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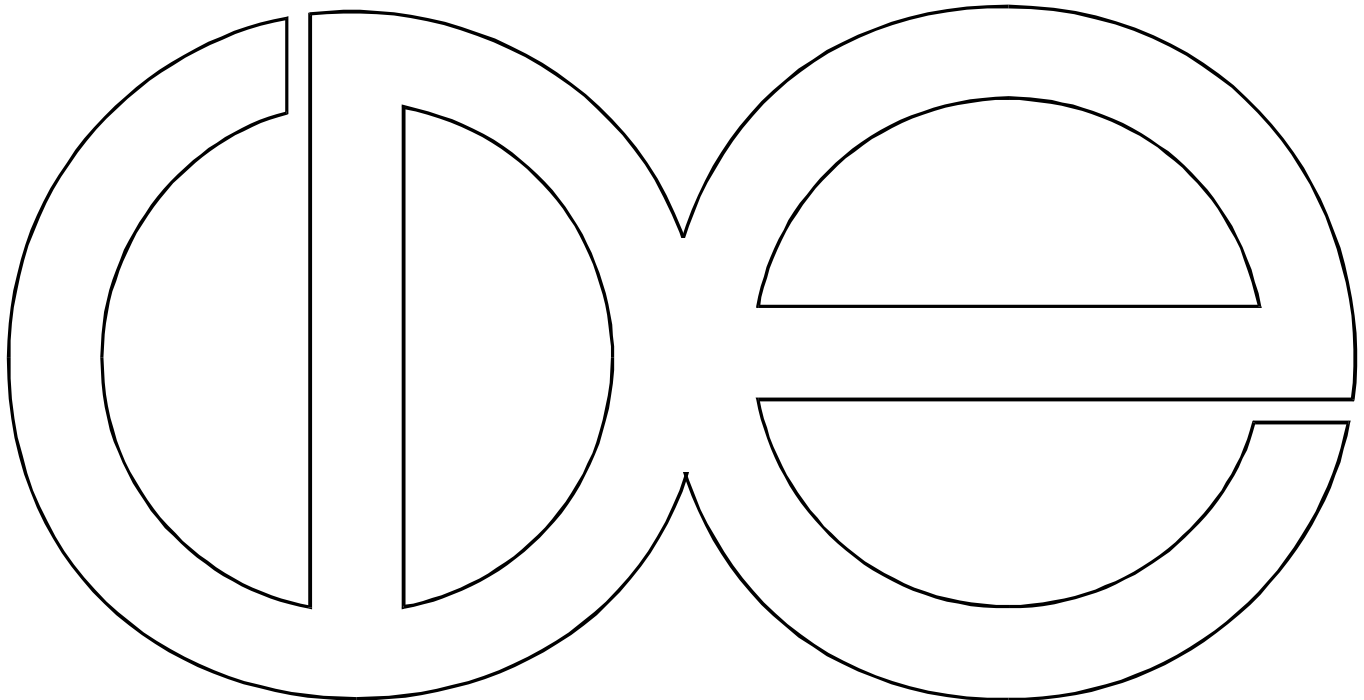
**University of Wisconsin-Madison**

**The Class of 1957 After 35 Years:  
Overview and Preliminary Findings**

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Hsiang-Hui Daphne Kuo, William Magee, John Presti, Diane Shinberg,  
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**CDE Working Paper No. 93-17**

Revised April, 1994



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<sup>1</sup> The Wisconsin Longitudinal Study of Social and Psychological Factors in Aspirations and Achievements has its principal support from the National Institute on Aging (AG 9775), with additional support from the National Science Foundation (SES-9023082), the MacArthur Foundation, the Spencer Foundation, and the Graduate School of the University of Wisconsin-Madison. We thank Linda Jordan, Jeff Bloom, Heidi Gilbertson, Charles Simono, and Michael Brunner for assistance in research, and Carol Ryff, Avshalom Caspi, and Nadine Marks, who first-drafted some of the description of the mail questionnaire. An earlier version of this paper was presented at the Meetings of the American Sociological Association, Miami Beach, Florida, August 1993. The opinions expressed herein are those of the authors.

## Abstract

The Wisconsin Longitudinal Survey (WLS) is a long-term study of more than 10,000 women and men who graduated from Wisconsin high schools in 1957 and who have been followed for 36 years, to ages 53-54. We briefly review the design, history, and purposes of the WLS, focusing on the design and content of the 1992-93 follow-up surveys. Using preliminary data, we describe the lives of the 1992-93 respondents, with particular emphasis on health and well-being at mid-life. Using data from earlier rounds of the survey, in conjunction with recent reports of death, we describe socioeconomic differentials in mortality by ages 53-54. Finally, we briefly describe coverage and nonresponse in the 1992-93 surveys.

## The Class of 1957 after 35 Years: Overview and Preliminary Findings

The Wisconsin Longitudinal Study (WLS) is a long-term study of a random sample of 10,317 men and women who graduated from Wisconsin high schools in 1957. Survey data were collected from the original respondents or their parents in 1957, 1964, and 1975. These data provide a full record of social background, youthful aspirations, schooling, military service, family formation, labor market experiences, and social participation of the original respondents. In 1977 the study design was expanded with the collection of parallel interview data for a highly stratified subsample of 2000 siblings of the primary respondents. The sample has been expanded to include a best high-school friend and a randomly selected sibling of every respondent, and the interview content has been extended to obtain detailed occupational histories and job characteristics; incomes, assets, and inter-household transfers; social and economic characteristics of parents, siblings, and children and descriptions of the respondents' relationships with them; and extensive information about mental and physical health and well-being.

During 1992 and 1993, we have followed up the sample for the first time since 1975.<sup>2</sup> We have interviewed members of the original sample who were not interviewed in 1975 (1005 persons who survived to 1975, but were not interviewed then), as well as those who were interviewed in 1975. We are now interviewing one randomly selected sibling of each

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<sup>2</sup> Most of the information on this report is based on persons who responded in 1975 and in 1992. We have found 97.8 percent of the 9138 respondents of 1975, dead (340) or alive (8798). Among living respondents, we have completed telephone interviews with 8020 (90 percent of 1975 respondents), and we have received completed mail surveys from 6535 (71 percent of 1975 respondents) as of January 1994.

respondent. Two thousand siblings were previously interviewed in 1977, and we will interview approximately 5000 more siblings in this round of the study. The surveys include a 1-hour telephone interview, followed by a 20-page, self-administered questionnaire. We are also carrying out brief close-out interviews with a relative of each respondent who has died, and we plan to search state records to obtain information from death certificates.<sup>3</sup> These new follow-up data, combined with our existing files, will be a valuable public resource for studies of aging and the life course, inter-generational transfers and relationships, family functioning, social stratification, physical and mental well-being, and mortality. Thus, the WLS is a rich source of data on life-course processes that are of continuing interest to scholars in sociology, education, psychology, and economics.<sup>4</sup>

The WLS cohort of men and women, mainly born in 1939, precedes by about a decade the bulk of the baby boom generation that continues to tax social institutions and resources at each stage of life. Figure 1 shows the historic position of the WLS cohort in relation to several other longitudinal studies of aging or of the effects of schooling. The WLS can provide early indications of trends and problems that will become important as later cohorts pass through their fifties. This adds to the value of the study in obtaining basic information about the life course as such, independent of the cohort's vanguard

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<sup>3</sup> Of the original 10,317 members of the sample, 577 are known to have died: 174 before the 1975 follow-up, 340 respondents to the 1975 survey, and an additional 63 persons who were not interviewed in 1975.

<sup>4</sup> A public-use edition of these data has been placed in the public domain through the Data and Program Library Service of the University of Wisconsin-Madison and through the Interuniversity Consortium for Political and Social Research (ICPSR). The 1992-93 data will be merged with those and released through ICPSR.



position with respect to the baby boom. In addition, the WLS is the first of the large, longitudinal studies of American adolescents, and it thus provides our first large-scale opportunity to study the life course from late adolescence through the mid-50s in the context of a complete record of ability, aspiration, and achievement.<sup>5</sup>

The WLS sample is broadly representative of middle-aged white American men and women who have completed at least a high school education. Among American women and men aged 50 to 54 in 1990 and 1991, approximately 66 percent are whites of non-Hispanic background who completed at least 12 years of schooling (Kominski and Adams 1992). Some strata of American society are not represented in the WLS. Everyone in the primary sample graduated from high school. Sewell and Hauser (1975) estimated that about 75 percent of Wisconsin youth graduated from high schools in the late 1950s, but 7 percent of the WLS siblings did not graduate from high school. Minorities are not well represented; there are only a handful of African American, Hispanic, or Asian persons in the sample. Given the longitudinal design of the WLS, and the minuscule numbers of minorities in Wisconsin at the time the study began, there is, unfortunately, no way to remedy this omission. About 19 percent of the WLS sample is of farm origin, and that is

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<sup>5</sup> There have, of course, been important and influential longer-term studies of the life-course in the U.S. Despite the careful and insightful work of many investigators, these studies are based on small, local, or highly selected samples (Oden 1968; Elder 1974; Clausen 1993). The Terman study is based on 1500 California children who were first nominated by teachers and then scored extremely high on mental tests. By 1982, Clausen's follow-up of the combined Berkeley Growth Study, Berkeley Guidance Study, and Oakland Growth Study covered 283 individuals aged 53 to 62 out of 528 who had been recruited as children and 358 for whom some data were available at age 18 (Clausen 1993, p. 37). Moreover, the lives of members both the Terman and Berkeley-Oakland samples have been affected by their participation in the studies, e.g., by group activities or academic or psychological counseling.

consistent with national estimates of persons of farm origin in cohorts born in the late 1930s. In 1964, in 1975, and again in 1992, 70 percent of the sample lived in Wisconsin, and 30 percent lived elsewhere in the U.S. or abroad.

Despite these limitations, the WLS provides a long-term look at the development of the life course from adolescence to midlife in a cohort of men and women who resemble a large segment of the U.S. population. The sample is large; sample retention is very high (compare Jencks et al. 1979: 6-7; Center for Human Resource Research 1992); and measurements are of high (and often of known) quality. The WLS has fared well in comparisons of findings with national studies of comparable populations (Sewell and Hauser 1975; Jencks, Crouse, and Mueser 1983; Corcoran, Gordon, Laren, and Solon 1992).<sup>6</sup>

To be sure, the WLS is not a substitute for large, national longitudinal studies, but it has unique and valuable features. For example, consider (a) the household-based National Longitudinal Surveys of Labor Market Experience that began in the late 1960s and the National Longitudinal Study of Youth (NLSY-1979); (b) the major school-based national longitudinal surveys (Project Talent, 1960; National Longitudinal Survey of the High School Class of 1972 [NLS-72]; High School and Beyond, 1980 [HSB]; and National Educational Longitudinal Study of Eighth Graders [NELS-88]), and (c) the household-based surveys of

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<sup>6</sup> Solon's (1989) critique of intergenerational income correlations in the WLS evolved from the correct observation that the sample is limited to high school graduates to a characterization of the sample as "peculiarly homogenous" (Solon 1992). However, Corcoran, Gordon, Laren, and Solon (1992) used WLS findings as a standard of plausibility in their analysis of PSID children. Blake (1989:167,174) concluded that the WLS data "are not well suited to the study of birth-order effects on education." Her discussion confounds the real selectivity of high school graduation by size of sibship with a grossly exaggerated account of the (historically determined) preponderance of sample members in lower birth orders. At the same time, Blake ignored simple corrections for selectivity that had been applied in the analysis that she rejected (compare Hauser and Sewell 1985).

families, economic well-being, and aging, like the Panel Study of Income Dynamics (PSID), the National Survey of Families and Households (NSFH) and the Health and Retirement Survey (HRS).

