Attrition and Its Implications in the National Longitudinal Survey of Youth 1979 November 2017

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Abstract

After 26 rounds of data collection, attrition in the NLSY79 remains remarkably low. Over 77 percent of those still living participated in the round 26 interview in 2014-15. The most significant reason for the high retention rate in the NLSY79 is likely the innovation of attempting to interview all baseline sample respondents in each round. The NLSY79 also collects data on employment and other topics in an event-history format, which fills in important information if respondents miss an interview, but are then interviewed again in a later round. In logits examining the probability of participating in later rounds, we find that attrition from the NLSY79 is fairly random with respect to basic demographics and labor market behavior, marital status, and number of children at age 30. We also estimate the effects of educational attainment and other characteristics at age 30 on labor force participation, earnings, and family income at that age. We find that survey participation in the most recent rounds is not related to these outcomes. Attrition does not appear to lead to biased estimates in models of important economic relationships.

Key Words: attrition, longitudinal

1. Introduction

The National Longitudinal Survey of Youth 1979 (NLSY79) follows the lives of a sample of men and women born from 1957 to 1964. In their first interview in 1979 they were ages 14 to 22, finishing their education and starting to enter the labor force; today, after 26 rounds of surveying, they are beginning to reach their 60s and preparing for retirement. Over 77 percent of those still alive participated in the last round of interviews. This remarkable retention rate is a result of management policies that seek to maximize survey response in each round and attempt to interview all sample members regardless of their participation in previous rounds. Additionally, the NLSY79 collects data on employment and other domains in an event-history format, which helps maintain the usability of the data of previous wave non-respondents. In this paper, we examine the extent to which attrition leads to bias in the NLSY79.

Attrition bias in longitudinal surveys occurs when sample members either leave the survey or don't respond to a survey round, and the data not collected are systematically

different from the data that are collected from the remaining sample. In this case, model estimates using only respondents will be different than those in the population the sample represents. In this paper, we examine two aspects of attrition within the NLSY79.

We begin by examining whether survey nonresponse is non-random with respect to demographics, educational attainment, and labor supply variables. We estimate how these measures at age 30 are related to the probability of survey nonresponse 15 or more years later. We then turn to the question of whether attrition leads to biased estimates in models of important economic relationships. It is possible that even if attrition is non-random with respect to demographic variables, estimates of these models are not affected because the basic economic relationships do not vary by demographics. Attrition bias requires both differential attrition and differential relationships between variables among attriters and non-attriters.

Our analysis builds on earlier work by MaCurdy, Mroz, and Gritz (1998), which examined the effects of attrition in the NLSY79 using the first 13 rounds of the survey up to 1991. They concluded that attrition in the NLSY79 was non-random, but small enough not to affect estimates in models of employment and wages. Over twenty additional years of data are now available. In this paper, we will examine the size and implications of attrition through the 2014 data collection (round 26).

Our paper is also influenced by Michaud, Kapteyn, Smith, and van Soest (2011), which looks at nonresponse in the Health and Retirement Study (HRS). Their work analyzes nonresponse bias through 2004 (7 interviews) for an older cohort that is first surveyed in 1992. The paper's focus is on temporary vs. permanent attrition. Permanent attrition includes those who have died. Temporary attrition occurs because the HRS attempts to interview respondents who were not interviewed in the previous round, a practice also followed in the NLSY79. The authors find that nonresponse bias in panel models of home ownership and wealth is significantly reduced due to interviewing temporary non-responders in later survey rounds. However, in conditional logit models of labor force participation, attrition bias due to mortality remains.

2. Methodology

In examining the effects of attrition, we seek to answer two questions. Is attrition random with respect to demographics, educational attainment, and labor supply? And does attrition bias estimates of simple models of important economic relationships such as the returns to education? The sample that we use to examine both of these questions eliminates respondents who are deceased by round 26 of the survey in order not to conflate the effects of attrition with those of mortality. All estimation is conducted separately for men and women.

