Type (mode) of interview
Child ID & DOB (unedited)
Relationship of respondent to child
HOME items
Temperament items
Motor & Social Development items
BPI items
School Background
Language in which supplement administered
Child age at date of Mother Supplement

1990 CHILD ASSESSMENT SCORES (ASSESS90: 100 items)
HOME Inventory scores
Temperament scores
Motor & Social Development scores
Behavior Problems Index scores
Verbal Memory scores
Self-Perception Profile scores
Digit Span scores
PIAT Math scores
PIAT Reading scores
PPVT-R scores
PPVT-R Age in months
Child Sampling Weight

Table 4.2   NLS Youth: Father Presence/Visitation Variables, 1989 and 1990

Reference Number	Variable Description	Question Number	Year	Record Type
R29559.00	FATHER/MOTHER OF 1ST CHILD LIVE IN HOUSEHOLD?	Q1862	1989	BIRTHR89
R29562.00	FATHER/MOTHER OF 2ND CHILD LIVE IN HOUSEHOLD?	Q1866	1989	BIRTHR89
R29565.00	FATHER/MOTHER OF 3RD CHILD LIVE IN HOUSEHOLD?	Q1870	1989	BIRTHR89
R29568.00	FATHER/MOTHER OF 4TH CHILD LIVE IN HOUSEHOLD?	Q1912	1989	BIRTHR89
R29571.00	FATHER/MOTHER OF 5TH CHILD LIVE IN HOUSEHOLD?	Q1916	1989	BIRTHR89
R29574.00	FATHER/MOTHER OF 6TH CHILD LIVE IN HOUSEHOLD?	Q1920	1989	BIRTHR89
R29577.00	FATHER/MOTHER OF 7TH CHILD LIVE IN HOUSEHOLD?	Q1924	1989	BIRTHR89
R32559.00	FATHER OF 1ST CHILD LIVE IN HOUSEHOLD?	Q5529	1990	BIRTHR90
R32560.00	FATHER OF 1ST CHILD LIVING?	Q5531	1990	BIRTHR90
R32561.00	DISTANCE FATHER OF 1ST CHILD LIVES FROM R	Q5533	1990	BIRTHR90
R32562.00	TIMES IN PAST 12 MOS 1ST CHILD HAS SEEN FATHER	Q5535	1990	BIRTHR90
R32577.00	FATHER OF 2ND CHILD LIVE IN HOUSEHOLD?	Q5541	1990	BIRTHR90
R32578.00	FATHER OF 2ND CHILD LIVING?	Q5543	1990	BIRTHR90
R32579.00	DISTANCE FATHER OF 2ND CHILD LIVES FROM R	Q5545	1990	BIRTHR90
R32580.00	TIMES IN PAST 12 MOS 2ND CHILD HAS SEEN FATHER	Q5547	1990	BIRTHR90
R32595.00	FATHER OF 3RD CHILD LIVE IN HOUSEHOLD?	Q5553	1990	BIRTHR90
R32596.00	FATHER OF 3RD CHILD LIVING?	Q5555	1990	BIRTHR90
R32597.00	DISTANCE FATHER OF 3RD CHILD LIVES FROM R	Q5557	1990	BIRTHR90
R32598.00	TIMES IN PAST 12 MOS 3RD CHILD HAS SEEN FATHER	Q5559	1990	BIRTHR90
R32613.00	FATHER OF 4TH CHILD LIVE IN HOUSEHOLD?	Q5565	1990	BIRTHR90
R32614.00	FATHER OF 4TH CHILD LIVING?	Q5567	1990	BIRTHR90
R32615.00	DISTANCE FATHER OF 4TH CHILD LIVES FROM R	Q5569	1990	BIRTHR90
R32616.00	TIMES IN PAST 12 MOS 4TH CHILD HAS SEEN FATHER	Q5571	1990	BIRTHR90
R32631.00	FATHER OF 5TH CHILD LIVE IN HOUSEHOLD?	Q5609	1990	BIRTHR90
R32632.00	FATHER OF 5TH CHILD LIVING?	Q5611	1990	BIRTHR90
R32633.00	DISTANCE FATHER OF 5TH CHILD LIVES FROM R	Q5613	1990	BIRTHR90
R32634.00	TIMES IN PAST 12 MOS 5TH CHILD HAS SEEN FATHER	Q5615	1990	BIRTHR90
R32649.00	FATHER OF 6TH CHILD LIVE IN HOUSEHOLD?	Q5621	1990	BIRTHR90
R32650.00	FATHER OF 6TH CHILD LIVING?	Q5623	1990	BIRTHR90
R32651.00	DISTANCE FATHER OF 6TH CHILD LIVES FROM R	Q5625	1990	BIRTHR90
R32652.00	TIMES IN PAST 12 MOS 6TH CHILD HAS SEEN FATHER	Q5627	1990	BIRTHR90
R32667.00	FATHER OF 7TH CHILD LIVE IN HOUSEHOLD?	Q5633	1990	BIRTHR90
R32668.00	FATHER OF 7TH CHILD LIVING?	Q5635	1990	BIRTHR90
R32669.00	DISTANCE FATHER OF 7TH CHILD LIVES FROM R	Q5637	1990	BIRTHR90
R32670.00	TIMES IN PAST 12 MOS 7TH CHILD HAS SEEN FATHER	Q5639	1990	BIRTHR90
R32685.00	FATHER OF 8TH CHILD LIVE IN HOUSEHOLD?	Q5645	1990	BIRTHR90

Note: Summary child-based 'father' variables for 1984-1988 are on the NLSY Child file; see E81.- E101.

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Table 4.3   NLSY Child Data: Sequence of Maternal Workhistory Variables

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Week # of date of birth of child from 1/1/78 to current maternal interview date
# of weeks before birth of child mother left employment
# of weeks after birth of child mother began employment
# of jobs held 4 quarters prior/20 quarters post birth
Weeks worked at all jobs 4 quarters prior/20 quarters post birth
# of weeks in military service, 4 quarters prior/20 quarters post birth
Hours worked at all jobs 4 quarters prior/20 quarters post birth
Earnings at all jobs 4 quarters prior/20 quarters post birth
Weeks worked at main job, 4 quarters prior/20 quarters post birth
Hours worked per day at main job, 4 quarters prior/20 quarters post birth
Hours worked per week at main job, 4 quarters prior/20 quarters post birth
Industry of main job, 4 quarters prior/20 quarters post birth
Occupation at main job, 4 quarters prior/20 quarters post birth (70 census 3d)
Occupation at main job, 4 quarters prior/20 quarters post birth (duncan index)
Class of worker at main job, 4 quarters prior/20 quarters post birth
Rate of pay at main job, 4 quarters prior/20 quarters post birth
Time unit of pay at main job, 4 quarters prior/20 quarters post birth
Hourly wage at main job, 4 quarters prior/20 quarters post birth
Collective bargaining set main job wages?; 4 quarters prior/20 quarters post birth
Is job government-sponsored? main job, 4 quarters prior/20 quarters post birth

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5

THE NLSY CHILD ASSESSMENTS

This section of the Handbook begins with a brief discussion of the criteria utilized in selecting the NLSY Child assessments, followed by general information essential for all users. Then, each of the child assessments administered in the 1986 through 1990 NLSY Child survey rounds is described in detail. Information is provided about the reliability and validity of the assessments available from other sources. Much of the section is devoted to descriptive analyses of the assessment data, including tabular information relating the distribution of the various outcome scores to a number of child and maternal characteristics. Correlations between the various assessments, internally developed reliability coefficients, and a discussion of potential biases due to selective attrition are also included. Finally, the section highlights the nuances of the various assessments, some of the data limitations that have become evident and specific information about how to properly access and use the child assessment information. All tables for Section 5 are located at the conclusion of the text portion of the section. Appendices appear at the end of the volume.

Criteria for Selecting the NLSY Child Assessments

The decisions about which child assessments to ask of the children of the female respondents in 1986 were carefully considered from a number of perspectives. The selections were made jointly by NICHD staff, Ohio State Center for Human Resource Research personnel and a nationally recognized panel of experts from medicine and the social sciences. We reconvened additional advisory groups to guide our thinking regarding the most appropriate information to be collected from these children as they matured. The members of these panels are listed in Table 5.1. Our original assessments generally met the following criteria:

(1)   They were "tried and true" tests which, for the most part, had been extensively used by data collectors in a variety of social, economic and cultural settings. Some had been administered in household settings utilizing interviewing procedures similar to those followed with the NLSY. They were frequently suitable for administration by nontechnical

(but otherwise highly qualified) interviewing personnel to a cross-section of middle class and economically disadvantaged whites as well as minority children.

(2)   Many of the tests are recognized by the social science community as well-established and well-normed. Available statistics indicate that they are generally highly reliable and valid. Reliable means that if the same individual is repeatedly given the same test, he or she will repeatedly have similar scores. Valid means that the test indeed measures what it purports to measure; validity is generally determined by comparing results on the given tests with results for the same individual on a different test whose validity has already been well established. Many of the tests are rated highly in Burroughs *Tests in Print* (Vol. 3, 1983), a widely recognized testing manual which rates all of the major aptitude tests. Over time we have augmented these statistics with additional information garnered from the 1986 through 1990 survey round.

(3)   Most of the tests are inexpensive to administer, require very little equipment (important for tests administered in a home setting), and are relatively short.

(4)   The utility and appropriateness of the tests have been considered from both longitudinal and cross-sectional perspectives. First, the participants in the questionnaire development process have carefully ensured that tests are included which cover to the maximum extent feasible the critical cognitive, personality and physical health dimensions at all maturational stages between birth and the early adolescence. Second, every effort has been made to assure that the tests complement each other analytically from a longitudinal perspective. That is, as the study is increasingly being maintained for additional years, we have assurance that developmental inputs at younger ages which are needed to evaluate outcomes at later ages are being appropriately included. Indeed, in this regard, most of these assessments are asked in the 1986, 1988 and 1990 survey rounds. Finally, every effort has been made to include basic cognitive and personality scales which can, in a cross-sectional context, be compared across age groups at one point in time (subject, of course, to the caveats discussed in the sampling section).

(5)   None of the tests involve any physical or psychological risk to the children or any other family member. In all instances, the mother, who is the original sample respondent, was informed about the testing procedures and indeed, in several instances, the questions were addressed directly to the mother. If at any time there was any reticence regarding a procedure by either a child or the respondent, interviewers were instructed to cease testing immediately.

The 1986 - 1990 Child Assessments: An Overview

The NLSY data collection effort includes a substantial battery of assessment information about the children of the female respondents who were interviewed in the 1986, 1988 and 1990 survey rounds. All of the data collected in these child assessments are available on the 1990 child data tape as well as on the 1990 child CD-ROM. This includes summary scores and, in some instances, subscores for all of the assessments. Where available, the file also includes national norms based on the raw scores. Table 5.2 provides a complete listing of all the raw and normed scores available on the merged file. The file also includes individual item scores for all 1986 through 1990 assessments. Interviewer remarks associated with each assessment and "flag" items for several of the assessments indicating where prorations were necessary or where alternate scoring schemes were considered are also included. This will be addressed further below in relation to specific assessments. In essence, every individual item score in the 1986, 1988 and 1990 mother and child assessment is included in the file as are a large variety of raw and normed scores and subscores to the various assessments.

CHRR staff have examined the assessment data as carefully as possible while preparing the summary scores and the public use files. However, researchers who detect what appear to be significant data problems with the assessments are encouraged to contact Frank Mott or Paula Baker by phone (614-442-7378 or 442-7375), electronic mail (MOTT@OHSTHR.BITNET and mott@pewter.chrr.ohio-state.edu or BAKER@OHSTHR.BITNET and baker@pewter.chrr.ohio-state.edu), FAX (614-442-7329) or regular mail, describing the nature of the problem. Should any significant problem be detected, data purchasers would be notified and the issue publicized in the quarterly NLS newsletter, the *NLSUPDATE*. Users interested in receiving this and other NLS publications will find ordering information at the end of Section 6.

The following pages of this Section, organized on an assessment-by-assessment basis, contain information regarding how each assessment was scored and any relevant caveats. The discussion generally follows the order in which the assessments appear in the child instruments, beginning with the *Mother Supplement* and following with the *Child Supplement*.

Before describing each assessment, it is useful to provide an overview regarding which children received which assessments in 1986, 1988 and 1990. Table 5.3 synthesizes this information. The assessments listed in Part 1 of Table 5.3 were administered for all children who were age eligible in a given year. For example, mothers of children who reached the age of four years between the 1986 and 1988 survey rounds completed the Behavior Problems assessment in 1988 and 1990, but not in 1986.

Some assessments were only completed once by a child (subject to the caveat in the next paragraph)--the first time they become age eligible. These (three) assessments are listed in Part 2 of Table 5.3. Finally, starting in 1988 ten- and eleven-year-olds were administered all assessments for which they

were age eligible, regardless of which ones they may have previously completed. This procedure provides users with an "index" group of children who ultimately (after a number of additional survey rounds) will represent a large, more fully representative sample of early adolescent youth for analysis.

Two assessments administered in 1986 and 1988 were deleted from the data collection effort in 1990 due to funding constraints. The Memory for Location and Body Parts assessment are no longer being administered. However, the 1986 and 1988 data and scores for these two assessments remain on the data file and thus are available to users. A description of these two assessments is included in this document. Also, readers may be interested in knowing that the PPVT-R has been readministered to all children age three and over in the 1992 survey round.

Section 3 indicated the number of children interviewed and/or assessed in each child survey year. We turn now to the number of children who have been assessed across the 1986-1990 period. Essentially, this includes children already born in 1986 who were also assessed in 1988 and 1990. Clearly, the number of children available for cross-year analysis will depend on the specific assessments being utilized as well as the age of the child. As a first approximation, Table 5.4 shows the number of children (by race/ethnicity and by age in 1990) who were assessed in 1986, 1988 and 1990. For researchers planning analyses with these data, this table presents a general picture of the number of cases available for 1986-1990 longitudinal analyses. More than 3500 children have been assessed at three points in time with substantial numbers of Hispanic, white and black children available for separate racial/ethnic analysis. Relatively large numbers of children are available for all pre-adolescent ages.

Assessment Changes: 1986 to 1992

Reduction in Assessments Administered. Since the initial child data collection in 1986, several changes have been made not only in what assessments are completed by the children, but in the kinds of information collected from the children and their mothers. Beginning with the 1990 survey round, the Body Parts and Memory for Location assessments are no longer being completed by the younger children. Additionally, beginning with the 1992 survey, the "story" part of Verbal Memory (part C) has been deleted. The primary reason for these deletions is economic. The rapid growth in the child sample over time, reflecting the substantial number of children being born, in conjunction with N.I.H. budget constraints, necessitated our setting priorities for the child data collection. An examination of the 1986 and 1988 results for these assessments suggested that they had relatively lower reliability compared with other assessments and had been less utilized than any of the other assessments.

Revised Temperament Scores. The deletion of these assessments had the secondary effect of reducing the direct contact between interviewers and younger (under age 4) children. This reduction

interviewer-child interaction typically restricted the interviewer's ability to complete the several "interviewer evaluation" items for children under the age of four. Reflecting this change, it has been necessary to reduce the number of Temperament (What My Child is Like) subscales available for younger children. These modifications are explained in the discussion of Temperament later in this section.

New HOME items. Finally, based on our internal evaluation of the HOME scales and the dramatic increase in the number of older NLSY children, we have gradually augmented the number of questions in the HOME section for older children--although we have in no way altered the HOME scales themselves. This has been part of our plan to expand data collection for the older NLSY children.

Children 10 and Over. The 1988 child survey marked the introduction of a self-administered supplement, completed by all children age ten and over, which greatly expands the information available about the environment in which these children live. The 1992 child data release will include items from an expanded *Child Self-Administered Supplement*. Efforts are underway to collect an even wider range of socio-economic and attitudinal data for the older children beginning in 1994.

The Importance of Child's Age: A Cautionary Note

In all instances, the choice of which specific assessments and questions would be administered to a child depended on the child's age. Clearly, the responses and the summary assessment scores need to be interpreted in relationship to the child's age. As indicated above, where national age-specific norms have been available they have been included. In several instances, however, appropriate age-specific national norms have not been available. In these instances (except for the Temperament and Self-Perception assessments), age specific internally constructed norms are provided.

The user is reminded that, from an analytical perspective, combining raw scores for children at different ages is generally inappropriate. The user can consider several options in order to resolve this problem. First, she/he might consider developing age-normed standard or percentile scores using the NLSY child sample itself as the "normed" population. While this does not represent a perfect solution (reflecting the fact that the NLSY sample of children is not a national sample of children born to a full age spectrum of mothers), it is undoubtedly preferable to combining "raw scores" across age groups. It is suggested that if internal norms are created in this manner, they should be used only for combining children who are in fairly contiguous age groups. As noted above, weights are available that enable the user to translate the unweighted child sample into a sample of children representative of all children who have been born by a particular survey date to American women age 14 through 21 on January 1, 1979. One other option, which would be most appropriate when utilizing multivariate techniques, would be to include

an age variable as a control. This may be an appropriate statistical technique where the non-normalized "raw" score being used includes comparable items for children at different ages.

Two Assessment Ages. Since all the interviewing in a particular household did not necessarily occur on a single day, the user is cautioned that the *Mother Supplement* child age variable should be used when working with assessments in that supplement and the *Child Supplement* child age variable should be used for assessments in that instrument. *Child Supplement* variables for 1986, 1988 and 1990 are E65., E68. and E70.1; *Mother Supplement* age variables are E66., E69. and E70.2. Generally, although not always, information in relation to a particular child was collected on one day. These age variables are measured in terms of attained months of age, so users may readily stratify the child sample into whatever age units seem appropriate.

PPVT Age. The user should note that the PIAT and PPVT-R batteries were normed according to slightly different age definitions. In creating a PPVT-R or PIAT month of age variable, a child's age is rounded up to the next month if he or she is more than 15 days through a given attained month as of the survey date (e.g., 56 months, 16 days old becomes 57 months). When using these batteries, the user should use the created 1986, 1988 and 1990 PPVT age variables (E5808. and E8003. and E8882. respectively).

Linking the Data Items to the Questionnaires

When individual questionnaire items are referred to in this handbook, the relevant "deck" and "column" numbers for that item (printed in the right-hand margin of each supplement) in the questionnaire are used. Items in the *Mother Supplement* are prefixed by an "MS" and *Child Supplement* items by a "CS." For example, question number 1 in Section 1, Part A of the *1990 Mother Supplement* is identified as MS900243 because: (1) it is in the *Mother Supplement*; (2) it was administered in the 1990 survey round; (3) it is in "deck 02," (see top of questionnaire page) and in columns 43-44 (see margin). Where an item uses more than one column, the initial column number is used for identification.

The Assessments

The following user and data quality information is ordered according to the sequence in which the assessments have been presented in the interview schedules beginning with the Mother Supplement assessments and followed by the Child Supplement. The only exceptions are the discussions of assessments no longer included in the 1990 survey round. These items are discussed here not only because of their continuing importance as outcome measures for the younger children, but because they—

may be viewed as important explanatory inputs for researchers who are examining the determinants of assessments and other outcomes for older children in 1990. This issue is highlighted further below.

The first four assessments discussed (HOME, Motor & Social Development, Temperament, BPI) were addressed to the mother or guardian of the child, whereas the remaining assessments were administered directly to the child. The user should consider this distinction when evaluating any analytical results. A mother's report of her child's behavior or personality may differ in significant but undefined ways from reality based on a variety of conscious or unconscious maternal biases.