(a) The NLSY-79 is of very high quality (and includes many sibling pairs), but the sample is still young. The original NLS samples, from which one can also construct sibling pairs, did not obtain comparable psychological measures in adolescence as did the WLS, e.g., ability (from heterogeneous sources and missing for 30 percent of the NLS young men and women), high school grades, social influences, and aspirations. The incidental selection of sibling pairs from households containing youth eligible for the sample has created problems of selection, data management, and analysis (Bound, Griliches, and Hall 1986; Altonji and Dunn 1990a; Altonji and Dunn 1990b; Altonji and Dunn 1990c; Peters 1992; Zimmerman 1992).<sup>7</sup> The NLS young men's sample was abandoned after 1981.

(b) Project Talent is the only one among the school-based studies to begin in the same era as the WLS; its last follow-up was in 1972, when the sample was about 28 or 29 years old (Jencks, Crouse, and Mueser 1983).<sup>8</sup> None of the other school-based

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<sup>7</sup> No one discusses the methodological implications of the selection of sibling pairs from co-resident children of specified ages, as occurs in the original NLS samples, the NLSY, and the PSID. In the WLS, sibling pairs are generated at random from a full roster provided by the respondent. However, the NLS is one of the few studies, other than the WLS, which has sampled sisters and mixed-sex sibling pairs (Altonji and Dunn 1990a: 38). We calculate that their analysis of cumulated cross-sections is based upon 408 brother pairs, 371 sister pairs, and 1012 mixed-gender pairs. Altonji and Dunn (1990b: 20) report that there are potentially 621 brother pairs, 646 sister pairs, and 1921 brother-sister pairs in the NLS samples.

<sup>8</sup> The current round of the WLS was conceived as complement to a revived Project Talent, but a pilot study showed that many members of the Project Talent sample could not be located.

samples is old enough to tell us anything about midlife development. Moreover, it is not clear that either the NLS-72 or HSB-80 will be maintained; the last follow-up of the NLS-72 was in 1986, when the sample was about 32 years old.

(c) In the PSID, individual children and sibling pairs have been followed from youth to young adulthood (Corcoran, Gordon, Laren, and Solon 1992, Solon, Corcoran, Gordon, and Laren 1991), but there have been serious attrition problems among them.<sup>9</sup> The strength of the PSID lies in economic measurement; the data for children do not include measures of adolescent ability, school performance, social influences, or aspiration.

In sum, we think that the WLS is worth the investment that we and others have made in it. The WLS data on the life course are unique in coverage of a large sample in both adolescence and adulthood. The Health and Retirement Survey, the National Survey of Families and Households, and the Panel Study of Income Dynamics were not designed to obtain comparable long-term or public-record data on social and psychological background. Other major longitudinal studies -- those that began in adolescence -- cover much more recent cohorts, and some of them are not currently active.

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<sup>9</sup> We believe that an effort to recover some of these cases is now underway. The recent analyses of the PSID children consistently fail to provide any information about the extent of attrition or its effects, beyond a perfunctory reference to the favorable findings of Beckett et al. (1988) with respect to the representation of adults over the first 14 years of the PSID.

## RESEARCH BASED ON THE WLS

The WLS panel has been used to develop the well-known "Wisconsin Model" of social and psychological factors in socioeconomic achievement.<sup>10</sup> In addition, or in extensions of this central line of research, the WLS data have been used in studies of geographic constraints on college access; recruitment into teaching, nursing, and other occupations; choice of marital partner; differential family formation and fertility; gender differences in market participation and success; religious and ethnic differences in achievement processes; birth order effects on ability and achievement; effects of high schools and colleges on aspirations and achievements; and inter-firm and inter-industry differences in compensation. Also, the project has been the locus of many useful methodological developments built around the design, collection, or analysis of data from the WLS. These include successful methods for tracing respondents over long intervals; the analysis of unit record data from the Social Security Administration without compromising confidentiality; structural equation models of achievement processes; methods for comparative analysis of social mobility; models with errors in the reporting of social and economic variables; and models of common family factors in the achievements of siblings.<sup>11</sup>

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<sup>10</sup> A search of the Social Science Citation Index yielded more than 800 citations to seven major project publications between 1972 and 1990.

<sup>11</sup> The WLS data have been used in 4 research monographs, 23 doctoral theses, 11 masters theses, and more than 100 research articles or chapters in books. See Sewell and Hauser (1993).

## FOLLOW-UP SURVEYS

In 1992-93, we collected new data from surviving members of the original sample, and we continue to collect information about their siblings in 1994.<sup>12</sup> The primary respondents are 53 and 54 years old, and four fifths of their siblings are 44 to 62 years old. At those ages, the WLS respondents and their siblings are anticipating their own retirement and aging as well as managing relationships with one another, their adult children and their elderly parents: (1) In 1993, 91 percent of respondents have at least one living sibling; (2) 90 percent of the respondents have at least one living child aged 18 or older; and (3) 56 percent of respondents have a living mother, and 25 percent have a living father. Thirty-six percent have no living parents, and 18 percent have two living parents. Thus, we believe that our respondents are ideally suited for a study of aging and of intergenerational relations among adults.

In our 1992-93 interviews, we have updated our measurements of marital status, child-rearing, education, labor force participation, jobs and occupations, social participation, and future aspirations and plans among primary respondents and siblings. In addition, we have expanded the content of the study by obtaining data about psychological well-being, mental and physical health, wealth, and social and exchange relationships with parents, siblings, and children. In designing the new round of the study, we have tried to balance comparability with our own previous concepts and methods, which are similar to those used in the Current Population Survey and the 1973 Occupational Changes in a Generation Survey, and comparability with other significant

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<sup>12</sup> The original design for the 1992-93 round of the WLS is described in Hauser, et al. (1992).

research efforts, e.g., the Health and Retirement Survey, the National Survey of Families and Households, NIH surveys of work and psychological functioning, and the NORC General Social Survey.<sup>13</sup>

### The Telephone Interview

In the one-hour telephone interview, a brief introduction is followed by an update of R's educational history (since 1975). R then rates the importance of educational, occupational, and economic success and assesses how well she has done in each of these realms.<sup>14</sup> R's marital history is updated, and R rates her contact and closeness with her spouse and describes the current occupation of the spouse. R updates the children's roster, verifying relationship to R, as well as name, sex, date of birth, place of residence, and level of school completed; excepting residence and schooling, these data are carried forward from the 1975 responses and verified by R. This is followed by a roster of parents and parents-in-law; an assessment of contact and closeness with each living parent; and a set of comparisons with the same-sex parent at about the present age of R (provided the parent lived to that age). Any other persons not already named are added to R's household roster.

The employment history begins by asking R to recall what she had, in 1975, wanted to be doing at the time of the current interview; this replicates, retrospectively, an aspiration measure obtained in the 1975 interview. The employment history begins with an

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<sup>13</sup> We have also coordinated our design with members of the MacArthur Foundation Research Network on Successful Midlife Development, which provided supplementary funding for the mail survey, and with M.E.J. Wadsworth, who leads a long-term study of persons born in Great Britain early in 1946 (Wadsworth 1991).

<sup>14</sup> We use the feminine pronoun throughout to refer to R (respondent), but the respondent may be male or female.

anchor of the 1975 report of employer and place of employment (if any). It covers "main jobs" from 1975 to the present, including the first two and last two employers or businesses, as well as the first and last jobs with each employer. There could be as many as 8 jobs in each history, but few respondents have more than 2 jobs since 1975. For each job, we ask about occupation, industry, class of worker, location, pension and health insurance coverage, and on-the-job training, and we also ask the dates of job changes and reasons for changing jobs. For the current or last job, we obtain a far more detailed set of characteristics, including an explanation of how R got the job, a wage or salary rate, hours worked, establishment size, authority and supervisory responsibility, job satisfaction, complexity, working conditions, likelihood of job loss, an overall rating of the goodness of the job (Jencks, Perman, and Rainwater 1988), and ratings of the importance of several job characteristics (also elaborated in the mail questionnaire).

R is next asked 10 items, 2 for each of the dimensions of the Big Five personality inventory (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience), which is elaborated in the mail survey (John 1990; John 1991). Then we administer 8 abstract reasoning items; all save one of these items is also included in the new Health and Retirement Survey.

At this juncture, we return to R's children, asking a more detailed set of questions about a focal child, who was selected at random in the 1975 survey for questions about the parent's educational and occupational aspirations for the child. We ask about marital status; we obtain a more detailed educational history for the focal child than for other children; we ask about military experience and current or last occupation; we ask whether

R ever helped the child get a job; we ask about R's contact and closeness with the child; and we ask R to compare herself to the child when R was about the same age that the child is now.

We next turn to R's siblings, using information for a brother or sister who was randomly selected during the 1975 interview. If that brother or sister is now deceased, we ask a few close-out questions, obtain a roster of living siblings, and choose a new focal sibling at random. The sibling roster includes educational attainment of all siblings, and the questions about the focal sibling parallel those about the focal child: occupation, contact, closeness, and comparison.

Following a brief query about the religious affiliation of R and her spouse, we ask the contact, closeness, and comparison questions about a selected friend of the respondent. By construction, these questions are asked about and only if a same-sex high school best friend of R, named in the course of the 1975 interview, is in the WLS sample. Because R was asked to name 3 same-sex best friends in her high school class, and because the original sampling rate was approximately 1 in 3, roughly half the WLS sample has a named best friend in the sample. If the friend is deceased, we ask a few close-out questions in order to locate the time and place of death.<sup>15</sup>

Following a reduced set of items from Ryff's assessment of midlife development (Ryff 1989), which is elaborated in the mail survey, we ask a brief set of questions about the incomes of surviving parents and parents-in-law. This is followed by detailed questions about the sources and amounts of income of R and her other household members, plus

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<sup>15</sup> In most cases, this information will already have been obtained through our trace of the friend as a potential respondent.

payments of alimony and child support; by an inventory of interhousehold transfers of valuables, especially those to and from parents and children; and by an inventory of assets and liabilities.

We ascertain the health insurance and pension coverage of R, on her own account and through her spouse. Then, we obtain a near-clinical self-appraisal of depressive history and status; this was designed for us by Ronald Kessler to approximate the diagnostic criteria of DSM-III. It is supplemented in the mail instrument by the CES-D. The depression series is followed by a brief set of queries about alcohol use and abuse. We ask whether R or anyone in her household has a physical or mental condition that limits activity or requires care, and we ask about caregiving and receiving by R and her spouse during the past 12 months. The interview closes with a series of questions about plans for future work and retirement.

If every R were to be administered every series, the interview would run much longer than 1 hour, and for this reason we have subsampled some series. For example, we ask about contact, closeness, and comparison (3 Cs) with half of parents, and we choose half the sample to be given each of two alternative series of questions about job authority and supervision. We ask the 3 Cs about half of children and parents' incomes about half the sample. We ask the psychological well-being and health items of (the same) 80 percent of the sample. Because of the CATI procedure, and random numbers built into the instrument, these variations in the structure of the interview occur seamlessly and transparently to interviewers and respondents.