To explore the first question, we estimate how status measured at age 30 is related to the likelihood of nonresponse in later rounds of the survey. Equation (1) shows the probability that a sample member does not respond at interview time t as a function of her educational attainment, labor market behavior, marital status, and number of children at age 30.

$$\Pr(I_{it}) = X_i A_1 + (S30)_i A_2 + \varepsilon_{it} \quad (1)$$

where X is a set of individual characteristics including an early test score, birth year, sex, and race/ethnicity, and ε is an error term from the extreme value distribution. A are the parameters to be estimated. $S30$ represents status variables at age 30 and includes highest degree completed, annual hours worked measured near the sample member's 30th

birthday, annual earnings, marital status, and number of children. We control for the various age-30 status variables in separate specifications, permitting us to examine whether different characteristics are related to future attrition. In this analysis, we consider two different measures of I: completion of the most recent interview and completion of one of the last three interviews. I takes on a value of 1 if individual i is in that category at time t and 0 if she is not.

We next estimate how nonresponse affects regression estimates of economic relationships, such as the returns to education on earnings and family income. We do this by estimating the returns to education at age 30 for three different samples and comparing the estimates. Unlike the sample used in the estimation of Equation (1), we restrict the estimation samples to NLSY79 sample members who were interviewed around age 30. If the sample member did not participate in the interview at age 30, we accept information from age 29, 31, or 32. This means that missing values for the regressors are due to item non-response, and not wave non-response.

The first sample is composed of those interviewed around age 30. The second sample is composed of those interviewed around age 30 and also interviewed in round 26. The third sample is composed of all sample members interviewed in rounds 24 or higher for whom education and earnings around age 30 are available. Our assumption is that, if excluding those who attrited between age 30 and round 26 (when they are 50 to 58 years old) does not affect our model estimates at age 30, they would not affect models estimated with more recent data.

Our equation is:

$$Outcome_{i30} = \alpha_s + \beta_{1s}H_{i30} + \beta_{2s}MS_{i30} + \beta_{3s}C_{i30} + \beta_{4s}X_i + \varepsilon_{i30} \quad (2)$$

where s indicates the sample used for the estimation, H_{i30} is educational attainment measured around age 30, MS_{i30} is marital status measured around age 30, C_{i30} is the number of children measured around age 30, and X_i is a set of individual characteristics including an early test score, year of birth, and race/ethnicity. α and β are the parameters to be estimated. *Outcome* measures are labor force participation, log earnings, or log family income around age 30.

3. Data and Descriptive Statistics

The NLSY79 began in 1979 with a nationally-representative sample of 12,686 males and females born between 1957 and 1964. Respondents were interviewed annually through 1994 and biennially afterwards. The NLSY79 dropped two subsamples from the survey over the years, the military oversample in 1985 and the poor white oversample in 1991. As such, we remove those cases from our analysis, leaving us with a sample of 9,964 for this study. All data in Tables 2 and forward use survey weights based on the sample of 9,964 respondents.

Table 1, which uses unweighted data, shows patterns of nonresponse in the NLSY79, by year, by sex, and by race/ethnicity within sex from selected rounds 14 through 26. The percentage of cases interviewed has fallen slowly and mostly steadily between rounds 14 and 26. Approximately 89 percent of cases were interviewed in round 14 and 71 percent in round 26; note that the deceased are included in the denominator of those top-end numbers. In all of these rounds, women are interviewed at rates two to six percentage points higher than those for men. For instance, in round 20 (2002), 75 percent of men were interviewed compared to 80 percent of women.

Note that the respondents who miss an interview can return to the survey in a later round. Event-history data on employment, education, marriage, and fertility are collected since the date of each respondent's last interview, thus filling in information from missing interviews (though these responses may be less accurate.) Of those not interviewed in round 20, 41 percent participated in at least one subsequent interview, 40 percent among men and 42 percent among women.

The deceased make up an increasing share of those who are not interviewed in a particular round. Between rounds 14 and 21, the percent of the non-interviewed sample who were deceased fluctuated between 15 percent and 19 percent; in the last 5 rounds, the percentage has increased steadily to 27 percent.