The HOME-Short Form

The Home Observation for Measurement of the Environment-Short Form (HOME-SF) is the primary measure of the quality of a child's home environment included in the NLSY child survey. (A bibliography of references to research using the NLSY HOME-SF data is available from CHRR on request.) It has been extensively used as both an input helping to explain other child characteristics or behaviors as well as an outcome in its own right--for researchers whose objective is to explain associations between the quality of a child's home environment and earlier familial and maternal traits and behaviors.

The HOME-SF is a modification of the HOME Inventory (Caldwell and Bradley, 1984), a unique observational measure of the quality of the cognitive stimulation and emotional support provided by a child's family. The HOME-SF is about half as long as the HOME Inventory, an adaptation necessitated by survey time and cost constraints. More than half of the HOME-SF's items are multiple-response maternal reports reworded from the original HOME Inventory's dichotomous observer ratings. The mother report items may be found in Section 1 of the Mother Supplement (see Appendix A of this Handbook). Three sets of interviewer observations also used in assessing the home environment appear at the end of the Child Supplement (see Appendix B).

The HOME-SF is divided into four parts: the first for children under age three (Part A); the second for children between the ages of three and five (Part B); the third for children ages six through nine (Part C); and the fourth for children ten and over (Part D). In 1988 and again in 1990, the HOME-SF items were expanded for children ten and over. In this regard, the user may note that the section for children ten and over includes several items of potential analytical importance which are not included in any of the HOME summary scores and which are not part of Caldwell and Bradley's original scale.

Bettye Caldwell designed the Infant version of the original HOME Inventory and, with Robert Bradley, developed the Preschool and School Age versions. Bradley worked closely with CHRR staff to shorten, modify and reword the HOME inventory for use in survey research, making part of it interviewer observation and part maternal self-report. Caldwell provided general advice and consultation. At least

three items from each domain of the original HOME were selected for the HOME-SF whenever possible, as well as observer-ratings of cognitive stimulation, and particularly, the emotional relationship between mother and child. Bradley and Caldwell reviewed and approved the final draft of the Infant, Preschool, and Elementary HOME-SF versions used in the Mother and Child Supplements of the NLSY-86, and Bradley was involved in the 1988 reviews. They consulted with CHRR staff at professional meetings, exchanged memoranda with CHRR staff, provided a Spanish translation, and supplied CHRR with the relevant psychometric and clinical literature and data on the HOME Inventory.

Bradley's selection of HOME Inventory items for the HOME-SF was based on an examination of reliability coefficients, discrimination indices, validity coefficients, and factor loadings from prior published and unpublished research. He recommended items that are important to the research community--items which are strong indicators of the home environment's construct, and comparable across the age-specific versions. He edited the item stems and response alternatives written by CHRR, writing occasional items himself. He decided which items would be dichotomous, which would a choice of multiple responses, and how they should be scored. Bradley selected the items for each subscale and, with CHRR staff, named the subscales. Finally, he suggested procedures used to train the interviewers in their administration of the instrument.

Scoring. The total raw score for the HOME-SF is a simple summation of the recoded individual item scores and varies by age group, as the number of individual items varies according to the age of the child. The total HOME-SF score and the two subscores have one imputed decimal place. For example, a score of 30 is really 3, and so on. In addition, total scores were imputed for children where one or more of the component items had inadvertently been left unanswered. The imputation procedure assigns an average value for all those items which had been completed to each of the unanswered items. Proration flag variables (E9901., E9905., E9909. and E9913.) specify the number of items which required imputation for the different age groups; a score of zero on this proration flag variable means that all individual component items were answered. For the two subscores, a more stringent proration rule was followed: scores were derived only for cases where no more than one item was missing.

In addition to the overall HOME-SF score, the Child file includes two subscores: a cognitive stimulation and an emotional support score. The (questionnaire item) components of the total as well as cognitive stimulation and emotional support subscales are specified in Table 5.5.1. Because there are no appropriate national norms available for the overall HOME-SF score or its components, we provide internally normed standard and percentile scores for the 1986, 1988 and 1990 overall HOME-SF scores as well as for the cognitive stimulation and emotional support subscores.

The internal norms were developed using standard normal curve assumptions. Children were normed on a single year of age basis with each (weighted) single year of age group being assigned a

standard score mean of 100 and standard deviation of 15. Percentile scores were derived from the standard scores using an inverse normal routine. To the extent that the single year of age data deviate from normality, this procedure produces less than optimal results. An alternate percentile score can be generated using the empirical cumulative distribution function by age computed using the sampling weights. That frequency could be used to cross-walk from raw score to a percentile score.

In order to construct an overall score as well as the two subscores for the HOME-SF, all of the individual items were translated into dichotomous zero-one variables and then appropriately summed. The precise recoding which was done for the Mother Supplement components of the scores is specified in the HOME section of the questionnaire in Appendix A of this document. Appendix B presents the items used in scoring the HOME-SF that are drawn from Section 12 (Interviewer Observations of the Home Environment) of the Child Supplement (pp. CS-79 to CS-82 in 1990).

HOME Recodes. Several of the HOME-SF items required extensive initial recoding in order to fully utilize the verbatim responses originally coded as "other." The HOME-SF Part B contains items (E9551. - E9559., questions MS900345-MS900361) concerning mother's response to the child hitting her. The HOME-SF Part C and Part D have items (E9594. - E9602., questions MS900517-MS900533 and E9644. - E9652., questions MS900657-MS900673 respectively) concerning mother's response to the child swearing at her. Both items are coded "1" if the parent's response is moderate, defined as without harsh reprisal.

The Part B item contributes to the HOME-SF scale scores only if certain alternatives ("send to room," "talk," "ignore," and "give a chore") are selected and if the "other" alternative is without harsh reprisal--that is, if a mild reaction is the first response. The Part B item is scored zero if any of the following are selected: "hit," "spank," or the "other" alternative is harsh. Harshness is arbitrarily defined as either extensive or excessive deprivation (time-out longer than two hours; deprivation longer than two days) or physical punishment (firmly grasping the child, blocking the punch, spanking then talking, or talking then spanking).

The Part C item was scored similarly. Yelling back and withdrawal of love, while perhaps emotionally harsh, were scored as mild (score of 1) because they are not physical responses. The item is scored zero if "spanking" is selected or if the "other" alternative is excessive (longer than three hours of time-out; longer than three days of deprivation) or if physical means ("eat soap") are the first types of punishment selected. Examples of verbatim scores as harsh are "break him up," "spank and ground for two weeks," and "spank then explain why." If the length of time-out was not specified ("send to room") then it was assumed to be a moderate amount of time, scoring the item as mild. Other examples of verbatims scored as mild are "never happens," "depends on the situation," "stand in corner until apologizes." A classic mild response (conveying no discipline) was "give him something to eat." A few other verbatims

should be noted. One respondent with three children checked hit and commented, "Then say I'm sorry and laugh." Another mother of two checked hit saying, "But not like I'd hit an adult."

Using the HOME Assessment.

As indicated above, the items completed by children are dependent on their age; children under age 3 years, 3 through 5, 6 through 9 and ten and over follow different question sequences. The actual items and the recoding instructions may be found in an Appendix A. The individual items included in the overall HOME scale as well as the cognitive stimulation and emotional support subscales are specified in Table 5.5.1. The reference numbers for the children's HOME scores in 1986, 1988 and 1990 may be found in Table 5.2. In addition to the raw scores (which have different reference or "E" numbers depending on the HOME section the child completed), the reference numbers for the internally normed standard and percentile scores may also be found in that table. All children living with their mothers in a given survey year were eligible to complete the HOME assessment. The section to be completed in a given year was determined by the age of the child at the date the mother supplement was administered. Thus, children born by the 1986 survey date may have three HOME scores available (1986, 1988 and 1990), children born between 1986 and 1988 may have two HOME scores (1988 and 1990) and children born since the 1988 survey would have only a 1990 HOME score--assuming of course that their mothers completed a HOME assessment for them at the relevant survey points. Note also that whereas the raw scores are specific to a child's age at a specific survey point, the normed scores are slotted into specific file locations, regardless of the child's age. For example, overall HOME scores for a child born prior to the 1986 survey round would be E5712. (for 1986), E7916. (for 1988) and E9916. (for 1990), regardless of the child's age.

Quality of the HOME Data.

The HOME-SF has not only been among the more heavily used of the NLSY child assessments, but also has had relatively high completion rates over the years, has evidenced high reliability and appears to have reasonably high face validity.

The original HOME scale from which the NLSY HOME-Short Form is derived has proven to be a reliable measure. Bradley (1981) reports inter-rater reliabilities from six studies in the high .80s to low .90s. Bradley, Caldwell, and Elardo (1979) found that six month test-retest subscale correlations ranged from .45 to .87. Studying children from six to forty-two months of age, Yeates et al. (1983) found twelve month test-retest reliabilities from .43 to .68, and two-year test-retest reliabilities of .38 to .56. Ramey et al. (1984) reported two-year test reliabilities of .56 and .57. Van Doorninck et al. (1981) reported high total score stability (r = .86) among siblings tested at least ten months apart.

Prior longitudinal research indicates that the HOME predicts later cognitive, social, and physical development. Yeates et al. (1983) longitudinally compared the predictiveness of the HOME relative to the predictiveness of maternal intelligence for child intellectual development at two, three, and four years of age, finding that maternal intelligence was initially more predictive, but by age four the quality of the home environment was more predictive of cognitive development. The HOME has been shown to be more predictive of subsequent cognitive development than is concurrently measured cognition (Elardo, Bradley, and Caldwell, 1975). When administered as early as two months of age, the HOME has correlated from .34 to .72 with intelligence tests subsequently administered as late as four-and-a-half years of age, and the HOME at one and two years correlated (.33 to .65) with academic achievement in the first through fourth grades of school (Bee et al., 1982; Bradley and Caldwell, 1976, 1980, 1984; Elardo, Bradley, and Caldwell, 1985; Van Doorninck et al., 1981).

Besides these strong predictive correlations with subsequent intellectual development, the overall HOME scale has also been proven useful as an early indicator of a variety of developmental risks and delays such as clinical malnutrition, lead burden, failure-to-thrive, socio-cultural retardation, language delay, developmental delay, and poor academic achievement (Elardo and Bradley, 1981). The HOME is moderately related to SES and parental education (r = .2 to .6, Elardo and Bradley, 1981). A meta-analysis of the correlation between SES and intelligence found that measures of the home environment accounted for from four to eleven times as much of the variation in academic achievement and intelligence (median r = .55) as did standard measures of SES. The homes of divorced working mothers provided less cognitive stimulation and emotional support according to the HOME Inventory than did the homes of married (working or nonworking) mothers. Six studies found relationships between temperamentally difficult and unsociable infants and decreased cognitive stimulation and emotional support available in their homes.

Several studies using the NLSY Child assessment data have demonstrated the construct validity and reliability of the HOME-SF. Using both exploratory and confirmatory factor analysis, Parcel and Menaghan (1989) established that the 1986 HOME-SF data generated conceptually similar scales to those developed for the original HOME by Bradley and Caldwell. They derived three factor-based scales for school-age children. For children under the age of three, the factor-based scales are Stimulation (Chronbach alpha = .72), Warm Involvement (alpha = .71), and Non-punitive (alpha = .50); a composite scale based on these scales yields an alpha of .63. Menaghan and Parcel (1989) demonstrated the construct validity of these scales through their correlations with expected social dimensions such as SES, parental education, race, and marital status. For pre-school children, the factor-based scales are Cognitive Stimulation (alpha = .69), Acceptance of Child's Anger (alpha = .77), Warm Response (alpha = .69), Good Physical Environment (alpha = .60), and Not Violent (alpha = .59); a composite scale based on the items from cognitive stimulation, warm response and good physical environments yields an alpha of .71. Using

the composite scale and its three component scales, Menaghan and Parcel (1989) offered additional
evidence of the HOME's construct validity through correlations with meaningful social characteristics as well
as with child temperament, behavioral, and achievement indicators. The five factor-based scales for
school-age children are Parental Involvement (alpha = .87), Expectations for Self-care (alpha = .76), Warm
Response (alpha = .80), Enrichment Opportunities (alpha = .59), and Good Physical Environment (alpha
= .55); a composite scale based on items in enrichment opportunities, warm response and good physical
environment yields an alpha of .71. As with the scales for the first two age groups, the composite scale
and its component scales correlated significantly with expected parental background characteristics and
child assessment measures.

Confirmatory factor analysis on the 1988 HOME-SF data has established that three scales--
cognitive stimulation, maternal responsiveness, and good physical environment--are reliable and stable
across time for both pre-school and school-age children (Menaghan and Parcel, 1992). Composite scales
based on these subscales yielded alphas ranging from .69 to .72 for both age groups across both years
(Menaghan and Parcel, 1992). A variety of expected factors--social (mother's employment and job
conditions), human capital (mother's intelligence and education), contextual (income, presence of spouse)
and child characteristics (sex, age, temperament)--have proven to be significant predictors of childrens'
home environments (Luster and Dubow, 1990; Menaghan and Parcel, 1991; Barratt, 1991; Cooley and
Unger, 1991; Hannan and Luster, 1991; Menaghan, 1993; Mott, 1993) and of changes in those
environments over time (Menaghan and Parcel, 1992).

The predictive validity of the HOME-SF and various subscales developed from it has been explored
in several recent studies. Cooley and Unger (1991), focusing on six- and seven-year-old children, found
that the cognitive stimulation subscale is linked to higher scores on PIAT Mathematics and fewer behavioral
problems. A modified emotional support scale, relabeled maternal responsiveness (alpha = .59) with the
father involvement items removed, is linked with higher PPVT-R scores (Cooley and Unger, 1991). Using
similarly modified scales for three- to five-year-old children, Desai, Michael, and Chase-Lansdale (1990)
demonstrated that both cognitive stimulation and emotional support are strong predictors of PPVT-R scores.
Luster and Dubow (1992), using the 1986 overall HOME-SF measure, found that the home environment
is a significant predictor of PPVT-R scores for children from age three to eight, although the effect is much
stronger for the three- to five-year-old children. In separate analyses by race, Moore and Snyder (1991)
found that the 1986 HOME-SF score is strongly related to PPVT-R scores for whites, blacks, and
Hispanics. Similarly, Luster and McAdoo (1991) found that the 1986 HOME-SF score is a significant
predictor of PPVT-R and PIAT math scores for school-age black children. McCartney and Rosenthal (1991)
found that the 1986 HOME-SF scale is a significant predictor of 1988 PPVT-R and Verbal Memory scc
for both boys and girls and of lack of behavior problems in boys. Menaghan (1993) found that, controlling

for background characteristics and work conditions, higher 1988 HOME-SF scores are significantly related to fewer behavior problems. Using 1986 data, Barratt (1991) took the HOME-SF items for school-age children and broke them down into four conceptually relevant scales: Reading Enrichment (alpha = .59), Household Responsibility (alpha = .67), Observed Involvement (alpha = .71); and Lack of Punitiveness (alpha = .64). These conceptual scales are positively and significantly related to a variety of child outcome measures, such as PIAT Math and Reading Recognition and PPVT-R. Mott (1993) has found that not only are there significant gender distinctions for white children between father-present and absent environments, but that both the cognitive stimulation and emotional support subscores are important predictors of cognitive development as well as other aspects of child behavior. He also has reported that a high quality home environment can act as a buffer against cognitive deficits which otherwise can develop in children living in father-absent homes.

Tables 5.5.2 through 5.5.12 include selected unweighted (sample) and weighted numbers and frequency distributions for the overall HOME-SF score, the cognitive stimulation subscore, and the emotional support subscore by age of child, and the mother's race or ethnicity. These tables provide clarification regarding the reliability and validity of the HOME-SF (hereafter referred to as simply the HOME). They also offer users a clear, graphic indication of whether or not sample sizes are adequate for meeting their research objectives. It may be seen from Table 5.5.2 that the overall HOME assessment was completed for over 92 percent of eligible children. This rate is somewhat below the 94-95 percent completion level achieved for the HOME assessment in 1986 and 1988. Turning from the total HOME scale to the more specific subscales, Tables 5.5.5 and 5.5.6 indicate that the completion rate in 1990 for the cognitive stimulation subscale was about 96 percent, compared with 89 percent for the emotional support subscale. The major reason for the decline in completion rates between 1988 and 1990, particularly evident for the emotional support subscale, stems from the fact that in 1990, younger children no longer received the Body Parts and Memory for Location assessments. Without these assessments, there was little opportunity for the interviewers to witness the mothers and younger children interacting with each other. As a result, many interviewers were unable to complete most of the Interviewer observations of the home environment for younger children (see page CS-80 of the Child Supplement or page 375 in Appendix B of this Handbook). These items are essential components of the emotional support subscale. This is the primary reason for the relatively lower completion rate for the emotional support subscale and for the lower completion rate for children under the age of three on the overall HOME scale. The other exception is for the oldest children on the emotional support subscale for an essentially analogous reason; the oldest NLSY children were more likely to be absent from the home at the interview date and thus the interviewer was once again less likely to observe the mother and child together. Other than these two situations, completion rates on the HOME were uniformly high for white, black and Hispanic children.

The overall HOME score as well as the two subscores were internally normed on a single year of age basis, with a mean standard score of 100 and a standard deviation of 15 (as may be seen in the weighted standard score distributions (see Tables 5.5.7, 5.5.9 and 5.5.11). However, these overall race estimates mask major variations in the quality of the home environment, as measured by the HOME, between the racial/ethnic groups. As may be seen in Table 5.5.7, white children have an overall standard score of 103 compared with 95 for Hispanic and 90 for black children. These racial/ethnic differences are evident at all age groups. Hispanic and black children have similar cognitive environments (Table 5.5.9), having mean scores of 93-94 compared with 102 for white children. In contrast, white and Hispanic children have emotional stimulation scores more similar to each other (Table 5.5.11), but substantially above the average black score. This reflects the greater proportion of black children living in fatherless homes--an important component of the emotional support subscore.

Table 5.5.13 includes additional important reliability information for the HOME assessment. Depending on the age of the child, it may be noted that the overall Cronbach alpha ranged from about .55 for the youngest children to about .7 for children age three and over. The cognitive stimulation subscale generally showed somewhat greater reliability with age-specific coefficients ranging from .50 and .72 compared with a range of .35 to .61 for the emotional support subscale. These estimates are generally comparable to what was found for the 1986 and 1988 HOME assessments. It is perhaps also fair to conclude that the high reliability for other older children in the sample reflects the larger number of items in the scales for the older children.

Table 5.5.14 provides correlations between the 1990 HOME score and subscores and the full range of cognitive assessments also included in the 1990 survey round. The strongest correlations may be found between the HOME scores and the PPVT--for the limited sample which completed the PPVT-R in 1990. Moderate correlations may also be found between the overall HOME score, the cognitive stimulation subscore and the PIAT mathematics and reading assessments. In general, the within-year correlations reported here are similar to what had been found with the 1986 and 1988 data.

Within-year HOME correlations with digit span, SPPC and Verbal Memory were somewhat lower than those reported for the PIAT assessments. Additionally, for the most part, correlations between the emotional support subscale and these assessments were somewhat lower than was found for the cognitive stimulation subscore. Additionally, as may be seen in Table 5.5.15, correlations between the 1990 cognitive stimulation and emotional support subscales are also modest, corroborating the notion that to a considerable extent they are indeed measuring different concepts.

Tables 5.5.16 through 5.5.18 include cross-year correlations between selected dimensions of the HOME scale in 1986 and a full range of child assessments in 1990 for children of selected ages. While far from definitive, these cross-year correlations provide useful evidence regarding the utility of the HOME

as potential causal predictor of the psychometric properties innate to at least some of the other assessments.