## The Mail Survey

The 1992-93 WLS mail questionnaire covers the following areas: (1) general physical health and health-related activities; (2) a battery of items designed to examine the menopausal experience; (3) a five-factor measurement of personality; (4) mental health assessments; (5) measures of current goal orientation; (6) measures of social support, social participation, and family and work interpenetration; and (7) comparisons of the importance of selected job characteristics. These sections of the questionnaire are described in more detail below.<sup>16</sup>

(1) General Physical Health and Health-Related Activities. Current physical health is evaluated with (1) global self-rated items similar to those used in many other large health surveys, e.g., Stewart, Hays, and Ware (1988); (2) the OARS (Duke University 1978) schedule of common illnesses and conditions and the degree to which they interfere with respondent's activities; (3) a symptoms checklist which assesses the frequency of and discomfort associated with 22 distinct symptoms--including energy, fatigue/exhaustion, and sleeping problems; (3) current and lifetime cigarette usage; (4) respondent's and (if married) spouse's physical and mental capacity to work for pay; (5) height and weight; (6) sick days in bed and hospitalization during the last year; and (7) participation in both light and vigorous exercise.

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<sup>16</sup> Several additions have been made in the mail questionnaire for the sibling survey. All sibling respondents are asked about preventive health behaviors and anxiety symptoms. A series of questions are asked about family relationships during childhood because of their possible importance in the genesis of adult depression. Female respondents are asked a detailed series of questions about their menstrual histories, and their physical, psychological and behavioral responses to menopause.

(2) The Menopausal Experience. Most prior menopausal research has obtained limited assessments of the menopausal transition. The new WLS data enriches our understanding of menopause and its association with physical and psychological health and mortality by providing information on (1) age of menopause; (2) life histories of reproductive surgery; (3) life histories of hormone replacement therapy; (4) menopausal symptomology; and (5) use of alternative or unconventional methods to deal with menopausal symptoms.<sup>17</sup>

(3) Personality Functioning. We measure basic dimensions of personality using the BFI-54, a relatively short instrument that assesses the Five-Factor Model of Personality dimensions (John 1990, 1991), or the "Big Five." The Extraversion (vs. Social Inhibition) scale captures gregarious, energetic, and expressive features of behavior. The Agreeableness (vs. Antagonism) scale reflects essentially prosocial characteristics, describing the person who is empathic and makes an effort to establish positive relationships with others. The Conscientiousness (vs. Lack of Direction) scale captures the multiple elements of persistence and impulse control in task and achievement settings. The Neuroticism (vs. Emotional Stability) scale reflects multiple elements of negative emotionality, such as nervous tension, fearfulness, and brittleness under stress. The Openness to Experience scale refers to persons who are imaginative, curious, creative, and susceptible to absorbing experience.

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<sup>17</sup>The current version of the mail questionnaire has been used in approximately half the sample of 1975 respondents; an earlier version of the questionnaire obtained less detailed information about the surgically induced menopause, about hormone replacement therapy, and about the respondents' sources of information about menopause. The initial version of the menopause items contained additional questions about the effect of menopause on work, family and self.

Research by McCrae and Costa (1990) at NIA suggests that the five-factor model can yield a replicable and comprehensive representation of the major dimensions of personality in adulthood. By assessing the Big Five, we are in a unique position to conduct the large-scale personality assessment of midlife adults to replicate earlier work on the factorial structure of personality using a more heterogeneous sample, and to link variations in personality functioning to social structure across the life course. It should be noted that the WLS has long been viewed as unique in its linkage of personality and social structural factors. With recent advances in personality assessment, it is now possible to use state-of-the-art instruments to gather comprehensive information about enduring personality traits and examine their relations to life course trajectories of occupational attainment.

(4) Mental Health Assessments. Mental health assessments in the 1992-93 WLS include (1) multiple-item measurement of six dimensions of positive psychological well-being developed by Ryff (1989): autonomy, purpose in life, self-acceptance, environmental mastery, personal growth, and positive relations with others; (2) assessments of lifetime prevalence of depression (in the telephone interview); (3) measurement of current depression/psychological distress using the CES-D (Radloff 1977); (4) a 3-item index measuring hostility; and (5) assessment of current alcohol usage as well as an evaluation of lifetime prevalence of alcoholism (in the telephone interview). Questions previously used in the National Health Interview Survey (NHIS) and in the National Survey of Families and Households (NSFH) about alcoholism among parents and spouses/partners are also asked.

(5) Goal Orientation. This is a subset of items formulated by Jochen Brandtstadter (1984, 1990) to differentiate individuals on two dimensions of cognitive orientation toward goal

pursuit and goal adjustment. Brandstadter, a leader in what has been termed an "action orientation" in European life-span developmental psychology has developed and validated two independent indices of cognitive orientations toward goals that have been labelled "tenacious goal pursuit" and "flexible goal adjustment." In intriguing contrast to studies which only emphasize the importance of "control" on well-being, Brandstadter has found preliminary support for his hypothesis that a higher orientation toward flexible goal adjustment interacts with distance from personal goals to provide a moderating effect on personal dissatisfaction. It has been hypothesized by Brandstadter and Renner (1990) that there is a gradual shift from assimilative-offensive (tenacious goal pursuit) to accommodative (flexible goal pursuit) in middle and later adulthood and that such a shift is a positive one for dealing with a life-span period increasingly characterized by losses in relation to gains.

(6) Social Support, Family and Work Interpenetration, and Social Participation. Social support is assessed with questions similar to those used in the first round of the National Survey of Families and Households, and these items help to complete an assessment of interhousehold transfers and exchange in the telephone interview. Reports of giving and/or receiving instrumental and/or emotional help to/from kin as well as non-kin are elicited. Perceived availability of social support is also asked, as well as whether respondent has a family and/or friend confidant (Lowenthal and Haven 1968; Kahn 1988).

Several items assessing the interpenetration of work life and family life were designed by the research team doing the recent follow-up of the Whitehall II Survey (1992)

of British Civil Servants and the MacArthur Research Network on Successful Midlife Development (MIDMAC). These items are also included in the MIDMAC battery.

(7) Comparisons of Selected Job Characteristics. We have constructed 10 items, each of which asks the respondent to compare the importance of one job attribute to high pay. To some degree, though in an entirely different response format, these questions repeat the content of a set of questions in the 1975 WLS telephone survey, in which respondents were asked to rate the importance of a series of job characteristics on a 6-point scale. In the 1992-93 mail and telephone surveys, we have anchored each comparison relative to "a job with high pay." Additionally, as with several other of the attitude or preference items in the surveys, we have varied the format between the telephone and mail surveys. In the telephone interviews, we used an unfolding format: "Which is more important?," and "Would that be much, somewhat, or slightly (more/less) important?" In the mail interviews, we present all six categories at once.

### **Repeated Measures**

For selected variables, the WLS repeats measurements of the same constructs in the telephone interview and the mail questionnaire. A subset of the "Big Five" (two items on each factor) was administered both in the telephone and mail interviews, and one item on each factor appeared in both forms. A subset of Ryff's midlife development scales was also administered in the telephone survey, but no individual items were repeated in the mail questionnaire. Depression was also assessed in both instruments, using somewhat different sets of items and time referents; however, in the telephone survey, the depression items were given only to a randomly selected 80 percent of the sample. Finally, all four of the

comparisons of job characteristics that appeared in the telephone interview are repeated in the mail questionnaire. These combinations of selections of items and cases represents a balance between our interests in controlling the length of the telephone interview, maximizing coverage for certain key items, and providing reliability and validity estimates for those items.

### **THE CLASS OF 1957 AT MIDLIFE: A FIRST LOOK**

Thirty-five years after high school graduation, 70 percent of the class of 1957 live in Wisconsin. The next three highest states of residence are Minnesota, Illinois, and California, each with about 4 percent of the class in residence. No other state has more than 3 percent of the class, but the sunshine states of Florida, Texas, and Arizona are each home for 1-2 percent of respondents. Not everyone in the class has stayed near their roots, however: Members live in every one of the 50 states, Puerto Rico, the District of Columbia, and more than ten foreign countries. Death has claimed a small fraction of the class of 1957 (5.6 percent), but most members of the class are alive and well and living in Wisconsin.

#### **Families**

The lives of members of Wisconsin's class of 1957, who were 53 and 54 years of age in 1992-93, provide little support for current popular notions about the weakness and instability of the American family. Approximately 70 percent of our sample remain in their first marriages, and only 15 percent have married more than once. Approximately 83 percent of male and female respondents are currently married and living with their spouse, 10 percent are separated or divorced, 3 percent are widowed, and 4 percent never have married. Women are less likely to be currently married.

While our respondents are characterized by relative stability in marriage and family, there are some differences based on level of educational attainment. More than 82 percent of the respondents have been married only once, but this figure is lower for men with some college education and for women with post-college education. The proportions of these groups who have married only once are 76 percent and 78 percent, respectively. College-educated women and men with post-college education are most likely to marry only once, with 88 percent and 84 percent, respectively, falling into the once-married category.

Among currently married respondents, as we expected, women are more likely to marry men with more education and men are more likely to marry women with less education. This reflects the lower level of educational attainment among women in the 1950s and 1960s. Educational homogamy is still the norm, however, as approximately half of men and women are married to spouses with the same level of education.

When we limit our analysis only to persons who are currently married, we have an even more stable depiction of marriage, and we see few remarriages. Nearly 82 percent of currently married respondents are in their first marriages, and 83 percent of currently married persons say that their spouse has not been previously married.

Remarried women and men are more likely to have wed persons who have also been previously married, although more women (77 percent) than men (70 percent) report this experience. This is not surprising because women tend to marry slightly older men. Very few respondents postponed their first marriages to midlife. Nearly all were married by the age of 35; only one percent were married for the first time after 1975. Currently married men who married more than once are more likely than once-married men to wed

women with more education than they themselves have. This is not observed among currently married women. Stated otherwise, women are more disadvantaged than men in the remarriage market because they "marry down."

Keeping in mind that the majority of our respondents are still in their first marriages, it is not surprising that more than three-fourths of them say that they and their spouses have similar attitudes. In terms of outlook on life, 55 percent said they shared very similar views with their spouse, and 41.5 percent reported somewhat similar views. Women were slightly more likely than men to report sharing very similar views with their spouse. Women with at least a college education, and post-college educated men are more likely to report sharing very similar views with their spouses than other groups of women and men. In terms of "closeness" to spouse, four-fifths reported being very close, and 18 percent reported being somewhat close. There was no significant difference between men and women nor among education groups.

Not only are the members of the class of 1957 strongly committed to marriage, but also to having children. The majority of respondents have either two or three children, while approximately one-third have four or more children. Only 8 percent have no children, and 7 percent have only one child.

While the average number of biological children per respondent is 2.8, this number increases slightly, to 3.0, when we broaden the definition of children to include biological, adopted, foster and stepchildren. Consistent with past research on fertility, we found that the more education one has, the fewer biological children she/he has.

Women usually have more biological children than men have at all educational levels except for post-college education. This occurs partly because the distribution of educational attainment is different between men and women. Also, women in the sample tended to have their children earlier than men in the sample because women married older men, and men married younger women. High school educated women have the highest fertility and women with post-college education have the lowest fertility among all married men and women.