The nonresponse patterns differ by race/ethnicity. In later rounds black men and black women were generally interviewed at higher rates than their non-black, non-Hispanic and Hispanic counterparts. Race/ethnicity is divided into three mutually exclusive and exhaustive categories: (1) Black, Non-Hispanic, (2) Hispanic, and (3) Non-Black, Non-Hispanic. For example, in round 26, black men's interview rates were 3 to 4 percentage points higher than rates of non-black, non-Hispanic men and Hispanic men. In round 26, black women's interview rates were 8 percentage points higher than those of their non-black, non-Hispanic and Hispanic counterparts. In all rounds shown in Table 1, of those not interviewed, the percent who were deceased is much higher for black men and black women compared to non-black, non-Hispanic and Hispanic men and women. For example, looking again at round 26, 43 percent of black men not interviewed were dead, compared to 29 percent of Hispanic and 24 percent of non-black, non-Hispanic men. About 37 percent of black women interviewed in round 26 were deceased, compared to under 20 percent of their non-black, non-Hispanic and Hispanic counterparts.

Table 2 depicts for men and women separately the probability of being interviewed in round 26 (first two columns) and the probability of being interviewed in round 24 or higher (last two columns). Turning to the first column, black men have a 7 to 8 percentage point higher likelihood of being interviewed in round 26 than their non-black, non-Hispanic and Hispanic counterparts. The rate is about 10 percentage points higher for black women compared to non-black, non-Hispanic or Hispanic women. Men and women with missing information for certain characteristics at age 30 (education level, hours, earnings) have much lower interview rates than those with non-missing information. Women with three or more children at age 30 are more likely to have an interview in round 26 than women with no children (84 percent vs. 73 percent).

The next two columns of Table 2 show the probability of being interviewed in round 24, 25, or 26. Men are less likely to be interviewed in these later rounds (76 percent) than women (84 percent). Black men and black women are more likely to be interviewed in round 24 or higher compared to their non-black, non-Hispanic and Hispanic counterparts. For men and women, the likelihood of being interviewed in the recent rounds mostly falls as the quartile of Armed Forces Qualification Test (AFQT) score rises. As in the first two columns, those with missing information with respect to education, hours, and earnings at age 30 are much less likely to be interviewed than those who have non-missing information. Women with higher earnings are less likely to be interviewed than those with lower earnings. Men and women with no children have the lowest probability of being interviewed in rounds 24 or higher compared to those with one or more children.

4. Results

4.1 Probability of Participating in Recent Rounds

In this section we examine determinants of response at later interviews. The sample used in the analyses in this section and the next is conditioned on being alive in round 26.

Table 3 contains estimates from logits of the probability of being interviewed in the round 26 (2014-15) interview. Specifications show the relationship between the likelihood of being interviewed in round 26 and AFQT score, educational attainment at age 30, or earnings at age 30, while holding constant race/ethnicity and year of birth. For ease of interpretation, marginal effects are shown in the table. Data are weighted.

All specifications show that black women are more likely to be interviewed in round 26, relative to non-black, non-Hispanic women. Men who have the highest quartile of AFQT scores have about a 7 percentage point higher likelihood of being interviewed than men in the lowest quartile. Men and women with missing AFQT scores are significantly less likely to be interviewed in round 26, and the same is true for those missing earnings at age 30. Item non-response is associated with subsequent unit non-response. Men with a bachelor's degree or higher have about a 6 percentage point higher likelihood of being interviewed in round 26 than men with a high school diploma. Labor market behavior does not appear to be related to attrition; variables such as hours of work (not shown) and earnings at age 30 are not related to the probability of participating in Round 26.

Though the estimates are not shown, we also estimate the probability of being interviewed in round 24, 25, or 26. For the most part, the patterns of signs and significance are similar to those in Table 3. Black women have a much higher probability (in the neighborhood of 10 percentage points) of being interviewed in a later round than non-black, non-Hispanic women. Black men are also more likely to be interviewed (by almost 6 percentage points) than non-black, non-Hispanic men. Again, missing AFQT score or other variables measured at age 30 (education, hours, earnings) has a very large negative impact on the likelihood of being interviewed in rounds 24, 25, or 26. Aside from having missing information, labor market information at age 30 does not affect the likelihood of being interviewed in round 24 or later.

In summary, the effect of the examined variables on continued participation in the study is minimal. Missing data at age 30, often caused by spotty participation in early rounds, is the main observed correlate with not being interviewed in recent rounds. Attrition from the NLSY79 appears to be fairly random with respect to basic demographics and status at age 30.