It is useful to note that the HOME scale consists of a wide range of inputs which purport to measure dimensions of the quality of the home environment--family interaction patterns, physical attributes of the home, intellectual attributes, and so on. Thus, while some stability over time in these components might be anticipated, it is also true that significant change could be expected. This change may reflect major changes in family structure (e.g., a divorce or separation or the birth of a new child) or physical environment (a move to a physically better or poorer residence). For these reasons, while the cross-year correlations between the HOME scores (Table 5.5.16) are quite strong, they are not overwhelmingly so. The overall correlation is .54 between 1986 and 1988 and .45 between 1986 and 1990, and the correlations between the subscores over time are slightly lower.

The cross-year correlations between the HOME cognitive stimulation subscore and the PIAT assessments are quite similar to those reported above for 1990. Indeed, there is no significant evidence of changes in the strength of the HOME-PIAT correlations over time, suggesting some modest stability in the prevalence of HOME cognitive support (already suggested above by the cross-year HOME cognition correlations) as well as possible longer term home environment effects on a child's intellectual well-being.

Conversely, as may be seen in Table 5.5.18, the cross-year correlations between the HOME emotional support subscale and the behavior problem score and subscores are quite weak. This is true for children at all ages and for all the subscales. All of the above over-time associations can of course be subjected to more careful analyses which may clarify causal ordering and meaningful substantive linkages.

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Motor and Social Development

The Motor and Social Development scale was developed by Dr. Gail Poe of the National Center for Health Statistics. It measures dimensions of the motor, social and cognitive development of young children from birth through three years. The items were derived from standard measures of child development (the Bayley, Gesell, and Denver), which have high reliability and validity. The original test and further analyses by Child Trends of the items' use in a large health survey (of 2,714 children age four in the 1981 Child Health Supplement to the National Health Interview Survey) provide the age ranges at which each item's developmental milestone is generally reached by U.S. children. Based on the child's age, mothers answer fifteen age-appropriate items out of 48 motor and social development items. These items have been used with a full spectrum of minority children with no apparent difficulty. A Spanish version of the schedule is provided to mothers whose principal language is Spanish.

Using the Motor and Social Development Assessment.

The NLSY Motor and Social Development assessment has eight components (parts A through H), which a mother completes contingent on the child's age. The assessment is intended for children under four years of age with Part A appropriate for infants during the first four months of life (i.e zero through

three months) and the most advanced section, Part H, addressed to children between twenty-two and forty-seven months. All of the items are dichotomous (scored either zero or one) and the total raw score for children of a particular age is obtained by a simple summation (with a range of 0 to 15) of the affirmative responses in the age-appropriate section. Associated with each raw score is an overall percentile and standard score as well as same-gender age appropriate percentile and normed scores. That is, boys were given male national norm scores and girls were given female national norm scores, in addition to both genders receiving the combined gender norms. All these normed scores were constructed by CHRR using data from the nationally representative sample in the 1981 National Health Interview Survey (National Health Interview Survey 1981 Child Health Supplement, DHHS. Ph.S.D. National Center for Health Statistics, Public Use Data Tape and Documentation [1984]). The total and same gender percentile and standard scores associated with each raw score may be found in Appendix B and the reference numbers for the various raw scores and overall and same gender normed scores may be found in Table 5.2.

The norms are grouped into fairly narrow age categories reflecting the extreme sensitivity of a child's level of development to his or her age: following a (four month) zero through three months age break, the four through thirty month age range was normed by successive three month age groups with the thirty-one through forty-two month range being normed according to three successive four month categories, followed by one five month (forty-three through forty-seven month) category. No proration was attempted on this assessment since the proportion of missing items is modest and there was some question about the appropriateness of the procedure, given that later items in the assessment tend to be more difficult than earlier items.

Quality of the Motor and Social Development Data.

Overall, the Motor and Social Development scale was completed for about 90 percent of the eligible children. This is essentially identical to the 1988 completion rate for this assessment and slightly below that reported for 1986. Racial/ethnic differences in completion rates are modest, although mothers of the youngest children are somewhat less likely to complete the assessment than are mothers of two- and three-year-olds. It appears that the potential for biased analyses due to selective nonresponse is quite small.

Tables 5.6.1 through 5.6.3 indicate the number of sample cases available for analysis for the overall group as well as by race/ethnicity, age and gender. Tables 5.6.4 through 5.6.12 provide weighted distributions for the standard and percentile scores which have been normed against the 1981 N.H.I.S. national sample of children. Paralleling the results we reported for 1986 and 1988, white children appear to score somewhat higher on this assessment than minority children, with the largest discrepancies appearing at the older ages. Little racial/ethnic variation is found among infants.

Caution should be exercised when interpreting results for three-year-olds, the oldest group completing this assessment. The MSD tends to "top out" for three-year-olds and does not provide a sensitive ceiling for these older children. Because of this, the overall mean weighted standard score for three-year-olds is only 98.5 compared with 101.6 for the full sample of children. _For this reason, researchers using the assessment should include an age control in any multivariate analyses even when they are using normed scores._

It is also useful to note the reported gender differences at the youngest ages. Infant girls score significantly higher than their male counterparts, consistent with other evidence regarding early gender differences in motor and social development. Researchers interested in analyzing boys or girls separately are reminded that separate gender-specific norms are available. Tables 5.6.8, 5.6.10 and 5.6.12 provide weighted MSD distributions for children by the level of their mother's education. It may be noted that there are indeed discrepancies by education, with the largest differences appearing between children whose mothers have less than twelve years and those who have twelve years or more of schooling. These variations by education are not always consistent across gender or child's age and the reported differences may reflect both real developmental differences between socio-economic groups as well as differences between mothers in their ability or likelihood of reporting particular social or physiological differences in their children's development.

The MSD scale shows only modest within and cross-year correlations with other assessments where measurable associations might be anticipated. As may be seen in Table 5.6.13, the zero order correlations between motor and social development and the child's home environment are quite modest, with cognitive linkages being somewhat stronger than those reported with the HOME emotional support scale. Cross-year linkages with the Behavior Problem scale and subscales, while in the expected direction, are generally very low (Table 5.6.14) as are associations with the PIAT reading and mathematics assessments. Finally, for a modest sample of children for whom two MSD scores are available (i.e. children who were below the ages of four in 1986 and 1988), a cross-year correlation of .29 in the same assessment is reported. The above results as well as other available research using the MSD scale suggest only limited shorter term predictive value for this assessment.

Since the MSD scale is a measure that contains both social and physiological components, CHRR staff have examined in a preliminary way the properties of more detailed subscales that might distinguish motor from social dimensions by grouping various combinations of related items. While there is modest evidence of different social and physiological factors, this preliminary analysis has so far not yielded consistently higher scale reliabilities or more meaningful indices which would permit researchers to effectively separate the social from the physiological dimension. We are continuing to explore this issue and welcome inputs from interested researchers.

Finally, as has been suggested by our tabular results, there are distinctive differences by race/ethnicity and maternal education in how children are scored and presumably perform on this assessment. Analyses completed using this assessment generally support our reported variations. Peterson and Moore, in an examination of the 1981 Child Health Supplement data (a nationally representative sample of 2714 children), explored the validity of the Motor and Social Development scale that was used in the NLSY. As expected, they found that mean scores rise monotonically by age, that girls mature faster than boys, and that preterm and low birth weight babies develop at a slower rate (Peterson and Moore, 1987). They also identified positive relationships between both income and amount of living space and development, further demonstrating the construct validity of this measure. A curvilinear relationship was evident between maternal education and MSD, with children of mothers with high and low levels of education showing slower rates of development. The MSD scale showed significant differences by family type, with children from two-parent and mother-only families demonstrating average development, children from adoptive families showing above average development, and children from step-parent or father-only families exhibiting below-average development.

In a study that used the 1986 NLSY Child Data to examine how nonmaternal infant care is linked with young children's development, non-healthy boys were found to score higher on Motor and Social Development if they are cared for by their mothers than in alternative care settings during infancy. More generally, within a multivariate context, higher MSD scores were found to be associated with more maternal education, being female, and having fewer siblings (Mott, 1991).

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Temperament/How My Child Usually Acts

At the time of the 1986 NLSY child survey design, no single instrument seemed adequate to use in measuring child temperament (Hubert, et al, 1982). As a result, a set of Temperament scales was developed based on measures from a variety of sources including Rothbart's Infant Behavior questionnaire (Rothbart and Derryberry, 1984), Campos and Kagan's compliance scale, and other items selected by Joseph J. Campos. These NLSY scales were also translated into Spanish and, where appropriate, administered by bilingual interviewers.

Because the child's temperament is partially a parental perception (Bates, 1980), the behavioral style of children in the NLSY was measured by a set of maternal-report items (for all children younger than seven years) and interviewer ratings (in 1990, only for children four years and older). The maternal scale "How My Infant Usually Acts" addresses the activity, predictability, fearfulness, positive affect, and friendliness of infants below age one. "How My Toddler Usually Acts" addresses the fearfulness, positive affect, and friendliness of one-year-olds. "How My Child Usually Acts" measures the compliance and attachment of two- and three-year-olds and additionally, the friendliness of children aged four through six. For children ages four through six, the interviewer rates the child's shyness when first introduced, shyness at the end of the session, and the child's cooperation, interest and motivation, energy, persistence, and attitude toward and rapport with the interviewer during the assessment.

Temperament is related to the child's impact on family members, and is linked with the development of behavioral problems (Bates, 1980). The Temperament scales selected for this survey include dimensions such as sociability, mood, adaptability, and compliance -- factors which are components of Thomas' easy-difficult temperament construct and which are precursors to personality development and social adjustment (areas measured by the Behavior Problems Index, discussed below), social relations, and performance on assessments such as the Motor and Social Development Scale and PPVT-R (e.g., Lamb, 1982).

As with adult personality measures, reviewers of temperament (Bates, 1980; Campos et al., 1983; Hubert et al., 1982) contend that the perceiver plays a significant role and that mild to moderate inter-rater agreement is the rule. Median parent-observer correlations of .2 to .4 in infancy increase to .3 to .6 by age two, median between-parent correlations are .4 to .6. Moderate internal consistency (.2 to .8) and retest reliability (to .9) are present and fair validity coefficients (.3 to .6) are found with a wide variety of criteria. Hubert et al. (1982) state that the most consistent and substantial relationship is found between temperamental difficulty and infant distress/fussiness with people. Published correlates include levels of

neurotransmitters associated with stress, spectrographic analysis of cries, respiratory distress and post mature birth syndromes; maternal anxiety, sociability, responsivity, and stress; family moves, employment changes, paternal child care, birth of siblings; sensitivity to change and adversity, social communication, subsequent behavior disorders (i.e., delinquency, emotional disturbance), and cognitive and motor development.

Using the Temperament Scores.

The NLSY Temperament items were administered in three different sections, according to the age of the child. The mother-report items in Part A of the Mother Supplement were designed for infants under the age of one, Part B for children age one, and Part C for children between the ages of two and six years. Mothers were asked to rate the usual behavioral tendencies of each child using a 5-point scale. Two interviewer ratings of shyness at the beginning and conclusion of the session were applied to all children, as were the interviewer evaluations of the child's attitude toward being assessed. Because children under the age of four did not themselves complete any assessments, typically, interviewers did not have sufficient personal contact with the child to be able to evaluate the nature of the parent-child interaction. This resulted in a truncation of several scales addressed to children under age four.

Temperament items in the mother and child supplements were used to construct a total of eight individual and two composite scales. The questionnaire location for the items in these scales are specified in Table 5.7.1 and the file locations as well as brief descriptions of the individual items may be found in Table 5.7.2. The scores of the individual scales are simply a summation of the individual items in the scale, with some values recoded in reverse where appropriate. Where an item has been reversed, an (R) is indicated next to the individual item in Table 5.7.2. Since each score typically includes only a limited number of questionnaire items, no proration for missing items was used. Thus, if any item component of a subscale was missing, no score was computed for that dimension of temperament. Since no appropriate national norms are available for this assessment, only raw scores are provided.

An important change was, of necessity, made to the 1990 Temperament scoring. Because children under the age of four were not administered any of the *Child Supplement* items, it was necessary to truncate two scales addressed to younger children, the difficulty composite score for children between the ages of 8 months and 23 months and the friendliness scale for children under age two. Additionally, the sociability scale is now only available for children age four and over. For researchers requiring comparability over time, we include versions of these abbreviated scores for 1986 and 1988. For those years, abbreviated and unabbreviated versions of the scores are included in the 1990 file. All of the 1986 through 1990 Temperament scores included on the 1990 file are listed in Table 5.2.

Quality of the Temperament Assessment Data.

The response rates for each of the Temperament subscales are very high across all age ranges. Tables 5.7.3 - 5.7.12 show that, with few exceptions, the level of valid responses rarely falls below 92 percent, even when sample cases are distributed by race and by age. The generally higher completion rate for this assessment in 1990 (compared with 1988 and 1986) reflects the fact that younger children no longer complete those scales which require direct interview input.

Reliability analyses performed by CHRR on the various Temperament subscales reveal that the internal consistency of the subscales is generally moderate to strong. Table 5.7.13 shows a range of alpha coefficients from a low of about .50 for the positive affect subscale for one-year-olds to a high of .77 for the positive affect subscales for infants. Most of the subscales fall within the moderate to high reliability range of .5 to .7. Table 5.7.14 includes the Cronbach Alpha values for the 1986 and 1988 difficulty composite and friendliness abbreviated scales which are briefer versions of the original scales reflecting the deletion of the interviewer report items for the younger children. Tables 5.7.15 through 5.7.24 include weighted distributions for the various temperament subscales by age and race. The reader is reminded that these raw estimates are not normed in any way, so caution should be exercised when using the subscales across age or racial/ethnic groups.

Table 5.7.25 provides a breakdown of the pattern of intersubscale correlation for four age groups; under one, age one, ages 2-3 and ages 4 through 6. The cross-subscore correlations are generally consistent with expectations. For children under the age of one the strongest correlations are, not surprisingly, between subscales which are mechanically linked--e.g., where one subscale is a part of an abbreviated or composite score. Where there is no overlap of items, the strongest infant correlations are between predictability and positive affect and friendliness, and between friendliness and (inversely) fearfulness. Fearfulness and friendliness also show strong increase correlations for one-year-olds.

It is also useful to note that the Temperament sociability subscale which is available for children between the ages of four and six years has high face validity as a proxy for the positive or negative nature of the interaction between interviewer and child. Some evidence for this supposition may also be found in Table 5.7.25 which indicates generally stronger correlations between the sociability subscale-- which is based on the interviewer's judgement--and assessments which were directly administered by the interviewer (e.g., the PIAT assessment) Pronounced associations between sociability, PPVT-R and Verbal Memory had also been found in 1988 and 1986. This "halo" effect suggests that children who have good rapport with the interviewer may score somewhat better on assessments or, conversely, that children who perform better on the assessments may be viewed more favorably by their interviewer. Determining the direction

of the possible causation is beyond the scope of this discussion. In contrast, correlations between the mother-completed assessments and the sociability scale generally appear somewhat lower.

Table 5.7.26 presents correlations between selected Temperament subscale scores in 1986 and the overall Behavior Problems score (for children 4-6 in 1986) and the insecure attachment subscale (children under one in 1986, in 1988 and 1990). There is strong presumptive evidence that the Temperament compliance, insecure attachment and sociability dimensions might be linked with subsequent behavior problems. While the magnitude of these cross-year correlations are modest, the signs are in directions consistent with expectations. Greater compliance and sociability in 1986 show some inverse association with behavior problems in 1988 and 1990, as well as being inversely linked with all of the Behavior Problem subscores (not reported in Table), in almost all cases attaining statistical significance. In addition, more insecure attachment in 1986 is associated with a greater level of 1988 and 1990 behavior problems. Thus, while linkages are modest, the results are consistent with theoretical expectations. Additional support for this thesis is provided by Parcel and Menaghan (1990) who found that, even with a variety of other maternal and household characteristics controlled, being rated as shy and anxious by the interviewer is significantly associated with lower PPVT-R scores.

Aside from the above internal CHRR evaluations, there is now a growing body of literature which suggests ways in which the Temperament items can be more effectively utilized in research. This includes a growing body of literature speaking to the validity of the various items and scales.

Analyses of the 1986 NLSY child temperament data by Menaghan and Parcel (1988) include what they feel are a more parsimonious set of reliable and valid scales for the three child age groups assessed. Starting with the six items applicable to children under age one year, they identified two major factors: Active (Alpha = .66) and Predictable (alpha = .64). For all children less than two years old, they derived two primary dimensions: one related to the eight items on fearfulness and fussiness (alpha = .67) and a second that includes the three affect items related to smiling (alpha = .75). The 21 items for children age two through six years yielded three principal factors which they call compliant (alpha = .64), shy (alpha = .68), and dependent-demanding (alpha = .63).

Hawkins and Eggebeen (1991) factor analyzed the 1986 temperament assessment data for children aged two to six and identified four factors: sociability, clinginess, compliance and inhibition. These scales were then combined with the six subscales from the Behavior Problems Index (BPI) and subjected to principal components analysis to develop an overall measure of psychosocial dysfunctioning.

Menaghan and Parcel (1988) also have presented evidence for construct and discriminant validity of the temperament assessment based on the scales they created. Infants who are eight months or older who are less active, more predictable, less fearful-fussy, and who smile more tend to be rated more positively by interviewers. Similarly, children aged two to six who are more compliant, less shy and less

dependent-demanding are rated more positively by interviewers. When controlling for interviewer impressions, children who are fearful-fussy score less well on Memory for Location, and children who are more compliant and less dependent-demanding score higher on the PPVT-R. There are also significant relationships between maternal and household characteristics and temperament, with more negative temperament characteristics evidenced by children in households in poverty or with lower incomes and with mothers with less education and occupational status.

Various research studies have suggested the importance of temperament as a construct. In analyses using the 1986 NLSY Child data, Hannan and Luster (1991) found that having an infant with a difficult temperament is a significant predictor of lower quality of home environment, even controlling for a variety of maternal (education, self-esteem, intelligence, age at first birth) and household (income, presence of spouse, number of children) characteristics. Belsky and Eggebeen's findings based on the 1986 NLSY Child data, indicate that early and extensive maternal employment during infancy is related to high levels of non-compliance in four- to six-year-olds (Belsky and Eggebeen, 1991). In exploring changes in temperament over time for children assessed in 1986 and 1988, Mott and Quinlan (1991) found that participation in Head Start and other preschool programs is associated with increasing insecurity, compared to children not participating in such programs. Using an overall measure of psychosocial dysfunctioning derived from combining Temperament and Behavior Problems scales (mentioned above), Hawkins and Eggebeen (1991) found that the level of psychosocial dysfunction is similar across various father-absence conditions, except for the negative effects of having a grandfather present in the household for white children. Readers are encouraged to explore the use of these various alternate constructs in their research and to provide CHRR with any insights they may gain regarding the reliability and validity of the temperament subscales.

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The Behavior Problems Index

This scale was created by Drs. Nicholas Zill and James Peterson of Child Trends Inc., Washington D.C. to measure the frequency, range and type of childhood behavior problems for children age four and over. Many items were derived from the Achenbach Behavior Problems Checklist (Achenbach & Edelbrock, 1981) and other child behavior scales (Graham and Rutter, 1968; Rutter, Tizard & Whitmore, 1970; Kellam et al, 1975; Peterson & Zill, 1986). Much of the following material describing this assessment was provided by Zill in a Child Trends memorandum dated November 25, 1985.

Parental respondents to the 1981 Child Health Supplement of the National Health Interview Survey were asked an extensive series of structured questions concerning the child's problem behaviors and use of mental health services (NCHS, 1982, pp. 100-102). The specific questions asked varied somewhat depending on the age of the child. The behavior problem items utilized in the NLSY were developed from these items.