As expected, the most highly educated women and men were more likely to wait until 1975 to start having children, or to catch up with their peers' fertility. Three percent of men and women had their first children after 1975; one-third of those children were biological. When education was controlled, we found that Catholics were slightly more likely to have children after 1975.

Interestingly, children from small families tend to go on and form small families of their own. Respondents from larger families are more likely to have more biological children. Eighty percent of women who, themselves, had no brothers or sisters, have fewer than two biological children, while 71 percent of women with one or two siblings, and 62 percent of women with three or more brothers and sisters have fewer than two children. For men, the proportions for men are 81 percent, 77 percent and 71 percent, respectively.

Children and spouses are not the only family members with whom our respondents maintain ties. Surprisingly, the majority of respondents (64 percent) have at least one parent still living, and most report that their parents are in good health. While 56 percent have a living mother, less than half as many (25 percent) have a living father. More than

half (59 percent) of those with a living mother rated her health as good or excellent, while slightly fewer (56 percent) said that their father's health was good or excellent. One-sixth of respondents reported that both their mother and father are still living, and in nearly all of those cases (94 percent), the parents are still married to one another.

Despite the popular notion that overburdened sons and daughters are increasingly placing their aging parents in nursing homes, fewer than 10 percent of respondents said that their parent(s) live in a convalescent home. We also found few cases where the parent lives with their children; fewer than 4 percent of respondents said that their parent lives with them, in the respondent's home. Widowed mothers are slightly more likely to live with a child than are widowed fathers, and both are somewhat more likely to live with a daughter than a son. These low current rates of institutionalization and coresidence are due in part to the typically short durations of such living arrangements prior to the parent's death.

Women are not only more likely to have a parent residing with them, but are also significantly more likely than men to report being "very close" with both their mother and father. Two-thirds reported being very close with their mother, while 56 percent said that they are very close with their fathers. Men less frequently reported such close-knit relationships; slightly less than one-half of men said that were very close with their mothers, while somewhat fewer (43 percent) assessed their relationship with their father as very close.

While men and women vary in the degree of closeness they experience with their living parents, the two sexes are equally likely to report having a similar outlook on life

with their parents. The so-called generation gap which we might expect to see between the Baby Boomers who came of age in the late 1960s and their parents is clearly not present among the members of the class of 1957. Eighty percent of both male and female respondents rate their outlook on life as "very similar" or "somewhat similar" to both their mothers and fathers.

While these parents and children are similar in terms of attitudes, they are quite different in terms of their life successes - at least in the eyes of our respondents. Only a minority of respondents said they are doing worse in terms of education, work and finances than their same-sex parent, when that parent was roughly 53 years old. More than 80 percent say that they are doing better in terms of education, while a similar proportion (75 percent) believe they are doing better in the work realm and in financial matters.

Intergenerational upward mobility therefore seems to hold true, at least according to our respondents' perceptions. Compared to their parents when they were age 53, fewer than four percent of sample members say that they are doing worse in terms of education or work, while slightly more (7 percent) assess their financial situation as worse.

Interestingly, respondents did not tell us that their own children had experienced similar mobility. We asked respondents to compare themselves to a randomly selected child, when they were the same age as that child is today. While more than half (56 percent) agreed that their child had done better in terms of education, less than half felt that their children had done better in terms of work (47 percent) and finances (45 percent). However, our findings offer limited support for the media's portrayal of today's young people as downwardly mobile. Less than one-fifth feel that their children are actually

doing worse in terms of work. Rather, the most common assessment (28 percent) is that parents and children are similar in terms of career success. In terms of finances, respondents have a slightly more negative assessment of their children's situation. While less than one-quarter (24 percent) say that their child's financial position is the same as when the respondent was that age, 27 percent say that their child is doing worse.

### **Post-1975 Education**

Although formal education ended for more than 86 percent of respondents by 1975, those who have since pursued higher education do share some distinctive traits. Those who had more than a high school education in 1975 and women who have either never married or who have experienced marital dissolution since 1975 have been most likely to continue their education.

Women who were divorced in 1975 and have not remarried, or who have been divorced at least once since 1975, are more likely than other women to have accrued more education between 1975 and 1992. This difference is not observed for men. Men and women who were married for the first time after 1975 are also more likely to have post-1975 education than those who married earlier in life. The average number of years of schooling attained by respondents who married for the first time after 1975 is 14.9; for those who married earlier, it is 13.7. Women who achieved further education after 1975 were also less likely to have children, but this does not occur among men. Approximately one-fifth of women with 3 or fewer siblings have pursued further education while only 13 percent of women with at least four siblings have done so. The relationship between number of siblings and level of education does not exist only for education attained after 1975.

Roughly one-half of men and 60 percent of women with three or fewer siblings have a high school education only. Among those with four or more siblings, however, the proportions increase to 64 percent for men and 75 percent for women.

Moreover, those who had only a high school education in 1975 were less likely to return for additional schooling after 1975, while those who had a college education in 1975 were more likely to have received further education. Among those women who pursued higher education after 1975, 10 percent previously had only a high school education, while one-quarter had some college education, and one-third had a college degree. The corresponding figures for men are 5 percent, 12 percent and 14 percent. Although the positive relationship between years of pre-1975 education and odds of receiving post-1975 education exist for both men and women, women are more likely than men, at every level of educational attainment, to complete more education after age 35.

### **Occupational Experiences and Job Satisfaction**

A substantial body of research has documented the concentration of women into occupations that offer fewer rewards, are less protective, and are located on lower rungs of the organizational hierarchy. Our preliminary analyses indicate that these kinds of inequalities are also present at midlife, and many of them persist even among women working full-time and among those who hold nominally high-level positions.

Although 80 percent of the women in our sample are currently working, just slightly more than half of our female respondents are covered by a private pension plan through their current or former employer (54 percent) and a similar proportion are covered by health insurance (55 percent). In contrast, almost 80 percent of men are covered by an

employer-provided pension and a similar proportion obtain health insurance through their employer. These differences can be attributed, at least in part, to variations in men's and women's employment statuses and their positions in the labor market. Roughly 30 percent of women work part-time on their current or most recent job compared with only 5 percent of men. Moreover, men average 47 hours per week on the job, while women work an average of about 37 hours per week at their main job.

When we examine pension and health insurance coverage only among women who work full-time, the gender gap lessens but does not disappear: 66 percent of these women have private pensions and 65 percent have employer-provided health insurance, still leaving a 15-percentage point difference in coverage for men and women.

Some of the remaining difference may be due to the concentration of women in smaller firms, those employing 100 or fewer workers. The proportion of workers employed in smaller firms who lack pension or health insurance coverage is substantial. Only 54 percent of these workers have a private pension and 57 percent have employer-provided health insurance. By comparison, pension and health insurance benefits are widely available to employees in larger firms (89 percent and 85 percent, respectively). Women, on average, are somewhat more likely to be employed in these smaller and less protective firms (66 percent versus 55 percent of men), and their location in the labor market changes only slightly when we examine only full-time employees (63 percent employed in small firms).

Similar gender differences emerge when we examine the authority and organizational responsibility associated with individuals' current or most recent job.

Consistently, men hold positions with more authority. Approximately 40 percent of men have the authority to hire and fire other workers and to influence or set the rate of pay of others. In contrast, only 19 percent of women have the authority to make these types of decisions, yet this figure changes substantially when we control for part-time/full-time employment status. Roughly 40 percent of women who work full-time have the authority to hire and fire others, and a similar proportion influence the rate of pay.

When we again examine all workers, regardless of hours worked per week, another sizeable gap separates the percentage of men and women who supervise the work of others, such as what they produce or how much (64 percent of men, 45 percent of women). This difference persists when we rephrased the question slightly to ask respondents if supervising others was an *official* part of their job. Again, about 69 percent of men and 53 percent of women have this authority, but a noticeable amount of this difference is due to women's employment in part-time jobs. When we examined only women who work full-time, we witness great gains in their authority; roughly 60 percent *officially* supervise the work of others.

When we turn the tables and examine whether or not someone else supervises the work of our respondents, such as what they produce or how much, we find a much smaller gender gap. The vast majority of men and women are supervised by someone else on their jobs (70 percent and 76 percent, respectively). Interestingly, these percentages decrease slightly for both men and women when we examine only full-time employees (69 percent of men, 74 percent of women).

Gender differences in authority are mirrored by, but also perpetuated in, the different kinds of positions that men and women hold in the organization. Roughly 40 percent of men hold management positions, 14 percent are in supervisory roles, and 46 percent are employed in non-supervisory jobs. A substantially smaller proportion of women hold managerial or supervisory positions (22 percent and 15 percent, respectively) and the majority (two-thirds) are in non-supervisory positions. Moreover, among persons who hold positions in management, men are noticeably more likely to be employed in the upper echelons of the organization and to hold more authority once there. Over half of the male managers say they are in "top" management (58 percent), though a much smaller proportion (14 percent) are in "upper" management. Almost one-quarter (24 percent) are employed in middle-management positions and the remaining 4 percent are in lower management.

Smaller proportions of women managers are in top-level management, and more of them are located at the bottom of the hierarchy. Most women managers say they are in top-level management (45 percent) with the next largest group in middle-management (32 percent) and roughly equal numbers in upper and lower management (11 percent and 12 percent, respectively). Moreover, among men and women who hold top- or upper-level managerial positions, men are likely to wield more influence. Two-thirds of these men participate in policy-making decisions, such as setting budgets or decisions that affect the organization's products or services while 53 percent of women do the same. Likewise, although the majority of all managers are still supervised by someone else, this is somewhat

more likely to be true for women: 75 percent of top- or upper-level managers who are women are supervised by someone else versus two-thirds of men.

Men and women workers across all kinds of positions experience varying degrees of autonomy in the work place. Six out of ten men are free to decide what time they come to work and when they can leave, either officially or unofficially. In contrast less than one-half (44 percent) of women workers enjoy this amount of freedom, and the differences persist when we examine only full-time employees.

Men and women also report differences in the educational requirements of their jobs. More men report that most people who do the kind of work they do hold a college degree (27 percent) or graduate or professional training (14 percent) than do women (20 percent and 9 percent, respectively). Women are somewhat more likely to report that their jobs require a high school diploma (41 percent versus 35 percent for men) or a technical or vocational degree (11 percent versus 9 percent for men). In addition, women less frequently report that individuals in their line of work have *some* college but not necessarily a degree (16 percent versus 28 percent for men).

Although men's and women's jobs differ in terms of education requirements, and levels of both authority and autonomy, few differences have emerged in terms of job content or working conditions. Nearly 90 percent of men and women are frequently or always required to concentrate intensely in their jobs. Roughly three out of four say that their jobs allow them to learn new skills, and a similar proportion say that their jobs frequently or always require them to work under the pressure of time. Men and women

are also equally likely to work at jobs which frequently or always demand physical effort; roughly one-third work at physically strenuous jobs.

There are several aspects of work life where gender differences emerge; men are more likely than women to work at jobs where they get dirty (55 versus 48 percent), and men are also more often exposed to dangerous working conditions (44 versus 25 percent).

Despite the substantial differences that mark the employment experiences of men and women, we find that men and women are equally satisfied with their jobs. Over 90 percent of men and women report that they are satisfied and slightly over one-half indicate that they are very satisfied. Only a handful of respondents say they are very dissatisfied with their jobs.