4.2   Effects of Attrition on Estimates of Labor Market Outcomes

We next look at the effects of nonresponse on estimations of the returns to education and other labor market relationships. In particular, we estimate the effects of education and other characteristics at age 30 on labor force participation, earnings, and family income measured at that age. Our interest is whether the estimates vary significantly across samples based on interview status. Our assumption is that if the relationship between these characteristics and labor market variables does not change as survey participation decreases, attrition bias is not a significant problem, at least for these labor market variables.

We first look at the relationship between these characteristics and labor force participation (defined as working at least 500 hours per year) at age 30 in Table 4. Estimates are presented separately for men and women.

The estimated marginal effects on key variables are statistically significant, but they are not statistically different *across* samples. This is key, in that we do not find attrition bias

in the marginal effects. Men who have less than a high school education at age 30 have between a 4 to 5 percentage point lower likelihood of working at age 30 compared to men with a high school diploma, and men with a bachelor's degree or higher have a 3 to 4 percentage point higher likelihood of working at age 30. Women with less than a high school diploma are between 5 and 6 percentage points less likely to participate in the labor force. Being separated or divorced has a positive effect of 7 to 9 percentage points on the likelihood of working at least 500 hours per year at age 30 for women compared to those never married. More children are associated with a lower likelihood of working for women (but not men) across all three samples.

Table 5 is similar in format to Table 4, but looks at the outcome log of annual earnings at age 30. Unlike in the earlier tables that show earnings quartiles, here we do not allow for 0 earnings; the sample is limited to those who work at least 500 hours per year at age 30 (that is, those with positive labor force participation in the Table 4 dependent variable). With one exception (indicator for 3 or more children for men), the estimated effects of the regressors are not statistically significantly different across samples. Higher AFQT scores are associated with significantly higher earnings at age 30 for both men and women across all three samples. Separated or divorced women have higher earnings than unmarried women across all three samples, and married men have higher earnings relative to unmarried men. With respect to education, having less than a high school diploma has a negative effect on earnings for men and an extremely large negative impact for women, relative to their counterparts with a high school diploma. Having a bachelor's degree or more is associated with significantly higher earnings at age 30 for both men and women.

Table 6 depicts the relationship between log of family income at age 30 and characteristics measured at age 30. Again, we focus on results across three samples-- those alive at round 26, those interviewed in round 26, and those interviewed in round 24 or higher. Higher AFQT scores are associated with higher family income for both men and women. Married men and women have much higher family income than their counterparts who are not married. Having no children is associated with higher family income for men, and having three or more children is associated with lower family income for women. Men and women with a bachelor's degree or more have much higher family income than those with a high school education, and those with less than a high school diploma have significantly lower family income. Again, with only one exception (indicator for no children for women), these coefficients do not vary statistically across the three samples.

From our perspective, this is the most important finding: the coefficients in the models of these labor market processes are not statistically different across samples. Comparing estimates on our pre-attrition sample (those alive in round 26) to those in either of our two post-attrition samples (those who completed the round 26 interview or those who completed a survey after round 23), we find no significant differences. This suggests that attrition bias is not a serious problem in these data.

5. Conclusion

After 26 rounds of data collection, attrition in the NLSY79 remains remarkably low. Over 77 percent of those still living participated in the round 26 interview in 2014-15. In logits examining the probability of participating in later rounds, attrition from the NLSY79 appears to be fairly random with respect to basic demographics and status at age 30. Estimates of labor force participation, earnings, and family income measured around

age 30 show no evidence that attrition biases relationships between these labor market outcomes and educational attainment or other characteristics.

Acknowledgements

References

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Table 1: Nonresponse Patterns in the NLSY79, selected rounds