The Behavior Problems summary score is based on responses (from the mothers) to 28 questions (*Mother Supplement* items 1-26, 31, and 32 in the 1990 Behavior Problems scale) dealing with specific behaviors the child may have exhibited in the previous three months. Items 27 through 30 are not part of the Behavior Problems scale. They were added subsequently by CHRR staff to tap dimensions that were not adequately covered by the original 28 items. Three response categories ("often true," "sometimes true," and "not true") were used in the questionnaire, but responses to the individual items have been dichotomized and summed to produce an index score for each child. Each item answered "often" or "sometimes true" was given a score of one, and each items answered "not true" was given a score of zero. Two of the items (questions 31 and 32 in the 1990 Behavior Problems sequence) are appropriate only for children who have ever attended school.

Based on factor analysis, the 28 items have been used to define six behavioral subscales: antisocial, anxious/depressed, headstrong, hyperactive, immature dependency and peer conflict/social withdrawal. The procedures used to define these subscales are described below. The Behavior Problems Index has been employed in several prior national surveys that have included children from a wide range of social, economic, and ethnic backgrounds. A Spanish version of the schedule was used by mothers who preferred using a Mother Supplement translated into Spanish.

Using the Behavior Problems Index.

The individual items in this scale may be found in Section 4 in the Mother Supplement. As indicated above, items one through 26 are included in the scale for all children, and items 31 and 32 are included only for children who have attended school. Thus, the final two items are not completed for a relatively large proportion of four-year-olds as well as some five-year-olds. The items translate into one overall score and six subscores tapping various dimensions of child adjustment. Several items felt to be more appropriate for older children were added to the BPI in 1988. These items are not included in the scale but are available for individual analysis. Before scoring, the individual items are recoded such that code 3 in the questionnaire becomes "0" and code 1 or 2 becomes "1." Higher scores on this index imply a greater level of behavioral problems.

The items included in the scale are identical across the 1986, 1988 and 1990 survey years. Table 5.8.1 specifies the reference number and questionnaire locations for all of the items in the three years and briefly describes each item and indicates which items are specific inputs to the six subscales. Table 5.8.2 provides an easy reference list regarding which items are included in each subscale.

In addition to one overall BPI raw score and six raw subscores, normed scores have been constructed based on data from the 1981 National Health Interview Survey. Overall as well as "same-gender" percentile and standard scores (with a national mean of 100 and standard deviation of 15) are available for each child for each score/subscore. These normed scores are based on single year of age data. For children below the age of six, separate norms are computed for children in and out of school. The six subscales are constructed to measure antisocial, anxious-depressed, headstrong, hyperactive, dependent and peer conflict dimensions of the child behavior.

Given the limited number of possible responses for some of the subscores, the user is cautioned that the range of normed outcomes for some of the subscores is quite constrained. As with the other Mother Supplement assessments, if a user wishes to select a sample of children of a particular age, the Mother Supplement child age variable (E70.2) should be utilized. Finally, the linkage between the raw scores and the various (nationally) normed scores may be found in Appendix C.

Quality of the Behavior Problems Index Data.

Zill and his associates at Child Trends performed comprehensive factor analysis procedures on the 1981 NCHS data in defining the most appropriate items for inclusion in the overall scale and the various subscales (Zill, 1985). Principal components analyses were used by Child Trends to verify that the items in the scale could be considered to be tapping common underlying dimensions. Using the binary scoring of items described above, major first factors were found for both children aged four through eleven and

adolescents aged twelve through seventeen. As anticipated, however, several secondary factors with eigenvalues greater than one were also obtained. For the children aged four through eleven, the first factor accounted for 25 percent of the total variance and 57 percent of the common variance. All but one of the scale items loaded on the first factor at a level of .38 or more. For the adolescents, the first factor accounted for 29 percent of the total variance and 60 percent of the common variance. All scale items loaded on the first factor at a level of .41 or higher. The internal consistency reliability of the index scores was found to be alpha of .89 for the children and alpha of .91 for the adolescents.

Although the Behavior Problems items in the Child Health Supplement questionnaire are used to derive a single summary score, the scale was also designed to contain several distinct clusters of items, representing some of the more common syndromes of problem behavior found in children and adolescents. The syndromes have already been listed above and component items are specified in Table 5.8.1. Subscale scores were produced by dichotomizing responses to individual behavior items as above and summing across subsets of between three and six items. Principal components analysis with varimax rotation was used to verify, first, that the overall Behavior scale did contain several separable dimensions similar to those that were hypothesized to occur; and, second, that the groups of items used to compute subscale scores did hang together as anticipated.

It should be noted that a reinterview study of certain Child Health Supplement items was conducted and analyzed by the Bureau of the Census (Schreiner, 1983). Six of the Behavior Problems items were included in the reinterview questionnaire. The study found that parental reporting of individual items of problem behavior was unstable over a two-week period (e.g., of those parents who reported on either the original interview or the reinterview that their child had difficulty concentrating, only 46 percent reported such difficulty on *both* interviews). However, Zill found that when the individual items were combined into a scale, the test-retest reliabilities obtained were quite comparable to the internal consistency reliabilities calculated from the Child Health Supplement public use file. Specifically, four items from the hyperactive subscale were included in the reinterview study. When a scale is formed by combining responses to these items by the binary scoring method described above, the test-retest reliability of the resulting scale score is equal to .63. Using the Spearman-Brown formula to estimate the reliability of a longer scale containing the same type of items, Zill obtained an r of .68 for a hyperactive subscale containing five items, and r of .92 for a Behavior Problems index containing 28 items. Table 5.5.13 includes Cronbach Alphas for the overall Behavior Problems Index in 1990 as well as for the various subscales. The coefficients in Table 5.5.13 are very similar to those reported by Zill. Thus, even though the two surveys were carried out on substantially disparate samples with different interviewing procedures and environments, the close comparability in the coefficients lends support to the notion that the BPI assessment can be used with some

confidence. Additionally, the Cronbach Alphas derived from the 1986, 1988 and 1990 NLSY Behavior Problems sample are generally quite similar to each other.

The NLSY Behavior Problems scales have been used quite extensively by researchers, typically as outcome measures in research examining a variety of familial and maternal inputs as predictors of subsequent child behavior. These research efforts have contributed substantially to our knowledge base regarding the reliability and, in particular, the face validity of the overall scale and subscales.

As evidence of construct validity, Parcel and Menaghan (1988a, 1988b) demonstrate the strong relationship between the BPI and a variety of social and demographic variables. For example, children in households with higher incomes or where the mothers have higher hourly rates of pay exhibit fewer behavior problems. Conversely, children living in poverty exhibit more behavior problems. Mothers who are older, more intelligent, and have more education also report fewer behavior problems for their children. Child characteristics are also related to the BPI, with older children showing higher levels of behavior problems in almost all areas (see also Dubow and Luster, 1990). Children who score higher on the PPVT-R have fewer behavior problems, while children who have been referred for psychological help have more behavior problems. Parcel and Menaghan (1988a) found some important gender differences as well, with boys scoring higher on their Externalizing scale and its component subscales and girls scoring higher on the Internalizing scale. While they found no significant effects for ethnicity on the total, Externalizing or Internalizing scales, Parcel and Menaghan (1988a) did find significant interactions among age, gender and the experience of marital disruption on all three scales.

The Behavior Problems Index has proven to be an important indicator of socioemotional development and has been used in a variety of research contexts to explore issues such as the effects of maternal employment, daycare, divorce, father absence, family poverty and crowding, and maternal smoking. Baydar and Brooks-Gunn (1991) found that maternal employment in the first year of life is related to higher (i.e., poorer) BPI scores for three- and four-year old children, even when controlling for factors such as gender, number of siblings, mother's intelligence and poverty status. Greenstein (1992), however, found no consistent relationship between maternal employment in infancy and behavior problems at ages four to six, once mediating factors such as home environment and income and interactive effects between income and type of care are controlled for. Vandell and Ramanan (1991) found interactions between family characteristics and type of after-school care to be more important indicators of behavior problems than type of care per se; specifically, they found that children living in poverty and experiencing latch-key care or mother care after school were at particular risk for having high scores on the BPI.

In their study of maternal employment, child care, and socioemotional development, Belsky and Eggebeen (1991) used factor analysis to create two composite scores, SHY and ADJUST, in which BPI was a principal component. Their analyses indicate that full-time employment in the first or second year

after a child's birth is linked with lower levels of adjustment than more limited employment across the child's first three years of life. However, when the composite ADJUST measure was decomposed, they found that the effect was restricted to the compliance component of the measure and that no reliable association remained between behavior problems and maternal employment.

In assessing the impact of father absence, Mott (1992) found that for all children except black girls, there are some negative affects of father absence on BPI scores, although these effects are relatively weak once maternal and other relevant characteristics are controlled for. White boys are particularly affected by father absence (Mott, 1992). In examining the effects of divorce on young children, Morrison and Cherlin (1992) focused on changes in the BPI from 1986 to 1988. They found an initial association between increases in behavior problems and marital disruption for both boys and girls, but introducing a wide variety of controls such as maternal and child characteristics, income and assets, and home environment reduces this effect to near zero for girls, although it remains statistically significant for boys. Using a longer time frame (1986 to 1990) and focusing on somewhat older children, Mott and Menaghan (1993) found that, at least for white girls, having a father present is associated with fewer behavior problems, while having a father-figure either depart or arrive increases behavior problems. In looking at living patterns after marital disruption, Hawkins and Eggebeen (1991), using a metascale combining subscales from both the BPI and Temperament assessments, found only one significant difference in psychosocial functioning among a variety of father (or father-figure) present or absent conditions, once gender, ethnicity, maternal characteristics, resources, and household size are controlled. For white children, living in a household with a grandfather present had adverse effects on psychosocial functioning.

In their study of NLSY children born to teenage mothers, Dubow and Luster (1990) examined the effects of father absence as well as other risk factors (poverty, crowding, low maternal education, early maternal age at birth, and low maternal self esteem) on academic and behavioral adjustment. They concluded that children exposed to multiple stress factors were at greater risk for behavior difficulties as measured by the total BPI scale in 1986.

While some of the studies cited above looked at effects of father absence on behavior over time, other research has explored the longer term effects of maternal behavior on children's behavior problems. Morrison, Moore and Myers (1992) found that children of teenage mothers had more behavior problems; however, maternal age at first birth affected behavior problems indirectly through mother's educational attainment, the home environment and the amount of time spent in poverty. Martin and Burchinal (1992) found that the mother's self-reported severity of non-drug offenses in 1980 had a significant positive effect on 1986 BPI scores, controlling for race, gender, poverty status, mother's age, marital status, and child's age. Controlling for a wide variety of health (birth weight, prenatal exposure to alcohol, chronic asthma) and socio-demographic variables (age, race, sex, family structure, income, maternal characteristics, home

environment), Weitzman, Gortmaker and Sobol (1992) found a statistically significant, dose-related effect of maternal smoking on children's behavior problems, with mothers who smoked a pack or more a day both during and after pregnancy having children at particularly high risk of having extremely high scores on the BPI. Thus, there is a substantial body of published literature which has used the NLSY Behavior Problems scale to explore the determinants of behavior problems as of one point in time as well as changes in child behavior over time.

In addition to the various research efforts synthesized above, we also include a variety of tabulations which describe for the interested user relevant sample sizes, completion rates, and ethnic/racial/socio-economic differentials in the 1990 Behavior Problem score and subscores. Tables 5.8.3 through 5.8.5 indicate overall completion rates and sample sizes; Tables 5.8.6 through 5.8.27 provide weighted percentile and standard score distributions for the overall score and subscores; and Tables 5.8.28 through 5.8.30 present selected within- and cross-year zero order correlations.

Overall, about 96 percent of the children eligible to complete the Behavior Problems assessment have a valid score, and this completion rates varies little by race/ethnicity. Also, given that a fully nationally representative sample would be expected to have a mean standard score of 100, it may be readily noted (from Table 5.8.8) that the children in the NLSY sample have an average score well above the national norm--about 106. This reflects the fact that the NLSY children are not fully representative of a national cross-section of all American children but somewhat over-represent children born to younger mothers ano less educated mothers. Of course, with each additional wave of mother and child data collection, the children are becoming increasingly representative of a full birth cohort of children. This has been highlighted in the earlier discussion of age and sampling constraints. This is best demonstrated by the fact that between 1986 and 1990 the mean child behavior problems standard score has declined from about 109 to 106.9. Correspondingly, about 18 percent of the NLSY children were in the top (national) 10 percent--but only 9 percent in the bottom (i.e., "best") 20 percent. The interested reader may note parallel variations for the six subscores.

The increase in mean standard score as one goes from the younger to older children (Table 5.8.8) is also symptomatic of this phenomenon; on average, the older children have been born to younger, less educated mothers and, thus, have higher (i.e., less satisfactory) Behavior Problems scores. This age pattern is present for black, white and Hispanic children although, as may be seen, there are racial/ethnic variations in scores within all age groups. This variation is further evidence of the need to control for age as well as for a full range of socio-economic background factors when carrying out analyses with these data.

The overall patterning of behavior problems masks some interesting and potentially importa---
variations between the various subscores. For example, headstrongness, anxiousness-depression,

antisocial behavior and, to a lesser extent, hyperactivity show increases in mean percentile scores as one goes from younger to older ages in 1990. However, these increases by age should not be constrained to reflect maturation per se. They are more likely associated with socio-economic differentials between the different age groups. In fact, if one follows specific age cohorts from 1988 to 1990 (e.g., hyperactivity for four- to five-year-olds in 1988 and six- to seven-year-olds in 1990), it may be seen that in several instances (e.g., hyperactivity, dependency) subscores decline as the children age and typically, for the other subscores, mean scores are not related to age per se (see Table 5.8.32). The interested reader may explore this issue further by comparing the 1990 age-specific subscore estimates in this report with the subscore tabulations included in Mott and Quinlan (1991).

Table 5.8.28 provides intra-assessment correlations for children who completed the Behavior Problems assessment in 1990. Thus, the reader may examine the extent to which the various subscales correlate with the overall behavior problems score and, in addition, examine the extent to which the subscales correlate with each other. In general, the headstrong, hyperactive and anxious-depressed subscales correlate to a greater degree with the overall score. This to some extent reflects the fact that these subscores include a greater number of items which are, of course, part of the overall score. Regarding the between-subscore correlations, it appears that the headstrong subscale shows the strongest linkages with the other subscales.

In Table 5.8.29, it may be seen that the overall scale as well as the subscales are reasonably consistent in their correlations over time. The 1986-1988 overall BPI correlation is about .6 with the 1986-1990 correlation falling to .5. There are more substantial fluctuations for the various age groups partly reflecting their smaller sample sizes. Generally, the subscore correlations over time are moderate, in the .3 to .5 range, with the correlations moderating as the interval lengthens from 1986-1988 to 1986-1990.

The magnitude of the correlations suggest that while there is certainly a significant tendency for children to maintain behavioral traits over time, there is also substantial evidence of instability in behavioral traits. This is consistent with evidence from other substantively linked assessments (such as the HOME scale) that many of these children are in environments substantially in flux due to changes in physical environments, household structure and, of course, factors external to their family.

Generally, the correlations between the overall BPI score and other assessments are modest. A higher level of behavior problems is associated with lower within-year PIAT scores, a poorer home environment, and lower digit span scores, but the negative correlations range from the .2 to .25 for the HOME to approximately .1 to .2 for the other assessments (Table 5.8.31). However, it is of some importance to note that the correlations with the PIAT assessments remain essentially unchanged as the time span between the BPI and PIAT scores widens; 1986-1988 and 1986-1990 correlations are no different in magnitude than are 1990 within-year correlations (Tables 5.8.30 and 5.8.31).

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Body Parts Recognition (1986 and 1988 only)

The Body Parts assessment, developed by Dr. Jerome Kagan of Harvard University, measures infant and toddler (one- and two-year-old) receptive vocabulary knowledge of orally presented words as a means of estimating verbal intellectual development. The interviewer names each of ten body parts and asks the child to point to that part of his or her body. The overall score attained by the child is a simple

summation (from zero to ten) of the number of correct responses. A Spanish version of this assessment
was available for use with young Hispanic children. This assessment was completed by age-eligible
children in 1986 and 1988, but not in 1990.

Using the Body Parts Assessment.

The Body Parts raw assessment score attempts to measure a one- or two-year-old child's basic
vocabulary capability. It is the sum of the items in that section which a child correctly identified (E7972.
for 1988 and E5779. for 1986). Thus, a minimum score is 0 and a maximum score is 10. No proration
was attempted since the later items are more difficult than the earlier items in the sequence. Because
there is some ambiguity in the interviewer instructions, this assessment was scored in 1988 using three
alternate criteria. First, a child had to answer each of the ten items either correctly (1) or incorrectly (2)
on at least one of the two attempts in 1988 (three attempts in 1986). (See page CS-18 in the 1988 Child
Supplement.) If the scoring was completed according to this criteria, then that case was coded a "1" on
the Body Parts scoring criteria flag (E7973.). A second, less restrictive criterion allowed some of the
individual items to be coded 3 (no answer) on some of the attempts. For this subset of children, a code
of 3 was treated as an incorrect response and the overall assessment scored accordingly. These cases
can be identified by a value of 2 on the Body Parts criteria flag. Finally, for children where virtually all the
responses were coded 3 (and translated into "incorrect" responses) a value of 3 in the Body Parts criteria
flag was assigned. Thus, users may restrict analyses to the more constrained sample or opt to include
children who had been scored according to the less conservative definitions. As with all the assessments
in the child supplement, the user who plans to extensively analyze the results of a particular assessment
is strongly urged to evaluate the scoring schema and data quality according to their own criteria. While
we have made every effort to create scores which are faithful to the intentions of the assessment
developers, there are instances where researchers could reasonably disagree about what precise scoring
procedures should be utilized. Especially relevant to this issue is the fact that this assessment was given
to very young children for whom there could be considerable ambiguity in differentiating between "incorrect"
and "non" responses. This ambiguity is one of the reasons that the assessment was discontinued after
1988.

As no appropriate national norms are available for scoring this assessment, we provided (for 1988)
internally normed standard (mean of 100 and standard deviation of 15) and percentile scores (E7973. and
E7974.). No normed results are provided for 1986. As the raw score on this assessment is extremely
sensitive to the age of the child, users using the raw scores are encouraged to utilize appropriate
techniques which would permit one to analytically compare children of different ages. When controlling for

age the user should use the appropriate *Child Supplement* age variable which specifies the child's age (in months) as of the Child Supplement interview date.

Quality of the Body Parts Data.

The overall reliability and validity of knowing the names of various parts of the body is reported by Kagan to be good. He reports that preschoolers' knowledge of body parts vocabulary concurrently correlates (r = .80) with other vocabulary measures (personal communication, August 22, 1986). The Body Parts assessment parallels other standard tests of early childhood development (the Bayley, Gesell, Vineland, and Denver) in which the examiner asks the child to point to various parts of his or her body.

Notwithstanding the availability of a Spanish version of this assessment in the NLSY, the user should proceed very cautiously when interpreting its reliability and validity, particularly with regard to minority and relatively more disadvantaged children. *It appears that a child's score may be quite sensitive to the child's English language capabilities as well as rapport with the interviewer.*

The non-completion rate on this assessment in 1986 was about 17 percent, higher than for most of the assessments—although, somewhat surprisingly, the racial-ethnic variation was moderate. For about half of the completed assessments, a child is reported to not have responded on at least one question, requiring the assumption to be made that a nonresponse was indeed an incorrect answer.

The overall reported completion rate is somewhat higher in 1988 (about 89 percent) largely reflecting a greater willingness at CHRR to view a 3 as a valid response (Table 5.9.1). As indicated above, it is possible using the "flag" variable to limit one's sample to cases in which one has greater or lesser confidence in the reliability of the estimate.