### **Looking Back, Looking Ahead: Employment Experiences and Future Plans**

Three-quarters of our respondents were working when we last interviewed them in 1975 and most have had stable work careers since. Almost all (94 percent) of the men in our sample were working at a full- or part-time civilian job in 1975 as were 56 percent of the women. Their employment experiences since that time have been spent with a fairly small number of employers. Around 90 percent of the men have worked for four or fewer employers since 1975, and the figure is only slightly lower for women (86 percent). The stability of these work patterns is further evidenced by the distribution of employer changes: 51 percent of men have not changed employers during this period of time, 25 percent have changed once and only 13 percent have worked for as many as four employers. Women's careers exhibit somewhat more heterogeneity, but the overall story is again one of stability. Forty percent of women have been employed by only one

organization, about 30 percent have changed employers once, and 16 percent have been employed by as many as four different organizations.

These patterns of labor force attachment are reflected in individuals' social and economic statuses in 1992-93. Although we already noted how women are substantially less likely to be covered by a pension plan or health insurance through their employer, this picture is slightly more complex when we examine other sources of benefits. Only slightly more than one-half of women (54 percent) have a private pension plan compared with three-quarters of men, but roughly equal proportions have an Individual Retirement Account (IRA) or Keogh Plan (58 percent of men and 54 percent of women). Moreover, nearly one-third (30 percent) of women have *both* an employer-provided pension plan and an IRA or Keogh while almost one-half (46 percent) of men do.

The proportion of individuals who have health insurance changes substantially when we view this as a family-provided benefit or consider other (non-employer) sources. Indeed, fully 95 percent of our respondents have some kind of health insurance. Although only 51 percent of women have health insurance through their own employment (compared with 79 percent of men), almost two-thirds of women obtain health insurance through a spouse's employer. Equal proportions of men and women purchase health insurance, such as Blue-Cross/Blue-Shield, through a private agency (13 percent) and fewer than 7 percent of our respondents receive some other type of health insurance, such as Medicaid. Although only a small proportion of individuals do not have any kind of health benefits, those who do not report the high cost of health insurance most frequently as the primary reason.

Since our respondents are currently about age 53, it is not surprising that very few define themselves as retired (7 percent) or partly retired (5 percent). In addition, the spouses of most married persons are also currently employed and not retired (76 percent of wives and 80 percent of husbands). Furthermore, most of our respondents plan to continue working for several more years despite the fact that a sizeable proportion of them are eligible for early retirement benefits. About one-third of women and over 40 percent of men who have a private pension plan could receive retirement income from these plans at age 55 or earlier. Over 80 percent of these individuals are eligible for retirement benefits by age 62 while less than 10 percent must wait until after age 62 to receive pension income.

Nevertheless, one-third or more of our respondents report that they would like to be working ten years from now (40 percent of men, 32 percent of women), though a substantial proportion would like to be working part-time (about 25 percent). The majority of these individuals who want to continue working would like to do the same kind of work they are doing now, but roughly one-third of both men and women say they would like to do a different kind of work. Our respondents are also confident that they will be able to act on their future plans whether or not they involve working: over three-quarters report that the chances are 50-50 or better that they will be able to do what they want and more than one-third say that they are certain of this fact.

Our respondents are less sanguine about the standard of living they will enjoy once they retire. The majority see stability ahead: More than 60 percent of men and women believe that their standard of living will be about the same and only a tiny fraction claim that it will improve. However, about 25 percent of men and one-third of all women say

that their standard of living will decrease somewhat, and 4 percent to 5 percent indicate it will decrease a lot. By at least one account, it appears that our respondents have taken a fairly good measure of the future. Although we have only a small pool of currently retired persons for comparison, their reports mirror those of their non-retired counterparts. Close to two-thirds of respondents who are currently retired and not working say that their standard of living has remained about the same since they retired.

Although non-retired women were less optimistic about their futures than their male counterparts, it is the male retirees who more often report a decline in their standard of living; 22 percent of retired men yet only 13 percent of retired women report a drop in their standard of living. Non-trivial proportions claim that their standard of living has improved, though the number of observations for analysis here are very small. In addition, it is very likely that the respondents who are currently retired are those who could most easily afford to do so.

### **Work Values and Attitudes**

Our respondents seem to have adapted to the challenges of balancing the competing demands of work and family. When we asked employed respondents to assess a series of twelve Work-Family attitude statements, we found that only 17 percent agreed that family matters reduce the time they can devote to their jobs.

The work-family juggling act puts different pressures on men and women, however. More than twice as many women (27 percent) as men (11 percent) agreed that family obligations reduce the time they have to relax and be alone. If family responsibilities consume most of women's time, then it appears that work takes up most of men's time and

energy. More than 40 percent of men say that their jobs reduce the amount of time they can spend with their families; however, only 32 percent of women agreed with that statement.

Men's time with their families may also be reduced due to out-of-town business travel; nearly 15 percent of men reported having to travel away from home for work, although fewer than 4 percent of women had to travel in connection with their work.

Men also are more likely than women to take the pressures of the "breadwinner" role to heart; nearly half of men yet only 25 percent of women agreed that family responsibilities make them work harder on the job. Support from the family may alleviate some of men's job pressures, however; 62 percent of men agreed that they can devote a lot of time to their job because of the support they get on the home front, while only 52 percent of women expressed the same opinion. Despite the fact that work responsibilities are often difficult to balance with family activities, the majority (70 percent) of our respondents say that they would still work to make a living even if they didn't have to.

Interestingly, our respondents told us that high pay is not necessarily the most desirable nor important job characteristic. Rather, on-the-job training, being able to do different, non-repetitive things on the job, a low risk of job loss, the ability to work without frequent checking by a supervisor, and the availability of health insurance and pension plans are of greater importance than high pay. Being able to avoid getting dirty on the job, a large number of paid vacation days, having a job that others regard highly, and being able to decide what time to come to work and when to leave, are valued equally or less than high pay.

Several clear gender differences can be seen in the importance of job characteristics; two-thirds of all women yet only 56 percent of men rated on-the-job training as more important than high pay. While only a minority of men and women felt that being able to avoid getting dirty on the job was more important than high pay, a significant larger proportion of women than men (31 versus 18 percent) agreed with this statement.

### **Economic Status**

The much-documented earnings disparity between men and women appears in our preliminary findings. Even for full-time workers (those who work 35 hours a week or more), the median annual wage and salary earnings for women is just 55 percent of men's earnings (\$22,000 versus \$40,000).

Among part-time workers (those who work less than 35 hours) the earnings gap is even more pronounced: Women earn less than one-half as much as men. Median earnings of male and female respondents are \$20,000 and \$9,000 per year, respectively.

Despite this, men and women do not report widely discrepant levels of housing and property ownership. The large majority of respondents (88 percent) own their own homes, while only 8 percent are renting. Homeowners report a median home value of \$90,000, and only a slight gender difference occurs here, with men and women reporting median values of \$95,000 and \$90,000, respectively. More than one-third of respondents also reported owning some other real estate. Men and women reported similar median values for their other property; \$60,000 for men, versus \$50,000 for women.

A sizeable minority (22 percent) of sample members also told us that they own a family business or farm, which had a median value of \$115,000. Furthermore, a large

minority of respondents have recently come into inheritances. More than 40 percent reported that they had received an inheritance some time in the past, with only a slight difference by gender (38 percent of men and 43 percent of women). Both men and women reported a median value of inheritances of \$15,000. The majority of beneficiaries have recently received these inheritances; 88 percent have received their inheritances since 1975, 58 percent since 1985, and 25 percent since 1990.

In addition to asking respondents about their incomes, we also asked whether or not they donated any money or property worth \$500 or more to charity in the last year. More than half (54 percent) said that they had, with more men (59 percent) than women (49 percent) reporting contributions to charity. Men and women donate similar amounts, and reported median contributions of \$1,200 and \$1,000 respectively.

We were also interested in whether our 53-year-old respondents exchanged financial contributions with their parents, and we were interested in the incomes of surviving parents. For parents who are still married, the median income was \$20,000. For widowed, divorced, separated or remarried fathers, the median income was \$13,500. For mothers who were divorced, widowed, separated or remarried to someone other than the respondent's father the median income was \$10,000.

Respondents also reported their parents' net worth, including their home if they owned one. For parents who are still married, the median net worth was \$100,000. For widowed, divorced, separated or remarried fathers, the median net worth was \$50,000. Mothers who were no longer married to the respondents' father reportedly had the same net worth of \$50,000.

Fewer than one-third of respondents reported that they had received some sort of financial assistance from their parents in the past. Of these recipients, 31 percent said that they received money from both their parents, 21 percent said they had received money from their mother and 14 percent said that they had received money from their in-laws.

The most common reason why respondents received money from their parent(s) was to spend in any way that they wanted. Thirty-one percent named that reason, while almost a quarter (24 percent) said the money was for a down payment on a home. The median gift values were \$9,000 for men and \$6,000 for women.

A much smaller proportion said that they had given money to their parents since 1975. Of those who gave to their parents, the largest proportion (29 percent) gave money to their mothers. One-third of men and one-quarter of women gave money to their mothers since 1975. The most frequently cited reason for giving to parents was for housing expenses (30 percent), and a slightly smaller proportion gave the money to be spent any way the parent wanted. The average amount *given to* parents is far lower than the average gifts *received from* parents. The median gift value was \$5000, both for men and women.

Respondents also told us whether or not they had given or loaned money to any of their children. The most common reason for giving to children was for educational expenses (56 percent). Giving money to children to help them with a family business or farm was the least common reason with only 4 percent of the respondents helping in this way. This is not surprising, if we recall that the majority of the respondents' children are in their mid-20s.

## Health and Well-Being

Our respondents are a generally healthy group who maintain their good health through regular exercise. Nearly 90 percent of both men and women rated their present health as good or excellent, and more than three-quarters report that their health is just as good - if not better - than ten years ago. A large majority of men and women also report that they are aging gracefully, with nearly 77 percent responding that their physical appearance is the same or better than it was ten years ago.

Respondents seldom let poor health prevent them from keeping up with their daily activities. Fewer than 10 percent of sample members spent at least one day in the hospital last year, and the majority of both men (70 percent) and women (60 percent) spent no days in bed last year due to illness or injury.

Regular exercise appears to be one of the keys to our respondents' self-reported good health. The majority of both men (80 percent) and women (76 percent) tell us that they participate in light exercise, such as walking or golfing, at least once a week. Far fewer participate in vigorous exercise regimes, and more men (35 percent) than women (26 percent) participate in activities such as running or aerobics on a weekly basis.

Self-reports of height and weight data show that the average woman in our sample is 5'4" tall and weighs 150-155 pounds, while men report an average height of 5'9" to 5'10" and weigh 192-197 pounds.

While many more men (60 percent) than women (47 percent) report that they have ever smoked, a higher proportion of women (36 percent) than men (27 percent) are current cigarette smokers. Despite this, men who currently smoke are much heavier smokers than

women. While 91 percent of women who currently smoke limit their daily cigarette count to one pack or fewer, more than one-quarter of male smokers finish at least 2 packs of cigarettes a day. Both male and female smokers report that they have smoked for an average of 21-22 years.