	Round 14/'92	Round 16/'94	Round 18/'98	Round 20/'02	Round 22/'06	Round 24/'10	Round 26/'14
Full Sample							
Percent interviewed	0.905	0.892	0.842	0.775	0.768	0.759	0.710
Percent of interviewed who are returnees (have missed a previous interview)	0.180	0.195	0.207	0.223	0.276	0.312	0.323
Percent not interviewed	0.095	0.108	0.158	0.225	0.232	0.241	0.290
Percent of non-interviewed…							
Deceased	0.165	0.190	0.176	0.154	0.197	0.239	0.273
Missing their first interview	0.132	0.129	0.173	0.137	0.086	0.083	0.078
Returned at later interview	0.451	0.377	0.412	0.409	0.293	0.155	0.000
Men							
Percent interviewed	0.892	0.878	0.816	0.750	0.744	0.730	0.678
Percent of interviewed who are returnees	0.212	0.233	0.242	0.262	0.327	0.361	0.376
Percent not interviewed	0.108	0.122	0.184	0.250	0.256	0.270	0.322
Percent of non-interviewed…							
Deceased	0.205	0.239	0.213	0.191	0.237	0.274	0.305
Missing their first interview	0.129	0.131	0.174	0.111	0.076	0.078	0.072
Returned at later interview	0.441	0.351	0.410	0.400	0.284	0.162	0.000
Non-Black, non-Hispanic Men							
Percent interviewed	0.894	0.881	0.823	0.760	0.726	0.726	0.668
Percent of interviewed who are returnees	0.178	0.193	0.199	0.208	0.237	0.280	0.294
Percent not interviewed	0.106	0.119	0.177	0.240	0.274	0.274	0.332
Percent of non-interviewed…							
Deceased	0.165	0.180	0.166	0.144	0.171	0.204	0.244
Missing their first interview	0.109	0.107	0.175	0.104	0.078	0.070	0.084
Returned at later interview	0.395	0.300	0.357	0.331	0.266	0.139	0.000
Black Men							
Percent interviewed	0.888	0.883	0.810	0.759	0.770	0.751	0.703
Percent of interviewed who are returnees	0.233	0.261	0.268	0.311	0.391	0.422	0.434
Percent not interviewed	0.112	0.117	0.190	0.241	0.230	0.249	0.297
Percent of non-interviewed…							
Deceased	0.287	0.374	0.301	0.296	0.380	0.417	0.429
Missing their first interview	0.158	0.162	0.201	0.122	0.069	0.084	0.060
Returned at later interview	0.509	0.391	0.484	0.451	0.303	0.172	0.000
Hispanic Men							
Percent interviewed	0.893	0.864	0.807	0.714	0.751	0.709	0.663
Percent of interviewed who are returnees	0.267	0.291	0.314	0.330	0.446	0.476	0.492
Percent not interviewed	0.107	0.136	0.193	0.286	0.249	0.291	0.337
Percent of non-interviewed…							
Deceased	0.171	0.188	0.190	0.157	0.221	0.253	0.290
Missing their first interview	0.133	0.143	0.132	0.110	0.082	0.088	0.060
Returned at later interview	0.448	0.414	0.418	0.480	0.307	0.204	0.000

Women

Percent interviewed	0.918	0.907	0.870	0.800	0.793	0.789	0.742
Percent of interviewed who are returnees	0.148	0.159	0.173	0.185	0.229	0.264	0.274
Percent not interviewed	0.082	0.093	0.130	0.200	0.207	0.211	0.258
Percent of non-interviewed…							
Deceased	0.111	0.126	0.121	0.108	0.147	0.193	0.232
Missing their first interview	0.135	0.126	0.171	0.169	0.098	0.090	0.085
Returned at later interview	0.466	0.410	0.414	0.422	0.303	0.147	0.000

Non-Black, non-Hispanic Women

Percent interviewed	0.923	0.906	0.872	0.807	0.787	0.779	0.719
Percent of interviewed who are returnees	0.133	0.136	0.150	0.156	0.192	0.230	0.233
Percent not interviewed	0.077	0.094	0.128	0.193	0.213	0.221	0.281
Percent of non-interviewed…							
Deceased	0.089	0.107	0.107	0.090	0.121	0.155	0.191
Missing their first interview	0.157	0.107	0.151	0.148	0.100	0.095	0.090
Returned at later interview	0.408	0.376	0.366	0.344	0.256	0.113	0.000

Black Women

Percent interviewed	0.911	0.917	0.882	0.819	0.817	0.821	0.797
Percent of interviewed who are returnees	0.125	0.151	0.164	0.184	0.228	0.263	0.285
Percent not interviewed	0.089	0.083	0.118	0.181	0.183	0.179	0.203
Percent of non-interviewed…							
Deceased	0.137	0.156	0.160	0.154	0.215	0.299	0.370
Missing their first interview	0.137	0.123	0.217	0.191	0.104	0.091	0.090
Returned at later interview	0.573	0.500	0.497	0.506	0.385	0.220	0.000