In both 1986 and 1988, there were substantial differences between white and minority children in scores on this assessment. This may be seen in Table 5.9.2 for the 1988 results. Overall, about 29 percent of Hispanic and 26 percent of black children have reported scores at least one standard deviation below the mean compared with 9 percent for white children.

Research completed at CHRR also indicates that for all one- and two-year-olds, being black or Hispanic or having a mother with limited education is linked with poor performance on Body Parts, even after controlling for a full range of other early-in-life personal and family related explanatory variables. This same multivariate analysis also indicated that, everything else being equal, boys score significantly lower than girls on this assessment. The lower scores by minority children on this assessment may reflect difficulties with standard English language as well as less rapport with interviewers. With regard to this last point, it is useful to note that there was in 1986 a relatively high correlation (about .4) between children's Body Parts scores and their score on the Temperament "sociability" subscale. This three-item scale

essentially measured the interviewer's subjective evaluation of the child's attitude toward being tested, rapport with interviewer and cooperation. Thus, to some extent, poor scores on the Body Parts assessment may have reflected a less than optimal interviewing environment.

Table 5.9.3 provides correlations by single year of age between the 1988 Body Parts percentile score and several other assessments completed by children the same age. It may be seen that correlations between Body Parts and the HOME emotional support and cognitive stimulation, the Motor and Social Development and Memory for Location scales, while modest, nonetheless suggest possible theoretical linkages between the domains defined by the various scales. However, Table 5.9.4 indicates that cross-year correlations between 1986 Body Parts scores and selected 1988 scores are lower; indeed, correlations with 1988 Verbal Memory scores for those children completing both assessments were very low and correlations with 1988 PPVT-R scores just attained .2.

Memory for Location (1986 and 1988 only)

The Memory for Location assessment was completed by age-eligible children in 1986 and 1988 but not in 1990. Developed and used extensively by Jerome Kagan of Harvard University (Kagan, 1981), it measures a child's short-term memory. The child, aged eight months through three years, watches as a figure is placed under one of two to six cups. The cups are screened from the child's view for one to fifteen seconds; the child is then asked to find the location of the figure. Items increase in difficulty as the number of cups and/or the length of time during which the cups are hidden from view increases. A child's score is based on his or her ability to select the cup hiding the figure.

The number of cognition measures available for use with young children in a large-scale survey such as the NLSY is quite limited. This is one of a relatively small number of reasonably well validated tests which was available for measuring short-term visual recall memory for preschool (below the age of four) children. Memory is an important component of cognition. Indeed, later school learning is closely tied, to a considerable degree, to this ability. Thus, as the children who completed this assessment in 1986 or 1988 move through the school ages, this assessment may prove useful as a meaningful predictor of subsequent intellectual success. This usefulness will be discussed in the following section.

Using The Memory for Location Assessment.

The number of individual items which an infant/child can potentially answer in this assessment is contingent on the age of the child. Children between the ages of 8 and 23 months start with item 1, the easiest question; children 2 years of age begin with item 4, and children 3 years of age start at item 7. A child's score is based on the highest (most difficult) question answered. A child who cannot answer

entry item receives a raw score of zero regardless of where he or she enters. Otherwise, if Q.1 is the highest item which a child answers correctly, the child received a score of 1. The maximum score is 10, if the 10th or final item is answered correctly. A child under two years of age is eligible to receive a score between zero and ten; a child age two can receive either a score of zero or a raw score between 4 and 10; and a child age three, by virtue of the fact that he/she enters at item seven, can only receive a raw score of 0, 7, 8, 9, or 10. Because external norms were not available, internally normed standard and percentile scores were developed. Standard and percentile scores are available for 1986 and 1988 (see Table 5.2). The user is still advised to use the normed scores cautiously because of the unusual distribution of raw scores described above.

Because of the relative complexity of administering this assessment, a number of responses were not coded precisely according to the theoretical decision rules. On the advice of the assessment developer, if a particular child followed a sequence which might have led to "extra learning" as part of the assessment process, he or she was still scored. For example, if a child was asked Q1B after having correctly answered Q1A, the child was scored and not given an "invalid skip" code, even though, theoretically, the child was supposed to proceed directly from Q1A to Q2A. In addition, a careful examination of the individual responses suggests that there were a number of children who began the assessment at an improper entry point but who ended up at a level they would, in all likelihood, have wound up anyway. In these instances, a score was provided for the children and these cases were "flagged" with a code of "2" on the Memory for Location flag variable (E7977. for 1988 and E5782. for 1986). A code of "1" on this flag includes all scored cases except those defined as 2's. Users who plan to use this assessment extensively should carefully examine the actual response patterns for this assessment. Individual researchers may choose to use more or less stringent scoring criteria than those used in developing the raw scores provided in this data file.

Finally, it is important to note that _this assessment displays a clear tendency to "top out" for the oldest children_ in the age appropriate sample. That is, a very large proportion (over 60 percent) of all three-year-olds and over 30 percent of two-year-olds in 1986 and 1988 received the maximum raw score of 10 on the assessment. A relatively "normal" distribution may be in evidence only for children below the age of two (See Table 5.10.1 for 1988 distribution). This issue needs to be considered by anyone using this assessment, particularly if one- through three-year-olds are combined in one analysis.

Quality of the Memory for Location Data.

The Memory for Location test was prepared and has been extensively used (for example, in the National Collaborative Project) by Jerome Kagan of Harvard University. It has a four month test-retest

reliability of .6. It has been shown to correlate reasonably well with a variety of achievement-oriented tests given to small children. Specifically, it correlated rather highly with language comprehension (.45 to .60) and drawing ability (r = .63). It has also been used in other cultures.

Our preliminary evaluation of this assessment suggests that Memory for Location scores from the 1986 NLSY should be used cautiously. Until demonstrated otherwise, it is perhaps best to assume that the assessment only measures what it directly purports to measure--short term memory.

The Memory for Location assessment had a relatively high non-completion rate, both in 1986 and 1988. About 20 percent of the eligible children do not have a score and somewhat higher non-completion rates may be noted for minority, particularly Hispanic children (see Table 5.10.1 for 1988 results). Hispanic children and children of less educated mothers constitute a disproportionate share of the non-completers. Additionally, younger children were less likely to complete the assessment. This pattern may reflect differences in receptivity or willingness of very small children to be tested. Menaghan and Parcel (1988), in their evaluation of the validity of the NLSY child temperament measures, found that children rated as more fearful by their mothers scored significantly lower on Memory for Location while children rated as shy scored significantly higher, even when controlling for interviewer impression. As with the Body Parts assessment, it may well be that the Memory for Location assessment may be quite sensitive to the interviewer-child interaction process.

Analyses completed at CHRR indicate that one through three year old black children and children of less educated mothers score lower on the Memory for Location assessment than do other children (Mott, 1991). Aside from these two factors, the only other of several explanatory variables linked with Memory for Location was the child's gender; boys perform poorer on this assessment than do girls.

As mentioned above, the researcher is cautioned against using Memory for Location results to generalize beyond its measurement of short-term memory retention. As may be noted in Table 5.10.3, the 1988 zero order correlations between Memory for Location scores and HOME scores, Motor and Social Development scores, Body Parts scores and PPVT-R or Verbal Memory scores (for three-year-olds) are generally low, although statistically significant. While the signs are generally in the expected direction, the strength of the associations are modest.

It may be seen from Tables 5.10.2 that racial/ethnic variations in scores on this assessment are modest. Also, the normed scores for three-year-olds on this internally normed test are significantly higher than for one- or two-year-olds, reflecting the fact that a disproportionate number of the oldest children "topped out" and received a maximum raw score of ten. This partly reflects the fact that only three-year-olds who had not completed this assessment in 1986 took the test in 1988--and these tended to be the older three-year-olds.

In addition, the cross-year correlations between Memory for Location in 1986 or 1988 in the various cognitive-linked assessments in 1990 (for all children with scores on both assessments) suggest only limited associations in the relatively shorter run (see Tables 5.9.4 and 5.10.4). In this regard, the body parts assessment appears to show significantly stronger within and cross-year linkages with the various assessments than does Memory for Location.

References: Body Parts & Memory for Location

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Using the Child Assessments as Analytical Inputs

The longer the timeline for the NLSY child assessment data becomes, the more useful the data become, not only for measuring changes in particular child outcomes, but for exploring the linkages between earlier child development and later child cognitive or emotional development. For example, in 1986, the first year the assessment data were collected, children between the ages of eight and forty-eight months were administered the Memory for Location assessment, children aged one and two were given the Body Parts assessment, and mothers of all children under the age of four years completed the Motor and Social Development assessment for each of their eligible children. All of these assessments are hypothesized to include substantial cognitive and, to a lesser extent, socio-emotional components. In addition, the motor and social development scale is closely linked with a child's physiological development.

As of 1990, most of the children who were under age four in 1986 are now between the ages of four and eight. Virtually all have completed the PPVT-R and the Verbal Memory assessment, and most have completed the PIAT battery. Additionally, their mothers have completed the Behavior Problems scale and, repeatedly, the HOME battery. Thus, for these children in 1990, it is now possible to explore the extent to which some aspects of early childhood intellectual, emotional and physiological development is predictive of subsequent early school-age development. One can examine how family processes may mediate or enhance early-life disadvantage. One can also explore the extent to which family attributes or maternal behaviors may perhaps have been altered by early childhood developmental constraints, and perhaps how these altered family or maternal traits have implications for subsequent child outcomes. For

example, a mother evidencing early detrimental characteristics in her child (proxied for by "poor"
performance in one or all of these three assessments) may alter her subsequent behavior (e.g., work less)
which in turn may affect the later child outcomes. Having early in life inputs for a growing sample of
children may permit clarification of these analytical issues. The number of children who completed one of
the early childhood assessments in 1986 and also a PIAT, BPI or SPPC assessment in 1990 is indicated
in Table 5.11. By 1992, these numbers will be enhanced because cross-year analyses with these inputs
and outcomes can also use the 1988 early childhood assessment inputs.

McCarthy Scales of Children's Abilities: Verbal Memory

The Verbal Memory subscale of the McCarthy Scales of Children's Abilities assesses a child's
short-term memory in response to auditory stimuli. The Verbal Memory subtest selected for use in the
NLSY is only one of six scales that form the complete McCarthy assessment battery. Verbal Memory is
administered by first asking the child, age three years through six years, to repeat words or sentences said
by the interviewer. Then the child listens to and retells the essential aspects of a short story read aloud
by the interviewer.

In the first half of the word-sentence component of the assessment (Part A), the score which the
child receives is contingent on the child repeating a series of words, ideally in the same sequence as the
were uttered by the interviewer. In Part B of this first section, the child is scored according to the number
of key words which he or she repeats from a sentence read by the interviewer. The combined total score
for Parts A and B determines whether the story (Part C) is administered. In Part C, the child is read a story
paragraph and then scored on the basis of his or her ability to recall key ideas from that story. National
norms are available for this assessment, so a child is assigned normed scores based on his or her
performance in comparison with a nationally representative sample.

Using the Verbal Memory Subscale.

Verbal Memory is essentially a two-part assessment typically given to children between the ages
of 3 years and 6 years (although in 1990 it was only completed by four- through six-year-olds). This is one
of the assessments that was not repeated in 1988 or 1990 for age-eligible children who had previously
received a valid score on the assessment. The first part generates one total score which reflects the
number of correct responses to the words and sentences on pages CS-34 and CS-35 in the 1990 Child
Supplement. One total "raw" score is generated for this section. Appropriate national norms are available
in the McCarthy manual (McCarthy, D., 1972, p.205). Thus, percentile and standard scores are available
for linking with the raw score.

Entry into the "Story" (Part C) of the Verbal Memory assessment is contingent on receiving a minimum combined score of 8 on Part A plus Part B. (Part C was completed by all eligible children in 1986 through 1990 but was deleted for 1992.) There are a few instances of children entering and receiving a score on Part C who had received an invalid skip score on Part A and Part B. While it may not have been possible, for various reasons, to compute a precise score for Parts A and B, the available information was sufficient for the scorer to be confident that the A and B score summed to at least 8. Children who received a valid score of less than 8 on Part A and Part B are automatically assigned a "0" on Part C. This explains the considerable heaping at the zero outcome for Part C.

The scoring on Part C is a simple summation of the number of key words/phrases identified correctly from the paragraph on page CS-36 of the 1990 Child Supplement. No proration was attempted for missing responses. The individual items may be seen on page CS-38. A total raw score (E9975.) and two normed scores (E9976. and E9977.) are generated for Part C. The parallel 1988 and 1986 reference numbers may be found in Table 5.2.

From an analytical perspective, the prospective user may wish to note that the distribution of the percentile and standard scores for Part C are somewhat uneven, reflecting the fact that the Part C outcome allows for only 12 possible responses (0 and 1 through 11) with a major heaping as noted, at the zero category. The fact that the percentile/standard scores assigned to the various raw scores varies by the age of the child helps to smooth the normed responses somewhat. However, the user is encouraged to examine the pattern of normed responses before proceeding with his or her research. As with all of the assessments in the Child Supplement, age variables referenced by E65. (1986), E68. (1988) and E70.1 (1990) should be used when stratifying the sample by age of the child.

Quality of the Verbal Memory Data.

This assessment, published by the Psychological Corporation, measures a critical dimension of cognition required for current and later development and school achievement. In a Spanish population, the McCarthy Verbal Memory subscale correlated between .43 and .57 with reading achievement and between .30 and .33 with math achievement. It correlated with the PIAT subscales for reading recognition (r = .59), reading comprehension (r = .39), and mathematics (r = .42).

It is a highly respected and well-established test, and has high internal consistency (r = .80) and high validity with the Metropolitan Achievement Test, a widely used academic test. Besides correlating with academic achievement measures, Verbal Memory also correlates (r = .42) with vocabulary knowledge (PPVT-R), an indicator of verbal intelligence. This test has been normed on populations which include minority groups.

While this subscale has a high face validity regarding what it purports to measure, the user should
be sensitive to the fact that the scoring of Part C, the story section, undoubtedly includes an element of
subjectivity. Interviewers can, in some instances, disagree regarding whether or not a child's specific
response was indeed a "correct" or "incorrect" interpretation of an aspect of the story. Also, to some
extent, the verbatim verbal responses recorded by the interviewer could in some instances be coded in
different manners by different interviewers. In order to test this latter premise, NORC had the 1986
verbatim responses for about 400 children coded independently by two coders. There was complete
agreement between coders for 92 percent of the respondents.

At a different level, there is also some possibility that the Part A response patterns reflect a lack
of precision in the instructions--an ambiguity that also exists in the McCarthy manual. The instructions (for
Part A) only ask the child to repeat the words which the interviewer reads to him or her, but does not
specify that the words should be repeated in the same sequence. However, in the scoring, the respondent
loses a point if the words are repeated out of sequence. Thus, the extent to which the words were
repeated in or out of sequence may have been a function of how the instructions were understood, an
artifact that could attenuate the reliability of the Part A score.

The overall completion rate for Parts A and B is about 88 percent, a bit below the completion rate
for most of the other child-administered assessments (Table 5.12.1). Hispanic children have a completion
rate of only 81 percent, substantially below that for other children. Thus, as with some of the other
assessments, there is surface evidence that language constraints come into play when evaluating the
reliability and potential validity of this assessment. With regard to this assessment, it is important to note
that a Spanish translation was _not_ utilized. This test measures English language verbal retention. Thus,
a language bias is clearly possible and implied for at least some children. For both the word and story
components of the assessment, Hispanic children and children of less educated mothers are heavily over-
represented among those who could not be scored--the "invalid response" subset. Additionally, for Part
C, the "story" component of the assessment, only 83 percent of all the eligible children were able to be
scored, with only 74 percent scorable for Hispanic children (Table 5.12.2).

Because the Verbal Memory raw scores were normed against a nationally representative
population, it is instructive to examine the weighted standard score distributions for both the Part A plus
B and Part C responses. Given that the NLSY sample of children in 1990 modestly over-represents those
born to youthful mothers, one might anticipate that our sample should score below average compared with
a full national cross-section of children. This, indeed, is the pattern which may be found in the distributions
in Tables 5.12.5 and 5.12.7. In comparison with national means of 100, our sample has a mean score of
95.8 on Parts A and B and 96.5 on Part C.

It is also useful to note that Verbal Memory scores for the modest sized six-year-old sample are lower than the scores for the younger children. The four-year-old age groups, and to some extent the five-year-olds, may be considered as fully representative of NLSY children in that age range. However, the six-year-olds (and to some extent the five-year-olds) by virtue of the fact that they disproportionately include children who for various reasons could not be administered the assessment in 1988 may be less representative of children their age. This may help explain the lower mean score and larger standard deviation for older children completing this assessment.

Beyond the reported lower scores for Hispanic children, there is also evidence that scoring poorly on the Verbal Memory assessment is linked with low maternal education (see Tables 5.12.6 and 5.12.8). Children of mothers who have not completed high school score substantially lower on all parts of the Verbal Memory assessment than children of mothers with more education. Thus, aside from the Hispanic disadvantage which undoubtedly is directly linked with language limitations, lower verbal scores, as might be expected, have a strong socio-economic component to them.

Shifting focus, it may be seen from Table 5.12.13 that Verbal Memory--particularly the more basic A+B scores--show reasonably strong correlations over time with the PIAT reading scores and that these correlations are maintained with the passage of time. The A+B 1986-1988 correlation with PIAT reading recognition is .25 and the 1986-1990 correlation is .29; the linkages with PIAT reading comprehension were comparable. In contrast, much weaker correlations may be noted for the Verbal Memory Part C-PIAT associations. Additionally, the A+B within-year correlations with PPVT-R in 1990 is .3; slightly lower correlations may be noted between Verbal Memory A+B and the HOME cognitive stimulation scale. We are unable to directly test for cross-year within-assessment reliability for the Verbal Memory because children complete this assessment only one time.

Analyses of the 1988 assessment also found quite strong correlations between 1986 Verbal Memory A+B score and 1988 Digit Span scores (.45 with the overall score; .27 with the forward digit span and .44 with the backward digit span [Mott and Quinlan, 1991]).

Drawing on earlier 1986 analyses, it is also useful to note that linkages between Verbal Memory and the non-achievement, mother-report assessments were also generally significant with the associations in the direction anticipated. The correlations between Verbal Memory (all parts) and Motor and Social Development for three-year-olds were around .25; the correlations with Behavior Problems for the older children were inverse but generally weak. Finally, moderate positive associations were noted between both parts of Verbal Memory and the HOME cognitive stimulation and emotional support subscales. These linkages appear weakest for the six-year-olds, perhaps reflecting a likelihood that school and other influences outside the home may be assuming more dominant roles. Finally, for children of preschool age (three- and four-year-olds) there were rather substantial zero order correlations--in the .35 to .47 range--

between the Verbal Memory scores and the Temperament sociability subscale (Baker and Mott, 1989). The causal implications of this linkage are undoubtedly complex, as a positive rapport between interviewer and child could possibly positively affect a child's responses on this assessment and conversely, a child who performs well may be more likely to be rated highly by an interviewer. It is also worth noting that the linkages between these same assessments are weaker for five- and six-year-olds, consistent with the notion that older children might be less affected by superficial contacts with "new and strange" individuals-- since they frequently are placed in such situations in their preschool or elementary school environment.

As a more general point, it is useful to reiterate that in general, the correlations between interviewer administered assessments (and to a lesser degree between mother administered assessments) tend to be larger than correlations between interviewer and maternal administered assessments. While the relatively large correlations between Verbal Memory and the various achievement batteries are not surprising, it may well be that such connections may reflect a "halo effect" of sorts as children respond--either positively or negatively--to a particular interviewing environment or situation.