Although our respondents gave themselves very positive evaluations on global health and well-being measures, an examination of specific health symptoms show that nearly all respondents (96 percent) have suffered from at least one physical symptom in the past six months. Clear gender differences in the prevalence of these symptoms emerges, with women typically reporting that they have recently experienced 4-5 of the 23 symptoms listed, and men reporting that they have experienced an average of 3-4 symptoms.

Women generally report a greater sense of physical and mental fatigue; they are more likely than men to experience lack of energy (50 percent versus 38 percent); trouble sleeping (48 percent versus 36 percent); headaches (58 percent versus 39 percent); and exhaustion (35 percent versus 25 percent).

Similarly, women are more likely than men to suffer from a variety of other symptoms: nausea (9 percent versus 3 percent); constipation (16 percent versus 7 percent); diarrhea (19 percent versus 14 percent); stiff or swollen joints (31 percent versus 22 percent); and excessive sweating (13 percent versus 6 percent).

Despite the common perception that men are more prone to heart problems than women, we did not find this to be true for cardiac symptoms. Rather, men and women were equally likely to report chest pains (6 percent) and shortness of breath (11 percent).

Men and women were also equally likely to report visual problems, numbness, upset stomach, urination problems, aching muscles, back pain/strain, respiratory problems, and skin problems.

While nearly all respondents report having suffered at least one physical symptom in the last six months, far fewer report that they have a serious illness or condition that has been diagnosed by a medical professional. Still, the majority of women (68 percent) and men (63 percent) indicated that they have at least one of a list of 16 illnesses.

Of those respondents reporting at least one illness, the most frequently reported conditions include: arthritis/rheumatism (36 percent); serious back trouble (13 percent); high blood pressure (32 percent); and allergies (21 percent).

Although a very small proportion of respondents reported that they suffer from more severe illnesses, several gender differences emerge in this area. Many more women than men suffer from anemia (7 percent versus <1 percent); cancer (4 percent versus 2 percent); and circulation problems (9 percent versus 5 percent). Consistent with the widely-confirmed gender differential in the incidence of heart disease, we found that our male respondents reported more heart trouble (12 percent versus 6 percent) and high blood pressure (36 percent versus 29 percent) than women.

## **Menopause**

The scarcity of rigorous and extensive sociological research on menopause highlights the Wisconsin Longitudinal Study as a unique data set for study of the biological, behavioral and social factors that influence menopause. There is little question that the circumstances surrounding a woman's experience during menopause may have

profound effects upon her life and subsequent health. Just as different women have a wide variety of experiences with menarche, menstruation, fertility, employment and family life, so too with menopause. Some women progress through climacteric with few disagreeable symptoms, while others turn to medical specialists for assistance.

It may be that for women who experience menopause as a natural event, age at menopause is an indicator of general health. Women who undergo an early climacteric experience physiological changes which may influence their morbidity. The WLS has the capacity to link data on menopause to current health and well-being, personality and cognition, employment and fertility histories, and education and economic circumstances. Thus, the WLS can analyze a range of confounding factors related to health status.

In the mail survey, women were asked whether they had menstruated within the last twelve months. Those who had not were queried on their age at their last menstrual period. They were asked whether or not they had surgery to remove their uterus and/or ovaries. Approximately mid-way through interviewing our sample, a revised version of the questions on menopause was introduced. Questions on hormone replacement therapy were added, as well as a list of commonly reported menopause related symptoms and perceptions. Women who received the original version of the questionnaire (2039 female respondents) were asked how menopause may have affected their work and family life. The remaining women received the revised version and were asked more detailed questions about the type and timing of reproductive organ surgeries and hormone drug usage. They were also asked about their sources of information on menopause.

Much of the literature on menopause delineates between women based upon their menopausal experiences. Women who had hysterectomies (surgical removal of the uterus) and/or oophorectomies (surgical removal of the ovaries) are routinely separated from those whose reproductive organs are intact. Users of hormone regimes for aging are also treated as a separate group. The WLS permits the replication of these delineations, as well as data on the timing of these events.

Another demarcation among aging mid-life women captures where women are in the process of climacteric. Over one-quarter (29 percent) of our sample of women menstruated within the twelve months before the survey, and only 14.0 percent said that they had not begun or had not completed the menopausal transition. The median age at menopause for all women is about 50 years.

Age at menopause has been posited as an indicator of general health among women. It has been suggested by Alice Rossi (1993) that, if age at menopause is treated as the commencement of "old age" for women, those who experience an earlier menopause will begin their old age sooner. Thus, these women may suffer more ailments in later life, as well as higher mortality rates than their peers who undergo climacteric at an older age.

The WLS data is well-suited for the empirical analyses of Rossi's hypotheses. At this early stage of data analyses, however, our results are too preliminary to either refute or substantiate this hypothesis. We can, however, present a few interesting results. Among women who have not had reproductive organs removed, those who experienced menopause at a younger age suffer more gastro-intestinal distress (nausea, vomiting, upset stomachs, and constipation), more circulatory problems, and more kidney and bladder

troubles than women who have not completed or reached their menopause. Women who have yet to complete their menopause currently suffer more numbness, dizziness and fainting, more shortness of breath, respiratory problems, asthma, and anemia than women who completed their menopause at earlier ages. Increased kidney and bladder troubles of women who had an earlier menopause may, in fact, be related to being post-menopausal longer. Incontinence is a fairly common symptom among older women due to atrophy of the pelvic floor and abdominal muscles. The increased anemia of women who have yet to bring closure to their menstrual cycles, seems highly plausible due to their continued periodic blood loss.

Women were also asked whether and to what extent they experienced a number of symptoms associated with menopause. Consistent with other studies of menopause, hot flashes was the most commonly reported symptom. Slightly more than four-fifths (82 percent) of respondents reported ever having hot flashes. Those who had hot flashes were spread fairly evenly in terms of the frequency and severity of the flashes. The next most commonly experienced symptoms were night sweats (72 percent) and sleep disturbances (70 percent). Nearly one-third reported aching bones.

The large majority of women in our sample experienced menopause as a medically-mediated event. Nearly half reported ever having used hormone therapy to alleviate menopausal symptoms. A full one-half of women who began hormone therapy were taking hormones at the time of the survey. About eight percent of the women who ever used hormones switched their hormone regime at some point in time.

Women who took hormones appear to have had good reasons for doing so: They were nearly twice as likely as other women to report having "a lot" of hot flashes. Nearly one-third of women who ever took hormones said they were having a lot of hot flashes, while only 16 percent of women who never used hormone therapy indicated so. Likewise, nearly one-fifth of those who ever used hormones reported having a lot of night sweats, while only 12 percent of those who never used hormones said the same. In fact, each symptom mentioned in the questionnaire was more prevalent among hormone users than among non-hormone users.

Hysterectomy, the second most frequently performed surgery in the United States, was performed on 591,000 women in 1990 alone (National Center for Health Statistics, 1992). Hysterectomy rates in the United States are particularly high compared to other nations, and these high rates are reflected in the experience of our sample. One-third of our female respondents have undergone hysterectomy (surgical removal of the uterus) and/or oophorectomy (surgical removal of one or more ovaries). The majority (86 percent) of these women who had surgery had hysterectomies. The median age at surgery for women in our sample was about 41 years.

Only a minority reported that the menopausal experience took a psychological toll. Eighteen percent of respondents reported more than "a little" depression associated with menopause, yet few women reported **only** negative effects of menopause on their family life, their work life or their feelings about themselves as women. More than 70 percent of the women stated that menopause had no effect, or that they did not expect menopause to have an effect, on these areas of their lives. Though the percentages were small, women

who ever used hormones were most likely to report negative and mixed feelings about how menopause impacted these three aspects of their lives. Conversely, women who experienced surgical menopause most often reported positive feelings about all three domains.

Many women said that they were not well informed about menopause. A segment of our sample was asked whether they had enough information about the changes they were experiencing, and nearly one-quarter (23 percent) responded negatively.

### Depression

Both men and women responded to a series of questions about recent depression as well as any earlier experiences of feeling sad for two weeks or more. A sizeable minority of respondents indicated that they had experienced depression that was not related to drug or alcohol use; that is, they had a time in their lives lasting two weeks or longer when nearly every day they felt sad and lost interest in their daily activities and hobbies. A significantly higher proportion of women (21 percent) than men (13 percent) reported ever having experienced these feelings.

Depression is clearly a mid-life phenomenon for our respondents. Of those who reported ever being depressed, more than 55 percent of men and women told us that they had experienced their worst spell of depression after the age of 45. Roughly one third of respondents had their worst bout of depression when they were age 30-44. While 46 percent of men and women who were ever depressed said that they had just one such spell, an additional 37 percent reported 2 to 5 such experiences.

An examination of respondents' reports of both depression and psychological well-being has yielded several distinct mental health profiles. One-fifth of respondents are consistently healthy in terms of mental health, having high scores on the psychological well-being scale and no history of depression. A similar proportion report no history of severe depression, but also are not high on well-being. Roughly 10 percent of respondents are resilient, having had at least one spell of depression, but are currently coping quite well, as evidenced by their average to high scores on well-being scales. Only a handful (2 percent) of respondents are chronically depressed, and a similar proportion now score high on well-being scales, despite a history of severe depression.

In addition to tracking the history of depression, the WLS also contains measures of recent depression. Measures of depression symptoms experienced within the last week show that women had significantly higher scores of depression, while men had slightly higher reports of Type A behavior symptoms.

We also found that while many of our respondents are social drinkers, few have sought professional help for their drinking. While 93 percent of women and 96 percent of men reported that they had ever drunk an alcoholic beverage, few reported that drinking had actually interfered with their jobs or interpersonal relationships. Among those who have ever drunk alcohol, just 7 percent have ever sought professional help about their habit, and only 5 percent of men and fewer than 2 percent of women reported that their drinking had caused them trouble on the job.

While men were more likely to experience problems related to their own drinking, women more often reported growing up in a home with an alcoholic or problem drinker

(22 percent versus 18 percent), and women were much more likely than men to have been married to or lived with a problem drinker during their adult lives (20 percent versus 6 percent).

### **Personality, Values and Attitudes**

Many social psychologists agree that the Five-Factor Model of Personality can yield a reliable and complete representation of the major dimensions of personality in adulthood. The five dimensions of Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness to Experience are captured in a 29-item schedule administered in the WLS mail questionnaire.

Responses to these items show that members of the high school graduating class of 1957 pride themselves on having a strong work ethic and traditional values. Nearly every respondent (98 percent) agreed that they "do a thorough job" on their tasks, and that they are "reliable workers," and "efficient." An overwhelming majority (84 percent) also reported that they "prefer the conventional and traditional." Clear-cut gender differences emerged with respects to three aspects of personality: women's scores on the Extraversion, Agreeableness and Neuroticism scales were significantly higher than men's scores.

Similarly, men's and women's scores varied on the Ryff (1989) measures of psychological well-being. A series of 42 Likert scale items measured individuals' Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance. While men's scores on the Autonomy scale were significantly higher than women's, female respondents yielded significantly higher scores on the Positive Relations with Others and Personal Growth measures.

## Caregiving

Midlife has often been viewed as a particularly stressful period in the life-course: a time when 50-year olds must grapple with the competing demands of children leaving the nest, and of aging - and often ailing - parents. Our preliminary data show that 23 percent of respondents have ever been called on to give personal care for a period of one month or more, while fewer than one-fifth of respondents claim to have a limiting physical or mental condition which would cause them to receive care.