Hispanic Women

Percent interviewed	0.914	0.893	0.847	0.755	0.768	0.764	0.716
Percent of interviewed who are returnees	0.219	0.230	0.247	0.268	0.325	0.358	0.359
Percent not interviewed	0.086	0.107	0.153	0.245	0.232	0.236	0.284
Percent of non-interviewed…							
Deceased	0.119	0.133	0.107	0.092	0.128	0.165	0.187
Missing their first interview	0.083	0.171	0.160	0.188	0.084	0.078	0.065
Returned at later interview	0.429	0.381	0.420	0.483	0.317	0.147	0.000

Table 2: Probability of Being Interviewed

	In Round 26		In Round 24 or higher	
	Males	Females	Males	Females
Total	73.4	77.1	76.2	84.0
Race/ethnicity				
Black	80.3	86.1	88.1	90.8
Hispanic	72.6	75.8	81.8	82.8
Non-black, non-Hispanic	72.3	75.7	80.2	83.0
AFQT score, by quartile				
Lowest	78.3	82.6	87.6	89.6
2nd	73.7	78.6	81.4	86.3
3rd	72.2	77.2	81.8	83.9
Highest	75.4	76.5	80.5	82.0
AFQT score not available	51.1	49.9	62.1	59.8
<u>Characteristics at age 30</u>				
Education level				
Missing	20.7	19.8	24.7	22.9
Less than high school	77.6	83.6	87.3	91.3
High school diploma	75.8	80.9	85.2	88.8
Some college	77.0	79.2	85.5	86.4
Bachelor's degree or more-	77.9	79.0	83.5	84.9
Hours worked				
None	81.7	80.2	88.7	88.3
Greater than 0, but less than 500	81.0	84.7	89.1	89.7
500 to less than 1000	77.1	83.9	89.7	89.4
1000 to less than 2000	82.7	83.3	90.8	89.3
2000 or more	77.1	80.7	85.5	88.5
Missing	34.5	31.5	39.6	37.3
Earnings (1984$), by quartile				
Lowest	78.1	80.1	86.7	87.1
2nd	79.4	83.0	87.8	90.0
3rd	77.7	83.0	85.9	89.3
Highest	75.3	73.6	83.4	83.0
Missing	23.6	20.1	29.1	23.1
Sample Size	3405	3666	3888	4050

Notes: Data are weighted.

Table 3: Marginal Effects, Logit of Probability of Being Interviewed in Round 26 (2014)

	Men			Women		
	(1)	(2)	(3)	(1)	(2)	(3)
Race/ethnicity						
Hispanic	0.011	0.004	-0.003	0.026	0.017	0.013
	(0.020)	(0.020)	(0.019)	(0.019)	(0.018)	(0.017)
Black	0.042	0.035	0.028	0.096	0.089	0.089
	(0.019)	(0.017)	(0.017)	(0.019)	(0.017)	(0.017)
Quartile of AFQT						
Missing	-0.074			-0.122		
	(0.035)			(0.035)		
2nd	-0.014			0.027		
	(0.022)			(0.021)		
3rd	0.001			0.024		
	(0.023)			(0.023)		
4th	0.069			0.034		
	(0.025)			(0.024)		
Education, age 30						
Missing		-0.030			0.075	
		(0.154)			(0.200)	
Less than high school		-0.019			-0.023	
		(0.023)			(0.025)	
Some college		0.020			-0.006	
		(0.021)			(0.019)	
Bachelor's degree or more		0.061			0.001	
		(0.022)			(0.020)	
Earnings by quartile, age 30						
Missing			-0.161			-0.233
			(0.061)			(0.063)
2nd			0.016			0.009
			(0.030)			(0.023)
3rd			0.036			0.025
			(0.030)			(0.024)
Highest			0.020			-0.043
			(0.029)			(0.027)
Did not work			0.013			-0.042
			(0.037)			(0.025)

Note: Sample size is 4529 for men and 4645 for women. Data are weighted. Standard errors are in parentheses. All specifications control for race/ethnicity and year of birth.