While usage of the Verbal Memory assessment has been modest to date, there is a growing NLSY literature which suggests that Verbal Memory can be used as an important cognitive outcome in research which explores family and maternal impacts on children. Stromsdorfer, Wang and Cao (1992) found that mother's intelligence and self-esteem had significant positive effects on Verbal Memory scores (Parts A and B) while total annual hours worked had a significant negative impact. McCartney and Rosenthal (1991) found that home environment had a significant direct effect on Verbal Memory (Parts A and B) while the effect of mother's intelligence operated indirectly through the home environment. Hawkins and Eggebeen (1991), using a composite score derived from the PPVT-R and Verbal Memory, found that certain male-present household configurations had no significant effect on intellectual functioning of young children, once maternal and other household characteristics were controlled for. Using Verbal Memory Parts A and B as one of several indicators of children's outcomes, Geronimus, Korenman and Hillemeier found that children of young mothers do not differ significantly from children of older mothers when controlling for early family background factors. Children of very young mothers scored significantly higher on Verbal Memory than did other children (Geronimus, Korenman and Hillemeier, 1992).

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Wechsler Intelligence Scales for Children: Memory for Digit Span

The Memory for Digit Span assessment, a component of the revised Wechsler Intelligence Scales for Children (WISC-R), is a measure of short-term memory for children aged seven and over (Wechsler, 1974). The WISC-R is one of the best normed and most highly respected measures of child intelligence (although it should be noted that the Wechsler Digit Span component is one of the two parts of the Wechsler scale not used in establishing IQ tables).

There are two parts to the Memory for Digit Span assessment. First, the child listens to and repeats a sequence of numbers said by the interviewer. In the second part, the child listens to a sequence

of numbers and repeats them in reverse order. In both parts, the length of the sequence of numbers increases as the child responds correctly.

Using the Memory for Digit Span Assessment.

The Memory for Digit Span Assessment, a component of the Wechsler battery, was administered to children age 7 years and older in the 1990 NLSY Child survey round. As with Verbal Memory, this assessment was not repeated for children who completed it in 1986 or 1988, unless they were in the age 10-11 index child category. The child is instructed to repeat a series of 14 numbers (with increasing numbers of digits) forward and a different series of digits in reverse order. Each correct response is worth one point; the theoretical maximum on each of the subscores is, thus, 14 and for the total score 28. The forward sequence is completed prior to the backward digit sequence. However, entry into the reverse sequence is not contingent on successful entry or completion of the forward sequence. Where appropriate, a Spanish version of this assessment is administered.

This assessment generates three non-normed "raw" scores and one overall age-appropriate normed (standard) score. Whereas the normed scores for the other assessments are based on a mean of 100 and a standard deviation of 15, the Digit Span assessment is normed against a distribution which has a mean of ten and a standard deviation of three. Norms are only available for the total score (E5798. for 1986, E7993. for 1988 and E9985. for 1990). The norms may be found in Wechsler, D. *WISC for Children - Revised Manual*. The Psychological Corporation, 1984 (pp. 118-150).

The precise instructions and items used in this assessment may be found on pages CS-46 through CS-48 in the *1990 Child Supplement*, and reference location numbers for all the forward and backward scores may be found in Table 5.2. The researcher should be aware that the age distribution of children completing this assessment is essentially bimodal, as it includes a large number of seven- and eight-year-olds completing this assessment for the first time as well as ten- and eleven-year-olds in the index group who are repeating the assessment.

Quality of the Digit Span Data.

The Digit Span score is considered a good measure of short-term memory and attentiveness for children seven and older. Its parallel form reliability is about .53. Its average reliability (across the 6.5 to 15.5 age span) is reported as .78 (Chapter 4 in Wechsler, 1974). It correlates (r = .45) with PIAT Reading Recognition. Its correlation with the Stanford Binet IQ (Form L-M) is reported as .11 at age six, .44 at age nine and one-half and .30 at age twelve and one-half (Table 18 in Wechsler, 1974). When administered

at age sixteen, it correlates .68 with the full WAIS IQ score. Thus, in addition to being reliable, it appears to correlate at moderate levels with various intelligence measures.

Shifting to an internal evaluation of the NLSY Digit Span scale, it may be noted in Table 5.13.1 that the overall completion rate for the total score is around 89 percent, with essentially identical completion rates for the forward and backwards subscales (see Tables 5.13.2 and 5.13.3). In 1990, black children reported substantially higher completion rates (93 percent) than Hispanic or white youth (87 percent).

An examination of the Digit Span scoring pattern in Tables 5.13.4 through 5.13.9 suggests some modest variations by race/ethnicity and the mother's characteristics; overall standard scores are lower for children born to the youngest mothers, largely reflecting their lesser education (Table 5.13.5). Mothers who did not complete high school have children with lower scores, but there is no systematic evidence of differences between children born to mothers with twelve years of schooling and children whose mothers have 13 or more years of school Continuing a pattern in evidence since 1986, it may also be seen (Table 5.13.4) that Hispanic children score lowest in the overall standard score, blacks fall in between Hispanics and other white children, and white children score the highest. While a Hispanic version is available for use, it may be that some Hispanic children with a less than adequate understanding of verbal English (the assessment is verbally administered by the interviewer) may be disadvantaged on this assessment.

The forward and backward components evidence a somewhat different and also less systematic pattern of racial/ethnic differences. With regard to the forward subscore, Hispanic children score substantially lower than black and other white children, a continuation of a pattern evident since 1986. Black and white children follow essentially similar scoring patterns, although it may be noted that in all three assessment years (1986, 1988 and 199), black children have forward scores slightly higher than their white counterparts.

In contrast, racial and ethnic variations on the "backwards" subscore are much more modest. Overall, Hispanic and black scores are essentially identical to each other with other white children reporting scores modestly higher than minority children. The lesser racial/ethnic variation for the backward subscore suggests that this component of the assessment may at least partially tap different dimensions of this particular skill, and that the backwards score in particular may be more culturally "neutral."

Both within and cross-year zero order correlations between the Digit Span scores and the PIAT assessments suggest that scores on this short-term memory retention assessment are reasonably good predictors of cognitive achievement in both the mathematics and reading sphere. As may be seen in Table 5.13.10, for the two age groups of children in 1990 who for the most part completed the Digit Span, overall Digit Span - PIAT correlations were about .4 for seven- and eight-year-olds, .4 for ten- and eleven-years-olds on the PIAT Mathematics and PIAT Reading Comprehension assessments, but reached .5 for the

PIAT Reading Recognition assessment. Thus, while the Digit Span assessment is, indeed, a test of numerical memory, it is clearly as predictive of verbal skills as it is of mathematics ability.

It is also useful to note that while Digit Span - PIAT correlations are somewhat lower for the two Digit Span subscores, there is evidence that the backwards score correlates somewhat more highly with PIAT than does the forward Digit Span score. Finally, modest (.25 to .30) correlations may be noted for the limited sample who completed both the Digit Span and PPVT-R assessments in 1990.

Table 5.13.11 provides even more impressive evidence of cross-year validity between Digit Span scores in 1986 and PIAT scores in 1986 through 1990. We focus here on children who were either 7 or 8 or 10 or 11 in 1986 and examine the zero order correlations with their PIAT scores in 1986 through 1990. With regard to the overall Digit Span standard score, not only are there reasonably substantial zero order correlations, but, particularly for the ten- and eleven-year-olds, there is no evidence of diminution of coefficients over time; correlations between 1986 Digit Span and 1990 PIAT scores are no different than 1986 within-year correlations. Thus, there is substantial evidence that the overall Digit Span score is a stable, relatively long-term predictor of PIAT reading and mathematics scores.

Generally consistent with the within-year (1990) correlations noted above, it appears that backwards Digit Span is a better long-term predictor than is forward Digit Span, particularly with regard to mathematics and, more often than not, for the older children in 1986. Thus, we have presented evidence consistent with the notions that the easily administered Digit Span assessment has relatively long term value as a predictor of cognitive achievement, and that the backwards Digit Span assessment has similar properties, particularly in the mathematics domain.

Finally, Table 5.13.11 also suggests that two year test-retest reliabilities for the overall standard score and the forward subscore are moderately high, approximately .5. The cross-year correlation for the backwards score is somewhat lower -- .3. Thus, while the forward score offers more reliability than the backwards score, it may be somewhat less valid as a predictor of various cognitive capabilities.

To date, the Digit Span assessment has only been used in a limited way by NLSY researchers, perhaps reflecting the more limited age range which complete the assessment as well as the availability of the PIAT assessments for all the children who complete Digit Span in any given year. Two examples of research which have used Digit Span as a cognitive outcome are papers by Stromsdorfer et al (1992) and Vandell and Ramanan (1991). Stromsdorfer, Wang and Cao (1992) used the 1986 NLSY child data to examine the effects of maternal labor supply on childrens' cognitive and affective development as measured by Memory for Digit Span as well as the PPVT-R, PIAT Math and Reading, Verbal Memory, and Self-Perception. While they found mother's work intensity to be a very modest predictor of performance on Memory for Digit Span, mother's fitted total annual hours of work did not show a higher level of effect for any particular age level. When they examined the relative impact of a series of independent variables

(including work intensity, family income, maternal intelligence, self-esteem and education) mother's work hours showed the highest relative value for six of the seven cognitive assessments but had negligible impact on Memory for Digit Span. In their 1991 comparison of children in different types of after-school care, Vandell and Ramanan noted that while the type of care arrangement was related to a number of indicators on child functioning, there were no significant differences in performance on Digit Span by children in latchkey, mother-care, or other adult care.

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Self-Perception Profile for Children (SPPC)/"What I Am Like"

The Self-Perception Profile for Children (SPPC) is a self-report magnitude estimation scale that measures a child's sense of general self-worth and self-competence in the domain of academic skills (Harter, 1982). The twelve items in this assessment translate into two subscores, a global self-worth score and a scholastic competence score. These two scales represent two of seven subscales developed by Susan Harter. A full description of all of the subscales may be found in Harter (1985).

The assessment, titled "What I Am Like" in the Child Supplement, is completed by children age eight and over. Each of the two subscales include six items which are scored between one and four, with higher scores representing greater scholastic competence or greater global self-worth. Only raw scores, which are a simple summation of the six individual items in each scale, are provided, as no national norms are available.

The assessment is administered as follows (citing from Harter, 1985):

> "The child is first asked to decide which kind of kid is most like him or her, and then asked whether this is only sort of true or really true for him or her. The effectiveness of this question format lies in the implication that half of the kids in the world (or in one's reference group) view themselves in one way, whereas the other half view themselves in the opposite manner. That is, this type of question legitimizes either choice. Our confidence in this

format is bolstered by the fact that children's verbal elaborations on the
reasons for their choice indicate that they are giving accurate self-
perceptions rather than socially desirable responses. The statistical data
provide additional evidence with regard to the effectiveness of this type of
question."

In the NLSY, this instrument is directly administered by the interviewer to the children. The
interviewer reads each statement to the children, then asks "which kind of kid" they were more like, and
followed up by asking whether or not the particular response was "really true for you" or "only sort of true
for you." Only individual responses are coded by the interviewer; the scoring is done at the Center for
Human Resource Research.

Using the Self-Perception Profile for Children.

The twelve individual items in this assessment translate into two subscores, a Global Self-Worth
Score (E9980.) and a Scholastic Competence Score (E9978.). This assessment is completed by children
aged eight years and over. There is no overall Self-Perception Score. Subscore identification for 1986
and 1988 may be found in Table 5.2. Each of these two scores is a simple summation of six items. The
Global Self-Worth Score is a summation of the six "even number" items, beginning with the second item.
The Scholastic Competence Score is a summation of the odd numbered items, beginning with item one.
There are no appropriate national norms available for this assessment, so only the raw scores are available
on the file. For a small number of cases, there are some missing items. In these instances, a proration
was attempted, assigning average values to the missing items. Two proration flag variables (E9981. and
E9979. for 1990) are included for each year's data which permit the user to identify those cases which were
prorated. A zero on these flags indicates that all items were completed, a "1" indicates that one item was
missing, and so on.

Quality of the Self-Perception Profile for Children Data.

There are many studies which have documented the importance of the Self-Perception Profile scale
as a predictor of important child outcomes and behaviors. For example, it has been shown to correlate
highly with teacher ratings of children and with a child's achievement motivation. It has high internal
reliability (r = .73 to r = .86) and high (nine month) test-retest reliability (r = .8). The schedule translated
into Spanish with no difficulty and prior uses of the schedule suggest no apparent cultural bias.

Research by Harter on an earlier version of this assessment indicated that the individual items
follow reasonably normal distribution patterns, with means falling slightly above the 2.5 midpoint and
standard deviations fluctuating around the value of 1, revealing adequate item variability (Harter, 1982).
An examination of the twelve individual responses, as reported on in the NLSY, similarly suggests a

reasonable item distribution and variation. The individual item frequencies may be found in the codebook and are included in the 1990 file. The overall weighted average mean item score for the 1990 NLSY sample was 2.83 for the scholastic subscale and 3.38 for the global subscale. An examination of Table 3 in Harter (1985) reveals comparable item means for her samples.

Overall, the NLSY administration of the SPPC poses few difficulties in the field. Completion for the whole sample exceeds 93 percent, ranging from over 96 percent for black children to about 91 percent for white and Hispanic children (Table 5.14.1 and 5.14.2).

In general, the reported reliabilities for the NLSY administration of these two subscales were somewhat lower than those reported in Harter (1985). She reports internal consistency reliabilities for the two subscales on various samples at around .8 whereas the 1990 NLSY data yielded alphas of .67 for the global self-worth subscale and .69 for the scholastic competence subscale (Table 5.15.13). How much these differences reflect significant differences between samples in terms of racial/ethnic mix or other socioeconomic characteristics has not been assessed as of this date.

As may be seen in Table 5.14.7, the overall correlation between these self-worth and scholastic subscales is .31 for eight- and nine-year-olds and .40 for children age 10 and over. This is somewhat lower than the comparable correlations reported by Harter for her various subsamples--which ranged between .46 and .64 (see Table 7 in Harter, 1985).

Generally, the cross-year correlations (1986 to 1988 and 1986 to 1990) are fairly substantial, particularly for the scholastic competence subscale. For the scholastic competence scale, the overall 1986-1988 correlation is .40, declining to .27 for 1986-1990. The parallel cross-year coefficients for global self-worth are .31 and .27 (Table 5.14.7). The over-time cross-subscale correlations are much more modest.

An examination of Table 5.14.7 additionally suggests some important variations between the two subscales in their within-year association with various other assessments as well as in their predictive value with cognitive assessments over time. In 1990, it is clear that a child's feelings about his or her scholastic competence are fairly strongly associated with how the child performs on the various PIAT assessments, but parallel associations between global self-worth and PIAT scores are much weaker. Additionally, 1986 scholastic competence correlates much more substantially with 1988 and 1990 PIAT scores than does 1986 global self-worth. It is useful to note that both within and cross-year correlations between scholastic competence and the various assessments is most pronounced for older children. In this regard, the lesser correlations for younger children may perhaps partly reflect a lesser ability by eight- and nine-year-olds to understand the individual Harter items. It may be that these stronger reported correlations for older children may also partly reflect the fact that they have their notions about their intellectual competence reinforced by others for a longer period of time. It is not unlikely that the strength between a child's feelings about

his or her scholastic competence and the child's actual performance may increase over time as notions about self-esteem and actual accomplishments reinforce each other.

Other than for the linkages with cognition, it is also useful to note that both SPPC subscales are modestly associated with lower levels of behavior problems as well as higher scores on the Home cognitive stimulation and emotional support subscales. Most importantly, however, the over-time correlations suggest some significant longitudinal value for the SPPC scholastic competence scale as a potential predictor of cognitive well-being in the longer run.

As may be seen from Tables 5.14.3 through 5.14.6, there are indeed racial/ethnic as well as socio-economic differentials in evidence for both subscores. With regard to the scholastic competence subscale, Hispanic children score modestly lower than do black or white children. However, the variability by maternal education is much more pronounced, suggesting that a child's self-perception regarding his scholastic competence is closely associated with his or her family's socio-economic attainment.

Modest racial/ethnic and maternal education differentials in global self-worth also are apparent; white children and children born to mothers who have attended college score moderately higher on this more generalized subscale which, as has been shown, appears to have been correlated in a systematic way with longer term cognitive outcomes.

Research completed to date provides evidence generally consistent with our zero order correlations and is suggestive of the potential value of this scale for clarification of across and within-generation psychological well-being. Using 1986 data and combining the global and scholastic self-worth subscales, Stromsdorfer, Wang and Cao (1992) found that mother's self-esteem is a modest predictor of child's self-esteem. Dubow and Luster (1990), also basing their analysis on 1986 data, found that children with higher global self-esteem were significantly less likely to have academic problems and had significantly fewer total behavior problems, even in the presence of risk factors such as poverty, crowding, and father absence. Using 1988 data, Rogers (1993) found that children in mother/father families had higher levels of global self-esteem than children in mother/stepfather families and that children with higher self-esteem had significantly fewer behavior problems. Furthermore, global self-esteem and family structure interact in their effects on behavior problems, with self-esteem having a greater effect on the behavior problems of children in mother/father families than those of children in mother/stepfather families (Rogers, 1993).

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PIAT Mathematics

The Peabody Individual Achievement Test (PIAT) is a wide-range measure of academic achievement for children aged five and over which is widely known and used in research. It is among the most widely used brief assessment of academic achievement having demonstrably high test-retest reliability and concurrent validity. The NLSY Child Supplement includes three subtests from the full PIAT battery, the Mathematics, Reading Recognition and Reading Comprehension assessments. We focus here specifically on the Mathematics assessment, but many of these general comments are equally appropriate for the other PIAT (as well as PPVT) assessments.

The PIAT Mathematics assessment protocol may be found on pages CS-5I through CS-54 of the 1990 Child Supplement. This subscale measures a child's attainment in mathematics as taught in mainstream education. It consists of eighty-four multiple-choice items of increasing difficulty. It begins with such early skills as recognizing numerals and progresses to measuring advanced concepts in geometry and trigonometry. Essentially, the child looks at each problem and then chooses an answer by pointing to or naming one of four options.

The PIAT Mathematics assessment was administered to all children whose "PPVT age" was five years and above. Administration of this assessment is relatively straightforward, and the resulting

completion rate quite high. Children enter the assessment at an age-appropriate item (although this is not essential to the scoring) and establish a "basal" by attaining five consecutive correct responses. A "ceiling" is reached when five of seven items are incorrectly answered.

For a precise statement of the norm derivations, the user should consult the PIAT Manual (Dunn, and Markwardt, 1970, pp. 81-91, 95). In interpreting the normed scores, the researcher should note that the PIAT assessments used in the NLSY Child were normed about 25 years ago. Social changes affecting the mathematics and reading knowledge of small children in recent years have undoubtedly altered the mean and dispersion of the reading distributions over this time period, an issue considered further below. In this regard, a revised version of the PIAT ("PIAT-R") was released in 1986, too late to incorporate as a 1986 child assessment. To date, we have opted to maintain internal continuity within the NLSY by continuing to use the 1968 version of the PIAT. Discussions are underway regarding the advisability of switching to the PIAT-R at some future date. Citations relevant to the PIATs appear at the end of the discussion of the PIAT Reading Comprehension subtest.

Using the PIAT Mathematics Assessment.