Roughly 17 percent of sample members said that they have a physical or mental condition, illness, or disability which limits what they are able to do, or is likely to limit what they do in the future. Only three percent of those claiming such a condition have received personal care for one month or more in the past twelve months.

Of those who have received care, the majority (85 percent) said that they received help with household chores, while 40 percent were assisted with more personal activities such as bathing, dressing, eating or going to the bathroom. Two-thirds of those receiving care named their spouse as the primary caregiver.

Our respondents were much more likely to give than to receive care. One-third of respondents said that they have ever provided care to someone with a limiting condition, although only 13 percent provided such care within the last 12 months. The recipient of this care was most often the mother of the respondent. Caregiving is a recent role among WLS respondents; more than half (55 percent) first assumed their role as caregiver since 1991. The remaining start dates fall roughly equally over the preceding years since high school graduation.

Consistent with traditional gender role socialization, we found that two-thirds of all caregivers were female. Our preliminary analysis also suggests that caregivers are more prone to physical illness and depression than their non-caregiving peers.

### **Social Participation**

The members of the class of 1957 were age 35-36 when we interviewed them in 1975 and, since most of them had school-aged children, were at the stage in their life-cycle in which interest and participation in community affairs was likely to be greatest. Seventeen years later, in 1992, almost all (90 percent) of the 53-year-old respondents have at least one adult child, and the end of the child-rearing years has somewhat altered community participation patterns.

The preliminary findings from our 1992 data show that respondents attend church with less regularity than they did in the past. In 1992, as in 1975, the majority of respondents were Protestant (49 percent), roughly 40 percent were Catholics, and 1 percent were Jewish. Slightly more than 7 percent reported that they had no religious preference, while the same proportion reported that they belonged to another religious body. More than half of all Protestants were Lutherans, who accounted for more than one-quarter of all respondents. A large majority of respondents (86 percent) currently have the same religious preference as their spouses.

Respondents are not attending services as regularly as they did in 1975. While 8 percent of men did not attend church in 1975, more than twice that proportion (17 percent) said that currently they never attend services. Similarly, while only 5 percent of women reported that they never attended services in our 1975 interview, more than twice as many

(13 percent) told us in 1992 that they never attend church. Still, a full two-thirds of our respondents say that they attend religious services at least once a month, with 44 percent attending once a week or more, and another 16 percent attending a few times each month.

Just as our sample members are avid churchgoers, they also remain active in a variety of community, professional and charitable organizations. Roughly one-third of respondents said that they participated in business or civic groups, professional groups, charities, or hobby groups. Sports teams were also quite popular; 27 percent reported at least a little participation in these activities.

### **Mortality**

Even before we look for death certificates of decedents in the WLS, it is possible to carry out some analyses of differential mortality. For example, the data collected in the 1992-1993 tracing operation and survey can be used to examine differential mortality by social and economic status among respondents and their parents. We have begun to look at mortality rates of respondents to the 1964 or 1975 surveys by education and occupational status and, also, by social background variables including parental education and occupational status. However, the findings reported herein should be regarded as preliminary and incomplete.

Our future analyses will also focus on the mortality of our respondents' parents. By examining parental age of death, and by collecting information on cause of parent's death (in the interviews with respondents' siblings), we hope to gain a greater understanding of mortality and morbidity over the life course. Moreover, information on living parents is

necessary if we hope to examine the potential for social networks, social support, and caregiving over the life course.

There are several ways in which we can look at parents' mortality. First, from the point of view of the parents, we can look at longevity in relation to their own social and economic standing, e.g., educational attainment, occupations, numbers of children, geographic location, ethnicity, and income, all of which have been collected in the course of the WLS to describe the conditions of upbringing of the primary respondents.<sup>18</sup> Second, from the point of view of the respondents, and regarding the presence of living parents as both a source of economic and social support and a caregiving responsibility, we can ask how the survivorship of one's parents has varied over the life course of the respondents as a function of the respondents' education, social standing, and family formation, among other variables. For example, we might want to construct profiles of the survivorship of parents relative to the ages of respondents among different social strata. Third, by continuing to observe the mortality of parents and children in future years, we believe that we shall be able to obtain significant new observations about the intergenerational correlation of longevity.

Among persons who were interviewed in 1975, we already know full name (including maiden name of women) and date of birth. Because of the use of tax records to follow respondents in the 1964 wave of the survey, and the later blind match to Social

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<sup>18</sup> Of course, from this point of view the parents of respondents do not truly constitute a population in the usual sense, since they have been drawn into the sample by virtue of their linkage to the sample of high school graduates. That is, we are literally working with a sample of high school graduates and looking at relationships among characteristics of their parents, including mortality.

Security records, we also have Social Security numbers for virtually all male primary respondents in the sample, whether or not they were interviewed in 1975 or 1992-93.

Among men and women who were interviewed in 1992-93, we asked for the Social Security number during the telephone interview, and these were reported by 94 percent of men and 91 percent of women. Thus, we believe that we are very well prepared to follow mortality within the sample.

During our tracing operations, both in 1975 and in 1991-93, we recorded deaths as reported by a variety of informants, usually a parent, brother, sister, or child. After the first few months of the 1991-93 tracing operation, we ascertained the year and place of death of the decedent; in cases where that information is missing, we are now making callbacks, or in some cases we will use surviving siblings as informants during the sibling telephone interview. We began a close-out interview procedure in the Letters and Sciences Survey Center to handle deaths that occurred after tracing was complete, and the case was sent to the field. For this small number of cases, we developed a short telephone interview form, in which we ascertain the date and place of death, the Social Security Number, the cause of death, and the usual occupation of the respondent before s/he died or became ill.

In the 1975 telephone interview, we asked respondents to tell us the year of birth of their father or household head. In the 1992-93 telephone interview we asked for the years of birth and death of the respondent's mother and father. The data show that 44.5 percent of respondents' mothers have died, along with 74.7 percent of respondents' fathers. Fully 36.5 percent of respondents have no living parents, while 17.5 percent still have two living parents.

Our preliminary analyses shows some differences in respondent mortality by occupational social status.<sup>19</sup> While 7 percent of men and 4 percent of women in the class of 1957 are now deceased, these figures vary by social status. For instance, while fewer than 3 percent of men of farm origin are now deceased, more than 10 percent of men in the lowest quarter of father's 1957 status have died. There is a similar differential for women; 4.9 percent of women in the lowest quarter of father's occupational status have died, compared to 1.8 percent among the daughters of farmers. Among the children of parents with non-farm occupations, the share of deaths declined from 10.2 percent of men to 6.0 percent of men across the occupational distribution, and the share of deaths of women declined from 4.9 percent to 2.9 percent. Note that the children of farmers had greater survival chances than those in the highest quarter of occupational status.

There appear to be weaker differentials in mortality of respondents by the educational attainment of their parents. Among sons whose parents had a total of 16 or fewer years of schooling, 7.2 percent had died by 1993, compared to 6.2 percent of the sons whose parents had a total of 25 or more years of schooling. Among daughters, the corresponding rates were 4.5 percent and 3.2 percent.

Differentials in respondents' mortality by their own level of schooling are similar to those by father's occupational status. Among men with 12 years of schooling, 8.0 percent had died by 1993, compared to 4.3 percent among men with a college degree. Among women with 12 years of schooling, 4.3 percent had died by 1993, compared to 3.2 percent

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<sup>19</sup> Because we have followed survivorship of primary respondents throughout the history of the WLS, we can look at these differentials in the full sample of 10,317. Occupational status is measured on the Duncan Socioeconomic Index (SEI).

among women with a college degree. In general, as we should expect, women are less likely to have died than men by 1993, and the observed differentials in mortality are weaker among women than among men.

In the case of respondent's occupational status, rather than observing mortality for the full sample, to date we have tabulated deaths by occupational standing only among respondents in the 1975 round of the survey who reported holding an occupation in 1975 or at some earlier date. (We can improve upon this coverage, later, by using occupation in 1964 among persons who did not respond in 1975.) Over the period 1975 to 1992, differential mortality by own occupation appears to be less than by father's occupation. Among 4113 men whom it was possible to classify by occupation, 3.9 percent died, and among women whom it was possible to classify by own occupation, 2.8 percent died. Among men, mortality ranged from 3.2 percent to 5.1 percent between the first and third quarters of the occupational status distribution. It dropped to 4.1 percent in the lowest quarter of the distribution; we suspect this may be because of the inclusion of farmers in the lowest quarter of occupational status.<sup>20</sup> Among women, there was a greater differential in mortality between the top and bottom quarters of the distribution of occupational status, from 2.3 percent to 3.7 percent, but there was actually little difference in mortality among women in the top three quarters of the status distribution.

We have also found significant differences in the survivorship of respondents' parents by their own social standing. More than one-third of all respondents (36 percent) have no surviving parents. There is some variation in this figure when we examine our

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<sup>20</sup> In the classification of deaths by paternal occupation, but not by own occupation, we treated farm occupations separately.

respondents by their educational attainment. Thirty-two percent of college-educated respondents have no surviving parents, in contrast to the 38 percent among respondents with only 12 years of education. Obversely, among those respondents with no more than a high school diploma, 15 percent had two surviving parents, compared with 18.5 percent with two surviving parents among respondents who graduated from college.

When we examine parents' mortality by the parents' own combined education, we see a similar pattern. While roughly 17 percent of respondents report that both of their parents are still alive, this figure jumps to 20 percent for parents with the most education (a total of 25 years or more), yet drops to less than 12 percent for parents whose combined education is less than 12 years. Similarly, among respondents whose father was in the top quarter of occupational status, 17.5 percent still had two living parents, compared to 13.1 percent with two living parents among respondents whose fathers were in the bottom quarter of the occupational status distribution.

We suspected that, because parents who are better off tend to begin having children at older ages than parents who are not well off, the association between parental status and mortality by 1993 might be dampened. That is, if persons who were older in 1939 -- the year of birth of our respondents -- are more likely to have died by now than persons who were younger in 1939, and if higher status parents were more likely to be older when their children were born in 1939, then higher status parents should be more likely to have died by now. However, we have not found parents of the lowest socioeconomic status to have been born earlier than those of higher status parents. For instance, while 18.4 percent of

fathers were born before 1901, this figure is actually lower for the quarter highest in status (17 percent) than for the lowest quarter (22 percent). This finding contradicts our suspicion.

Indeed, the survivorship of parents may be a complicated business. Parents who were older in 1939 were, perforce, born into cohorts which completed less schooling than those of parents who were younger in 1939. Moreover, our first supposition focuses on the younger age at which lower status parents began to have children in the 1930s and 1940s, but ignores the effect of differential fertility on the age of parents at their children's birth, which would probably tend to raise the average age among lower status parents relative to that among higher status parents. Evidently, a serious treatment of this subject requires more than a superficial look at the data.