Table 4: Marginal Effects, Probit Analysis of Labor Force Participation at Age 30

	Men			*Women*		
	Full sample	In Round 26	In Round 24 or higher	Full sample	In Round 26	In Round 24 or higher
Quartile of AFQT						
Missing	-0.041	-0.036	-0.030	-0.048	-0.069	-0.054
	(0.019)	(0.025)	(0.023)	(0.036)	(0.044)	(0.041)
2nd	0.025	0.035	0.030	0.054	0.048	0.052
	(0.013)	(0.016)	(0.014)	(0.020)	(0.022)	(0.021)
3rd	0.023	0.017	0.017	0.058	0.055	0.056
	(0.015)	(0.018)	(0.017)	(0.024)	(0.027)	(0.025)
4th	0.005	0.005	0.006	0.067	0.059	0.068
	(0.018)	(0.020)	(0.019)	(0.027)	(0.030)	(0.029)
Marital Status, age 30						
Separated or divorced	-0.014	-0.025	-0.016	0.078	0.073	0.089
	(0.017)	(0.019)	(0.018)	(0.026)	(0.029)	(0.028)
Married	0.020	0.021	0.021	0.015	0.016	0.022
	(0.012)	(0.013)	(0.013)	(0.020)	(0.022)	(0.021)
Missing	0.087	0.105	0.108	0.055	0.080	0.053
	(0.029)	(0.031)	(0.030)	(0.049)	(0.056)	(0.051)
Number of Children, age 30						
No children	0.014	0.019	0.015	0.199	0.194	0.198
	(0.013)	(0.015)	(0.014)	(0.023)	(0.026)	(0.025)
2 children	0.004	0.011	0.010	-0.041	-0.042	-0.048
	(0.014)	(0.016)	(0.015)	(0.020)	(0.022)	(0.021)
3 or more children	0.031	0.040	0.028	-0.120	-0.126	-0.135
	(0.016)	(0.018)	(0.017)	(0.021)	(0.024)	(0.022)
Education, age 30						
Missing	0.040	0.014	0.031	-0.126	-0.119	-0.121
	(0.080)	(0.090)	(0.084)	(0.120)	(0.124)	(0.122)
Less than high school	-0.038	-0.051	-0.045	-0.059	-0.059	-0.052
	(0.013)	(0.016)	(0.015)	(0.023)	(0.026)	(0.024)
Some college	-0.008	-0.010	-0.007	0.033	0.035	0.042
	(0.012)	(0.014)	(0.013)	(0.019)	(0.022)	(0.021)
Bachelor's degree or more	0.036	0.042	0.030	0.010	0.007	0.007
	(0.017)	(0.019)	(0.018)	(0.024)	(0.026)	(0.025)
Sample size	4401	3616	3912	4283	3345	3712

Note: Sample includes only those interviewed around age 30. Labor force participation is equal to 1 if annual hours work around age 30 are 500 or higher and 0 otherwise. All specifications control for race/ethnicity and year of birth. Standard errors are in parentheses.

Table 5: OLS Estimates of Ln(Earnings) at Age 30

	Men			Women		
	Full sample	In Round 26	In Round 24 or higher	Full sample	In Round 26	In Round 24 or higher
Quartile of AFQT						
Missing	-0.151	-0.341	-0.396	0.183	0.120	0.146
	(0.245)	(0.304)	(0.302)	(0.285)	(0.370)	(0.320)
2nd	0.117	0.127	0.099	0.567	0.564	0.589
	(0.133)	(0.149)	(0.142)	(0.161)	(0.162)	(0.155)
3rd	0.450	0.517	0.508	0.577	0.625	0.637
	(0.130)	(0.144)	(0.132)	(0.187)	(0.177)	(0.174)
4th	0.687	0.636	0.619	0.612	0.597	0.616
	(0.140)	(0.157)	(0.147)	(0.203)	(0.198)	(0.191)
Marital Status, age 30						
Separated or divorced	0.176	0.101	0.066	0.361	0.331	0.284
	(0.146)	(0.156)	(0.155)	(0.138)	(0.150)	(0.141)
Married	0.377	0.309	0.287	0.035	0.120	0.081
	(0.111)	(0.120)	(0.116)	(0.113)	(0.121)	(0.115)
Missing	-0.299	0.096	-0.216	-0.595	-0.852	-0.812
	(0.412)	(0.330)	(0.398)	(0.540)	(0.619)	(0.593)
Number of Children, age 30						
No children	-0.146	-0.152	-0.198	0.384	0.394	0.354
	(0.107)	(0.117)	(0.113)	(0.130)	(0.145)	(0.134)
2 children	0.045	0.150	0.138	-0.220	-0.135	-0.172
	(0.108)	(0.112)	(0.106)	(0.144)	(0.150)	(0.138)
3 or more children	-0.309	-0.055	-0.242	-0.754	-0.649	-0.705
	(0.147)	(0.138)	(0.148)	(0.184)	(0.188)	(0.178)
Education, age 30						
Missing	-0.619	0.295	0.401	0.790	0.643	0.573
	(1.205)	(0.747)	(0.657)	(0.851)	(0.836)	(0.838)
Less than high school	-0.047	-0.016	-0.088	-0.465	-0.683	-0.589
	(0.124)	(0.139)	(0.137)	(0.221)	(0.242)	(0.222)
Some college	-0.108	-0.008	-0.076	0.158	0.147	0.128
	(0.126)	(0.132)	(0.129)	(0.119)	(0.118)	(0.113)
Bachelor's degree or more	0.345	0.471	0.452	0.393	0.290	0.286
	(0.110)	(0.114)	(0.110)	(0.142)	(0.140)	(0.131)
Sample size	3203	2624	2849	3728	2918	3237