Administration of the PIAT Mathematics assessment is relatively straightforward. Children age five and above begin the assessment at an age-appropriate item (although this is not essential to the scoring) and establish a scorable "basal" by attaining five consecutive correct responses. A scorable "ceiling" is attained when 5 of 7 items are answered incorrectly. The non-normalized raw score is equivalent to the ceiling item less the number of incorrect responses between the basal and the ceiling. Procedures for administration may be found on pages CS-51 through CS-54 in the 1990 Child Supplement. Normalized percentile and standard scores are derived, on an age-specific basis, from the child's raw score. The user is reminded that a child's age determination for this assessment is based on a PPVT age. The norming procedures are essentially a two-step process with the percentile scores being derived from the raw scores and the standard scores from the percentile scores. The reference numbers for the 1986 through 1990 raw and normed scores are listed in Table 5.2. The norming sample has a mean of 100 and a standard deviation of 15. Please note that for all the PIAT assessments, more rigid basal and ceiling criteria were utilized in the data collection than in the scoring. This procedure, which was implemented so as to reduce the number of cases which could not be scored because of inappropriate interviewer entry or termination, in no way affected how the assessments were scored.

The majority of the invalidly skipped items in the PIATs fall into two categories. First, there are some children who were inadvertently skipped over even though they were an appropriate age. Second,

there were a number of children who could not be scored because the scoring decision rules were not followed properly so either a basal or ceiling could not be obtained.

Users of the PIAT assessments are encouraged to carefully examine the individual response patterns as well as the reasons for invalid scores. Having the individual responses will permit the user to note that a number of assessments originally considered "unscorable" were scorable once the actual patterns of response on the various assessments were individually considered. This edit was possible because the interviewer recorded the actual response as well as a score of correct or wrong for each answer. Thus, if the correct-wrong item was inadvertently left blank but the actual response was available, it was frequently possible to make a post hoc determination of "correctness." In addition, depending on the user's research intention, it may be possible to "score" additional cases if one is willing to sacrifice some precision in the scoring. For example, some additional cases could be scored if one is willing to accept as adequate a score which would not deviate by more than one or two points from the "true" score.

The user should note that several improvements have been introduced into the 1990 PIAT norming scheme which should improve the utility of these measures as well as simplifying their use. First, children between the ages of 60 and 62 months (for whom no normed percentile scores had been previously available) are now normed using percentile scores designed for children enrolled in the first third of the kindergarten year--the closest approximation available to ages 60 to 62 months.

Second, children with raw scores translating to percentiles below the established minimum are now assigned percentile scores of one; children with raw scores translating to percentile scores above the maximum are assigned percentile scores of 99. In prior years, the "out-of-range" children had arbitrarily been assigned scores of 0, which led to some inadvertent misuse of the data. Finally, children more than 217 months of age are assigned normed scores of -4, since they are beyond the maximum ages for which national normed scores are available.

Quality of the PIAT Math Data.

The PIAT Mathematics assessment is widely used and is generally considered to be highly reliable and valid. Of all psychological tests, the PIAT had the forty-second largest number of citations since 1978 in Mitchell's (1983) *Tests in Print*. The PIAT was standardized on a national sample of 2887 kindergarten through twelfth grade children in the late 1960s. The one month test-retest reliability for the PIAT Mathematics assessment was .74 with lower levels of reliability generally evidenced at the lower grades (Dunn and Markwardt, 1970, Table 9). Depending on grade level, the mathematics scores correlated between .6 (fifth grade) and .72 (first grade) with the overall test score (Dunn and Markwardt, 1970, Table 11). As a measure of concurrent validity, the mathematics score was found to correlate from a high of .73

for fifth graders to a low of .34 for kindergarten children with PPVT IQ scores (Dunn and Markwardt, 1970, —

Table 14).

Shifting to our internal evaluation, it may be noted (in Table 5.15.1) that the overall PIAT Math

completion rate is about 92 percent and ranges from close to 96 percent for black children to 91 percent

for white children and 89 percent for Hispanic children. While not shown in the tables, the non-completers

were heavily over-represented by children whose mothers had less than twelve years of school.

Essentially, there are two kinds of non-completers. First, there are some children who were inadvertently

skipped over even though they were of an appropriate age. Second, there were a number of children who

could not be scored because the scoring decision rules were not followed properly so either a basal or

ceiling could not be obtained. The first category included a disproportionate number of children from

educationally disadvantaged backgrounds. The second category tended to be more randomly distributed--

with a relatively large proportion of these incompletions being accounted for by a small number of

interviewers who had difficulty with the scoring procedures.

The associations between PIAT standard and percentile scores and selected maternal and child

characteristics may be found in Tables 5.15.4 through 5.15.9. The mean overall standard score for all

children completing the assessment is 99.7, not substantially different from the overall scores reported in

1986 and 1988. White children, on average, score substantially higher than minority children, an average —

standard score of 101.8 compared with 95.5 for Hispanic and 94.7 for black children. Not surprisingly,

there is a substantial difference in mean standard scores by maternal education. In particular, children of

mothers who have not completed high school score substantially lower than children of high school

completers. It is also useful to note that the standard score distribution, while well balanced around the

mean of 99.7, is under-represented both by very high and low scoring children; the proportions with

standard scores under 85 and above 115 (i.e., more than one standard deviation below or above the mean)

is less than would be expected with a perfectly normal distribution.

Note that the overall normed standard mean for the NLSY sample on this assessment is 99.7

compared with a mean of 100.0 for the national sample it was normed against. This is in spite of the fact

that the NLSY sample, as described earlier, does not fully typify a nationally representative sample of

American children. It is hypothesized that this similarity with national statistics probably reflects the fact

that the PIAT norming sample was typical of U.S. children in the late 1960s. It may well be that external

influences such as television (e.g., "Sesame Street" programming) may have led to raising of _minimal_

mathematics knowledge--although not necessarily enhancing _advanced_ mathematics capabilities. The

tabular results support this supposition. It has been noted that while the overall standard score mean on

PIAT Math for the NLSY sample approximates 100, a disproportionately small fraction of the children i--

more than one standard deviation above the mean--compared with the late 1960s norming sample. In

contrast, the proportion more than one standard deviation below the norm also seems somewhat under-represented compared with the norming sample. Thus, there is some modest evidence that the NLSY sample is above average, compared with 1960s children, in meeting minimal mathematics standards (e.g., being able to answer the relatively basic elementary mathematics questions), but below average in coping with more complex mathematics concepts and operations. In summary, all of the above evidence is consistent with the notion that the PIAT Math should be an effective outcome measure for a full range of analytical studies that probe sample variations relating to demographic and socio-economic factors. However, *it should be used cautiously if one's primary research emphasis is the comparison of these results with other population groups, as the reported normed scores appear to be unrealistically high*. Similar patterning may be noted for the other PIAT assessments.

Regarding this apparent anomaly, it is useful to note that the *PIAT-R Manual*, prepared for the 1986 revised PIAT, directly addresses this issue. When comparing test results for a sample of children who completed both the 1968 and 1986 versions it was found that children score higher than expected (i.e., mean standard score above 100) on the 1968 version of the assessment (Markwardt, 1989).

Tables 5.5.10 through 5.5.12 provide selected within- and cross-year correlations between the childrens' PIAT Mathematics score and various other assessments. Correlations between 1990 PIAT Mathematics and PIAT Reading Recognition and Comprehension scores for the most part are in the .5 to .6 range (Table 5.15.10), comparable to what has been found by Dunn and Dunn (1970) in their evaluation of the assessment. In the limited sample which completed both assessments, correlations between PIAT Mathematics and the Peabody Picture Vocabulary Test were around .5 and attained about .4 with the overall Digit Span standard score (Table 5.15.11).

Correlations of the 1990 PIAT match scores with several of the other assessments, while often modest, were consistent with expectations (Table 5.15.11). Correlations in the .2 to .3 range were found with the HOME assessments. A zero order correlation of .33 was found with the SPPC Scholastic subscale (compared with only .17 with the SPPC Global self-worth scale). Finally, a quite modest inverse correlation of -.13 was found with behavior problems.

It is of some importance to note that cross-year correlations between 1986 PIAT mathematics scores and 1988 and 1990 PIAT scores are quite substantial (Table 5.15.12). Within-assessment correlations are .59 and .57 for 1988 and 1990 respectively, with relatively substantial correlations noted for all age groups. Additionally, correlations between 1986 mathematics and 1988 and 1990 PIAT reading scores are in the .5 range with little evidence of declines in correlations with the passage of time. The similar within- and cross-assessment correlations suggest a relatively large common basis for interpreting the meaning of the PIAT scores.

While we do not synthesize here NLSY research utilizing the PIAT assessment, it is fair to conclude that these assessments have been successfully used by many researchers both as inputs to explain other behaviors as well as outcomes--typically linked with a variety of maternal and family priors. As of this date (Fall 1993), we are aware of approximately 40 NLSY research papers or publications which have used the PIAT mathematics assessment. A complete current bibliography of such research is available from CHRR.

PIAT Reading Recognition

The Peabody Individual Achievement Test (PIAT) Reading Recognition subtest, one of five in the PIAT series, measures word recognition and pronunciation ability--essential components of reading achievement. Children read a word silently, then say it aloud. PIAT Reading Recognition contains eighty-four items, each with four options, which increase in difficulty from preschool to high school levels. Skills assessed include matching letters, naming names, and reading single words aloud.

To quote directly from the PIAT Manual, the rationale for the reading recognition subtest is as follows:

> "In a technical sense, after the first 18 readiness-type items, the general objective of the reading recognition subtest is to measure skills in translating sequences of printed alphabetic symbols which form words, into speech sounds that can be understood by others as words. This subtest might also be viewed as an oral reading test. While it is recognized that reading aloud is only one aspect of general reading ability, it is a skill useful throughout life in a wide range of everyday situations in or out of school." (Dunn and Markwardt, 1970, pp. 19-20). The authors also recognize that "performance on the reading recognition subtest becomes increasingly confounded with the acculturation factors as one moves beyond the early grades."

This assessment is administered to children whose PPVT age is five and over. The scoring decisions and procedures are identical to those described for the PIAT Mathematics assessment, and a description of the process and recognition words may be found in the 1990 Child Supplement on pages CS-55 through CS-58. The only difference in the implementation procedures between the PIAT Mathematics and PIAT Reading Recognition assessment is that the entry point into the Reading Recognition assessment is based on the child's score in the Mathematics assessment, although entering at the correct point is not essential to the scoring.

As with the PIAT Mathematics assessment, it is important to note that the norming sample was selected and the norming carried out in the late 1960s. This has implications for interpreting the standardized scores of the children in the NLSY sample, as noted below and already described in the PIAT Mathematics discussion.

Using the PIAT Reading Recognition Assessment.

The scoring decisions and procedures for PIAT Reading Recognition are identical to those outlined for the PIAT Mathematics assessment. A description of this process and of the recognition words may be found on pages CS-55 through CS-58 in the 1990 *Child Supplement*. The entry point into this assessment for children of various ages was based on their PIAT Mathematics score, although entering at the correct point was not essential to the scoring.

As with the Mathematics assessment, children with invalid scores on this assessment either inadvertently never entered the assessment or else were unscorable because of inadvertent skips which precluded obtaining either a basal or ceiling. In some instances, a careful examination of the individual responses in conjunction with an examination of the interviewer's actual scoring calculations permitted clarification, and ultimately scoring, of additional cases.

It is, however, important to note that whereas the actual answer to each item was coded for the PIAT Mathematics responses, this was not done for the PIAT Reading Recognition items. This is one reason why the overall response rate is slightly lower on the PIAT Reading Recognition assessment: in contrast with the PIAT Mathematics assessment, it was not possible to rectify inadvertent skips for some children on the PIAT Reading Recognition assessment where the "correct-non-correct" check item was inadvertently left blank. Researchers who plan to use the PIAT Reading Recognition assessment extensively are encouraged to examine the individual response patterns. Where a particular researcher does not require great precision on this particular outcome (e.g. a categorization of scores into a number of discrete categories being sufficient), it may be possible to reduce the non-completion rate. In a number of cases, while an exact score may not be determined, an approximate score determination (e.g., within two or three points, or a score of at least a certain level) may be possible.

The user should note that several improvements have been introduced into the 1990 PIAT norming scheme which should improve the utility of these measures as well as simplify their use. First, children between the ages of 60 and 62 months (for whom no normed percentile scores had been previously available) are now normed using percentile scores designed for children enrolled in the first third of the kindergarten year--the closest approximation available to ages 60 to 62 months.

Second, children with raw scores translating to percentiles below the established minimum are now assigned percentile scores of one; children with raw scores translating to percentile scores above the maximum are assigned percentile scores of 99. In prior years, the "out-of-range" children had arbitrarily been assigned scores of 0, which led to some inadvertent misuse of the data. Finally, children more than 217 months of age are assigned normed scores of -4 since they are beyond the maximum ages for which national normed scores are available.

The eligibility of children for the PIAT assessments is based on their "PPVT age" which can differ from their calendar age (in months), a point elaborated on earlier in this section of the handbook. When working with any of the PIAT assessments, the "PPVT age" variable should be used.

Three scores are reported for the PIAT Reading Recognition assessment for 1986 through 1990: an overall non-normed raw score and two normed scores - a percentile score and a standard score. The norming sample has a mean of 100 and a standard deviation of 15; these were normed against standards based on a national sample of children in the United States in 1968. The reference numbers for the 1986 through 1990 variables may be found in Table 5.2.

Quality of the PIAT Reading Recognition Data.

A number of the general reliability and validity issues and statistics relating to the PIAT assessment battery have already been mentioned in the PIAT Mathematics data quality section and will not be repeated here.

As noted in the PIAT Manual, Reading Recognition (one month) test-retest reliability ranged between .81 for kindergarten level children to .94 for third graders (an overall median of .89 for all grades through grade twelve). Thus, this particular subscale is apparently highly reliable. As already noted, it correlates moderately well with PIAT Mathematics scores. In addition, as one progresses from kindergarten through grade five, its correlation with PIAT spelling gradually increases from .27 to .72. It correlated between .78 (first grade) and .88 (third grade) with the overall PIAT total test score, and between .42 (fifth grade and kindergarten) and .64 (third grade) with the PPVT IQ score. Thus, its concurrent validity as evidenced by correlations with the PPVT (a median of .55 for grades kindergarten through twelve) is moderately high. Finally, Hammill and McNutt's (1981) meta-analysis (8239 coefficients from 322 studies) of reading correlates reported a concurrent correlation of .72 between reading recognition and composite reading.

Shifting from these reported external comparisons to internal quality checks, the results of our examination of PIAT Reading Recognition in many ways parallels our earlier discussion of PIAT Mathematics. While slightly lower, the PIAT Reading Recognition completion rate level and pattern of completion parallels what was found with PIAT Mathematics. In addition, the potential for bias is similar as non-completion rates are significantly higher for Hispanic children and children of less educated mothers. This ethnic differential could be anticipated given that this assessment was administered only in English (Tables 5.16.1 through 5.16.3).

An examination of the PIAT Reading Recognition standard and percentile score distribution in Tables 5.16.4 through 5.16.9. also shows differential patterns similar to what was found for PIAT

Mathematics--although the level of the standardized scores is significantly higher. As with mathematics, scores are highest for white children and for children who have better educated mothers.

It is important to note that the scores on this assessment are much higher than what might have been anticipated given the fact that the sample of children includes a disproportionate number of children born to poor and minority mothers. This phenomenon was already noted for PIAT Mathematics. However, it is much more pronounced for the Reading Recognition scores. It may be recalled that the norming sample, which was drawn in the late 1960s, had a mean standardized score (by definition) of 100. The NLSY sample has an overall mean score of 103--ranging from 99 for black children to 105 for white children. Thus, even though NLSY children are disadvantaged compared with a full cross-section of contemporary American children, they nonetheless score _above_ average compared to what one might anticipate for a full American cross-section of children. It is likely that this pattern at least partly reflects changes that have occurred in American society during the past 20 years. For example, it is very possible that factors such as child television viewing patterns or involvement in pre-school programs have fundamentally altered younger children's reading readiness, if not their advanced vocabulary capability. There is some evidence in the PIAT Reading Tables consistent with this premise. It should be noted that even though the mean standard scores are surprisingly high, the proportion scoring very well (i.e. two standard deviations or more above the mean) is not. Even a casual examination of the distribution of the scores suggests that the above-average mean scores reflect the fact that the proportion with low scores (one or more standard deviation below the mean) is under-represented. Thus, whatever the reason for this surprising distribution, its primary manifestation is in a pronounced under-representation of children scoring _very_ poorly--consistent with the notion that the floor of basic vocabulary knowledge (that component of the assessment linked with reading _readiness_) is higher than it used to be.

Within and cross-year correlations with the PIAT subscores as well as the other assessments may be found in Tables 5.15.10 through 5.15.12. With regard to cross-year reliability, it may be seen that PIAT reading recognition correlates with itself at a .7 level, and that this correlation is stable over two and four years (Table 5.15.12). Its correlation with PIAT Mathematics approaches .6 within-year (Tables 5.15.10 and 5.15.12) and is about .5 across years. This is comparable to correlations reported by the test developers (Dunn and Markwardt, 1970, Table 11).

The 1990 correlations between PIAT Reading Recognition and various other assessments essentially parallel the results already reported for PIAT Mathematics, being fairly substantial with PPVT-R and Digit Span and somewhat less for other assessments (5.15.11). Finally, as was reported for PIAT mathematics, there is a substantial NLSY literature available which has utilized the PIAT reading (both recognition and comprehension) assessments both as an explanatory variable as well as an output. A complete bibliography is available from CHRR.

PIAT Reading Comprehension

The Peabody Individual Achievement Test (PIAT) Reading Comprehension subtest measures a child's ability to derive meaning from sentences that are read silently. For each of 66 items of increasing difficulty, the child silently reads a sentence once and then selects one of four pictures which best portrays the meaning of the sentence.

> "While understanding the meaning of individual words is important, comprehending passages is more representative of practical reading ability since the context factor is built in, which plays an important role, not only in deciphering the intended meaning of specific words, but of the total passage. Therefore, the format selected for the reading comprehension subtest is one of a series of sentences of increasing difficulty. The 66 items in Reading Comprehension are numbered from 19 through 84, with item 19 corresponding in difficulty with item 19 in Reading Recognition." (Dunn and Markwardt, 1970, pp. 21-22).

The PIAT Reading Comprehension assessment is administered to all children whose PPVT age is five years and over and who scored at least 19 on the Reading Recognition assessment.[4] Children who scored less than 19 on Reading Recognition were assigned their Reading Recognition score as their Reading Comprehension score. If they scored at least 19 on the Reading Recognition assessment, their entry point to Reading Comprehension was determined by their Reading Recognition score. Entering at the correct location was, however, not essential to the scoring.

Basals and ceilings on PIAT Reading Comprehension as well as an overall non-normed raw score were determined in a manner identical to the other PIAT procedures. The only difference was that *children for whom a basal could not be computed were automatically assigned a score of 19.* Administration procedures are described on pages CS59 - CS62 of the 1990 Child Supplement. As with the other PIAT tests, norming was accomplished in the late 1960s with all its attendant potential analytical problems. For a precise statement of the scoring decisions and of the norm derivations, the user should consult Dunn and Dunn (1981) and Dunn and Markwardt (1970).

Using the PIAT Reading Comprehension Assessment.

As with the other PIAT assessments, the Child File includes overall non-normed raw scores which can range from zero to 84, normed percentile scores and normed standard scores. Reference numbers for the 1986 and 1990 items may be found in Table 5.2. It should be noted that many younger children (age seven years and below) who received low raw scores could not be given normed scores because their

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[4] Please note that reading comprehension was actually administered to all children who scored 15 or higher on reading recognition. This lowered threshold was used to maximize our ability to ultimately score the reading comprehension assessment for those cases where interviewers made minor addition errors in totalling the reading recognition test, scoring actual scores of 19 or so as being only 15 through 18.

scores were out of the range of the national PIAT sample used in the norming procedure. These children have been assigned -4 codes on the percentile and standard score variables. Researchers wishing to keep these children in their analyses will thus need to consider special decision rules. The way to identify these children, of course, is to cross-classify children by their raw score and standard score. They will be identified by having a valid raw score of zero or greater but a standard and percentile score of -4.