#### **COVERAGE AND NONRESPONSE**

In order to monitor our success in the field, to smooth the flow of "easy" and "hard" cases, to give us access to preliminary data, and to control costs, we adopted an internal subsampling scheme. We think of the sample of 10,317 Wisconsin high school graduates as consisting of three non-overlapping segments: (a) persons who responded in 1975, for whom a randomly selected sibling was designated for interview in 1977; (b) persons who responded in 1975, who had no surviving siblings, or whose randomly selected sibling was not designated for interview in 1977; and (c) persons who were not interviewed in 1975 (some of whom, of course, had died by that year). Each of those segments of the sample has been designated a member of one of ten internal replicate samples, hereafter, "groups," where the samples were stratified on the basis of sex, ability, and socioeconomic status in 1957. As of January 1994, we completed interviewing members of groups a, b, and c. We

have imposed a similar internal sampling structure on three samples of siblings: (d) siblings of persons in group a; (e) siblings of persons in group b; and (f) siblings of persons in group c. These sibling groups were entered into the field early in the fall of 1993.

## Tracing

In the trial location study for the 1992-93 WLS surveys, which was carried out in the fall of 1989, we were able to locate 92 percent of the 184 randomly-selected respondents to the 1975 instrument. We used a variety of information, principally each subject's name, 1957 high school, 1964 and 1975 addresses, 1975 telephone number(s), birth date, and parent's name, address and phone numbers from 1975. In addition, social security numbers were available for males. This information is available for almost all primary WLS respondents. External locating sources used were two TRW credit bureau services, TRACE and ATLAS, telephone information operators, and leads obtained from telephone contacts.

The 92 percent tracing rate in the 1989 pilot study appeared satisfactory, since 15 years had passed since the last contact. The trial was intended not only to estimate the location rate which could be achieved on the main sample, but also to test the efficacy of methods somewhat different from those used in 1975. The earlier effort was better organized, and relied more on direct searches of telephone directories rather than oral information from telephone operators. A combination of techniques from the old and new experiences was expected to yield more efficient and complete results than the trial. The 1975 effort had produced a 97.4 percent success rate in locating the full sample. We thus expected the field results in the proposed study to lie somewhere between this rate and the 92 percent success of the 1989 tracing trial.

The siblings of the primary respondents constituted a different location problem. Approximately 2000 of these were traced in 1977, using the following information which had been obtained from the primary respondents: parent's, primary respondent's and selected sibling's names and addresses; parent's phone number; selected sibling's occupation. The location success rate in 1977 was 98.4 percent (though the percentage who could usefully be contacted, for various reasons, was 92.0). Locating these individuals, we thought, would be similar to locating the primary respondents, as just described. The siblings of respondents who were not selected for the 1977 study, we thought, would be somewhat more difficult to locate on their own, using only the 1975 information concerning them which was provided by the primary respondents.

Ultimately, among 1975 WLS respondents, we were more successful in tracing than we had been in 1975. We located 97.8 percent of all 1975 respondents, dead or alive, and in almost all of those cases, we also located the respondent's selected sibling, if she had one.

After this success, we decided to attempt to include persons in the 1992-93 surveys even if they had not participated in the 1975-77 round of the WLS. There were 1005 such persons, and we succeeded in locating 798 of them, including 63 deaths, a rate which, at 6.2 percent, is somewhat higher than the 3.7 percent mortality rate found among 1975 respondents. We have completed our search for the 1975 non-respondents, and achieved a 79 percent tracing rate. Even at that level of success in tracing the 1975 nonrespondents, the overall success rate in tracing the full sample -- 10,143, excluding the 174 individuals known to have died before 1975 -- is 95.9 percent.

In the 1991-93 tracing operation, we have actually used somewhat different methods than those of either the 1975-77 operation or those that were initially planned for this round of the survey. Briefly, we found that coverage in TRACE and ATLAS was not as good as we had initially thought and hoped; we were able to gain access for a period of time to the Donnelly Marketing Database, and we found this more useful in the location of hard-to-find cases. For most cases, we began the operation with searches of printed telephone directories, which we were able to obtain for all Wisconsin cities and for other major U.S. cities. However, in many cases, we had to call long-distance telephone operators, and, because of changes in billing practices for telephone service, this proved unreasonably expensive. Just as we realized how expensive this search method had become, we learned of the availability of national databases of names and addresses on CD-ROM at very low cost (a couple of hundred dollars or less per national edition). We decided, correctly, that this could be very cost effective, compared to operator-assisted searches, and we equipped a PC with a pair of CD-ROM readers.

The CD-ROM technology has been the "workhorse" for the project throughout most of the tracing operation. Coverage and software have improved in successive releases of the CD-ROM directories. For example, we could initially search only by name, but we have recently become able to access the data by block face, meaning that it is very easy to contact near-neighbors when we have exhausted our information about the personal networks of respondents.

## Telephone and Mail Response

Only a tiny percentage of 1975 respondents and their siblings were not found in our tracing operation; the overall tracing rate is 97.8 percent among 1975 respondents (the subsamples in segments a and b). Of the original members of these groups, 3.7 percent have died, and 4.8 percent refused; another 3.5 percent were not interviewed because we were never able to sustain a contact or because they were unable to complete an interview. We have completed telephone interviews with approximately 91 percent of surviving 1975 respondents (N =8020). We have completed mail surveys with 81.4 percent of these telephone respondents (6535 out of 8020). Within group c, 6.3 percent had died, 20.6 percent were untraceable, and 18.3 percent refused, while an additional 7.6 percent could not be interviewed for other reasons. We completed 476 interviews and 325 mail surveys in this group. Overall, we interviewed 8496 members of the primary sample, or 87.2 percent of the known survivors of the cohort, and we obtained mail surveys from 6860 sample members, or 70.4 percent of the known survivors of the cohort.

We anticipated a lower response rate to the mail survey than to the telephone interviews, and this affected the content of both instruments. The telephone instrument was designed to contain most life history data and content, like rosters and job histories, with many skips or branches. In addition, it contained selected items from key inventories of personality (the Big Five), health (depression and alcohol use), and well-being (Ryff's measures of mid-life development), for which there are additional, more detailed, and repeated measures in the mail instrument. The mail instrument contains elaborations of

those measures, as well as additional measures of health, well-being, social contact, and exchange, most of which do not have the logical complexity of the life-history items.

### Characteristics of 1992-93 Respondents and Non-Respondents

We have taken a preliminary look at characteristics of respondents and non-respondents in 1992-93 among the first four randomly selected groups of 1975 WLS respondents. Among these 3662 cases, 3.1 percent have died, 4.2 percent were not sent into the field, 10.3 percent refused the telephone interview, and 14.4 percent did not complete the mail survey. Thus, 68.8 percent of the full sample completed both phases of the 1992-93 survey; these were 70.1 percent of living respondents and 73.2 percent of all cases sent into the field. Of telephone respondents, 82.5 percent completed the mail survey.

We have looked for evidence of selectivity by comparing the characteristics of non-respondents and respondents with respect to variables that were known for all respondents in 1975. Response in the 1975 survey was selective by sex; 52.8 percent of 1975 respondents were women, compared to 51.6 percent in the original WLS sample. There was additional selectivity by sex in the 1992-93 surveys, mainly in the telephone interviews: 47.1 percent of telephone refusers were women, while 52.9 percent of mail refusers and 53.6 percent of mail-telephone completers were women.<sup>21</sup> There was also selectivity by marital status in 1975; 82.0 percent of telephone refusers were married in 1975, compared with 86.2 percent of mail refusers and 90.1 percent of mail-telephone completers.

There was not a clear gradient by response status in the case of 1975 state of residence or number of children or siblings. Among telephone refusers, 69.3 percent lived

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<sup>21</sup> By definition, all mail refusals had completed the telephone interview.

in Wisconsin in 1975, compared to 75.6 percent among mail refusers and 72.1 percent among mail-telephone completers. Telephone refusers had an average of 2.6 children ( $s = 1.5$ ); mail refusers had an average of 2.9 children ( $s = 1.6$ ); and mail-telephone completers had an average of 2.7 children ( $s = 1.4$ ). There were no differences among non-respondents and respondents in numbers of siblings; each category has an average of about 3.3 brothers and sisters ( $s = 2.6$ ).

There were clear differences in verbal ability, educational attainment, and occupational standing by response status. Among telephone refusers, the average score on the Henmon-Nelson Test of Mental Maturity, taken in the junior year of high school, was 97.0 ( $s = 14.7$ ). Among mail refusers, the average IQ score was similar: 97.8 ( $s = 14.6$ ). However, among mail-telephone completers, the average IQ was 102.3 ( $s = 14.4$ ).<sup>22</sup> Among telephone refusers, 70.1 percent had completed no regular school beyond the 12th grade, and only 15.9 percent had completed 16 or more years of schooling. Among mail refusers, 68.8 percent had completed no regular school beyond the 12th grade, and 18.1 percent had completed 16 or more years of schooling. However, among those who completed both the telephone and mail surveys, only 61.1 percent had no more than a 12th grade education, and 25.3 percent had completed 16 or more years of schooling. Both in the cases of verbal ability and of educational attainment, the response differential occurs primarily between those who completed both surveys in 1992-93 and those who refused either the telephone or mail survey.

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<sup>22</sup> These IQ scores are based on norms of the Wisconsin test-taking population.

In the case of occupation, there was little difference by response status in the share who worked in 1974; about 19 percent of 1975 respondents did not hold a job in 1974. However, the share of professional and technical workers was 13.2 percent among telephone refusers, 17.5 percent among mail refusers, and 21.1 percent among mail-telephone completers. Obversely, the share of operatives, nonfarm laborers, and service workers was 19.7 percent among telephone refusers, 18.7 percent among mail refusers, and 17.3 percent among mail-telephone completers.

In the case of non-response to the 1992-93 mail questionnaire, we also compared refusers with completers on selected variables that were ascertained in the 1992-93 telephone survey. Among mail refusers, 74.9 percent lived in Wisconsin in 1992-93, but among mail-telephone completers, 70.5 percent lived in Wisconsin in 1992-93. There was essentially no difference between refusals and completions in the share with a living mother or father, but -- as in the case of 1975 marital status -- mail respondents were more likely than refusals to be married currently, 84.0 percent vs. 78.3 percent. There was very little difference between refusals and completions in the percentage currently employed, in coverage by pensions or health insurance (about 64 percent in each case), in alcohol use, church attendance, or personality (as measured by the "Big Five"). However, there was an economic differential between refusals and completions. Among men, median earnings of mail refusers were \$36,000 (interquartile range: \$20,000 - \$54,000), while median earnings of mail-telephone completers were \$40,000 (interquartile range: \$25,000 - \$56,000). Among women, the differential was less. Median earnings of mail refusers were \$11,500 (interquartile range: \$0 - \$23,000), while median earnings of mail-telephone completers

were \$12,000 (interquartile range: \$0 - \$25,000). Thus, mail-telephone completers fall somewhat higher in the earnings distribution than mail refusers, but it is not clear whether this differential -- or others discussed herein -- follows from current economic status, or whether it may be incidental to other sources of response or nonresponse.

In all previous analyses of the WLS data, we have never weighted responses. The original design is a simple random sample, and response rates have been so high that weighting has never appeared necessary. One might make the same argument with respect to the 1992-93 data. The preceding description focuses on differentials among categories of non-respondents and respondents, but overall coverage remains very good. However, we think it will be worthwhile to consider the possibility of post-stratifying the sample and introducing weights for telephone responses and for joint mail-telephone responses. This will require a prospective view of non-response, that is, an effort to determine the proximate sources of non-response, rather than the retrospective, descriptive orientation of the preceding discussion.

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