Note: Sample includes only those interviewed around age 30 and worked 500 or more annual hours. All specifications control for race/ethnicity and year of birth. Standard errors are in parentheses.

Table 6: OLS Estimates of Ln(Family Income) at Age 30

	Men			Women		
	Full sample	In Round 26	In Round 24 or higher	Full sample	In Round 26	In Round 24 or higher
Quartile of AFQT						
Missing	0.134	0.079	0.123	0.204	0.058	0.099
	(0.136)	(0.181)	(0.161)	(0.169)	(0.192)	(0.171)
2nd	0.281	0.308	0.311	0.391	0.310	0.319
	(0.079)	(0.090)	(0.082)	(0.095)	(0.098)	(0.095)
3rd	0.376	0.364	0.366	0.550	0.523	0.545
	(0.072)	(0.086)	(0.079)	(0.094)	(0.091)	(0.090)
4th	0.390	0.413	0.415	0.583	0.499	0.532
	(0.081)	(0.096)	(0.088)	(0.098)	(0.100)	(0.098)
Marital Status, age 30						
Separated or divorced	-0.020	-0.165	-0.114	0.050	0.002	0.042
	(0.123)	(0.153)	(0.136)	(0.114)	(0.117)	(0.114)
Married	0.726	0.726	0.703	0.796	0.723	0.747
	(0.060)	(0.067)	(0.063)	(0.078)	(0.080)	(0.081)
Missing	0.528	0.570	0.573	0.104	-0.134	-0.037
	(0.128)	(0.152)	(0.144)	(0.345)	(0.404)	(0.374)
Number of Children, age 30						
No children	0.217	0.261	0.224	0.169	0.061	0.087
	(0.064)	(0.075)	(0.070)	(0.072)	(0.077)	(0.072)
2 children	0.081	0.114	0.107	-0.089	-0.112	-0.126
	(0.069)	(0.085)	(0.078)	(0.077)	(0.071)	(0.069)
3 or more children	-0.054	0.000	-0.043	-0.144	-0.206	-0.229
	(0.086)	(0.104)	(0.095)	(0.092)	(0.085)	(0.084)
Education, age 30						
Missing	-1.223	-1.529	-1.289	0.388	0.377	0.401
	(0.969)	(1.289)	(1.072)	(0.287)	(0.310)	(0.301)
Less than high school	-0.508	-0.540	-0.523	-0.571	-0.553	-0.507
	(0.098)	(0.120)	(0.110)	(0.139)	(0.132)	(0.124)
Some college	0.131	0.110	0.114	0.097	0.153	0.133
	(0.062)	(0.066)	(0.062)	(0.062)	(0.061)	(0.064)
Bachelor's degree or more	0.431	0.434	0.429	0.427	0.455	0.437
	(0.056)	(0.066)	(0.062)	(0.060)	(0.066)	(0.063)
Sample size	4132	3430	3715	3951	3120	3457

Note: Sample includes only those interviewed around age 30. All specifications control for race/ethnicity and year of birth. Standard errors are in parentheses.