If one is using the PIAT Reading Comprehension assessment for analyzing five- and six-year-olds, the proportion of children without a standard score is a major constraint which cannot be ignored. As may be noted by comparing Table 5.17.1 with Table 5.17.2, a large proportion of five- and six-year-olds who had a *valid* raw score on Reading Comprehension could not be given normed scores. All of these children had raw scores below 19 and thus had their Reading Recognition score imputed as their Comprehension score; one solution for the youngest children (those with PPVT ages under 7) is to limit analyses to Reading Recognition.

By applying procedures parallel to those used with PIAT Mathematics, it was sometimes possible to clarify the score of a previously "unscorable" child by carefully examining the individual response patterns, particularly where the actual response for the "correct-incorrect" item had not been completed. In this way we were able to retrieve a number of cases not previously scorable. Depending on a researcher's individual inclination or need for precision, it may be possible to score, in an approximate manner, a number of additional children. In order to accomplish this, the researcher will need to examine the individual PIAT comprehension items. Researches who plan to use this outcome extensively are encouraged to examine the individual item responses.

The user should note that several improvements have been introduced into the 1990 PIAT norming scheme which should improve the utility of these measures as well as simplifying their use. First, children between the ages of 60 and 62 months (for whom no normed percentile scores had been previously available) are now normed using percentile scores designed for children enrolled in the first third of the kindergarten year--the closest approximation available to ages 60 to 62 months.

Second, children with raw scores translating to percentiles below the established minimum are now assigned percentile scores of one; children with raw scores translating to percentile scores above the maximum are assigned percentile scores of 99. In prior years, the "out-of-range" children had arbitrarily been assigned scores of 0, which led to some inadvertent misuse of the data. Finally, children more than 217 months of age are assigned normed scores of -4 since they are beyond the maximum ages for which national normed scores are available.

Quality of the PIAT Reading Comprehension Data.

As with the other PIAT assessments, Reading Comprehension is generally considered a highly reliable and valid assessment which, as noted earlier, has been extensively used for research purposes. This version was normed in the late 1960s and thus is subject to the same analytical constraints as the other PIAT assessments. In this regard, while the level of the standardized scores appears too high , it is likely that the patterning of the responses is probably reasonable. That is, higher scores will represent better outcomes in comparison with lower scores.

The PIAT Reading Comprehension subtest has a (one month) test-retest reliability which ranges from .61 for eighth grade children to .78 for first graders with an across-grade median of .64 (Dunn and Markwardt, 1970, Table 9). This is somewhat lower than was reported for the Mathematics and Reading Recognition subtests.

In terms of concurrent validity, as reported in Dunn and Markwardt, its linkage with the other subtests is somewhat erratic and appears quite sensitive to the grade level of the child. In the grade range of primary interest (grades five and below), correlations with PIAT Mathematics scores were generally low. Correlations with the PIAT spelling subtest ranged between .50 and .65. Overall correlations with the total PIAT score were more impressive -- .70 for first graders to .89 for third graders. In addition, not surprisingly, correlations between Reading Recognition and Reading Comprehension were generally fairly high (.61 - .80). The Hammill and McNutt meta-analyses cited above found a .72 median concurrent correlation between Reading Comprehension and composite reading and .74 between Reading Recognition and Reading Comprehension.

The overall completion rate for the PIAT reading comprehension score is slightly lower than that reported for the other PIAT subscores; 89 percent of eligible children have a raw score (Table 5.17.1) and a slightly lower 87 percent have a standard score (Table 5.17.2). The lower completion rate for the normed scores is due to the norming issue for younger children mentioned above. As with the other PIATs, the highest completion rate is for black children (92 percent) followed by 88 percent for non-hispanic white children and 85 percent for Hispanic children.

The reasons for the relatively high non-completion rate are not entirely clear. In some instances, a child was not administered either the Reading Recognition or the Reading Comprehension assessment even though the child was at an appropriate age. In other instances, a valid Reading Recognition score was available but the interviewer simply neglected to assess the child on Reading Comprehension. More typically, the Reading Comprehension assessment was attempted, but the interviewer did not ask a sufficient number of items to obtain a basal or a ceiling. An apparent common problem was where an interviewer entered the Reading Comprehension subtest at a fairly low level, apparently tested a child, but

did not record all of the responses. In some instances, it appears that she did not record any answers until the child began to answer incorrectly (i.e., early correct answers were left blank and not coded). In other instances, it appears that an interviewer inadvertently did not record all incorrect responses (when defining a ceiling), but only the first and final incorrect responses. These are, however, only impressions based on observation of a limited number of cases. The primary reason for invalid scores is, however, less complex; in some instances interviewers simply failed to follow the administration procedures. In a small number of cases, it is not clear whether an assessment was only partially completed because a child lost interest or because a child was incapable of going further. A bias of this kind could lead to a slight overstatement of average scores for those children who fully completed the assessment. As with the other assessments, the researcher is encouraged to examine the scoring patterns for the invalid responses. Depending on one's research objectives, some flexibility in rescoring might be possible.

The patterning of reported PIAT comprehension scores in Tables 5.17.4 through 5.17.9 show considerable variability by race/ethnicity and maternal education and, to a lesser extent, maternal age at birth. Please note that normed scores at the youngest age are distorted by the fact that large proportions of five- and six-year-olds with "valid" raw scores (below 19) could not be given normed scores (see discussion above).

Generally, white (non-Hispanic) children scored highest on this assessment followed by Hispanic and then black children, although for the most part children of all races scored well compared to the national norming sample for the reasons noted above (Table 5.17.4). As was also true on the other PIAT assessments, there are substantial differences between the scores of children whose mothers have more or less education (5.17.5). Also, while not completely systematic, it appears that the oldest children, on average, have somewhat lower scores, as do children who had been born to younger mothers (5.17.6). As with all of the PIATs, this points to a need to carefully control for a full range of family demographic and socio-economic traits when using the assessments in complex analysis.

The cross-year reliability for the reading comprehension subscale is reasonably high—.6 for 1986-1988 correlations and .5 for 1986-1990 correlations. (Table 5.15.12) The within and cross-year correlations with the other PIAT subscales, particularly with the reading recognition scale, are quite substantial (5.15.10 and 5.15.12). The quite high within-year correlation with reading recognition (.8) partly reflects the fact that some children (those receiving raw scores below 19 on reading recognition) essentially receive identical recognition and comprehension scores. Finally, 1990 PIAT comprehension correlations with various other assessments are very similar to those already reported for other PIAT subscores (Table 5.15.11). For a listing of NLSY research that has used the assessment, please see the most recent NLSY child assessment bibliography, *Research Using NLSY Child Assessment Data: A Bibliography* (available from CHRR).

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The Peabody Picture Vocabulary Test - Revised (PPVT-R)

The final child assessment in the NLSY is the Peabody Picture Vocabulary Test (PPVT). "The PPVT-R measures an individual's receptive (hearing) vocabulary for Standard American English and provides, at the same time, a quick estimate of verbal ability or scholastic aptitude." (Dunn and Dunn, 1981). This assessment can be given to all children age three and over. The PPVT-R assessment protocol may be found on pages CS-63 through CS-74 in the 1990 Child Supplement. For the actual diagrams, one must access the PPVT-R Manual (Dunn and Dunn, 1981). The assessment consists of 175 vocabulary items of generally increasing difficulty. The child nonverbally selects one of four pictures which best describes a particular word's meaning. A child's entry point into the assessment is based on his or her PPVT-R age.

Children enter the assessment at an age-appropriate level, although this is not essential to the scoring. A "basal" is established when a child correctly identifies eight consecutive items. (An exception to this is in those cases where a basal cannot be established. In these instances a child is given a raw score of one.) A "ceiling" is established when a child incorrectly identifies six of eight consecutive items. A child's raw score is determined by adding the number of correct responses between the basal and ceiling to the basal score.

The PPVT-R was standardized on a nationally representative sample of children and youth. The norming sample included 4200 children in 1979, and norms development took place in 1980 (Dunn and Dunn, 1981). For a comprehensive discussion of this norming procedure, researchers should refer to the PPVT-R Manual for Forms L and M (Dunn and Dunn, 1981). The PPVT-R Manual provided information about the linkage between raw scores and standard scores, and the percentile score is mechanically determined by the known linkage between the standard and percentile score.

In 1986, this assessment was only given in English. However, beginning in 1988, a small number of children who preferred to do so were given the Spanish version of this assessment, the "Test De

Vocabulario en Imágenes Peabody." For this reason, post-1986 assessment results may be less culturally biased than the 1986 version.

In 1986, all children age three and over were given this assessment. In 1988, all ten- and eleven-year-olds (our "index" population) as well as other children age three and over who had not previously completed the assessment in 1986 were given this assessment. In 1990, all children age ten and eleven as well as all other children age four and over who had not previously completed the assessment were eligible for the PPVT-R assessment. In the 1992 survey round, all children age three and over were eligible to be assessed. Thus, when the 1992 child data become available, there will be at least two survey points (1986 and 1992) in which all age-eligible children who are still being interviewed will have a PPVT-R score. Of course, many of these children may also have had an intervening (at age 10 or 11) PPVT-R score.

Using the PPVT-R.

The Peabody Picture Vocabulary Test (PPVT-R) was completed in 1990 by the reduced sample described above. The entry point into the assessment was linked with the child's PPVT-R age, but entry at an improper point was not grounds for invalidating the result. The procedure followed for scoring was analogous to that followed with the PIATs, except that the basal was based on having a sequence of eight consecutive correct answers and the ceiling on having a sequence which included six of eight items answered incorrectly. As with PIAT math and reading comprehension, it was possible to improve the overall quality and completion level by utilizing information on the actual responses where the "correct-wrong" check item had inadvertently been skipped. In addition, depending on the user's research intention, it may be possible to "score" additional cases if one is willing to sacrifice some precision in the scoring. For example, some additional cases could be scored if one is willing to accept as adequate a score which would not deviate by more than one or two points from the "true" score. For a precise statement of the scoring decisions and of the norm derivations, the user should consult the PPVT-R Manual (Dunn and Dunn, 1981, pp. 96-110, 126).

Beginning in 1990 the procedure used to create the NLSY Child PPVT-R normed scores has been refined in two important ways. First, children with raw scores that translated into standard scores between 20 and 39 are now being normed using the PPVT-R Supplementary Norms Tables (American Guidance Service, 1981). Second, raw scores that would translate to normed standard scores above the maximum provided are now assigned standard scores of 160, and raw scores translating to standard scores below the minimum provided are assigned standard scores of 20. In prior years these children had been assigned a standard score of zero. Three 1986 through 1990 scores are provided for this assessment for

each child; a non-normed raw score, a normed standard score, and a normed percentile score. The reference numbers for these items can be found in Table 5.2. Instructions in the PPVT-R Manual provided information about the linkage between the raw score and the standard score, and the percentile score is mechanically determined by the known linkage between the standard and percentile. The NLSY child sample has been normed against a national population which had been given a standard score mean of 100 and standard deviation of 15.

The user is reminded that the eligibility of children for the PIAT and PPVT-R assessments is based on their "PPVT-R age," which can differ from their calendar age (in months). This was elaborated on earlier in this Section of the Handbook. When working with the PPVT-R or PIAT assessments, the "PPVT-R age" variable should be used. Researchers who utilize 1990 PPVT-R scores as an outcome measure should be sensitive to the fact that the overall distribution of children receiving the assessment in 1990 is essentially bimodal—with large numbers of children at ages four and five and ten and eleven.

Quality of the PPVT-R Data.

The PPVT-R is among the best established indicators of verbal intelligence and scholastic aptitude across childhood. It is among the most frequently cited tests in Mitchell's (1983) *Tests in Print*.

Numerous studies have replicated the reliability estimates from the PPVT-R's standardization sample (4200 children between two years, six months and eighteen years eleven months); Dunn and Dunn (1981) report a median split-half reliability of .80 (ranging from .67 to .88), a median parallel form reliability of .70 (ranging from .50 to .87), and a median nine to thirty-one day test-retest reliability of .78 (.52 to .90). Goldstein, Collier, Dill, and Tilis (1970) reported a twenty-one month test-retest reliability of .77 among thirty-six black preschoolers, using the original PPVT-R assessment.

The PPVT-R demonstrates a high construct validity with a variety of intelligence tests. Its median correlation with other vocabulary tests was .71 (based on 55 criterion validity coefficients, ranging from .20 to .89); with other individual intelligence tests it ranged from .38 to .72 (based on 291 correlations ranging from -.16 to .92). Its correlation was higher with the Binet and Wechsler tests than with less well established tests; and correlations were higher with verbal intelligence (.66 to .71) than with performance (.46 to .65; Dunn and Dunn, 1981).

Because it demonstrates high predictive validity with a variety of achievement measures, the PPVT, when combined with other information, is an extremely important predictor of early and middle school outcomes. Median correlation with math achievement was .50 (based on sixteen correlations ranging from .27 to .77 with the Wide Range Achievement Test [WRAT], California Achievement Test [CAT] and PIAT); with language achievement it was .44 (sixteen correlations, from .02 to .66 with the WRAT, PIAT, CAT and

with the Metropolitan Achievement Test [MAT]); with reading comprehension it was .63 (seven correlations from .42 to .70 with the CAT and PIAT); and with reading recognition it was .38 (WRAT) and .52 ([PIAT] fourteen correlations ranging from .01 to .72; Dunn and Dunn, 1981).

Because of the limited sample of children completing the PPVT-R in 1990, our evaluation of the 1990 PPVT-R data is limited. The overall completion rate for those taking the PPVT-R in 1990 is 88 percent (Table 5.18.1). Also, as we had shown with the 1988 and 1986 data, there are substantial racial/ethnic differences in PPVT-R scores with both black and Hispanic youth scoring substantially lower than other white children (Tables 5.18.4 and 5.18.5). In analyses carried out with the 1986 sample, substantial racial/ethnic differences were maintained even after controlling (in multivariate analyses) for maternal education, family income and a variety of other factors.

Users may note one very important distinction between the PPVT-R and PIAT scores--a difference of particular interest to those who plan to concurrently use both assessments. Whereas the PIAT assessments had surprisingly high mean scores (see PIAT discussions) for a sample which includes a disproportionate number of disadvantaged children, the PPVT-R means are substantially below those of the norming sample. The NLSY PPVT-R sample has a mean standard score of about 93 and a standard deviation of about 18 (Table 5.18.4). Only the white sample had a mean approaching the overall national average of 100. This large differential between the NLSY PIAT and PPVT-R mean scores at least partly reflects the fact that the PPVT-R norming sample is relatively contemporary (1979), whereas the PIAT norming sample is from the late 1960s. The reader is referred to Baker and Mott (1989) for a more comprehensive evaluation of racial, ethnic and socio-economic differentials in PPVT-R scores using the 1986 NLSY data which included PPVT-R assessment scores for all children 3 and over. We anticipate carrying out a more comprehensive evaluation of the PPVT-R when the 1992 NLSY data become available, as in that data collection round all children age three and over were once again given the PPVT-R assessment.

Table 5.18.6 provides some useful insights regarding the reliability and validity of the PPVT-R. For the limited sample of children who completed the PPVT-R in 1986 and 1990 (essentially children who are 10 or 11 in 1990), the cross-year zero order correlation between PPVT-R scores is a substantial .66, not much below the short-term test-retest reliability in some other studies reported above. 1990 PPVT-R scores also correlate between .5 and .6 with the various PIAT subscores, comparable to results from other studies; and as may be seen from the top panel of Table 5.18.6, the two and four year correlations with the PIAT Mathematics and Reading subscores are in the .4 range, with the four year correlations being essentially identical to the two year correlations. Generally, the strength of the associations is greater for the older children, and the PPVT-R mathematics correlations are virtually identical to the PPVT-R reading correlations. Finally, it should be noted that the PPVT-R has been among the most widely used of all the

NLSY child assessments; as of the summer of 1993, we are aware of about 70 papers or publications which have used this assessment as either an explanatory input or child outcome. A current listing of NLSY research that has used the PPVT-R data is available from CHRR.

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Interviewer Remarks and Testing Environment

Each assessment in the Child Supplement is followed by a series of interviewer remarks designed to evaluate the environmental conditions which existed while that particular assessment was being given. Each set of interviewer remarks appears on the data file immediately following the relevant items from the appropriate Child Supplement assessment section. Sections 11 and 12 of the Child Supplement include a summary evaluation of the testing conditions completed by the interviewer immediately after assessing the child as well as a set of observations of the home environment. These evaluations are identified in the documentation by reference numbers E5252. - E5306. for the 1986 survey round; E7153. - E7208. for 1988; and E9260. - E9321. for 1990. Users are encouraged to consider these interviewer observations when evaluating quality issues associated with assessment reliability. In the vast majority of cases,

interviewers indicated no particular problem and they viewed the interviewing environment as quite appropriate, indeed positive. Where an interview was prematurely terminated, the reason for this premature termination is frequently noted in the remarks section at the end of that particular section. Depending, of course, on one's research intentions, individual researchers can choose to exclude certain children from their study. For example, children in testing environments where there clearly was substantial interference or who appeared tired (perhaps because it was the last of several assessments which the child had taken) could be excluded from analyses.

It is worth noting that in some instances the interviewers neglected to complete the remarks section. This was particularly true in 1986. Thus, an individual user should proceed with caution when using an interviewer remarks section which suggests that no individuals were present, since this was an unlikely scenario where small children were being assessed. In addition, particularly with respect to those interviewer remarks questionnaire items which define the presence or absence of parents or siblings, a positive response (i.e., one or greater) indicates that this particular relation was present. However, the absence of that relation was often left blank and not coded zero.

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Table 5.1   NLSY Child Data Collection Advisory Panels

NAME	AFFILIATION
1985	
Ann L. Brown	Department of Psychology University of Illinois
Joseph Campione	Department of Psychology University of Illinois
William E. Cross, Jr.	Department of Psychology Cornell University
Rochel Gelman	Department of Psychology University of Pennsylvania
Willard H. Hartup	Institute of Child Development University of Minnesota
Lois Hoffman	Department of Psychology University of Michigan
Jerome Kagan	Department of Psychology and Social Relations Harvard University
Luis M. Laosa	Educational Testing Service Princeton, New Jersey
Marian Radke-Yarrow	Laboratory of Developmental Psychology The National Institute of Health
Henry Ricciuti	Department of Human Development and Family Studies Cornell University
Barbara Starfield	Department of Health Care Organizations The Johns Hopkins University
Michael Yogman	Infant Health and Development Program Children's Hospital Boston, Massachusetts
Nicholas Zill	Child Trends, Inc. Washington, D.C.

Table 5.1   NLSY Child Data Collection Advisory Panels (continued)   153

NAME	AFFILIATION

1991

P. Lindsay Chase-Lansdale	Chapin Hall Center for Children & Harris Graduate School of Public Policy Studies University of Chicago
Robert Michael	Graduate School of Public Policy Studies University of Chicago
Kristin Moore	Child Trends, Inc. Washington, D.C.
Henry Ricuitti	Department of Human Development Cornell University
Joseph Rodgers	Department of Psychology Duke University
Marguirite Stevenson	Child and Family Studies University of Wisconsin - Madison
Donna Strobino	Department of Maternal and Child Health John Hopkins University
Maxine Thompson	Department of Sociology, Anthropology and Social Work North Carolina State University
Kenneth Wolpin	Department of Economics University of Minnesota

1993

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